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The Swiss National Bank 1907–2007

The Swiss National Bank, 1907–2007

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Preface

One hundred years have passed since the Swiss National Bank first opened its doors for business on 20 June 1907. In looking back over the SNB's history, we are picking up the thread of the last three anniversary publications – those of 1932, 1957 and 1982. This time, however, we are not only presenting the view from inside, but have also been able to call upon a number of external authors. We thus decided to divide the work into three parts.

The first part of this commemorative publication, written by three internationally renowned authors, addresses the period already covered by the previous publications – the years from 1907 to 1982 – albeit from a greater distance. The second part – a review of the last twenty-five years – was penned by members of the National Bank's own staff, in line with the previous works. For both of these parts, we asked the authors to approach the subject from a historical and critical perspective and discuss the salient developments that shaped the SNB during these periods. To do so, the contributors were given unlimited access to the SNB's archives. Adopting such a focused approach inevitably meant foregoing completeness, while accepting a certain number of overlaps and differing interpretations. What all the authors had in common, however, was the desire to shed light on the historical backdrop, to investigate motives, and to highlight areas of conflict as well as ways to resolve them. The articles making up these two parts have been reproduced in three of Switzerland's official languages and in English.

The third part of this commemorative work presents a résumé of monetary policy over the last twenty-five years, followed by seven contributions on specific issues currently facing the Swiss National Bank and other central banks. It was written by highly qualified experts from outside the SNB and, unlike the first two parts, is in English only. Given the technical nature of the material, these articles primarily address a specialist readership. However, they may also be of interest to a wider audience, as they examine the present and look ahead to the near future. Expanding the horizon in this manner further underlines how an examination of the history of an institution and the challenges it faces must always be seen in the context of time. Because this commemorative work reflects views and interpretations from today's perspective, it too becomes a historical document.

An Editorial Committee drawn from the staff of the National Bank was set up to assist the authors in their task. In January 2006, it organised a seminar at the SNB's Study Center Gerzensee to discuss selected chapters. Both the Governing Board and the Editorial Committee would like to thank everyone involved for all the work they have put into this book and are confident that it will be well received in political and academic circles as well as by the general public. They hope that the articles will help to nurture a more in-depth understanding of what central bank policy entails in terms of its challenges, possibilities and limitations.

Chairman of the Governing Board



For the Editorial Committee



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Part 1

From 1907 to 1982

1 From 1907 to 1946: a happy childhood or a troubled adolescence?

MICHAEL BORDO AND HAROLD JAMES

1.1 Introduction

This article traces the evolution of the doctrine and practice of central banking in Switzerland, and the legacy of the debates and controversies of the interwar period for the formulation of monetary policy after 1945. After an examination of the origins and the doctrine of the Swiss National Bank, there follows an analysis of its policy instruments, showing how over time the SNB relied less on the traditional instrument of the discount rate, and correspondingly depended more on currency policy. In this regard, the Bank's approach to gold purchases and sales and to the increasingly volatile capital flows of the interwar era is examined. An analysis is provided of the Bank's approach to expectations that it might act as a lender of last resort, and its general approach to macroeconomic stabilisation. Finally, its legacy for the post-1945 world is examined.

After a very controversial first fifteen years, with a dramatic inflationary period during the First World War followed by a sharp deflation, the National Bank had become more confident and secure. The Second World War produced major external, but not domestic, controversies about the role of the Bank.

Analogies are sometimes made between institutional and personal development: this was an increasingly comfortable childhood. In this article, some objective indicators as an assessment of childhood development are used. Modern macroeconomic models are employed to test two of the most controversial policy features of interwar Switzerland: firstly, policy simulations from a simple mainstream open economy macromodel, a modified McCallum-Nelson model, are presented with the aim of analysing the appropriateness of exchange rate policy between the devaluation of the British pound in September 1931 and the Swiss abandonment of the gold parity in September 1936; and secondly, a modern Taylor rule model examines the impact of the central bank's interest rate (discount) policy.

1.2 Origins of central banking

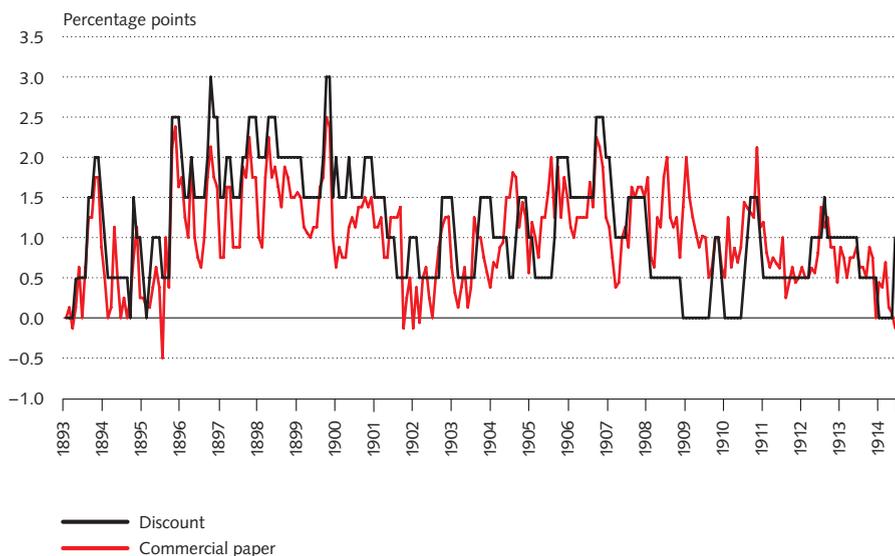
Why is a central bank needed? Classic economic liberals of the nineteenth-century variety made a case for free banking in which note-issuing banks competed with each other. Such a system in practice in England before the

Bank Act of 1844 and in the United States led to constant uncertainty among users of banknotes, and to periodic panics; in Switzerland, meanwhile, the note-issuing banks were controlled at governmental level from 1881 onwards as to their issue, and there were few failures and no widespread panics. Switzerland was for such liberals a prime example of how a well-ordered society could do without a central bank. In terms of international linkages, under the logic of the gold standard, there was no need for central banks, and adjustment was often presented as taking place automatically.

Central banks exist to provide public goods that cannot easily be provided by a market. In early modern Europe, market failures originated unambiguously from the action of powerful, high-spending and belligerent states, and central banks such as the Bank of England or the Swedish Riksbank had been created largely with the intention of managing the government debt that followed many wars. In the nineteenth century, however, with fewer wars and less public debt, central banks were designed to complement the financial system when there were threats to stability. In particular, the nineteenth-century wave of central bank creation came as a response to one of two problems: the need to stem or control financial panics, and the management of international flows. The two problems – internal stability and external adjustment – were often connected, in that, with few impediments to capital mobility, panics took on an international character. The Deutsche Reichsbank was created in 1875 in the aftermath of the crash of 1873 and the US Federal Reserve System came into being as a result of the discussion about the causes and resolution of the panic of 1907. A common view in many countries began to suggest that a central bank was an institution that should shelter ‘normal business’ from the turbulence of international markets, especially in a small economy, open to international capital and trade.

Switzerland was a prime example of a highly open economy. At the end of the nineteenth and the beginning of the twentieth centuries, the economy was dependent on international financial markets, especially for the financing of major infrastructure and engineering projects, such as the construction of the Gotthard rail tunnel. Most of the foreign financing was raised on the Paris market, and Switzerland was generally viewed as an appendage of the French markets. At the beginning of the twentieth century, Swiss commercial interest rates, as well as the discount rates set by the note-issue banks, were generally significantly higher than rates in Paris (cf. graph 1.1), and the interest rate differential provided the motive for the inward flow of capital. However, by the beginning of the twentieth century, some Swiss firms were also beginning to have significant foreign earnings and to export capital.

Graph 1.1
Spread of Swiss over French interest rate, 1893–1914



Source: Global Financial Database.

The SNB took the place of a multiplicity of competing partly public and partly private banks of issue. Unlike almost all the other major central banks created during the era of high globalisation before the First World War, the SNB's foundation was not an immediate response to an abrupt and dramatic financial crisis. In the middle of the nineteenth century, the Banque de France was in effect the Swiss central bank in a financial market that was closely integrated with that of France, but its position was badly shaken by the Franco-Prussian War of 1870, when French banknotes were no longer accepted after France suspended convertibility. Most everyday transactions were conducted in silver and gold coins, although before 1882 a substantial number of small-denomination (5, 10 and 20 franc) notes also circulated.

In a series of gradual and slow steps, Switzerland moved from free banking to a central bank. The free banking system in the middle of the nineteenth century worked well, and there was only one major bank failure. However, in the 1870s, after the withdrawal of French notes that had previously circulated, there was a demand for greater government regulation. Until 1881, note issuing by banks was unregulated at government level, but the new law on banknotes of 1881 restricted note issue to incorporated banks and cantonal banks, which were now required to hold a minimum metallic reserve. They were also obliged to accept each other's notes, and the design and denomination of

banknotes were standardised.¹ The 1881 law was an expression of a general and growing feeling in Swiss business and political circles that the system of multiple and only partially regulated issue banks had significant defects, in particular that there were often shortages of currency at payment dates – especially at Martinmas, which was still the central hiring time for agricultural and casual workers, and the end of the year. In 1888, note issue temporarily ceased. The constraints arose out of an insufficient flexibility in the system, in that the issuing banks tended to issue notes up to the legal maximum, and were consequently unable to respond to exceptional demands for means of payment.² These were problems of a quite traditional economy, rather than of a modern industrialised nation, vulnerable because of its exposure to the international economy.

There was also, however, an international element to the Swiss problem. The periodic coinage shortages were exacerbated by drains of currency because of the operation of the Latin Monetary Union (LMU), of which Switzerland had been a member since 1865. Whenever French bills traded at a substantial premium to Swiss bills (because of a Swiss balance of payments deficit), a lucrative arbitrage opportunity opened up. Speculators bought silver coins, paying with Swiss banknotes, and then exported them to Paris and drew bills which they then presented to the Swiss issuing banks, who were obliged to buy back the exported silver. These transactions created large losses for the banks when the major drains took place, notably in 1899, when one major bank, the Banque de Genève, abandoned the issue business.³ By 1899, the issue banks agreed to an arrangement to pool the costs of shipping silver coins from France back to Switzerland. The general weakness of the Swiss franc relative to the French franc (there was a persistent discount on the Swiss franc) was also attributed subsequently to over-issue by the various private and public note-issuing banks (at the end of 1906, the issue banks had issued 234 million francs of a total 244.7 million permitted under the terms of their charters).⁴

A move to establish central banking took place, but only at a very slow pace. With an alteration of art. 39 of the Federal Constitution in 1891, the Confederation was given the monopoly of note issue, either through a state bank or a private “central joint stock bank under the control of the Confederation”, but it took another sixteen years before the SNB was created. A law of 1894

1 Weber (1992); Neldner (2003).

2 Ritzmann (1973).

3 Zimmermann (1987), p. 38.

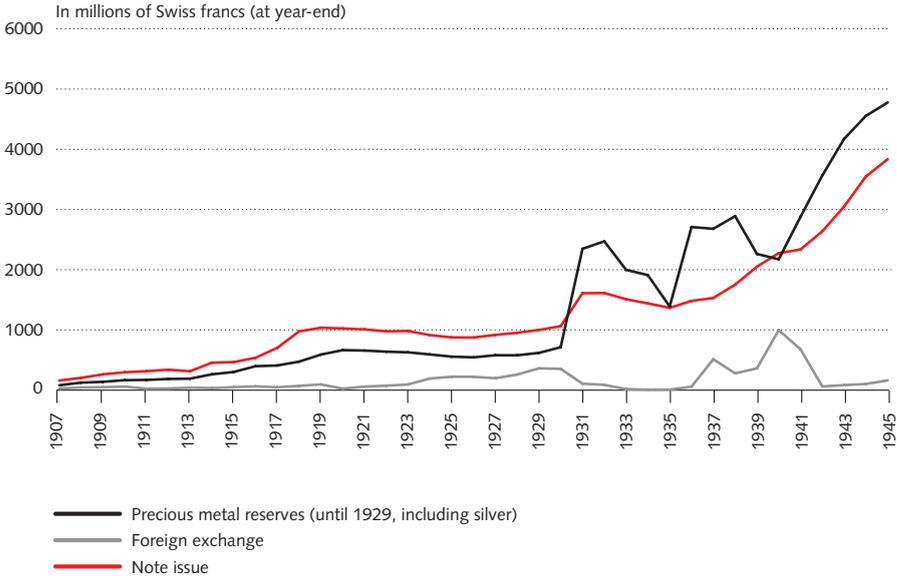
4 Kellenberger (1937); cf. also Ruoss (1992), p. 13.

would have established the state bank, and its radical-liberal proponents argued that such an institution corresponded to Swiss democratic tradition more perfectly than the privately-owned central bank (the Reichsbank) of autocratic Germany. But conservatives, economic liberals and anti-centralists, led by the influential pressure group, the Swiss Chamber of Commerce and Industry (*Schweizerischer Handels- und Industrieverein*), opposed this law, which was eventually defeated in a referendum in 1897. The leader of the business pressure group then drew up an alternative proposal for a privately-owned bank that would not allow for state socialism or the public control of credit policy. There followed a struggle among the cantons over where the bank should be situated and how its profits should be distributed. It was only in 1905 that an acceptable compromise was found (under which the Bank was to be headquartered in both Berne and Zurich), which opened the way for the SNB to commence its activities in 1907. The dual headquarters were not felt to be a problem in normal times, but when drastic and quick decisions were required, as for instance at the time of the outbreak of World War I, the institutional dualism required much telephoning and shuttling between Berne and Zurich.⁵

The 1905 National Bank Act entitled the SNB to issue banknotes according to the 'needs of commerce': they were in denominations of 50, 100, 500 and 1,000 francs, i.e. values far above the amounts required for normal or everyday transactions. The SNB was (until 1914) obliged to exchange these notes at face value for legal metallic money, which could be either gold or silver. On the other hand, there was an asymmetry in that the SNB had no obligation to buy gold. Gold, however, could be taken to the mint and coined at a fee (of 15 Swiss francs per kilo), though only in the quantities set by the mint's capacity. In the 1920s, the mint could coin one million Swiss francs' worth of coinage in a twenty-day period, and then required another ten days for each million francs. Of the SNB's note issue, 40 percent was to be covered by a metallic reserve, which could be either gold or silver, though in practice, the SNB held the overwhelming part of its reserves in gold. As it actually operated, the metallic reserve ratio maintained was far higher than the legal minimum (cf. graph 1.2). Between 1907 and 1914, the currency reserves generally fluctuated around 70 percent of banknote circulation, because the SNB's leadership was worried about the possibility of sudden large drains. Once the SNB began operations, the old issue banks were to recall their notes within a three-year period.

5 BoE, Information on SNB (1935).

Graph 1.2
Currency reserves and note issue in Switzerland, 1907–1945



Source: SNB (1957), tables 1 and 2.

The new bank was organised as a joint-stock company, with two-fifths of the stock held by Swiss private individuals (this was the usual legal form for European central banks at that time). Another two-fifths of the stock was owned by the cantons, and one-fifth by the old note-issuing banks.

A new central bank that is supposed to serve a new definition of a public good requires either an explicit formulation of what that public good should be, or a high measure of political control in which there is a political process designed to produce a view of what the public good should be. In a modern view, the explicit definition of a good might be defined in terms of targets: a monetary target (in the 1970s), or an inflation target (more recently). Before the advent of such an approach to monetary policy, central banks thought more in terms of exchange rate targets, in particular as set by some international regimes, such as the gold standard or the Bretton Woods system, and they then needed to evolve a view of how domestic monetary arrangements meshed with the externally set limits. Without a clear definition of a goal, policy would be subjected to public scrutiny, discussion and control.

In practice, the new SNB was under substantial political supervision, with many institutional features designed to weaken the autonomy of the Bank and

ensure a political process of consensus formation. Its design reflected many of the demands for political control that had characterised the institutional debates of the 1890s. The Governing Board was appointed by the Federal Council, rather than by the General Meeting of Shareholders, as was usual in the case of a normal joint-stock company. The bank charter was in force for a period of twenty years, after which it required renewal in ten-year terms. Unlike the Bank of England, which often served explicitly or implicitly as a role model for central banks, there was no powerful Governor, who might act as a clear advocate of a specific concept of the Bank, and the three members of the Governing Board took decisions by votes. The Chairman of the Governing Board was a *primus inter pares*, who might be pushed into the shadows by a rhetorically or intellectually energetic colleague. In practice, there were many contested decisions.

The Board's members were also supervised by a forty-member Bank Council, fifteen of whom were elected by the shareholders at the General Meeting, and twenty-five, including a President and a Vice President, were nominated by the government. The Bank Council then selected five members for a Bank Committee, which exercised a closer supervision and also included the President and Vice President of the Bank Council. Both the Bank Council and the Bank Committee engaged in very lively and critical discussions of policy matters, and in the 1920s, even tried to secure a representation on the Governing Board. The first appointees were political figures: the first President was Johann Hirter, President of the National Council, who in the 1890s had been one of the major advocates of the construction of a state bank, and the Vice President, Paul Usteri, a liberal Zurich politician. Few people at this time thought – in the conditions of decentralised Swiss political existence – that there was any danger of a central bank giving too much credit to the government (though in more militarist countries there were clear risks of such a development); and the objective of the high degree of political control was to make the SNB more independent of the banking and financial world. On the basis of the nineteenth-century experience, the fear of an abuse of central banks related principally to the worry that the commercial banks would push low-quality or speculative bills on the central bank. It was only in the twentieth century that the abuse of central banks became more a function of public finance, in response to the economics of modern warfare as well as to rising pressures for increased social expenditure.

1.3 Doctrine

The concept of a public good, or in other words the policy framework of the SNB, was based on two pillars: the real bills doctrine and the gold standard. In this, the SNB shared a common mental world with the other major central banks of the period, the Bank of England, the Banque de France, the Reichsbank and the even younger Federal Reserve System.

The real bills doctrine evolved from banking and central banking practice in England in the nineteenth century. It was argued that commercial banks should lend only on the collateral of short-term commercial bills, issued to finance inventories, crops to be harvested, accounts receivable or goods in transit. The standard form evolved as the three-month or ninety-day bill, which covered the time of the shipping of goods across the Atlantic. These bills were self-liquidating in that they referred to a specific transaction, which would be completed at a specified date. Bills issued for other purposes, where there was no automatic liquidation on payment, were speculative, and should not form a part of a bank's bill portfolio.

The central bank's task was to supply liquidity to its member banks. It did this by discounting the self-liquidating commercial bills. Banknotes could be issued against a metallic reserve, but also on the security of short-term commercial bills. The central bank should not, however, provide credit to finance purchases of equities or government paper. If a central bank were to discount speculative or non-commercial bills (so-called finance bills or *Finanzwechsel*), the result would be asset price inflation, leading first to over-all inflation, which would then inevitably end in a deflation as the corrective of the international adjustment mechanism of the gold standard took effect. The price rise would lead to a trade deficit and an outflow of gold, and thus a reduction in the money supply.⁶ Discounting government bills would also generate inflation.

The real bills doctrine was spelt out in its clearest form in the writings of the British 'Banking School', and was well expressed by Walter Bagehot in his classic *Lombard Street*, as well as by the Scottish banker John Rae. In the German literature, it formed the basis of the view of finance presented by Adolph Wagner and Walther Lotz.⁷ In the debates in the United States of the Aldrich Commission, which led to the creation of the Federal Reserve System, the function of the central bank was to accommodate the legitimate 'needs of trade'.

⁶ Meltzer (2004), chapter 4.

⁷ Wagner (1866); Lotz (1881, 1976).

The ideals of the real bills theorists diverged considerably from banking reality in many countries, where a great deal of lending was speculative. In the Swiss discussion of the late nineteenth century, the advocates of a monopoly bank also had a particular discipline for their institution in mind: in their view, which drew on the foreign discussion, a central bank should only discount genuinely commercial bills. The vice of nineteenth-century finance, and of the issue banks in particular, lay in the debit notes that banks took as the basis for their note issue: thus only one-third of the portfolios of the issue banks consisted of commercial bills, and two-thirds of finance bills.⁸ A modern approach required a way of discriminating against speculative paper.

Like the Bank of England or Reichsbank and the US Federal Reserve System, the SNB thus based its monetary approach on the real bills doctrine. The principles as set out by the Bank's first Chairman, Heinrich Kundert (previously director of the Zurich Cantonal Bank), explicitly forbade the discounting of financial paper: "The totality of purely commercial bills in a country represents the maximum of circulating money that it can require, and the note issue needs to be set according to this norm. If the National Bank is to establish a healthy circulation, it must exclude from its discount all so-called finance bills, as well as bills that can be prolonged at maturity."⁹ In the 1920s, as the SNB returned to a gold parity, it very proudly insisted on this part of the doctrine, which distinguished it from the inflationary and irresponsible Reichsbank: the SNB was not a credit bank.¹⁰ Kundert's principles were repeated in a major document of January 1924, which again set out the basis of the SNB's discount policy. Again, it emphasised that the Bank should not discount either bills that did not relate to any trade operation or domestic or foreign finance bills. Otherwise, the SNB would "be giving cheap credit to the issuers of such bills, and would promote inflation, as well as running the risk of not being able to hold down the discount rate for bills from commercial, industrial and agricultural circles".¹¹ By this time, however, the doctrine was very controversial, and some Swiss bankers tried to argue that there was simply not enough genuinely commercial paper in Switzerland for the SNB to be able to operate central banking on the lines followed by Britain or France. One stated in a letter to the Bank Committee: "Switzerland has no large international trade of the kind found in centres such as London, New York,

8 Kundert (1907), p. 18; SNB (1932), p. 17.

9 Kundert (1907), p. 17.

10 Usteri: SNB, Minutes of the Governing Board (1924), 20/21 November, no. 930.

11 SNB, Discount policy (1924).

Le Havre, Antwerp, Rotterdam or Hamburg, and which produces commercial paper in great quantities. Purely commercial paper, as demanded by Kundert before the SNB began its activities as the only desirable security for note issue is only available in limited quantities in Switzerland.”¹² Bills represented a declining share of the SNB’s assets. In practice, as a consequence of the criticism, the SNB retreated from its attempt at a strict application of the ban on finance bills.

The second pillar of early twentieth-century central banking was the gold standard. According to its rules, central banks had the major objective of maintaining convertibility, and would use discount rate changes and other policy instruments for this purpose. They were supposed to react to reductions in their gold reserve ratios by increasing discount rates, and conversely to lower rates when the reserve ratio rose. It was believed that such gold standard adherence would complement the real bills doctrine, since any excess central bank credit would lead to falling interest rates and rising price levels of goods and assets, and these would produce self-correcting gold outflows to correct trade deficits (on the goods account) or capital account deficits (for assets). The opposite set of forces would work in the case of a deficiency of credit. Thus, under normal circumstances for an open economy with mobile capital, an expansionary economy (such as that of Switzerland before the First World War) would be accompanied by a rising current account deficit and gold or metallic money outflows, and the appropriate monetary policy reaction was to raise the discount rate. This would both depress aggregate demand and discourage capital outflows.¹³

Before 1914, the question of what would happen to the real bills doctrine in the absence of a gold standard was a hypothetical question for the central banks of the advanced economies. Adherence to the real bills doctrine in the years after 1914 produced massive policy failures in many countries: notably the hyperinflation in Germany, in which the central bank continually justified its actions in terms of the real bills doctrine; and the great monetary contraction in the US. In the 1930s and 1940s, the real bills doctrine was heavily criticised by Jacob Viner, Melchior Palyi¹⁴ and Lloyd Mints,¹⁵ among others, for inducing a procyclical monetary policy. During the upswing of the business cycle, banks would turn to the central bank’s discount window and, as a consequence, could extend bank credit to their customers. This in turn would

12 SNB, Sarasin to Usteri (1924), p. 2.

13 Bordo (1984).

14 Palyi (1934).

15 Mints (1945).

lower interest rates, raise the money supply and stimulate production, which would generate more commercial bills for rediscount. Also, with rising prices, the nominal value of the discounts would climb, leading to further increases in money supply and price levels. Similarly, an economic downturn would be exacerbated by the contraction of bank lending, and by the reduction in the stock of commercial bills.

The real bills doctrine was revived in 1982 by Thomas Sargent and Neil Wallace. They identified it with *laissez-faire* in banking and a Pareto optimal distribution of reserves. David Laidler then countered with the reminder that it also led to an unstable price level, and could produce both inflations and deflations, both predicated on an interpretation of the 'needs of commerce'.¹⁶

The potential for conflict between internal balance (as posited in the real bills doctrine) and external balance (as required in the operation of the gold standard) in an open economy with mobile capital that had been made famous by Robert Mundell, was recognised earlier by Gottfried von Haberler.¹⁷ When faced with both a gold outflow and a decline in domestic activity, if the central bank were to accommodate the domestic economy by expanding its credit and lowering its discount rate, it would exacerbate the gold outflow. If it tightened policy to encourage capital inflow and reverse the gold drain, it would depress the economy. This problem faced many central banks in the interwar period. The Bank of England, as a result of taking the second option, lost credibility on the markets in the summer of 1931 and was forced to abandon the gold parity. According to Milton Friedman and Anna Schwartz, the Federal Reserve greatly accelerated the US economic collapse by sharply raising its discount rate in reaction to gold outflows after the British devaluation of September 1931.¹⁸ Switzerland was faced in the first half of the 1930s by a threat of outflows.

1.4 Policy instruments

According to the prevailing doctrine of the early twentieth century, the main tool for central bank policy with which to achieve both the external and internal objectives was the discount rate. Increasingly, however, the use of the discount rate was subject to limitations: first, for political reasons, because it was believed that imposing costs on the domestic economy for the sake of

¹⁶ Sargent and Wallace (1982); Laidler (1984).

¹⁷ Bordo and James (2002).

¹⁸ Friedman and Schwartz (1963).

external balance was politically unacceptable. It might be thought that the more political control to which a central bank was subject, the more it would be unlikely to be able to use this policy tool freely. In consequence, in the 1920s, the major advocates of central banks as policymakers such as the British Governor Montagu Norman, repeatedly claimed that central banks should be independent. A second limitation was a technical one: supposing the domestic bill market was not big enough for the central bank to make its rates effective? In Switzerland, this was the problem discussed above of the insufficient volume of commercial bills.

The British practitioners of the art of central banking therefore developed a second policy instrument: the open market purchase and sale of securities (usually short-dated government paper). Purchases would inject additional liquidity, while sales would withdraw funds from the market.¹⁹ In the 1920s, the Federal Reserve System began to use open market transactions as a way of controlling the market. But, as British observers repeatedly noted, the SNB was not in a position to undertake such operations. It was only in World War II that the SNB really began to use purchases of government securities as a way of regulating the money market, although it had already acquired a substantial volume of government securities during the First World War.

If the first two policy instruments were problematic, a third might be used: the central bank could act through the purchase or sale of gold or foreign exchange. This could be and was used primarily as a way of meeting external objectives, but such foreign currency transactions also had implications for the domestic policy stance: purchases would increase the money supply, and sales would reduce the available liquidity.

A further alternative, developed by the Federal Reserve in the interwar period, and widely used by central banks after the Second World War, was to change the reserve requirements for banks. But in the framing of the SNB, as of most European central banks, there was no provision at the outset for a compulsory reserve requirement on the part of banks (indeed most countries had no hard legal definition of what a bank was).

One way of describing the story of the SNB's policy actions over its first forty years is as a shift away from the use of the discount tool. The consequence was that foreign exchange operations acquired more prominence. The reason for this development lay primarily in the growing sensitivity to the political implications of discount rate changes. Kundert explained in his programmatic brochure intended as a guide to the operation of the new institu-

19 Sayers (1957).

tion: “The discount rate is the true regulator of the currency in circulation.”²⁰ The ‘rules of the game’ involved a raise in the discount rate as a response to reserve losses, or to pressure on the exchange rate. Before the First World War, it was changed relatively frequently: twenty-two times between June 1907 and June 1914, with increases always falling between August and November in a strongly seasonal pattern. The first year of the SNB’s operation, 1907, was a highly dramatic one, with a combination of currency and banking turmoil that seemed like a dress rehearsal for the catastrophes of the interwar Great Depression. In October 1907, the Bank of England raised its rate to 5.5 percent, and then in early November to 6 and then 7 percent; and the Reichsbank had to go even further, with its official rate rising from 5.5 percent in April to 6.5 percent at the end of October and then to 7.5 percent at the beginning of November. By contrast, the SNB’s raising of the discount rate to 4.5 percent in June, then to 5 in August and 5.5 in November looks relatively tame. If the goal of a central bank were, as contemporaries increasingly understood it, to isolate the domestic economy from international disturbance or fluctuations, the SNB seemed to have passed a difficult test very successfully in its first year of operation. While in neighbouring Germany and Italy, sharp financial crises were followed by commercial and manufacturing difficulties, Switzerland escaped the panic of 1907 largely unaffected. The difference between Swiss and French interest rates fell sharply after 1907, reducing Swiss borrowing costs (cf. graph 1.1).

At the first ordinary General Meeting of the SNB, which did not take place until 1909, the President of the Bank Council, Hirter, explained the main task of the SNB as follows: “To regulate the monetary circulation in the country and to facilitate payments.”²¹ During the First World War, however, in line with the new political requirements, he set a very different tone. While in peace, the task of the SNB had been “to meet the needs of trade and industry, facilitate payments and support the currency”, in wartime (in which Switzerland’s traditional export markets had collapsed), the main task was to “support work” and “create jobs”.²² Upon the outbreak of war, the Governing Board had rejected the idea of creating a *Darlehenskasse* (a lending institution of the type created at the same time in Germany to meet the needs of war finance by lending on the security of war bonds); but at the same time, Hirter had argued that if the SNB rejected the plan, it should be prepared to take the

20 Kundert (1907), p. 10.

21 SNB, Minutes of the General Meeting of Shareholders (1909), 24 April.

22 SNB, Minutes of the General Meeting of Shareholders (1916), 15 April.

same action itself, and in the end, the SNB had to accept the idea of the *Darlehenskasse*.²³ Within months of the outbreak of World War I, the SNB was referring to itself as a ‘war bank’, whose major task lay in the discounting of federal treasury bills as well as bills of the federal railways. Its Governing Board wrote to the Swiss government: “The SNB is the war bank of the state just as much as is the Reichsbank or the Banque de France.”²⁴ There was a general agreement that this activity reflected the political and military emergency and that there should be as rapid a return as possible to the old peacetime policies, in which the SNB should not act as a lending bank.

The rediscounting at the SNB of these public sector bills (*Reskriptionen*) accounted for 32 percent of the SNB’s portfolio at the end of 1914, 53 percent in 1915, 67 percent in 1916, and 71 percent in 1917; but by the end of 1918, it had been reduced to 55 percent, with the intention of moving back to the peacetime regime.

In the course of the First World War in Switzerland, there were growing signs of inflation, and general price levels at the end of the War were more than double those at the beginning. Price increases were first mentioned in discussions in the SNB’s Governing Board in September 1915, and by early 1917, the Bank was concerned about the “abnormal proportions” of the inflation.²⁵ But no one believed that the institution could do anything about the new threat.

In the eyes of the SNB, the inflation was principally caused by the increased price of the most important imports to Switzerland, which demanded an increase in the note issue.²⁶ (The Reichsbank took exactly the same approach, and argued that inflation followed from the German balance of payments deficit).²⁷ Import prices indeed rose significantly higher than Swiss wholesale or retail prices. There was little indication that inflation was associated with the rise in the note issue (which rose from an average of 335 million Swiss francs in 1914 to 733 million in 1918), or to the issue of notes against government bills (*Reskriptionen*) used by the government to pay for its de-

23 SNB, Minutes of the Governing Board (1914), 25 August, no. 870.

24 SNB, Minutes of the Governing Board (1914), 15 October, no. 1112.

25 SNB, Minutes of the Governing Board (1917), 10 May, no. 344; Ruoss (1992), p. 100.

26 Hirter: “Es darf eher die Konsequenz gezogen werden, dass die höheren Preise eine vermehrte Zirkulation notwendig machten.” Cf. SNB, Minutes of the Governing Board (1916), 15 December, no. 889. Also Burckhardt: “Den wesentlichsten Teil der Steigerung des Notenumlaufs erfordert die fortschreitende Preissteigerung der wichtigsten Importartikel der Schweiz.” Cf. SNB, Minutes of the General Meeting of Shareholders (1918), 6 April. This view was also taken in the two first commemorative publications (*Festschriften*) of the SNB. Cf. SNB (1932), pp. 136 et seq.; SNB (1957), p. 101.

27 Holtfrerich (1986).

fence needs in a precarious security situation. The SNB had taken in 58 million francs by the end of 1914 and 312 million by the end of 1918, so that it could be argued that the *Reskriptionen* accounted for the major part of the increased note issue. The discussion, both during and after World War I, was further complicated by the realisation that a large number of Swiss banknotes circulated in foreign countries and hence did not really form part of the Swiss money supply as normally understood. By the early 1920s, the banknote circulation abroad was estimated by both the SNB and the Reichsbank, which was acutely interested in this problem, as 200–250 million Swiss francs (or about a quarter of the total note issue of over 1,000 million francs). In addition, around 100 million francs in notes were estimated to have been hoarded in Switzerland.²⁸

There was another possible cause of inflation, namely the SNB's purchase of gold with Swiss banknotes, which increased the volume of money in circulation. The SNB indeed acknowledged that the inflation was a consequence of its gold policy, in particular of the large purchases of gold, especially from Germany and its allies (cf. chapter 1.7). Principally on these grounds, at the end of 1916, as the price problem really seemed to be getting out of control, the Governing Board appealed for a halt to the gold purchases.²⁹ The development was closely paralleled by that in the United States: US reserves by 1918 had risen by 88 percent from the levels of 1914, while the equivalent increase in Switzerland was 104 percent. There was inflation in both countries – 19 percent in the US in 1918, and 25 percent in Switzerland.³⁰

A full-scale controversy about the appropriate action of central banks had developed, and the SNB took its actions in the full glare of a public debate that it sought to intervene in and influence. In Switzerland, what might be termed a proto-monetarist position was taken by the Free Economic League (*Freiwirtschaftsbund*), which blamed the SNB for monetary expansion and thus for the wartime inflation. The adherents of the League were generally regarded as economic illiterates from a simple rural background. Essentially, the same case was made powerfully in a series of articles in the *Bund* newspaper written by its economics editor, a lecturer in Berne named Eduard Kellenberger, in the spring of 1918, and the SNB embarrassed itself when one of its employees anonymously penned a less-than-convincing refutation in the *Neue Zürcher Zeitung*.³¹ Kellenberger was to become one of the major

28 SNB, Minutes of the Bank Council (1924), 19 January, p. 39.

29 SNB, Minutes of the Governing Board (1916), 15 December, no. 889.

30 Meltzer (2004), pp. 83, 91.

31 SNB, Minutes of the Governing Board (1918), 17 June, no. 465.

monetary theorists of interwar Switzerland. After 1919, the same critics held the SNB responsible for the deflation.

The Free Economic League in the 1920s referred to ideas of John M. Keynes, Gustav Cassel and Irving Fisher about an index currency managed with a goal of price stability. The SNB and its defenders made the same point over and over again: that there was no single price development, since economic advance was characterised by shifts in relative prices. Price behaviour differed markedly across a variegated and diversified Swiss economy. In addition, as the Chairman of the Governing Board, Gottlieb Bachmann, pointed out in a long presentation to the General Meeting in 1928, an index currency would produce exchange rate fluctuations, which would lead to difficulties for countries such as Switzerland with a high trade ratio and a high level of foreign investments.³² The SNB's view actually denied that a central bank could affect the price level. As the Secretary of the US Treasury, Andrew W. Mellon, put this core element of the central bank's belief system: "Neither the Federal Reserve System nor any other central bank can control prices."³³ According to this account, the task of a central bank could not include the limiting of inflation. Again, a very similar debate developed in the similar circumstances of the United States. In 1926, a bill was introduced in Congress laying out a goal of the Federal Reserve System as being price stability, but it was opposed vigorously by the Federal Reserve, whose leading figure, Benjamin Strong, believed that it was a cover for agricultural interests, or a mandate "to fix up the matter of farm prices".³⁴

During the interwar period, because the classical tools of central bank policy (discount policy) became more restricted in their use, the emphasis shifted increasingly to foreign exchange operations.

1.5 Currency policy

SNB officials believed that their institution represented a substantial advance in currency and exchange rate policy in comparison to the old system of note-issue banks. In particular, since the issue banks issued currency up to a high proportion (80–90 percent) of their contingent, they found that in the autumn, when the Swiss domestic market was especially tight, they had no reserves, and Paris bills and cheques were consequently traded at a substantial discount for cash or gold or silver.

32 SNB, Minutes of the General Meeting of Shareholders (1928), 3 March.

33 Bachmann: SNB, Minutes of the General Meeting of Shareholders (1928), 3 March.

34 Meltzer (2004), p. 184.

The major initial advantage of the SNB over the previous regime of the issue banks lay in its ability to regularise the silver market, and thus avoid periodic droughts in which the silver coins that were the necessary basis for everyday transactions disappeared.

Unlike most gold standard era central banks, the National Bank Act did not provide for a definition of the currency in terms of a specific weight of gold. Instead, with the currency reforms of 1850–1852, the Swiss franc was defined as identical to the French franc, which had originally been defined in terms of a silver weight, and only later added gold coins. In the 1860s and 1870s, Swiss coins circulated with those of the other members of the LMU. As of 1878, however, when the coinage of the largest silver coin, the five-franc piece, was suspended, the LMU countries were on a de facto gold standard, and the smaller silver coins (half, one and two francs) circulated as token coins.³⁵

1.5.1 Political risks

The discount policy did not rigidly follow the gold standard ‘rules of the game’, in that alterations in the discount rate did not simply correspond to reserve changes. The SNB also used a variety of gold devices to regulate the flow of precious metal, including interest-free loans to gold importers, and it intervened in the gold market through purchases abroad, mostly from other central banks. At other moments, such as in the spring of 1908 or September 1911 (during the financial panic set off as a result of diplomatic tension between France and Germany over Morocco) or late 1912 (amid a Balkan crisis), it sold gold either in Switzerland or abroad in order to strengthen the Swiss franc and obviate the need for a higher discount rate. The big risks to markets in the second decade of the twentieth century came from political crises, and the expectation that if there were to be a major European conflict, gold convertibility would be suspended, as it had been during the French Revolutionary and Napoleonic wars. As the economic historian Knut Borchardt observed, “no central bank in the pre-war period believed peace was inevitable, and every bank realised that currency could be used as a political tool”.³⁶

Upon the outbreak of the First World War in 1914, the Swiss government indeed suspended gold convertibility and a forced exchange rate (*Zwangskurs*) imposed the now inconvertible banknotes as legal tender (and gave permission for the issue of small-denomination notes). On 28 July 1914, the SNB

35 Redish (2000), pp. 173, 191, 201. The French law of 1803 establishing the franc germinal stated: “Five grams of silver, 90% fine, constitutes the monetary unit and is named the franc.” Cf. also Halbeisen and Müller (1998).

36 Borchardt (1976), p. 49.

announced that it had agreed to break off commercial relations with any firm engaging in a 'speculative' export of metallic money abroad; but at the same meeting of the Governing Board there was a consensus that an official ban on exports would be counterproductive and would increase the losses of reserves.³⁷

1.5.2 *Return to gold*

With the end of World War I, the SNB followed a fairly restrictive discount policy. In October 1918, it raised rates by a full percentage point, to 5.5 percent (at which time it had the highest discount rate of any central bank). It was presumably acting because of its sensitivity to the accusation that it had been inflationary during the War as well as to the commission which was established in March 1919 by the Federal Department of Finance (FDF) to revise the National Bank Act, and which also contained a representative of the Free Money Movement.³⁸ In addition, it was heavily and continually criticised by the Head of the FDF, Federal Councillor Jean-Marie Musy. The effect on the SNB of a high degree of political vulnerability – in addition to strong political representation on the Bank Council and Bank Committee, there was an imminent debate about the renewal of the National Bank Act – made the SNB accept that it had to respond to a proto-monetarist theory in which it did not believe. An obvious instrument for taking the political pressure off the Bank was to make the return to a fixed exchange rate regime as quickly as possible. But this required some institutional innovation, as the basis of the old fixed exchange rate regime in Switzerland had been the LMU and its 'limping gold standard', and the LMU had been destroyed by the War and by high rates of inflation in France and Italy. The central reference currency now became the dollar: at the beginning of the War, the Swiss franc had depreciated relative to the US dollar, but the dollar fell sharply with the entry of the United States into the War (April 1917) (cf. graph 1.3).

For most of the world, the interwar economic trauma started with misguided monetary policies in the early 1920s. For Germany (and much of central Europe), the outcome was hyperinflation; for France until 1926, an uncontrolled inflation. Inflation in these cases was seen as a dramatic attempt to buy off labour unrest with government deficits and (nominal) wage rises. For the United Kingdom and the United States, however, where there was less of a revolutionary threat, the idea of returning to pre-war certainties prompted

³⁷ SNB, Minutes of the Governing Board (1914), 28 July, no. 691.

³⁸ Ruoss 1992, p. 126.

Graph 1.3
Swiss franc/dollar exchange rate, 1914–1925



Source: Global Financial Database.

a drastic fiscal stabilisation and a monetary tightening that led to a severe recession in 1920/1921. Switzerland escaped both of these extremes, and a verdict on the management of the SNB's policy in the early 1920s was positive. Was this by chance, or the result of good policy, or a legacy of the policy lesson that sharp changes in the discount rate were politically as well as economically bad? In part, the benign nature of Swiss policy at the time resulted from an easier fiscal situation, in that there was not the large and potentially inflationary overhang of government debt that the belligerents of the War faced. But the social situation in Switzerland was very tense, with a general strike in November 1918 that some saw as the beginning of a civil war.

The SNB quickly reduced the volume of government bills (*Reskriptionen*) in its portfolio. It avoided the spikes in interest rates that both the Bank of England and the Federal Reserve System used to break post-war inflation, and in fact, in August 1919, the discount rate was reduced to 5 percent and there were further cuts in 1921 and 1922, so that by August 1922, the discount rate was 3 percent. There was a very rapid price deflation, with the consumer price index (CPI) falling 10.6 percent in 1921 and 18.2 percent in 1922, and an intense downturn, with a steeper decline in real gross domestic product (GDP) than in the Great Depression a decade later (–5.6 percent in 1921, +1.6 percent in 1922, contrasting with –2.5 percent in 1931 and –2.8 percent in 1932). The level of unemployment (58,000 in 1921 and 67,000 in 1922, or 3.1 and 3.5 percent of the Swiss workforce) was not exceeded until 1933.

This collapse was substantially less severe than that in the UK or the US, where the wholesale price index fell from 1920 to 1921 by 37 percent, industrial production by 23 percent, real GDP by 20 percent, and unemployment reached 12 percent of the workforce in 1921.³⁹

During the period of interest rate reductions between 1919 and 1921, the Swiss franc again weakened against the dollar, but strengthened in 1922 and approached the pre-war (gold standard) parity. There was a new weakness in 1923, but then in 1924 a substantial recovery of the Swiss franc, in part following a big US bond issue for the Confederation, and in part following gold sales by the SNB.⁴⁰

By this time, it was clear that the SNB was looking for a way of returning to a fixed exchange rate regime, while Musy was criticising the Bank for not making this move earlier. At the end of 1924, the Governing Board concluded that “A favourable balance of payments and a healthy state of public finances are the best guarantee for the stability of the national currency.”⁴¹ In consequence, the SNB agreed to intervene to keep the dollar rate stable, while not making any formal declaration about a new or renewed adhesion to gold. The SNB thus anticipated the general move to currency stabilisation, which was cemented when the British pound returned to its pre-war parity of 4.86 US dollars in April 1925. From 1924, the SNB was, in effect, following a managed and fixed exchange regime with a dollar target. It was only in 1929 that the legal basis for a true gold standard was established, with a new National Bank Act, in which the Swiss franc was defined for the first time in terms of a specified weight of gold. Switzerland, like most other countries returning to a notional gold standard in the 1920s, avoided a large circulation of gold coins, and there were stern warnings from the outside that – as Governor Norman of the Bank of England put it – the mass circulation of metallic money “would truly be a very retrograde step”.⁴² The 1929 transition to a formal gold standard made little difference in policy terms, and was probably necessitated more by the thought that if Switzerland were to be a leading member of the new Bank for International Settlements (BIS) – whose headquarters the Swiss government hoped would be located in a Swiss city – the SNB should be aligned with the practice of the other major European central banks and follow the principles of a gold exchange standard.⁴³

39 Meltzer (2004), pp. 109–111.

40 SNB, Minutes of the Governing Board (1924), 23 September, no. 772.

41 SNB, Minutes of the Governing Board (1924), 12 December, no. 981.

42 BoE, Norman to Bachmann (1929).

43 SNB (1932), p. 253.

1.5.3 Central bank cooperation and the gold exchange standard

In the early 1920s, there was substantial and public pressure on the SNB from the government. One way central banks in the 1920s tried to escape such pressure was by emphasising the desirability of central bank cooperation. Montagu Norman explained that “external help” could allow a central bank to strengthen its position and “nag’ its own Government even in public”.⁴⁴ Some of the members of the Governing Board found Norman’s vision very attractive and explained the need for international monetary cooperation; but they were repeatedly reined back by discussions in the Bank Committee and the Bank Council. In particular, cooperation to Norman, and his admirers, seemed more necessary than ever because of the altered character of the international monetary system, the reduced volume of gold and the substitution of key currencies for gold in reserve holdings, in the system known as the gold exchange standard.

In 1928, SNB Chairman Bachmann called the gold exchange standard “a currency manipulated on the basis of gold through currencies fixed to gold”.⁴⁵ It contained a major element of risk, should the commitment of any of the issuers of reserve currencies to the gold standard waver. At the beginning of 1931, Bachmann explained to the Bank Committee that “against its will”,⁴⁶ the SNB had built up a substantial foreign exchange portfolio, but it would try to reduce it. The proportion of reserves held in foreign exchange had in fact increased from 14.0 percent in 1923 to 33.1 percent at the end of 1930. SNB’s Governing Board member Ernst Weber, in charge of Department III (Banking Operations), was already pointing to the nervousness in “English financial circles”.⁴⁷ By mid-July 1931, with Germany paralysed by a financial and banking crisis, the SNB contemplated no longer buying sterling “without limit”.⁴⁸ On 20 August, the Bank of England sold 332,000 pounds’ worth of gold to the SNB for sterling, and on 7 September, the SNB authorised the sale of another 500,000 pounds sterling. In correspondence and discussions with the Bank of England, the SNB was somewhat sheepish about its sales of sterling and argued that the major sales of sterling came from the private sector and that the SNB was “practically the only buyer in the market”.⁴⁹ In fact, the SNB successfully and mostly discreetly reduced its sterling holdings. With the final

44 Quoted in James (2001), p. 36.

45 SNB, Minutes of the General Meeting of Shareholders (1928), 3 March.

46 SNB, Minutes of the Bank Committee (1931), 22 January, p. 19.

47 SNB, Minutes of the Bank Committee (1931), 22 January, p. 30.

48 SNB, Minutes of the Governing Board (1931), 15 July, no. 587.

49 BoE, Conversation with Dr Weber (1931).

sales, the Chairman of the SNB even wrote to the Governor of the Bank of England in a letter that presumably only arrived after the British devaluation, justifying sterling sales by the need “to satisfy gold requirements in this country” and adding the cynical phrase: “I suppose that in doing so we are furthering a close cooperation between central banks.”⁵⁰ The result was that when the Bank of England finally took the pound off gold, on 21 September, the SNB had only a trivial share of its reserves in sterling (unlike the Dutch central bank, which made very heavy losses). Soon after the denouement of the British crisis, the Governing Board of the SNB issued instructions for the sale of US dollars,⁵¹ since the dollar was the next most obvious target for a speculative attack. At the beginning of October, the SNB also agreed to sell part of its French franc reserves.⁵² In the course of 1931, the SNB had gone back from a gold exchange standard to what was, in effect, the classic gold standard.⁵³ At the beginning of that fateful September, Bachmann reassured the Bank Council that “the SNB is perhaps the central bank that has given most attention to the increase of its gold reserve”.⁵⁴ The proportion of reserves held in foreign exchange fell to 4.4 percent by the end of 1931 (cf. graph 1.2).

1.5.4 *The controversy over devaluation*⁵⁵

Together with France and the Netherlands, Switzerland stayed on the gold exchange standard longer than any other European country, even though the price of staying on gold was becoming increasingly high. By 1936, it formed part of an isolated ‘gold bloc’, along with France and the Netherlands. Other countries followed different paths: when Britain left the gold standard in September 1931, its example was followed by many countries in the British Empire and by some Scandinavian and Latin American countries. From the summer of 1931, Germany and other central European countries (notably Austria and Hungary) imposed increasingly extensive exchange controls that violated the convertibility assumption of the gold standard regime. The United States left the gold standard in April 1933, and was followed by some Latin American countries. The key difference between the gold bloc and other economies lies in the recovery dynamics, and the fact that output and production stagnated during the 1930s (cf. graph 1.4).

50 BoE, Bachmann to Siepmann (1931).

51 SNB, Minutes of the Governing Board (1931), 5 October, no. 807; 8 October, no. 819.

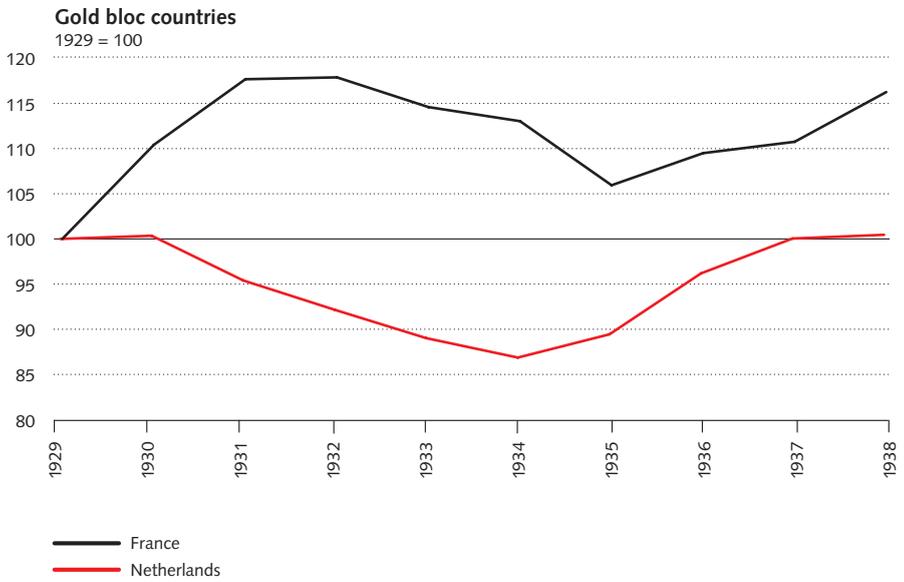
52 SNB, Minutes of the Governing Board (1931), 8 October, no. 819.

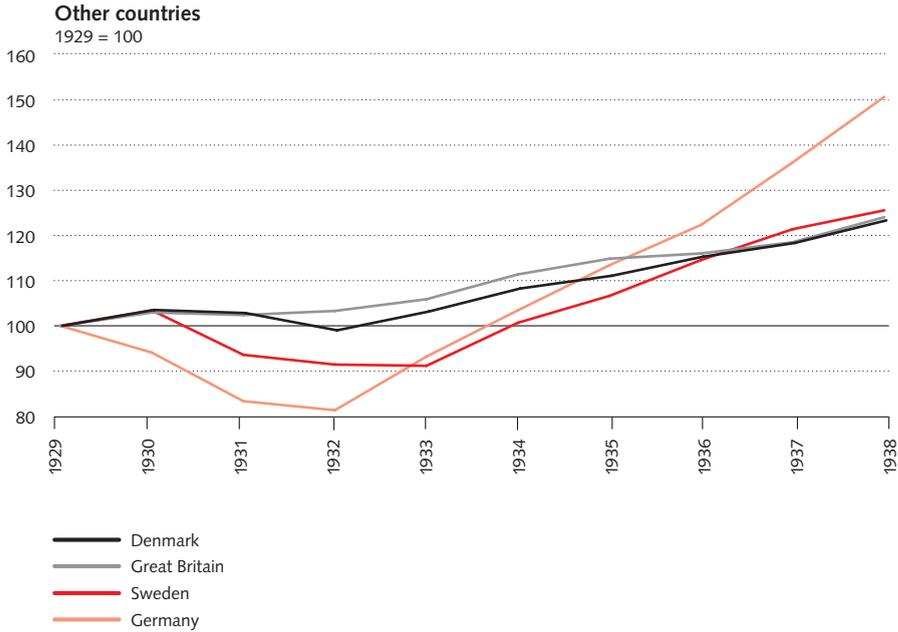
53 SNB, *Krise, Wirtschaft und Banken* (1932).

54 SNB, Minutes of the Bank Committee (1931), 4/5 September, p. 218.

55 This section is based on research in collaboration with Thomas Helbling of the IMF.

Graph 1.4
Real GDP in the 1930s





Source: Bordo et al. (2001).

The policy of maintaining the gold parity was not made by the SNB, though the SNB was apparently part of the policy consensus that insisted on the maintenance of the gold parity. A great deal of modern academic literature tries to explain why Switzerland (and the other gold bloc countries, France and the Netherlands) remained on the gold standard until the bitter end.⁵⁶ Can the policy preference be explained in terms of the interest of the financial sector in Switzerland, an argument originally made by analogy to Britain, where the City and its interests had driven the return to gold at an over-valued parity in the mid-1920s?⁵⁷ More recently, the explanations have shifted more to the realm of ideas, to the power of gold standard orthodoxy,⁵⁸ or to the allegedly ‘mythical’ quality of the strong Swiss franc.⁵⁹

Trade arguments dominated most of the public discussion on exchange rate policy in Switzerland during the Great Depression, but were complicated by commercial policies very different to those of the classic adjust-

56 Eichengreen and Sachs (1985).

57 Arlettaz (1982).

58 Baumann and Halbeisen (1999); and the general interpretation of Eichengreen and Temin (2000).

59 Tanner (2000).

ment debates of the gold standard era: in particular, the existence of high trade protection levels, quota systems and widespread exchange control complicated the assessment of trade consequences of currency changes. The economic price of maintaining the increasingly over-valued franc rate at the time was thought to lie in the effect on demand of the high price of Swiss exports, which may have cost Swiss jobs. Curiously, however, the largest and most powerful Swiss exporters at the time – pharmaceutical and chemical companies such as CIBA, engineering firms such as BBC and Sulzer, and textile machinery firms such as Rieter, as well as the highly influential business pressure group, Vorort – very publicly expressed their hostility towards devaluation.⁶⁰ In part, they argued that a parity change would only increase the cost of imported goods and raw materials, since important trading partners were in the gold bloc (in the West), or were subject to exchange controls (in central Europe). Higher imported food prices might lead to higher wage demands. Some considerations about the character of Swiss export markets also weighed powerfully. The great Swiss exporters did not deal in price sensitive staple products, but rather in specialised exports where demand was quite price inelastic. Moreover, from 1931, trade with central Europe was bilateralised, with clearing agreements concluded for twelve countries that had imposed exchange controls, notably Germany. In these administered clearing agreements with artificially set exchange rates, a Swiss parity change relative to gold would have had little impact on trade volumes. Thus paradoxically, the interests that might have been expected to demand a different policy from the government clearly and unambiguously supported the status quo, and argued that a devaluation might have contractionary rather than expansionary consequences. Only relatively few businessmen were prepared to argue, even in private, the obvious case that Swiss business interests would benefit from a “manipulated currency”.⁶¹

The effect of the Depression on Switzerland’s trade performance was clearly visible. The merchandise trade deficit widened both in nominal and real terms between 1930 and 1933, and then corrected as Swiss exports began to recover, with the economic recovery in the United States and other countries (cf. graph 1.5). In the structure and direction of trade, there was an asymmetry between exports and imports. While most exports were manufactures, imports were largely food and raw materials. Using the pre-crisis period of 1925–1929 as a base, the gold bloc countries were particularly

60 Müller (2002).

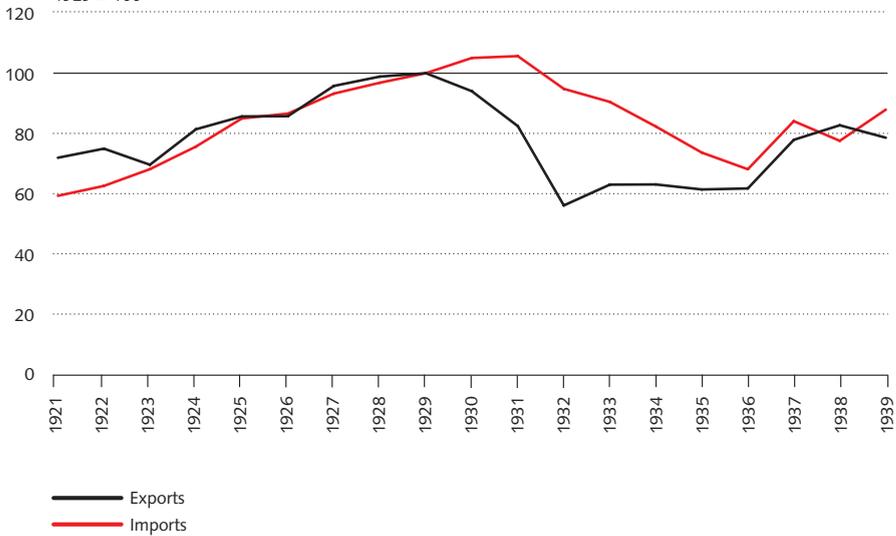
61 Halbeisen (2005), looking at Saurer (Arbon).

Graph 1.5
Switzerland's foreign trade performance

Merchandise exports and imports (nominal)
1929 = 100



Merchandise exports and imports (in constant wholesale prices)
1929 = 100



Source: Historical Statistics of Switzerland (1996).

important as sources of imports, while the sterling bloc and the rest of the world were relatively more important as export destinations. In the crisis period of 1930–1935, nominal exports to both the sterling and dollar bloc countries suffered, and nominal imports suffered less. Some caution is required, as nominal trade developments can mask volume developments because of price effects, and it is thus important to examine the volume of trade as well. In volume terms, imports from gold bloc countries (some of which, such as France, had imposed extensive trade quotas) and Germany (whose currency appreciated in real terms against the Swiss franc) suffered, while imports from the sterling bloc, the dollar bloc and the rest of the world remained robust (cf. graphs 1.6 and 1.7).

There were substantial net foreign exchange flows, reflecting both service exports (notably insurance) and major capital inflows (cf. chapter 1.6). Throughout the 1930s, there was a large difference between changes in reserves (gold and foreign exchange) and the merchandise trade balance, which remained consistently in deficit in the 1930s (cf. graph 1.8). Switzerland's adherence to the gold peg while its major trading partners devalued or applied currency controls was clearly reflected in bilateral real exchange rates. Against the pound sterling and US dollar, the real rate rose; it also increased against the French franc because of the more pronounced price deflation in France (cf. graph 1.9).

To examine policy alternatives using econometric estimates, a two-stage strategy is used.⁶² The first is a policy simulation with a modified McCallum-Nelson model (a simple small open economy macromodel).⁶³ The model incorporates a specie-flow monetary adjustment channel, unlike modern versions of the model where interest rate rules typically define the nominal anchor. Policy simulations are then conducted with a more extended macromodel with capital flows and the banking sector. The model is also extended to incorporate trade with several partners, with partner country variables taken as given.

In a second step, the model was solved for alternative policy scenarios. In particular, two counterfactual devaluation scenarios were explored.

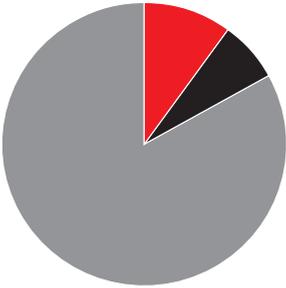
- *Sterling scenario*: In this scenario, it was assumed that the Swiss National Bank unexpectedly switched from a gold peg to a peg against sterling after the UK went off gold. For the sake of simplicity, it was assumed that the Swiss franc/sterling rate remained at its average 1931 level until 1938. Exchange rates against the other currencies (the French franc, German mark and US dollar) were calculated using current cross-rates.

⁶² Cf. Appendix I, which draws on work done together with Thomas Helbling of the IMF.

⁶³ McCallum and Nelson (2001).

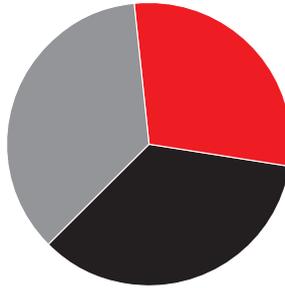
Graph 1.6
Switzerland's trade structure, 1925–1929
 Annual averages, in percent of total

Exports by type



- 10% Food
- 7% Raw materials
- 83% Manufactures

Imports by type



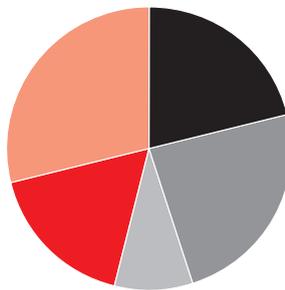
- 29% Food
- 35% Raw materials
- 36% Manufactures

Exports by destination



- 17% Germany
- 12% Gold bloc
- 19% Sterling bloc
- 17% Dollar bloc
- 35% Others

Imports by source

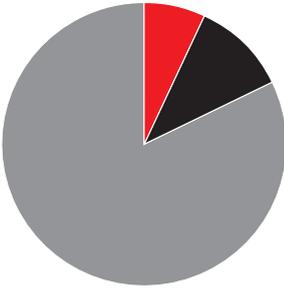


- 21% Germany
- 24% Gold bloc
- 9% Sterling bloc
- 17% Dollar bloc
- 29% Others

Sources: Historical Statistics of Switzerland (1996); *Annuaire statistique de la Suisse* (various years).

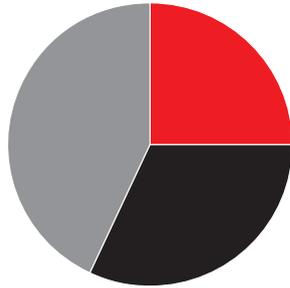
Graph 1.7
Switzerland's trade structure, 1934–1935
 Annual averages, in percent of total

Exports by type



- 7% Food
- 11% Raw materials
- 82% Manufactures

Imports by type



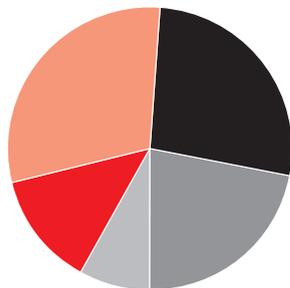
- 25% Food
- 32% Raw materials
- 43% Manufactures

Exports by destination



- 21% Germany
- 20% Gold bloc
- 13% Sterling bloc
- 11% Dollar bloc
- 35% Others

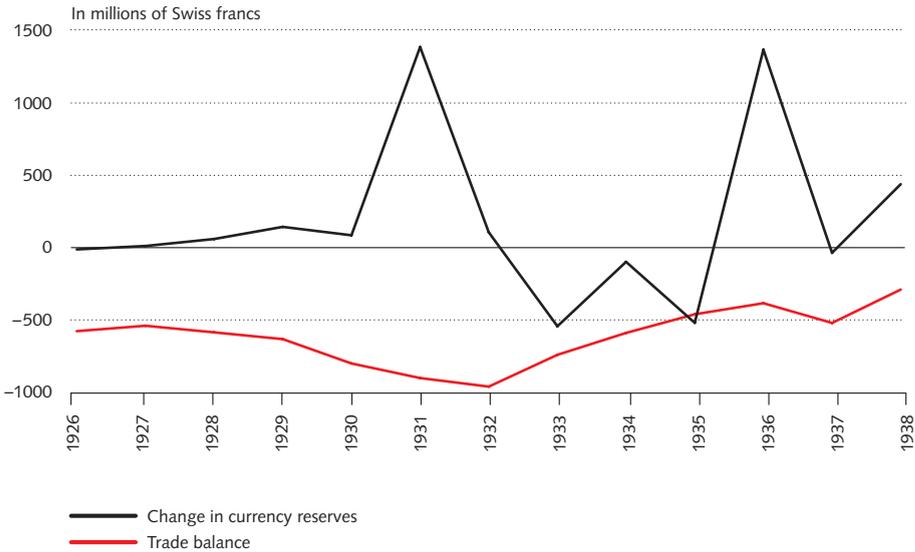
Imports by source



- 27% Germany
- 22% Gold bloc
- 8% Sterling bloc
- 13% Dollar bloc
- 30% Others

Sources: Historical Statistics of Switzerland (1996); *Annuaire statistique de la Suisse* (various years).

Graph 1.8
Merchandise trade balance and change in reserves

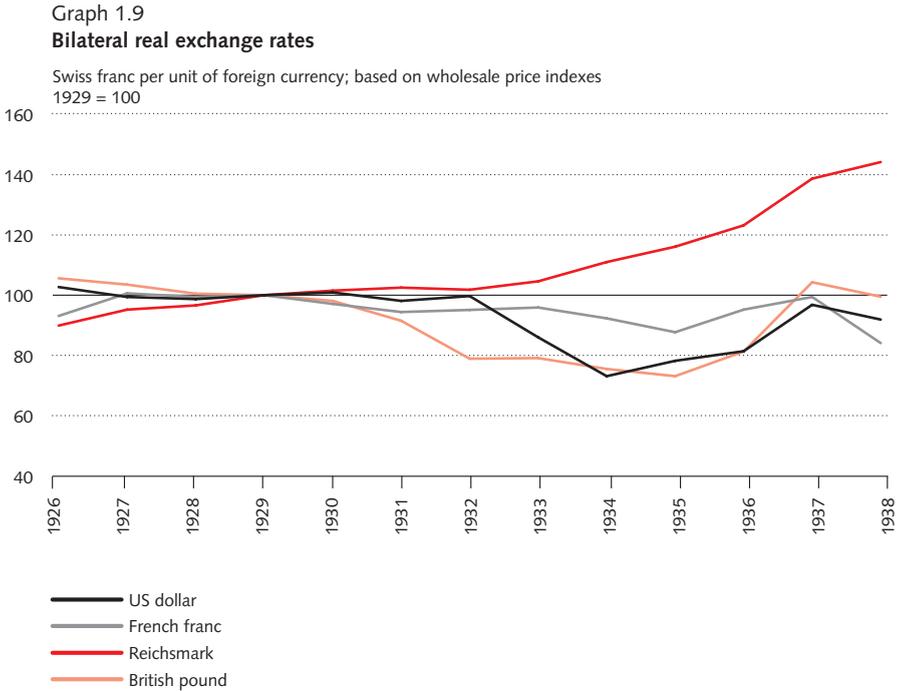


Source: Historical Statistics of Switzerland (1996).

- *Dollar scenario*: In this scenario, it was assumed that the Swiss National Bank unexpectedly switched from a gold peg to a peg against the dollar after the US went off gold. For the sake of simplicity, it was assumed that the Swiss franc/dollar rate remained at its average 1932 level until 1938. Exchange rates against the other currencies (the French franc, German mark and pound sterling) were calculated using current cross-rates.

A basic assumption underlying the counterfactual simulations is that the change in policy regime was unexpected and that the new regime was perceived as credible/durable by agents in the private sector. The counterfactual devaluation scenarios clearly suggest that an earlier devaluation would have stimulated output relative to the actual path (cf. graph 1.10) and brought about an earlier turnaround from deflation to inflation (the graphs show price level deviations, not inflation). The peg to the pound would have alleviated the downturn in economic activity. The peg to the dollar would have been procyclical in the sense of amplifying the recovery owing to the turnaround in the United States in 1933.

Switzerland benefited from substantial net inflows of foreign exchange and gold. Some of these flows must have been capital flows. An earlier devaluation may have adversely affected such flows. Assuming that the Swiss



Source: Historical Statistics of Switzerland (1996); Mitchell (1976); calculations by the authors.

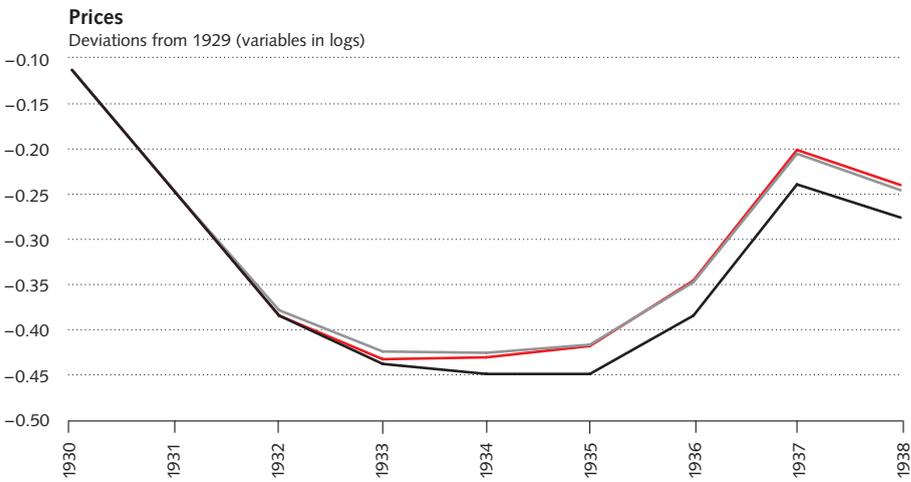
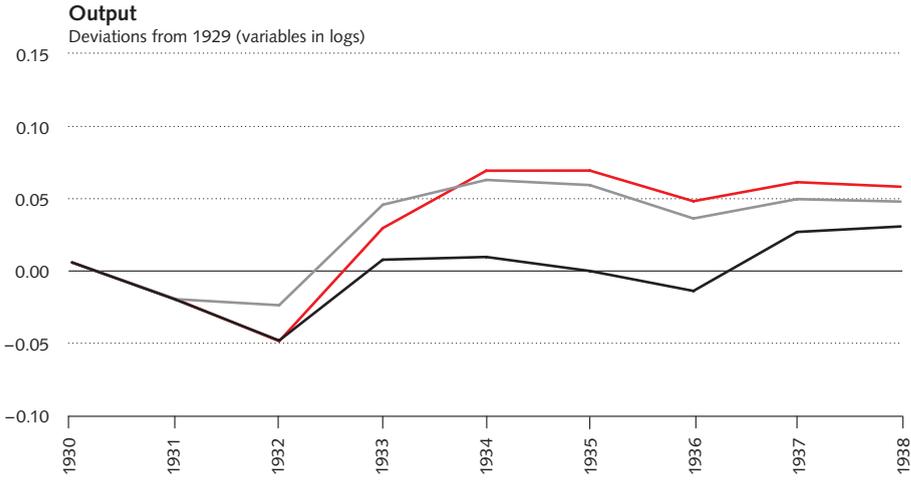
National Bank had refrained from sterilised foreign exchange interventions, a reduction in capital flows would have reduced the benefits of an earlier devaluation through the specie-flow mechanism. Smaller net inflows would have reduced the increase in money supply, which would have led to higher interest rates. The latter would have had a dampening effect on domestic demand.

Building on graph 1.10, graph 1.11 now includes the results of a dollar peg counterfactual simulation, where net gold and foreign exchange inflows would have been reduced by 50 percent from 1933. The results show that the devaluation benefits would have been smaller, but still substantial.

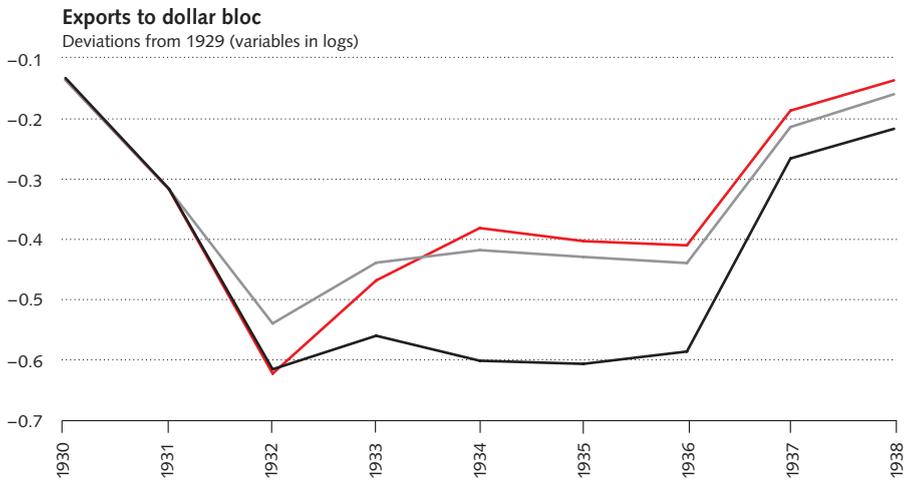
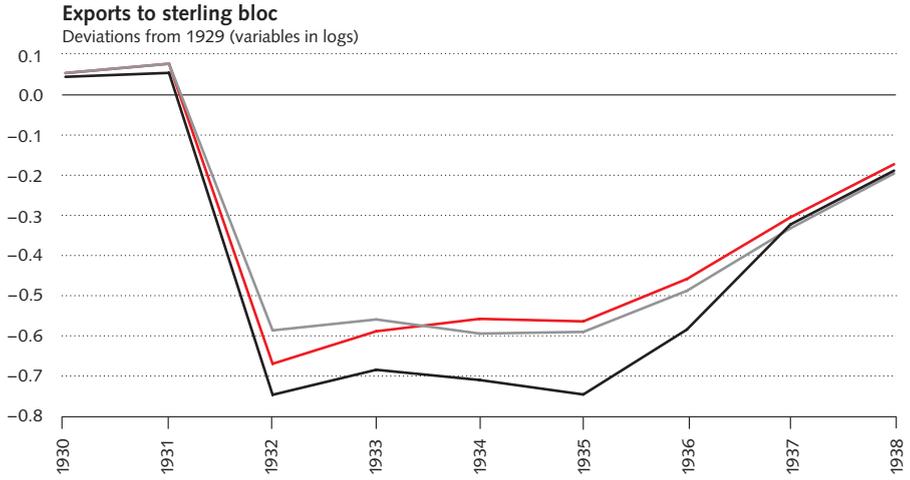
Robustness analysis suggests that only a combination of very low export demand price elasticities and very adverse effects on foreign exchange/gold inflows would have reduced the benefits of an earlier devaluation on output to the extent that such a policy choice would have been counterproductive.

There is actually little evidence, either contemporary or subsequent, that would suggest a catastrophic impact on Switzerland or its banking system of financial flows resulting from a change in the exchange rate regime. Recent literature on the gold standard and its costs examines the effect of the gold

Graph 1.10
Baseline counterfactual simulations



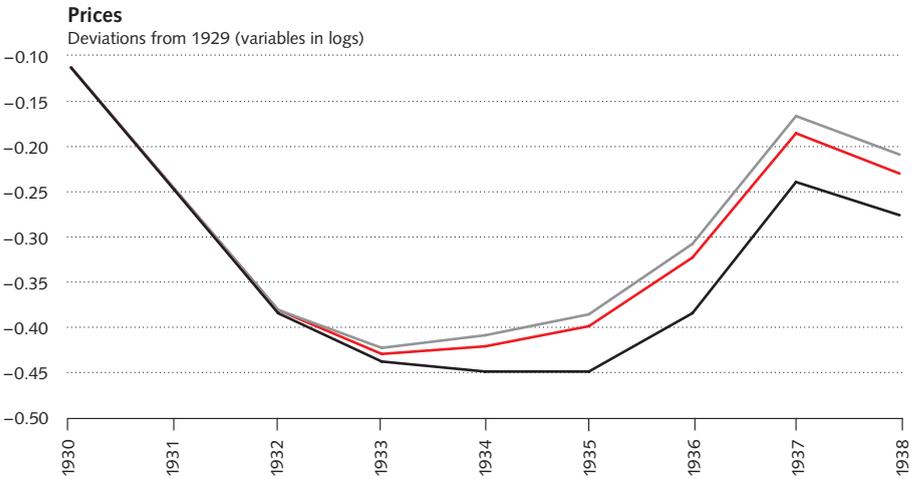
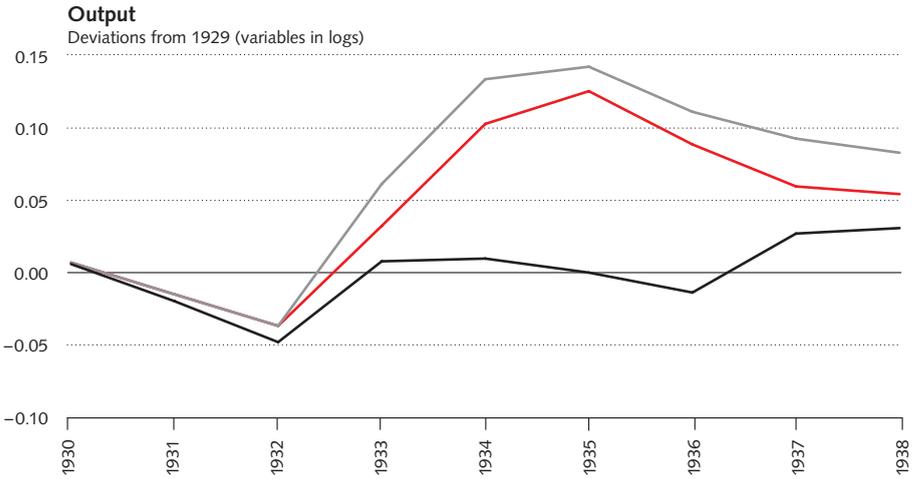
— Actual data
— Sterling peg counterfactual
— Dollar peg counterfactual



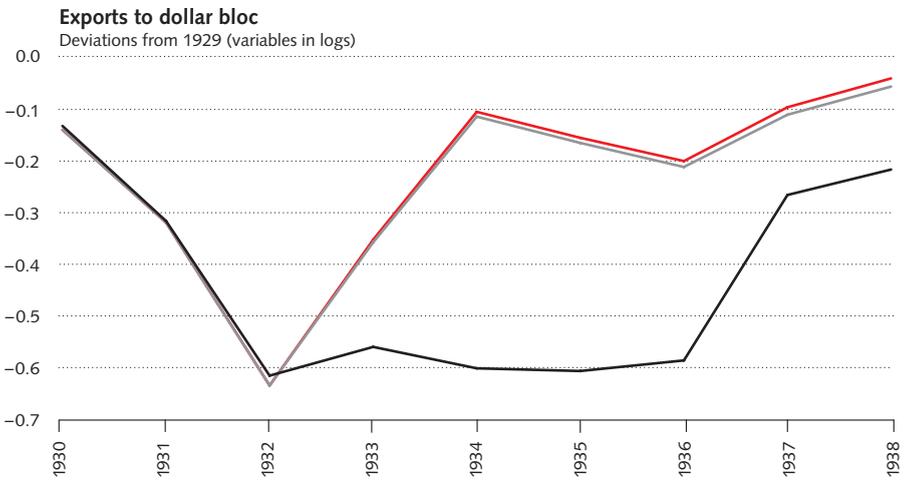
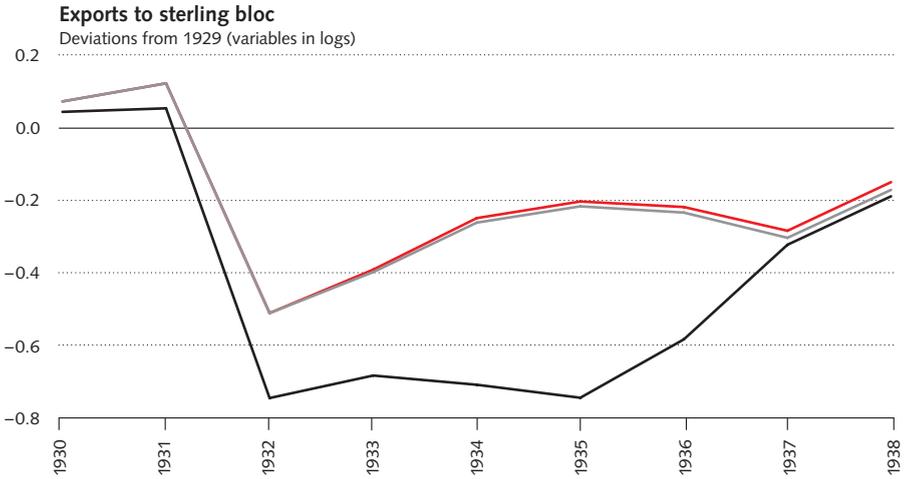
— Actual data
 — Sterling peg counterfactual
 — Dollar peg counterfactual

Sources: Historical Statistics of Switzerland (1996); calculations by the authors.

Graph 1.11
**Counterfactual simulations with estimated export and import demand elasticities
 and with an adverse capital flow shock**



- Actual data
- Dollar peg counterfactuals without adverse capital flow shock
- Dollar peg counterfactuals with adverse capital flow shock



— Actual data
— Dollar peg counterfactuals without adverse capital flow shock
— Dollar peg counterfactuals with adverse capital flow shock

Sources: Historical Statistics of Switzerland (1996); calculations by the authors.

standard and financial sector stability.⁶⁴ The financial effects of the gold standard did mark Switzerland, but they were much less commented on at the time than the trade issues – in large part because any degree of public discussion about the instability of the Swiss banking sector might have caused panic and a general crisis of confidence. Staying on the gold standard at first generated very significant capital inflows (so-called ‘hot money’), but at the same time also the potential for future attacks should the possibility of outflows emerge. Possible returns or outflows of flight capital posed a double threat: to the banks that held the deposits, but also to the SNB, which would be required to make the conversions from francs into foreign exchange. Initially, the most obvious course for dealing with this problem at the SNB was to deny absolutely that there would be any parity change. Indeed, immediately after the sterling crisis in September 1931, the Swiss franc looked relatively secure, and the major speculative attacks against the remaining gold standard countries affected the US and France. But it became increasingly clear that the flood of short-term deposits that had moved into the Swiss financial system during the crisis years was not necessarily tied to Switzerland, and that an outflow would weaken both the banking system and the currency, or in other words provoke exactly the same combination of banking and currency crisis that had brought down central Europe in 1931. The outflow might originate in security or Europe-wide political worries, but of course it might also be set off by worries about the stability and credibility of Swiss policy. Policymakers were aware of the bind they were in: the situation was becoming increasingly fragile, but any action they might undertake bore the risk of being destabilising rather than stability-promoting.

Soon after the British crisis, an internal SNB document spelt out the logic of resisting any pressure to devalue. Devaluation would increase the cost of imports and lead to a general rise in prices. Switzerland as “a country of renters would suffer untold damage. This damage would not be made good by improved employment in industry, insomuch as that might occur.”⁶⁵

In view of the policy bind, however, the position of the SNB shifted quite significantly over the course of the next five years in the battle to defend the franc; and the extent of the vulnerability of the Swiss banking system became clearer. Policymakers were restricted, however, in that a change in policy might have been desirable in order to avoid a crisis, but on the other hand, could not be justified and explained politically except in crisis circumstances.

64 Bernanke and James (1991).

65 SNB, *Krise, Wirtschaft und Banken* (1932).

Thus Switzerland – like the Netherlands – remained on gold until there was an obvious ‘crisis’, generating exceptional politics and exceptional opportunities in the aftermath of the French Popular Front’s victory in 1936.

The issue of the currency regime became highly politicised in Switzerland, as elsewhere in Europe. In particular, it was caught up in the Swiss *Kriseninitiative*: the referendum pushed by the trade unions and the socialist party for an expansionary work creation programme which might be expected to touch off uncertainty about the franc, but which was rejected in a vote on 2 June 1935. The defeat of the *Kriseninitiative* was indeed followed by a stopping of the speculative pressure against the Swiss franc. A significant number of Swiss economists pleaded for a more expansive credit policy: in particular Eugen Böhler of the Swiss Federal Institute of Technology (ETH) Zurich and Paul Keller (St Gallen) presented an account of policies against the Depression which they held might offer “a positive programme for Switzerland”. They examined the arguments for and against devaluation and presented evidence of favourable macroeconomic outcomes in countries that had left the gold standard earlier in the 1930s, although they stopped short of a direct recommendation for Switzerland.⁶⁶ But even a policy of credit expansion might have raised the question of the sustainability of the fixed exchange rate. The SNB was hesitant in the face of these demands and argued that a credit expansion would only produce an illusory boom.⁶⁷ Until the *Kriseninitiative* failed, the left did not want to touch the devaluation issue, but afterwards it became a plausible policy option.

Some critics of official policy went beyond the demand for credit expansion and saw an alteration of the exchange rate as a possible policy tool. This position was supported by some manufacturers, particularly in export industries that might gain markets as a result of increased competitiveness following devaluation. It may also have had the support of some parts of the financial community concerned about financial stability issues. Interests that might have been expected to benefit from a currency depreciation were remarkably quiet. In part, this was because they were protected from loss by other measures, as a result of extensive lobbying and pressure in Swiss Parliament. Farmers, who in many countries (notably the United States) were a powerful pressure group for devaluation, were shielded by protective quotas and tariffs. Hoteliers, whose products might have become more attractive with a devaluation, managed to have clauses inserted in the Clearing Agreements

⁶⁶ Böhler and Keller (1935); Allgoewer (2003), chapter 7.

⁶⁷ SNB, Minutes of the Bank Committee (1936), 4 February, p. 66.

concluded after 1934 with Germany that allowed a priority of transfers for tourism purposes over financial claims. In 1934, exporters were given a state risk guarantee. The government presented its whole negotiating strategy in the bilateral arrangements that became an increasingly prominent mechanism for regulating international payments, as 'labour has priority over capital' (*Arbeit geht vor Kapital*).⁶⁸ Also, notional interest groups had possibly conflicting perceptions of their own positions, so that, for example, workers in manufacturing, who might have been beneficiaries from a recovery in exports, worried about the security of their savings in the event of a depreciation.

No supporter of an alteration of the exchange rate wanted to make the case very publicly, for fear of being accused of national betrayal. Former Federal Councillor Edmund Schulthess, the president of the newly created Federal Banking Commission, was particularly outspoken about the desirability of a parity change, since he thought it impossible to maintain the old exchange rate. Until he resigned from the government in the spring of 1935, he had been a strong proponent of adjusting prices and costs in Switzerland to the world level, a downward correction of some 20 percent, if necessary by administrative action. But, when out of government, he saw the hopelessness of this course and was now bitterly attacked as an exponent of "devaluation propaganda".⁶⁹ Similarly, in the management of the SNB, Paul Rossy, the Deputy Head of Department II, who had been seconded to government service, was forced out of the Bank in October 1935 for being too sympathetic to the idea of a devaluation.⁷⁰

The main argument made by the SNB shifted to the idea that a devaluation would be a breach of property rights. In April 1936, in a letter addressed to the Federal Department of Economic Affairs, the SNB's Governing Board explained that "The currency is a means of the economy, but not a means for economic policy as it is the standard by which all economic goods are valued. [...] Not only the short-term contract, but an order that spans decades must be protected from arbitrary changes to the standard of value. The state would be the first to suffer from the abandonment of the principles of good faith."⁷¹

The SNB actually took an increasingly ambiguous approach to the devaluation issue. In public, it presented itself as the unflinching defender of orthodoxy and of the old exchange rate. In late 1935, it agreed to participate in a

68 Frech (2001), pp.74 et seq.

69 SNB, Minutes of the Bank Committee (1936), 22 July, p. 272.

70 BoE, SNB presidency (1937). Rossy rejoined the SNB in 1937 as Vice Chairman.

71 SNB to Federal Department of Economic Affairs (1936).

press service organised by the Swiss central office for the promotion of trade (*Schweizerische Zentrale für Handelsförderung*) in order to push opinion pieces in newspapers on the money and capital markets, but above all on exchange rate issues.⁷² At the same time, the Banque de France engaged in a massive and costly propaganda campaign to drum up support for the gold standard. In private, however, the SNB's leading officials were quite sceptical, particularly because they did not believe that the government had the political nerve to implement the fiscal deflation that would be needed to convince the markets that Switzerland really intended to stay on gold.

Internally, the Governing Board was divided. Chairman Bachmann consistently opposed a change of policy. But in April 1936, Vice Chairman Charles Schnyder von Wartensee produced a note for the Governing Board in which he explained that "Swiss circles in Paris, London and New York believe that Switzerland, with its high standard of living and its democratic form of government, which blocks quick and positive action, will not be able to withstand the general pressure."⁷³ By May, after a political crisis in France, the Governing Board discussed a likely devaluation of the French franc, which would turn the speculative pressure onto Switzerland. Deflation in France and other countries had produced a "radicalisation of the masses".⁷⁴ At this point, an internal paper in the SNB argued that it might be possible to consider the US dollar, the Dutch guilder and the Belgian franc as 'gold currencies' (*Golddevisen*) that might be used in calculating the gold cover ratio of SNB notes and in making payments in gold.⁷⁵

The SNB also told other central banks it would be likely to follow France. The Bank of England was informed by Vice Chairman Schnyder that if France devalued, "they would certainly devalue, and that as to method and measure the Government would be guided mainly by the National Bank".⁷⁶ The only disagreements concerned the rate at which the new value should be fixed: while Ernst Weber, the Head of the SNB's Department III, wanted a 40 percent devaluation whatever France did, Schnyder argued that the Swiss should follow the French course.⁷⁷ On 2 June 1936, the Governing Board met a delegation of the federal government (*Finanzdelegation*) in a dramatic session; and wrote in the aftermath of the meeting that because of the power of the

72 SNB, Minutes of the Governing Board (1935), 8 October, no. 919.

73 SNB, Note from Charles Schnyder (1936).

74 SNB, Minutes of the Governing Board (1936), 7/8 May, no. 451.

75 SNB, France's departure from gold standard (1935).

76 BoE, Conversation with Schnyder (1936).

77 Ibid.

economic interests, it had become clear that the government could not act decisively in imposing fiscal deflation. In its letter, the Governing Board made it clear that the SNB would continue to defend the franc, but also pointed out that its defence would primarily be to the advantage of “those circles who use the gold reserve of the SNB to convert francs into foreign exchange, and at the expense of those who are faithful to the national currency”.⁷⁸

The outcome of the meeting on 2 June was a decree on the protection of the national currency (19 June 1936), imposing penalties for speculation against the Swiss franc; but like most such decrees in the 1930s, it failed to have much effect, and indeed probably only increased the nervousness of depositors in and outside Switzerland. Such measures could easily be interpreted as a sign that a devaluation was imminent.

In June 1936, an internal document presented a sort of balance sheet of the pros and cons of devaluation. The alteration of the franc parity might be expected to produce “an end of hoarding, the repatriation of capital invested abroad and in foreign securities, greater fluidity of the capital market, a revival of export industry, and an adjustment to foreign economic conditions”. But there would be dangers: “uncertainty of economic and financial developments. Disadvantaging creditors to the advantage of debtors, a partial destruction of savings, a general rise in prices, fights to raise wages, a radicalisation of the political development, and a breakdown of morale.”⁷⁹

By the end of September, a major speculative attack developed against the French franc. Given the past record of the shift of speculation from one country to another, it was clear that if there were to be a French devaluation, there would immediately be enormous pressure on the remaining gold standard countries, i.e. the Netherlands and Switzerland. The Bank Council met on Friday, 25 September, but did almost nothing. In fact, the Governing Board tried to prevent as much as possible any discussion of the exchange rate issue, because precisely this discussion was being conducted by the FDF. On Thursday, 24 September, Bachmann had been summoned to a meeting in the FDF, attended also by the French Economics Minister Charles Spinasse, who had flown to Basel from Paris and announced that, on Friday, the French government would accept a motion to devalue the French franc by around 30 per cent. On the Friday morning, the SNB's Governing Board voted to maintain the Swiss currency despite the French devaluation. On Saturday, at a meeting of the Federal Council, Bachmann again insisted on his opposition to any

78 SNB to Federal Council (1936).

79 SNB, Devaluation issues (1936).

devaluation of the franc, but when asked whether he was confident enough to exclude the possibility of being forced into a later devaluation should the current parity be maintained, he was unable to give this positive reply. With that, the Swiss government agreed to a devaluation of the Swiss franc, arguing that the Swiss economy could not bear a further maintenance of the old exchange rate. The decree established new bands within which the Swiss franc could move (with the franc being valued at between 190 and 215 milligrams of fine gold), rather than determining a new parity.⁸⁰ Bachmann, however, reported to the Bank of England that he had been consistent in his opposition to devaluation.⁸¹

The devaluation was followed by a rapid recovery of the Swiss financial system. Indeed, already at the Bank Council meeting of 28 September, which considered the devaluation, Governing Board member Ernst Weber reported that the big banks had said that the decision was correct.⁸² The share prices of the major banks rose very rapidly (and more rapidly than other Swiss share prices, which also rebounded after the devaluation): in the month after the devaluation, the share price of Swiss Bank Corporation increased by 50 percent, that of Credit Suisse by 43 percent and that of Union Bank of Switzerland by 47 percent.⁸³ The general manager of Swiss Bank Corporation even wrote to a leading British financial official that “there is no doubt that the Federal Council took the right course in joining the movement for a monetary realignment with the leading currencies”.⁸⁴

The devaluation of 1936 was accompanied by an international attempt at stabilisation, the Tripartite Agreement of France, Great Britain and the United States, which in some ways prefigured the Bretton Woods regime. The US government then approached Belgium and Switzerland to ask whether they would be prepared to give corresponding declarations on currency stability, and the SNB’s Governing Board agreed that such a declaration would be in the interest of the “maintenance of the currency”. At the same time, the Board argued that a precondition for such an agreement would be a fixed gold purchase and sale price, and agreed on a sale price of 4,973.92 Swiss francs per kilogram and a purchase price of 4,869.80 francs per kilogram.⁸⁵ The government then issued a directive to the SNB, requiring the maintenance of an

80 Cf. account by Bachmann given to the Bank Committee, SNB, Minutes of the Bank Committee (1936), 28 September, pp. 366 et seq., especially p. 371.

81 BoE, Conversation with Pfenninger (1936).

82 SNB, Minutes of the Bank Committee (1936), 28 September, p. 374.

83 Bebié (1939); Heer (1937); Perrenoud et al. (2002).

84 BoE, Golay to Niemeyer (1936).

85 SNB, Minutes of the Governing Board (1936), 22 October, no. 1135.

exchange rate with a gold value of the Swiss franc of 205 milligrams (or 4,878 francs per kilogram of fine gold). For Switzerland, there were major uncertainties, because the Tripartite Agreement stated that the parities could be abrogated at twenty-four hours' notice. Above all, the French franc continued to be very unstable. When there was a new French devaluation, in July 1937, the SNB began to think in quite new ways about the currency, and even made the argument that fixed exchange rates were undesirable for the moment and that a floating was preferable. The Governing Board wrote to the Swiss government: "Neither from an economic nor a psychological viewpoint is there a link at this time between the Swiss and the French currency that might justify, as in September 1936, a similar currency policy in both countries. A revision of our currency constitution would only be possible if the economically decisive states, England and the United States, were to reach an agreement on a new orientation of their currencies."⁸⁶ The gold peg continued to be the key to currency stability, while Switzerland believed that it would be better not to have fixed rates relative to other currencies in the absence of a gold linkage. The Swiss debate had moved substantively from the nineteenth-century view, according to which the key to monetary policy lay in the adoption of the standard of neighbours and trade partners, and which obliged Switzerland to follow the French franc, to a view in which stability had a value. That stability could best be achieved with a firm link to a precious metal.

Institutionally, the SNB was engulfed in a polemic about who owned the profit that resulted from the upward valuation of gold in terms of Swiss francs, and how it should be spent. An initial calculation revalued the gold reserve by 35 percent, yielding a profit of 538 million Swiss francs. This was initially used to form a fund (*Währungsausgleichfonds*) to manage exchange interventions, analogous to the British Exchange Equalisation Account of 1932 or the American Exchange Stabilization Fund of 1934. However, unlike the British or American versions, which were controlled by the government and marked a shift away from the central banking philosophy of the 1920s, the Swiss fund remained under the control of the SNB. But it was wound up when the War led to high expenditure, and in 1940, 325 million Swiss francs was paid out to the Confederation and 150 million to the cantons. In order to give the SNB some base for continuing exchange interventions, the gold reserve was then revalued on 3 June 1940 by a further 6.4 percent, producing a notional addition to the SNB's reserve of 100.9 million francs. This was eventually used to

86 SNB to Federal Department of Finance and Customs (1937).

pay 100 million francs as part of the Swiss payments to the United States following the Washington Agreement (cf. chapter 2.2.3).⁸⁷

1.6 International capital flows

The discussion of the gold standard and its increasing vulnerability in the 1930s because of ‘hot money’ flows showed how a major vulnerability of the Swiss financial system had emerged.

During the First World War, Switzerland had developed rapidly as a neutral intermediary, and then in the 1920 appeared as an island of stability in a wild sea of currency inflation and depreciation. In addition, a lack of transparency in corporate ownership and control meant that Swiss financial institutions offered attractions as part of a chain of holdings. In consequence, German and other central European corporations and individuals saw Swiss banks and their affiliates as ways of lending money back to themselves, with some tax advantages. Switzerland thus had a role as a secure tax haven. In the immediate aftermath of the First World War, wartime inflows were reversed in 1919 and 1920, and the SNB worried about the destabilising effect of the outflows. In July 1920, representatives of the commercial and cantonal banks, as well as the SNB, met to discuss the situation of the capital market. In particular, the difficulties of the mortgage banks and the outflow of funds led to a demand for a limitation of capital movements. In a subsequent discussion in the Governing Board of the SNB, the three members of the Board agreed that the SNB should not oppose a closure of Swiss markets for foreign sales of securities.⁸⁸

In the 1920s, and above all in the 1930s, substantial international capital flows reacted to short-term political and economic as well as military insecurity. Switzerland, as a neutral country with major financial institutions, was inevitably at the centre of many such transactions, as was the United States, which, after 1934, became the increasingly favoured destination of European capital flight. Such capital movements responded to expectations concerning exchange rate changes, and also frequently reflected political instability.

The outflows of the early 1920s from Switzerland were soon replaced by new inflows, in response to the inflations and currency turbulence of central Europe. By 1924, with the franc practically stabilised, the SNB was much less concerned, and now argued that “one should not reproach the banks too much for their foreign activity, as these are legitimate deals that arise from

⁸⁷ Jaquemet (1974).

⁸⁸ SNB, Minutes of the Governing Board (1920), 8 July, no. 595.

the inability of the banks to use their resources profitably at home”.⁸⁹ The worries remained, in that large inflows of short-term money might well be subject to sudden reversals. In 1930, a private Swiss banker told a representative of the Bank of England that he would be afraid if he knew how much foreign (presumably French and German) money was flowing into Switzerland.⁹⁰ The SNB tried to establish an informal system of control through a gentlemen’s agreement with the banks in 1927 (which was believed to be modelled on the Bank of England’s informal concertation of City banks), but nothing came of the initiative.⁹¹ Occasionally, it tried to get other central banks to act to limit flows from Switzerland. For instance, in mid-1933, the SNB’s Chairman asked the Bank of England to stop Nestlé buying gold in London, but received a very frosty reply: “If you were empowered by legislation, as we are, to require a return to be made to the Central Bank, would you not be able to deal with the position at your end.”⁹² The SNB gradually shifted its position to a recognition that capital mobility formed an integral element in the Swiss economy. Unlike other central banks, it did not participate in the attempt of the 1930s to shut down international capital markets and impose controls in order to create a ‘closed-off national economy’.

In the currency turmoil of the early 1930s, Switzerland had attracted new inflows, but there was a realistic fear that these hot money flows might be reversed. Other countries had been the victims of such inflows, followed by outflows which damaged financial sector stability: US banks lost deposits internationally between September 1931 and April 1933, when the gold convertibility of the dollar was suspended; and from April 1933, French banks lost deposits (much of these funds initially went to Switzerland). Some of the largest flows into Switzerland came out of France at the time of the fascist demonstrations of 1934 and the formation of the Popular Front government of 1936. An examination of flows into the United States and of flows from Switzerland to the US shows peaks above all during the political and economic crises of France (in September 1936, November 1936, February 1937), but also smaller spikes coinciding with political crises in Germany (the German pogrom of November 1938; the invasion of Czechoslovakia in March 1939).⁹³ By 1937, the Swiss banks estimated that 6,650 million Swiss francs in foreign deposits had been placed in Switzerland, while the SNB gave a much

89 SNB, Minutes of the Governing Board (1924), 23 September, no. 772.

90 BoE, Foreign money in Switzerland (1930).

91 BoE, Bachmann to Norman (1927).

92 BoE, Siepmann to Bachmann (1933).

93 Wilkins (1999).

higher figure of 16,000 million francs.⁹⁴ Some portion of this might be expected to be repatriated. After April 1933, there was some speculation against the Swiss franc, and again between February and April 1934 after the stabilisation of the US dollar. In 1935, the speculation again turned against the Swiss franc, and in the first five months of 1935, the SNB lost 744 million francs in gold reserves. While Switzerland remained part of the gold bloc, the SNB suffered a steady erosion of its reserves (cf. graph 1.2); after depreciation, however, the Swiss franc was rarely exposed to speculative attacks.

During outflows, banks were vulnerable, as speculators against the franc would withdraw franc deposits. The link between central bank reserve losses and bank vulnerability was quite widely commented on at the time. The Austrian economist Gottfried von Haberler noted in 1937: "Banks with which foreign balances are deposited regard them as 'bad' or 'hot' money, and will not re-lend more than a relatively small proportion of them. If the banks are incautious, the central bank will probably realise that the increase in its gold reserve occasioned by the influx of foreign funds is liable to disappear at short notice, and will refrain from expanding central bank money accordingly."⁹⁵

The official response was initially a provision in the 1934 Banking Act requiring banks to declare credits of over twelve months' duration and over 10 million Swiss francs to the SNB (i.e. encouraging banks to keep their assets liquid); and then a gentlemen's agreement (June 1935), in which banks pledged that they would not engage in 'speculative' movements. They were supposed to stop forward exchange transactions and gold transactions with the public. But it was soon obvious that these non-binding agreements were being grossly violated, and that the SNB was not very effective in keeping itself informed about the state of the financial sector.⁹⁶ In March 1936, the federal government voted to create a commission managed by the Statistical Office to examine problems of the balance of payments, and the SNB was given the task of investigating capital movements by the banks; but it took two years to secure bank cooperation, which even then was only partial, in that the banks did not release information about their bank custody accounts.⁹⁷

Many bankers were worried that the government would impose some form of capital control. In July 1935, the Genevan banker Albert Pictet accompanied representatives of Vorort, the major Swiss business interest group (today's *economiesuisse*), to see the Economics Minister, Federal Councillor Hermann

94 Jung (2001), pp. 56–57, 65.

95 Haberler (1937), p. 336.

96 SNB, Minutes of the Governing Board (1936), 2/4 June, no. 584.

97 Baumann and Halbeisen (1999).

Obrecht, and to state that “a control, in any form whatsoever, of foreign exchange, would be disastrous for the Swiss economy”. Obrecht replied that he had studied the situation and also arrived at the conclusion that “controls would be the ruin of the Swiss franc”.⁹⁸ The bankers were correspondingly reassured. In June 1936, the government issued a (predictably futile) order (*Bundesratsbeschluss*) providing for penalties for speculation against the franc. In November 1937, the SNB concluded a new gentlemen’s agreement with the banks, according to which foreign sight deposits in Swiss banks were not to bear interest and were to be converted into deposits with three months’ notice, and fixed deposits under six months had a one percent commission imposed. After 1937, there were no major inflows in peacetime, and the June 1939 estimates for foreign money in Switzerland are lower than those of 1937.⁹⁹ At the same time, the SNB substantially built up its gold reserves.

1.7 Gold purchases and sales

Switzerland had no organised gold market analogous to London, but there were hundreds of bankers, dealers and jewellers who traded in precious metals. One of the goals of establishing the SNB had been to centralise the market, in order to stop price fluctuations of precious metals affecting the circulating currency.

During World War I, the SNB was worried about a loss of gold reserves and tried to restrict the export of gold coins. In March 1915, a government decree forbade the sale of LMU coins at a premium to their face value, and in 1918, the prohibition on the export of coins was extended to all coins. The SNB was also worried about the export of gold to Turkey and Germany in the form of sales of heavy jewellery. It also bought a substantial quantity of gold from both France and Germany, with most of the purchases occurring in 1916. Between 1914 and 1918, Switzerland imported large amounts of coins, 168.9 million Swiss francs from Germany and 63.8 million from Austria-Hungary, as well as 31.4 million from France and 7.6 million from Italy.¹⁰⁰ The SNB’s reserves rose from 212 million francs in 1914 to 432 million in 1918, and the metallic coverage of the Swiss note issue rose to around 80 percent, or double the legal minimum cover ratio.

The purchases raised political questions, as well as issues relating to monetary stability. In early 1916, the Swiss Foreign Minister, Federal Councillor

98 Perrenoud et al. (2002), p. 62.

99 Jung (2001), pp. 56–57.

100 *Annuaire statistique de la Suisse* (various years), table VIa 1 and XI 3; calculations by the authors.

Arthur Hoffmann, warned the SNB against buying dollars in Germany, as “the intensification of the economic war against Germany is likely and the neutrals will be forced to reduce or give up their trade with the central powers”.¹⁰¹ A report by Department III of the SNB in late 1916 urged caution in regard to purchases of gold from the belligerents since “in the difficult times at the end of the War and the commencement of peace, a big stock of metal would immobilise Swiss resources”. The report concluded: “We are in the position to say to both sides that we have taken as much monetary metal as we can, but that we could not do any more.” The SNB’s Governing Board consequently suggested to the government a ban on the import of gold and silver (as the Scandinavian countries had already implemented).¹⁰² Significant amounts of coins came to Switzerland from wartime Germany, often bearing obvious traces of violent transfer. In 1918, the Federal Postal Administration issued a notice that: “From henceforth the Federal Administration will refuse to buy five-franc pieces of Belgian, Italian or French origin that are either blackened by fire and smoke or stained with blood. [...] The owners of such coins will have to clean them.”¹⁰³

The same sort of polemic as had been conducted by the proto-monetarist ‘Free Money’ theorists in the First World War appeared in the Second World War, and as in the previous conflict, the criticism clearly nettled the SNB’s leadership. In July 1941, for instance, an anonymously produced newspaper for postal employees wrote about “the inflationary monetary policy of our National Bank”, and the article and its authorship were discussed by the SNB’s Governing Board.¹⁰⁴

Consequently, when the SNB again engaged in purchases of gold, it tried to present them as being stabilising or anti-inflationary in the sense that the purchases added to the metallic reserve. The argument had some additional weight in that a substantial part of the SNB’s reserves were blocked in the US. Yet fundamentally, of course, the argument was a specious one: the gold purchases put more Swiss francs in circulation, and hence contributed to inflationary pressure. By this time, however, the SNB had become very sensitive to the charge of following an inflationary course, and it tried to use gold and the maintenance of a fixed exchange rate regime to defuse criticism about inflation.

The gold transactions of the First World War never became controversial after the War, even though there may have been legal problems with some of

101 SNB, Minutes of the Governing Board (1916), 2 March, no. 180.

102 SNB, Minutes of the Governing Board (1916), 15 December, no. 889.

103 Quoted in Weisskopf (1948), p. 150.

104 SNB, Minutes of the Governing Board (1941), 13 August, no. 598.

the gold shipped by Germany, in particular Belgian five-franc LMU coins. By contrast, the gold dealings of the SNB in World War II were controversial from the start.

During the Second World War, the Reichsbank sold gold worth 244 million Swiss francs to Swiss commercial banks, and another 1,231.1 million to the SNB. This amounts to almost four-fifths of German gold sales abroad during the War.¹⁰⁵ At the same time, the SNB also bought large amounts of gold from the Allies (668.6 million Swiss francs from the UK and 1,528.7 million francs from the US, as well as a comparatively small sum from Canada): this gold formed part of the stock blocked abroad. These transactions were used to buy Swiss products, but also to have Swiss francs for use in Europe, for intelligence and military purposes. The gold purchases reflected a strong demand for Swiss francs on the part of the Allies as well as the Axis powers. The monetary effect of gold purchases, both from the Allies and from Germany, was inflationary (in that it added to the notes in circulation), although part of the additional francs placed on the market were held abroad by foreign central banks, notably the Bank of Portugal, as reserves. However, at this time, analysts (including those of the SNB) did not see inflation as primarily a problem of monetary aggregates. Other aspects of Swiss official dealings with Germany – especially the substantial clearing credits (amounting to 1 billion Swiss francs by 1944) – also contributed to inflationary pressures in Switzerland.

The inflationary consequences of gold purchases by the SNB, from both the Allies and the Axis powers, were in part counteracted by a sterilising operation (a new type of operation that had been neither contemplated nor practised in the First World War), in which the Swiss Confederation bought gold from the central bank, and thus mopped up the additional money put into circulation by the SNB. In addition, the SNB undertook other measures aimed at preventing the inflationary expansion of the money supply. Above all, it tried to restrict the exchange of dollars for francs by concluding a convention with the commercial banks on 24 September 1941, which separated the exchange market at the gold parity rate ('commercial dollars') from a 'financial dollar' rate, in which the dollar would be traded freely at a deep discount. Quotas were applied to Swiss exports sold for commercial dollars; in addition, the commercial rate was applied to payments for Swiss diplomatic services and for humanitarian purposes (cf. chapter 2.2.2). In trying to stem

105 This section is based, where not otherwise stated, on ICE (1998, 2002a); Grossen (2001); Crettol and Halbeisen (1999).

the sales of dollars, the SNB took some tough measures. In particular, from April 1942 to November 1943, it refused to buy the dollars that Jewish organisations in the US wished to use for refugee assistance, and in November 1943, only agreed to make the purchases at the market price, which was substantially below the 'commercial' rate.¹⁰⁶

In order to stop losses of its domestically held gold reserves, the SNB attempted to centralise the gold market in October 1941. At this point, the SNB considered, but rejected, the imposition of exchange control. Instead, it asked the Reichsbank to deal with the SNB, and not with the commercial banks. After this, the commercial banks bought no more German gold in Switzerland, although they continued to engage in smaller-scale transactions abroad. A further tightening of regulation in the Swiss gold market came in December 1942, when the Swiss government established maximum prices on gold coins and bars, and thus restricted the opportunities for banks to profit from the sharp rise in the gold price. In addition, the SNB's permission was henceforth required for the import or export of gold (cf. chapter 2.2.2).

From an early stage, the SNB was well aware of the political dimension of the question. Already in October 1940, the SNB's Governing Board was aware of US newspaper complaints that Switzerland was helping the Axis powers, and discussed the question of Allied countermeasures with the government (*Politisches Departement*). At this time, the SNB argued that the US had imposed no block on German or Italian accounts and, as a result, could hardly object to Swiss transactions with the Reichsbank. At the same time, the transactions appeared to offer some protection from German attack. In November 1940, SNB Chairman Ernst Weber, passed on a letter from the Swedish chief economist of the BIS, Per Jacobsson, to Federal Councillor Ernst Wetter, in which Jacobsson spoke of Reichsbank Vice President Emil Puhl's view that the convertibility of the Swiss franc "constitutes a reason for leaving Switzerland free". At this stage, it appears that one of the motives underlying the SNB's strategy was a view that the Swiss financial market offered a means of dissuasion or deterrence to German thinking about a military operation against Switzerland: by providing financial services, Switzerland could buy freedom from attack.

The major problem of the SNB's transactions with wartime Germany lies in the doubtful character of the legal title of the Reichsbank to a large part of the gold. The quantity of gold sold substantially exceeded Germany's pre-war gold holdings. The Reichsbank's published figure for reserves on the eve of

106 Picard (1994), p. 384; ICE (2002a), p. 226.

the war was only 124 million Swiss francs, though informed observers realised that the figures were substantially higher. There was an additional 358 million francs in hidden reserves (so-called *stille Reserven*), and the Reichsbank had acquired the gold of the Austrian and Czech national banks either just before or in the immediate aftermath of the invasion of those countries by Germany. A realistic estimate of the gold held by the Reichsbank (including the stock of Austrian and Czech origin) in September 1939 is around 1,125 million Swiss francs, in other words, substantially lower than the sales to Switzerland.

During the Second World War, Germany bought some gold (mostly from the Soviet Union), but this was not the major source of supply. Purely on arithmetical grounds, without any detailed investigation of the trajectory of particular amounts of precious metals, some part of the gold sold during the War could only have been acquired as a consequence of the expropriation of central bank holdings, especially from Belgium, the Netherlands and Luxembourg. The Reichsbank also derived its wartime gold from the looting and expropriation of individuals: the Four Year Plan authorities, which supervised draconian exchange and currency controls, took gold worth 311 million Swiss francs. Gold plundered from individual victims of the Holocaust in Eastern Europe and delivered to the Reichsbank as 76 separate deliveries directed by *SS-Hauptsturmbannführer*, Bruno Melmer, totalled 2,577 kilograms fine weight (worth 12.5 million Swiss francs); 119 kilograms fine of this amount was sold to the SNB in the form of bars.

At the same time, in the second half of 1940, as Jacobsson, Weber and Wetter were contemplating the political implications of gold transactions, the SNB received the first indications that gold was being taken in occupied countries from individuals as well as from the national banks. Evidence that German gold had been stolen was later presented in Swiss newspapers (in particular in an article in the *Neue Zürcher Zeitung* of August 1942).¹⁰⁷ In the account presented by the SNB to the Federal Council on 16 May 1946, however, it claimed that only in January 1943 had Allied warnings stated that gold sold by Germany to the neutrals might be stolen (this was in fact wrong, for there had been earlier, less official, warnings). The most explicit evidence of all, with details of the long saga of the story of the National Bank of Belgium's gold reserves, was presented by the Governor of the Banque de France, Yves de Boisanger, in the summer of 1943, in which he warned that stolen Belgian gold had been taken to Berlin and was being used in inter-

¹⁰⁷ Wolff (1942).

national transactions. De Boisanger had in fact been centrally involved in the transfer of the Belgian gold to Berlin: the gold had been entrusted to France at the outbreak of the War, had been shipped from Bordeaux to Dakar, and then taken across the Sahara back to France. The previous Governor of the Banque de France had refused to release it to the Germans without Belgian consent; he was dismissed by the Vichy government and the more complaisant de Boisanger was appointed in his place.

The warnings of 1943 prompted a new round of discussions between the Governing Board of the SNB and the political authorities, and especially in the supervisory body for the SNB, the Bank Committee (in meetings on 22/23 July and 26/27 August 1943). In the Bank Committee meetings, there was a strongly expressed difference of opinion between Chairman Ernst Weber, who argued that the gold standard adherence required purchases of gold from other countries, and the President of the Bank Council and the Bank Committee, Gottlieb Bachmann, who had been Weber's predecessor as Chairman of the SNB from 1925 to 1939. Bachmann emphasised the political dimension of the question, and explained that, during World War I, Sweden and the Netherlands had refused gold purchases on the technical grounds that they would lead to excessive credit creation.

Weber, however, took a very different stance. He explained to the Bank Committee that: "We cannot believe that in taking the Reichsbank's gold we are doing anything wrong. Instead, we are of the opinion that we may take up gold from Germany in the same quantities as previously in order to satisfy their demands for Swiss francs. An alternative approach could be equivalent to a confession that we had done something wrong."¹⁰⁸ In the course of the debate in the Bank Council, one member of the Governing Board stated that the Bank had not been informed that Germans had stolen gold and that international law permitted occupying authorities to requisition gold. Weber's approach was based on a fear of incurring a liability to restitute stolen property. By the summer of 1943, when the incontrovertible evidence of German theft (and the scale of the transactions) seemed clearly to indicate that the Bank had already bought illegitimate gold, the major rationale of the SNB for continuing the problematic gold transactions appeared to be that breaking off the transactions, or even demanding a formal German assurance of the non-stolen character of the gold bought, would cast into doubt the 'good faith' of the SNB, and lay the Bank open to post-war claims from those who had lost gold, on the basis of the Swiss Civil Code (arts. 2, 3, 714 and 934 Swiss

108 SNB, Minutes of the Bank Committee (1943), 23 July, p. 182.

Civil Code (CC): the articles that provided the legal basis also of the post-war restitution law). The repeated assertion of the SNB's good faith in its dealings with the Nazi financiers thus proved to be a terrible trap: in order to maintain the argument that justified the legitimacy of the initial transactions, the SNB's management came to believe that it had to go on accepting German gold, which it continued to do, despite ever intensified Allied pressure, until the last days of April 1945.

One odd consequence of the awareness of the need to maintain the good faith argument was that the SNB did not discuss these dealings with the government, and government officials later denied that they had ever been properly informed about the SNB's contacts and its worries about the purchases.¹⁰⁹ Only on 9 October 1943 did the Governing Board of the SNB write to Federal Councillor Wetter to say that for years "the Reichsbank has from time to time sold gold in the form of bars and coins to the National Bank. [...] The National Bank must assume that gold offered to it by a foreign central bank has been properly acquired."¹¹⁰ The chief negotiator of the Federal Department of Foreign Affairs, Robert Kohli, after the War came to the conclusion that the SNB "perhaps thought too much of its autonomy."¹¹¹

1.8 Lender of last resort policy

Nineteenth-century central banks, notably the Bank of England and the Banque de France, were often assumed to have a responsibility to act as a lender of last resort. Particularly the theorists who elaborated the real bills doctrine regarded the duty of the central bank as a sort of corollary to their monetary philosophy, in that the central bank needed to ensure that there was always a market for commercial bills. Actually, the central banks themselves did indeed occasionally step in to rescue banks facing liquidity problems; but they were quite reluctant to formulate the duty as a statement of policy. Indeed, the most celebrated exposition of the lender of last resort theory, Walter Bagehot's *Lombard Street*, was occasioned in part because of the response of the Bank of England to an article written by Bagehot in the *Economist* applauding the Bank for its new philosophy. One director of the Bank wrote angrily in protest, and Bagehot concluded that: "The public have a right to know whether the Bank of England – the holders of our ultimate

109 There were two occasions, in September 1942 and July 1943, when the SNB's records include statements that the government was informed about the Bank's gold policy: ICE (2002a), p. 202.

110 Reprinted in: *Documents diplomatiques suisses 1848–1945* (1992), pp. 36, 40.

111 Quoted in Maissen (2001), p. 298.

bank reserve – acknowledge this duty, and are ready to perform it. But this is now very uncertain.”¹¹² The Bank of England’s historian, Richard Sayers, concludes that “while not utterly disclaiming all possibility of coming to the rescue should a crisis occur, it tried, by holding itself aloof from much current business, to escape the contingency. The result was not edifying.”¹¹³ The Banque de France had rescued some banks in the July Monarchy, and was pushed by strong political pressure in the Empire of Napoleon III to be more active in this regard,¹¹⁴ but was very pleased in 1882 to let the Union Générale fail spectacularly, and was widely applauded by economists for letting crises do their job of purifying and purging the economy of speculative excess. The business cycle theorist, Clément Juglar, concluded in 1884: “A crisis for a nation is the operation made necessary to re-establish an equilibrium broken by speculation.”¹¹⁵ The Reichsbank was more explicit about its stabilising mission. In a commemorative volume produced in 1900, it stated that: “The Reichsbank is the last support of the German home market.”¹¹⁶ The 1914 US Federal Reserve Act specified the end of “accommodating commerce and business”.

In view of the dangers that too explicit an embrace of the lender of last resort doctrine would bring, there is not surprisingly no reference to any obligation in the law that established the SNB. Indeed, the law, while specifying that the National Bank could discount bills of up to three months’ maturity, clearly refrained from any compulsion on the Bank to do so. (In an analogous way it might be argued about the gold transactions, that there was no legal requirement of the central bank to buy gold from another central bank.) On the other hand, at the constituent General Meeting of the SNB, the government representative, Federal Councillor Robert Comtesse, clearly set out his understanding of the National Bank’s responsibilities by underlining the special role played by a unitary bank of issue that replaced all the “limited interests” of the older issue banks. “It is given the necessary power to always know and healthily respond to the needs of the market. [...] it has a reserve sufficient to meet any eventuality.”¹¹⁷ What was “any eventuality”? Between 1906 and 1914, a substantial number of small Swiss banks (83) went out of business, with capital losses amounting to 53.5 million francs and losses to

112 Bagehot (1873), p. 165.

113 Sayers (1976), vol. I, p. 2.

114 Plessis (1982).

115 Bouvier (1960), p. 282.

116 Deutsche Reichsbank (1910), p. 41.

117 SNB (1932), p. 29.

lenders of some 59 million. But there was little sense of any systemic risk, and a widespread consensus held that the failures were a consequence of poor management, fraud, or inadequate control by banks' boards. In the one case of a more generalised run, in Ticino, in 1914, the SNB initially tried to help the Banca Popolare Ticinese with an advance of 1.5 million francs against mortgage securities, but this was not enough to save the bank.¹¹⁸

The general duty of the SNB to secure commerce was interpreted as requiring sensitivity to particular branches of the economy subject to extraordinary or peculiar difficulties. In these circumstances, the SNB might loosen its usual standards applied to discounting bills. Thus, only a few days after the outbreak of war in 1914, the SNB agreed to discount 150,000–200,000 Swiss francs of the Tavannes Watch Company, in order to secure employment for 800 workers.¹¹⁹ It made other exceptional advances for industries suddenly hit by the First World War: the hotel industry in Graubünden, but also the alpine cheese industry. In 1916, it rediscounted bills to help the Basel Hypothekenbank, a bank with an almost exclusively German business that had been hit by the collapse of the Reichsmark on the exchanges.¹²⁰

The willingness to give credit for exceptional situations soon spilled over into political debates. The Swiss problem differed fundamentally from that analysed by Bagehot, in that Bagehot wanted the central bank to discount domestic bills in a crisis, while Swiss financial institutions had few domestic bills, and the question for Swiss stabilisation involved the foreign bills and other assets held by Swiss businesses and banks. In the First World War, the problem also involved foreign governments. Should credits be granted to the belligerents if they helped to preserve Swiss jobs? In 1916, the President of the Bank Council, Hirter, argued for a credit to Germany on the grounds that “if the SNB refused to take part in this credit operation, and the negotiations then fail, it would be held responsible for the economic consequences”. On the other hand, as Rodolphe de Haller of Department II pointed out, it was clear that Switzerland was more economically dependent on the Entente powers than on Germany and its allies, and that France or Britain might block Swiss assets in Paris or London.¹²¹

By the end of the War, the SNB had given 282 million Swiss francs in credit to the Entente, and 243 million francs to Germany. In January 1919, the SNB

118 Wetter (1918), especially pp.2, 143.

119 SNB, Minutes of the Governing Board (1914), 8 August, no. 786.

120 SNB, Minutes of the Governing Board (1916), 27 July, no. 527.

121 SNB, Minutes of the Governing Board (1916), 31 August, no. 625.

voted not to give any further credits to the Entente.¹²² The odd consequence of a poorly formulated doctrine thus came to be that the SNB felt it had an obligation to extend credit, not just to Swiss enterprises, but to foreign governments should that be required as a response to the needs of commerce.

In the interwar years, there were more specific problems regarding the financial system. In 1920, the Schweizerische Bodenkreditanstalt, which had a great deal of its assets in German mortgages, found it difficult to service its outstanding bond obligations, and requested a discount credit of 5.5 to 6 million Swiss francs to pay off maturing bonds. The bills it could offer were clearly not commercial bills in the sense of Kundert's discounting principles, but the SNB agreed to the support operation.¹²³

The question of financial stability came up very abruptly as a consequence of the major central European financial crisis in the summer of 1931, which endangered many Swiss banks with exposed credit positions in Austria, Hungary or Germany. After the outbreak of a general central European financial crisis in the wake of the failure of the Austrian Creditanstalt in May 1931 and the German Danat Bank in July, the Swiss banks were also affected, and their liquidity was reduced. In some cases, the losses on foreign assets produced insolvency. In July 1931, in the wake of the German crisis, it was estimated that Switzerland accounted for 13 percent of the total German short-term debt. SNB Chairman Bachmann believed that three-quarters to one billion francs had been lent by Swiss banks to Germany, but he was dependent for this data on the also imperfectly informed Reichsbank. A substantial part of the banks' assets were now frozen or subject to strict exchange controls. At the end of 1931, credits to Germany amounted to 23 percent of the total balance sheet of Credit Suisse; the equivalent figure for Union Bank of Switzerland was 20 percent (September 1931), and for Swiss Bank Corporation, 19 percent.¹²⁴ Germany accounted for half of Credit Suisse's foreign assets in 1932. The exposure remained a problem throughout the 1930s, but it was only in 1935 that the SNB began to collect systematic data about the foreign exposure of the Swiss financial system.¹²⁵ At the end of 1934, frozen loans accounted for 12.5 percent of the balance sheet of Swiss Bank Corporation, 17.4 percent in the case of Credit Suisse, and 19.5 percent for Union Bank of Switzerland. Quite a high proportion of this exposure was to Germany.¹²⁶

122 SNB, Minutes of the Governing Board (1919), 9 January, no. 37.

123 SNB, Minutes of the Governing Board (1920), 8 July, no. 596.

124 Perrenoud et al. (2002), pp. 205 et seq.; ICE (2002b), p. 262.

125 Halbeisen (1998), p. 65.

126 Perrenoud et al. (2002), p. 81.

Swiss banking problems already appeared in 1931 at the time of the great central European crisis, and for much of the decade, the position of the banks weakened. The balance sheets of the eight large Swiss banks were reduced by half between 1929 and 1938, and declared losses amounting to 7 percent of the balance sheet.¹²⁷ The only Swiss-French big bank, the Comptoir d'Escompte Genevois, had been heavily engaged in central Europe. The SNB had to provide an extraordinary credit line of 9 million francs in conjunction with a specially organised guarantee syndicate.¹²⁸ In addition, the Swiss Confederation made a special deposit of 20 million francs. In appealing for solidarity among the Swiss banks in the support action, the SNB argued that all Swiss banks were vulnerable because of their illiquid foreign assets, and that a liquidation of one bank would create panic by drawing attention to the precarious position of the whole financial system. What was needed, the SNB's Governing Board explained to a specially convened meeting of bankers in August 1931, was a "certain community of fate and solidarity". Chairman Bachmann also announced that the SNB would loosen its standards for discounting bills.¹²⁹ But the rescue attempts that culminated in a merger with the Union Financière and the creation of a new Banque d'Escompte failed, largely because of the hostility of the socialist cantonal government of Geneva to a state-supported bail-out or 'socialisation of losses', and in 1934, the bank was liquidated.

Swiss Volksbank suffered a depositor run in September 1931, after the British devaluation, as its many small-scale customers were worried about the extent of its engagement in Germany and central Europe. It survived with an injection of 100 million Swiss francs from the federal government, and two very radical capital reductions. Again, the SNB gave some credit, and engaged itself in the rescue by sending one of its senior staff, Alfred Hirs, to replace the old management of Volksbank.¹³⁰

In these rescues, the SNB refrained from too obvious an intervention. The consensus shared both by the SNB's Governing Board and by the Swiss government was that the SNB should not be dragged into a crisis of the banking system. As Federal Councillor Jean-Marie Musy, who had in the past been a stern critic of the SNB, explained after the German banking crisis of 1931, which had paralysed the Reichsbank, the SNB "must not be immobilised by an engagement in other businesses". The SNB argued that, in these circumstances, the paternal responsibility (*Fürsorgeaufgaben*) of the state was

127 Halbeisen (1998), p. 67.

128 SNB, Minutes of the Governing Board (1931), 5 October, no. 804.

129 SNB, Bank conference (1931); Quoted in Baumann (2004), p. 98.

130 Baumann (2004).

increased.¹³¹ The obvious solution was to create a new institution to deal with the problem of bad banks, analogous to the US National Credit Corporation and the German Akzept- und Garantiebank of 1931. The name ‘Eidgenössische Darlehenskasse’ recalled the institution established in 1914 and liquidated ten years later; but unlike the 1914 *Darlehenskasse*, the new institution was not supposed to lend primarily on the security of Swiss assets, but was required to give credit on the basis of non-realizable foreign assets. Unlike the 1914 body, it was not completely state-backed: 75 million Swiss francs of the 100-million guarantee came from the Confederation, and the rest from the banking industry. Its leverage was greater than this, however, in that it could discount its bills at the SNB, and thus play into a lender of last resort operation of the central bank.

The accompaniment of greater support was a demand for increased control and supervision of banking. In the wake of the German crisis of 1931, the FDF suggested the creation of a bank supervision authority. The SNB proposed a much more modest solution, in which there would be ‘closer contact’ between the private banks and the SNB: the cantonal banks, it argued, were already subject to state control. Banks should submit monthly balances, which would be published in an aggregated form and the SNB would further be in a position to demand additional information from the banks. The SNB argued that “the interest of the public in our bigger banks is such that one could not be allowed to fail”.¹³²

The outcome of the discussion on bank control was the 1934 Banking Act, which required audits of banks, but avoided any substantial extension of supervision and regulation. The major architect of the law, Paul Rossy, who was on secondment from the SNB to the government, and later became Vice Chairman of the SNB’s Governing Board, explained that the law “lacked any statist quality [...], it leaves to banks all flexibility and all the possibilities of development and adaptation to an economic world that is constantly changing.”¹³³ It did not solve the problem of pressure on the SNB to mount particular rescues for endangered sectors of the economy (cf. chapter 10.4.2), a practice that was followed by other central banks at the time. The Bank of England in the Depression, for instance, devoted a great deal of its efforts to organising a coordinated rescue for the Lancashire cotton textile industry. In the late summer of 1936, on the eve of the devaluation, with a generally

131 Quoted in Baumann (2004), p. 99.

132 SNB, Minutes of the Governing Board (1931), 27 August, no. 689.

133 Rossy and Reimann (1936); Perrenoud et al. (2002), p. 111.

depressed economy and an increase in political radicalisation, the SNB agreed to a more generous discounting of the bills of the cantons and municipalities, providing that these were in a financially solid state with balanced budgets.¹³⁴ The idea was to give some support to the building industry.

1.9 Stabilisation policy

1.9.1 Introduction

It is actually hard to separate very precisely the debate about lender of last resort functions from a general requirement that the central bank should orient its policy not merely towards the avoidance of financial panic, but also towards general macroeconomic stabilisation. Indeed, in the highly charged political atmosphere after World War I, the SNB explained its rapid reduction of the discount rate in terms of “as was repeatedly said, the interest of commerce and industry, indeed the interest of our whole crisis-shaken economy. Not only the interest groups pressed us repeatedly, but the supreme national authorities let themselves make representations to the National Bank.”¹³⁵ The SNB seemed quite proud to have been obliging.

By the 1930s, the SNB was much more resistant to this kind of pressure, in part because of the legacy of the inflationary era, which had done a great deal to produce the high level of politicisation; and in part because it was aware of the tension between domestic stabilisation and the maintenance of the exchange rate regime. In particular, it regarded demands for an expansion of credit with great suspicion. In early 1936, the Governing Board discussed the possibility of using open market purchases of securities as a way of reaching a credit expansion. It pointed out that such purchases would be counter to the National Bank Act, which only permitted a ‘temporary’ placement of money in treasury bills or bonds. “It cannot be disputed that under some circumstances a credit expansion can produce good effects. But it is uncertain whether these effects will be realised. The Governing Board tends rather to the view that there could at best develop the illusion of a recovery, which will not consolidate into a genuine recovery [...]. Finally the most important danger should be mentioned: inflation.”¹³⁶ In consequence, the SNB turned away quite decisively from the idea that it had a responsibility to conduct a general stabilisation of the crisis-hit economy of the 1930s.

134 SNB, Minutes of the Governing Board (1936), 3 September, no. 943.

135 SNB, Criticism of SNB (1924).

136 SNB, Minutes of the Bank Committee (1936), 4 February, pp. 65–66.

1.9.2 Evaluation using a modern Taylor rule

The approach of Taylor,¹³⁷ who applied his rule retrospectively¹³⁸ to US monetary history, may be used as a way to evaluate quantitatively the SNB's policy in its early years. Taylor argued that a simple quantitative relationship between the short-term policy instrument and the deviation of real GDP from trend (the output gap) and of the inflation rate from some target level could be used to evaluate monetary policy across historical regimes. Taylor demonstrated that his rule could be derived simply from the quantity theory of money and could be applied to regimes as diverse as the classic gold standard with the central bank playing by the rules of the game to the 'leaning against the wind' policies of the 1950s and 1960s to present-day policies of implicit and explicit inflation targeting.

The resulting calculations compare the interest rate derived from a retrospective Taylor rule calculation for the 1914–1945 period, using a rule calculated by the SNB for the 1980–2004 period, with actual Swiss interest rates at the time (cf. graph 1.12).¹³⁹

As can be clearly seen in the graphs, the SNB's policy was generally too loose during World War I and then too tight thereafter, virtually all the way to the eve of World War II, when it again became too loose. Moreover, graph 1.12b shows that the high level of the Taylor rule rate during the First World War, the low post-war level and the return to a high level in the late 1930s reflects both large inflation/deflation shocks as well as real output shocks. This evidence suggests that over much of the pre-World War II period monetary policy was not closely geared to either inflation or output stability. The principal exception to this is the gold standard period, which exhibits much more modest swings in the Taylor rule rate. However, the fact that it is below the official discount rate through most of the gold standard period reveals a deflationary bias to monetary policy.

1.10 Post-war order

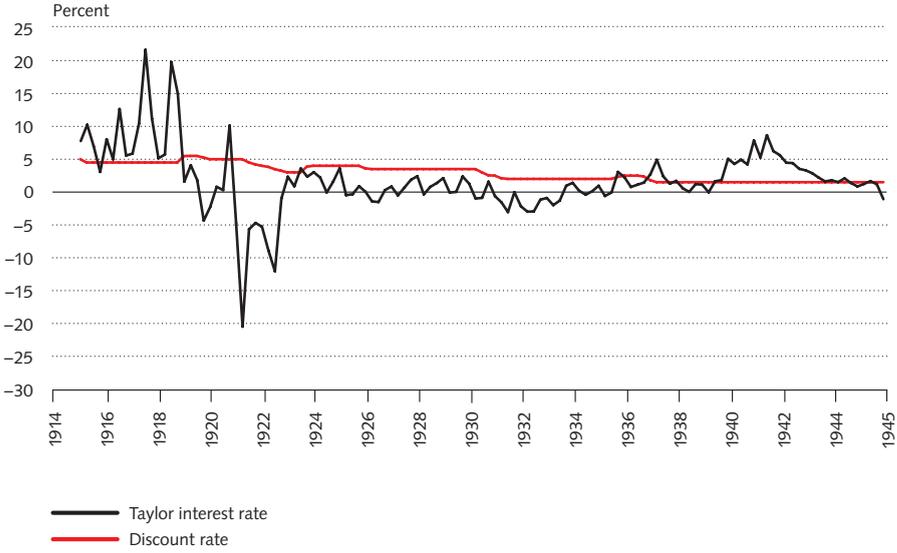
Switzerland as a neutral country was not involved in the 1944 monetary conference of the United Nations (the name of the wartime coalition) at Bretton Woods, which provided an institutional design for the post-war monetary order. Swiss policymakers regarded the outcome of Bretton Woods with some suspicion. A confidential report by the *Neue Zürcher Zeitung* journalist

137 Taylor (1999).

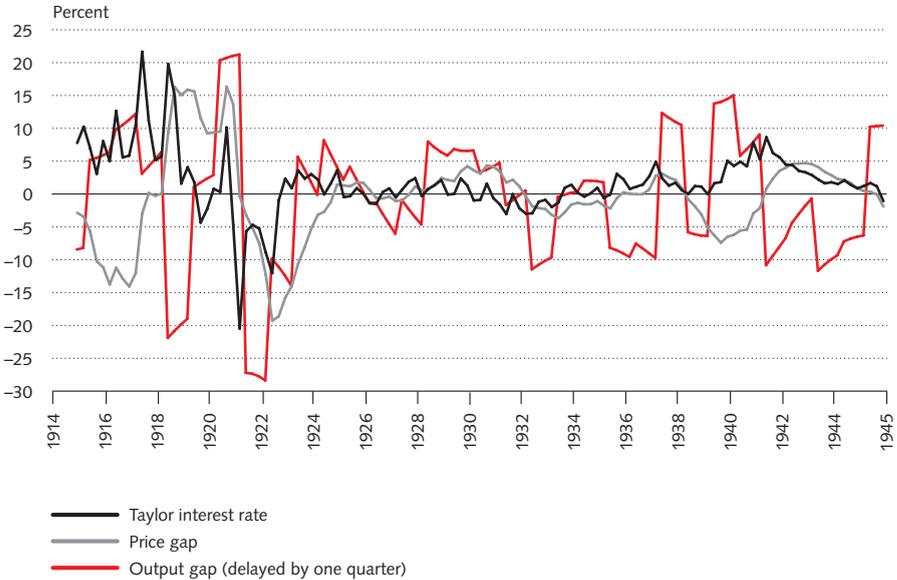
138 Taylor (1993).

139 Cf. Appendix II.

Graph 1.12a
Taylor interest rate and discount rate, 1914–1945



Graph 1.12b
Components of Taylor interest rate, 1914–1945



Sources: SNB (1944); SNB, Monthly Statistical Bulletin (1943, 1944, 1945); Historical Statistics of Switzerland (1996); calculations by the authors.

Walter Bosshard forwarded to the government in August 1944, quoted a British official as saying that “Switzerland will never accept the proposals of Bretton Woods as they contain certain conditions which are too contrary to our economic and financial traditions.”¹⁴⁰ In particular, the underlying philosophy of Bretton Woods, which envisaged a liberalisation of the current account, but the permanent limitation and regulation of capital flows, was alien to the Swiss view as it had developed in the interwar years. When the Swiss government finally rejected the possibility of working with the Bretton Woods institutions, it based its position on the need not to publish information that would threaten the Swiss conception of property rights and hence was incompatible with the *ordre public*; and on the more specific and immediate fear that the International Monetary Fund (IMF) would be used to declare the convertible Swiss franc a ‘scarce currency’, against which members could take restrictive sanctions. The disclosure requirements of the IMF were treated as an attempt at American ‘economic espionage’.¹⁴¹ But Bosshard’s report ended on a sceptical note about the likelihood of the Bretton Woods agreements ever being implemented, because of the split between Britain and the US and because of hostility from the New York banking world. He argued that it was more likely that economic and monetary cooperation would occur in a regional context.

Bosshard wanted Switzerland to make a greater effort to participate in the new international institutional framework that was being created, and was appalled that Switzerland had not taken the opportunity to send an observer to Bretton Woods. He was, however, also acutely aware of how the hostility of the US authorities, in particular of the Treasury, towards Switzerland because the wartime record had poisoned the atmosphere for international cooperation in Switzerland. But it was not just the Americans who were antagonistic. Bosshard also quoted a conversation with British officials in which the SNB’s leadership was dissected: “They told me that at the SNB an unworldly lack of planning prevailed that only produced head-shaking in London and no longer aroused any surprise. The older gentlemen of the Governing Board were living with nineteenth-century views, and often did not even know what they wanted. If these people should still be at the helm after the War, London would be resolved to apply a different and harsher policy towards Switzerland.”¹⁴²

140 Bretton Woods Report (1944).

141 Tanner (2003).

142 Bretton Woods Report (1944).

The flawed discussions of 1943 and 1944 certainly influenced the SNB's attitude after the War, when the problematic character of the gold purchases was a major theme of the negotiations with the Allies, and in particular during the course of the negotiation of the Washington Agreement. Two possible defence arguments were made: one that neutrality required the purchases (which was as unpersuasive as its opposite, articulated on occasion by the Allies, that the purchases were a violation of neutrality). In fact, the law of neutrality neither forbade nor required such purchases: they were merely permitted. The second line – that the SNB had no reason to believe that the gold was not pre-war German gold – was a weak one, and was contradicted by the Allies' interrogation of Reichsbank Vice President Puhl, who stated that the SNB's Governing Board had been aware of the Belgian issue. The Swiss case was further undermined by a bitter struggle between the members of the Board of the SNB as to who had been responsible for the wartime gold policy, and by the fact that the US had access to internal Swiss documents revealing the internal Swiss debates (as well as the anti-Semitic comments and attitudes of SNB's Governing Board member Alfred Hirs).

The eventual outcome of the Washington Agreement – Switzerland's payment of 250 million Swiss francs, of which the SNB contributed 100 million, in return for the surrender of all claims against the SNB concerning gold acquired from Germany during the War – was based in large part on the Allied calculation of the amount of Belgian gold that was likely to have reached Switzerland. At that time (May 1946), the fate of the Dutch central bank gold – some of which had also been sold by Germany to Switzerland – and of private gold (such as the Melmer deliveries to the Reichsbank) had not been clearly established by the Allies. The Dutch government only realised subsequently, when it was too late to change the terms of the Washington Agreement and the amount to be paid by Switzerland, that the explosive issue of the Dutch gold (which was presumed to contain a substantial amount of gold taken from private citizens, victims of the Nazi occupation) had been completely forgotten or ignored in Washington.

The tense international diplomacy of 1943–1946 also left a legacy for Swiss thinking and Swiss policymaking. At the time of the creation of the SNB in 1907, the new central bankers fully accepted the prevailing international doctrines about central bank practice. By 1944, Swiss central bankers were not disposed to follow prevailing international doctrine, as expressed at Bretton Woods: in particular, they did not accept that it was possible or desirable to control capital movements, as the makers of Bretton Woods firmly believed; and the experience of 1936/1937 had also led to a certain scepticism

about a fixed rate system and a willingness to live in a world with floating currencies (*schwankende Währungen*). From the perspective of London and Washington, this Swiss philosophy appeared as ‘planlessness’ or as a curious relict of the nineteenth century. It may not have been politically astute – and aspects of the policy in relation to Nazi Germany had been morally and legally dubious as well as politically unwise. But as an approach to monetary policy, the highly unfashionable Swiss view at the middle of the century proved to be the prevailing view among international economists and central bankers from the 1970s onwards. It may be that Switzerland needed a certain political isolation in order for that philosophy of central banking to have continued despite a hostile intellectual and political climate.

1.11 Conclusion

The SNB was conceived as a way of rationalising the payments system in a small country on the fringes of the interconnected world of the international gold standard as it had evolved in the late nineteenth century. The major fundamentals that shaped the room for policy – the metallic convertibility of currency and the freedom of capital movements – arose from the circumstances and requirements of the system, and not from the choice of legislators or central banks. The central banks were facilitators, but not coordinators of the gold standard world. Like the US Federal Reserve, the SNB was a late birth, conceived in response to the perception of market failures in the payments system. Within a relatively short time, the international financial system of that era was swept away by the First World War, and the new central banks had to live in the very different circumstances of inconvertibility and the widespread imposition of exchange and trade controls.

Unlike earlier central banks, the SNB was also the creature of a democratic age, in which participatory politics mattered much more, and in which political requirements, in the composition of the Bank Council, and in the length of the mandate of the Bank, were designed to make the Bank responsive to national needs and requirements.

The test of the new central bank in practice came with international crises: immediately in 1907, with the suspension of gold payments that followed the outbreak of war in 1914, and with the post-war depression. Compared to other central banks, the SNB handled all these problems quite well. Switzerland did not have to suspend internal convertibility (of deposits into currency) in 1907, as was the case in the US, or take drastic action to cut back bank credit, as in Germany or Italy. Unlike other central banks in Europe and the United States, the SNB engineered a relatively smooth disinflation in 1919,

with a severe, but very short-lived downturn. The others waited for another year of inflation before contracting, thereby precipitating a much more serious depression. Even in the Great Depression of the 1930s, the SNB did not obviously fail in policy terms, at least in comparison with other more prominent central banks. In the United States, Britain, Germany and France, the central banks' response to the collapse of the liberal international economic order was woefully flawed. The Federal Reserve System failed to prevent the monetary and banking collapses of 1930–1933. The Bank of England was humiliated by the circumstances of the departure of sterling from the gold standard in 1931 and did not recover its institutional rationale (and operative independence) until the end of the century. The Reichsbank was effectively brought down by the German bank crisis of 1931; and the Banque de France was subject to ferocious and fundamental political attacks.

An assessment from a modern perspective of Swiss policy at that time nevertheless points out some major policy flaws. The modelling of alternatives to maintenance of the gold standard between 1931 and 1936 shows that an earlier departure from the gold parity would have produced significant economic gain. The retrospective fitting of the modern monetary Taylor rule makes clear the sustained deflationary bias of policy in the 1920s and 1930s.

In the Swiss case, it is striking how the policy choices were discussed. To be sure, there were debates about Swiss policy and the maintenance of the gold standard, but they were conducted in a more general framework and focused on the policy of the federal government, not on the alleged influence of the central bank; and after the devaluation in 1936, the major political discussion focused less on who was responsible than on how the devaluation profits of the SNB should be divided up between Bank and government. While the policies of the Federal Reserve System, the Bank of England, the Banque de France and the Reichsbank increasingly became the focus of national political controversy in the 1930s, the Swiss debate focused less on the National Bank. Perhaps because of the increasingly threatened geo-political position of Switzerland, the central bank increasingly became part of a consensus about national institutions. In the Second World War, there was surprisingly little controversy about the SNB and its actions. The SNB thus moved from being the focus of considerable debate in its early years to becoming a venerable national institution.

The relatively uncontentious performance from 1907 through the 1930s explains why, domestically, the SNB was able to maintain a tradition and a philosophy that – by comparison with what was happening in other countries

– looked quite outmoded. It did not adopt the deliberate use of stabilisation policy and domestic and international controls followed by the other advanced countries. The (legitimate) international criticism of its role in the Second World War (in which the SNB behaved in very different circumstances in much the same way as it had during the First World War) isolated the National Bank from peer pressure that might have been applied by other central banks, which were now being run on very different lines. The result was that the SNB retained a high level of commitment to a culture of monetary stability, and a low proclivity to see its mission as harnessed to government-led efforts at macroeconomic stabilisation. The policies of the 1930s thus created a useful monetary starting point for the post-war era, and laid the foundations for a later stability culture.

1.12 Appendix 1: Exchange rate policy in the 1930s¹⁴³

1.12.1 Theory

To examine policy alternatives, a two-stage strategy is used. The first step is a policy simulation of a modified McCallum-Nelson model (a simple open economy macromodel).¹⁴⁴ Then policy simulations are conducted with a more extended macromodel with capital flows and the banking sector.

A micro-based monetary macromodel extended to include trade with several partners is used. The model incorporates a specie-flow monetary adjustment channel, unlike modern versions of the model where an interest rate rule typically defines the nominal anchor. The model has the following main components:

- *Aggregate demand* behaviour is modelled along standard lines. Demand depends positively on past income (for a fraction of liquidity-constrained consumers/firms), on expected future income (for a fraction of forward-looking consumers/firms), foreign income, and the real exchange rate (defined as foreign prices in Swiss francs over domestic prices). It depends negatively on expected real interest rates.
- *Aggregate supply* depends negatively on the real exchange rate, reflecting the assumption that all imports are imports of intermediate goods, which in turn are a factor of production. Everything else being equal, a real devaluation/depreciation reduces potential output through its adverse effects on factor prices.

¹⁴³ Written with Thomas Helbling of the IMF.

¹⁴⁴ McCallum and Nelson (2001).

- The *demand for base money* depends positively on prices and income and negatively on the nominal interest rate. The change in base money is given by the overall balance in the balance of payments. The latter depends on the merchandise trade balance, which is endogenous in the model, and net inflows, which are exogenous.
- *Import demand* depends positively on domestic income and negatively on the real exchange rate.
- *Inflation* is determined by a hybrid Philips curve along the lines of Fuhrer and Moore,¹⁴⁵ where both expected future inflation and lagged inflation enter. In addition, inflation depends positively on the output gap.

The model also includes a number of shocks. Given the primary purpose of policy simulations, the model includes shocks for all behavioural equations. There are shocks to aggregate demand, aggregate supply, money demand and money supply (which is essentially the unexplained part of the balance of payments). In addition, there are also foreign demand shocks.

The key assumptions are:

- Four regions for exports and imports: gold bloc (excluding Switzerland); Germany; sterling bloc; dollar bloc (including the rest of the world).
- Output and price developments are approximated by developments in the central country for each bloc.
- Foreign prices and income are taken as given.
- Breakdown of exports and imports into prices and quantities with wholesale prices.
- Stationarity is achieved by defining all variables relative to their 1929 levels.
- Price level stationarity.

The model was calibrated using the McCallum-Nelson parameters, except for shares in international trade, which were adjusted to match Swiss data for the late 1920s. Alternative parameter values were also explored.

The model was solved and simulated using standard methods. The simulations were performed in two steps. In a first step, the model was solved and simulated for 1930–1938 with all shocks set to zero in every period. The differences between actual and simulated values were then used to calculate the shocks. In other words, the shocks were set to replicate actual values and policy choices.

In a second step, the model was solved for alternative policy scenarios. In particular, two counterfactual devaluation scenarios were explored.

- *Sterling scenario*: In this scenario, it was assumed that the Swiss National Bank unexpectedly switched from a gold peg to a peg against sterling

¹⁴⁵ Fuhrer and Moore (1995).

after the UK went off gold. For the sake of simplicity, it was assumed that the Swiss franc/sterling rate remained at its average 1931 level until 1938. Exchange rates against the other currencies (the French franc, German mark and US dollar) were calculated using current cross-rates.

- *Dollar scenario*: In this scenario, it was assumed that the Swiss National Bank unexpectedly switched from a gold peg to a peg against the dollar after the US went off gold. For the sake of simplicity, it was assumed that the Swiss franc/dollar rate remained at its average 1932 level until 1938. Exchange rates against the other currencies (the French franc, German mark and pound sterling) were calculated using current cross-rates.

A basic assumption underlying the counterfactual simulations is that the change in policy regime was unexpected and that the new regime was perceived as credible/durable by agents in the private sector.

1.12.2 Simulations

A first set of counterfactual policy simulations is based on the basic McCallum-Nelson parameters, as discussed above. In particular, export and import price elasticities are set to 0.33, while the corresponding income elasticities are set to one. The success of an earlier devaluation would depend importantly on the price elasticity of foreign demand and that of import demand. What is the empirical relevance of the McCallum-Nelson parameters for the 1930s in the case of Switzerland? Simple Ordinary Least Squares (OLS) estimates of log-linear export and import functions (in volumes) with data for Switzerland and its foreign trade partners for the 1925–1938 period yield the following elasticities (price elasticities relate to the real exchange rate, as defined above):

Table 1.1
Export demand: income and price elasticities

	Income elasticity	Price elasticity
Gold bloc	0.860	0.407
Germany	1.863	–2.358
Sterling bloc	–0.835	2.038
Dollar bloc and rest of world	0.882	1.508
Average	0.6923	0.399
Trade-weighted average	0.757	0.783
Trade-weighted average for coefficients with correct signs	1.078	1.422

An estimation of an import demand function over the same period yields an income elasticity of -0.15 and a price elasticity of -0.30 .

Overall, there is no strong evidence to support elasticity pessimism. On the contrary, while there is some evidence that exports to the gold bloc and Germany were not very sensitive to changes in the real exchange rate, more than 50 percent of merchandise exports appear to have been quite price sensitive. On a trade-weighted basis, the evidence suggests that the Marshall-Lerner condition was met, implying that one of the preconditions for a devaluation to improve the trade balance was in place. Nevertheless, the evidence is still cursory, as indicated by the presence of coefficients with the wrong sign. That said, some of the wrong signs could reflect circumstances at the time. Germany started to resort to foreign exchange controls in 1931, and the negative price elasticity may reflect this. From the perspective of policymakers at the time, such circumstances reduced the benefits of an earlier devaluation, although they did not eliminate the benefits.

To examine whether the German situation would have reduced the benefits of a devaluation, a counterfactual simulation was run based on a version of the model where exports to Germany are exogenous, thereby unaffected by a devaluation (or other measures taken by the Swiss authorities). At the same time, the estimated elasticities were used, except in the case of income elasticities with the wrong sign, where the McCallum-Nelson values were kept. To be conservative, price elasticities above 1 were multiplied by 0.5. As was to be expected, a devaluation would have resulted in substantial output gains relative to the actual path.

Switzerland benefited from substantial net inflows of foreign exchange and gold. Some of these flows must have been capital flows. An earlier devaluation may have adversely affected such flows. Assuming that the Swiss National Bank would have refrained from sterilised foreign exchange interventions, a reduction in capital flows would have reduced the benefits of an earlier devaluation through the specie-flow mechanism. Smaller net inflows would have reduced the increase in money supply, which would have led to higher interest rates. The latter would have had a dampening effect on domestic demand. Including the results of a dollar peg counterfactual simulation, where net gold and foreign exchange inflows would have been reduced by 50 percent from 1933, show devaluation benefits that would have been smaller but still substantial (cf. graph 1.11).

Robustness analysis suggests that only a combination of very low export demand price elasticities and very adverse effects on foreign exchange/gold inflows would have reduced the benefits of an earlier devaluation on output to the extent that such a policy choice would have been counterproductive.

1.13 Appendix II: Application of the Taylor rule

1.13.1 Theory

Taylor's original rule is expressed in equation (1)

$$(1) r = \pi + qy + h(\pi - \pi^*) + r^f$$

where r is the short-term (policy) interest rate, π is the inflation rate, y is the deviation of real output from trend, π^* is the target rate of inflation and r^f is the equilibrium real rate of interest. q and h represent the responses of the (policy) interest rate to fluctuations in the real economy and to inflation. According to Taylor, both q and h should be positive. In the case of the former coefficient (q), the output gap would elicit a tightening in monetary policy, in the case of the latter, h should not be negative because then the interest rate would decline rather than rise when inflation increased.¹⁴⁶

Taylor's approach is applied to the case of Switzerland from 1914–1945. During that period, the SNB adhered to two different policy regimes: the gold standard from 1925–1936 and a managed or a discretionary policy regime from 1914–1925 and 1936–1945. Under the gold standard regime, the short-run response of the interest rate to the inflation rate would be positive, reflecting the operation of the price specie-flow mechanism. If the central bank followed the rules of the game to speed up the adjustment mechanism, the coefficient would be larger. Also, under the gold standard, the interest rate should rise in response to an increase in output reflecting an increase in money demand, or an increase in the trade deficit. Under a managed-type regime, the central bank would view equation (1) as a reaction function to changes in two possible key macro objectives, price and output stability.

The methodology is twofold. First, Taylor rules for Switzerland from the 1914–1945 period are estimated using available data; second, policy is evaluated by comparing the interest rate generated by the SNB's own version of the Taylor rule, adapted to the historical data, to the actual policy interest rates at the time.

1.13.2 Estimated Taylor rules for Switzerland: 1914–1945

The approach to estimating a Taylor rule for Switzerland is to follow Romer and Romer,¹⁴⁷ who conduct such an exercise to evaluate Federal Reserve policy in the 1950s. They estimate the forward-looking Taylor rule from Clarida, Gali and Gertler,¹⁴⁸ in which the Federal Reserve chooses its federal funds rate in response

¹⁴⁶ Taylor (1999), p. 236.

¹⁴⁷ Romer and Romer (2002).

¹⁴⁸ Clarida, Gali and Gertler (2000).

to inflation and the deviation of output from trend. It is forward-looking because the Federal Reserve is assumed to respond to expectations of the variables.

The following equation is estimated using quarterly data over the 1914–1945 period:

$$(2) \ i_t = \alpha + \beta E_t \pi_{t+1} + \gamma E_t (Y - \bar{Y})_{t+1}$$

where i_t is the official discount rate, π_t is the CPI inflation rate and $(Y - \bar{Y})$ is the deviation of the log of real GDP from its Hodrick-Prescott (HP) filtered trend. The same regressions using the Lombard rate as the policy rate generated results (not shown) quite similar to those derived from the official discount rate. The equations are estimated using an instrumental variables regression. The instruments are: contemporaneous and two lags of inflation, and contemporaneous output deviations.

Table 1.2 shows the quarterly results. The data is demarcated into three regimes: A: 1914.1–1925.1 when Switzerland was off the gold standard; B: 1925.2–1936.3 after it returned to gold; and C: 1936.4–1945.4 after Switzerland devalued the franc and floated.

As a comparison to the historical data equation, (2) is estimated over the 1980.3–2004.3 period using recent data from the SNB.¹⁴⁹

As can be seen in table 1.2, the coefficients on inflation and output are very small and are only significant in the middle period of 1925–1936 when Switzerland was on the gold standard.¹⁵⁰ These results are very similar to John Taylor's findings.¹⁵¹ He shows that the coefficients on inflation and the output gap are only a fraction of what he finds for the post-World War II period.¹⁵² He interprets his results as suggesting that the US monetary authorities in the historical period were much less responsive to movements in inflation and real activity than their modern counterparts. The results for Switzerland may be similarly interpreted, as can be seen in a comparison with table 1.3.

As an alternative approach, an ordered probit model of the Taylor rule was estimated following the approach of Dueker.¹⁵³ This approach allows an accounting for the very infrequent changes in the SNB policy interest rate in this period. The results are very similar to those in table 1.2, the responses of the official discount rate to movements in the inflation rate and the output gap were less than 0.10.

149 We would like to thank Katrin Assenmacher of the SNB for generating this regression.

150 Results using deviations of the price level from trend as an alternative regressor to the inflation rate were quite similar.

151 Taylor (1999).

152 Taylor (1999), table 7.1, p. 330.

153 Dueker (1999).

Table 1.2

Forward-looking Taylor rule using quarterly inflation and the official discount rate

A: 1914.1–1925.1

	Coefficients	Standard errors	P values
Constant	4.315	0.115	0.000
Inflation	0.008	0.007	0.262
Output	0.003	0.011	0.780

B: 1925.2–1936.3

	Coefficients	Standard errors	P values
Constant	2.906	0.093	0.000
Inflation	0.063	0.025	0.017
Output	0.057	0.012	0.000

C: 1936.4–1945.4

	Coefficients	Standard errors	P values
Constant	1.515	0.017	0.000
Inflation	−0.001	0.001	0.416
Output	−0.001	0.001	0.381

Table 1.3

Forward-looking Taylor rule using quarterly inflation and Libor

1980.3–2004.3

	Coefficients	Standard errors	P values
Constant	1.123	0.404	0.006
Inflation	1.290	0.190	0.000
Output	0.190	0.208	0.362

1.13.3 An ex-post evaluation of SNB policy: 1914–1945

Taylor used his original rule,¹⁵⁴ which was calculated to describe Federal Reserve policy in the 1980s, to evaluate monetary policy in earlier eras.¹⁵⁵ With the same parameters as in his original rule, he calculated a Taylor rule interest rate for the 1880–1914 and 1955–1997 periods, and then compared his rule rate to the actual policy rate in each of these regimes.¹⁵⁶ The gap between the two rates then represents an ex-post measure of policy performance.

For Switzerland, a similar exercise starts with a simple variant of the SNB's Taylor rule calculated by the SNB for the 1980–2004 period. This is then used to calculate Taylor rule interest rates for the 1914–1944 period. The rule the SNB currently follows (2005) is:

$$(3) \quad i_t = r + \pi_t + 0.5(\pi - \pi^*)_t + 0.5(y - y^*)_{t-1}$$

where the weights are set at 0.5 each as originally suggested by Taylor.¹⁵⁷ The SNB assumes the target (CPI) inflation is 1 percent, the real interest rate r is set equal to 1.4 percent, the average growth of HP filtered real GDP 1980–2004. The trend growth of output used to calculate the output gap is generated using an HP filter with λ at 3,200. Graph 1.13a shows the SNB's Taylor rule for the three-month Libor interest rate from 1980–2004.¹⁵⁸ Graph 1.13b shows the components of the Taylor interest rate.

This metric was extended to the 1914–1945 period using quarterly data, using the same weights as in equation (3). A Hodrick-Prescott filter is used to measure the trend inflation rate and the trend growth rate of real GDP. The measure of inflation used is the CPI. Industrial production is used as a proxy for real GDP because quarterly GDP data is unavailable in the period of enquiry. Graph 1.12a shows the Taylor interest rate compared to the official discount rate for 1914–1945. Graph 1.12b shows the underlying inflation and output gap series used to calculate the Taylor interest rate for 1914–1945.

154 Taylor (1993).

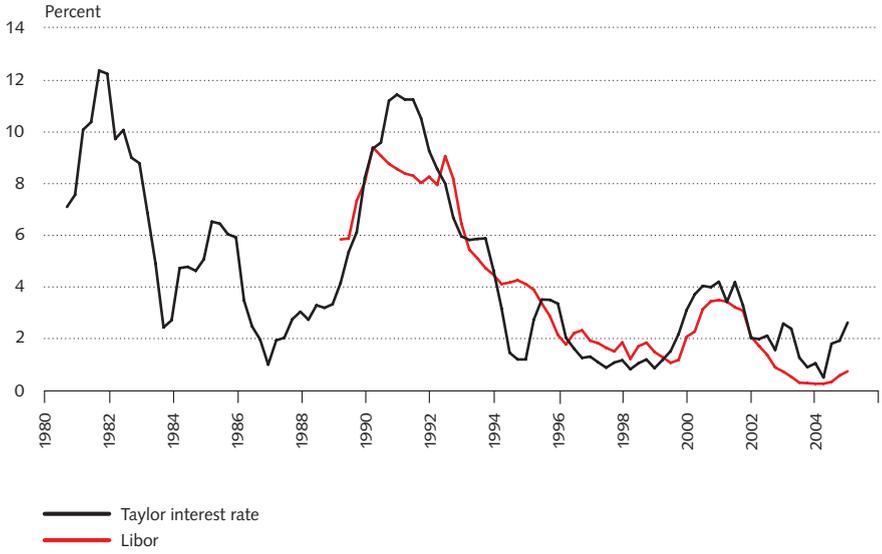
155 Taylor (1999).

156 Orphanides (2003) conducted a similar exercise for the interwar period in the US.

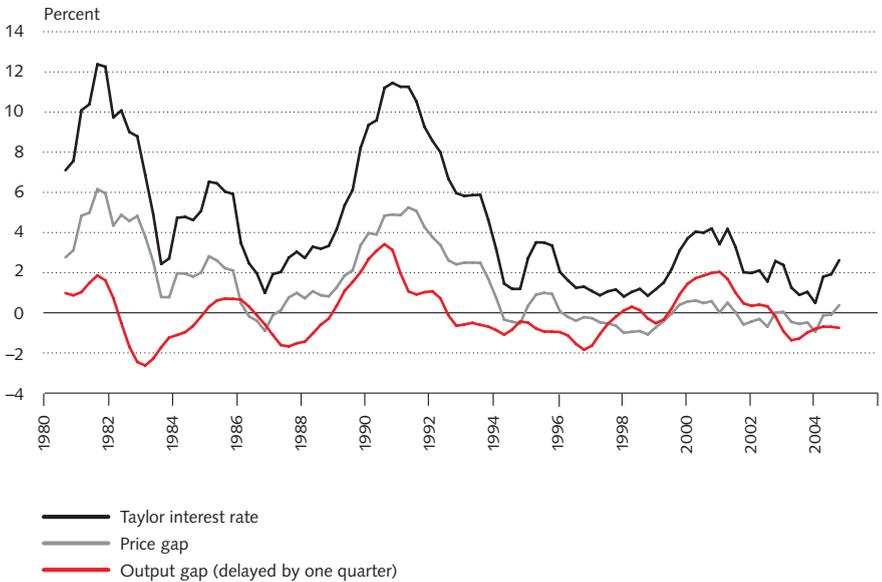
157 Taylor (1993).

158 The SNB also has calculated eight other variants of its rule using alternative methods to calculate the output gap and the inflation rate.

Graph 1.13a
Taylor interest rate and Libor, 1980–2004



Graph 1.13b
Components of Taylor interest rate, 1980–2004



Sources: SNB, Monthly Statistical Bulletin (various years); calculations by the authors.

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2 From 1945 to 1982: the transition from inward exchange controls to money supply management under floating exchange rates¹

PETER BERNHOLZ

2.1 Introduction

During the period reviewed in this chapter, the Swiss National Bank faced considerable problems which, over the decades, have gradually led to radical changes in its policy, its importance as an institution, its policy instruments and the legal framework within which it operates. These problems originated in the collapse of the gold standard (which had been reintroduced after the First World War) as a result of the Great Depression, in the international transition to exchange controls with bilaterally agreed and limited trade and payments, and in the further restrictions applied during the Second World War, which led, among other things, to the freezing of Swiss assets – including those of the SNB – in the United States and the United Kingdom.

In the post-war period, the main task – and one that also faced Switzerland – was therefore to return to a freer exchange of goods and services and, allied to that, freer payments. Achieving this objective was to prove a difficult and gradual process, supported initially by bilateral agreements and the granting of loans. However, when the countries of Western Europe, under US pressure and with US support in the form of the Marshall Plan, decided in 1949 on a gradual return to multilateral trade and currency relations and founded the European Payments Union (EPU), the Federal Council realised that it was not in Switzerland's interest to remain on the sidelines. It therefore decided to join the EPU, even though Switzerland was not one of the beneficiaries of Marshall Aid. The EPU created the necessary conditions for an extensive liberalisation of trade and payments, thereby paving the way for the transition to the European Monetary Agreement (EMA) in 1958 that enabled

1 I am grateful to Patrick Halbeisen for his generous help and to Stefanie Schnyder and Evelyn Ingold for their hard work in collecting and processing the data reproduced in the tables. My thanks also go to the SNB for making it possible for me to study the highly informative documents relating to it at the Bank of England in London. I also wish to thank Hans Bär, John Lademann, Kurt Schiltknecht, Günther Schleiminger and Hans Stahel for agreeing to interviews and so providing me with valuable background information.

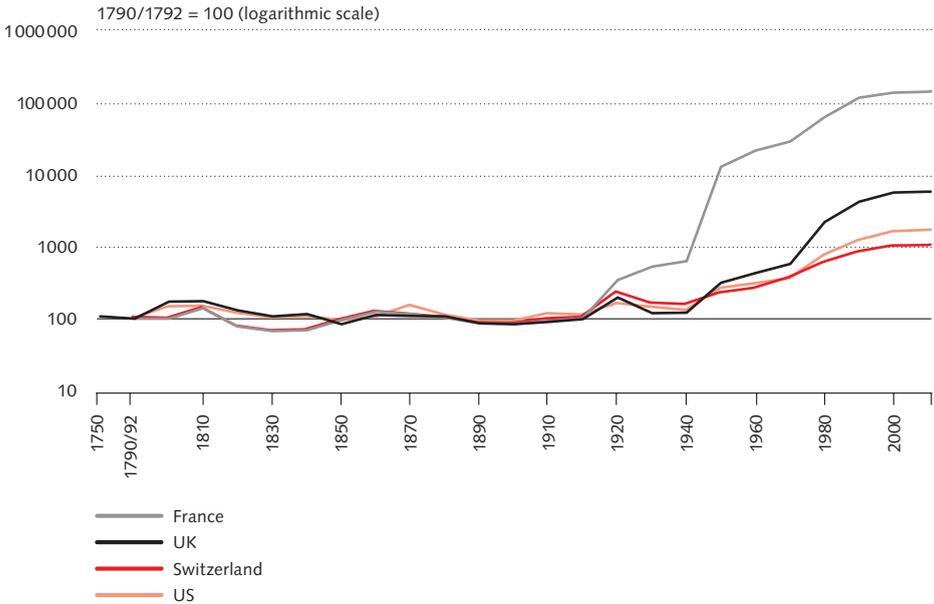
the restoration of non-resident convertibility, i.e. the unimpeded buying and selling of the major currencies by non-residents.

This return to convertibility took place under the Bretton Woods system – in effect a ‘watered-down’ gold-based monetary system with fixed exchange rates that provided for certain overdraft facilities in the event of temporary balance of payments difficulties. ‘Watered down’, because gold convertibility, i.e. the option of exchanging gold for dollars at the US Treasury and vice versa at the fixed price of 35 dollars per ounce (gold parity) was now no longer open to everybody, but only to monetary authorities. Although Switzerland did not become a member of the Bretton Woods Institutions until 1992 (cf. chapter 6.2), it was nonetheless linked to them via free convertibility and the fixed exchange rate system.

However, just over ten years after the transition to convertibility, the Bretton Woods system collapsed, since the United States in particular – but other countries as well – were not following the rules of the gold-based monetary system and were instead pursuing an excessively expansionary monetary policy. In the United States, this led to balance of payments deficits and outflows of gold, while in stability-oriented countries, such as Switzerland and Germany, it resulted in so-called ‘imported’ inflation, since inflows of foreign currency and gold were not being offset, thereby inflating the monetary base. The decline in US gold reserves prompted President Nixon to terminate the limited gold convertibility in August 1971, whereupon the major countries were virtually forced to move to a system of flexible exchange rates in early 1973. This greatly increased the clout of the central banks concerned, since they were now able to operate an independent monetary policy for the first time.

The SNB was just as irresolute as the legislator in taking the necessary steps to deal with the aforementioned problems in the post-war period. For a long time, it had hoped that there would be a return to a fully-fledged gold standard. Retaining the statutorily fixed price for gold in Swiss francs was thus the most dominant theme – the first *leitmotif* – in SNB policy until 1973. Maintaining this gold parity resulted in corresponding fixed exchange rates as long as other countries did not change their parity against the dollar. In fact, the gold standard was not formally abandoned in Switzerland until 2000, by way of an amendment to the Federal Constitution (cf. chapter 9.2). This attitude on the part of the SNB, which, for a long time, was widely shared by the government, politicians, business and academics, is understandable up to a point, especially since it had been possible to re-establish some sort of gold-based international monetary system (albeit a watered-down version) after World War II in the form of the Bretton Woods system. Furthermore,

Graph 2.1
Trend in cost-of-living indices in four developed countries, 1750–2006



Sources: Mitchell (1976), IMF (1980 et seq.).

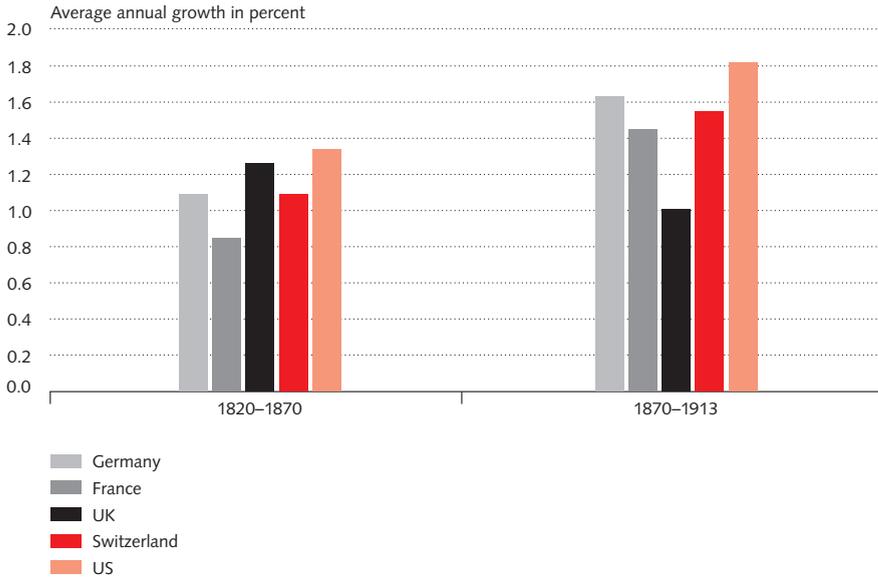
experience with the gold standard before 1914 had been quite positive. Unlike later monetary systems, it had guaranteed long-term price stability and had nonetheless allowed sustainable per capita growth in gross national product (GNP) (cf. graphs 2.1 and 2.2).

In addition to maintaining the parity of the franc – and therefore fixed exchange rates against the major currencies – a second dominant theme or *leitmotif* in SNB policy was to allow the money supply to rise only in line with the growth of the economy, so that any inflationary trend could be suppressed as far as possible. Inevitably, however, the two objectives were mutually incompatible and therefore led to difficulties.

As a neutral country, Switzerland had emerged from the Second World War relatively unscathed and had even managed to largely maintain the convertibility of the Swiss franc versus foreign currencies and gold. Since the gold parity had not been altered and the gold standard, with its adjustment mechanisms, had collapsed as a result of the Great Depression – and Switzerland was lucky enough to find itself in a relatively favourable economic situation – the Swiss franc had come to be undervalued. The net result was a balance of payments surplus and thus an inflow of gold and foreign exchange

Graph 2.2

Average annual growth in per capita GNP in five Western countries, 1820–1913



Source: Maddison (2001), p. 186.

into the National Bank. Together with the federal government, the SNB took measures aimed at counteracting this, since the purchases of gold and foreign exchange were boosting the monetary base, thereby fuelling inflation. In the 1940s, these measures – which the Basel-based economist Edgar Salin aptly termed *Devisenbann-Wirtschaft* (policies to repel foreign exchange; referred to here as ‘inward exchange controls’)² – involved, among other things, a splitting of the dollar market and export quotas. Switzerland’s situation was in stark contrast to the currency position in most other countries, such as the UK and France, where fixed exchange rates for their own currencies had been set too high and were creating a shortage of gold and foreign exchange, thus forcing these countries to introduce rigorous outward exchange controls.

Switzerland’s inward exchange controls remained in place even after the transition to convertibility at the end of 1958 – and even after the collapse of the Bretton Woods system and the changeover to floating exchange rates in 1973. The reason for this now lay in the overshooting of exchange rates relative to purchasing power parity versus trading partners that is typical of floating

² Salin (1964).

exchange rates,³ which for Switzerland generally meant that the Swiss franc was overvalued. For a small country like Switzerland in particular, this was undesirable, because export goods (of key importance to Switzerland) became more expensive abroad. The authorities therefore took countermeasures, which included limiting inflows of capital from abroad, for example by introducing investment prohibitions and negative interest rates on non-residents' bank balances in Switzerland and imposing restrictions on borrowing abroad.

In addition to inward exchange controls, which proved to be largely ineffective and were therefore abolished in 1979, Swiss monetary policy in the 1960s was notable for its contribution to the attempt to rescue the Bretton Woods system, with its fixed exchange rates, by international lending, in accordance with the National Bank's first *leitmotif* of not altering the Swiss franc's gold value. This meant a major change in the SNB's currency policy, since previously only the Swiss Confederation had been regarded as being responsible for granting international loans. A more significant turning point was the development of an independent money supply policy following the transition to floating exchange rates, with the emergence before long – as mentioned above – of a conflict between the SNB's policy of maintaining price stability and the objective of keeping the overvaluation of the Swiss franc within limits.

Another distinguishing feature of Swiss monetary policy and of economic policy as a whole was the institutionalised involvement of pressure groups in the decision-making processes – something not generally found in other countries. This peculiarly Swiss custom probably has something to do with the special features of the political system, such as direct democracy with referendums and popular initiatives, concordance government (a sort of grand coalition), federalism and a federal administration, whose structures had for a long time been only poorly developed. The main lobby groups were Vorort (Swiss Federation of Commerce and Industry) and the Swiss Bankers Association (SBA), but others included the big banks and the associations of individual sectors, such as those of the watchmaking and textile industries. The importance of non-governmental regulations in monetary policy can be seen from the fact that, on a number of occasions, the SNB even signed agreements – or at least entered into gentlemen's agreements – with the SBA, the big banks and the watchmaking and textile industries.

Chapter 2.2 will examine developments up to the end of the EPU and the transition to convertibility. Chapter 2.3 will then outline the changes in the

3 For a historical analysis of this phenomenon, cf. Bernholz (1982).

SNB's monetary policy in connection with the attempt to stabilise the Bretton Woods system. Finally, chapter 2.4 will analyse the development of money supply policy after the transition to floating exchange rates, as well as its repercussions.

2.2 Switzerland's emergence from isolation and the hesitant abolition of inward exchange controls

2.2.1 Foreign trade policy

At the end of World War II, Switzerland found itself faced with considerable political and economic problems, even though its productive apparatus had escaped destruction, the Swiss National Bank had ample gold and foreign exchange reserves and the convertibility of the Swiss franc had been successfully maintained. As a result, the franc had become a much sought-after currency internationally. Difficulties arose from the disruption of trade relations with the war-ravaged countries of Europe, especially since the collapse of Germany had deprived Switzerland of its most important trading partner. As a result, it had to a large extent been cut off from the imports of raw materials and foodstuffs needed by its industry and population. In addition, the Allied powers, led by the United States, were accusing Switzerland of having favoured the war efforts of the Axis powers, especially Germany.⁴ The SNB was also accused of having abetted Germany by buying German gold, including gold that had been illegally appropriated by the Reichsbank. Even before the United States entered the War, it had not only frozen all assets in the US belonging to Germany and Italy, but also those belonging to the neutral countries of Europe. These included the gold and foreign exchange reserves of the SNB, which were also frozen in the United Kingdom and Canada. Following the liberation of France, even the transport by rail of goods that Switzerland had bought and were warehoused on the Iberian Peninsula was embargoed. For the policy of the National Bank, it was particularly important that, even during the War, Switzerland had run a trade surplus with most countries, generating an inflow of gold and foreign exchange that increased the monetary base (consisting of currency in circulation and banks' balances with the central bank), thereby fuelling inflation. Switzerland also had a trade surplus with the US. The SNB had converted the corresponding dollar balances into gold, but these could not be used to buy goods outside the US because they were frozen. At the same time, to prevent exporters from

4 Spahni (1977), pp. 25–26, 39; Durrer (1984), p. 172.

going bankrupt, the National Bank had to pay them Swiss francs for the dollar revenues they had earned in their trade with the US. This had the effect of increasing the monetary base.⁵

In these circumstances, the Confederation and the SNB had no option but to secure a normalisation of foreign trade and payment relations as quickly and extensively as possible. The lifting of the freeze on foreign assets by the Western Allies was conditional upon the signing of the Washington Agreement of 1946. However, the implementation of the Agreement dragged on for several more years, since the Allies demanded ‘certification’ of all foreign assets in order to filter out all suspected enemy assets for expropriation. Switzerland also had to pay the Allies 250 million Swiss francs in order to induce them to sign the Agreement. This payment is discussed in more detail below owing to the SNB’s involvement in it (which was also not without repercussions for its relationship with the Confederation).

The measures Switzerland took and the agreements it concluded in order to overcome its isolation in trade policy matters have been described on various occasions elsewhere and can be mentioned only briefly here.⁶ After the first agreement (Currie Agreement) of 8 March 1945, the Allies relaxed their import restrictions. However, Switzerland could obtain certain goods that were in short supply only through Allied intermediaries, and the Allied shipping pool was not able to provide Switzerland with hold space. These constraints were then eased following the end of the war with Japan. In the ‘game’ of power politics being played out here, the strengths of the Allies lay in their control over the frozen assets as well as their control of many raw materials and of the access routes. For its part, Switzerland’s strength lay in its intact industrial production capacity, which was able to assist in the reconstruction of Europe, and on its high currency reserves, which allowed it to grant international loans. However, these loans had the effect of boosting the monetary base insofar as they were used to finance imports from Switzerland. A first loan, for 250 million Swiss francs, had been extended to France as early as 22 March 1945. In return, it was prepared, among other things, to reopen the port of Marseilles to Swiss imports. In addition, Switzerland managed to secure deliveries of coal (among other things) in a trade agreement – also with France. This was concluded in the autumn following tough negotiations, which involved threatening to block disbursement of the second tranche of this loan if France did not sign. Bilateral trade and payments agreements with

5 Regarding the financial links, cf. Durrer (1984).

6 Cf., for example, Spahni (1977).

Belgium, the Netherlands and the UK followed in 1945 and 1946; under the payments agreement with the latter, a sizeable loan was also granted. However, because of the large bilateral trade deficit, it was not long before Switzerland imposed restrictions on its exports to the UK.

Restoring trade relations with the United States proved more difficult. The US insisted on imposing limits on exports of Swiss watches, requesting the supply of watchmaking tools instead – both in the interests of its own watchmaking industry. While Switzerland wished to protect its watchmaking industry, it ultimately had to make concessions on both fronts in order to normalise trade relations. Similar demands were made by the UK. Despite the aforementioned difficulties, by late 1946 and early 1947 Switzerland had succeeded in establishing bilateral trade relations with almost all European countries and, to a certain extent, in protecting and/or including the traditional Swiss export industries (which in many cases were manufacturers of non-essential goods) and its tourism sector. Given most European countries' shortage of foreign exchange, this success was by no means a foregone conclusion and proved a hard struggle. Thereafter, it was a question of maintaining and further expanding these bilateral trade relations and eventually moving over to a multilateral system: with bilateral trade relations, unlike multilateral relations, the scale of trade is in principle limited by the weaker partner's capacity to supply goods.

2.2.2 Monetary policy and inward exchange controls

This was the background against which the SNB's monetary policy was conducted until the devaluation of the British pound and other currencies in the autumn of 1949 and the creation of the EPU. With the exchange rate parities existing at the time, the problem of Switzerland's balance of payments and trade surpluses was fundamental. Given the devaluations of sterling and most other currencies in 1949 and the balance of payments surpluses that Switzerland continued to run even after that (with the fixed rate against the dollar remaining unchanged), it was clear that the Swiss franc was undervalued. The SNB thought otherwise, however, especially as the trade surplus gradually turned into a deficit.

The conflict between the undervaluation of the franc and control of the money supply

The SNB's Governing Board hoped that there would be a gradual return to normality, even if the prevailing gold parity was maintained. Maintaining the parity was, however, incompatible with limiting the growth in the mon-

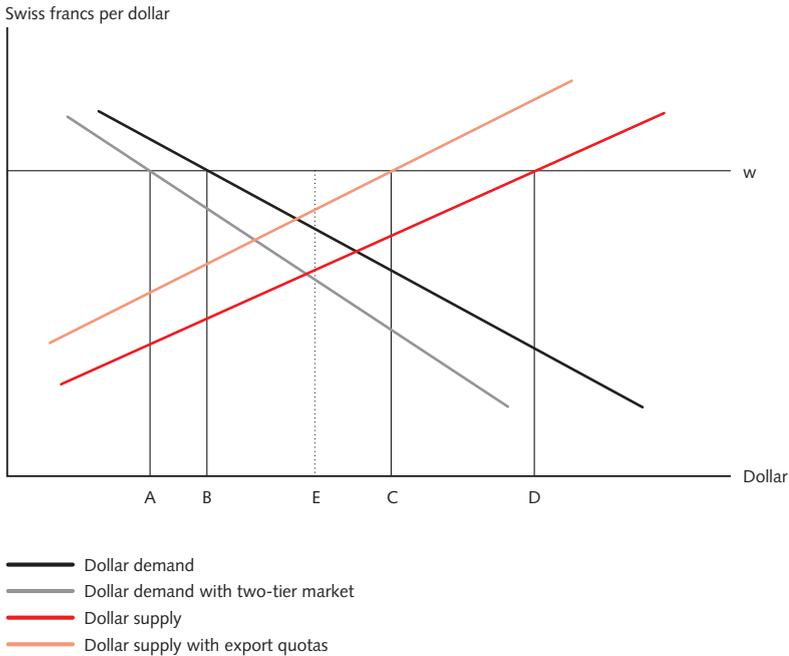
etary base. The National Bank sought to counter the resultant problems by creating a two-tier foreign exchange market – especially for the US dollar, which was the most sought-after and scarcest currency in all other countries – and by introducing inward exchange controls. In addition, the federal decree of 2 March 1945, which met a request from the Allies, prohibited trading in and the import and export of foreign banknotes. These expedients were supplemented for a while by sales of gold at standard market terms in the free market, plus a number of other measures, such as purchases of gold by the federal government. They were all intended to prevent or reduce the inflows of gold and foreign exchange which, if they were acquired by the SNB in exchange for Swiss francs, triggered inflationary tendencies by boosting the monetary base.

The broader picture can be better understood with the aid of graph 2.3, which plots the demand for and supply of US dollars as a function of the dollar price in Swiss francs, as well as the official exchange rate for the dollar derived from the gold parities, i.e. the price in Swiss francs. The more expensive the dollar, the greater the supply of dollars and the lower the demand for the currency. At the official dollar exchange rate, there is a dollar overhang – expressed here as $D-B$. In the absence of any additional measures, the SNB would have had to buy up this excess supply with Swiss francs in order to maintain the official price, the dollar parity. However, this would have resulted in an increase in the monetary base by $w(D-B)$ Swiss francs, with the attendant inflationary effects if real GNP had not grown at an equivalent rate. This is known as imported inflation.

The first measures that the National Bank employed to try to limit the dollar overhang consisted of the rigorous application of inward exchange controls. This comprised two main components. The first was the imposition of quotas on exports, the proceeds from which could be settled at the official dollar exchange rate. This is shown in the graph by a shift in the dollar supply curve to the left (pink line), as a result of which the dollar overhang is reduced to $C-B$. This restriction was decreed from 1 March 1944 for the watchmaking industry and from 1 January 1945 for industry as a whole (effective until January 1946 and May 1947 respectively).

Secondly, only ‘commercial’ transactions were now allowed to take place at the official exchange rate parity in the official dollar market, while other transactions had to be effected at floating exchange rates in the free market, the so-called ‘financial dollar’ market. However, since the exchange rate in the financial dollar market was naturally lower, importers would – without further intervention – have used only that market to buy the dollars they

Graph 2.3
Diagram illustrating the two-tier dollar market



w: Exchange rate parity derived from gold parity

needed. For that reason, the financing of imports in the free market was prohibited shortly after Swiss assets were frozen in the United States. It can be assumed, however, that not all imports were settled at the official rate. This is shown in graph 2.3 by a shift in the demand curve to the left (grey line).

The measures described above were not enough, however, to eliminate the dollar overhang $C-A$ completely. In fact, even after the introduction of the two-tier market, there was still a dollar surplus in the official market (represented in graph 2.3 as $C-E$), while the balance, $E-A$, was forced onto the financial market. Since the SNB did not intervene in this market, it only needed to buy up dollars for $w(C-E)$ Swiss francs in the commercial market in order to maintain the dollar parity there.

Various measures were taken to lessen the increase in the monetary base caused by the National Bank's purchases of dollars. Firstly, 50 percent of all dollar revenues from exports were blocked on accounts at the SNB for three years,⁷ the residual 50 percent being paid out immediately by the National

7 SNB (1957), pp. 127 et seq.

Bank in Swiss francs. Secondly, the SNB reduced the growth in the monetary base by market sales of gold bars and gold coins for Swiss francs – i.e. by operating a contractionary open market policy in gold. Thirdly, the growth in the monetary base was limited by the Confederation taking over – from 1943 onwards – some of the dollar overhang after it had been converted into gold. Since the government funded the Swiss franc equivalent of the amounts needed to buy the gold from tax revenues or from the proceeds of bond issues, the monetary base did not rise.

The splitting of the foreign exchange market

The dollar market was split in two on 7 September 1941 – just three months after the freezing of Swiss assets by the United States – by the signing of a ‘gentlemen’s agreement’ between the SNB and the Swiss banks. Under this agreement, the banks undertook to pay for imports solely out of dollar revenues from goods exports, from payments related to insurance, from payments for the normal needs of diplomatic representations, for aid and charitable purposes and for subsistence purposes in cases of hardship. For these transactions, the official exchange rate of 4.30 Swiss francs per dollar applied. In return, the SNB undertook to buy the remaining dollar overhang at this rate. These measures were supplemented in 1942 by a further agreement with the banks and shortly thereafter by a federal decree on restrictions on trading in and the import and export of gold.

The SNB began to sell gold as early as 1940/1941 and did not stop until September 1947. All told, it sold 1,388 million Swiss francs’ worth of gold, of which the largest amount (468 million) in 1947.⁸ This policy also contributed to the attempts to stabilise the price of gold, especially in the years up to 1944. On top of that came the SNB’s substantial sales of gold to industry.

The purchases of gold by the Confederation began in 1943. The government’s gold holdings peaked at 1,258 million Swiss francs in 1947. However, 463 million francs’ worth of this total was owned by exporters whose assets had been frozen, but had to be paid over to them once the three-year blocking period had ended. The funding of the gold holdings involved relatively high costs for the government. Thus in 1947, when pressure in the dollar market eased somewhat, the SNB signalled its willingness to gradually take back the bulk of the government’s remaining gold holdings. Of these holdings, 250 million Swiss francs’ worth of gold had already been used earlier for the above-mentioned payment to the Allies under the Washington Agreement, with the

8 SNB (1957), pp. 143–144.

SNB making a 100 million Swiss franc contribution to the Confederation (cf. chapter 2.2.3). By 1948, the government's gold holdings had thus dropped to 182 million Swiss francs. However, they rose again in the following two years owing to an increase in the balance of payments surplus.⁹

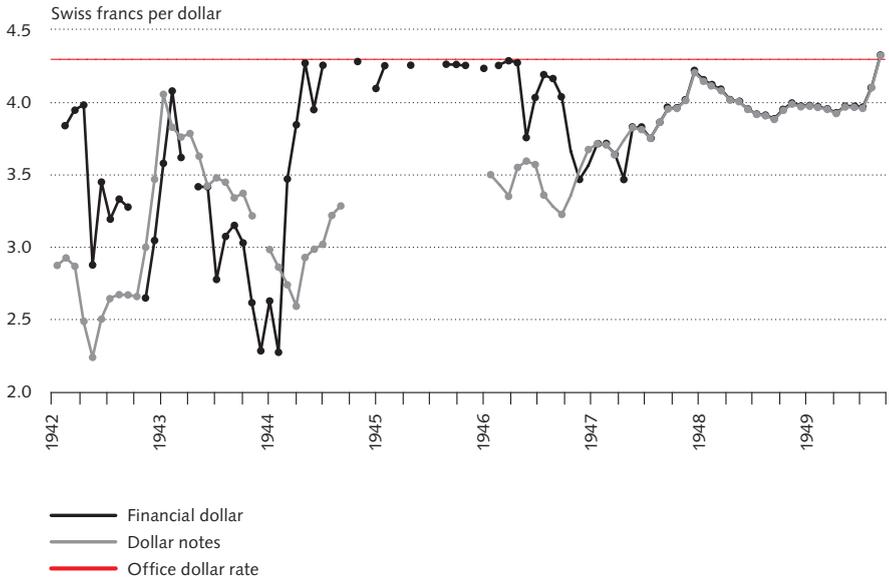
Initially, the financial dollar market was restricted to New York, but after the War it also extended to Switzerland. The exchange rate temporarily hit a low of 2.29 Swiss francs in 1944, but recovered again in the post-war period (cf. graph 2.4).

As can be seen from the Governing Board's exposition to the Bank Council – the SNB's supervisory board – and the measures implemented, the Governing Board was influenced by its conviction that an increase in the monetary base, and therefore in the money supply overall, would inevitably have an inflationary effect. In this respect, the Governing Board subscribed to the quantity theory of money and was pursuing the objective of price stability. Yet its policy was inconsistent, because maintaining the fixed gold parity – and therefore the dollar parity – was a crucial factor in the dollar overhang and thus the growth in the monetary base. In addition, the fact that importers were obliged to buy the dollars they needed at the official rate increased the price, reduced the supply of imports and thereby also contributed to inflation (cf. graph 2.3).

The problems inevitably associated with a two-tier market also arose. Since the distinction between commercial and financial transactions was bound to be just as unclear as that between cases of public good, charity or hardship, the SNB had to decide on a host of applications to exchange dollars at the official rate and to allow certain transactions at the financial dollar rate. It was inevitable that there would be some degree of arbitrariness in these decisions. As can be seen from table A 2.1 in the Appendix, in 1946/1947 (which have been selected as an example here), the Governing Board had to decide on 225 applications. On average, therefore, it had to consider such applications at every one of its (mostly) weekly meetings, not to mention all the preparatory work that had to be done by the members of staff responsible. The breakdown of the applications also shows that the Governing Board did not always keep within the prescribed bounds. One only has to look at the applications from municipalities, private individuals, the tourist industry and international organisations that were granted exemptions. For the applicant, approval of an application brought considerable financial advantages, which is sure to have influenced the frequency of the applications and the way in which they were worded. It should

9 SNB (1957), pp. 145 et seq.

Graph 2.4
**Official US dollar exchange rate and exchange rates for financial dollars
 and dollar notes, 1942–1949**



Sources: Käch (1954); Basler Kantonalbank (1923–1950); SNB, *Finanzdollar-Kurse* (various years).

be noted that the amounts applied for and approved in the two years that have been analysed earned profits of around 8.4 million and 9.5 million Swiss francs respectively (cf. table A 2.2). The present-day value of these profits, adjusted for the change in consumer prices, would be about 40 million Swiss francs.

Nor were the discretionary decisions of the Governing Board by any means always entirely above suspicion. The often inevitable arbitrariness of some decisions can be demonstrated by way of examples. First of all, the private sector was discriminated against on a number of occasions when only federal agencies were allowed to import goods using financial dollars to pay for them.¹⁰ Other cases were more serious still. For instance, the application from an official of the Federal Department of Finance (FDF) to exchange 9,100 US dollars to buy a small property for his parents, who had returned to Switzerland, was approved because (as Department II, which supported the application, put it) “he [was] a close friend of the Head of the Federal Department of Finance and Customs”.¹¹ Another case concerns the application from

¹⁰ SNB, Minutes of the Governing Board (1948), 5 March, no. 301.

¹¹ SNB, Minutes of the Governing Board (1947), 10 July, no. 908.

a First Secretary at the US Legation in Berne, which the SNB obviously did not want to upset. This individual had deposited a cheque for 3,500 dollars with Swiss Volksbank, which he wanted to be exchanged at the official rate so that it could be used to build a chalet in Gstaad. The application was approved upon the recommendation of Department II.¹² A third example concerns the exchange at the official rate of a deposit of 10,000 US dollars at Morgan & Co. which had been applied for by Minister Walter Stucki, who had rendered outstanding service in the conclusion of the Washington Agreement.¹³

Furthermore, the two-tier market acted as a sort of export subsidy, while importers and consumers were disadvantaged by the higher prices that had to be paid for imports. Nor should it be overlooked that the two-tier market and inward exchange controls provided incentives to over-invoice for exports and to under-invoice for imports; in the latter case, the missing amount could be obtained more cheaply in the free market. It was also possible to circumvent the system through triangular trades, whereby a business purchased goods cheaply with financial dollars in, for example, the United States and had them delivered to a third country, from which they were then imported into Switzerland at the official exchange rate. Such circumventions and fictitious transactions are an inevitable consequence of state intervention in the market and are bound to lead to escalating interference, as Ludwig von Mises had observed much earlier.¹⁴

Difficulties were also experienced by companies that earned a sizeable proportion of their income either from services provided abroad or from the production proceeds of their subsidiary companies abroad, while their costs were largely incurred in Swiss francs. In March 1949, for instance, the big chemical company Ciba cited growing financial difficulties. To counter competitive pressure, it wished to make investments in its plants in Switzerland and claimed that, to do so, it needed to transfer a sum of 2.5 million US dollars from its holdings in the United States. It was therefore asking to be allowed to exchange this amount at the official exchange rate. The Chairman of the Governing Board, Paul Keller, was opposed to approval being granted, claiming that industry and banks should be treated equally; if need be, approval could be granted in tranches. At the suggestion of the Head of Department III, Alfred Hirs, it was eventually decided to authorise the exchange of 500,000 US dollars, with the prospect of reviewing the case again

12 SNB, Minutes of the Governing Board (1946), 21 June, no. 707.

13 SNB, Minutes of the Governing Board (1946), 6 September, no. 1115.

14 Mises (1929).

later. An application from Swissair in August 1949 highlighted further problems. Under the regulations, this company had to buy the dollars it needed to purchase its aircraft in the United States at the official rate. However, it could only exchange the dollar revenues from its flight operations into Swiss francs at the lower financial dollar rate, since these operations counted as providing a service. It was not allowed to use these funds directly to purchase aircraft. It was therefore at a disadvantage compared to its foreign competitors. Opinions on how to resolve this issue differed within the Governing Board. It was not until the next meeting that it was decided to assure Swissair of the favourable treatment of its offers to sell dollars; but these would have to be reviewed again each month on the basis of documentary evidence.¹⁵

In the end, the procedures described above resulted in a sharp increase in bureaucracy. A good part of this, however, was passed on to the private interest associations in Switzerland, which had, for example, to confirm the accuracy of import documents. Nevertheless, even the Swiss Clearing Office, which was responsible (among other things) for administering the measures in question, still had 820 members of staff in 1949, a figure that had fallen to 32 by 1964. The Office was not closed until the end of 1978. The Price Control Office reached its peak employment level in 1944, when it had 381 members of staff, and still employed 274 people in 1948. The number of employees at the FDF also rose during the War and in the immediate post-war period, from 4,290 in 1939 to 5,510 in 1949, although it is unclear to what extent this was due to the workload generated by the inward exchange controls.

Administrative control of the gold market

Similar problems arose because of the restrictions on trading in gold, which were in force to varying degrees from 1942 to 1952. In 1948, for example, the number of corresponding applications, at 468 (cf. table A 2.3.1), was even greater than that for foreign exchange transactions. In this case, too, questionable discretionary decisions were inevitable, as can be seen from the fact that some approvals came with conditions attached. Moreover, the amounts involved were considerable, with import applications for around 21 tonnes of gold and export applications for around 9 tonnes. The profit opportunities offered, for example, by approval of export applications were also substantial: witness the difference of around 14 million Swiss francs

15 For the Ciba application, cf. SNB, Minutes of the Governing Board (1949), 17 March, no. 297. For the Swissair applications, cf. SNB, Minutes of the Governing Board (1949), 25 August, no. 910; 8 September, no. 954.

between the maximum price for gold obtainable in Switzerland and the market value for the authorised export applications abroad (cf. table A 2.3.2).

The SNB stopped selling gold bars in February 1947 and stopped selling gold coins in September of the same year, since “the gold coins sold by the National Bank were increasingly finding their way abroad. The gold was thus becoming an instrument for international speculation and smuggling”.¹⁶ The Governing Board was of the opinion that the Swiss francs needed to buy the gold were being acquired in the free dollar market and that this was giving rise to unwelcome pressure on the exchange rate for the financial dollar.¹⁷ However, the cessation of the gold sales exacerbated the problems of managing the gold market. For instance, the National Bank was still selling gold for industrial use. Not unexpectedly, applications to buy such gold increased considerably after the SNB stopped selling gold in the free market. In addition, the black market in gold was growing, too. According to the Head of Department II, this could be seen from the striking increase in gold deposits in duty-free warehouses and private warehouses with ‘free-pass certificates’.¹⁸

The criminal courts set up under Switzerland’s war economy, which were charged with punishing violations of laws and decrees enacted to enforce market regulations, especially during and immediately after the War, also found themselves dealing with gold policy. Because of the SNB’s ever-changing gold policy, they faced considerable difficulties in setting the penalty for contraventions, as this penalty depended on the severity of the offence and the offence depended, in turn, on the rules prevailing at the time it was committed. For instance, the president of the first war-economy criminal court wrote to the SNB asking whether “it would be so kind as to regularly inform the various war-economy criminal courts by way of circulars of any major change in the situation in the gold market and in the Bank’s gold policy”. For it had been found, he continued, “that it was impossible to impose a just sentence without due regard being paid to the situation in the gold market prevailing at the time the offence was committed and to the gold policy being pursued by the authorities”. The Governing Board, on the other hand, took the view “that, when judging a crime [...] against the regulations relating to trading in and the import and export of gold, the detrimental effect of the crime matters less than the crime itself [...]”.¹⁹ Even as early as 1946, two

16 SNB, Minutes of the Governing Board (1947), 10 September, no. 1174.

17 SNB, Minutes of the Governing Board (1947), 16 May, no. 670.

18 SNB, Minutes of the Governing Board (1948), 1 September, no. 1028.

19 SNB, Minutes of the Governing Board (1948), 5 March, no. 303.

presidents of war-economy criminal courts had “raised the issue of whether, now that it is generally known – and doubtless by the National Bank as well – that the bulk of the gold it has sold is exported ‘black’, i.e. is crossing the border without due authorisation, it would not be better to lift the controls on the export of gold”²⁰ – a request which the SNB categorically rejected.

SNB resistance to abolishing the two-tier foreign exchange market and inward exchange controls

In the circumstances described above, it is not surprising that efforts to force the SNB to change its policy soon emerged at the political, business and academic level and among the public in general. The National Bank resisted these efforts – generally successfully – with dogged delaying tactics, making only gradual and piecemeal concessions. The SNB actually found itself faced with considerable problems in achieving this. Its delaying tactics sprang from its insistence on retaining the gold parity and the resultant fixed exchange rates, while also wishing to avert an increase in the monetary base and the surge in inflation that could result. This policy was, after all, succeeding inasmuch as it was able to hold inflation in Switzerland at a level lower than that prevailing in other developed nations. The National Bank also hoped that the situation would improve as the trade balance gradually deteriorated. However, the gradual release of the frozen Swiss assets raised the question of whether these assets, together with the interest and dividends accrued, would not be entirely or very largely converted into Swiss francs once they were allowed to be exchanged freely at the official dollar rate. This would have resulted in an unwelcome increase in base money. Then there was the question of the 50 percent blocked dollar amounts from the earlier export revenues, which could be converted into Swiss francs once the three-year blocking period had expired. The attendant threat of a large inflow of foreign exchange was the reason why the SNB did not wish to relinquish its intervention policies.

The pressure on the National Bank did not ease, however. The watchmaking industry, in particular, was demanding the abolition of the export quotas, and importers would have liked to see a lifting of the obligation to buy dollars at the parity exchange rate, since they would then be able to import their goods at the lower financial rate. The banks and owners of financial assets and financial income, however, wanted to be able to exchange them freely at the official rate. The same was also true of all other businesses and individuals

²⁰ SNB, Minutes of the Governing Board (1946), 5/6 December, no. 1618.

(such as American tourists, for example) who wanted as favourable an exchange rate as possible. Finally, the US authorities were also extremely unhappy that their currency, which was highly sought after elsewhere in the world, should have to be traded at a discount in the financial dollar market in Switzerland. Relatively early on, the SBA began to lobby for financial dollars to be available for purchase and sale at the official parity. In a letter dated 29 September 1945, it returned to the question, referring to the deteriorating trade balance with the United States. "It [the SBA] hopes, therefore, that it will be possible for the National Bank at least to accept the proceeds of Swiss financial claims on the US again."²¹ After the conclusion of the Washington Agreement had resulted in the freeze on Swiss assets being gradually lifted, various businessmen demanded that their frozen dollar balances be released. The National Bank, however, took the view that these balances should not be released until the three-year blocking period had expired.²²

Even before this, the US had been demanding that the blocking of 50 per cent of dollar export revenues be abandoned. Thereupon, the Chairman of the Governing Board, Ernst Weber, said at a meeting with representatives of various federal government departments and Vorort that "it [should] be made clear [to the US Treasury] that Switzerland needs goods and not blocked gold. And after all, it is not Switzerland's job to maintain the exchange rate of the dollar." He stressed that buying the blocked gold for Swiss francs would increase the monetary base, which would not be the case if it were to be used to buy goods in Europe. Weber declared that there could therefore be no question of the freeze being lifted unless the Confederation took on the additional dollars. This request was, however, turned down by the representative of the FDF, Eberhard Reinhardt.²³ Although the SNB carried the day at this meeting, the Federal Council decided on 10 December 1945 to lift the freeze on 50 per cent of the dollar revenues from future imports. Subsequently, at a meeting between the SNB and the Federal Administration, there was a discussion over the question as to whether the extra dollars that were now becoming available should be taken over by the government or the SNB. It should be borne in mind at this point that the acquisition of the dollars by the Confederation instead of the National Bank implies no increase in the monetary base. Whereas the Head of Department III, Alfred Hirs, was in favour of the SNB taking them all, Chairman Ernst Weber dismissed this

21 SNB, Minutes of the Governing Board (1945), 3 October, no. 1096.

22 SNB, Minutes of the Governing Board (1946), 6 June, no. 631.

23 SNB, Minutes of the Governing Board (1945), 12 October, no. 1211.

suggestion and argued in favour of a gradual approach, since the currency situation still had not changed fundamentally.²⁴

The debate continued even after this limited liberalisation, and at a meeting in Berne on 14 June 1946, a detailed discussion took place with representatives of the federal government departments concerned and Vorort. Weber set out the reasons why the SNB was against lifting the existing restrictions on transfers. He claimed that it would lead to an inflow of 400 million Swiss francs' worth of gold, a further cut in interest rates, an increase in the money supply of unknown magnitude and an appreciation of the Swiss franc in the United States. Not until after certification of the assets would the SNB consider whether and to what extent financial dollars could be accepted. The blocked accounts would have to be maintained for the time being, and if possible, until the blocking period had expired. Against this, the representative of the Department of Political Affairs, Reinhard Hohl, argued – as did the Director of Vorort, Heinrich Homberger – that the situation was already less critical, because imports were increasing. Homberger proposed the full transfer of licence claims, concessions in dollar trading for transit trade businesses and a revision of export quotas to bring them into line with the needs of the watchmaking industry. Hirs cited various concessions that the SNB had already made, such as the increase in quotas for maintenance payments, vacationing by US military personnel, humanitarian efforts and youth welfare. The Confederation had not been burdened with any more dollars for months and the SNB had made concessions to companies in the financial sector by accepting gold for interest payments and licences. It was necessary to proceed in stages. No decisions were taken at the meeting.²⁵

Immediately after this meeting, the situation was changed by the revaluations of the Swedish krona and the Canadian dollar. In a meeting of the Governing Board with Federal Councillor Ernst Nobs, Head of the FDE, the SNB argued against revaluing the Swiss franc and – at Nobs's request – set out its views on this matter in a letter. It explained that the price increases in the United States had only a minor effect on Switzerland, that on the basis of a comparison of prices and wages the Swiss franc was not undervalued versus the dollar, and that a revaluation would not lower the prices of imported goods by a corresponding margin, but would in fact make life more difficult for exporters. Agriculture was not in favour of a revaluation either.

24 SNB, Minutes of the Governing Board (1945), 20 December, no. 1475.

25 SNB, Minutes of the Governing Board (1946), 21 June, no. 675.

Moreover, the National Bank argued that a reversal in the current economic situation might lead to a devaluation of the Swiss franc in the event of a crisis. Finally, a revaluation would mean currency losses running into hundreds of millions of Swiss francs for both the federal government and the SNB. The National Bank was thus opposed to any manipulation of the currency. The Governing Board stated that “a solution to the price and cost problem relative to other countries would best be achieved through a system of export premiums and by creating equalisation funds designed to make imports cheaper”. Together with a summary letter, it then also sent a draft communiqué for the Federal Council in which a change in the exchange rate was rejected.²⁶ The Federal Council concurred with this recommendation in a statement it made in Parliament.

The splitting of the market was not limited just to dollar foreign exchange, but also extended to dealing in banknotes. As mentioned above, on 2 March 1945, the Federal Council, presumably under pressure from Allied governments (which did not like seeing their banknotes traded at a discount to the official exchange rate), prohibited trading in and the import and export of foreign banknotes – whereupon a black market developed. As early as February 1946, therefore, this prohibition was lifted again for dealing in notes of up to 20 dollars. However, at the end of the year, the Chairman of the Governing Board, Paul Keller, raised the question of whether “in order to effectively combat the unhealthy excesses of dealing in banknotes [...] the reintroduction of a general ban on dealing in notes [might be] worth considering”.²⁷ Nevertheless, on 31 October 1947, all restrictions on dealing in banknotes were lifted. The abolition of controls on dealing in dollar banknotes led to banknote exchange rates that were sometimes substantially below the rates for the financial dollar (cf. graph 2.4). Even more marked was the difference between the rates for banknotes and official rates for sterling and the French franc. Out of consideration for the tourism industry, essential business trips, etc., but also partly at the request of foreign governments, the SNB and the Federal Council had no choice now but to make certain amounts of banknotes available to non-residents at the official rate, with the amounts being entered on their passports. However, because of the large differences between official exchange rates and banknote exchange rates, this soon led to arbitrage by foreign visitors, who would change some of the Swiss francs they had received at the official rate back into their currency at the free market

26 SNB, Minutes of the Governing Board (1946), 17 July, no. 871.

27 SNB, Minutes of the Bank Committee (1946), 12/13 December, p.511.

banknote rate. The banker Hans Bär recalls his own experience: “The National Bank and its management of the dollar exchange rate allowed [you] to increase [your own] salary.” It offered “non-residents (students, trainees), if they’d just come into 100 dollars, say, the opportunity [...] to live for free – and rather comfortably. They just needed to pocket the 430 Swiss francs and immediately use 220 of those francs to buy 100 dollars again. In 1947, you could live extremely well for ten days on 210 Swiss francs.”²⁸

All these deficiencies and problems led to considerable criticism from the Swiss population, especially since non-residents appeared to be living at their expense. This was politically explosive and gave rise to growing pressure at the political level, which evidently provoked Federal Councillor Nobs to inform the SNB, in a letter dated 24 October 1946, that the whole of the Federal Council felt that the development of the dollar and sterling exchange rates was displeasing. Conditions in the foreign exchange market were untenable, he said. Public opinion was agitated. Moreover, if this unfortunate situation was not rectified, severe reactions could be expected. “The public finds it particularly inappropriate that non-residents can, by exploiting the different exchange rates, live in Switzerland free of charge, to all intents and purposes.” In view of the SNB’s large gold reserves, would it not be possible, Nobs wrote, to sell gold to the public? Since the matter was assuming an increasingly political dimension, the Federal Council expressed its wish for appropriate measures to be taken before the end of November. In its reply, the National Bank maintained that the deficiencies in the system and over-full employment were not the result of the SNB pursuing the wrong foreign exchange policy. If it were to be more accommodating in accepting gold and foreign means of payment, this would “inflate the money supply [...] [and] lending potential, with unimaginable consequences [...]” It was “not Switzerland that is being cheated [by the free holidays], but the non-resident owner of foreign banknotes who sells them at cheap rates.” An attempt should be made in the tourist trade to restrict the acceptance of foreign notes. The SNB suggested the possibility of trading in financial dollars being limited to a smaller number of banks, and admitting this form of trading for imports, to a certain extent. Gold was already being sold in accordance with the Federal Mint’s capacity to deliver. Consideration should also be given to whether extending gold or currency loans to other countries might not be feasible in order to reduce the money supply.²⁹

28 Bär (2004), p. 70.

29 SNB, Minutes of the Governing Board (1946), 6 November, no. 1442.

The SNB's controversial views were expressed even more sharply at a meeting of the Bank Committee in December 1946. Governing Board Chairman Weber stated that the Board had expressed its astonishment "that the Federal Council should believe that the present shortcomings in foreign exchange rate and banknote exchange rate developments could be eliminated by measures taken by the National Bank". The present foreign exchange situation was "very closely related to the insufficient trade in goods". He was "convinced that tight quotas or even a prohibition on the sale of goods to other countries would immediately cut off demand for Swiss francs completely". Yet he ruled out any such measures, stating that exchange rates could doubtless be restored to normal if the receipt of gold and foreign exchange were freed up completely. Given the trend in prices and wages and the booming economy, he said, that was not possible. A revaluation would not bring about a correction; in fact, business leaders felt it would even threaten the competitiveness of the export industry. In Weber's view, the idea of a free dollar exchange rate was utopian. Even so, he continued, the SNB had already announced that it would be purchasing the 1945 dollar income from Swiss-owned assets. It was also envisaged that the National Bank would buy the currency or gold income accruing from licences, commissions and transit trade. The possibility of issuing gold certificates had also been raised, but Weber was against this measure, which had been proposed by the Head of Department II, Paul Rossy. The overvaluation of the currency could be corrected only by a change in the flow of goods, Weber argued. Rossy then said that the "freezing of Swiss assets in America [...] [was] a good thing for our bank inasmuch as it allowed it to banish the whole question of the financial dollar from its currency policy". He pointed out that the lifting of the freeze would free up all Swiss assets, but that, with the certification work still proceeding, they would continue to be protected from that for a short while yet. In his view, the most effective means was to be found "in the appropriate setting of quotas for exports and not in our monetary policy". At the same time, Rossy did also warn that on "the eve of an election year like 1947 [...] the policy of a dual dollar exchange rate [will] be exceptionally dangerous. Many political groups will exploit our actions for their own electoral propaganda purposes by claiming that, on the one hand, the authorities and the National Bank in particular have promoted exports and stimulated economic activity while, on the other hand, they have artificially pushed up the cost of living in our country."³⁰ After Hirs had declared his more optimistic assess-

30 SNB, Minutes of the Bank Committee (1946), 12/13 December, pp. 507–517.

ment of the situation, Professor Paul Keller, the future Chairman of the Governing Board, stated that Parliament needed to be clear in its own mind “whether it wants to restrict exports even more or not”.³¹

Thus the foundations were laid for the SNB’s policies and its reaction to the pressure from lobby groups, the public and the politicians. The inward exchange controls were retained in order to limit the rises in base money and inflation, but were gradually weakened by more and more concessions. In May 1947, the income from Swiss financial assets in the United States for 1946/1947 was decontrolled and could now be exchanged at the dollar parity, while the weekly allowance for travellers from dollar countries was raised from 125 to 200 dollars. In mid-1947, the export quotas on watches were also abolished, having already been increased in 1946. The blocked 50 percent of export revenues were released in 1947, 1948 and 1949, after the individual blocking periods had expired. Finally, in late 1947, 10 percent of Swiss residents’ investments in the US that had already been certified were allowed to be exchanged at parity, although only partial use was made of this concession.³² However, the SNB showed no sign of responding to appeals to be allowed to use financial dollars for at least some categories of imports. Many such demands had been made in the National Council since 1946, not least by Gottlieb Duttweiler, who – as founder of the Migros retail group – had a vested interest in cheap imports. At the instigation of the SNB, all these motions were rejected by the Federal Council and by Parliament,³³ even though they had been supported as early as 1946 in an academic report written by Professor Hugo Sieber of the University of Berne. Sieber had presented a number of good reasons for abolishing the two-tier foreign exchange market and the associated inward exchange controls. He did not rule out a revaluation of the Swiss franc, which in fact would probably have been the best solution. Other economists, such as Professors Alfred Bosshardt and Fritz Marbach, took a similar view. Professors Valentin Wagner, Eugen Böhler and Walter Jöhr, however, defended the position of the National Bank, which would not allow itself to be deflected from the two main planks of its policy: the fixed gold parity and the limitation of growth in the monetary base by way of inward exchange controls.³⁴

31 SNB, Minutes of the Bank Committee (1946), 12/13 December, p. 524.

32 SNB, Minutes of the Governing Board (1948), 5/6 February, no. 161.

33 SNB, Minutes of the Governing Board (1947), 16 January, no. 85; 10 September, no. 1174; 24/25 September, no. 1234.

34 Sieber (1946, 1948); Bosshardt (1949); Marbach (1947); Wagner (1949); Böhler (1946, 1950); Jöhr (1947). It is interesting that even this academic discussion was still taking place entirely within the context of the gold standard.

However, the refusal to allow imports to be financed with financial dollars because of the improvement in the currency situation was not always undisputed at the SNB either. In early February 1948, for instance, Hirs expressed the view that since the trade balance had swung into deficit, the SNB should seek to have this prohibition lifted. Governing Board Chairman Keller, however, supported by Rossy, thought that importers should only be allowed to acquire 50 percent of the dollars they needed in the free market. It was eventually agreed to put off taking a decision. However, the exchange rate for the financial dollar subsequently fell, removing any expectation that this rate would come into line with the official exchange rate. So when the vote was taken, it was a unanimous 'no'.³⁵ A golden opportunity to overcome the splitting of the market had therefore been missed. Also typical of the Governing Board's attitude was its position on French currency policy after the devaluation of the French franc in early 1949, when France introduced a free exchange rate for a large proportion of transactions in Swiss francs. The SNB had intervened with the federal authorities prior to this, pleading in vain that they should do their utmost in their negotiations with France to prevent such a free market.

The end of the management of the dollar market was finally agreed by the federal authorities and the SNB on 23 September 1949, after Switzerland had refrained from emulating the devaluation of sterling (by 30.52 percent) and many other currencies. Following this *de facto* revaluation of the Swiss franc, the reasons for retaining the inward exchange controls against the dollar appeared to have no further validity, even in the eyes of the SNB. Hence, there was no devaluation of the Swiss franc apart from a concealed 1 percent cut, which was backed by the representatives of the export lobbies.³⁶ However, the regulations governing trading in and the import and export of gold were not relaxed until 1951 and were abolished only in 1952. As late as the end of 1949, the SNB had stated, in response to a query from the Price Control Office, that it would not be abolishing the maximum price for gold along with the price ceilings for all other metals. When the question of easing the gold trading regulations was discussed by the Governing Board, Keller and Rossy were opposed, while Hirs was rather in favour.³⁷

35 SNB, Minutes of the Governing Board (1948), 5/6 February, no. 161; 12 February, no. 193.

36 SNB, Minutes of the Governing Board (1949), 22/23 September, nos. 1000 and 1015; 13 October, no. 1086.

37 SNB, Minutes of the Governing Board (1949), 3 November, nos. 1174 and 1180.

2.2.3 SNB involvement in the Washington Agreement of 1946

As mentioned above, Switzerland had to declare its willingness to pay the Allies 250 million Swiss francs in order to secure the unfreezing of its assets and the lifting of other sanctions (cf. chapter 1.10). The Federal Council pressed the SNB to participate in raising this sum. In order to justify this request, it mentioned the burden falling upon the Confederation. It also referred to the Allies' accusations that, during the War, the SNB had bought illegally acquired gold from the Deutsche Reichsbank. It was therefore also in the SNB's interest – so the government argued – that the agreement be concluded, since otherwise, Switzerland could expect to become embroiled in legal proceedings with the United States, the outcome of which was uncertain. The Governing Board and the Bank Committee initially refused point blank to contribute. In a letter to the Head of the FDF, Federal Councillor Nobs, the Bank Committee declared that the functions laid down in the National Bank Act did not even allow the SNB to participate. It was, however, prepared to help the government with the funding of its payments.³⁸ The gold transactions with Germany had, they maintained, been carried out in good faith and had always been approved by the Federal Council.

As pressure from the Federal Council mounted, however, this position proved impossible to maintain. So that in the end, the SNB came up with the idea of contributing to the 250 million Swiss francs out of the 145 million francs that were still in the reserve for currency operations. This sum was the residue of the approximately 620 million Swiss francs in profit that had arisen following the franc's devaluation in accordance with Federal Council decree of 26 September 1936.³⁹ This profit had initially elicited all sorts of requests from political parties and lobby groups, but the SNB, supported by

38 SNB, Minutes of the Bank Committee (1946), 13 June, pp. 204–213.

39 This amount was derived as profit from the devaluation of the Swiss franc and a corresponding revaluation of gold, the initial basis for which was the smallest devaluation rate provided for in the devaluation decree. This corresponded to a 35.033 percent revaluation of the gold holdings. With the value of the gold put at 1,537 million Swiss francs, the profit came to 538 million francs. Of this amount, 533.5 million was allocated to the Exchange Equalisation Fund. Under the Federal Council decree of 3 June 1940, the SNB was authorised to value its gold holdings at a maximum price of 4,920.63 Swiss francs per kilogram of fine gold, which would have equated to a 42.857 percent revaluation of the gold compared to the position before the Swiss franc's devaluation. The SNB did not make full use of this possibility, however, and valued the gold at 4,869.80 francs per kilogram, which represented its buying price. This higher valuation produced a profit of 101 million Swiss francs. Of this amount, 87 million was allocated to the reserve for currency operations; the remaining 14 million Swiss francs was used to cover the costs of gold operations. For more on this topic, cf. SNB (1957), pp. 136 et seq.

the Federal Council, was able to withstand this pressure for the time being.⁴⁰ Following the outbreak of the Second World War, however, the emergency situation meant it could no longer deny access to the fund. On 30 April 1940, under emergency decrees issued by the Federal Council, 250 million Swiss francs was withdrawn for government war spending. An additional 225 million was allocated to the cantons, a good part of which also being earmarked for armaments and for a job creation policy that had already been initiated before the War. The balance remained with the National Bank as the reserve for currency operations.

The Governing Board, Bank Committee and Bank Council now suggested using 100 million Swiss francs of this reserve for the payments under the Washington Agreement. After extensive discussions, the Bank Council decided by a majority vote that: “1. There is no legal obligation on the Bank to participate in the raising of the 250 million francs. 2. Should the federal authorities decide that the National Bank’s reserve for currency operations [...] be called upon to ease the burden on the Confederation in settling the financial obligations it has to fulfil under the Washington Agreement, the National Bank would have no objections to 100 million Swiss francs being drawn from this reserve [...]. 3. Any drawing of funds from the reserve [...] would have to be decided by means of legislation.”⁴¹ At the instigation of the SNB, this proposal was discussed with the FDF and largely accepted in the Federal Council’s message to Parliament. However, the FDF pressed the SNB to declare that it not only had no objections to the 100 million Swiss francs being withdrawn from the reserve, but also consented to it. This wording was eventually accepted by the Bank Council.⁴²

However, since legal title to the reserve was unclear, the proposal outlined above was accepted in the Bank Council only after a heated debate. Among other things, it was argued that the reserve had become the property of the SNB. Since the National Bank was a public limited company, so the argument went, part of its property belonged to the shareholders. The shareholders’ general meeting should therefore be asked to decide. Without its consent, a dangerous precedent would be set. “We see the conflicts between public and private rights increasing everywhere today. So let us, for our part, avoid the surrender of private rights – the rights of the honest citizen.” Other members of the Bank Council stated that, legally speaking, the reserve for currency

40 SNB (1957), pp. 137–138.

41 SNB, Minutes of the Bank Committee (1946), 25/26 September, p. 360; SNB, Minutes of the Bank Council (1946), 25 September, pp. 600–616; 2 November, p. 620.

42 SNB, Minutes of the Bank Council (1946), 2 November, pp. 619–628.

operations could be used only for monetary policy purposes. These objections were rejected, however, and their supporters outvoted.⁴³

2.2.4 The European Payments Union: moving towards the convertibility of Western European currencies

Main features of the European Payments Union

As early as 1944, under the leadership of the United States and the United Kingdom, the Bretton Woods Conference had tried to forge an international agreement to overcome the exchange control problems of the inter-war years and World War II. Under this agreement a system was created, with the International Monetary Fund (IMF) at its centre, which was based on a watered-down gold standard with fixed but adjustable exchange rates. Under the auspices of the Fund, it provided for the possibility of relatively short-term loans (drawings) which were intended to overcome temporary balance of payments difficulties. The system was based on a watered-down version of the gold standard because only monetary authorities were entitled to exchange or obtain dollars at the US Treasury at the fixed parity of 35 dollar per ounce of gold. Another institution of the Bretton Woods system was the World Bank – or to give it its proper title, the International Bank for Reconstruction and Development – which was initially expected primarily to support the reconstruction of Europe through long-term loans. From the very outset, Switzerland was sceptical about joining the Bretton Woods Institutions, although the subject came up for discussion time and time again and the country cooperated closely with them from the early 1960s. Switzerland did not actually join until 1992, long after the main pillars of the system had collapsed with President Nixon's abrogation of the obligation to redeem dollars in gold in August 1971 and the abandonment of fixed exchange rates in 1973.

In fact, it soon emerged that the Bretton Woods Institutions were playing a completely subordinate role in the elimination of bilateralism and exchange controls in Europe. Instead, the crucial steps were being taken within the context of the United States' Marshall Plan, with the establishment of the Organisation for European Economic Co-operation (OEEC) and, under the auspices of the latter, the EPU. The EPU was created in 1950, after lengthy negotiations, by eighteen Western European nations, and also included their overseas currency areas. Immediately after the establishment of the EPU,

43 SNB, Minutes of the Bank Council (1946), 25 September, pp. 600–616.

its members decided to liberalise 60 percent of their trade. Restrictions on capital movements were not affected by this, however. It was not until later that a certain amount of liberalisation began to be introduced by the EPU member states on this front.

The key distinguishing feature of the EPU was the multilateral settlement of balances on bilateral trade or current accounts, as a result of which trade between any two countries was no longer limited by the bilateral export revenues of the weaker one. For debtors and creditors, any balances remaining after this multilateral settlement were liabilities towards or claims against the EPU, and were denominated in units of account which were equal to one dollar. Each country was allocated a quota equal to 15 percent of its visible and invisible transactions. This quota was divided into five tranches. For debtor countries, balances within the first tranche were financed entirely by credit. For subsequent tranches, the proportion that had to be paid in gold increased with every tranche. If the balance exceeded the quota, the debtor country had to settle the corresponding part fully in gold or dollars. Above the first tranche, creditor countries were paid 50 percent in gold or dollars.

Overall, with full utilisation of quotas, the ratio between credit and payments in gold or US dollars was 60:40. Insofar as the EPU financed the balances of debtor countries by credits, these were ultimately funded by the creditor countries and (thanks to an initial 350 million dollar grant of Marshall Plan funds) by the US Treasury. Later, the proportion of balances that had to be paid in gold or dollars was gradually increased. The first change was to a ratio of 50:50 for all tranches. In the final years of the EPU, the ratio was eventually set at 25:75. What was important was that the debts arising from bilateral payments before the EPU commenced operations had been consolidated and fixed repayment obligations had been arranged.

The EPU was headed by a managing board. The Bank for International Settlements (BIS) was responsible for the resultant administrative and banking operations. This was agreed even though the Americans – using Norway as their mouthpiece on this issue – had pressed vigorously at the Bretton Woods Conference for the BIS to be abolished.⁴⁴ Since the creation and development of the EPU and Switzerland's involvement have already been described in detail, all that needs to be examined here is how it affected Switzerland, and the SNB in particular, in terms of monetary policy.⁴⁵

44 Bretton Woods Report (1944).

45 Cf., for example, Kaplan and Schleiminger (1989); or Schwerdtel (1992).

Discussions about Swiss membership of the EPU

The Swiss authorities and the National Bank were hesitant about the efforts to liberalise trade and to create a multilateral payments system, but did not want to rule out participating. For one thing, at internal meetings there were discussions about how weak-currency countries could be prevented from discriminating against non-essentials – i.e. luxury goods such as expensive watches and especially tourism – in the negotiations.⁴⁶ Such discrimination was possible, since other EPU members were able to ask for such goods and services to be excluded from the list of goods to be liberalised. Also, there was the question of restricting the granting of loans by Switzerland. This was of particularly topical relevance because of the losses of just under 79 million Swiss francs which the Confederation had suffered due to the devaluation of the pound.⁴⁷ It was eventually concluded that the case-by-case granting of loans in bilateral negotiations was to be preferred, in order to retain an effective trade weapon which could be used to influence the composition of exports.⁴⁸ In a further meeting with the Permanent Delegation for Trade Negotiations with Foreign Countries,⁴⁹ however, the representative of Vorort, Heinrich Homberger, then emphasised “the economic interest that Switzerland has in the Paris efforts [to create the EPU] in view of the cyclical downturn”. In a report by the Chairman of the Governing Board, Paul Keller, on the BIS’s efforts to avoid the creation of a new permanent institution and to simplify the existing plans, it was stressed that the Swiss delegation was duty-bound to support these efforts. He felt this delegation should argue in favour of everything that strengthened the position of creditors in the system.⁵⁰ Finally, in a meeting with the Federal Council’s Delegation for Financial and Economic Affairs, the advantages and disadvantages of membership were aired once again, and it was established that the ratio of Swiss exports to the imports that were to be liberalised was significant in the case of some countries, but that Swiss wishes should still be expressed on some individual issues – notably with regard to tourism. The Director of the Federal Finance Administration, Max Iklé, said that the financial commitment

46 SNB, Minutes of the Governing Board (1949), 1 September, no. 927.

47 SNB, Minutes of the Governing Board (1949), 13 October, no. 1086.

48 SNB, Minutes of the Governing Board (1949), 8 September, no. 953.

49 The Permanent Delegation was created in 1939. Its members included senior officials of the Department of Economic Affairs and the Department of Political Affairs, the Director of Vorort and the Secretary of the Swiss Farmers’ Association. Other representatives of the authorities and the economy were included, depending on the particular issues under discussion.

50 SNB, Minutes of the Governing Board (1950), 8 April, no. 348.

of the government (which would, after all, have to assume responsibility for any lending under the Swiss system) was within reasonable bounds. Somewhat unenthusiastically, the Federal Council was asked to declare Switzerland's consent to accession at the Council of Ministers meeting in Paris on 6 July 1950, subject to the consent of Parliament and the settlement of a few key points which were to be set down in an aide-mémoire.⁵¹

In the negotiations, the option preferred by Switzerland (bilateral settlement of the potential loans) had been ruled out. Instead, Switzerland had ultimately negotiated a quota of 20 percent vis-à-vis the EPU, resulting in an upper credit limit of 600 million Swiss francs. This sum corresponded to the previously existing bilateral credit limit. On top of that came a possible increase through a so-called *rallonge* (or extension), which once again amounted to 50 percent of the quota. The FDF also agreed to this. It was assumed that the existing bilateral debts would be repaid within a limited period, as provided for in the agreement.⁵² The Federal Council gave its consent to this course of action on 26 July 1950.

Switzerland's surpluses with the EPU up to 1953 and their significance for the monetary base

On 1 November 1950, Switzerland formally joined the EPU, where it managed to play a relatively weighty role for its size. It was "an exceptionally vocal member". Within just two or three years it already belonged – alongside Belgium, (West) Germany and the Netherlands – to a lobby of creditor countries trying "to head the EPU (which had originally been intended to last for only two years) a little more quickly in the direction of convertibility by reducing automatic credit lending and increasing the cash settlement of the monthly balances in gold or dollars [...]"⁵³ The Head of Department II, Paul Rossy, was one of only seven members of the EPU's Managing Board from the very beginning.

In the early years of membership, Switzerland's balance of payments with the EPU countries was of considerable importance, and showed a growing surplus in favour of Switzerland. By 15 October 1951, it already stood at 410 million Swiss francs. In September 1953, the entire Swiss quota had been used up and one-third of the *rallonge* had also been utilised. Although, unlike the situation in other countries, the credits that Switzerland had to extend to

51 SNB, Minutes of the Governing Board (1950), 5 July, no. 706.

52 Memorandum (1950).

53 Günther Schleiminger, then deputy head of the German EPU delegation, cf. SNB, Schleiminger interview (2004).

the EPU were borne by the Confederation and therefore did not boost the monetary base, the National Bank was still afraid that one day the Confederation would no longer be able to bear the increasing burden and that the SNB would then have to provide it with loans, which would result in money creation.

In view of the developments described above, at the suggestion of the FDF a meeting was held in early September 1953 with the Federal Council's Delegation for Financial and Economic Affairs, attended by the members of the Governing Board and representatives of Vorort and the banks. Federal Councillor Max Weber first of all pointed out that, in the light of Switzerland's structural creditor position in the EPU, there was no end in sight to the federal government's lending. As a way of reducing the surpluses, Finance Administration Director Iklé proposed that spending by Swiss travellers abroad, the transfer payments of Italian workers to Italy, and possibly also payments of interest and dividends from Switzerland to EPU countries be shifted out of the EPU payments system and into the controlled bilateral payments system. He also proposed increasing exports of capital within the EPU. Minister Alfred Zehnder suggested that the possibility of private funding of the surpluses be discussed.⁵⁴ There had already been complaints about the growing prepayments from the EPU for imports which were clearly connected with expectations of a devaluation of the French franc and the pound.

In November 1951, there was a discussion in the Permanent Delegation for Trade Negotiations about whether export ceilings should be set for the individual EPU countries.⁵⁵ It was suggested that the machinery and watchmaking industries should also be contacted and the imposition of quotas on payments be discussed. Capital movements also needed to be monitored more closely. The Governing Board then declared "that the recent increase in liquidity in the money and capital market stems mainly from the payments for the account of [...] [EPU] countries".⁵⁶

In fact, the end result was a Federal Council decree subjecting foreign prepayments for Swiss exports to monitoring. The Banque de France itself introduced measures to reduce the excessive French balances with Swiss banks. Finally, the United Kingdom also severely restricted the sale of foreign currency for travel purposes and for many Swiss export products. As the Governing Board was pleased to report, the meeting with the Federal Council's

54 SNB, Minutes of the Governing Board (1953), 10 September, no. 904.

55 SNB, Minutes of the Governing Board (1951), 18 October, nos. 1052 and 1081.

56 SNB, Minutes of the Governing Board (1951), 21 November, no. 1193.

Delegation for Financial and Economic Affairs considered an arrangement of a similar nature for other countries as well, by way of bilateral negotiations, if necessary. The excessive liberalisation needed to be brought back into an appropriate equilibrium.⁵⁷ Switzerland subsequently brought in or prepared restrictive measures and tighter controls on the trade in goods. The same was also demanded for the financial sector, especially for transfers of interest and earnings.⁵⁸ Finally, at the suggestion of Heinrich Homberger of Vorort, the federal government introduced a charge of 0.875 percent on disbursements under loan agreements to other countries within the EPU. This charge was probably meant not only to curb exports, but also to cover the government's lending costs. However, foreign central banks soon succeeded in ensuring that their purchases of banknotes were exempted from this charge.⁵⁹

So what was the effect of the balance of payments surplus with EPU countries on the SNB's monetary policy? At first, the Confederation's lending under the EPU had no expansionary effect on the Swiss money supply, since the government raised the necessary funds in the Swiss capital market or from tax revenues. An increase in the money supply would only arise if the National Bank bought from the government the gold it had received from the EPU or if loans to other countries were repaid and the government used these funds to reduce its domestic indebtedness or for spending within Switzerland. Therein lay a difference versus other creditor countries, where it was the central bank that did the lending. In this context, it is interesting to note that, on a number of occasions, the SNB opposed early repayments of EPU countries' callable debt, because they would have increased the monetary base. This even led to a dispute with the EPU, when the SNB opposed a proposed early repayment of the French debt because of the burden on the EPU quota,⁶⁰ as any such repayment would have had the same effect as a positive balance

57 SNB, Minutes of the Governing Board (1951), 29 November, no. 1226. In addition, at a meeting in 1953 with the Delegation for Financial and Economic Affairs, the Governing Board argued against the EPU's plans for a 100 percent liberalisation of trade; protection of agriculture (among other things) played a role in this. The EPU had already been told that this was economically and politically impossible. Cf. SNB, Minutes of the Governing Board (1953), 29 October, no. 1088.

58 SNB, Minutes of the Governing Board (1952), 7 February, no. 174.

59 SNB, Minutes of the Governing Board (1952), 17 July, no. 735. For the central banks' reactions, cf. SNB, Minutes of the Governing Board (1952), 21 August, no. 810; 28 August, no. 841; 23 October, no. 1031.

60 On the dispute with the EPU, cf. SNB, Minutes of the Governing Board (1951), 1 February, no. 159; for the opinion on the early repayment of the loan to France, cf. SNB, Minutes of the Governing Board (1951), 12 April, no. 427.

from increased exports. When, in 1954, a further extension of the EPU prompted a decision to consolidate the debts that had accumulated up to then, the SNB successfully pressed for the Confederation to invest the repayments and amortisations abroad, partly by way of US Treasury bills. Before the meeting with the federal authorities, the newly elected Head of Department III, Walter Schwegler, stated in a Governing Board meeting that Switzerland's surpluses were mainly due to the fact "that the state, through its participation in the Payments Union has, in the interests of the economy, converted non-convertible currencies into convertible currencies, with the payments from countries with non-convertible currencies being made even easier by the granting of credits. [...] It is therefore also down to the state to ensure that this gold income does not result in an unwelcome increase in the money supply. But if at all possible, the state should be prevented from coming into possession of substantial holdings of gold and foreign currency, which it might possibly misuse to the considerable detriment of the National Bank's currency policy. We should therefore seek to have the Swiss franc equivalent of the dollar income blocked." Whereupon Governing Board Chairman Keller said that he "did not think that investing the proceeds – or at least a reasonable amount of them – in dollars, by way of US Treasury notes, was an outlandish solution".⁶¹

Dispute with the Confederation over price losses on gold purchases

The National Bank and the Confederation found themselves at loggerheads over price losses that the government incurred owing to the buying price for gold as calculated by the SNB. As mentioned above, payments with the EPU were made on the basis of a unit of account, which was equal to one US dollar and thus implicitly to the US gold parity of 35 dollars per ounce of gold. For Switzerland, the conversion resulted in a gold price of 4,920.63 Swiss francs per kilo and a dollar exchange rate of 4.37282 francs. However, the SNB bought gold at a price of only 4,869.80 Swiss francs and US dollars at the daily rate. Since the government had to buy the gold it received from the EPU at the higher price, but the SNB only paid it the lower price, losses arose that the National Bank thought the government ought to bear. The SNB, which acted as an agent of the Confederation, noted the absence of any undertaking to that effect in the FDF's letter. The Governing Board rejected a proposal from the federal government that the SNB should temporarily accept the gold

61 SNB, Minutes of the Governing Board (1954), 1 July, no. 699. For the consent of Federal Councillor Streuli and Finance Administration Director Iklé, cf. SNB, Note (1954).

coming in from the EPU for the account of the government, and that accounts should not be settled until after the gold had been sold off. It declared that “there are only two possibilities – either the government buys the gold for its own account, in which case it incurs interest losses, or it lets the National Bank have the gold and reimburses it for the difference between its buying price and the purchase price”. In addition, Hirs drew the FDF’s attention to the fact that, depending on the place of delivery of the gold, transport costs might also be incurred that would still have to be borne by the Confederation.⁶² The SNB won the day and, between 26 October 1949 and 24 September 1950 (the arrangement also applied to bilateral relationships before Switzerland joined the EPU), the government incurred costs of 268,638 Swiss francs. Hirs thus proposed that the Confederation should no longer have to bear these costs in future, an idea to which Rossy could not agree at all. After Keller had suggested leaving it to the federal government to take the initiative, it was decided to wait a while longer with regard to the question of relieving the burden on the Confederation.⁶³ In January 1952, the FDF drew the SNB’s attention to the fact that the government had incurred an overall loss of 2.1 million Swiss francs on its payment transactions with the EPU. The SNB had, it claimed, made a handsome profit at the expense of the Confederation, and the government would therefore like to know whether the price losses might not be reduced. In its reply, the National Bank pointed out that it had already raised the relevant buying price for the US dollar from 4.3168 to 4.3276 Swiss francs. In addition, it was prepared to pay the federal government a one-off sum of 362,206 Swiss francs out of the previous year’s net profit from the EPU countries.⁶⁴

Switzerland’s collaboration in the EPU and the transition to the European Monetary Agreement

Towards the end of 1953, Switzerland’s financial position in the EPU changed; its creditor position contracted and then turned into a debtor position. At the same time, it was now possible to increase the proportion of gold payments in the settlement of balances and to raise the free portion of trade between EPU countries to more than 90 percent. Because of its deficits, Switzerland was now spared having to introduce more inward exchange controls. It is interesting to note here that the introduction of flexible

62 SNB, Minutes of the Governing Board (1950), 7 September, no. 917; 21 September, no. 978.

63 SNB, Minutes of the Governing Board (1950), 23 November, no. 1237.

64 SNB, Minutes of the Governing Board (1952), 10 January, no. 55.

exchange rates, which would certainly have led to the elimination of balance of payments surpluses and deficits, was never seriously considered either by the EPU or by Switzerland. According to Günther Schleiminger, the words ‘exchange rates’ were never heard in the official meetings of the Managing Board of the EPU.⁶⁵ Yet Milton Friedman and then Friedrich Lutz, a professor at Zurich University, had been the first to draw serious attention to this option and its advantages.⁶⁶ However, this was an idea not widely shared by economists at the time; it did not gain more proponents until the 1960s. Governing Board Chairman Keller rejected the introduction of flexible exchange rates as early as June 1952. Although “this would enable exchange control regulations to be eased, and avoid an administratively cumbersome and highly unpopular policy of quantitative import restrictions, the *risk* inherent in any such course of action lies mainly in the sheer unpredictability of what would happen in the foreign exchange market once it had been liberalised in this way, and in the part that speculation would play”.⁶⁷

Despite the weakness of the pound, it was often the UK authorities who repeatedly took the initiative, probably because of the interests of the City of London and the international standing of the pound, which had to be defended. From the very beginning, they wanted their currency to be convertible and were therefore also initially sceptical about the EPU. They later tried in vain to shape it more according to their own wishes.⁶⁸ The Bank of England became active as early as 1952/1953, proposing first of all that currency arbitrage between the authorised banks of the EPU countries be permitted, and then forward foreign exchange transactions. Up to then, the balances arising between the members of the EPU had been settled – as far as possible on a multilateral basis – solely by means of the monthly offsetting of the bilateral balances with the BIS, and there was no apparent reason why this settlement could not take place on a daily basis through currency arbitraging by the banks. Much the same could also be said of permitting forward foreign exchange deals, allowing exporters and importers to cover themselves against exchange rate fluctuations and enabling speculation in a fixed exchange rate system to help stabilise exchange rates when unalterable upper and lower intervention points are expected.

65 SNB, Schleiminger interview (2004).

66 Friedman (1953), chapter ‘The case for flexible exchange rates’, pp. 157–203; Lutz (1954). Friedman’s essay had its origins in a memorandum that he had written in 1950 as advisor to the Finance and Trade Division of the Office of the Special Representative for Europe, United States Economic Cooperation Administration.

67 SNB, Minutes of the Bank Council (1952), 13 June, p. 229, highlighted in original.

68 Kaplan and Schleiminger (1989), pp. 48–53, 205–210.

The Governing Board seemed at best to have little knowledge of the functioning of currency arbitrage. In any event, in December 1952, it was given a detailed example with some figures.⁶⁹ After exhaustive negotiations in Basel under the auspices of the BIS, and after obtaining the banks' consent to monitoring by the Swiss Clearing Office and the SNB, Switzerland subscribed to the agreement on currency arbitrage among a total of seven countries.⁷⁰ The Governing Board had greater reservations about allowing forward foreign exchange deals. Here again, it first needed a detailed report explaining how they worked and what effects they had. Hirs was sceptical. The Governing Board therefore decided to await the results of a conference on this subject in Amsterdam.⁷¹ It originally envisaged rejecting the idea of Switzerland's participation. However, once the Permanent Delegation for Trade Negotiations with Foreign Countries gave its consent on 2 October 1953, the Governing Board did eventually decide to take part. Forward foreign exchange deals were limited to a maturity of three months and had to be reported to the SNB immediately after they had been concluded.⁷² These decisions represented significant progress in the liberalisation of the foreign exchange market.

As mentioned, since the beginning of the 1950s, the United Kingdom had on a number of occasions put forward plans for convertibility of currencies, which even – within certain limits – comprised a system of flexible exchange rates for the pound. These plans initially encountered resistance from the United States, especially since they provided for automatic lending by the US. Members of the EPU – particularly the creditor countries – were also against the idea because they believed that a gradualist approach was more realistic and preferred a 'hardening' of the EPU through a higher proportion of gold and dollar payments in the settlement of balances.⁷³ Nevertheless, following difficult negotiations, a compromise between British and continental efforts was reached on 29 July 1955 in the form of the European Monetary Agreement (EMA). This agreement provided for convertibility for non-residents at fixed exchange rates in the event of the EPU being abolished. Under the terms of the agreement, moreover, it was planned to set up a European fund of 600 million US dollars as a safety net for the countries with weaker currencies. The debts still outstanding when the EPU was discontinued were to be

69 SNB, Arbitrage (1952).

70 SNB, Minutes of the Governing Board (1953), 16 April, no. 414; 23 April, no. 439; 13 May, no. 522; 21 May, no. 556.

71 SNB, Minutes of the Governing Board (1953), 20 August, no. 845.

72 SNB, Minutes of the Governing Board (1953), 17 September, no. 941; 15 October, no. 1015.

73 Kaplan and Schleiminger (1989), chapters 10 and 11.

repaid by distributing its assets and through bilateral repayment agreements. Short-term loans (interim financial credits and swaps) were to bridge temporary balance of payments deficits.

However, the discontinuation of the EPU and the transition to convertibility under the EMA were delayed for several years due to the UK's deteriorating balance of payments.⁷⁴ It was not until late 1958 that the UK once again pressed for the introduction of convertibility, after introducing a stabilisation programme in September 1957. There was then a further delay because of resistance from France, whose foreign exchange situation was precarious. However, a dramatic change of heart came about in France in December 1958, since the government had decided to combine the transition to convertibility under the EMA with a further devaluation of the French franc. Switzerland viewed the transition to convertibility with scepticism, but could not withhold its agreement. Walter Schwegler, who had by then been elected Chairman of the Governing Board, stated "that the precautionary measures regarding a transition from the EPU to the Monetary Agreement [...] were taken under pressure. Consequently, the doubts expressed by the Governing Board in the negotiations with the Permanent Delegation as to whether the EMA will last, appear justified. Incidentally, this sceptical assessment [...] is also shared by Minister Schaffner and Dr Homberger. For this reason, Minister Soldati, as the Swiss representative in the OEEC Council, has been instructed to have it formally recorded in the Council minutes that Switzerland reserves the right to withdraw from the Monetary Agreement should it be exposed to serious economic discrimination by other members of the Monetary Agreement."⁷⁵

The transition to convertibility under the EMA caused no problems in terms of the cost to the Confederation, since as of 30 November 1958, Switzerland's bilateral debts of 327 million Swiss francs considerably exceeded its bilateral credit balances of 236 million francs. It was now purely a question of ensuring chronological coordination of the debt repayments and preventing the repayments from triggering an increase in Switzerland's monetary base. However, the entry into force of the EMA raised a number of new questions for the SNB and the Federal Council. One such question related to the harmonisation of the buying and selling prices for the dollar against the EPU countries and the dollar area, which up to this time had differed by around 2 percent. At the request of the Governing Board, the upper and lower

74 Kaplan and Schleiminger (1989), chapter 12.

75 SNB, Minutes of the Governing Board (1958), 30 December, no. 1434.

intervention rates were set at 4.295 and 4.45 Swiss francs per US dollar respectively, and it was envisaged that the SNB would buy dollars in the market at around 4.31–4.32 Swiss francs. This meant a slight revaluation of the Swiss franc by 1.0–1.5 percent against the EPU countries.

A further problem concerned the question of whether it was the government or the SNB that should assume responsibility for the Swiss contribution to the European Monetary Fund, short-term bridging loans and swap operations. The Governing Board took the view that the Confederation alone was responsible for the contribution and any bridging loans, since the EMA was a state treaty. Although swap operations by their very nature fell within the remit of the SNB, under the National Bank Act it was not permitted to engage in forward operations. This view was supported by the SNB's legal advisor. Nevertheless, the Governing Board thought it right that the SNB be allowed to undertake such transactions as soon as possible by way of a generally binding federal decree. Eventually the FDF confirmed, in a letter dated 6 January 1959, the Federal Council's decision that the SNB could provide the bridging loans provided for under art. 10 of the EMA or carry out the swap operations on behalf of the Confederation up to an amount of 15 million dollars. However, the question as to whether the SNB could be authorised to conclude such transactions thanks to a broader interpretation of art. 14 of the National Bank Act or by creating a new legal basis should be examined.⁷⁶ This heralded problems that were to assume great importance in the years ahead.

The question of whether, in the SNB's balance sheet, the EPU currencies could be considered as cover for banknote circulation following the transition to convertibility led to intensive discussions within the Governing Board. Unlike the legal advisor, Schwegler rejected this idea outright, since the currencies in question were not directly exchangeable into gold, but only indirectly via the dollar at parity. He argued that this was a move away from the gold standard. Paul Rossy's successor, Riccardo Motta, and Max Iklé, who had moved from the Finance Administration to the Governing Board in 1956, took the opposite view. Eventually, the Bank Committee approved a compromise proposal from the Governing Board which provided that only dollar holdings should be shown as foreign currency, while other convertible currencies would figure under the newly created item 'Correspondent banks abroad'.⁷⁷

76 SNB, Minutes of the Governing Board (1958), 30 December, no. 1434; (1959), 8 January, no. 32.

77 SNB, Minutes of the Governing Board (1959), 8 January, no. 32; 15 January, no. 53.

2.3 Switzerland and the Bretton Woods system

2.3.1 Background

The problem of the Swiss franc's undervaluation had by no means disappeared with the transition of the Western European currencies to convertibility, which in most cases – including that of the pound – applied only to non-residents, however, and still left various countries retaining elements of exchange control restrictions. Quite the contrary: with the growing liberalisation of trade and, increasingly, of capital movements, the balance of payments surpluses tended, if anything, to increase. This can be clearly seen from the change in gold and foreign exchange reserves. While these grew by 3,897 million Swiss francs, i.e. by 81.1 percent between 1945 and 1959, they rose between 1959 and 1971 by 13,588 million Swiss francs, or 144.2 percent. Since the growth of the monetary base in these years was determined to a considerable extent by the SNB's purchases of gold and foreign exchange, it is not surprising that it expanded by 3,837 million Swiss francs, i.e. by 80 percent (an annual average increase of 4.3 percent) between 1945 and 1959, while it grew by 12,449 million Swiss francs, i.e. by 156.1 percent (an annual average of 8.2 percent), between 1959 and 1971. It therefore comes as no surprise that, with economic growth virtually unchanged, inflation accelerated. As real GNP was growing at an average of 4.4 percent from 1945 to 1959 and 4.9 percent from 1959 to 1971, inflation accelerated from an average of 1.2 percent in the first period to 3.5 percent in the second period.

Since the SNB and the Confederation refused to consider a revaluation of the Swiss franc, even after the first revaluation of the German mark and the Dutch guilder by 5 percent in early March 1961,⁷⁸ the only means left to combat the problems were inadequate inward exchange controls and the containment of domestic liquidity through administrative limits on lending. Attempts at both were made in the usual way through gentlemen's agreements and government prohibitions. They were accompanied by the innovative use of swaps and by loans – frequently guaranteed against devaluations – extended by the government, and increasingly also by the SNB to foreign central banks (notably the Bank of England and the US Treasury or Federal Reserve System).

78 SNB, Iklé memoirs (undated), p. 241. In SNB, Minutes of the Governing Board (1961), 9 March, no. 296 reads as follows: "The Governing Board noted in particular that there can be no question of the Swiss franc being undervalued in comparison to the major foreign currencies, as is evident especially from the high import surpluses and the high level of wages and costs."

These new measures underpinned the exchange rates of the pound and the dollar and, within Switzerland, led to an outflow of the foreign currency that had previously flowed into the country (for a while, at least). Similar measures were also taken by other European central banks, allowing the Bretton Woods system to survive until the early 1970s, despite an over-expansionary US monetary policy that made no allowances whatsoever for the needs of even a watered-down gold-based monetary system. Proof of this can be seen in the fact that, in the period from 1960 to 1970, US gold reserves fell from around 18 billion to 11 billion US dollars, while liquid liabilities towards non-residents rose from 21 billion to 43 billion dollars. In view of this, only a more restrictive monetary policy on the part of the United States or a much more expansionary policy on the part of countries such as Switzerland and Germany could have preserved the dollar exchange rate and thus secured the future of the Bretton Woods system. However, these countries were not prepared to accept even higher imported inflation as a result of an over-accommodative US policy. Although the United States wanted to maintain the parity of 35 dollars per ounce of gold, as Allan Meltzer writes: “This objective required monetary policy either to accept the inflation rate or price level consistent with the \$35 gold price or to pursue a domestic employment goal by adopting controls and restrictions on trade or capital movements. Roosa [Undersecretary of the Treasury] chose capital controls.”⁷⁹

2.3.2 *A break with tradition: the SNB participates in international currency loans*

As mentioned above, up to the end of the EPU, state loans to other countries were granted solely by the federal government, due to the legal provisions governing the SNB's activities. This had the advantage that the lending had to be financed by tax revenues or the proceeds of bond issues, and did not result in money creation by the SNB. Such loans were, however, a burden on the federal budget and severely restricted the SNB's ability to act in the foreign exchange markets, especially since – according to its own interpretation of the law – it was not allowed to engage in forward foreign exchange deals. A change was heralded when the topic of fulfilling the EMA's terms was discussed, as described above. A radical transformation of this policy was then initiated by the SNB from 1959, notably at the instigation of the

⁷⁹ Meltzer (2005), chapter 5, p. 1.

imaginative Head of Department III, Max Iklé⁸⁰ – a change that SNB Chairman Walter Schwegler at first strongly opposed.

As early as October 1955, the BIS had made an offer to the National Bank to accept dollars from it in exchange for gold under a swap transaction with a maturity of three or six months.⁸¹ This shows that knowledge of such transactions had been preserved at the BIS during the years of bilateralism; the names Paul van Zeeland, Donald McDonald and Hans Heinrich Mandel, in particular, spring to mind. Under the proposed transaction, the BIS wanted to sell the SNB gold for dollars spot and repurchase the gold for dollars forward – upon maturity after three months, for example. The difference between the forward and spot prices of gold would have earned the SNB a return of 1.75 percent. Such a transaction over the year-end would have been reflected in the SNB's annual accounts as a welcome increase in gold holdings and a reduction in dollar holdings. It should be borne in mind here that in those days, in order to maintain fixed exchange rates, the National Bank had to buy sizeable sums of US dollars from Switzerland's commercial banks for Swiss francs at the end of the year. It did this via dollar/franc swaps, which enabled the banks to show higher holdings of liquid Swiss franc assets in their balance sheets ('window-dressing').⁸²

Walter Schwegler, at that time still Head of Department III, objected to this proposal from the BIS, stating that "there can be no question of the National Bank involving itself in such transactions". He argued that the SNB had no legal authorisation to conduct forward transactions and, furthermore, was not willing to bear the risk on the dollars.⁸³ However, the second half of this statement was based on a misconception. There would not have been an exchange rate risk on the dollars precisely because the forward rate against the gold would already have been fixed at the time the transaction was entered into. What also makes Schwegler's position look surprising was the fact that he had already transacted a US dollar/Swiss franc swap with the BIS in early 1955, albeit for the small amount of 3 million dollars and with a short

80 Max Iklé, a lawyer by training, had a lively mind and was quick to acquire the necessary economic expertise. "He excelled in all the areas I know about," said Hans Stahel, long-time head of the National Bank's foreign exchange unit, in SNB, Stahel interview (2005). "It fills us with great pleasure and satisfaction that your imaginative initiatives have strengthened our contacts with central banks and have deepened cooperation with them," wrote Hans Heinrich Mandel in a letter to Iklé on the occasion of the latter's retirement from the SNB, BIS to Iklé (1968).

81 BIS, Possible dollar/gold swap (1955); BIS, Employment of our gold deposits (1955a, 1955b, 1955c).

82 SNB, Minutes of the Governing Board (1955), 8 December, no. 1326.

83 SNB, Minutes of the Governing Board (1955), 16 November, no. 1227.

maturity of five days. The Governing Board had “duly noted and approved this short-term swap after the event”.⁸⁴ The SNB had also concluded similar small and very short-term swaps with the BIS in the preceding three years, when Alfred Hirs was still Head of Department III.⁸⁵ The Governing Board had obviously had no legal reservations in these cases.

As mentioned, at the instigation of Max Iklé, who had taken over as Head of Department III in 1956, the Governing Board gradually abandoned its reluctant stance on this point. A first major step was taken at the end of 1959, when Iklé was expecting the big banks to sell the SNB approximately 600 million US dollars, which were to be acquired by way of swaps, as in previous years. But in addition, he now submitted the following proposal to the Governing Board: “Should it be desired that the [SNB’s] foreign exchange holdings not be stated at an excessively high level, it would probably be possible to enter into a gold/dollar swap with the BIS or the Bank of England over the year-end, whereby we would transfer dollars to our partner for, say, four days and accept gold in return. Since there would certainly be a demand for dollars again after the New Year, there would be some justification for such a swap, although it would be an innovation for the central bank.”⁸⁶ The Governing Board agreed to this proposal, and the negotiations with the BIS and the Bank of England were brought to a successful conclusion. Gold/dollar swaps were entered into with them for 50 million and 20 million US dollars respectively.

The National Bank did run into one problem, however. It had entered into the window-dressing swaps (at first for 68 million dollars, then eventually 113.5 million dollars) only with the big banks; when other banks found out about this, they felt discriminated against and demanded that they too be allowed to take part in the swap arrangements. The SNB initially declined their request, but acceded to it the following year. In addition to reducing the increase in its year-end dollar holdings through window-dressing operations with banks, another argument in favour of swapping dollars for gold was based on the SNB’s desire to ensure that the statutorily prescribed note issue cover was met by higher reported gold holdings in Switzerland.⁸⁷

84 SNB, Minutes of the Governing Board (1955), 3 March, no. 223.

85 SNB, Minutes of the Governing Board (1952), 27 November, no. 1177; (1953), 26 February, no. 200; (1954), 4 November, no. 1172.

86 SNB, Minutes of the Governing Board (1959), 10 December, no. 1200.

87 SNB, Minutes of the Governing Board (1959), 23 December, no. 1256; 30 December, no. 1276; (1960), 29 December, nos. 1415 and 1420 for the corresponding end-1960 transactions. (no. 1415 refers to an increase in gold coverage of circulating banknotes by way of a ‘gold-location swap’, whereby foreign gold temporarily stored in Switzerland is acquired in exchange for SNB gold stored abroad).

However, Iklé, whose international role in this connection has until now been completely ignored by researchers, had ideas for transactions that extended far beyond swaps designed to overcome inflows of dollars at the turn of the year. He was worried about the continuing inflows of dollars during the course of 1960 and the shrinking of the US gold reserves, since these could jeopardise the gold convertibility of the dollar. He saw the Bretton Woods fixed exchange rate system under threat from short-term capital movements and speculation. In September of that year, he therefore argued on the Governing Board against exchanging any more dollars for gold at the US Treasury and for the time being overcame the reservations of the Chairman, Walter Schwegler, who was in favour of at least a partial exchange. In October, however, a majority of the Governing Board decided to exchange most of the dollars after all, as the price of gold in the free London gold market had climbed to over 50 dollars an ounce. In June, moreover, the Governing Board had politely declined a further proposal from the BIS for a three-month gold/dollar swap, because “such a transaction would not be entirely compatible with the statutory provisions, and the bank currently has no need for additional income”.⁸⁸

At a Governing Board meeting in November 1960, Iklé explained that private capital exports were being prevented by the high costs of exchange rate hedging through swaps and that, in order to reduce these costs, it would therefore make more sense for the SNB to intervene in the forward market than in the spot market. However, he added that, for legal reasons, this was unfortunately not possible.⁸⁹ Schwegler replied that such interventions carried an exchange rate risk and it was not the SNB's job to create an artificial rate for the dollar. Iklé returned to the fray following a speech by the new US President, John F. Kennedy, in which the latter had guaranteed the gold parity and convertibility of the dollar. In February 1961, at one of the monthly meetings of central bankers at the BIS in Basel, Iklé presented a proposal on this subject to Charles Coombs of the Federal Reserve Bank of New York. This bank was responsible for the foreign currency transactions of the Federal Reserve System. In a follow-up letter to Coombs dated 18 February 1961, Iklé set out in more detail his proposal – which he considered to be better than the higher interest on foreign central bank balances in the United States

88 SNB, Minutes of the Governing Board (1960), 2 June, no. 572; 29 September, no. 1010; 21 October, no. 1078.

89 The SNB was not explicitly permitted to engage in forward foreign exchange transactions with a maturity of up to three months until after the amendment of art. 14 no. 3 of the National Bank Act, i.e. from 11 March 1976.

suggested by President Kennedy. He also informed the Bank of England of these ideas and presented them to the Governing Board: “The following transaction would be conceivable [...]. The Swiss National Bank could sell the Federal Reserve Bank 100 or 200 million US dollars’ worth of gold spot and buy it back forward (dollar/gold swap). The dollar proceeds would be sold to the Swiss banks [for Swiss francs] at the then current spot rate and bought back forward at a rate one centime lower, so that the swap cost for the banks would be around 7/8 percent per annum. At the end of three months, the transaction could be renewed [...]” However, he went on, the Federal Reserve Bank’s gold handling charge would have to be waived or reduced. Both central banks could profit from the transaction. “The operation would have the following advantages:

1. Short-term capital would flow from Switzerland to the US without the US having to apply higher interest rates.
2. Not only would the outflow of gold from the United States be stopped, but the US gold reserves would be increased.
3. For public consumption purposes, the new government’s programme would enjoy immediate and visible success.
4. Surplus liquidity, which is undesirable from the viewpoint of the Swiss National Bank, would be absorbed from the Swiss capital market.”⁹⁰

The last item on this list reflected once again the SNB’s concern about money supply growth. For Iklé also adhered to this position, as well as to fixed exchange rates. He was very well aware of the fundamental change in National Bank policy that his proposals would involve. As he wrote in his letter to Coombs: “Such an operation, however, would mean throwing our tradition in respect of forwarding transactions overboard. We rather think that this would even go beyond the provisions of our banking law; all the same, the Board of Management of the Swiss National Bank would be prepared to assume full responsibility, provided an effective contribution toward the solution of the international monetary problem can thus be secured.”⁹¹

Iklé’s proposals were accepted as worthy of consideration by Coombs, with some reservations, but turned down point-blank by the Bank of England in a letter from Roy Bridge of 30 March 1961.⁹² British resistance crumbled rapidly, however, when the pound came under heavy pressure in the foreign exchange market following the German revaluation of 3 March 1961. Now,

90 SNB, Minutes of the Governing Board (1960), 3 November, no. 1137; SNB to Coombs (1961), pp. 15 et seq.; SNB, Minutes of the Governing Board (1961), 16 February, no. 203.

91 SNB to Coombs (1961), pp. 15–16.

92 BoE to Iklé (1961).

in addition to other assistance from Switzerland, the Bank of England was only too glad to accept a swap as well, with the SNB buying sterling for gold spot and reversing this transaction forward. The sterling amounts were made available to the big banks in exchange for Swiss francs and also on a swap basis; the banks then invested these in UK Treasury bills at a profit. Iklé writes in his memoirs that he managed to obtain Schwegler's approval for these transactions on a car journey from Zurich to a meeting of the Governing Board in Berne.⁹³ However, the resistance of the FDF to the lifting of stamp duty on such investments had to be overcome first, since it would have made them unprofitable. Because of the uncertain legal position, the Governing Board also decided to obtain the consent of the Bank Committee, which was promptly forthcoming.

Finally, another proposal from Iklé envisaged the SNB offering the Swiss banks a swap whereby the National Bank – now acting as the agent of the Bank of England – would sell them sterling for Swiss francs spot and buy them back forward. The sterling amounts so acquired could then also be invested by the banks in UK Treasury bills on a for-profit basis. In this way, the SNB would avoid acting in its own name when using swaps to make purchases in the sterling forward market, which it was not legally permitted to do. The argument in favour of engaging in these operations with the banks was that they could inflict losses on speculators, thereby bringing their activities to a rapid halt.⁹⁴

It was not long before Iklé was also proposing to the Americans that the National Bank carry out forward purchases on behalf of and for the account of the Federal Reserve Bank of New York. That way, the forward rate discount on the spot rate for the dollar could be reduced, thereby stimulating short-term capital exports from Switzerland to the United States. By the end of August 1961, these interventions had already reached a volume of around 65 million dollars. But that now raised the question of where the Federal Reserve Bank of New York – which was carrying out these operations on behalf of the US Treasury – was to find the corresponding 280 million Swiss francs when the forward contracts matured, since it had only 65 million francs. At the suggestion of the US Treasury Assistant Secretary, William Heffelfinger, the problem was solved by issuing three-month Treasury paper (certificates of indebtedness) denominated in Swiss francs, to which

93 SNB, Iklé memoirs (undated), p. 244.

94 SNB, Minutes of the Governing Board (1961), 16 March, no. 328; 23 March, no. 346; 29 March, nos. 385 and 387; 6 April, no. 390.

Douglas Dillon as Treasury Secretary and Robert Roosa as Treasury Undersecretary gave their consent. The Swiss government acquired 100 million Swiss francs' worth of such certificates in September and the SNB offered to buy another 110 million francs' worth.⁹⁵ From these small beginnings there later grew the so-called Roosa bonds, whose maturity was then extended to fifteen months.

Following the revaluation of the German mark in 1961, there had initially been speculation against the dollar as well, which substantially increased the swap rate (the percentage difference between the spot rate and the forward rate) for the dollar and therefore triggered further capital flows into Germany and Switzerland, in particular. In this situation, Johannes Tüngeler, a member of the Executive Board of the Deutsche Bundesbank, also wrote to Coombs, proposing that Germany's central bank buy dollars for German marks in the forward foreign exchange market. The Bundesbank was prepared, if necessary, to supply – at the same rate – any marks that might be required when the forward contracts matured. This proposal was swiftly implemented. Together with the Swiss measures, it constituted what Frederick Connolly, in a letter to Coombs, called a crystallisation point for the construction of a general swap network between eight European central banks, the central banks of Canada and the United States, and the BIS.⁹⁶ By the end of 1962, swap commitments had reached a total of 750 million dollars, of which the SNB's share was 100 million dollars. The amounts involved were further increased with each currency crisis and by mid-1979 had reached just under 30 billion US dollars, of which the SNB accounted for 4 billion.⁹⁷

The Swiss assistance for the British pound following the revaluation of the German mark and the Dutch guilder was by no means limited merely to the gold/dollar swap described above. In fact, the Bank of England was also provided with two dollar deposits totalling 200 million US dollars at an interest rate of 2.25 percent and callable at one day's notice. In addition, the Confederation, on the recommendation of the SNB, also joined in with a substantial investment. The Swiss and German assistance for the pound served as the starting point for more comprehensive support from a number of other central banks. "The Swiss credit provided the all-important nucleus of a billion-dollar package of similar credits from the Continental central

95 SNB, Minutes of the Governing Board (1961), 31 August, no. 973; 28 September, no. 1080; Coombs (1976), pp. 36 et seq.; SNB, Iklé memoirs (undated), pp. 251 et seq.

96 Cf. BIS to Coombs (1963).

97 SNB, Minutes of the Governing Board (1961), 28 September, no. 1080; Coombs (1976), pp. 39 et seq.; SNB, Iklé memoirs (undated), pp. 254 et seq.; Toniolo (2005), pp. 386 et seq.

banks rounded up by Cobbold and other Bank of England officials over the rest of the weekend.”⁹⁸

2.3.3 *Switzerland’s collaboration in the Gold Pool and the Group of Ten*

Cooperation with the major countries by Switzerland in general and the SNB in particular was extended further through membership of what was known as the London Gold Pool. As already mentioned, prices in the free London gold market of more than 35 US dollars an ounce undermined confidence in the stability of the dollar and of the whole Bretton Woods system, thus fuelling speculative trading in gold and foreign currencies. When the construction of the Berlin Wall caused the price of gold to soar even further in the summer of 1961, eight central banks came to an informal agreement, under pressure from the United States – later backed by Germany. According to this agreement, they undertook to provide the Bank of England, if required, with gold worth a total of 270 million US dollars to sell in the gold market, in order to keep the free price of gold close to 35 dollars. The United States put up 135 million US dollars and the SNB 10 million dollars. The Governing Board had made its commitment subject to the proviso that it would no longer participate “if there were to be another ‘gold rush’ owing to a fall in the dollar originating from an unsound US monetary policy”.⁹⁹ The Gold Pool supported the price successfully until 1968, when it had to be abandoned because of ever higher demand for gold. As long as the Pool was working efficiently, an indirect general convertibility into gold effectively existed for those currencies that had a fixed exchange rate and were freely convertible into dollars. Anyone could at any time buy gold in the London gold market at the price guaranteed by the members of the Gold Pool of around 35 dollars an ounce. The definitive demonetisation of gold therefore began with the winding-up of the Gold Pool. On balance during the period of its existence from 1962 to 1968, the SNB sold 81 million US dollars’ worth of gold to the Gold Pool.¹⁰⁰

Switzerland took a more decisive step towards international monetary cooperation in 1964, when it became an associate member of the General Arrangements to Borrow (GAB) set up by the Group of Ten (G10), the ten leading industrialised countries. This agreement was concluded in Paris in late 1961 at the instigation of the IMF. It stipulated that the central banks of the participating countries would grant the IMF additional credits in their

⁹⁸ Coombs (1976), p. 37.

⁹⁹ SNB, Minutes of the Governing Board (1961), 16 November, no. 1280; 21 December, no. 1446.

¹⁰⁰ SNB, Minutes of the Governing Board (1968), 27 March, no. 378.

own currencies for a total amount of 6 billion US dollars if one of them had to call on the Fund for loans in excess of its reserves in the currencies in question. Behind this scheme lay fears that the United States might possibly be forced to borrow substantial amounts.¹⁰¹ In view of Switzerland's high foreign exchange reserves, it was not surprising that the Managing Director of the IMF, Per Jacobsson, was also interested in getting Switzerland on board as a financially strong lender. At a meeting with the federal authorities and the SNB in Berne in April 1962, he said that the best solution would be for Switzerland to join the IMF and that the second-best solution would be an undertaking to lend within a limit of 400 million dollars. If use was made of this borrowing facility, he went on, the commitment could be exercised in gold, since the IMF was allowed to accept gold. In return, it could buy Swiss francs or other currencies, as required.

However, the Federal Council, and especially the National Bank, were still against the idea of joining the IMF, particularly since membership would have entitled other countries experiencing balance of payments difficulties to automatic Swiss franc loans under Switzerland's IMF quota, making it more difficult for the SNB to control money creation. The leader of the Swiss negotiating team, Edwin Stopper of the Department of Economic Affairs, made it clear from the outset that Switzerland had in mind only an amount of 200 million dollars. In addition, he and Max Iklé pointed out that Switzerland was thinking more in terms of bilateral agreements with the US and the UK. Unlike an agreement with the IMF, these would allow reciprocity and, by lending via swaps, the SNB could on-sell the dollars it received for Swiss francs spot to the Swiss banks and thereby absorb liquidity in the short term. In addition, by operating in this way it would also be possible for the SNB to act more rapidly. The Confederation could conclude a framework agreement with the IMF setting out the total amount and some general principles concerning procedures and coordination with the G10's actions.¹⁰²

There were also differences of opinion between the National Bank and the federal authorities. In a letter from the SNB's Governing Board to the Federal Council, with which it even enclosed a draft federal decree, the Board stated that, for reasons of international solidarity and in order to be able to combat international currency upheavals, the SNB did not wish to withdraw from collaboration. However, in order to proceed, various conditions had to be met. Joining the IMF was out of the question, but a federal decree was neces-

101 Toniolo (2005), pp. 399 et seq.

102 SNB, Minutes of the Governing Board (1962), 13 April, no. 378.

sary, since under the law as it currently stood, the SNB was not authorised to participate in long-term loans of up to five years. It felt that the decree had to empower the SNB – when requested by the government – to grant the loans in the form of advances or swaps. It preferred the latter. In addition, because of the long-term nature of the loans, the Confederation would need to declare itself prepared, at the request of the National Bank, to take over any loans that were extended, as had been provided for in the FDF's draft. Finally, the SNB expressed a preference for bilateral agreements. Stopper, on the other hand, took the view that – in the light of the SNB's high reserves – there was no need for a guarantee to take loans back.¹⁰³ By and large, the SNB was eventually able to assert its point of view. A federal decree to this effect was passed in October 1963, and a framework agreement with the IMF as well as bilateral agreements with the US and the UK were concluded shortly thereafter. The guarantee to take loans back, however, was enshrined only in a Federal Council decision. Although the Governing Board had carried the day, not all of its members agreed with this breach of its previous policy. For instance, the Chairman, Walter Schwegler, remarked “that it is contrary to my most deeply held convictions to accept a procedure by which the National Bank is designated the provider of the assistance envisaged. This would contradict the traditional principle whereby international financial payments for longer-term aid purposes fall primarily within the remit of the Confederation, while the central bank can at most be entrusted with the technical task of carrying out such transactions.”¹⁰⁴ The fact that Switzerland, unlike other countries, was represented in the G10 only by the SNB, and not also by the government, was important politically (and sometimes a thorn in the side of certain other countries).

After Switzerland had become an associate member of the G10 in this way, it was able to play a part in its decisions. This was especially true of the discussions about the alleged need to create international reserves separate from the central banks' dollar reserves. The Belgian-American economist Robert Triffin, in particular, had noted as early as 1957/1958 that, under the system then ruling, the additional international currency reserves needed at a time when the international economy was expanding could be created only from the limited amount

103 SNB, Minutes of the Governing Board (1962), 5 April, no. 357; 13 April, no. 378.

104 SNB, Minutes of the Governing Board (1962), 29 June, no. 692; (1963), 14 February, no. 212. However, it took until November 1964 for the implementing agreement with the Federal Reserve Bank of New York to be concluded and even a little longer in the case of the agreement with the Bank of England. Cf. SNB, Minutes of the Governing Board (1964), 19 November, no. 1507.

of gold being produced, or from additional dollar reserves that would flow into the other central banks as a result of the United States' balance of payments deficits. But what would happen if the US were ever to record surpluses rather than deficits on its balance of payments? These considerations were taken up by the UK authorities, in particular, while the Americans were initially dismissive of them. The continental Europeans, led by France, pursued different interests. The negotiations thus dragged on for years. There is no need to explore them in any detail here.¹⁰⁵ Switzerland participated in the negotiations in an observer capacity and was generally represented by Iklé. It was not until the United States changed its stance that Special Drawing Rights (SDRs) were finally created in 1969. Their value was determined by a basket of currencies and was originally equal to one dollar. Following the devaluation of the dollar and the revaluation of other major currencies, the SDR's value increased to more than one dollar. SDRs were allocated in accordance with countries' IMF quotas and were accepted for international payments by central banks, the IMF and the BIS. All told, from 1970 to 1972 and from 1979 to 1981, 21.4 billion SDRs' worth of this artificial currency was created. The SDRs were also accepted for payments by the SNB.

In the negotiations, the Federal Council and the National Bank took a somewhat reserved stance on SDRs. Although they could understand the problems raised by Triffin, they were afraid that SDRs might create a further potential source of inflation. John Lademann, who accompanied Iklé in the negotiations, reported that Federal Councillor Roger Bonvin had outlined Switzerland's basic position in August 1966 roughly as follows: providing a reserve system could "prompt us to create additional reserves too early and in too great an amount. We see a danger that this could lead to a relaxation of balance of payments discipline and thus of efforts to combat inflationary tendencies. We also believe that at the present time and probably for quite some time to come, there is no shortage of international liquidity."¹⁰⁶

The attitude of the United States was quite different. Following the change in their stance, they regarded the creation of SDRs and the ending of intervention by the Gold Pool as a success on the way to their goal of demonetisation of gold. As Robert Solomon reported to the Federal Reserve System's Federal Open Market Committee on 2 April 1968: "In my view, the most important sentence in the Washington communiqué [on the disbanding of the Gold Pool] is the

105 Solomon (1977), pp. 128–150; Toniolo (2005), pp. 407 et seq.; Lademann (1967, 1970).

106 Lademann (1967), p. 33; on the Swiss stance and the progress of the negotiations, cf. also Ingold (2003), pp. 304–309.

one that says: ‘Moreover, as the existing stock of monetary gold is sufficient in view of the prospective establishment of the facility of the Special Drawing Rights, [the Governors] no longer feel it necessary to buy gold from the market.’” And, “That pronouncement, together with the Stockholm agreement on Special Drawing Rights, can be interpreted as constituting a demonetization of gold at the margin. [...] the monetary authorities of the world – taken as a group – are not dependent on an increasing stock of gold. Their need for growing reserves in the future can be satisfied mainly by Special Drawing Rights.”¹⁰⁷

In accordance with this policy, the Americans pressed the central banks in future only to sell gold in the free market, but not to buy it any longer. These appeals, as well as the demonetisation of gold, were initially rebuffed by the SNB and other central banks.¹⁰⁸ However, developments since then have broadly corresponded to what the Americans wanted at that time; contrary to expectations, however, SDRs themselves never assumed any great importance. Not only did the US balance of payments remain in deficit, but the Bretton Woods system collapsed for good in 1973. Since then, in volume terms alone, the SDR has played an entirely subordinate role, both as an international means of payment and as a reserve medium.

In connection with the attempts to stabilise the Bretton Woods system through reforms, consideration was once again given to whether Switzerland should not join the IMF and the World Bank after all. For instance, on 17 January 1968, the Federal Council adopted as a decision a proposal from the FDF. This was also supported by the Department for Political Affairs, which was responsible for foreign policy, and the Department for Economic Affairs. In view of the reforms that had been agreed at the Annual Meeting of the IMF in September 1967, after many years of preparatory work in the G10, it was proposed that the question of Swiss membership be re-examined. This decision had been preceded in September and December 1967 by interpellations to that effect in the National Council.¹⁰⁹ The Governing Board of the SNB commissioned Lademann to produce a report. He came to the conclusion that, although the earlier reasons for not joining (reduction in trade policy flexibility, excessive reporting requirements, size of the membership quota and the problem of funding it) had for the most part ceased to be relevant, accession should still be deferred for other reasons. Firstly, the necessary transition to a fluctuation band of only 1 percent for the Swiss franc exchange rate

¹⁰⁷ Solomon (1977), p. 123.

¹⁰⁸ SNB, Minutes of the Governing Board (1973), 1 November, no. 781.

¹⁰⁹ SNB, Minutes of the Governing Board (1967), 8 December, no. 1357.

would mean raising the lower intervention rate against the dollar. One result of this would have been an obligation on the part of the National Bank to support the dollar exchange rate at a lower rate, implying a corresponding expansion in base money. Secondly, before accession an appropriate set of monetary policy instruments would need to be created for the SNB that would enable liquidity to be absorbed. Finally, Lademann argued, a wait-and-see approach could be justified for as long as a decision about SDRs – and the volume of them to be created – had not been reached. However, the size of the quota and its funding, as well as the cost, were not a serious hindrance. “Accordingly, the conclusion [...] would be that we should wait for the next few months and perhaps even until next year before addressing the question of membership in statements to the public and to Parliament, but must nonetheless prepare ourselves for membership in the years ahead whether we like it or not.”¹¹⁰ The Governing Board accepted these arguments, and the discussion about joining the IMF was put off until another day.

2.3.4 Developments up to the end of the Bretton Woods system

In addition to granting loans in support of the Bretton Woods international monetary system, the National Bank and the Confederation also took other measures to restrict the inflow of foreign currency and to absorb liquidity. These included, firstly, occasional sales of short to medium-term Confederation bonds known as rescriptions. Secondly, the SNB concluded further gentlemen’s agreements with the banks in order to deter inflows of foreign funds and reduce the existing stock (18 August 1960) and to limit lending (1 April 1962), which represented a continuation of inward exchange controls and credit quotas. Nevertheless, net capital imports remained exceptionally high, and as a result, the monetary base increased by 18.1 percent in 1961. It also rose in 1962 and 1963, by 4.2 percent and 8.8 percent respectively, due to net capital imports totalling 2 billion Swiss francs, even though the current account exhibited deficits of around 1.5 billion Swiss francs in each of these years.

The authorities reacted to these developments by adopting yet more measures. On 13 March 1964, the federal decrees on combating inflation came into effect. Among other things, they provided for measures relating to the money and capital markets and the banking system, and declared the gentlemen’s agreement on non-resident funds generally binding. The same year saw the implementation of further gentlemen’s agreements between the SNB and

¹¹⁰ SNB, *Accession to Bretton Woods Institutions* (1969), p. 23.

the banks (on deterring inflows of foreign funds and on lending limits) and an ordinance on the investment of non-resident funds. Similar agreements and resolutions – and their occasional repeal – also characterised the policies pursued in the following years. By and large, however, all these measures proved fruitless.¹¹¹

With an over-expansionary monetary policy being pursued by the United States, even Switzerland's growing involvement in international monetary assistance could not prevent further increases in the SNB's currency reserves and hence also in the monetary base and inflation (cf. graph 2.5).

Crises in the international monetary system occurred with increasing frequency, and the number of assistance operations carried out by G10 central banks in collaboration with Switzerland and the BIS grew. Such operations were undertaken to assist Italy (March 1964), the UK (September and November 1965, September 1966, November 1967, June 1968 and June 1969) and France (June and July 1968). Some of them also involved drawings on the IMF that were used to repay short-term credits that had been extended earlier by central banks and the BIS under the auspices of the G10. The UK's difficult position was due not only to its monetary policy having been even more expansionary than that of the United States, but also to the declining role of sterling as a reserve currency, which was held in particular by the countries of the British Commonwealth. Despite the measures, sterling had to be devalued by 14.3 percent on 18 November 1967 and the French franc by 11.1 percent on 8 August 1969. On the other hand, after just under a month of flexible exchange rates, the German mark was revalued by 9.3 percent on 24 October 1969. In the meantime, the position of the dollar continued to deteriorate, and the US authorities were exerting pressure on various central banks to deter them from exchanging their holdings of dollars into gold. In addition, the US government took various measures to restrict US capital exports.¹¹²

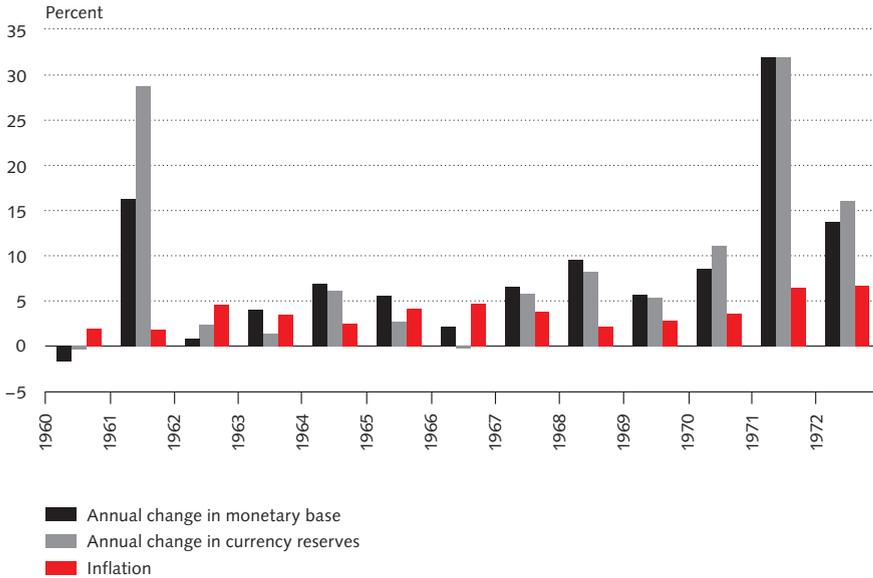
The risks for the dollar increased after Richard Nixon took office in January 1969. The new president introduced both a more expansionary fiscal policy, with growing federal budget deficits, and a more expansionary monetary policy. "At the swearing-in ceremonies at the White House, President Nixon concluded his introduction by pleading with a big smile: 'Dr Burns, please give us some money!' With the support of most of his associates on the

¹¹¹ Schiltknecht (1970), especially pp. 127 et seq.

¹¹² For details on these developments cf. Coombs (1976); Meltzer (2005); Solomon (1977), pp. 104–109; Toniolo (2005), especially pp. 381–399, 423–428.

Graph 2.5

Currency reserves, monetary base and inflation in Switzerland, 1960–1972



Source: SNB, Monthly Statistical Bulletin (various years).

Federal Open Market Committee, Chairman Burns proceeded to do just that. [...] The highly expansionary fiscal policy of the Nixon Administration further undermined the international value of the dollar. The budget deficit ballooned out to \$23 billion in fiscal 1971 from the surplus of \$3 billion registered in 1969. Meanwhile the price-wage spiral gained further momentum.”¹¹³ It was at this time that the expression ‘benign neglect’ first began to be used in connection with the US balance of payments.

How did Switzerland react to these developments? Reservations about the currency policy being pursued by the Confederation and the National Bank were already being expressed when the draft of the 1963 federal decree on Swiss collaboration in international currency measures was discussed by the National Council committee on 13 May. The first question asked was why Switzerland still did not want to join the IMF. National Councillor Werner Schmid then declared that fixed exchange rates were the cause of the currency crises. Quoting Professor Friedrich Lutz, he maintained that convertibility could only function properly with flexible exchange rates. Support measures such as swaps, especially to prop up key currencies, only obscured the issue.

113 Coombs (1976), pp.206–207.

Iklé replied to the effect that “stable exchange rates are the very foundation of the Swiss export industry. Without a secure calculation basis, our export industry could not have developed in the way it has up to now. [...] Floating exchange rates would provide an enormous incentive for speculation and set such huge amounts of capital moving that the fluctuations could exceed what is healthy.”¹¹⁴

Doubts about – not to say criticism of – the policy that had been adopted also soon began to emerge in the Governing Board. In early 1965, the Head of Department II, Riccardo Motta, stated that “evidently large parts of the international community no longer really believe that the dollar is a sound currency. In the opinion of the speaker, the US monetary authorities have been obliged to continue pursuing their misguided policy not least because in effecting swap operations and granting foreign currency advances against Roosa bonds, foreign central banks have been offering forms of assistance that have in the event tended to create even more problems.”¹¹⁵ In addition, Walter Schwegler said that “it [is] fundamentally wrong to contrive to cover deficits by means of artificial operations, while at the same time shutting off the gold currency mechanism and thus, in a sense, perpetuating the balance of payments deficit”. Iklé, on the other hand, continued to maintain that the US situation was basically sound. In his opinion, there was only a liquidity problem, not an insolvency problem, because the US would only be converting short-term liabilities into long-term assets. “Ultimately, it is the enormous aid commitments of the US and the significant direct investments of private businesses that are responsible for the substantial deficit on the US balance of payments, despite the large current account surpluses.”

With the situation becoming increasingly critical, however, Switzerland finally acted. One harbinger of things to come was the amendment of the Coinage Act, which the government submitted to Parliament on 7 July 1970 and which came into effect on 1 April 1971. A key new provision transferred the power to decide on changes in parity from Parliament to the government. The SNB, which had apparently opposed this amendment, sent a letter to the FDF asking whether it would not be better to defer the legislation for a while so as to avoid giving the impression that a revaluation of the Swiss franc was being planned. In any event, it argued, the gold-based currency prescribed by

¹¹⁴ SNB, Minutes of the Governing Board (1963), 16 May, no. 630.

¹¹⁵ Cf. (also with regard to what follows) SNB, Minutes of the Governing Board (1965), 18 February, no. 227; Iklé’s views are clearly expressed in SNB to Rockefeller (1962), pp. 3 et seq.

the Constitution should be mentioned in the act.¹¹⁶ Implementation of the new provisions quickly followed. After there had been a massive flight from the US dollar in early May 1971, Germany – and then also Austria, Belgium, the Netherlands and Switzerland – closed their foreign exchange markets on 5 May. Then Germany and the Netherlands let their exchange rates float freely. Dollars to the tune of 3.2 billion Swiss francs flowed into the SNB between 3 and 5 May 1971 alone, as a result of which it was already forced to close the foreign exchange markets on the morning of 5 May. The Swiss franc was thereupon revalued by 7.07 percent against gold – and thus also against the US dollar – on 9 May 1971. The SNB also decided to exchange another 50 million dollars into gold at the US Treasury in June, and the same amount again in July.

As a discussion at Vorort (the leading Swiss business organisation) revealed, the revaluation came in for strong criticism from various sectors of the economy, especially the watchmaking and shoe industries. They claimed that the change in parity had been a drastic, over-hasty and mechanical measure taken in a panic and without due heed to regional differences. Since the problems of the international monetary system had still not been solved, they argued, “a system of defensive measures clearly needs to be put in place as soon as possible to counter such crisis situations without recourse to revaluation”.¹¹⁷ It soon transpired, however, that the revaluation had not been enough. Massive inflows of dollars resumed on 4 August 1971. The SNB sought to stem these through another gentlemen’s agreement with the banks. This comprised, firstly, a ten-day freeze on the funds to which the banks were entitled from the sale of dollars to the SNB if they had not been reinvested abroad. Secondly, a 100 percent minimum reserve on new Swiss franc liabilities to non-residents was introduced, as was a ban on paying interest on such deposits if they fell due within six months.¹¹⁸

Immediately afterwards, on 15 August 1971, President Nixon suspended the gold convertibility of the US dollar and introduced, among other things,

116 SNB, Minutes of the Governing Board (1970), 19 February, no. 175. On the other hand, in 1969, the Governing Board had considered that if various foreign currencies were revalued, Switzerland too would have to follow suit. Cf. SNB, Minutes of the Governing Board (1969), 1 May, no. 454. Of the group of various academic economists (*Professorium*) who were periodically invited by the SNB, Professors Bombach, Lutz, Sieber and Würgler stated in discussions that they were in favour of the Swiss franc being revalued. Cf. SNB, Minutes of the Governing Board (1969), 3 July, no. 698; 4 December, no. 1353. Within the National Bank, Max Gal – in a memorandum to Fritz Leutwiler in November – advocated an unconditional revaluation. Cf. SNB, Parity change issue (1969).

117 SNB, Minutes of the Governing Board (1971), 17 June, no. 577.

118 SNB, Minutes of the Governing Board (1971), 12 August, no. 780.

a tax of 10 percent on imports that was also intended to apply pressure for a general change in exchange rate parities. The US authorities took the view that a devaluation of the dollar was not possible, because it would be followed by almost all other countries. They therefore called for a general realignment of exchange rates, arguing that the other developed nations of the Western world also now needed to share the burden of defending freedom. In response to these measures, all Western industrialised countries apart from Japan either closed their foreign exchange markets or suspended further intervention by their central banks. This was also true of Switzerland, where the SNB stayed out of the foreign exchange market altogether until agreement was reached on new exchange rate parities. Following protracted negotiations between the G10 countries and Switzerland, the new parities were set on 18 December 1971 in Washington under the Smithsonian Agreement. The dollar was devalued by 7.89 percent against gold, while all other major currencies were revalued against the dollar by between 7.48 and 16.9 percent. The Americans abolished the import tax. Switzerland revalued by another 6.4 percent against the dollar, but was able to leave the gold parity of the Swiss franc unchanged because of the US devaluation.¹¹⁹

However, even these measures were not enough to stabilise the international monetary system, which was now based solely on the dollar as a reserve currency. The overheating of the economy, the inflow of foreign funds into Switzerland and the associated increase in inflation continued. The Confederation and the SNB did try to stem the flood by tightening inward exchange controls and credit controls. For instance, in June 1972, the Federal Council decided to prohibit foreign funds from being invested in Swiss property; and in July it imposed a ban on the payment of interest, a commission (negative interest rates) and minimum reserve requirements for foreign funds held in Switzerland as well as mandatory authorisation for borrowing abroad. Finally, in December 1972, a federal decree was issued on measures relating to the banking system that covered minimum balances on domestic and non-resident funds, lending restrictions and controls on Swiss capital market issuing. For the most part, it was the SNB that proposed these measures be implemented or advocated that they be made more rigorous. For instance, in a letter to the FDF, it called for the exemption limit for borrowing abroad to be lowered from 1 million to 50,000 Swiss francs in order to close up loopholes.¹²⁰

119 SNB, Minutes of the Governing Board (1971), 19 August, nos. 788 and 801; 21 September, no. 908; 23 December, no. 1171.

120 SNB, Minutes of the Governing Board (1973), 18 January, no. 43.

The National Bank was also concerned about the increasing tendency to use the Swiss franc as a reference currency in international transactions and loans, and resisted this energetically. On 5 August 1971, for example, it learned from Credit Suisse that London Multinational Bank Ltd., in which Credit Suisse had an equity interest, had floated Swiss franc-denominated notes of Illinois Tool Works Inc. of Chicago totalling 8 million francs, of which 7 million had been sold on to Swiss banks. In its reply, the SNB wrote: "As you are doubtless aware, for years we have been making every effort to prevent foreign banks issuing securities denominated in Swiss francs, because this promotes the internationalisation of our currency, thereby leading to Swiss franc transactions that have no connection with our economy and are beyond the control of our authorities. This could seriously disrupt the domestic money and capital market given its modest size."¹²¹ Credit Suisse was asked to see to it that the London-based bank ceased placing such securities. Only a few days earlier, on 29 July 1971, the three big banks had given an undertaking not to participate either directly or indirectly through foreign branches and subsidiaries in the placement, on behalf of foreign lenders, of Swiss franc-denominated bonds with a maturity of less than one year. The National Bank then asked the other banks to sign up to this undertaking as well.¹²² The SNB's stance on the authorisation requirement for borrowing abroad was also entirely consistent with this. In this case it argued: "From a currency policy perspective, the use of the Swiss franc is undesirable, since the lender is based abroad and the funds are also to be used abroad. It is well known that we have long opposed the 'internationalisation' of the Swiss franc. Where [...] there is an authorisation requirement, we therefore refuse authorisation. To be able to enforce this policy, we would like the exemption limit to be reduced [from 1 million] to 50,000 Swiss francs."¹²³ Further similar measures followed.

As was only to be expected, these measures did not prove to be very effective either. After Italy had introduced a two-tier foreign exchange market on 21 January 1973 by splitting the market into one sub-market for commercial transactions and another for capital transactions, there were considerable inflows of US dollars into the SNB once again – for around 1 billion Swiss francs on 22 January alone, for example. It was therefore decided – after consultations had been concluded between the Head of Department III, Fritz

121 SNB, Minutes of the Governing Board (1971), 12 August, no. 757.

122 Ibid.

123 SNB, Minutes of the Governing Board (1973), 18 January, no. 43.

Leutwiler, and Federal Councillor Nello Celio, Head of the FDF, as well as the Chairman of the Governing Board, Edwin Stopper, who was absent due to illness – to inform the banks at 8.30 a.m. on 23 January 1973 that the SNB “will not be intervening in the dollar market today. It will stay out of the market until such time as calm has been restored.” In response to the request, Federal Councillor Celio had [replied] “unequivocally and without hesitation, and in the name of the whole Federal Council, that such a risk must not be entered into. For psychological reasons, it would be intolerable if, only a short while after the entry into force of the federal decree on combating inflation, we had to buy large amounts of dollars and credit the banks with Swiss francs for them [...]”¹²⁴ Since another (10 percent) devaluation of the dollar against gold also failed to produce the desired effect, and the dollars were now flowing primarily into the Federal Republic of Germany, the latter – together with the other countries of the European Economic Community (EEC) – decided on 12 March 1973 to let their exchange rates float freely against the dollar, but to allow them to remain fixed against each other (‘bloc floating’). It was therefore clear to informed observers that the ‘temporary’ freeing of the dollar exchange rate by Switzerland implied a permanent transition to a system of flexible exchange rates that has now been in effect for more than thirty years.

2.3.5 *Treatment of the revaluation losses*

The Governing Board and the federal authorities also had to deal with the question of who should bear the losses arising from the May 1971 revaluation of the Swiss franc, and how they should be treated. According to a list drawn up by the SNB, these amounted to just over 1.2 billion Swiss francs, of which around 690 million related to the gold reserves and just over 550 million to the foreign exchange reserves. The SNB took the view that the losses should be borne in full by the Confederation, pointing out that – under art. 3 of the new Coinage Act of 18 December 1970 – the Federal Assembly decided on the treatment of such losses. To ensure that the National Bank “would not have to show a loss running into hundreds of millions of Swiss francs at the end of the year”, some help from the government was essential. The SNB therefore asked the Confederation to accept a non-interest-bearing debt claim on the government of 700 million Swiss francs, which would be repaid from the SNB’s profits in the following years. To be able to present a loss-free balance sheet at the end of the year, the SNB needed Parliament to finish deliberating on

¹²⁴ SNB, Minutes of the Governing Board (1973), 25 January, no. 90; for the chronological sequence of events, cf. SNB, Minutes of the Governing Board (1973), 22 March, no. 178.

this issue before the end of the year.¹²⁵ The Federal Council and Parliament adopted these proposals; in fact, the Federal Council even managed to persuade the Confederation to accept the whole revaluation loss of just over 1.2 billion Swiss francs in the form of a non-interest-bearing debt obligation towards the SNB.¹²⁶

The government's generosity can perhaps be explained by the fact that the realignment of exchange rates under the Smithsonian Agreement in late 1971 had led to further revaluation losses. However, these had arisen only on the foreign exchange reserves, since the devaluation of the dollar against gold meant that it had been possible to maintain the gold parity. Interestingly, at the same time, the SNB used some of the profits on foreign currency income – amounting to an estimated 140 million Swiss francs – to write down the value of the foreign exchange reserves in order not to put its future earnings potential in too favourable a light. Similar, less-than-transparent balance sheet operations were also undertaken for the annual statements and accounts from 1972 to 1976.¹²⁷ In order to cover possible future losses, part of the profits were used to create an undisclosed reserve, which was hidden in the published balance sheets under 'Other liabilities'.

Following the transition to flexible exchange rates, the exchange rate losses incurred by the SNB increased due to the further decline of the dollar exchange rate. However, at the end of the year, Leutwiler reported to the Governing Board that Stopper had told him he thought that "the revaluation loss, which is matched by a debt obligation on the part of the Confederation, [has] arisen from the depreciation of our gold reserves, and not of our foreign exchange reserves. This depreciation has now become irrelevant, because the government can increase the valuation of the gold at the appropriate time. Because of this theoretical possibility, there is no need for any further disclosed amortisation of the federal government's debt obligation." The Governing Board was therefore well aware that, because of the rise in the price of gold in the free market, a substantial profit had been earned *de facto*, rather than the reported loss on the gold reserves. Even so, a further 232 million Swiss francs were taken out of the SNB's earnings and added to the provision for foreign exchange and price risks so that the federal government's debt obligation could be repaid by the end of 1976.¹²⁸

125 SNB, Minutes of the Governing Board (1971), 8 July, no. 670.

126 SNB, Minutes of the Governing Board (1971), 28 October, no. 1020; 11 November, no. 1032.

127 SNB, Minutes of the Governing Board (1971), 9 December, no. 1138; (1972), 23 November, no. 1057; 14 December, no. 1123.

128 SNB, Minutes of the Governing Board (1973), 6 December, no. 872; 13 December, no. 921.

Further losses on the foreign exchange reserves emerged in the following years. It is therefore not surprising that a question about the revaluation losses on the SNB's dollar reserves was tabled in Parliament relatively early (in 1973), the issue being raised by National Councillor Ulrich Fischer. The Federal Council's answer, drafted by the SNB, turned out to be quite evasive. Fischer was therefore not satisfied and, on 18 September, he tabled another question. He enquired what the Federal Council intended to do to resolve the question of who should bear the exchange rate risks on the swap agreements and Roosa bonds. He also asked how great the accrued losses were, how they were to be dealt with from now on and who bore the responsibility for buying the dollars.¹²⁹

In fact, the treatment of the foreign currency losses subsequently changed completely. Even if only nominally, it was now the SNB itself that had to accept responsibility for its losses, rather than the Confederation. According to Fritz Leutwiler, who by this time had become Chairman of the Governing Board, these losses amounted to "about 3.8 billion Swiss francs" for the 1971–1977 period, or "5 billion if the revaluation loss from 1971 is also taken into account".¹³⁰ In this respect, the SNB adhered to its practice – where it deemed it to be advisable – of reporting the losses in its published annual accounts at a lower value than the losses it had actually incurred. It did this by applying an exchange rate that was above the market rate for the purposes of valuing its holdings of dollars and partly drawing on reserves that it had created at the expense of the reported profits of earlier years, without disclosing the fact. For instance, in his commentary on the Annual Report for 1977 to the Bank Committee, Leutwiler said: "It can be seen from what is stated in the Annual Report that the dollar holdings that have not been covered forward [...] have been newly valued at 2.25 francs. The year-end rate for the US dollar, on the other hand, was 2.00 [...]. Valuing the dollar holdings at 2.25 francs results in a write-down requirement of 1,208 million Swiss francs. Valuing them at 2.00 would have increased the write-down requirement to around 3.1 billion Swiss francs and would have forced us either to carry a loss forward to the next year's accounts or to revalue the gold reserves."¹³¹ "The aforementioned internal provision was created in the years from 1972 to 1976. It has now had to be drawn on, not in the reported amount of 29.7 million, but 309 million Swiss francs. Following this withdrawal, it still amounts

129 SNB, Minutes of the Governing Board (1973), 25 October, no. 759.

130 SNB, Minutes of the Bank Committee (1978), 24 February, p. 26.

131 SNB, Minutes of the Bank Committee (1978), 24 February pp. 26–27.

to 648 million francs.”¹³² In the Annual Report, the notes to the income statement read as follows: “On the income side, the absence of a net profit on trading in gold and foreign currencies is particularly striking. Since the exchange rate loss on the foreign exchange reserves exceeded interest income, a withdrawal from the internal provision for foreign exchange and price risks of 29.7 million Swiss francs was necessary. In addition, the reserves that had been built up earlier for banknotes (10 million Swiss francs), for interest on federal treasury notes (70 million Swiss francs), for open market operations (86.1 million Swiss francs) and for bank buildings (13.7 million Swiss francs) also had to be drawn on.”¹³³ So, not only was all of the interest income used to offset the losses on the dollar holdings, but recourse also had to be made to the undisclosed currency reserves and other reserve items so that a loss would not have to be reported.

Because of the continued slide in the exchange rate, the remaining undisclosed reserves and income did not even suffice to cover half the loss of 4,435 million Swiss francs on the foreign exchange reserves in 1978. A ‘Loss on foreign currency holdings’ of around 2,593 million Swiss francs was therefore shown on the asset side of the year-end balance sheet, accompanied by the note ‘Covered by the undisclosed reserves on gold’.¹³⁴ The losses were repaid out of profits in the two subsequent years, and new reserves created from then on.

2.4 Monetary policy under flexible exchange rates

2.4.1 Background and underlying problems

The transition to a regime of flexible exchange rates was something that neither the National Bank nor the Confederation had wanted or even planned. To be on the safe side, the Governing Board first had its legal department confirm that the suspension of intervention in the foreign exchange market had been lawful even under the Smithsonian Agreement. Weeks later, it was still waiting for a new parity to be set. On 15 February 1973, the SNB pointed out to Federal Councillor Nello Celio that an immediate decision on the new parity was needed, since the US dollar exchange rate – which now stood at 3.31 Swiss francs – was coming alarmingly close to the proposed new lower intervention rate. As Celio could reach only three of his six colleagues, he

132 SNB, Minutes of the Bank Committee (1978), 24 February, p. 26.

133 SNB, Annual Report, *70^e rapport de gestion* (1977), p. 82.

134 SNB, Annual Report, *72^e rapport de gestion* (1979), p. 84.

wanted to put off the decision until the following Monday. He did, however, authorise the SNB to drop a hint to the banks that the government was intending to set a new parity. Nor would he have any objections if the National Bank prevented the dollar from slipping below 3.31. On 19 February, the Federal Chancellery published the following announcement: "As envisaged last week, the Federal Council and the Governing Board of the National Bank had another discussion on Monday afternoon about the monetary situation and confirmed the desirability of new, fixed exchange rates. Until such time as these rates are set, the National Bank will endeavour to ensure that the exchange rate for the dollar does not fall significantly below its present market level."¹³⁵ Whereupon, on 22 and 23 February, the SNB bought 807 million US dollars spot for 2.75 billion Swiss francs and another 175 million dollars forward – without, however, being able to stop the rate falling further to 3.10 francs. These futile efforts were then abandoned and the system of flexible exchange rates finally accepted.¹³⁶

The impression gained is that, to start with, neither the Governing Board, let alone the Federal Council, were aware of the increase in power that the transition to flexible exchange rates meant for the National Bank. For from now on, the SNB was able to control the money supply in Switzerland independently. Previously, despite inward exchange controls and credit controls on the one hand, and participation in international swap operations and lending on the other, the money supply was ultimately determined by the monetary policy pursued by the United States. Because the US – as a reserve currency country in the days of fixed exchange rates – was not following the rules of a gold-based currency system with its expansionary monetary policy, central banks (such as the SNB) located in stability-oriented countries found themselves confronted with an excess supply of dollars, and were forced to buy them at the fixed exchange rate, thereby increasing the monetary base.

With the transition to flexible exchange rates, the Federal Council and the SNB in particular found themselves faced with completely new problems. It was now essential to formulate a policy that could cope with the new realities. In addition, the familiar historical phenomenon soon emerged that flexible exchange rates not only display sharp short-term fluctuations, but are also subject to substantial medium and long-term swings around purchasing power parity.¹³⁷ These problems were exacerbated by the fact that Switzerland

135 Press release on the monetary situation (1973).

136 SNB, Floating of exchange rate (1973); SNB, Minutes of the Governing Board (1973),

25 January, no. 90; 15 February, no. 149; 22 March, no. 178.

137 Bernholz (1982); League of Nations (1946), chapter 6.

is a small country and the Swiss franc has traditionally been regarded as a safe haven currency in crisis situations. In these circumstances, the Federal Council and SNB had the following options: to retain the inward exchange controls, to develop a new monetary policy, to continue the international currency policy in collaboration with other central banks, and to join the EEC's bloc float with fixed exchange rates against the other member states in the so-called currency snake. In fact, joining the snake was considered as early as a meeting of the Federal Council with the Governing Board on 14 March 1973. After the Swiss franc had appreciated strongly in the autumn of 1974, negotiations were also opened in 1975. However, the Swiss application to join the snake was vetoed by France and so, unlike two other non-members – Sweden and Norway – Switzerland did not become a member. France later also objected to Switzerland joining the European Monetary System (EMS), which came into effect in 1979 and, in addition to the fixed exchange rate system, also provided for substantial lending facilities among its members.¹³⁸

Interestingly, Switzerland appears never to have considered the possibility of doing what Austria did later, namely tracking the EEC snake unilaterally. That, however, would have made Switzerland dependent on the monetary policy of the Deutsche Bundesbank as the heart of the monetary bloc. However, since the Bundesbank pursued a stability-oriented policy, Switzerland would probably have been spared large exchange rate fluctuations without having to accept higher inflation rates than under its own independent monetary policy.¹³⁹

All other possibilities were explored by the Federal Council and National Bank over the following years. Despite their continuing lack of success, they persisted with inward exchange controls and credit rationing on the one hand, and with international swap and support operations on the other. At least it can be said in favour of the latter that they were market-based measures that could be carried out in accordance with the new money supply policy – and probably also made it easier to introduce – while the best that could be said for the inward exchange controls was that they were backed by tradition. For instance, Kurt Schiltknecht reports what Chairman Leutwiler confessed

138 SNB, Minutes of the Governing Board (1973), 22 March, no. 178; (1978), 13 July, no. 480/1.

In both cases the French finance minister (later President) Valéry Giscard d'Estaing appears to have played quite a large role in France's refusal to allow Switzerland to join. A detailed account of the failure of the negotiations on membership of the European currency snake can be found in Halbeisen (2007), which puts forward the theory that France wanted to prevent a strengthening of the bloc of hard currency countries.

139 This assessment is not universally shared, however (cf. chapter 11.4.6).

to him in 1974, after he had been at the SNB for a few weeks: “Do you know, I’ve no idea how you conduct monetary policy under flexible exchange rates. All I’ve ever dealt with in my life is how we can combat capital inflows, how we can prevent too much money coming into Switzerland.”¹⁴⁰

2.4.2 Money supply policy and overshooting exchange rates

As already mentioned, with the transition to flexible exchange rates the National Bank had for the first time ever acquired full control over the monetary base M_0 (currency in circulation plus banks’ current account balances with the SNB) and thus also a decisive influence on the money supply M_1 (currency in circulation and current account balances with banks excluding the SNB). It could therefore now exercise a major influence on the rate of inflation. At the same time, however, this raised the question of how the SNB was to shape its monetary policy.

One suggestion, from the subsequent Nobel laureate Milton Friedman, was based on the quantity theory of money. He proposed letting the money supply grow on average by the same rate as real GNP.¹⁴¹ In that way, the amount of money in circulation would increase in line with real economic output. There would be no monetary overhangs bound to feed through with some time lag into higher prices. This formulation raises a number of questions, however. Which money supply should one choose: M_0 , M_1 or M_2 (M_2 at that time included time deposits at banks with maturities of up to one month in addition to M_1)? How much time does a change in the money supply take to feed through into the rate of inflation? What are the short and medium-term effects on exchange rates, interest rates and fluctuations in the economic cycle? Should the effects of fluctuations in the economic cycle and disruptions, such as wars, oil price increases or natural disasters, be taken into account – and if so, how? How does one determine expected real GNP, or is it preferable to opt for the potentially achievable GNP as the target variable? Friedman himself had been thinking in terms of an increase in the money supply that tracked possible long-term average economic growth, and advised against reacting to short-term disruptions.

Following the last heavy buying of dollars in February 1973, the SNB had ceased intervening in the foreign exchange market and did not resume operations until 1975. The net effect of this was that the monetary base hardly

140 SNB, Schiltknecht interview (2004).

141 Friedman (1953), chapter ‘The case for flexible exchange rates’, pp. 157–203; Friedman (1959).

grew at all in 1973 and 1974. After the time lags usual for Switzerland, this led in the first instance to a steep downturn in economic activity due to the inflation that had initially prevailed. It was not until GNP and industrial output in particular had fallen sharply that inflation began to decline (cf. graphs 2.6 and 2.7). Other countries were also suffering from an economic downturn at this time, but the slump was steepest in Switzerland as a result of its monetary policy. For instance, industrial output fell by 12.6 percent in 1975. It is important to note that due to the lagged effect of changes in the nominal money supply on economic activity and prices, these changes had been postponed – as reflected in the graphs – by two years (in the case of industrial output and GNP) or three years (in the case of the cost of living). So the changes in money supply shown for 1973, for example, actually relate to 1971 and 1970 respectively. As can be seen from the charts, the quality of ‘fit’ for the trend in economic and money supply growth and in the consumer price index (CPI) is quite good once these time lags are taken into account.

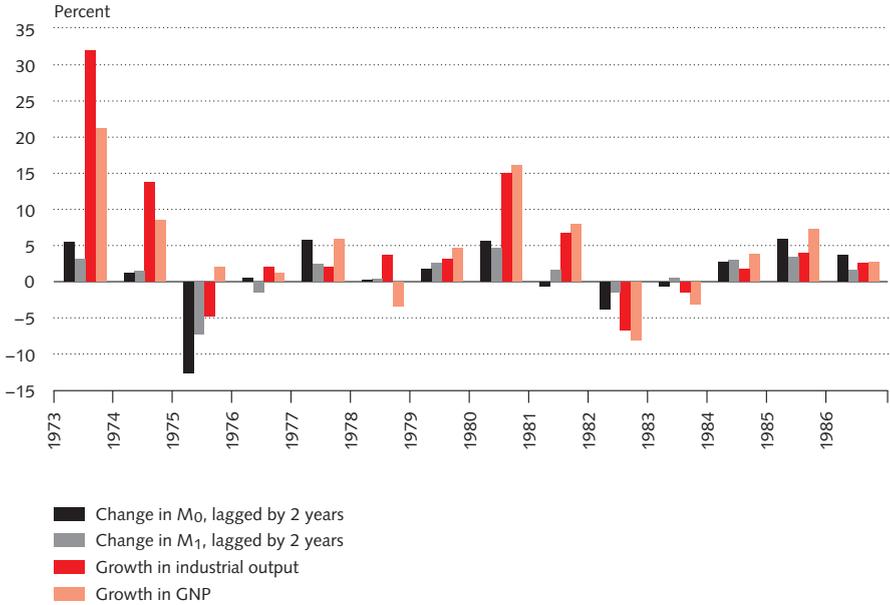
The proposal that the National Bank should start thinking about a money supply policy, in addition to the restriction of credit expansion that had prevailed to date, came in May 1974 from the Head of the Economics and Statistics Department (VOSTA), John Lademann. An indirect suggestion probably also came from Professor Karl Brunner, under whom Lademann had obtained his doctorate and who, in conversations in 1973, and probably also in his annual monetary seminar at the University of Constance, “[had] reproached [him] for the fact that we were operating a misguided policy and insisted that we really must abandon the exchange rate as an *idée fixe* so that we might bring the money supply under control.”¹⁴² In a note to Governing Board Chairman, Fritz Leutwiler, Lademann wrote: “Ultimately, it appears advisable to give some thought to the relationship between the monetary base and its growth on the one hand, and credit expansion and deposit money creation by the banks on the other, so that reasonable growth in the amount of money we supply can be initiated.”¹⁴³

Leutwiler quickly took up this proposal and appointed Kurt Schiltknecht as head of a small working group within VOSTA to draw up proposals for a money supply policy. To start with, the other members of this group besides Schiltknecht were Alexander Galli and Peter Buomberger. They were joined by Ernst Baltensperger and Georg Rich in 1977, when it was renamed the

¹⁴² SNB, Lademann interview (2005a).

¹⁴³ SNB, Considerations regarding credit restrictions (1974); SNB, Lademann interview (2005b); SNB, Schiltknecht retrospection (1985).

Graph 2.6
Annual change in M_0 and M_1 as well as growth in industrial output and GNP
in Switzerland, 1973–1986



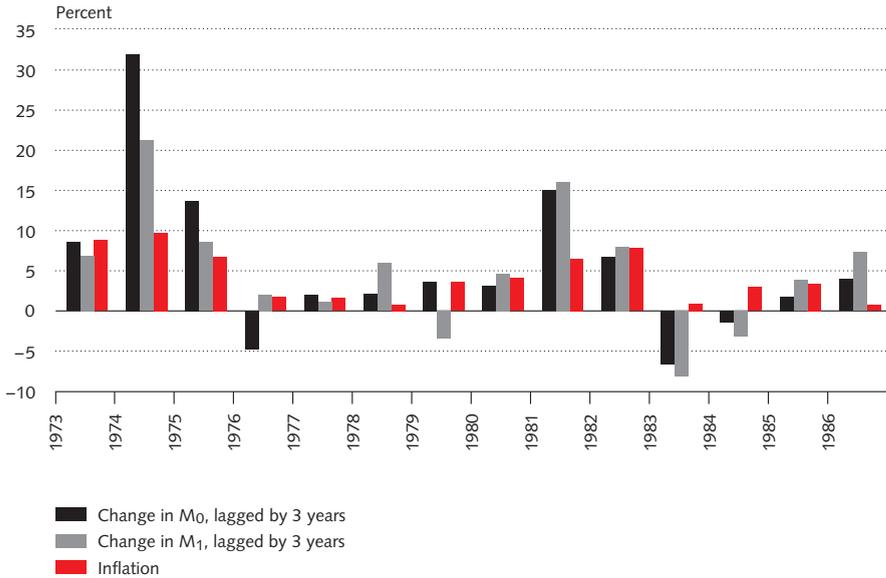
Source: SNB, Monthly Statistical Bulletin (various years).

Research unit. This unit was then merged with the Economics unit under the management of Kurt Schiltknecht in 1978.

As mentioned earlier, Milton Friedman had proposed that the best solution for suppressing inflationary tendencies was to pursue a constant money supply growth target corresponding to the potential growth of real GNP. He maintained that changes in the growth rate to take account of the current economic situation or other short-term disruptions were counterproductive, since the delays to which changes in money supply are prone vary over time. His arguments related initially to the United States. Because of the country's size, its ratio of foreign trade to national product was low, so he argued that it was not advisable to gear anti-inflationary measures to exchange rates.¹⁴⁴ By

¹⁴⁴ Friedman (1959, 1968); cf. also Brunner (1968). Brunner had an indirect influence on the working group through his many discussions with and frequent telephone calls to Kurt Schiltknecht, without, however, putting forward any specific proposals. He occasionally contacted Fritz Leutwiler as well (according to information given by Kurt Schiltknecht in a telephone conversation on 1 February 2006). At his annual University of Constance seminar, which was attended by many economists (including some from the SNB and the Deutsche Bundesbank), monetary policy topics were the subject of intense discussions from 1971 onwards.

Graph 2.7

Annual change in M_0 and M_1 as well as inflation in Switzerland, 1973–1986

Source: SNB, Monthly Statistical Bulletin (various years).

turning this reasoning on its head, one might conclude that Friedman would have suggested to a small country that it tie its exchange rate to the currency of a large country that pursued a stable money supply policy – a proposal that Switzerland did not follow.

The National Bank's adoption of a money supply policy, as well as the further development, consequences and problems of this policy, have been ably described in detail elsewhere.¹⁴⁵ It is therefore sufficient to summarise it briefly here. Since the working group was faced with a completely new task in developing a blueprint for the money supply policy, it is not surprising that this model has been gradually refined and redesigned over the years. One of the first fundamental decisions was to choose M_1 as the relevant money supply variable. Since the central bank can influence the monetary base M_0 in essence only through the current account balances held with it, and since banknote circulation is determined largely by demand from the public, it was important first of all to work out not only the expected growth of GNP, but also the relationship between M_1 and the monetary base M_0 . It was also essential for the implementation of money supply policy that

¹⁴⁵ SNB, Schiltknecht retrospection (1985); Schiltknecht (1994); Galli (1994); Rich (2003).

appropriate instruments be chosen. To that end, Schiltknecht put forward a proposal for fine-tuning.¹⁴⁶ What is striking in the report on proposals for the money supply policy entitled ‘*Vorschläge zur Geldmengenpolitik in 1975*’, which was submitted to the Governing Board in late 1974, is that interest rates – and, in particular, the exchange rate situation – were not taken into account. The expected trend in exchange rates and interest rates was not included until later reports. It is also striking that the reports, although taking a medium-term view, still devoted considerable space to discussing the economic situation. This went against Friedman’s recommendations. In the ‘*Vorschläge zur Geldmengenpolitik in 1976*’ report of late 1975, it was argued that a policy of constant money supply growth rates should be rejected because of Switzerland’s heavy exposure to international markets. It was not until the proposal for 1981 (now in respect of M_0) that an attempt was made to adopt a medium-term approach: “It became increasingly clear that short-term changes in monetary policy had no great effect on macroeconomic variables.”¹⁴⁷

In the first three years of money supply policy, the Governing Board followed the recommendations of the working group. On the other hand, in late 1977, because of the sharp decline in the exchange rate for the dollar and especially the German mark, it rightly decided initially to set a growth rate for 1978 of 4 percent (instead of the proposed 3.5 percent), which a short time later was revised upwards to 5 percent “in view of the extreme developments in the foreign exchange market”. Leutwiler was afraid that “the announcement of a reduction in the money supply target from 5 percent in the year just coming to an end to 4 percent [for] 1978 [might] be interpreted by the public as a restrictive SNB policy and strengthen or increase expectations of a persistently firm or even firmer stance on the Swiss franc exchange rate.”¹⁴⁸

The money supply growth rates proposed by the working group and the Research unit, as well as those adopted by the Governing Board, are shown in table 2.1, together with the actual movements. Although the actual growth rates for M_1 both undershot and overshot the target rates from 1975 to 1977, that is not true for the averages for this period, which were 5.3 percent (target) and 5.7 percent (actual), i.e. a difference of only 0.4 percentage points. The fact that the targeted reduction in the rate of inflation was achieved (cf. graph 2.7) is much more important.

146 SNB, Schiltknecht retrospection (1985).

147 SNB, Schiltknecht retrospection (1985), p. 16.

148 SNB, Minutes of the Governing Board (1977), 1 December, no. 879/1; 15 December, no. 916.

Table 2.1
SNB money supply targets and actual outturns

Year	Economics unit proposal		Governing Board money supply target		Actual growth ¹	
	M_1^2	$M_0^{3,4}$	M_1^2	$M_0^{3,4}$	M_1^2	$M_0^{3,4}$
1975	6.0%	–	6%	6%	4.0%	5.9%
1976	5.0%	–	6%	max. 0%	7.8%	3.7%
1977	5.0%	–	5%	–	5.3%	3.1%
1978	3.5%	–	5%	–	16.6%	15.0%
1979	If German mark between: – 0.85 and 0.89 francs: exchange rate policy with expansionary money supply policy – 0.89 and 0.96 francs: M_1 : 5% – 0.96 and 1.00 francs: exchange rate policy with restrictive money supply policy		No money supply target quantified		8.5%	6.7%
1980	–	4%	–	4%	–9.0%	–7.8%
1981	–	4%	–	4%	–3.6%	–0.5%
1982	–	4%	–	3%	3.0%	2.6%
1983	–	3%	–	3%	7.6%	3.6%

- 1 The actual rates of change have been calculated on the basis of annual means (monetary base: means of monthly averages; money supply M_1 : means of end-of-month values).
- 2 Money supply M_1 = currency in circulation (excluding balances at banks, Swiss Post and the Confederation) + current account balances of trade, industry and other depositors (but excluding banks) at the SNB + Swiss franc sight deposits at banks + postal cheque account balances (excluding balances of banks and the Confederation).
- 3 Monetary base M_0 = currency in circulation + current account balances of domestic banks and financial companies at the SNB (end-of-month adjusted monetary base = M_0 – end-of-month credits).
- 4 From 1980: Growth rates of end-of-month adjusted monetary base.

Sources: SNB, Monthly Statistical Bulletin (various years); SNB, *Vorschläge zur Geldmengenpolitik* (various years); SNB, Annual Report (various years).

The rise in the Swiss franc's exchange rate caused problems, however. The main problem was the franc's appreciation against the German mark and the other currencies that had joined it, first in the European currency snake and then as of 1979 in the EMS, since by far and away the largest share of Swiss exports was destined for those currencies' countries. The fall in the value of the German mark against the Swiss franc from 1973 to 1978 was indeed dramatic (cf. graph 2.8). While the franc, even measured in terms of the relative cost of living, had initially been undervalued, it now started

becoming increasingly overvalued. At times during 1978, the mark fell below 80 Swiss centimes.

Historically, such an ‘overshooting’ of flexible exchange rates¹⁴⁹ compared to purchasing power parity is nothing unusual and is observable as far back as the seventeenth century.¹⁵⁰ Nevertheless, it is surprising that in the case of the Swiss franc, unlike other currencies, there was no correction of the trend even in the long term, even up to 2006.

After decades of fixed exchange rates, the overvaluation of the Swiss franc came as a surprise for the National Bank’s Governing Board, even though there had been warnings of such a development from academics. For instance, a letter sent to SNB Chairman Leutwiler in October 1976 pointed out that, according to historical studies, quite long-lasting fluctuations of 20–30 per cent around purchasing power parity could be expected. For a small country, a stability-oriented monetary and credit policy would experience particular difficulties if its currency were overvalued. “Whereas the inflation rate [...] falls, the export industry and employment come under exceptionally strong pressure [...]. Finally, strong political forces [...] can be expected to press for the stable monetary policy to be abandoned.” The targeted inflation rate could also be achieved by an appropriate exchange rate policy, for which details were proposed.¹⁵¹ In November 1976, this proposal was discussed with the Chairman and staff of the SNB by a small group of professors who were invited by the SNB at irregular intervals to informal discussions about monetary policy, only for Leutwiler to turn it down.

However, the Swiss franc continued to appreciate. Political pressure on the SNB mounted. In February 1978, Leutwiler noted that “the unfavourable reports from Swiss business and industry are increasing and the SNB is receiving more and more letters complaining about exchange rate developments”. And in September, he reported that “considerable bitterness has built up in industry against the banks that are flourishing. Various firms have apparently been forced to abandon entire production facilities because of the exchange rate.”¹⁵² The National Council was becoming visibly restive. In September, for instance,

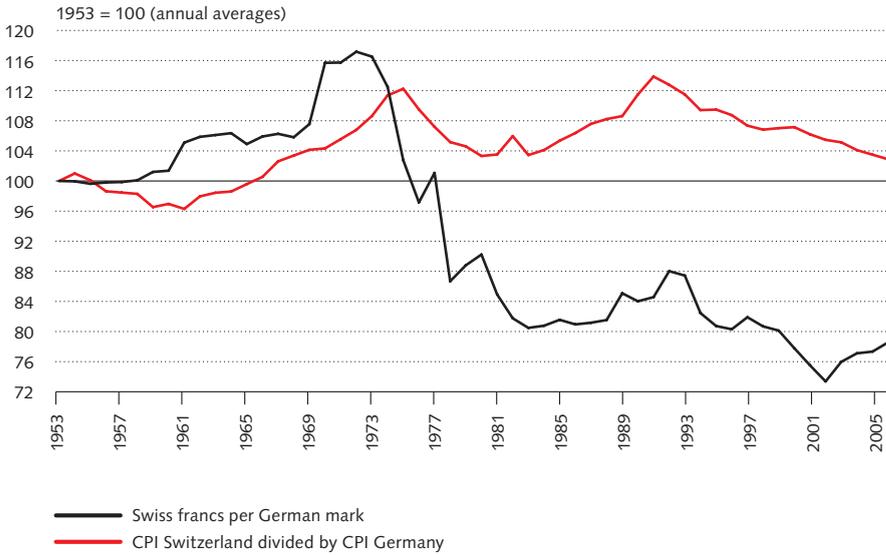
149 Dornbusch (1976).

150 Bernholz (1982, 2005); Bernholz, Gärtner and Heri (1985).

151 Bernholz to Leutwiler (1976). Cf. also paper by Bernholz and Kugler, in: SNB, Exchange rate developments (1978). In a research project commissioned by the SNB entitled *Wechselkurse, Rezession und Exportwirtschaft* the Swiss Institute for Foreign Trade, Structural and Market Research in St Gallen had already advanced the theory in 1975 that “towards the end of 1974, the central bank [had] too clearly preferred money supply policy over exchange rate policy”. Cf. SNB, Minutes of the Governing Board (1975), 18 December, no. 1395/1.

152 SNB, Minutes of the Governing Board (1978), 13 February, no. 142; 21 September, no. 630.

Graph 2.8
Exchange rate and purchasing power parity (cost of living)
Switzerland – Germany, 1953–2006



Sources: IMF (various years); calculations by the author.

the Social Democrats formally asked the Federal Council “what specific employment measures [...] it is preparing and whether it is also prepared to rethink our present domestic and external monetary policy (joining the snake, tying the Swiss franc to the German mark and more besides).”¹⁵³ The Governing Board tried in vain to master the situation by tightening inward exchange controls even further and taking discretionary measures. Eventually, Research unit members Schiltknecht and Rich decided in September 1978, out of concern that “political pressure to reintroduce a two-tier foreign exchange market or bring in new exchange controls could become so great that control might be taken away from the National Bank”, to make the following recommendation to the Governing Board: “It is hereby announced that the German mark rate shall be fixed between 84 and 100 Swiss francs [per 100 German marks] and that the National Bank is prepared to intervene until such time as the German mark rate has risen to 84 francs.”¹⁵⁴ Leutwiler summoned Schiltknecht and asked whether he would also agree to the announcement of a target of well over 80, to which Schiltknecht answered in the

¹⁵³ SNB, Minutes of the Governing Board (1978), 21 September, no. 626.

¹⁵⁴ SNB, Improvement in exchange rate situation (1978).

affirmative. There was no longer any mention of the upper limit.¹⁵⁵ The target was announced and the plan went ahead on 29 September 1978. Success began to ensue within a few days. The exchange rate for the German mark rose appreciably, and by 1980 was exceeding 90 francs per 100 marks.

The exchange rate problems were thus solved through standard market mechanisms; the money supply policy, on the other hand, proved a failure for the time being. The monetary aggregates increased sharply (cf. table 2.1) and, with the usual time lag of three years, inflation rose steeply (cf. graph 2.7). The reasons for these developments are disputed. In retrospect, Leutwiler apparently considered the transition to an exchange rate target to have been a crucial mistake.¹⁵⁶ In Schiltknecht's opinion, the increase in the money supply was not reduced later by as much as the Research unit would have liked. "The Governing Board told us we were completely out of touch with reality if we thought there would be any risk of inflation with an exchange rate of 82 or 83 [centimes] to the German mark."¹⁵⁷ Kugler and Rich share Schiltknecht's view: "The SNB should have abandoned the temporary exchange rate target in the third quarter of 1979. To preserve price stability, the SNB should have lowered M_1 substantially over the subsequent six quarters before returning to normal M_1 growth in the range of 3 to 5 percent in the middle of 1981." They stress that "both factors mentioned above – tardy elimination of the monetary overhang and a flawed approach to monetary targeting – accounted for the rise of inflation in 1981".¹⁵⁸ In arriving at this verdict, they start by asking the question of whether a better outcome would have been achieved if the National Bank had already then operated a monetary policy with an inflation target and had used interest rates to control inflation. They conclude that this would have been the case if, from 1979 onwards, the SNB had relied on inflation forecasting combined with an inflation target of 3 percent instead of on a money supply target.¹⁵⁹

The Research unit reacted to the failure of the money supply policy by proposing a combined exchange rate and money supply policy for 1979 (cf. table 2.1). It did, however, also propose tolerating a non-recurring additional increase in M_1 by 7 percent, since there had been a systematic increase in demand for money. The reason for this lay in the transition to a system of flexible exchange rates and in the fall in interest rates due to lower inflation

155 SNB, Schiltknecht retrospection (1985), p. 14.

156 Schiltknecht (1994), p. 65.

157 SNB, Schiltknecht interview (2004).

158 Kugler and Rich (2002), p. 266.

159 *Ibid.*

expectations.¹⁶⁰ If the proposed policy had been adopted, inflation in the following years would probably have been lower, but the Governing Board rejected the proposal as being too complicated and did not set a money supply target for 1979 at all.

For 1980, the Economics unit proposed switching from M_1 to M_0 as the target variable, since “exchange rate expectations may influence the money supply directly, i.e. without any expansion of the monetary base”. Because the situation in the foreign exchange market had stabilised, “there [was] no longer any justification for an unbalanced gearing of monetary policy to the exchange rate”.¹⁶¹ When it came to setting the target of 4 percent, however, a dubious method was employed: the monetary base in the two middle weeks of November was taken as the basis, since otherwise the average monetary base for 1980 would have been below that of 1979. The Governing Board agreed to this. By and large, it also followed the Economics unit’s proposals for the next three years and therefore once again used annual averages as reference figures (cf. table 2.1). However, the proposal for 1981 was not in fact implemented (cf. graph 2.6). “Some [members of the Governing Board] wanted to bring inflation back under control again by means of a restrictive policy. The price of this policy was the recession of 1982/1983. It did nonetheless allow inflation to be brought back under control again. Not unexpectedly, the over-restrictive policy brought with it problems on the exchange rate front [...]”¹⁶² This led to the preparation of a strategy that corresponded to the Research unit’s proposal for 1979. “The exchange rate strategy was never employed, however, since the foreign exchange market, being aware of the existence of such a strategy, did not allow the Swiss franc exchange rate to rise any further.”¹⁶³ The SNB retained the monetary base as an intermediate target in the 1980s. On the basis of an econometric study, Nicolas Cuche concludes: “Our results state that the period before 1980 [1978/1979] was conducted following an exchange rate targeting strategy. During the eighties, bank reserves targeting was the leading strategy. We call this the golden age of monetary targeting.”¹⁶⁴

160 SNB, Money supply policy for 1979 (1978). An econometric study confirmed that the transition to flexible exchange rates had caused a change in demand for money: Kohli (1985).

161 SNB, Monetary policy for 1980 (1979).

162 SNB, Schiltknecht retrospection (1985), p. 16.

163 Ibid.

164 Cuche (2000), p. 109.

2.4.3 *The extension of inward exchange controls*

The revaluation of the Swiss franc on 9 May 1971 had not been sufficient to eliminate the excess supply of foreign currency. The National Bank, together with the Federal Council, therefore retained the inward exchange controls and credit rationing. That also remained the case when Switzerland finally moved over to a system of flexible exchange rates on 23 January 1973. Although it would have been possible to restore equilibrium to the foreign exchange markets, the value of the Swiss franc could have leapt to such a high level that the export industry would have had to cut its selling prices to what the SNB and the federal authorities considered an intolerably low level in order to remain competitive. To avoid this if at all possible, the authorities continued to rely on the largely ineffectual inward exchange control measures. For instance, 8 October 1971 saw the promulgation of a federal decree on the protection of the currency, which by rights should probably have been called the federal decree on the protection of the export industry and employment. For the currency was in no danger at all, but was rising steadily against other currencies. Further Federal Council decisions followed in quick succession, often preceded by corresponding SNB gentlemen's agreements with the banks in particular. They ranged from a ban on foreign funds being invested in domestic securities and real estate through a ban on paying interest on short-term, non-resident Swiss franc deposits, which were also made subject to negative interest (coily referred to as a 'commission'), to the imposition of minimum reserve requirements on non-resident funds held with the banks. In addition, since domestic lending was rationed by quotas, it also became necessary to make borrowing abroad by residents subject to an SNB authorisation requirement. This gave rise to considerable paperwork for the authorities, companies and private individuals. In the years 1973/1974, for example, the SNB had to handle 716 applications to borrow abroad, of which it approved 638 (cf. table A 2.4). The Governing Board, therefore, had to deal with such applications at virtually every meeting. Of 133 applications to use such loans within Switzerland, only 70 were approved, since the SNB wanted to prevent an increase in the monetary base. Considerable amounts were involved here: in 1973/1974, for example, the applications totalled 503 million Swiss francs (cf. table A 2.5). Although (so far as is known) there were not any arbitrary decisions as there had been in the 1940s, the decisions frequently involved considerations that had nothing to do with monetary policy. For example, applications from the Kaiseraugst nuclear power group for interim financing for its Leibstadt plant construction project were approved because of the importance of the country's energy supplies. An application from Gulf Oil Switzerland to extend the period allowed to pay

foreign suppliers was approved because of the difficult position in which the company found itself – and also in the alleged interest of safeguarding Switzerland’s petrol supplies. Another exception was made when the SNB complied with a request to reconsider an application from the subsidiary of Telesystems Holding to finance the construction of a cable TV community antenna in Switzerland, in order to prevent construction work from being suspended.¹⁶⁵

It is not the purpose of this contribution to discuss all the inward exchange control measures in detail.¹⁶⁶ It should merely be noted that, according to Schiltknecht, the Governing Board expressly refrained from asking the Research unit for their opinion since it was well aware that the unit did not approve. However, Schiltknecht does stress that such measures were later adopted by the Governing Board for tactical reasons as well, in order to protect monetary policy from political influences.¹⁶⁷ It is also significant that in 1973, in view of the rise in the Swiss franc exchange rate, the Governing Board commissioned John Lademann to produce strictly confidential “thoughts on the introduction of exchange control measures in Switzerland”. The purpose was “to ward off undesirable inflows of funds from abroad, i.e. negative exchange controls [...] intended as a last resort if all less aggressive defensive measures [...] have proved inadequate and it is essential to ensure the survival of the Swiss export industry (including tourism)”.¹⁶⁸ Even the possibility of splitting the foreign exchange market into two, as had already been prepared in August 1971, was discussed again. In his report, Lademann referred to various difficulties that arose in connection with the transition of all major currencies to convertibility and flexible exchange rates compared to earlier times: “Should the National Bank acquire the excess supply of foreign exchange at a fixed rate? Should this rate be fixed in relation to the US dollar? This would mean that the Swiss franc [...] would follow the fluctuations of the dollar in relation to the other currencies.”¹⁶⁹

It was probably because of such problems that the Governing Board refrained from introducing ‘negative’ exchange controls, which would have made all purchases of Swiss francs subject to approval by the authorities. It preferred a further tightening of the existing inward exchange controls by way of gentlemen’s agreements and federal government ordinances. These

165 SNB, Minutes of the Governing Board (1973), 22 March, no. 196; 5 April, no. 243; 23 August, no. 563; (1974), 30 May, no. 476; 18 July, no. 660; 25 July, no. 675.

166 For more on this subject, cf. SNB (1982), pp. 131–140, 226–229, where these measures have already been critically assessed.

167 SNB, Schiltknecht interview (2004).

168 SNB, Exchange controls (1974), pp. 6–7.

169 Ibid.

measures were relaxed for limited periods, depending on the exchange rate situation.

Inward exchange controls reached their peak in 1978 in line with the growing overvaluation of the Swiss franc (cf. graph 2.8), before the Governing Board decided to switch from the money supply target to an exchange rate target. In February and March 1978, the discount rate and Lombard rate were cut to an all-time low. The commission (negative interest rate), which by now stood at ten percent per quarter, was widened to include all non-resident Swiss franc balances with banks of more than 5 million francs, irrespective of their date of origin, and was also extended to those of foreign central banks. The volume of non-residents' forward Swiss franc contracts with a maturity of up to ten days could not exceed a maximum of 10 percent of the amounts outstanding as of 31 October 1974, while those with a maturity of eleven days or more could not exceed 40 percent. The acquisition of domestic securities by non-residents was prohibited. The importing of foreign banknotes to the value of more than 20,000 Swiss francs within three months was prohibited in order to prevent circumvention of the negative interest rate. The banks had to cover their foreign currency liabilities by corresponding claims for the same amount. Even the introduction of a tax on foreign exchange trading (the so-called 'Tobin tax') was considered by the Governing Board.¹⁷⁰ The SNB was the driving force behind all these measures and even drafted the wording of the corresponding Federal Council ordinances.¹⁷¹ These developments, too, confirm the aforementioned theory of Ludwig von Mises that state intervention in the markets is always bound to escalate.

Although these measures could not prevent the overvaluation of the Swiss franc, they were maintained, or even tightened, until the setting of the exchange rate target of at least 80 centimes to the mark. At the same time as this decision, the authorities even sought to reach an agreement with the major industrial companies whereby they would have had to invest half their liquid assets abroad.¹⁷² It obviously took the success of the exchange rate policy to convince the Governing Board of the ineffectiveness of inward exchange controls. The relevant provisions were gradually abolished from 1979 onwards.

In addition to the inward exchange controls, the Federal Council and Governing Board also took discretionary measures to support disadvantaged industries. For instance, under the credit rationing agreement of 12 March

170 SNB, Minutes of the Governing Board (1975), 25 June, no. 721; (1978), 23 February, nos. 141 and 142; 2 March, no. 164.

171 SNB, Minutes of the Governing Board (1978), 23 February, no. 142.

172 SNB, Minutes of the Governing Board (1978), 29 September, no. 636.

1973, the Federal Council granted the subsidised housing construction sector a hardship quota of 200 million Swiss francs. On 8 January 1973, loans for ‘non-luxury’ housing construction and infrastructure building works were exempted from credit rationing. In 1975, the Governing Board came to the surprising conclusion (for a central bank) that equality of treatment of different branches of industry was no longer appropriate because of the different situations they were in. “In these circumstances it appears advisable to shift the emphasis from global to targeted measures [...]. For these purposes it can be assumed that the initiative must be taken by the SNB.”¹⁷³ The Governing Board therefore not only undertook to rediscount bills for these industries, but also entered into agreements with the bodies representing their interests, which made it possible for their affiliated companies to conclude forward foreign exchange deals in US dollars and German marks at preferential rates. As early as 23 September 1975, the profit that the SNB had forgone in this way, and the corresponding subsidy, amounted to around 356,000 Swiss francs. Similar agreements were also concluded with other industries later.¹⁷⁴ In March 1978, the timber industry was promised a forward foreign exchange deal subsidy of up to 100 million Swiss francs at the request of the Professional Timber Merchants’ Association. Finally, in September 1978, the SNB decided to extend the preferential rate forward contract scheme to the whole of the industrial sector and the foreign transactions of hotels, and to supplement forward contracts with options contracts.¹⁷⁵ Following the switch to the exchange rate target on 29 September 1978, all these measures became redundant.

2.4.4 *Switzerland’s involvement in international monetary measures*

Even after the failure of the Bretton Woods system, international cooperation in monetary policy remained important. In Switzerland’s case, its interest in preserving the system and trying to encourage capital outflows in order to prevent an excessive increase in the monetary base now gave way to concern about exchange rate movements and its wish to play a part in preventing international monetary and financial crises. Since at times of such crises Switzerland was a preferred destination of flight capital, under a system of flexible exchange rates they were bound to result in an even greater overvaluation of the Swiss franc.

¹⁷³ SNB, Minutes of the Governing Board (1975), 6 March, no. 284.

¹⁷⁴ SNB, Minutes of the Governing Board (1975), 6 March, no. 284; 1 May, no. 489; 25 June, no. 721; 24 July, no. 830; (1976), 26 February, no. 197; 4 March, no. 226; 25 March, no. 312; 20 October, no. 923; 1 December, no. 1055.

¹⁷⁵ SNB, Minutes of the Governing Board (1978), 29 September, no. 636.

Measures to support the Italian lira and the British pound were initially the main feature of monetary cooperation in the 1970s. The weakness of the pound was attributable, among other things, to the aforementioned loss of its status as a reserve currency. The international support was intended to help to steer this process in an orderly fashion.¹⁷⁶

Then there was the assistance given to countries experiencing a sharp deterioration in their balance of payments due to the two massive increases in the price of oil. All these initiatives show how the international monetary assistance provided by the IMF, BIS and G10 was shifting away from the developed nations and towards the developing countries. This shift typified the following decades, and the new support measures experienced their first high point in 1982/1983 when financial crises were triggered by the indebtedness of developing and emerging market economies, especially Mexico.

The National Bank was heavily involved in virtually all of these operations, with the Confederation largely guaranteeing the longer-term loans against any default. Table 2.2 shows the considerable extent of the SNB's loan commitments. The total amount of undrawn commitments and outstanding credit balances as at 30 April 1981 stood at around 14.7 billion Swiss francs.

In the light of these events, it was repeatedly asked whether the SNB's major commitment was justified. This was the case, for example, in 1977, in connection with Switzerland's participation in a new IMF credit facility which was intended to help countries that had fallen into serious balance of payments difficulties because of the sharp increase in oil prices caused by decisions made by the Organization of the Petroleum Exporting Countries (OPEC). During the negotiations on the new facility, Switzerland was put under heavy pressure to contribute 650 million SDRs (one SDR at that time equalled 1.1 US dollars). Leutwiler reported to his colleagues on the Governing Board that this amount had been too high, but that he had eventually agreed to it at the urgent pleading of US Treasury Secretary Michael Blumenthal. He stressed that, for Switzerland, this represented a considerable gain in prestige. Leutwiler's request was then approved by the Governing Board without any hesitation.¹⁷⁷

On the other hand, a visit from the Head of the Economic and Monetary Affairs section of the FDF, Daniel Kaeser, did cause the Governing Board some apprehension. Kaeser expressed his concern about the growing role of the SNB in international monetary cooperation and enquired whether the SNB was not exceeding its statutory boundaries, since the loans now

176 SNB, Minutes of the Governing Board (1976), 30 December, no. 1145.

177 SNB, Minutes of the Governing Board (1977), 11 August, no. 579.

Table 2.2
SNB's international loan commitments as at 30 April 1981

	Undrawn commitments	Outstanding credit balances	Total
Fed New York swap	4,000 million US dollars	–	4,000 million US dollars
BIS swap	600 million US dollars	–	600 million US dollars
Bank of Japan swap	200 billion yen	–	200 billion yen
GAB	865 million Swiss francs	–	865 million Swiss francs
IMF oil facility	–	104.4 million SDRs	104.4 million SDRs
Witteveen facility (IMF)	473.6 million SDRs	176.4 million SDRs	650 million SDRs
Portugal	–	30 million US dollars	30 million US dollars
Turkey	–	45.5 million US dollars	45.5 million US dollars
Eastern European central banks	–	270 million US dollars	270 million US dollars
Total ¹	13,183 million Swiss francs	1,377 million Swiss francs	14,726 million Swiss francs

1 1 SDR = 2.42 Swiss francs, 1 US dollar = 2.02 Swiss francs, 100 yen = 0.94 Swiss francs.

Source: SNB, Cooperation (1981).

amounted to 3 billion Swiss francs. Either a federal decree or revision of the draft amendment to the National Bank Act was necessary, he asserted. Leutwiler expressed surprise at this intervention, since the FDF chief had never voiced any criticism up to this time. Moreover, the SNB's legal advisor took the view that its actions up to then had been legally permissible, although it had admittedly exploited all the scope available to it.¹⁷⁸

A further problem arose in connection with the growing loss on the foreign exchange reserves: they were denominated almost exclusively in US dollars, and the dollar was continuing to depreciate. On 16 June 1977, for instance, of SNB dollar reserves of 4.3 billion Swiss francs, 3.6 billion were not hedged against exchange rate swings.¹⁷⁹ Even if they had been hedged, this would not have offered complete protection against currency losses. The reason for this being that, back in early 1975, following negotiations with Charles Coombs from the Federal Reserve Bank of New York, Fritz Leutwiler had been prepared to conclude a supplementary agreement to the 1962 agreement whereby exchange rate gains and losses incurred by the US

¹⁷⁸ Ibid.

¹⁷⁹ SNB, Minutes of the Governing Board (1977), 16 July, no. 440.

in obtaining francs in order to settle swaps would be split 50:50 between the SNB and the Federal Reserve Bank of New York.¹⁸⁰ This arrangement was also extended to cover the Roosa bonds denominated in Swiss francs. However, since the exchange rate losses were all one-way at the time, the SNB's hedges against changes in the dollar exchange rate were only 50 per cent effective.

2.5 Conclusion

The National Bank's policy in the years from 1945 to 1982 may be summed up as follows: until the collapse of the Bretton Woods system, the SNB's overriding objective was to preserve a system of fixed exchange rates based on a gold-backed currency. At the same time, the National Bank was striving to keep inflation as low as possible and to maintain the competitiveness of the Swiss export industry. This was bound to lead to contradictions. The Swiss franc exchange rate derived from gold parities was too low, and until the transition to flexible exchange rates in 1973, this led to a persistent balance of payments surplus, which in turn jeopardised the objective of price stability. To begin with, the SNB and the Confederation tried to counter these conflicting objectives by creating a two-tier foreign exchange market for the dollar, introducing stringent inward exchange controls and setting export quotas. Following the devaluation of the pound and other currencies in 1949, the two-tier market for the dollar was abolished, and when Switzerland joined the EPU, it succeeded in breaking out of the isolation and bilateralism of the immediate post-war years. Late 1958 finally saw the establishment of a multilateral system, with free convertibility of the major currencies for non-residents under the Bretton Woods system.

Although Switzerland was not a member of the IMF until 1992, the SNB and the government, encouraged by proposals from the BIS and inspired by the creative ideas of Max Iklé, participated in international lending operations conducted in accordance with standard market principles. This helped reduce the scale of exchanges of dollars into gold at the US Treasury as well as the growth of the Swiss money supply. At the same time, the foreign currency loans helped to uphold the Bretton Woods system and made it possible for the SNB to cooperate with the G10. The result was the development of an important alternative to the existing inward exchange controls. The price that had to be paid for this alternative approach subsequently came in the form of losses on the dollar reserves that had not been exchanged into gold. The

180 SNB, Minutes of the Governing Board (1975), 3 January, no. 7.

Governing Board was also well aware of the foreign currency risk on the dollar holdings, as clearly emerges from the words of its Chairman Fritz Leutwiler.¹⁸¹ The revaluation of the Swiss franc in May 1971 was another step taken in accordance with standard market principles, although – as tends to be the case under such conditions – it was too little too late. Despite the transition to flexible exchange rates, inward exchange controls remained in place for a long time afterwards because of the Swiss franc's continuing appreciation. At the same time, however, a strategy for managing the money supply was developed from 1974 onwards. This became the main pillar of monetary policy when membership of the European currency snake proved impossible in 1975. However, a conflict soon began to emerge between a money supply policy geared towards price stability and the attempt to prevent an overvaluation of the franc. Such a conflict is typical of a small, stability-oriented country. After the inward exchange controls had proved ineffectual, it led to a temporary but successful switch from a money supply target to an exchange rate target in 1978. Thereafter, the inward exchange controls were rapidly lifted. The conflicting objectives remain, but given that monetary policy is now based on inflation forecasts and interest rate management – and following the introduction of the euro – the conflict has become less apparent (cf. graph 2.8).

During the whole period under review, the National Bank jealously guarded its independence. Although it played a subordinate role at the time of fixed exchange rates – since inflation was primarily determined by the policies of the reserve currency country, the United States – the transition to flexible exchange rates pushed this independence to the fore, as the SNB now assumed full control of monetary policy. Since then, its independence has been substantiated not only by historical documents and (by international standards) comparatively low inflation (cf. graph 2.1), but also by econometric research conducted from the perspective of the 'new political economy'.¹⁸² Despite all the shortcomings discussed here, Switzerland's low inflation rates compared to those of other countries suggest that the SNB's policies have in fact been a notable success.

181 SNB, Minutes of the Governing Board (1973), 6 December, no. 872.

182 Jeitziner (1999).

2.6 Appendix: Tables

Table A 2.1
Applications to buy and sell at official and financial dollar exchange rate in 1946/1947

Number of applications	Rejected	Partially approved	Approved	Total
Applications to sell US dollars deriving from transfers of capital				
Banks	10	5	6	21
Confederation, cantons, municipalities	3	–	4	7
Manufacturing companies	3	3	4	10
Non-resident industry	2	2	2	6
Tourism sector	5	–	2	7
Resident individuals	9	5	8	22
Non-resident individuals	4	1	3	8
International organisations	–	2	7	9
US agencies	5	1	5	11
Other	22	17	26	65
Total	63	36	67	166
Applications to sell US dollars deriving from additional sales of goods				
Total	28	11	12	51
Applications to buy US dollars in the financial dollar market				
Manufacturing companies	3	1	–	4
Other	2	2	–	4
Total	5	3	–	8
Total	96	50	79	225

Source: SNB, Minutes of the Governing Board (1946, 1947).

Table A 2.2
Value of applications approved in 1946/1947

Transactions	Amount (in thousands of US dollars)	Number of applications
US dollars offered for sale ¹	35,889	138
US dollars accepted by the SNB ¹	19,149	91
Profits for applicants as a result of applications being approved ¹	Profit (in thousands of Swiss francs)	Number of applications
On dollars accepted by the SNB ^{2, 3, 4}	8,383	91
of which on dollars deriving from transfers of capital	7,643	84
On authorised purchases of dollars in the financial dollar market	30	1
Total	8,413	92

- 1 The only applications that could be taken into account were those for which a specific sum offered for sale to the SNB was available. Additional dollars offered for sale by the tourist industry and certain goods quotas were not included in the calculation.
- 2 Profit relative to the dollars being converted in the financial dollar market. For dollars accepted by the SNB, the following rates were assumed (Swiss francs per US dollar): 1946: 4.28; 1947, 1st quarter: 4.25, 2nd to 4th quarter: 4.24. For financial dollar rates, the only rates available are reporting date values for 1946 and monthly average rates for 1947.
- 3 For dollars converted at the rate for banknotes, the profit would have been around 9.5 million Swiss francs.
- 4 For dollars accepted in the form of monthly instalments, the average rate for the remaining months up to the end of 1947 has been applied to the total amount of dollars accepted in this period.

Sources: SNB, Minutes of the Governing Board (1946, 1947); Käch (1954).

Table A 2.3.1
Number of applications to import and export gold in 1948

Applica- tions	Rejected		Approved subject to conditions ¹		Approved		No decision	Total	
	Number of appli- cations	In kg of fine gold	Number of appli- cations	In kg of fine gold	Number of appli- cations	In kg of fine gold	Number of appli- cations	Number of appli- cations	In kg of fine gold
Gold imports	15	815– 816	107	3,667– 3,875	27	16,251	–	149	20,733– 20,942
Gold exports	18	218– 219	8	168	288	8,422– 8,513	5	319	8,808– 8,900
Total	33		115		315		5	468	

For footnote and source, cf. table A 2.3.2.

Table A 2.3.2
Value of gold export applications in 1948²

In thousands of Swiss francs

Gold export applications	Rejected		Approved subject to conditions ¹		Approved	
	Maximum price ³	Market value ⁴	Maximum price	Market value	Maximum price	Market value
Coins ⁵	650–655	994–997	133	203	4,758–5,516	7,164–8,279
Gold ingots	74	95	712	916	36,764	47,342
Fine gold	393	506	–	–	413	532
Other ⁶	–	–	–	–	89	115
Total	1,122	1,598	844	1,120	42,783	56,268

- 1 Approvals were sometimes made conditional upon the country of destination being stated (e.g. gold exported to Spain and not to Tangier), import approval from the country of destination having been received, and the like.
- 2 Altogether, 468 import and export applications were filed (excluding applications submitted more than once). The calculation disregarded one application that could not be allocated to a category, since it was an assignment of gold that had already been imported; cf. SNB, Minutes of the Governing Board (1948), 8 January, no. 3/5 (37.5 kilograms of bullion). The estimate of the value of the export applications disregarded two applications that were approved, since the same amounts were being imported and exported by the same applicant at the same time; cf. SNB, Minutes of the Governing Board (1948), 12 February, no. 191 (import application no. 17 and export application no. 62: 7,000 kilograms of fine gold for resmelting); and SNB, Minutes of the Governing Board (1948), 25 November, no. 1400 (applications nos. 179 and 686: 413 gold pieces and 289 large gold plates). Also excluded were sundry gold coins for which no further details were available.
- 3 Cf. Ordinance on dealing in gold (1943).
- 4 The estimates were based on the gold price data as at 31 December 1948 in Paris, cf. Management and valuation of gold (1949). In the case of coins for which no data were available, an average market value of 7.12 Swiss francs per gram of coin was assumed.
- 5 With dollar and sterling data and the like, it was sometimes not clear whether the gold content of the coins was that of mintings dating to before the 1933 devaluation (assumed when converting into kilograms of fine gold) or whether it refers to a quantity of gold (assumed to be bullion) to the value of a particular sum in dollars. For this variant, the parity value of the dollar after the devaluation has been taken and the value then converted into kilograms of fine gold. This value has also been taken as the basis for the maximum price and the estimate of the market value.
- 6 Including coins in kilograms, rolled gold, dental gold, gold plates, etc.

Source: SNB, Minutes of the Governing Board (1948). For the calculation basis of the estimates presented here, readers are referred to the SNB archives.

Table A 2.4
Number of applications to borrow abroad in 1973/1974

Number of borrowing applications	For Swiss francs	For foreign currencies	Total
Applications approved of which for funds to be used in Switzerland ¹	129	509	638
Applications rejected of which for funds to be used in Switzerland ¹	69	9	78
	56	7	63
Total	198	518	716
of which for funds to be used in Switzerland ¹	179	17	196

1 Including borrowing applications stating that the funds were to be used both in Switzerland and abroad.

Source: SNB, Minutes of the Governing Board (1973, 1974).

Table A 2.5
Value of foreign borrowings for use of funds in Switzerland in 1973/1974¹

Borrowing applications	For Swiss francs		For foreign currencies ²	
	Amount (in millions of Swiss francs)	Number	Amount (in millions of Swiss francs)	Number
Applications approved	399.57	78	1.56	5
Applications rejected	103.54	41	11.94	5
Total	503.11	119	13.49	10

1 The only applications that have been taken into account here are those that specified a particular sum for use of the funds in Switzerland and constituted actual new borrowings (i.e. excluding renewals of existing loans, loans for the repayment of other loans, applications to amend or set time limits for payment and applications to accept one-off premiums). Applications to accept advance payments have been included.

2 Only foreign currency borrowings where the proceeds were intended to be used in Switzerland. The Swiss franc amount has been calculated on the basis of the average rate for the month in which the application was assessed. Of the five applications that were approved, three involved German marks and two US dollars.

Source: SNB, Minutes of the Governing Board (1973, 1974).

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Part 2

From 1982 to 2007

3 Developments in the international economy

EVELINE RUOSS AND MATHIAS ZURLINDEN

3.1 Introduction

In the last twenty-five years of the Swiss National Bank's hundred-year history, two trends in the international economy stand out: the worldwide economic integration we now refer to as globalisation, and the sharp fall in inflation from high levels. Both developments are remarkable because they could hardly have been predicted a quarter of a century ago. At that time, inflation was deeply entrenched, the danger of protectionism appeared to be growing, and international relations were still overshadowed by the Cold War.

The decline in inflation to levels last seen in the early 1960s was primarily the consequence of more rigorous monetary policies. Restoring price stability promised not only to eliminate the costs of inflation, but also to facilitate a return to stronger, more stable economic growth. In time, these expectations were largely fulfilled. After a severe recession in the early 1980s, economic growth recovered and economic fluctuations progressively diminished. Insofar as successful anti-inflationary policies restored public confidence in monetary policy and stabilised inflationary expectations at a low level, they made a vital contribution to this favourable outcome.

Two factors prompted the advance of globalisation. First, there was the role of technological progress, in particular the rapid expansion of information and communication technologies (ICT); there is hardly an area of economic or everyday life that has not been affected by this. One consequence of this development was the headlong drop in the cost of transport and communication, which made it possible for firms to compete on a global scale and to manufacture their products anywhere in the world. Besides technological progress, globalisation was also fuelled by political developments and changes. The fall of the Berlin Wall in 1989 signalled the end of the Cold War and the beginning of the reintegration of the former Eastern Bloc countries into the global economy. After decades of isolation and centralised planning, the countries of Central and Eastern Europe opened up their economies and reintroduced free market principles. Similarly, many developing countries that had sought to follow a middle way between capitalism and socialism during the Cold War started to restructure their economies. Developments in the Western industrialised nations were less dramatic, but here, too, wide-ranging reforms

removed many restrictions on the free flow of goods and capital. The conclusion of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1993 was a milestone in the development of world trade. In addition to the creation of the World Trade Organization (WTO), the agreement further lowered tariffs on industrial goods and extended GATT rules to important areas of economic activity, including services, investment and intellectual property. In a parallel development, there was a notable increase in the number of regional trade agreements in the Americas, Asia and Europe. The process of integration has advanced farthest in Europe, where the European Union (EU) has gradually expanded to twenty-five members and realised other ambitious integration targets, such as the creation of a single internal market (1985–1992) and the introduction of the euro as a new currency (1999).

The increased interaction of national economic systems is reflected in the enormous growth in international trade and international flows of capital. World trade has expanded about twice as fast as output, with exports as a percentage of gross domestic product (GDP) growing from approximately 20 percent to 30 percent in the past twenty-five years. The growth in cross-border capital flows is even greater. Nonetheless, it is easy to exaggerate the current level of globalisation. The integration of a number of important markets (notably the labour market, but also agriculture and services) is still relatively weak. Even the level of integration of capital markets is lower than often assumed; households, for instance, still have a pronounced preference for domestic investments. Moreover, there have been other periods in history when economic integration was high. What is different about the current wave of globalisation is the large number of countries involved and the fact that, owing to greater specialisation, the proportion of international trade within the same sector or company is much greater than in the past. Apart from this, however, integration in some areas has hardly progressed beyond what it was before the First World War. The ratio of net capital flows to global gross national product, for example, was higher then than it is today, and labour markets were more open. Two world wars and the Great Depression took their toll on this liberal international economic system. In many ways, the development in the West since 1945, and in the rest of the world since 1989, has picked up the thread broken in 1914.

Globalisation has facilitated a more efficient international division of labour and a better allocation of global savings to promising investment projects. Inasmuch, it has had a positive effect on global economic growth. As with all structural change, however, some people profit more than others, and in many cases the costs are felt long before the benefits. As a result of this,

there has also been a great deal of resistance to globalisation – not least in the old industrialised countries, which face fierce new competition. In the late 1990s, an anti-globalisation movement made the headlines, with a series of militant protests. The globalisation process continued, however. A crucial factor in this outcome may have been the awareness among the general public that the countries that had turned their backs on the international economy after World War II were far less successful at improving their living standards than those that embraced openness and integration.

3.2 Cyclical fluctuations

In the period between 1980 and 2005, short-term fluctuations in economic activity were fairly closely synchronised across countries. This confirms a fundamental feature of earlier business cycles in the twentieth century. In most industrialised countries, economic growth was interrupted in the early 1980s and early 1990s, and again shortly after the turn of the millennium, by a few quarters of falling production and rising unemployment. Some countries managed to avoid such a contraction, but even in these cases, economic growth slowed. The picture in the rest of the world – the emerging markets and the developing countries – is similar. Although economic output in countries with a high trend growth in production seldom actually fell, the ups and downs in the growth rates were closely linked with the corresponding developments in industrialised countries.

With cyclical fluctuations running more or less in parallel across a broad range of countries, economic developments in the major industrialised nations (United States, Japan, Germany, France, United Kingdom, Italy and Canada) may be seen as representative of those in the global economy. At the beginning of the 1980s, this group of countries went through a severe recession. The reasons are generally taken to be soaring oil prices and the restrictive monetary policies adopted by central banks to combat high inflation. A crucial event in this respect was the change in US monetary policy in October 1979, after which the Federal Reserve focused on drastically and permanently reducing inflation. In the first quarter of 1980, the US economy ceased expanding. After a sharp recession lasting two quarters, production recovered strongly before contracting again between the third quarter of 1981 and the third quarter of 1982.¹

1 The dating of the phases of expansion and contraction is based on Harding and Pagan (2002) using data for quarterly real GDP. Measured in quarters, an expansion phase is defined as lasting from the local trough to the next peak and a contraction phase from the local peak to the next trough.

Of the other major industrialised countries, the UK and Canada also experienced a recession. In the UK, real GDP started contracting in 1979 and continued into the first quarter of 1981. In Canada, as in Germany and Italy, the pattern was similar to that in the US, namely two successive contractions of short duration. In continental Europe, Germany recorded the greatest decline in output, while Italy and France got off relatively lightly. Japan experienced only a slowdown rather than a classic recession in which a nation's real GDP shrinks.

The subsequent recovery in the US lasted from the fourth quarter of 1982 to the second quarter of 1990. In some European countries, growth resumed earlier, but gathered strength only when the US economy rebounded. Moderate levels of inflation helped to prolong the expansion. Initially, inflation rates declined to very low levels and only began to rise again in 1987 – at first moderately, but then more briskly. In addition, the prices of oil and other commodities were falling. After peaking at almost 45 US dollars per barrel in the autumn of 1980, the price of crude oil dropped to 11 US dollars in the autumn of 1986. At this point, the price in real terms was lower than before the Organization of the Petroleum Exporting Countries (OPEC) raised oil prices drastically in the early 1970s.

This long period of expansion in the 1980s was by no means free of disruptions. The first blow was the international debt crisis in the summer of 1982. This was triggered by Mexico, which had large and growing budget and current account deficits. The crisis quickly spread to other heavily indebted countries, whose economies suffered from similar weaknesses. Rapid intervention by the International Monetary Fund (IMF) and the central banks of the industrialised countries successfully defused the Mexican crisis, but large debts continued to burden the afflicted countries for many years. Then, in October 1987, the crash in share prices on the New York Stock Exchange rocked international financial markets. Within a few weeks, equity prices in most countries fell by between 30 and 50 percent from their highs of that year, prompting comparisons with the stock market crash of 1929 and the Great Depression. However, fears that this would adversely affect the international economy were not borne out, due to some extent to the decision by the central banks of industrialised countries to increase liquidity. In the next two years, economic growth picked up almost everywhere – as did inflation. In some countries, this resulted in overheating, accompanied by speculative bubbles in property markets and a sharp rise in inflation.

The global economy peaked at the beginning of the 1990s, after which growth slowed noticeably. Besides tighter monetary policies, a major contrib-

utory factor to sluggish growth was the crisis in the Persian Gulf, triggered by Iraq's invasion of Kuwait in early August 1990. Oil prices jumped, but the crisis was resolved about six months later when a coalition of armed forces led by the US liberated Kuwait after a short campaign. In contrast to the recession in the early 1980s, the recession in the early 1990s was far from synchronised across countries. In the US, production fell between the second quarter of 1990 and the first quarter of 1991. The contraction was short and the cumulative decline in real GDP was much smaller than in the two recessions between 1980 and 1982. The UK and Canada slipped into a recession at the same time as the US. Although the contraction in these two countries was sharper than that in the US, it was not as severe as the downturns both had experienced at the beginning of the 1980s. Continental Europe, by contrast, continued to expand for a while – an important contributory factor being the revolutions in Eastern Europe. After the fall of the Berlin Wall on 9 November 1989, Germany achieved first economic and then political unification (on 1 July and 1 October 1990 respectively). To support the five new federal states, the German government adopted a financial stimulus package and loosened fiscal policy – steps from which the other European economies also benefited. As a result, the expansion phase did not peak in Germany, or in France and Italy, until the first quarter of 1992. The subsequent contraction in these three countries lasted an average of five quarters. In all cases, output fell further than in the US. Unlike the US, the UK and Canada, the recession in continental Europe was not noticeably milder than that in the early 1980s.

In many countries, the subsequent recovery took hold only slowly. Problems in the banking system were one of the causes. The recession and its adverse effects on share and property prices had confronted the banks with non-performing loans. As a result, they reduced their lending activity, which in turn held back economic recovery. These difficulties were noticeable in the US, but were particularly apparent in some of the smaller European countries and, above all, in Japan, where speculative bubbles in the stock and property markets had been acutely evident in the late 1980s. In Japan, the sharp slowdown in economic growth at the beginning of the 1990s ushered in a period of stagnation that included two recessions (1993 and 1998) and was characterised by deflationary trends.

Other disruptions that risked jeopardising global economic expansion in the 1990s included currency and balance of payments crises in a number of emerging markets. These crises were often triggered by growing current account deficits. The resultant loss of investor confidence forced the monetary authorities concerned to float the currency and, together with the government,

introduce stabilisation measures. Although the real exchange rate fell quickly once the currency was allowed to float, this move was usually not enough to prevent a recession. Examples of such financial crises in the 1990s were the Mexican crisis (1994–1995), the Asian crisis (1997–1998), and the Russian crisis (1998). All three impinged on other countries. The Asian crisis had the widest repercussions, but with the exception of Japan, no industrialised country experienced a subsequent recession.

From the mid-1990s, all eyes were on the US: America had entered a phase of robust economic growth, driven by an investment boom in information technology. The era of the New Economy appeared to have dawned, characterised by a surge in productivity growth and a steady increase in long-term growth potential. This went hand in hand with a sharp appreciation of the US dollar and an unprecedented rise in share prices. The increased demand for imports generated by the strong growth in the US benefited the European countries too. Growth in Europe was further fuelled by far-reaching liberalisation in the telecommunications market in particular.

For most industrialised countries, the 1990s saw a protracted period of expansion. In the US, it lasted from the first quarter of 1991 to the fourth quarter of 2000. With 39 quarters, this expansion was two years longer than its predecessor (1982–1990).² The contraction in economic activity that followed was short, lasting just three quarters, and the cumulative decline in real GDP was a minimal 0.2 percent. While Japan slipped into a full recession one quarter after the US, the European countries drifted into an extended period of stagnation. Data from Germany and Italy show two minor contractions between the first quarter of 2001 and the second quarter of 2003, each lasting three quarters on average and separated by an equally weak phase of expansion. In France, the downturn came later than elsewhere and was limited to just one mild contraction that also lasted three quarters. The UK and Canada were able to avoid recession completely, both experiencing only a temporary slowdown in economic growth.

Several factors contributed to the economic sluggishness between 2001 and 2003. Central banks tightened monetary policy so as to prevent their economies from overheating, the speculative bubble in technology stocks burst, and a series of events occurred that left both consumers and investors unsettled. Such events included the terrorist attacks in the US on 11 September 2001, the

2 In the US, official records of the dates of economic cycles go back to 1854. According to the National Bureau of Economic Research (NBER), the expansion phase in the 1990s is the longest on record.

wars that followed in Afghanistan and Iraq, and a number of major scandals in corporate governance in the US and Europe. The bear market that began in the second half of 2000 continued into early 2003. In this period, share prices on the leading stock exchanges fell to half their peak levels of 2000.

It is worth noting that, despite these blows, the concomitant recession was very mild almost everywhere. Low inflation expectations were an important factor, since they allowed central banks to ease monetary policy earlier than they could have done otherwise. A global economic recovery started in the second half of 2003 and continued into 2006, taking in its stride even the sharp rise in oil prices to more than 70 US dollars per barrel in mid-2005.

3.3 Growth trends

The global economy grew at a moderate pace in the 1980–2005 period. Real GDP rose by an average of 3.1 percent per year, while real GDP per capita – a better reflection of the improvement in living standards – increased by 1.6 percent. Although this rate is below the average for the preceding decades since the Second World War, it exceeds that for the nineteenth century and the first half of the twentieth.³

In the industrialised countries, which account for 15 percent of the world's population and about half of the global production of goods and services, growth in real GDP per capita was about the same as that in the emerging markets and developing countries. The gap between living standards in the industrialised countries and those in the rest of the world has therefore scarcely narrowed in the past twenty-five years. Of course, these averages conceal large regional differences. While most Asian countries have rapidly been catching up with the industrialised world, many Latin American, African and Middle Eastern countries have fallen even further behind.⁴

3.3.1 *Industrialised countries*

Economic growth in the industrialised countries between 1980 and 2005 was notably slower than in the preceding thirty years. The change in trend growth did not occur in the 1980s, however, but in the mid-1970s. The causes

3 Maddison (2001).

4 All figures for economic and productivity growth are based on data provided by the Groningen Growth and Development Centre (2006). GDP data have been converted on the basis of purchasing power parity prices in US dollars from 1990. Global and regional aggregates include all countries for which the Groningen Centre provides data; regions are as defined by the Groningen Centre. For some countries, data series end in 2004; in these cases, figures for 2005 are the authors' own estimates. The industrialised countries are the members of the OECD as at the end of 1993.

of the slowdown in economic performance are still disputed. The return to normal growth rates after the post-war boom is thought to have played a role, particularly in Western Europe, whose robust expansion after World War II can be largely attributed to catching up with the United States in terms of technology. Other restricting factors with more short-lived effects may have been the quadrupling of the oil price, as expressed in US dollars, in 1973, and the breakdown in the same year of the Bretton Woods system of pegged exchange rates. Yet even at the time, the proliferation of growth-inhibiting regulations and the rising share of GDP accounted for by the state were seen by many as reasons for the decline in economic growth. This put the topic of structural reform on the political agenda – one that would pre-occupy economic policymakers in industrialised countries into the twenty-first century.

The slowdown in economic growth after 1973 affected nations in the industrialised world to varying degrees. While in the US, growth in real GDP per capita slipped from an average of 2.5 percent in the period from 1950 to 1973 to 2.0 percent between 1980 and 2005, it was more than halved from 4.0 percent to 1.9 percent in the fifteen pre-2004 member states of the European Union (EU15). In other words, European post-war growth, which had initially outpaced that in the US, now lagged behind. This development affected almost all European countries. The United Kingdom was an exception in that, even between 1950 and 1973, GDP per capita had not grown faster than in the US.

Slower growth generally went hand in hand with lower increases in productivity, measured as real GDP per hour worked. In the EU15, average annual growth in labour productivity declined from 4.7 percent in the 1950–1973 period to 2.0 percent between 1980 and 2005; for the US the corresponding figures were 2.5 percent and 1.7 percent.⁵ Hence, productivity growth in Europe continued to be marginally higher than in the US, indicating that the US's productivity lead had continued to shrink. While labour productivity in the EU15 was only 70 percent of the US level in 1973, by 2005 it had reached 86 percent. Unlike labour productivity, per capita income did not converge any further; it is still 30 percent lower than in the US, the reason being that hours worked per capita decreased more rapidly in Europe than in the US. This reflects not only differences in the preferences for income and leisure between the US and Europe, but also all the factors that reduce labour market

5 In order to deal with German unification, growth rates for unified Germany were linked to 1990 GDP data for West Germany.

participation in the long term.⁶ While estimates of the level of structural unemployment in the US have continually been revised downwards, the trend in most European countries has moved in the opposite direction. In the large economies of continental Europe (Germany, France and Italy), in particular, unemployment was high and made heavy demands on the budget.

Even if the differences between the US and the EU15 for the 1980–2005 period as a whole were unexceptional, some changes became evident towards the end of the period. Until the early 1990s, real GDP per capita in the EU15 grew at much the same pace as in the US, before falling behind. The most significant change was in productivity. Whereas there was a perceptible improvement in labour productivity in the US from the mid-1990s, it declined in the EU15. Thus, for the first time since the end of the Second World War, labour productivity growth in the countries of Western Europe lagged behind that in the US for an extended period.

Developments in labour productivity since the 1990s and the resultant differences between countries correlate closely with the rise of the ICT sector. In terms of growth in total factor productivity, technological progress was greater in this sector than in any other.⁷ At the same time, this sector played a far greater role in the US than in the EU15. Moreover, US companies invested far more readily in ICT goods than European firms, the key reason why capital intensity in the US increased faster than in the EU15. Together, these two factors explain the widening gap between US and European labour productivity.⁸ The significance of ICT is further underscored by the fact that those European countries that did build up a significant ICT sector and invest heavily in ICT goods were among those with the strongest productivity gains in Europe (Finland, Ireland and Sweden).

There are good reasons to believe that the policy reforms introduced in the early 1980s have contributed to the return to higher trend growth in the US, but also in the UK. The economic reforms introduced during President Ronald Reagan's administration and Prime Minister Margaret Thatcher's government sought to strengthen market forces and roll back the influence of the state. Measures included deregulation of the labour, goods and services markets, as well as tax and welfare reforms. Crucial for their long-term success was the willingness of subsequent governments to accept, at least in principle, this fundamental reorientation in favour of free markets and competition.

6 Blanchard (2004).

7 Growth in total factor productivity corresponds to the output growth that is not accounted for by the growth in the production factors labour and capital.

8 For the 1980–2001 period, cf. Timmer and van Ark (2005).

Despite concern about the sluggish growth, structural reforms and deregulation measures were implemented in most countries of continental Europe with less vigour than in the US and the UK. At first, it was widely hoped that the creation of a single European market, a project launched in 1985, would provide greater stimulus for the economy. The free flow of goods, services, labour and capital was intended to enhance competition, improve productivity and raise growth. In the following years, considerable progress was made in the product markets. In particular, the heavily regulated telecommunications, power and transport sectors were liberalised and many companies privatised. By contrast, attempts to reform the more politically sensitive labour markets and tax systems were hesitant. The exceptions were a number of smaller countries which introduced comprehensive reforms in the early 1990s (the Netherlands, the Scandinavian countries and Ireland).

It soon became apparent that the economic and political measures adopted in most of Europe did not suffice to revive sluggish economies and significantly reduce unemployment. Europe was in danger of missing out on the opportunities of globalisation, while remaining ill-prepared to meet its challenges. In addition, it was becoming increasingly clear that many countries could not maintain the generous welfare systems they had introduced in the previous decades. The EU's decision to admit ten new member states, most of them with per capita incomes well below the EU average, made the search for a solution to these problems all the more pressing. At a summit meeting in Lisbon in 2000, the EU member states agreed on a comprehensive programme to strengthen the competitiveness of the European economy. As the programme also included labour market reforms, its political implementation proved difficult, and progress up to the end of 2005 was modest.

3.3.2 *Emerging markets and developing countries*

Compared with the industrialised countries, which despite differences had similar growth patterns between 1980 and 2005, developments in the rest of the world varied considerably. Only Asia and central Europe managed to substantially reduce the prosperity gap between themselves and the industrialised nations. In other regions – Africa, Latin America, the Middle East and the successor states to the Soviet Union – the gap in 2005 was as wide, if not wider, than in 1980. Many of these countries suffered serious setbacks in the 1980s and early 1990s in particular. Only in the mid-1990s did their growth rates pick up as a result of global expansion and rising commodity

prices. Significant success in fighting inflation and putting public finances on a sounder footing were other factors contributing to this outcome.

Growth in the Asian countries far outstripped other regions. Real GDP per capita grew at an average annual rate of 4.7 percent between 1980 and 2005. Hong Kong, Singapore, South Korea and Taiwan had already done the groundwork in the 1950s and 1960s, and continued to prosper so well that Hong Kong and Singapore drew level with Japan. Other countries with notable economic success were Indonesia, Malaysia, the Philippines and Thailand. Although the entire region was severely hit by the currency and balance of payments crises that followed the devaluation of the Thai currency in the summer of 1997, all the affected countries quickly recovered from these setbacks. A characteristic of Asian economic development is the central role of exports and strong investment, funded by a high savings ratio, as engines of economic growth. As a consequence, labour productivity rose rapidly, admittedly from a low base. Growth in total factor productivity, however, differed little from that in industrialised countries.⁹

China's transformation was spectacular. By the mid-1970s, it was a state-controlled economy with a dominant agricultural sector, and performance was deteriorating. Then, in 1978, the Communist government, under the leadership of Deng Xiaoping, changed its focus and introduced pro-market reforms, which unleashed rapid economic growth and ushered in far-reaching structural change. The first step was the extensive deregulation of agriculture. In subsequent steps, private ownership of firms was allowed, foreign trade was liberalised, and foreign companies were encouraged to set up business in the coastal regions. In 2001, the Chinese government underscored its intention to continue its policy of reforming and opening up the economy by joining the WTO. China quickly became the second-largest economy in the world after the US and one of the world leaders in industrial production. At the same time, prosperity increased, as real GDP per capita rose at an average rate of 6.4 percent a year between 1980 and 2005.

Although somewhat overshadowed by China, India – second only to China in population – also posted impressive economic growth. Like most developing countries, India had long pinned its hopes on a state-regulated economy and import substitution. By the time the Indian government moved to reform and open up the economy in the late 1980s, China had overtaken it in terms of GDP per capita. The new policies were quick to take effect. Between 1990 and 2005, India's real GDP per capita rose at an average rate of

9 Young (1995).

3.7 percent a year. This progress was fuelled largely by the service sector. Virtually unprecedented among emerging markets, India advanced to become one of the world's leading providers of ICT services.

The transformation in Eastern Europe was just as impressive as that in Asia. The changes brought about in the Soviet Union under the leadership of Mikhail Gorbachev, General Secretary of the ruling Communist party, were the catalyst, ending decades of stagnation in the Soviet economy and society. Gorbachev's foreign policy initiatives, including two comprehensive disarmament treaties with the US in 1987 and 1989 essentially ended the Cold War, while his domestic policies of *glasnost* (openness) and *perestroika* (reconstruction) paved the way for modernisation. Although Gorbachev's attempt to modernise the Soviet economic system failed, by introducing political freedoms he initiated a process that culminated in the largely peaceful collapse of the Communist regimes in Central and Eastern Europe in 1989 and the break-up of the Soviet Union into fifteen independent republics in 1991.

Under President Boris Yeltsin, Russia privatised its state-owned enterprises in rapid succession and introduced a market economy. The immediate consequences of this radical change were a collapse in production and rampant inflation. Unprofitable firms shut down or dismissed most of their workers. Production did not start to recover until the second half of the 1990s. From 1998 onwards, Russia – the third-largest oil exporter in the world and a country rich in natural resources – began to reap the benefits of rising commodity prices. But even in 2005, real GDP had still not reached the level of the late 1980s. This also applies to the other successor states of the Soviet Union, with the exception of the three Baltic republics of Estonia, Latvia and Lithuania.

The countries of central Europe recovered more quickly. All of them introduced reforms without delay in 1989, which, after a difficult period of transformation, began to bear fruit from 1991 onwards. As the region became a favourite destination for Western foreign direct investment, labour productivity rose and trade with Western Europe expanded. Between 1995 and 2005, average annual real GDP per capita grew more than twice as fast as in the EU15. In May 2004, Poland, Slovakia, the Czech Republic, Hungary, the three Baltic states and Slovenia – as the first country from former Yugoslavia – joined the EU.

Growth in Latin America lagged substantially behind the global average. Between 1980 and 2005, average annual real GDP per capita for the region as a whole rose at a rate of just 0.2 percent. This poor result can be attributed

mainly to a sharp drop in production in the 1980s of more than 7 percent overall. In contrast to the experience of emerging Asia, most economies in Latin America did worse in the 1980–2005 period than in the decades between 1950 and 1980. The primary cause of this disappointing performance was chronic economic instability, as reflected in high rates of inflation, mounting national debt and recurrent balance of payments and currency crises. The problems first appeared in 1982, when countries that had run up huge debts with international banks found themselves unable to service them, as interest rates on dollar-denominated debt rose. Besides Central and Eastern Europe, the countries most affected were Argentina, Brazil and Mexico, the three major countries of Latin America. After almost a decade of profound economic and financial difficulties, many countries adopted fundamental reforms in the late 1980s and early 1990s. These included stabilisation programmes to correct macroeconomic imbalances, introduced under the aegis of the IMF, as well as measures to strengthen competitiveness and market institutions. However, the region remained vulnerable to setbacks, among them the Mexican currency crisis of late 1994 and the devastating Argentine financial crisis of 2001. As a rule, these crises adversely affected neighbouring countries as well. Accordingly, in terms of growth, Latin American countries have considerably underperformed emerging markets in other regions. An exception is Chile, where sweeping reforms were implemented early and economic growth has been solid since the 1980s.

Africa remained the continent with the lowest per capita income. Whereas prosperity rose in the countries along the Mediterranean coast, it declined in sub-Saharan Africa. Many of the latter group are dependent on exports of a single commodity and, hence, suffered disproportionately from falling commodity prices in the 1980s. Other handicaps included armed conflict, political instability and the rapid spread of AIDS. During the 1980s and the first half of the 1990s, real GDP per capita in sub-Saharan Africa declined by 1–2 percent a year. Things improved a little from the mid-1990s onwards, when average economic growth exceeded population growth for the first time in decades. A number of countries profited from the increase in oil and other commodity prices. Many also began to reap the benefits of structural reforms. However, investment growth – a necessity for sustainable growth – remained well below the average for other regions. As a result, international development policy refocused increasingly on Africa. In 2005, the donor countries decided to cancel about 55 billion US dollars in debt that 38 low-income countries owed to the IMF, the World Bank and the African Development Bank. Most of the beneficiaries were African countries.

3.4 Monetary policy and inflation trends

The marked decline in inflation was one of the most striking macro-economic phenomena of the late twentieth century. The wave of inflation that built up in the 1960s and accelerated sharply in the 1970s receded in the 1990s. This development was not limited to the industrialised nations. The decline in inflation was just as impressive in the emerging markets and the developing countries, many of which had gone through periods of very high inflation.

In the largest industrialised countries, consumer prices rose by an average of 8.8 percent per year between 1975 and 1985. In the following two decades, the average annual rate of inflation dropped first to 3.3 percent (1985–1995) and then to 1.9 percent (1995–2005).¹⁰ At the same time, the spread between national inflation rates also narrowed. In 1980, most of the major industrialised countries experienced double-digit inflation of up to 22 percent (Italy). Only in Germany and Japan was inflation below 10 percent. A quarter of a century later, inflation averaged 2.0 percent, with a range from –0.2 percent (Japan) to 2.7 percent (United States).

Developments in the rest of the world were less uniform. As long ago as the 1980s, most Asian countries had managed to bring inflation down to moderate levels. By contrast, in Latin America and, after the abolition of price controls, in the former Eastern Bloc countries, inflation initially soared. Some of these countries, such as Argentina (1989–1990), Bolivia (1985), Brazil (1990–1994) and Peru (1989–1990), as well as Russia (1992) and other members of the former Soviet Union, succumbed to hyperinflation. In the course of the 1990s, these regions also managed to bring inflation under control. By the beginning of the new millennium, rates of inflation in the emerging markets and the developing countries were down to single digits and the range was notably smaller.

The general decline in inflation – like its escalation in the 1960s and 1970s – can be explained by the monetary policies of the major economies. Towards the end of the 1970s, the damage wrought by inflation became increasingly obvious. As economic growth slowed perceptibly almost everywhere, the popular association of inflation with prosperity was shattered. More and more, the perception took hold that restoring and maintaining price stability was a precondition for sustainable economic growth. Against the backdrop of this new consensus, the central banks moved decisively to tighten monetary policy, and within a few years inflation had been permanently reduced.

¹⁰ Aggregate of the GDP-weighted rates of inflation in the seven largest industrialised countries (in US dollars; exchange rates at purchasing power parity). Cf. IMF (2005).

In addition to growing support for anti-inflationary policies, other circumstances also contributed to the success of monetary policy. On the one hand, countries were opening up their markets and more states were being integrated into the global economy, thus boosting competition in the goods and factor markets and promoting price flexibility. This in turn diminished the incentive for central banks to deviate from the pursuit of price stability. One consequence was to give additional credibility to announcements by central banks that price stability would be the goal of monetary policy.¹¹ On the other hand, most commodity prices were in a phase of secular decline in the 1980s and 1990s, and productivity growth started to increase in a number of countries towards the end of the period. These developments, too, were in sharp contrast to the 1970s, when the price of crude oil had risen sharply and productivity growth had abruptly fallen off. For the monetary authorities, therefore, the situation was in many respects easier than in the 1970s.¹²

To safeguard success in the fight against inflation, many countries introduced institutional reforms, which generally had three components. First, the task of the central bank was defined more clearly. Instead of a list of vague and sometimes contradictory goals, price stability was defined as the primary goal. Second, central banks were granted a greater degree of independence in order to shield them from government or parliamentary pressure, and in particular to prevent them from being forced to fulfil goals that were incompatible with the primary goal of price stability. Finally, the accountability of central banks was strengthened. This was not only a logical corollary of their independence; they themselves also had an interest in making their policies and goals as transparent as possible. This interest in transparency reflects the fact that the economic behaviour of firms and households is influenced by their inflationary expectations; so transparency about the course of monetary policy is just as important as the individual decisions actually taken by the central banks on interest rates.

The need for institutional reform was greater in some countries than in others. For one thing, the severity of the problem, and thus the credibility of monetary policy, was not the same in all countries. Furthermore, the institutional framework defining a central bank's mandate and independence varied from country to country. New Zealand was a pioneer in many respects. It not only set about reforming earlier than other countries, it also did so more radically. In addition, New Zealand developed the concept of a monetary

11 Rogoff (2003).

12 Mankiw (2002).

policy based on explicit inflation targets, a strategy subsequently adopted by many other countries in the 1990s.

A characteristic of most countries with explicit inflation targets is a commitment to price stability as the primary goal of monetary policy. This goal is translated into a target rate of inflation or, if inflation is initially high, into a series of annual inflation targets. Instead of stating an intermediate target (for instance, in terms of money supply or the exchange rate), inflation-targeting central banks will usually issue a medium-term inflation forecast based on all the information at their disposal. Another important element is the issuing of an inflation report that includes a detailed explanation of monetary policy.

The first countries to adopt inflation targets were industrialised nations in which money supply or exchange rate policies had failed. New Zealand took the lead in 1989, followed by Canada in 1991 and, after the crisis in the European Monetary System (EMS) in 1992, the United Kingdom and Sweden. By the end of the decade, the rapidly growing group of countries with inflation targets also included emerging markets and developing economies. As a rule, countries with inflation targets managed to lower inflation substantially. However, those that adopted other strategies achieved similar success, and their costs of fighting inflation in terms of job losses do not appear to have been any higher. Thus, many countries continued to regard money supply and exchange rate strategies as feasible alternatives.

In contrast to the inflation target strategy, the money supply strategy focuses on a single indicator as an intermediate target – the money supply. In practice, the consequences of this difference for monetary policy have, however, often been less marked than one might expect. This is borne out by the monetary policy of the Deutsche Bundesbank, the German central bank, and the Swiss National Bank, the two institutions that used money supply targets longer than other central banks. In both countries, the primary goal of monetary policy was to maintain price stability, and both central banks have always emphasised the medium-term focus of their policies, which allowed for departures from their money supply targets if deemed appropriate in the light of other indicators.

Money supply targets were the core element of German monetary policy from 1975 to 1998. This time span covers almost the entire period between the transition to floating exchange rates in 1973 and the transfer of responsibility for monetary policy to the European Central Bank (ECB) at the beginning of 1999. Modifications of the approach were few and secondary, such as the choice of the monetary aggregate and time horizon of the target. The Bundesbank stuck to its money-targeting strategy even in the difficult transi-

tion years that followed Germany's reunification. This is remarkable given the considerable uncertainty about the East German population's investment behaviour after the currency exchange. Despite the problems, the Bundesbank met its money supply targets between 1989 and 1991.

Money supply targets also played an important role in the United States, at least for a time. The Federal Reserve started setting money supply targets in the mid-1970s, but they were often missed and not regarded as vital to monetary policymaking. This changed in October 1979 when, amid rapidly rising inflation, the Federal Reserve adopted a package of measures that attached greater importance to controlling the money supply. Henceforth, monetary policy would be implemented by directly controlling bank reserves instead of interest rates. The US central bank decided for two reasons that changing operational procedures was the best way to signal a stricter stance in the fight against inflation. Firstly, the surge in inflation had discredited the old regime based on interest rate management. Secondly, greater emphasis on monetary aggregates was helpful in conveying why sharp increases in interest rates were necessary.

The number of countries that used money supply targets to guide monetary policy decreased in the course of the 1980s and 1990s, primarily because the correlation between monetary aggregates, economic activity and inflation appeared to have weakened. In the US, regulatory reforms and technological developments in the banking sector made the demand for money more volatile. This prompted the central bank to return to a policy of targeting the federal funds rate in 1982. Although the Federal Reserve continued to release money supply targets and projections, these figures no longer held the same significance. There were similar developments in other countries. Some central banks reacted by announcing money supply targets not just for one, but for several monetary aggregates. Other banks adopted other targets in addition to the money supply, such as exchange rates. Although the ECB, created in 1999, emphasised the importance of a detailed monetary analysis – with particular focus on developments in money supply and lending, it announced at the same time that this would constitute only one of two pillars of its monetary policy strategy, the other being a broad analysis of real activity and financial conditions.

In the early 1980s, the most common alternative to money supply targets was an exchange rate policy. This includes all strategies in which one currency is tied to another currency or to a basket of currencies. Pegging the exchange rate is tantamount to forgoing an autonomous monetary policy. The trade-off is lower exchange rate volatility. Furthermore, exchange rate

pegs put pressure on countries with high inflation to reduce domestic inflation to the level prevailing abroad. Hence, pegged exchange rates are potentially a means of fighting inflation.

Most of the countries that adopted a policy of pegged exchange rates in the 1980s and 1990s were emerging markets and developing economies, including some of the bigger ones, such as China and India. Confronted with the open economy trilemma – the inability of policymakers simultaneously to pursue a fixed exchange rate, open capital markets and autonomous monetary policy – many of these countries retained restrictions on the free movement of capital. While this tended to reduce the risk of speculative attacks, it was not a sure defence and currency crises remained frequent. For this reason, some countries either went for flexible exchange rates combined with money supply or inflation targets, or for a hard peg in the form of a currency board or dollarisation.

In industrialised countries, the most famous recent example of an exchange rate strategy was the EMS, a Franco-German initiative launched in 1978 to create a zone of exchange rate stability within the European Economic Community. An earlier instrument, known as the currency snake, had the same goal. Unlike the snake, however, the EMS now employed an exchange rate mechanism (ERM) in which the central banks committed themselves to coordinated intervention to maintain the parities of their currencies in relation to a basket of currencies, the European Currency Unit (ECU). The margin of fluctuation was limited to ± 2.25 percent. This commitment to coordinated intervention was intended to ensure that the burden of adjustment did not fall only on the central banks of countries with weak currencies. There were, however, limits to these obligations, so that the Deutsche Bundesbank, for instance, did not have to sacrifice its commitment to price stability. Owing to the large differences between the inflation rates of the EMS member states, parities had to be regularly adjusted in the early years. After the reversal in French economic policy in 1982, the situation eased and interest and inflation rates gradually trended downwards towards the low levels in Germany. In 1992 and 1993, a series of speculative attacks on the member states' currency reserves rocked the EMS. The situation normalised only after the margins of fluctuation were widened to ± 15 percent. Although the EMS survived, it never regained the function and importance it had enjoyed before 1992.

The great ERM crisis of 1992/1993 is an example of how a currency crisis can force central banks to abandon pegged exchange rates. Several factors contributed to the tensions that resulted in the collapse in September 1992.

Owing in particular to the changes precipitated by reunification, the German economy was temporarily out of step with the rest of Europe. To control inflation in Germany, the Bundesbank raised short-term interest rates, although the situation in the other EMS member states would have actually called for just the opposite. The markets began to question whether these countries would be prepared to defend exchange rate parities for a lengthy period by raising their interest rates. At the same time, referendums pending on the Treaty on European Union (Maastricht Treaty) heightened uncertainty about the future of the monetary system. In a referendum held on 2 June 1992, the Danes narrowly rejected the Maastricht Treaty, which encouraged investors to factor in the possibility of rejection in the French referendum on 20 September 1992. The tensions erupted in a series of speculative attacks. The Italian lira was devalued on 13 September. This was not enough to restore calm, and three days later the UK and Italy were forced to withdraw from the ERM. While the attack on the parity of the French franc was foiled by massive interventions in the foreign exchange markets, Ireland, Portugal and Spain had to devalue their currencies between September 1992 and May 1993, in some cases more than once. Finally, Finland, followed by Sweden and Norway, cut the unilateral ties between their currencies and the ECU.

The crisis illustrates the vulnerability of a system of pegged exchange rates coupled with free movement of capital. Having abolished capital controls in the 1980s, EMS countries were faced with the following alternative: they could either float their currencies and follow an independent monetary policy – as the UK, Sweden and Norway subsequently did – or they could pursue monetary union with permanently fixed exchange rates. The latter course was the one adopted by the states that gave up their national currencies in favour of the euro on 1 January 1999. On this date, the exchange rates of the currencies of eleven of the EU's then fifteen member states were permanently fixed, and responsibility for monetary policy for the entire territory in which the currency applied was transferred from national central banks to the newly created ECB. At the beginning of 2001, Greece joined the currency union as its twelfth member. A year later euro banknotes and coins were introduced.

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4 The National Bank's monetary policy

4.1 Economic growth and structural change in Switzerland

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4.1.1 Introduction

A sharp drop in growth in the mid-1970s proved a watershed in Switzerland's economic development. Although Switzerland remained one of the leading economies in terms of per capita income, growth was so modest over the next three decades that its lead over other industrialised countries dwindled. At the same time, it lost some of its edge in terms of monetary stability. Although Swiss inflation rates were well below those of most other countries throughout the 1970s and 1980s, the gap narrowed rapidly as inflation declined worldwide in the 1990s.

With slower economic growth and lower, more stable inflation, the economic debate shifted from monetary stability to structural policy. This was not a purely Swiss phenomenon. Structural policy, and with it the debate on economic reforms, moved into the limelight everywhere. The Swiss National Bank followed these developments with interest, because it had long felt that the many barriers to competition in the Swiss product and factor markets increased the cost of combating inflation. Looking back, there is a general feeling that, given the pace of technological progress and the rapid changes in the global economy, the reform process in Switzerland got off the ground more slowly than was desirable. Nevertheless, this was also a period of remarkable change in the Swiss economy that did not spare deep-rooted economic traditions.¹

This chapter looks at economic growth and structural change in Switzerland, and outlines some of the key elements of economic policy. Cyclical fluctuations and the course of inflation are reviewed in chapter 4.2, which is followed by sections on the SNB's monetary policy.

4.1.2 Economic growth

In the twenty-five years between 1980 and 2005, Switzerland's gross domestic product (GDP) grew by an average of 1.5 percent. Per capita, it rose by 0.8 percent per annum in the same period. Growth was therefore well below

1 For details of the debate on reform, cf. Baltensperger (2005).

the average for industrialised countries and also significantly lower than in neighbouring countries.

In Switzerland, however, GDP is not the best way of measuring prosperity. Even if other indicators of the quality of life are disregarded, Swiss GDP growth under-represents the rise in living standards, as it neglects two key sources of income. Firstly, it does not include net foreign income, which plays an important role in Switzerland because of the country's large assets abroad. Secondly, Switzerland's terms of trade have improved significantly over the past twenty-five years, with the result that the country has to pay less for the imports it receives. This effect is equivalent to an increase in productivity.² Nevertheless, such corrections merely narrow the growth gap; they do not eliminate it entirely. Even after taking these two factors into account, Switzerland still has one of the lowest economic growth rates in the industrialised world.

Economic development between 1980 and 2005 can be roughly divided into two phases. In the 1980s, the Swiss economy grew by 2.2 percent, about the same rate as other European countries. The early 1990s brought a dip in growth and marked the beginning of a period with far lower growth rates. As a consequence, the average annual GDP growth rate between 1990 and 2005 was only 1.1 percent. Attributing GDP growth to its various sources gives the following picture: the greatest decline was in labour growth (hours worked). The contribution by growth in capital also declined, though less sharply. By contrast, there was virtually no decline in total factor productivity growth, which reflects the role played by technical progress.³

The reduced contribution by growth in labour was due to a decline in the number of hours worked between 1990 and 2005, following a steady rise between 1980 and 1990. This may seem surprising, especially as both the population and the number of people of working age increased during this period. The participation rate, i.e. the proportion of the labour force in the working-age population, also rose. Thus, the cause was a significant reduction in average working hours, partly because of an increase in part-time work, and partly because the hours worked by full-time employees declined. Finally, the unemployment rate also rose, although it remained moderate by international standards.

The reasons for the dip in economic growth in the 1990s were not clear-cut. Initially, the low growth rate was regarded as a cyclical phenomenon at-

2 Kohli (2004).

3 Fox and Zurlinden (2006).

tributable to weak economic growth outside Switzerland and the SNB's restrictive monetary policy. However, the longer it lasted, the more widely it came to be believed that such factors, which were only expected to have a temporary effect, did not provide sufficient explanation. In recent years, more attention has therefore been paid to factors such as rising taxes and levies, aspects of social policy that had a negative impact on employment, and restrictions on competition.⁴

4.1.3 Structural change

Despite modest economic growth, Switzerland underwent extensive structural change in this period. First of all, the long-term shift from an industrial to a service economy continued. In 1980, 55 percent of the labour force was employed in the service sector, 38 percent in industry and the remaining 7 percent mainly in agriculture. A quarter of a century later, the proportions were 73 percent, 24 percent and 4 percent. All major branches of industry scaled back employment in this period. Yet industrial output increased, reflecting a clear rise in labour productivity. Employment levels rose in most areas of the tertiary sector, especially in healthcare, education, and business services, such as information technology. An exception is the hospitality industry, where job numbers declined. Employment also rose substantially in the banking industry, although this trend began to flag in the late 1990s and banks started to downsize after 2000.

This shift towards the service sector was something Switzerland had in common with other mature industrialised countries. The same can be said of the growing integration into the global economy. As a small country, imports and exports have traditionally been high relative to GDP. In 1980, the mean of goods exports and imports accounted for 30 percent of GDP. By 2005, this figure had risen to 34 percent. Services underwent an even faster increase from a lower level. These figures reflect the rising international division of labour, which in turn was driven by lower transport and information costs. A further contributory factor was the opening of markets, which helped to boost foreign trade, especially with countries in Eastern Europe and South-east Asia. Foreign assets also rose rapidly, reflecting high current account surpluses. In other words, Switzerland saved far more than it invested in its own country, transferring the excess amounts abroad in the form of both direct and portfolio investments. By international standards, high current account surpluses remained a characteristic of the Swiss economy.

4 For a list of possible factors, cf. Kohli (2005).

There were also some striking shifts at a corporate level. Traditionally, the average size of businesses in the service sector has been far smaller than in the industrial sector. The shift towards services therefore led to a sharp rise in the number of firms, accompanied by a reduction in their average size. Also, the big companies, most of which have a strong international focus, undertook massive restructuring. This can be seen, for example, in the composition of the Swiss Market Index (SMI), which was established in 1988 and shows the share price performance of the country's biggest listed companies. Most of the changes were due to mergers and acquisitions. In 1996, two SMI companies, Ciba-Geigy and Sandoz, merged to form Novartis. Two years later, Swiss Bank Corporation and Union Bank of Switzerland merged to form the new UBS. Other SMI companies merged with large foreign companies. Examples include BBC, which merged with Sweden's ASEA in 1988 to form ABB, and Adia, which joined forces with Ecco of France in 1996 to form Adecco. Winterthur Insurance, Swiss Volksbank, Electrowatt and Jacobs Suchard also disappeared from the SMI. Winterthur and the Swiss Volksbank were acquired by Credit Suisse, Electrowatt became part of the Siemens group and Philip Morris bought Jacobs Suchard. At the same time, a number of companies were spun off from major corporations and listed on the stock market. These included Syngenta (spun off from Novartis and AstraZeneca in 2000), Givaudan (spun off from Roche in 2000), Ciba Specialty Chemicals (spun off from Novartis in 1997) and Lonza (spun off from Algroup in 1999). Moreover, many companies were added to the SMI because their market capitalisation increased rapidly in the 1990s. These included technology stocks (Kudelski, Serono, Synthes-Stratec), luxury goods companies (Richemont, Swatch) and financial service providers (Bâloise, Julius Baer).

The flexibility of the Swiss labour market is demonstrated by the fact that the fundamental shift away from industry and agriculture was achieved without a massive rise in unemployment. Although unemployment did increase markedly during the recession in the early 1990s and has not yet dropped back to its earlier low levels, this was essentially due to changes in the statutory framework. The low unemployment rates of the 1970s and 1980s were largely attributable to sharp fluctuations in the participation rate in line with movements in the business cycle. Women, who play a significant role in Switzerland's high participation rate and its large proportion of part-time workers, withdrew from the labour market during the recession, while foreign nationals, who already made up around a quarter of the labour force at that time, returned to their home countries. This has changed over the years, with the extension of unemployment insurance (and especially a lengthening of

the period for which it is paid) and the improved status of foreign workers playing a significant role. Unlike the situation in the 1970s, by the 1990s, most foreign workers were not seasonal workers or workers on annual contracts; they had residence permits and thus enjoyed equality with Swiss nationals in the labour market. The result of these changes was a rise in structural unemployment.

4.1.4 State and economic policy

The wave of economic reforms and deregulation that swept through the Anglo-Saxon countries in particular during the 1980s took some time to reach Switzerland, and then bore fruit only slowly. There were probably two reasons for this. Firstly, Switzerland's affluence meant that change was given low priority for a long time. Secondly, the country's federal structure and direct democracy hindered rapid changes in economic policy. That said, comparisons with other countries suggest that Switzerland's weak economic growth and high prices could not be explained solely by the country's high standard of living. Instead, they seemed to indicate a lack of competition, especially in product markets. Although the country's export sector was competitive and able to hold its own in the global market, other sectors of the economy – i.e. trade, agriculture and the public sector – were riddled with barriers to competition. Removing them promised to make the economy more efficient, reduce prices and stimulate economic growth.⁵

In the early 1990s, most advocates of economic deregulation in Switzerland placed their hopes in the European Economic Area (EEA). This was an agreement between the European Community (EC) and countries of the European Free Trade Association (EFTA) which was designed to extend the single European market to EFTA. In return, the EFTA countries agreed to adopt much of EC law. Since the single European market guaranteed free movement of goods, capital and people, the EEA would have brought substantial liberalisation in many areas. However, the Swiss electorate narrowly rejected the EEA agreement in a referendum on 6 December 1992. Switzerland therefore had no choice but to adopt internal measures to open up its domestic economy.

At the beginning of 1993, the Federal Council outlined a programme, which comprised three elements. Firstly, part of the body of amendments

5 Annual country reports published by the OECD and the growth report by the Federal Department of Economic Affairs (2002). For a comparison of collective indicators used for regulatory purposes in OECD countries, cf. Nicoletti, Scarpetta and Boylaud (1999).

drawn up in anticipation of the acceptance of the EEA agreement (Eurolex) was renamed Swisslex, presented to Parliament and entered into force without further delay. The Federal Council regarded this as a vital condition for entering into bilateral negotiations with the European Union (EU). Secondly, it put forward proposals to revitalise the domestic economy by opening up markets, reducing barriers to competition and making Switzerland a more attractive base for business. This revitalisation programme included a complete revision of cartel legislation, the adoption of a federal act on the domestic market, and legislation dismantling technical barriers to trade, all of which came into effect in 1996. The domestic market law aimed to reduce public sector barriers (abolition of competitive restrictions in tender processes, mutual recognition of qualifications), thus supplementing cartel legislation, which was designed to prevent competitive restrictions in the private sector.⁶ The third element in the Federal Council's strategy consisted of sector-specific negotiations with the EU, which led to two groups of bilateral agreements on a wide range of issues. Particularly important were the gradual introduction of the free movement of people and the system of cross-border taxation of interest income. In referendums in 2000 and 2005, a clear majority of the Swiss electorate voted to accept all the legislative proposals regarding the bilateral agreements.

Other areas in which reforms were initiated included agriculture and network industries. In the 1990s, agricultural policy abolished volume and price guarantees. The resultant drop in income was offset to some extent by an increase in direct subsidies. Changes in the network industries focused on the telecommunications and electricity sectors. Access to the telecoms market was gradually liberalised from 1998 onwards. A similar deregulation of the electricity market was planned, but overturned by a referendum in 2002. Efforts to deregulate the railways and postal service were more cautious, but even these institutions were required to step up their market focus. Unlike in many other countries, major infrastructure companies remained under state control in Switzerland. When the Swiss postal and telecommunications operator (PTT) was split into separate postal and telecom services, the federal government became the majority shareholder in Swisscom, which went public in 1998. Swiss Federal Railways (SBB/CFF) and Swiss Post remained federal property, and most electric utilities have continued to belong to the cantons and municipalities.

6 Neither of these acts met expectations. The cartel law was tightened up in 2004 and the legislation on the domestic market in 2006.

For many years, the low ratio of government spending relative to GDP was one of the strengths of the Swiss economy. In the 1990s, this ratio was still below the average for other industrialised countries, but the gap was narrowing. While the government spending ratio declined or at least stabilised in other countries in this period, it increased in Switzerland. Moreover, the structure of this increase was worrying, as it consisted mainly of social security contributions. At the same time, the share of spending on investment and education to boost economic growth declined.⁷

On the revenue side, the 1990s saw a sharp rise in the fiscal ratio (tax income as a proportion of GDP). Like the government spending ratio, it remained below the average for the industrialised countries, but the gap also narrowed rapidly here. A remarkable change in the tax system was the shift from turnover tax to value added tax (VAT) in 1995, which had previously been rejected in three referendums (1977, 1979 and 1991). Since VAT is applied to services as well as to goods, the change broadened the tax base. At the same time, it eliminated the dual taxation associated with turnover tax. Other taxes, especially stamp duty on securities and certain insurance premiums, were revised on a number of occasions, mainly to prevent further relocation of taxed businesses to other jurisdictions. Nevertheless, stamp duty was not abolished entirely.

Despite the increase in the fiscal ratio, revenues lagged behind growth in spending, resulting in a rapid rise in public sector debt. This was mainly due to the federal government and the cantons; the municipalities kept a better check on their finances. To stem the rise in debt, the government and many cantons introduced institutional budget management mechanisms. A key step was the debt containment rule on the federal level, which was established in the Federal Constitution in 2001. The mechanism defined by this rule ties maximum expenditure to the estimated level of revenue, which has been adjusted for business cycle effects. The purpose is to ensure that deficits run up in recessionary phases are offset by corresponding surpluses in phases of economic upswing. The brake is thus designed so as not to obstruct any (passive) contribution of fiscal policy to stabilising the economy.

7 Federal Commission for Economic Policy (2004), chapter 3, *L'évolution à long terme des finances fédérales*.

4.2 Economic trends

ANNE KLEINWEFERS LEHNER

The structural changes and adjustments described in chapter 4.1 took place over three economic cycles. The first of these was a classic cycle essentially covering the 1980s. A slight recession at the start of the decade was followed by a long upswing, culminating in a period of overheating and high inflation. The restrictive monetary policy introduced to combat inflation ended the cycle.

The second cycle, in the 1990s, was more unusual in many respects. It began with a six-year downturn that left a deep mark on the labour market and public finances. After that, Switzerland had trouble regaining such high growth rates as in the 1980s. Unlike the preceding cycle, inflation remained low during the brief peak phase around the turn of the millennium. The cycle then turned, owing mainly to a drop in foreign demand rather than to a restrictive monetary policy, and due also to the economic consequences of the events of 11 September 2001. The year 2002 can therefore be regarded as the start of the third cycle.

4.2.1 *First cycle: 1982–1990*

The Swiss economy slid into a mild recession in 1982 following a slowdown that ended the preceding five-year upswing. Nevertheless, the downturn was far less marked than the slump between 1974 and 1976.⁸ The 1982 recession affected both domestic and export demand. Following a massive expansion in liquidity in the late 1970s, the Swiss National Bank had switched to a restrictive monetary policy in 1980. Investment declined as interest rates rose, stalling the previously dynamic activity in the construction sector. At the same time, the dip in the global economy reduced demand for Swiss exports.

By mid-1983, the recession was over. Inflation dropped from 5.6 percent to just below 3 percent, permitting a more relaxed monetary policy. The government's fiscal programme provided additional stimulus, especially for the construction industry, and equipment investment also picked up strongly. The upswing was therefore driven by domestic demand, while exports remained flat at first. Over the next few years, exports rose considerably too, boosted by the recovery of the international economy and the strength of the US dollar. Coinciding with strong domestic demand, this led to a renewed boom in 1985.

8 For a comparison of these two recessions, cf., for example, OECD (1985), pp. 8 et seq.

In 1986/1987, Swiss exports were dampened considerably by the weakening of the US dollar. Having appreciated steadily since 1980, the greenback underwent a massive trend reversal, starting in the spring of 1985. Nevertheless, robust domestic demand meant that Switzerland merely registered a slight dip in growth in 1986/1987. As a result of the rapid growth in 1984/1985, production was operating close to capacity, prompting buoyant capital spending. As well as boosting equipment investment, this led to a strong rise in commercial and industrial construction activity. Consumer spending remained sound thanks to rising employment and higher real incomes.

In early 1987, domestic demand showed initial signs of weakening, and exports remained low. The US dollar continued its descent, prompting central banks to intervene to support it. As well as buying dollars, the SNB cut its discount and Lombard rates. Jittery currency markets and the uncertain economic outlook led to a crash on the New York Stock Exchange in October 1987. Given the close links between the international financial markets, the sell-off rapidly spread to all equity markets. Central banks worldwide raised liquidity substantially. The SNB also injected additional liquidity into the banking system and cut its rates further.

At the end of 1987, there was a great deal of uncertainty about the economic outlook. The US dollar was still depreciating and investor and consumer confidence had been undermined by the stock market crash. Contrary to widespread expectations, however, the economy did not drift into recession. In fact, the recovery was quick and strong.⁹ Boosted by low interest rates and high capacity utilisation, capital spending rose significantly. At the same time, exports increased in response to rising foreign demand and the weakness of the Swiss franc. Finally, consumer spending was shored up by a sharp rise in employment. In view of the firm economic recovery, the SNB reversed its interest rate cuts.

This notwithstanding, monetary policy measures were not sufficient to cool down the economy, which was working at full capacity.¹⁰ At the end of the long upswing, capacity limits were being reached and there were signs of overheating in a number of sectors. There was a massive skills shortage in the labour market, the construction industry was booming, and real estate prices were spiralling. By the end of 1989, inflation had soared to 5 percent.

9 OECD (1989), pp. 9 et seq.

10 This conclusion was drawn, for example, by OECD (1989), pp. 42 et seq.; OECD (1990), pp. 37 et seq.

Growth only started to decline gradually in 1990 as the far tighter monetary policy began to have an effect. While consumer spending continued to grow at the same pace, investment in construction and equipment lost momentum. The sharp rise in interest rates, the upsurge in building costs, and emergency legislation to curb the construction boom started to bring about a slowdown in this area. At first, Swiss exports remained robust. Although the geopolitical situation deteriorated in the wake of the Iraqi invasion of Kuwait, Switzerland benefited from the strong growth in Germany due to the country's optimistic mood following the fall of the Berlin Wall. Despite the cyclical downturn, inflation proved unexpectedly tenacious. In the previous year, it was mainly reflected in the rising price of imports, but now, spiralling rents and pay increases were fuelling domestic inflation.

4.2.2 *Second cycle: 1991–2001*

Although many indicators from the summer of 1990 onwards had pointed to a cyclical cooling, the onset of the downturn caught Switzerland unawares. Six years of economic weakness would bring major changes to Switzerland.¹¹ With growth lagging behind that of other countries, comparative prosperity declined sharply, unemployment failed to return to its former, extremely low level, and the previously sound public finances were thrown into disarray.

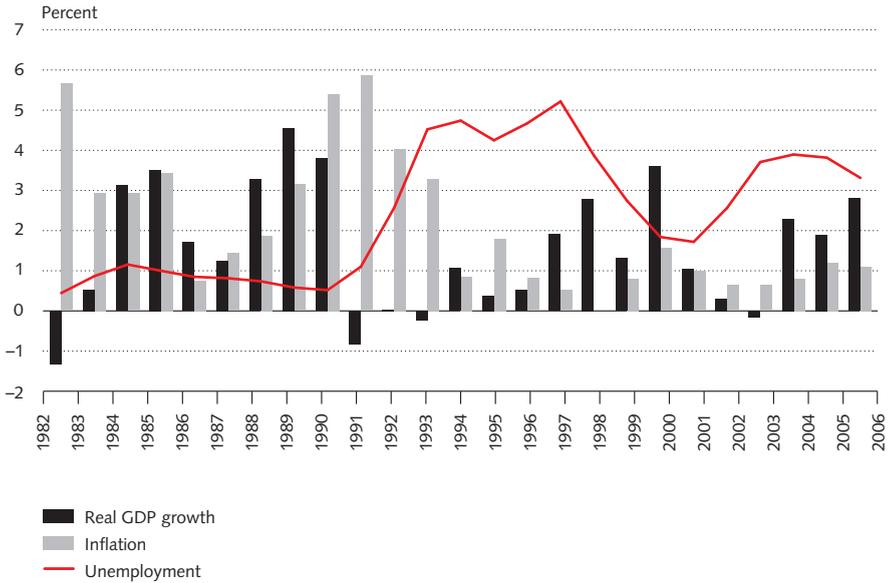
Persistently high inflation forced the SNB to continue its restrictive policy. Being financed largely by loans, construction activity was worst hit by the high interest rates. A sharp correction of the former excesses culminated in a deep and protracted crisis in the real estate and construction sectors. Declining property prices impaired corporate balance sheets and eroded household assets. Moreover, the downturn had a severe impact on the banking sector, sparking a crisis at the regional banks. It took until the late 1990s to resolve these problems (cf. chapter 7.3.3).

High interest rates and pessimistic forecasts by the corporate sector held back equipment investment. After the customary time lag, consumer spending was also hit by the cyclical downturn, as sentiment was shaken by the real estate crisis and a steep rise in unemployment. By mid-1991, the number of jobless had exceeded the peaks recorded in the early 1980s, and unemployment continued to rise unchecked.¹² The global dip in economic activity meant that exports contributed only marginally to growth.

11 An analysis of this period can be found, for example, in OECD (1997), pp. 1 et seq.

12 For details of the massive deterioration in the Swiss labour market, cf., for example, OECD (1993), pp. 66 et seq.

Graph 4.1
Economic growth, inflation and employment



Source: SNB, Monthly Statistical Bulletin (various years).

Inflation took longer than usual to respond to the tighter monetary policy, and the Swiss franc did not appreciate as it had in previous phases of monetary restriction. When inflation finally began to decline in mid-1992, the SNB relaxed its policy. Almost simultaneously, the Swiss franc rebounded. From then until the end of 1995, it rose almost continuously. Turbulence in the European Monetary System (EMS) in 1992/1993 put upward pressure on the Swiss franc. The subsequent two years were dominated by declining dollar exchange rates, followed by renewed tensions in the EMS in 1995.

After three years of recession, initial signs of recovery emerged towards the end of 1993. The upswing was driven by growing export demand. The improved outlook for the world economy coupled with pent-up demand boosted investment by the corporate sector, but spending on construction only enjoyed a temporary surge as a result of state support. Nevertheless, the uptrend was strong enough to trigger a slight improvement in the labour market. Declining unemployment and the increase in real incomes resulting from lower inflation improved consumer spending. In 1994, owing to a rise in both domestic and foreign demand, the Swiss economy returned to a growth path for the first time since 1990.

The economic upturn proved short-lived, however, possibly because of monetary conditions which – in hindsight – may be considered to have been too harsh. From mid-1994, real interest rates were very high, given the greatly reduced inflation rate, and the Swiss franc appreciated further. At the same time, the economy received no support from fiscal or structural policies. As public sector finances had deteriorated rapidly, the federal government and cantons implemented a range of restructuring programmes from 1992. However necessary these may have been, they initially had an adverse effect. The structural reforms announced following the rejection of European Economic Area membership also made very slow progress.

Both 1995 and 1996 were thus years of stagnation. Given the economic slowdown in Europe and the high exchange rate, exports made only a modest contribution to growth. Domestic consumption was affected by the continuous reduction in jobs and declining real incomes. Rises in taxes, social security contributions and health insurance premiums further eroded purchasing power. The crisis in the construction sector continued unchecked after the fleeting upswing in 1994. Equipment investment was thus the sole remaining buttress of the domestic economy. In view of the low capacity utilisation, investment in the corporate sector focused on modernisation and improving efficiency in response to increasingly tough international competition, rather than on expanding production capacity.

The SNB relaxed its policy in the spring of 1995, and the Swiss franc exchange rate began to normalise towards the end of the year. However, the economic turnaround came only in 1997. Boosted by the international upturn and the depreciation of the franc, exports rose significantly. Domestic demand initially remained low and the situation only began to improve once unemployment had peaked in June 1997. The civil engineering sector stabilised as the economic stimulation measures adopted in the spring boosted public sector orders. The following year, the global economy was overshadowed by renewed crises in East Asia and Russia, followed by the bursting of the international stock market bubble. Switzerland could not escape the drop in export demand, but this was offset by a renewed improvement in the domestic economy. Consumer spending proved robust thanks to lower unemployment and high real disposable incomes. This was accompanied by higher equipment investment and a resultant rise in capacity.

The crises in Asia and Russia were overcome in the course of 1999 and the financial markets recovered quickly, partly due to a massive injection of liquidity by the central banks. Foreign demand picked up, with the result that all gross domestic product (GDP) components contributed to growth in

this phase. One factor deserving special mention here is the steady growth momentum provided by equipment investment, especially in information and communication technologies (ICT). Driven by euphoric expectations, this sector experienced a real boom. Overall, Switzerland was able to report growth in excess of 3 percent in 2000, with the economy booming for the first time in ten years.¹³

From the spring of 1995, the SNB supported the economic recovery with an accommodating monetary policy. However, by 2000, there were mounting signs of inflationary pressure as capacity utilisation increased. The National Bank reacted by gradually raising interest rates, thus pushing up the Swiss franc against the euro.

In the second half of the year, the US economy lost momentum as the Federal Reserve tightened its monetary policy. The economic slowdown spread to Europe at the start of 2001, with Switzerland registering a drop in exports and – as a result of the less favourable outlook – equipment investment (especially investment in ICT, which had until then been booming). However, consumer spending remained buoyant. The terrorist attacks in the United States on 11 September 2001 were a severe shock to the international economy and the financial markets. Central banks around the world responded by providing more liquidity and cutting interest rates sharply. During the downswing that followed the attacks, the SNB cut interest rates to almost zero percent (cf. chapter 4.4.4).

4.2.3 *The economy since 2002*

Following the terrorist attacks in September 2001, consumption – which had been the economy's only remaining source of growth – dropped sharply. This initially triggered a period of economic stagnation and then a recession. In 2002/2003, both domestic and foreign demand were sluggish. Compounding the global economic downturn, the Swiss franc remained strong until the spring of 2003, thus hampering exports. Consumer confidence was dampened by a massive rise in unemployment between the end of 2001 and the end of 2003, while investment activity was affected by pessimism in the corporate sector.

From mid-2003, there were signs that the economy was picking up. The main contribution to growth came from the United States and Asia, whereas in Europe, the upturn proved slow to get off the ground. The international equity markets also pointed to an economic upswing: they started to rally after a protracted, three-year trough. In the foreign currency market,

13 OECD (2000), p. 25.

the SNB's expansionary policy now pushed the Swiss franc down against the euro.

The export-driven upturn only gradually spread to domestic demand and proved too mild to bring about any perceptible improvement in the labour market. Alongside the economic dip, tough international competitive pressure resulting from globalisation held back the creation of jobs in Switzerland. A similar phenomenon was observed in equipment investment. Although it picked up in the course of the upswing, the recovery was lower than in comparable phases in the past. Increased competition from other business locations around the world may once again have been a factor. As a result, neither consumption nor equipment investment gained any real momentum until well into 2005. The only dynamic segment of the domestic economy was residential construction, which rose strongly thanks to very low interest rates. Then, in 2006, despite strong increases in oil and energy prices, the economic situation in the industrialised countries began to improve noticeably. Economic activity in Switzerland also picked up significantly, spreading finally to the labour market.

4.3 The money supply as an intermediate monetary target

MICHEL PEYTRIGNET

4.3.1 Introduction

The Federal Constitution entrusts the Swiss National Bank with the conduct of “a monetary policy which serves the general interest of the country”.¹⁴ This concept was not given a more precise definition in the former National Bank Act (NBA) of 1953, whose art. 2 para. 1 reiterated the terms of the Constitution using a similar wording. When the new NBA entered into force on 1 May 2004, this role was spelled out in art. 5 para. 1 (cf. chapter 9.6.3). Until then, it had been left to the National Bank itself to define what it understood by “the interests of the country as a whole”. Since the Second World War¹⁵ and, in particular, since Switzerland had abandoned the Bretton Woods system of fixed exchange rates on 23 January 1973, the SNB had adopted the principle that the best way for monetary policy to serve the interests of the

14 Art. 39 para. 3 former Federal Constitution of 1874; since 2000, art. 99 para. 2 Federal Constitution of 1999.

15 SNB (1982), p. 97.

country as a whole was for its primary goal to be the preservation of the currency's purchasing power – in other words the maintenance of price stability. However, price stability, which excludes both inflation and deflation, has never been viewed as an end in itself, but merely as a necessary precondition for an environment within which an economy can develop in line with its potential. This informal interpretation of the National Bank's remit has always received widespread popular support and also prevailed when its role was defined in the new NBA.

By adopting the system of floating exchange rates in 1973, the SNB was able to devise and implement an autonomous monetary policy. With effect from 1975, it followed a strategy strongly influenced by the 'rules versus discretion' debate then raging in academic circles.¹⁶ In practice, the terms 'rule' and 'discretion' can have different meanings from those defined in the literature. Rule is normally defined as the systematic use of data and information based on a preselected range of indicators as a way of guiding the actions of the central bank in a consistent manner over time. After 1975, the SNB's monetary policy was based on this definition, and a number of related principles were made public. These principles were intended to give the central bank's decision-making process a consistent logic, while allowing it a degree of flexibility to respond to events. More specifically, the National Bank's approach to monetary policy has been strongly influenced by monetarist principles, which constituted the dominant strand of monetary theory at the time.¹⁷ In so doing, it was one of the first central banks, together with Germany's central bank, the Deutsche Bundesbank, to opt for a strategy based on a monetary rule.¹⁸

The following principles underpin this strategy. Firstly, it is accepted that inflation and deflation are fundamentally monetary phenomena. This first conclusion is based on the quantitative theory of money, which emphasises the causal role of money in the inflationary process. Excessive money supply growth cannot provide any lasting stimulus to activity beyond the economy's growth potential, and is consequently bound to have repercussions on price levels. The monetary aggregates, which are instruments for measuring the quantity of money in circulation in the economy, thus have a special role to play in monetary policy decisions. Steering the monetary aggregates therefore serves as a nominal anchor for the economy.

16 Cf., for example, Friedman (1960), pp. 77–101; Kydland and Prescott (1977); Barro (1986); McCallum (1987); McCallum (1989), pp. 237–248; and more recently Woodford (2003).

17 Cf., for example, Brunner (1968); and more recently Chrystal (1990).

18 Bernanke et al. (1999), p. 43.

A second principle is that the central bank should refrain from attempting to fine-tune economic developments by means of monetary policy. This is because, firstly, there are long and variable delays between monetary policy initiatives and their impact on the real economy and on prices – delays that in Switzerland can extend to three years – and, secondly, knowledge of these transmission mechanisms is quite rudimentary. An overly proactive policy may therefore operate against prevailing trends and produce undesired effects for the economy as a whole.

On the basis of these theoretical principles, defining and adhering to an intermediate monetary target should ideally enable the central bank to meet its goal of price stability. It is for this reason that the National Bank set growth targets for the M_1 monetary aggregate between 1975 and 1978, and later – after a brief hiatus in 1978 and 1979 due to extremely turbulent conditions in the foreign exchange markets (cf. chapter 2.4.2) – for the monetary base between 1980 and 1999.¹⁹ Experience with M_1 had shown that it was difficult for the SNB to control this aggregate using the monetary base. Direct control of the monetary base therefore seemed an attractive alternative. Thus, as both the 1978/1979 intermission and, later, the change of target monetary aggregate in 1980 show, the SNB took a pragmatic approach to adapting its policy to changing circumstances. In doing so, it accepted the ineluctable fact that Switzerland, as a small open economy with a large financial market, was always liable to be hit by numerous and frequent shocks, particularly from abroad.

4.3.2 Annual targets in terms of the adjusted monetary base

Gradual restoration of price stability: 1980–1985

After examining the relative advantages of the various monetary aggregates for the purpose of setting a quantitative target, the National Bank came to the conclusion that the monetary base was the measure best able to fulfil the role of an intermediate monetary target.²⁰ The demand for base money was relatively stable and its sensitivity to interest rate fluctuations was low.²¹ Moreover, the link between money creation and subsequent fluctuations in price levels was similar for both M_1 ²² and the monetary base. As the mon-

19 M_1 is defined as the sum of cash in circulation and sight deposits of non-banks in commercial banks. The monetary base comprises notes in circulation held by the public and commercial banks as well as the latter's sight deposits with the SNB.

20 Rich and Schiltknecht (1980), p. 169; Rich and Béguelin (1985), p. 86.

21 Kohli (1984, 1985, 1989).

22 Rich and Béguelin (1985), p. 78.

etary base was wholly controllable, it complied better than M_1 or any other more broadly defined monetary aggregate with the criteria needed to act as an effective intermediate target. In December of each year, the SNB published a growth target for the monetary base to apply for the following twelve months. Allowing for an acceptable rise in prices of 1 percent, potential growth in the real economy of roughly 2 percent and an increase in the velocity of circulation of some 1 percent, a monetary base growth rate of approximately 2 percent per annum could be expected to be compatible with a balanced development of the economy and the maintenance of price stability. However, this could only be a guide with medium-term validity. In the shorter term, allowances had to be made for the economic situation as it appeared at the time.

The National Bank only set a growth target for the monetary base for 1980. From 1981 onwards, it replaced that aggregate with a variant; namely, the adjusted monetary base – i.e. central bank money adjusted for the estimated amount of loans from the SNB to the commercial banks at month-end to enable them to meet the minimum liquidity requirements stipulated by law (cf. chapter 4.6.2).

At the beginning of the 1980s, economic conditions were unfavourable. Inflation was on a rising trend, and would peak at 6.5 percent in 1981. Concerned about the economic effects of an excessively restrictive policy, the SNB adopted a gradualist approach in order to move progressively towards the medium-term target for monetary expansion. It therefore set an annual growth target of 4 percent for the monetary base in 1980 and 4 percent for the adjusted monetary base in 1981. Although these rates were higher than the level of medium-term monetary expansion of 2 percent, they reflected a relatively restrictive monetary policy in view of the inflationary expectations prevailing in the economy in 1980 and 1981. These expectations incorporated, in particular, the repercussions of the second oil price shock and, with the characteristic time lag, the effects of the excessive money creation resulting from interventions in the foreign exchange market in 1978. However, the National Bank must have been surprised by the very marked upturn in inflation in 1980, because, according to recent research, it believed at the time that it had already reabsorbed a large part of the surplus liquidity injected into the market to stem the appreciation of the Swiss franc.²³ To combat a further rise in inflation fuelled both by the rising oil price and the weakness of the franc, the SNB decided in 1980 to adopt a more restrictive monetary policy than

23 Kugler and Rich (2002), p. 247.

envisaged when the target was set. Thus, in 1980, the rate of growth of the monetary base did not reach the targeted level of 4 percent.²⁴ A second factor helped to explain why the growth of this monetary aggregate had undershot the target. Removal of the last remaining measures to combat the inflow of funds from abroad (namely a ban on paying interest on deposits and the use of a negative rate of interest) had caused an unexpected dip in the growth of large-denomination notes held by non-residents as a way of circumventing these restrictions. For 1981, the National Bank set a monetary target “slightly above” its longer-term target rate of monetary expansion. It justified its decision by the fact that forecasts for the trend in the international economy were particularly uncertain.²⁵ However, the anti-inflation measures had still not produced the desired results. Rising prices proved more obdurate than expected, owing to the fact that the economic situation was more buoyant inside than outside Switzerland, combined with the depreciation of the Swiss franc.²⁶ The National Bank was thus again compelled to adopt a more restrictive monetary policy than originally planned. In view of these circumstances, the SNB failed for the second consecutive year to meet its monetary growth target. However, from 1982 onwards, inflation finally began to abate.

In the period from 1982 to 1985, the National Bank reduced its annual target for monetary expansion from 4 to 3 percent, thus bringing it gradually closer to the 2 percent rate it considered appropriate in the medium term. The target was set at 2 percent from 1986 onwards. Between 1982 and 1986, these targets were, on the whole, achieved relatively successfully. Compared to the value achieved in 1981, the target chosen for 1982 represented a degree of relaxation. The SNB considered this appropriate in view of the strength of the Swiss franc in late 1981 and early 1982, but also in the light of the deteriorating economic outlook in Switzerland.²⁷ The overshooting of the money supply target in 1983 was tolerated because of the interventions in the foreign exchange markets, while a tendency to undershoot in 1984 was the result of lower-than-expected growth in the volume of notes in circulation. The SNB did not offset this phenomenon with an adjustment to sight deposits. It thus allowed an upward correction in interest rates in the money market, which, incidentally, was justified by the economic recovery and proved adequate in terms of the aim of combating inflation.²⁸ For 1985, the target for the

24 SNB, Annual Report, 73^e *rapport de gestion* (1980), pp. 8, 25.

25 SNB, Annual Report, 73^e *rapport de gestion* (1980), p. 9.

26 SNB, Annual Report, 74^e *rapport de gestion* (1981), p. 7.

27 SNB, Annual Report, 75^e *rapport de gestion* (1982), p. 8.

28 SNB, Annual Report, 76^e *rapport de gestion* (1983), p. 10; 77^e *rapport de gestion* (1984), p. 7.

Table 4.1
Growth targets for the monetary base and actual rates of change

Year	Target aggregate	Target ¹	Actual ¹	CPI ¹
1980	MB	4 ²	2.0 ²	4.0
1981	MBA	4	-0.5	6.5
1982	MBA	3	2.6	5.7
1983	MBA	3	3.6	3.0
1984	MBA	3	2.6	2.9
1985	MBA	3	2.2	3.4
1986	MBA	2	2.0	0.8
1987	MBA	2	2.9	1.4
1988	MBA	3	-3.9	1.9
1989	MBSA	2 ³	-1.9 ³	3.2
1990	MBSA	2 ⁴	-2.6 ⁴	5.4

MB: monetary base

MBA: adjusted monetary base

MBSA: seasonally adjusted monetary base

CPI: consumer price index

- 1 Year-on-year change in percent.
- 2 The growth target and actual rate of change for 1980 related to the level of the MB in mid-November 1980 as compared to its level in mid-November 1979.²⁹ From 1981 to 1988, the growth target and actual rate of change of the MBA were the arithmetic mean of the twelve monthly rate of change for this aggregate compared to the corresponding period in the previous year.³⁰
- 3 The growth target and actual rate of change of the MBSA for 1989 were the arithmetic mean of the twelve monthly rate of change for this aggregate, each calculated against the average level for the MBSA for the final quarter of 1988, annualised and centred on November.
- 4 The growth target and actual rate of change of the MBSA for 1990 related to the average of the fourth quarter of 1990 compared to the fourth quarter of 1989.

Source: SNB, Annual Report (various years).

adjusted monetary base was left at 3 percent, as it was difficult to predict the impact on the Swiss economy of the sharp slowdown then affecting US economic growth. However, from the early part of 1985, all cyclical indicators were pointing towards buoyant economic growth. The SNB was therefore able to introduce a slightly tighter monetary policy, a direction it underlined by reducing the growth target for the adjusted monetary base to 2 percent for 1986.³¹ Price stability was only restored in that year, with the rate of inflation falling back to 0.8 percent, a situation which was to last until 1988.

29 SNB, Annual Report, *73^e rapport de gestion* (1980), p. 25; Rich (2003) p. 26.

30 Rich and Béguelin (1985), p. 89.

31 SNB, Annual Report, *78^e rapport de gestion* (1985), p. 8.

By pursuing a significantly more restrictive monetary policy than predicted in 1980 and 1981 – and, to a lesser extent, in 1984 and 1985 – the SNB had given priority to re-establishing price stability to the detriment of strict compliance with monetary targets. In order to protect its credibility, it explained the reasons for these divergences in its various publications by emphasising the fact that monetary rules should not be applied in a dogmatic manner.³²

Overall, the experience of setting an annual growth target for the adjusted monetary base proved to be a positive one. Having taken over from M_1 in 1980, this more narrowly defined aggregate had helped to regain control over inflation, which had risen in a largely predetermined fashion and thus indicated to the National Bank the direction to be pursued in order to re-establish price stability.

From 1989, however, inflation once again began to rise, reaching a level of 5.8 percent in 1991. It is generally accepted in Switzerland that monetary policy exerts an impact on price levels only after a time lag of approximately three years. The cause of inflation between 1989 and 1992 was therefore the excessive money creation between 1986 and 1989. How was such an unexpected increase possible? Did it have anything to do with the central bank's choice of the monetary base as its reference monetary aggregate? And why was the problem not identified in time?

A transition period: 1986–1990

From mid-1986, the National Bank provided the commercial banks with more liquidity at the end-of-month settlement dates.³³ In previous months, banks' demand for liquidity to meet their legal requirements had led to short-lived but massive increases in interest rates at the end-of-month settlement dates. Even rates of approximately 125 percent had been seen. To combat this phenomenon, the SNB adopted a more flexible approach, increasing the annual rate of growth in sight deposits from an average of 2.9 percent on the first six monthly settlement dates in 1986, to 6.1 percent on the final six.³⁴ The outcome of this was a fall in short-term rates in the second half of the year. Despite this liquidity effect, the annual growth target for the adjusted monetary base was achieved with great accuracy in 1986. At the end of that year, the SNB stated its intention to leave monetary policy in 1987 unchanged from that in force in 1985 and 1986, a level of rates that was intended to ensure

³² Kohli and Rich (1986), p. 925.

³³ SNB, Annual Report, *79^e rapport de gestion* (1986), p. 8.

³⁴ *Ibid.*

favourable conditions for non-inflationary economic growth.³⁵ Unfortunately, circumstances were to dictate otherwise.

In 1987, various events conspired to thwart the National Bank's intentions. During the first half of the year, the rapid depreciation of the US dollar and the resulting uncertainties led the SNB to refrain from any attempt to drain liquidity from the banking system, notwithstanding a stronger-than-expected rise in notes in circulation. The reason for this decision was the National Bank's fears that higher interest rates in the money market would only serve to push the Swiss franc even higher. However, in the second half of the year, a sharp recovery in world trade fuelled an unexpected rise in exports, despite the fact that the franc had remained strong. Economic activity was stimulated and the output gap closed by the end of the year. After the stock market crash of October 1987, the SNB – like other central banks – temporarily increased the volume of liquidity. These events explain why the target for expansion of the adjusted monetary base was exceeded in 1987.

As evidence of its intention to maintain flexibility in a particularly uncertain economic climate, the National Bank decided to set a 3 percent growth target for the adjusted monetary base for 1988.³⁶ From the beginning of the year, two technical innovations had had a major impact on the demand for central bank money. Firstly, a new electronic interbank payments system – Swiss Interbank Clearing (SIC) – was introduced in Switzerland in mid-1987 (cf. chapter 5.2.3). Its introduction enabled commercial banks to reduce their liquidity needs drastically for any given volume of payments. Secondly, changes to the provisions on liquidity, which came into force on 1 January 1988 and allowed the banks to hold lower balances in their sight deposits with the central bank, eliminated the extreme interest rate volatility seen at the end-of-month settlement dates (cf. chapter 4.6.2). The banking system needed time to adjust to these changes, and the demand for sight deposits – and consequently the demand for central bank money – fell only gradually. Although it understood the reasons for the fall-off in demand for money when setting the 1988 target,³⁷ the SNB was surprised by the extent of the decline. This situation temporarily ruled out the use of the monetary base as an indicator and, in January 1988, triggered a sharp fall in short-term interest rates. Having lost its principal point of reference, the National Bank acquiesced in the repeated shifts in demand for central bank money, with the result that this

35 Ibid.

36 SNB, Annual Report, *80^e rapport de gestion* (1987), p. 8.

37 SNB, Annual Report, *80^e rapport de gestion* (1987), p. 9.

aggregate fell significantly below its allotted growth target. At this point, it should be noted that the 3 percent target for 1988 should have had a different role from that applying in previous years – namely, to reflect the SNB's monetary policy in a situation of a stable demand for money.³⁸ By monitoring changes in interest rates as a guide to its policy during this troubled period, the National Bank tried to avoid swamping the financial markets with liquidity. It gradually absorbed the liquidity surplus, causing a gradual rise in short-term interest rates, which from mid-1988 reverted to their level at the end of 1987. The SNB was not overly concerned with the sharp fall in yields in the money market at the beginning of 1988, as long-term rates had barely reacted at all. Financial markets thus showed that they had interpreted these liquidity shocks correctly, viewing them as temporary phenomena.

However, in the light of developments in lending and the more broadly defined monetary aggregates, money creation had already proved substantial prior to 1987. In 1986, bank lending had grown by 9.1 percent in real terms, while the M₃ monetary aggregate rose by 6.2 percent. However, the National Bank paid only limited attention to the developments of these indicators, which were considered unstable and therefore likely to give inaccurate signals. The SNB's scepticism was probably justified, considering the information available to it at the time. The demand functions for these aggregates did in fact pose problems of stability when their parameters were estimated using data available up to the end of 1987.³⁹

Although the level of money market interest rates returned to normal during 1988, the National Bank was unable to neutralise the repercussions of excessive money creation quickly enough in an economic climate of 'pre-overheating'.⁴⁰ Inflation thus began to rise from 1989 onwards. To combat this trend, the SNB continued to limit the supply of liquidity, resulting in an increase in short-term interest rates from 3.8 percent in July 1988 to 9.5 percent in January 1990.

The economic situation in Germany at the time was exacerbating the problems of managing monetary policy in Switzerland. Rising interest rates in the Federal Republic, partially reflecting the effects of reunification, diminished the effectiveness of the transmission mechanism for monetary policy via the exchange rate. The net result was a depreciation of the Swiss franc notwithstanding Switzerland's higher interest rates. However, from the autumn of

38 Rich (1990a), p. 555.

39 Peytrignet (1996a); Peytrignet and Stahel (1998).

40 SNB, Annual Report, *81^e rapport de gestion* (1988), p. 11.

1990, the SNB tried to make its monetary policy marginally less restrictive. The reason being that, apart from the franc's increased attractiveness as a safe haven currency after the onset of the Gulf crisis, which made this relaxation possible, it was aware of the risk posed by the increasingly apparent peaking of the economic cycle.⁴¹ As the measure was taken prematurely, foreign exchange markets were swift to react. The Swiss franc fell again, convincing the SNB to abandon any idea of relaxing its restrictive monetary policy. Hence growth of the monetary base was negative in 1990 (−2.6 percent).

Changes in the monetary base were well below the targets set for 1989 and 1990, despite the fact that the National Bank had adjusted its method of calculation to take account of the structural changes occurring in 1988. Moreover, the annual targets for 1989 and 1990 were set in terms of the seasonally adjusted monetary base, rather than the adjusted monetary base, which had become obsolete after the revision of the liquidity requirements.

Apart from the temporary sidelining of the monetary base as a main indicator for monetary policy between 1988 and 1990, and the use of money market interest rates as additional benchmarks,⁴² the enduring consequences of these shocks were a revision of the National Bank's approach to monetary policy and the change to a more flexible system. However, critics at the time wondered whether it would have been preferable for the central bank to fix exchange rates during that turbulent period. In the view of some economists, "the level of interest rates and inflation would be lower today if the SNB had implemented an exchange rate policy, rather than focusing on the monetary aggregates when the Swiss Interbank Clearing (SIC) system was introduced in 1987".⁴³ The SNB's chief economist rejected that view, arguing that if the SNB had pursued the strategy proposed, Swiss money market interest rates would, with all probability, have risen to exactly the same extent. Moreover, inflation would have risen more sharply than shown in the simulations (referred to in the article from which the previous quote was taken).⁴⁴

4.3.3 *Multi-annual targets for the seasonally adjusted monetary base: 1991–1999*

After a number of years of failing to hit the intermediate monetary target, the National Bank was obliged to revise its approach to monetary policy. However, it remained convinced that the monetary base would restabilise

41 SNB, Annual Report, 83^e *rapport de gestion* (1990), pp. 8–9.

42 SNB, Annual Report, 82^e *rapport de gestion* (1989), p. 12.

43 Capitelli and Buomberger (1990), p. 551.

44 Rich (1990a) p. 565.

once the banking system had completed the process of adapting to the innovations introduced in the late 1980s. It therefore wished to continue using it as its target aggregate, due to its lower sensitivity to interest rate variations than M_1 or M_3 .⁴⁵ However, there was now a greater need for flexibility, for a number of reasons.⁴⁶

1. Experience in the 1980s had shown that a strategy based on annual targets for monetary expansion was ill-suited to ride out the shocks affecting a small open economy. The most appropriate strategy would therefore be one that allowed monetary policy to be sufficiently flexible to absorb these shocks without necessarily conflicting with achievement of the intermediate target.
2. Financial and technological innovations (in particular the more widespread use of cashless payment systems) were liable to destabilise demand for narrowly defined monetary aggregates, such as central bank money, while also conflicting with the pursuit of the annual monetary target.
3. Finally, the proportion of sight deposits in the monetary base had fallen sharply, from 25 percent before the launch of SIC and the new liquidity requirements to less than 9 percent after these changes. With over nine-tenths of central bank money consisting of notes in circulation, this exacerbated a problem that had already existed prior to the changes. Although still possible over an annual horizon, the process of offsetting changes in the demand for banknotes by a variation of the same magnitude in the supply of sight deposit funds would certainly have given rise to increased volatility in money market interest rates, which could have triggered undesirable fluctuations in the exchange rate of the Swiss franc.⁴⁷

The National Bank therefore decided, for 1991 and subsequent years, to set a multi-annual target for the seasonally adjusted monetary base. In opting for this solution, it retained a medium-term monetary point of reference, while accepting slightly laxer control of this aggregate in the short term. At the same time, it reduced the annual rate of increase of its target aggregate from 2 to 1 percent. This reduction was not indicative of any desire to pursue a more restrictive monetary policy. However, given that innovations in payment systems had lowered the underlying rate of growth in the demand for banknotes, and since banknotes in circulation had now increased as a percentage of the monetary base, it was necessary to make a slight reduction in

45 SNB, Annual Report, 83^e *rapport de gestion* (1990), p. 10.

46 Peytrignet (2000), p. 240.

47 Peytrignet and Schwarz (1990), pp. 4–5.

the targeted medium-term expansion of the seasonally adjusted monetary base.⁴⁸ An average annual increase of 1 percent in this aggregate was considered sufficient to allow for average economic growth of 2 percent, without posing a threat to price stability as implicitly defined (1 percent) in the calculation of the target.

In terms of the multi-annual target, the National Bank initially refrained from announcing a precise time horizon, merely defining an order of magnitude of between three and five years.⁴⁹ The multi-year target related to the average growth rate of the seasonally adjusted monetary base in the last quarter of each year compared to the corresponding period in the previous year. At the end of each year, the SNB published a prediction of the rise in this aggregate for the following year, this prediction being compared to the average target rate of 1 percent. In the National Bank's 1991 Annual Report, for instance, it was forecast that the seasonally adjusted monetary base would probably increase in 1992 as it had in 1991, at a rate slightly in excess of the medium-term target of 1 percent.⁵⁰ This announcement was purely indicative in nature, intending to give the financial markets an idea of the probable trend for the seasonally adjusted monetary base over the next year. It was not intended, therefore, to be taken as an annual target for monetary expansion. In order to reinforce the transparency of its actions during the year, the SNB also decided to publish a quarterly forecast of the seasonally adjusted monetary base. This forecast also represented an indication for the benefit of the financial markets, and was not intended to be interpreted as a monetary target.

For the sake of even greater transparency, the National Bank began, in March 1993, to publish a graph showing the medium-term growth path of its target aggregate (cf. graph 4.2). This showed the ideal path to be followed by the seasonally adjusted monetary base in conditions of price stability and with real growth in the Swiss economy consistently in line with potential. The medium-term growth path was thus intended to provide a better understanding of the way the monetary base was actually evolving in comparison with its ideal trend line.⁵¹ By publishing this graph in its Quarterly Bulletin in March 1993 and its Annual Report in 1992, the National Bank was providing the public with three items of information: the target path had a fixed slope of 1 percent, its starting point was the final quarter of 1989, and the period covered was four years, namely from the end of 1989 to the end of 1993. However,

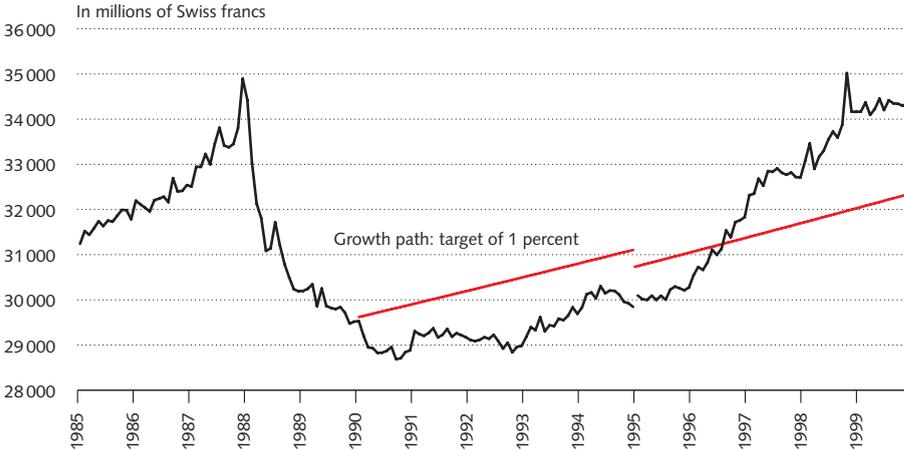
48 SNB, Annual Report, 83^e *rapport de gestion* (1990), pp. 10–11.

49 SNB, Annual Report, 84^e *rapport de gestion* (1991), p. 8.

50 SNB, Annual Report, 84^e *rapport de gestion* (1991), p. 11.

51 SNB (1993), p. 57.

Graph 4.2
Seasonally adjusted monetary base



Source: SNB, Monthly Statistical Bulletin (various years).

the graph published in the 1993 Annual Report extended over a five-year period, from the end of 1989 to the end of 1994.

By retroactively selecting the fourth quarter of 1989 as the starting point for the reference path in 1993, the National Bank was placing it firmly above the 1990–1992 levels for base money. It was thus allowing for the fact that monetary policy had been severely restrictive in 1989 and 1990 and that the economy was now growing below its potential. A period of catching-up was therefore necessary before reverting to the target path. The aim was to avoid a situation in which normalisation of real monetary conditions would be achieved by putting downward pressure on the general level of prices. In December 1992, there was another reason to suggest that the choice of the end of 1989 as the starting point for the medium-term growth path was an appropriate one. With adjustment to SIC and the revision of the liquidity requirements now theoretically complete, the SNB believed that it had reabsorbed the bulk of the surplus liquidity generated by the expansionary monetary policy of 1987 and early 1988.⁵²

With an expansion of 1.4 percent in 1991, the seasonally adjusted monetary base moved in line with the National Bank's expectations, namely at a higher rate of growth than the medium-term target. However, it was only in mid-1992, when prices in Switzerland fell sharply and the European

52 SNB, Annual Report, *85^e rapport de gestion* (1992), p. 9; Rich (1997b), p. 32.

monetary system went into crisis – thereby relieving the downward pressure on the Swiss franc – that the SNB was effectively able to loosen the reins of its monetary policy.⁵³ In 1992, however, expansion of the seasonally adjusted monetary base remained negative (–1 percent), due largely to a reduction in the demand for banknotes. This reduction was a consequence both of the economic cycle and of the highly restrictive monetary policy adopted in the first half of the year, which was transmitted only belatedly to the demand for banknotes through an increase in the interest paid on savings accounts. Finally, in 1993, expansion of the monetary base reached 2.8 percent, reflecting the relaxation of monetary policy that the SNB had been hoping to achieve for several years.

From the end of 1992 until the middle of 1994, base money came close – as desired – to its medium-term growth path, although without actually achieving it. The situation altered radically during the second half of 1994, when demand for this aggregate declined.⁵⁴ The National Bank reacted to this change by allowing money market rates to fall, although the drop was in effect rather modest. Fears of a resurgence in inflation following the introduction of value added tax (VAT) in January 1995, predictions of rapid cyclical growth in the economy in 1995, and rising yields in the capital markets in Switzerland and abroad, potentially signalling an increase in inflationary expectations, had made the SNB highly circumspect. The gap between the seasonally adjusted monetary base and its growth path thus widened in the final few months of 1994, suggesting that monetary policy was becoming overly restrictive. Georg Rich later regarded the SNB's moderate reaction to the sharp appreciation of the Swiss franc as a mistake.⁵⁵

The first period in which a multi-annual monetary target was applied ended in December 1994. Results were mixed. On the one hand, price stability had been restored and inflation reduced to below 1 percent. On the other, the National Bank had clearly failed to hit its intermediate target, with an average growth rate of the seasonally adjusted monetary base of 0.2 percent over five years and a 4 percent divergence – measured in the final quarter of 1994 – from the target growth path. This gap was primarily due to the fact that it had appeared necessary to leave a restrictive monetary policy in place longer than initially expected. The SNB had been forced to combat particularly stubborn inflation, fuelled by the Swiss franc's endemic weakness during

53 SNB, Annual Report, *85^e rapport de gestion* (1992), p. 10.

54 SNB, Annual Report, *87^e rapport de gestion* (1994), p. 9.

55 Rich (2003), p. 6.

Table 4.2
Multi-annual targets for the seasonally adjusted monetary base and actual rates of change

Year	Target aggregate	Target ¹	Actual ¹	CPI ¹
1990	MBSA	1.0	-2.6 ²	5.4
1991	MBSA	1.0	1.4 ²	5.9
1992	MBSA	1.0	-1.0 ²	4.0
1993	MBSA	1.0	2.8 ²	3.3
1994	MBSA	1.0	0.6 ²	0.9
1990–1994 ³		1.0	0.2	

1 Year-on-year change in percent.

2 Percentage change calculated for the fourth quarter of the current year compared to the fourth quarter of the previous year.

3 Average.

Source: SNB, Annual Report (various years).

the early 1990s. The gap was also the result of the gradual adaptation to the 1988 innovations of the demand for liquidity from the banking system. In 1991, improved liquidity management allowed banks to reduce significantly their demand for sight deposit funds.⁵⁶ Declining public demand for banknotes, as a consequence of the increasingly widespread use of cashless payment methods since the beginning of the 1990s, undoubtedly exerted further influence on demand for base money.⁵⁷ Lastly, some critics also suggested that the medium-term growth path had perhaps been set at too high a level.⁵⁸ Nevertheless, these different shocks did not destabilise long-term demand for base money to such an extent that the SNB felt it necessary to reconsider its entire approach to monetary policy.

The conclusion to be drawn from this summary is that, during this five-year period, the National Bank gave priority to re-establishing price stability rather than meeting the intermediate monetary target. However, by clearly indicating the route to be followed in order to adjust the money supply in the medium term and, consequently, to re-establish normal monetary conditions after the period of restrictive monetary policy at the start of the 1990s, the monetary growth path played the useful role of indicator and guideline that can reasonably be expected from a monetary rule.

56 SNB (1994), p. 267.

57 Peytrignet (1996b), pp. 23–24; BIS (1996).

58 Genberg and Kohli (1997).

In December 1994, the National Bank decided to maintain the principle of a multi-annual target defined in terms of the seasonally adjusted monetary base. It set a new target for the period from 1995 to 1999.⁵⁹ To take account of the influence of the aforementioned factors on the demand for money, and of the introduction of VAT in January 1995, it decided on a downward shift – amounting to a net 0.4 billion Swiss francs – in the medium-term growth path.⁶⁰ However, it left the starting point for the new path above the effective level of the seasonally adjusted monetary base for January 1995, in order to pave the way for the re-establishment of neutral monetary conditions during subsequent years. In view of the fact that “unexpected shifts will always be possible in the demand for money, due particularly to innovations in payment systems”, the SNB indicated that it was reserving the right to “reconsider periodically both the reliability of central bank money as a monetary policy indicator, and the growth path” and that it intended to monitor “the trend of the other monetary aggregates closely”.⁶¹

To inform the financial markets of the intended direction of its short-term monetary policy, the National Bank continued to publish a quarterly forecast of the expansion of the seasonally adjusted monetary base and, at year-end, an indication of the trend for that aggregate for the forthcoming year.

In January 1995, there was a break in the series of the seasonally adjusted monetary base (cf. graph 4.2). From that point onwards, sight deposits consisted solely of the deposits of banks domiciled in Switzerland, whereas previously they had included the deposits of a number of banks not subject to the Banking Act. In 1995, the annual rates of change in the seasonally adjusted monetary base were calculated on the basis of adjusted data from 1994 and published in the SNB's Monthly Statistical Bulletin for February 1995.⁶²

In December 1994, the National Bank considered bringing the seasonally adjusted monetary base closer to its medium-term growth path by causing it to rise at an annual rate of approximately 2 percent in 1995.⁶³ Despite the fact that economic conditions were hugely different from those anticipated, since the Swiss franc had risen by 7.2 percent, and inflation and growth were both in decline, the seasonally adjusted monetary base increased by 1.4 percent in 1995. In the money market, interest rates fell from 4 percent to around

59 SNB, Annual Report, *87^e rapport de gestion* (1994), p. 11.

60 SNB (1994), p. 268.

61 SNB, Annual Report, *87^e rapport de gestion* (1994), p. 12.

62 SNB, Annual Report, *88^e rapport de gestion* (1995), p. 39; SNB, Monthly Statistical Bulletin (1995), February, p. VII.

63 SNB, Annual Report, *87^e rapport de gestion* (1994), p. 12.

2 percent. This development was confirmed by a four-stage reduction in the discount rate.

In 1996, the seasonally adjusted monetary base expanded at a rate of considerably more than 1 percent. This development had been predicted in December 1995, although the extent of the rise exceeded expectations. The reasons for this were a new problem with the stability of the target aggregate and the fact that monetary policy had become more expansionary than planned owing to an unexpected period of economic weakness and the need to counter the deflationary trend resulting from the strength of the Swiss franc. By August, the seasonally adjusted monetary base had already crossed the medium-term growth path, whereas it had been expected merely to draw closer to this path during the course of the year.⁶⁴

From the standpoint of monetary policy strategy, the seasonally adjusted monetary base was affected by two further structural shocks – the first in mid-1996, the second at the beginning of 1997. In 1996, a number of banks changed their behaviour in relation to liquidity. They increased the balances held in sight deposits with the National Bank to the detriment of balances in postal cheque accounts. This triggered an increase in the demand for base money, which the SNB supplied in order to prevent a rise in interest rates – and such a rise would have been particularly unwelcome in view of the depressed state of the economy.⁶⁵ In 1997, the number of banknotes in circulation began to increase much more sharply than was to be expected given the lowering of the interest rate on savings that accompanied the shift to a more expansionary monetary policy. The increase mainly manifested itself in the large denominations.⁶⁶ The combination of these shocks had such an impact on the monetary base that, as an aggregate, it significantly overestimated the extent of expansion of the SNB's monetary policy in subsequent years (cf. graph 4.2). Faced with the uncertainties in interpreting the signals transmitted by the seasonally adjusted monetary base, the National Bank announced in 1997 that it would in future make greater use of supplementary indicators, namely the more broadly-based monetary aggregates, and in particular M_3 .⁶⁷

In the period immediately afterwards, the SNB refrained from making any more significant changes to monetary policy. This was because the advent of the European Economic and Monetary Union was to have a profound impact on the monetary environment in Switzerland. With effect from 1999,

64 SNB, Annual Report, *88^e rapport de gestion* (1995), p. 11.

65 SNB, 89th Annual Report (1996), p. 32.

66 SNB, 90th Annual Report (1997), p. 32.

67 SNB, 90th Annual Report (1997), p. 29.

the currencies of eleven European states, including those of its closest neighbours, were replaced by the euro. Anticipation of this monetary revolution – combined with its awareness of the fragility of the Swiss economy, which at that time was still being driven solely by export growth – convinced the National Bank that it should focus its attention even more closely on the development of economic activity and trends in the Swiss franc's exchange rate. It had ample latitude for this, given that the moderate expansion of M_3 remained compatible with medium-term price stability, while turbulence in the Asian financial markets, together with the Russian and Brazilian crises of 1998, were also dampening the economic climate.

The National Bank thus followed an expansionary policy virtually until the end of the decade. Three-month interest rates stood at 1.6 percent on average between January 1996 and September 1999. During the initial months of 1999, the SNB strove to keep the Swiss franc exchange rate against the euro as stable as possible. Its task was eased by the convergent cyclical trend of the Swiss economy and the economies of the euro area countries. In April 1999, the National Bank cut its discount rate from 1 to 0.5 percent, at the same time as the European Central Bank was also lowering its key rates. From September onwards, the prospect of an increasing shortage of liquidity at the end of the year, undoubtedly influenced by the information technology risk associated with the year 2000 changeover (the so-called Y2K phenomenon), provoked a rise in the rates on certain deposits. The SNB tolerated this increase, as the business cycle – which by then had moved into a more vigorous phase – was tending to exacerbate inflation risks.⁶⁸

As far as the seasonally adjusted monetary base was concerned, the strategy of medium-term targets was abandoned at the end of 1999. A new approach to monetary policy, drawn up during the course of that year, replaced it with effect from January 2000.

4.3.4 *Conclusion*

The strategy based on the use of intermediate monetary targets, which was pursued in various guises between 1980 and 1999, enabled the National Bank to obtain results that can be considered as generally satisfactory. By interpreting these targets pragmatically, the SNB was able to re-establish price stability after the bouts of inflationary pressure triggered not only by its massive interventions in the foreign exchange markets in 1978 and 1979 in an attempt to counter the rise of the Swiss franc, but also by a monetary policy

68 SNB, 92nd Annual Report (1999), p. 40.

that had remained overly expansionary in view of a clearly falling demand for base money from 1988 onwards. This strategy also enabled Switzerland to maintain an independent and credible monetary policy, which undoubtedly contributed to the fact that Swiss short and long-term interest rates were on average 1.5 to 2 percentage points below corresponding rates in the European economies.

The monetary policy adopted throughout this twenty-five year period enabled Switzerland to register an average rate of inflation of 2.8 percent from 1975 to 2000. This rate, although perfectly respectable in international terms, is nonetheless more than twice the 'desired' rate of 1 percent used in the calculation of the monetary targets. According to Rich, the problem lay in an inappropriate response by the SNB to disturbances such as unexpected exchange rate shocks. Using a small macroeconomic model with rational expectations, Rich has shown that when faced with time lags between money creation and inflation, the SNB faces a conflict between price stability and short-term production on the one hand, and long-term price stability on the other. In particular, if the SNB had wanted to optimise its reaction to an unexpected change in the predilection of investors for particular financial assets, it should have accepted very high exchange rate volatility in the short term, as a way of preserving long-term price stability.⁶⁹

Moreover, by focusing on intermediate targets expressed in terms of the monetary base – a very narrowly defined aggregate – the National Bank perhaps failed to pay sufficient attention to the growth in lending and in monetary aggregates in the broader sense, which occurred between 1986 and 1987. These were very probably instrumental in the creation of a property bubble and in fuelling a re-emergence of inflation. The resulting anti-inflationary measures, together with the deterioration triggered by the bursting of this bubble – and its repercussions not only on the balance sheets of companies and banks, but also on the financial situation of households – contributed to the economic downturn of the early 1990s (cf. chapters 4.1.2 and 4.2.2).

However, it can be argued that the use of a monetary aggregate as an intermediate target – or, more realistically, as a main indicator – for Swiss monetary policy proved useful by enabling the long-term repercussions of monetary policy decisions to be kept in focus.

69 Rich (1997a), pp. 113, 140.

4.4 The path to interest rate management and inflation forecasts

THOMAS J. JORDAN AND MICHEL PEYTRIGNET

4.4.1 *Reasons for changing the monetary policy strategy*

During the second half of the 1990s, distortions in demand for base money increasingly called into question the suitability of the monetary base as a reference value for an intermediate monetary policy target. Initially, the Swiss National Bank responded by using the M_3 measure of money supply as an additional indicator.⁷⁰ However, once demand for base money had evidently become too unstable, in November 1998, the Governing Board mandated Department I to conduct a comprehensive review of the SNB's monetary policy strategy and, should it prove necessary, to draft a proposal for a new strategy.⁷¹

The working group formed for this purpose first looked into the extent to which an essentially monetarist strategy with an intermediate monetary target might still be considered. According to economic theory, this type of strategy would be possible if there were a monetary aggregate that satisfied the following three conditions:

Firstly, demand for the monetary aggregate must be sufficiently stable for a clear correlation between money supply growth and inflation to exist in the long term. The working group's investigations confirmed that this no longer held true for the monetary base and that there was no prospect of stabilisation in the near future. However, a range of econometric studies had shown that, despite widespread innovation in the financial sector and changes in payment patterns, more broadly defined monetary aggregates remained relatively stable during the 1980s and 1990s.⁷² Given their stability, the broad money supply measures – M_1 , M_2 and M_3 – would thus have made suitable reference values for determining an intermediate target – not forgetting, of course, that stability in the past is no guarantee of stability in the future.

Secondly, the central bank must be able to control the monetary aggregate in order to exert the desired influence on inflation. However, broad monetary aggregates are more difficult to control than the monetary base, which the central bank largely determines itself as an item in its own balance sheet. Fluctuations in M_1 , M_2 and M_3 reflect not only the influence of monetary policy, but also the volume of lending by banks to households and companies,

70 SNB, 90th Annual Report (1997), p. 32; SNB, 91st Annual Report (1998), p. 34.

71 SNB, Minutes of the Governing Board (1998), 19 November, no. 488.

72 Peytrignet (1996a); Peytrignet and Stahel (1999).

and the form in which households and companies hold their credit balances with and claims against the banks. Yet bank lending and bank deposits are not determined solely by the short-term money market rate – which can be controlled directly by the SNB. They are also affected by long-term interest rates, which are influenced to a considerable extent by the market's expectations of future developments. It is therefore difficult for a central bank to control a broad monetary aggregate with any great precision. Despite such difficulties, the Deutsche Bundesbank – Germany's central bank – has demonstrated that it is indeed possible to operate a successful monetary policy on this basis. That said, the National Bank's rather mixed experience with M_1 targets in the second half of the 1970s (cf. chapters 2.4.2 and 4.3.1) would suggest that broad aggregates could not be controlled sufficiently in Switzerland and that, despite stable money demand, the SNB would have had problems introducing such a strategy.

Thirdly, the monetary aggregate must not react too sharply to changes in interest rates so that the relationship between growth in the money supply and future inflation, even in the short and medium term, is easy enough for the public and the central bank itself to follow. If monetary aggregates are sensitive to interest rate changes, there will only be a low correlation in the short to medium term between the inflation rate and money supply growth during phases of volatile interest rates. The central bank must then expect its monetary policy to be error-prone and must also be aware that communication with the public could become a delicate issue, even if it has sufficient control over the money supply. For example, if it relaxes monetary policy in a recession, the money supply will move far away from its target, even if the reduction in interest rates is only minor. If the central bank interprets this incorrectly as a sign of resurgent inflation, it will probably act too hastily and change its expansionary course too soon. It might also make mistakes if interest rates were to move as a result of some event in the market, thereby prompting a sharp reaction from the money supply. In this case, too, the central bank might misunderstand the response as a threat to price stability. Yet even if a central bank steers clear of such mistakes, its policy may still be misconstrued by the general public. For example, if the money supply reacts sensitively to movements in interest rates and thus deviates from its target, the public may gain the impression that the central bank has abandoned its firm line on price stability. In Switzerland, the broad monetary aggregates M_1 , M_2 and M_3 are relatively interest-sensitive. At the time in question, this fact militated strongly against a strategy which included an intermediate target for one of these aggregates. Indeed, the SNB would probably have been forced

frequently to deviate from its money supply targets.⁷³ This is illustrated by the period from 1994 to 1998, in which declining inflation and interest rates led to a sharp rise in the money supply without endangering price stability. In phases like this, the National Bank would have found it difficult to explain these complex relationships to the public.

4.4.2 Cornerstones of a modern strategy

In the light of these difficulties, the working group advised the Governing Board to develop a completely new approach, rather than simply rolling over its existing money supply strategy. According to the group's recommendations, the new approach should factor in both SNB experience and the latest economic research findings. However, despite its thorough revision, the new strategy should also guarantee a certain continuity and independence for Swiss monetary policy in order to maintain the credibility that the SNB had built up in the past. With this in mind, the working group did not simply want to adopt either inflation targeting (which several central banks introduced at that time) or the two-pillar strategy of the newly founded European Central Bank (ECB). The new strategy should continue to guarantee a transparent monetary policy based on clear rules, so that the public would be able to predict correctly how the SNB would act and therefore form expectations for long-term inflation that were compatible with the National Bank's intended policy. At the same time, however, it should allow for a pragmatic monetary policy and provide the Governing Board with sufficient leeway to respond flexibly to shocks. The working group established three basic principles to be observed when drawing up the strategy:

- Firstly, price stability must remain the primary aim of Swiss monetary policy. Economic literature is unanimous in concluding that a central bank's most important contribution to economic growth is to maintain price stability. This view is also supported by the SNB's own experience and the reactions of the Swiss public during times of inflation.
- Secondly, in making its monetary policy decisions, the SNB should pay greater attention to the future, since there is a considerable time lag between monetary policy impulses and the reaction of both the economy and inflation. The SNB should therefore remain able to gain a comprehensive overview of the current and future economic situation. It must also have a clear idea of how monetary impulses are transmitted to the

73 Kugler and Rich (2002).

real economy – something that was unnecessary with a monetarist strategy. Since opinions on these transmission mechanisms differ, no dogmatic restrictions should be imposed on analysis and forecasting models so that as many aspects of monetary policy as possible can be factored in. With a pragmatic approach, the various measures of money supply should continue to play a major role for as long as they supply useful information about long-term inflation trends.

- Thirdly, monetary policy decisions should be communicated more effectively. In the 1990s, for example, the SNB found it difficult to explain monetary policy using intermediate monetary targets that were announced only once a year, or even less frequently (cf. chapter 4.3.3). The markets and the general public alike find it much easier to follow monetary policy if the central bank announces its decisions about operational interest rate targets. Communication then reflects the conditions that the central bank is seeking to bring about in the money market in the short term. For this reason, operational targets should relate to an interest rate that is published daily, rather than to a given measure of money supply (cf. chapter 4.6.5).

4.4.3 The SNB's new strategy

The new monetary policy strategy was drawn up by the working group in the spring and summer of 1999. It then went through several rounds of discussions and amendments before being adopted by the Governing Board in the autumn of 1999. The strategy came into effect in December 1999 and represented the most important conceptual change in the SNB's monetary policy since the move to floating exchange rates in 1973.⁷⁴ However, the objective of monetary policy – to maintain price stability – remains unchanged. The strategy is based on the following three elements: an explicit definition of price stability as a long-term anchor, an inflation forecast as the main indicator for monetary policy decisions, and a target range for the three-month Libor as an operational objective.

Explicit definition of price stability as a long-term anchor

Intermediate targets were based implicitly on a definition of price stability even during the monetarist-style policy phase from 1974 to 1999. Since the SNB was dispensing with money supply targets, it had to define price stability in explicit terms in order to give the markets and the general public a point of

⁷⁴ SNB (1999); Meyer (2000); SNB, 92nd Annual Report (1999), p.33.

reference for its medium to long-term policy direction. In so doing, it created an anchor for long-term inflation expectations and trends in nominal economic figures – as well as a benchmark against which its monetary policy could be measured. The SNB defined price stability as an annual rise of less than 2 percent in the consumer price index (CPI). However, as the SNB stated clearly on a number of occasions, a sustained decline in prices was not compatible with this definition.⁷⁵

There was a long period of debate before the SNB was able to reach a consensus on an exact definition of price stability. One of the factors standing in the way of agreement was that various SNB exponents had given slightly differing definitions of price stability to the public in the past. The index to which the definition should relate was high on the agenda. Because of its familiarity to the Swiss population, the consumer price index emerged as the best choice here. The choice of a less well-known measure of inflation, such as the core inflation rate, would have made communication more difficult. The CPI is not, however, an ideal measure of actual inflation, because the weightings of the individual goods in the basket remain unchanged for a set period, even though consumers themselves adjust what they buy as prices change, new products appear in the market and the quality of existing products is improved. The index is therefore subject to a margin of error. Initially, the National Bank estimated that the CPI overstated actual inflation by some 0.5–1 percent. Moreover, fluctuations in the CPI of ± 1 percent on either side of the core inflation trend are nothing unusual and require no monetary policy response. With these considerations in mind, the SNB concluded that inflation of up to 2 percent, measured using the CPI, equated to actual price stability.

A second point of discussion was whether, in addition to a ceiling, a floor should be set for price stability. For a number of reasons, the SNB decided against setting a lower limit, and therefore also against an explicit bandwidth. Firstly, a band of between 0 and 2 percent would have implied a stability target of 1 percent with an assumed variance of ± 1 percent. However, the SNB did not want to give the impression of targeting exactly 1 percent inflation at all times, since it believes that any positive rate of inflation of less than 2 percent essentially means price stability, and it is of no material importance whether this rate is closer to 2 percent or less than 1 percent over the long term. The National Bank is neither willing nor able to control this area precisely. Secondly, the SNB did not want to set a floor for inflation that would have corresponded to the CPI's supposed margin of error. For one thing, the

75 Cf., for example, SNB (1999), p. 9.

exact tolerance was not known, and for another the SNB wanted to avoid having to respond to every revision of the CPI calculation method (which would also have changed this margin of error) by amending its definition of price stability.

Inflation forecast as a main indicator

The National Bank needed to replace the money supply target with a new guideline for its monetary policy decisions. Given the long time lag – up to three years – between a monetary stimulus and its effect on growth and prices, it seemed appropriate to use an inflation forecast. Although movements in the money supply could have been seen as a rudimentary prediction of price trends, the SNB found that gearing monetary policy to only one such information variable could occasionally cause problems. The inflation forecast should therefore be broad-based and factor in all of the relevant information. Since the Governing Board also requires a certain amount of leeway in its decision-making, under the new strategy the inflation forecast would serve as a main indicator and not as an intermediate target in itself. This means that, under certain circumstances, the SNB may take decisions that need not be based (entirely) on the inflation forecast.

The SNB draws up its inflation forecast using a variety of econometric models (both structural and time series models) and individual indicators (such as the output gap, the monetary conditions index, the yield curve, the exchange rate and excess money). Expert knowledge is then used to synthesise this information into a consensus forecast. The short end of the forecast horizon (up to one year) is dominated by time series models and financial market indicators such as the exchange rate and yield curve. Where the horizon is between one and two years, the outlook is shaped by structural models and indicators drawn from analyses of economic activity. Monetary indicators are the primary source of data for longer-range forecasts of over two years.

The importance and weightings of the various models may change over time. The SNB has taken a conscious decision not to develop a central forecasting model. One of the reasons for this was that, when the new strategy was introduced, it did not yet have enough experience to rely on a single forecasting model. Another reason is that there are still too many gaps in its knowledge of monetary transmission mechanisms for it to be able to replicate reality satisfactorily using a single model. Furthermore, the absence of a central model makes it easier to incorporate new indicators and models, as well as new theoretical findings, into forecasting activities. This openness should allow the SNB continually to improve its forecasting techniques.

National Bank forecasts assume a three-month interest rate that remains unchanged for the whole of the forecasting period, in other words it works with conditional forecasts. If a forecast at a given interest rate level shows a sustained deviation from price stability, then monetary policy action is required. However, the SNB does not react mechanically, as would be the case if it were operating a strict inflation targeting strategy. In fact, it is the economic climate that chiefly determines how quickly interest rates will be adjusted.

The inflation forecast should also play an important role in communications, boosting the transparency of monetary policy. The National Bank therefore publishes its forecast regularly. Until 2002, this took place every six months, in June and December, at a press conference following a monetary policy assessment meeting. The SNB moved to quarterly publication in March 2003, releasing point forecasts without stating the margin of error. The risks attached to these forecasts are explained by the SNB in an accompanying press release. Also released alongside the forecasts are outlines of the global economic scenarios on which the latest forecasts are based.

Target range for three-month Libor as an operational objective

The National Bank puts its monetary policy into practice by determining a target range for the three-month Swiss franc Libor as its operational objective. This range is usually one full percentage point. The SNB also announces at which part (upper half, centre or lower half) of the target range it is aiming. Libor is an interest rate that a top-rated bank pays for an unsecured loan in the money market. The British Bankers' Association (BBA) fixes it daily at 11.00 a.m. For the Swiss franc market, the Association bases its calculations on the interest rates of at least eight banks, selected by virtue of their reputation. In working out the mean value, the BBA excludes the quartiles that give the highest and lowest interest rates.

This type of operational goal is unusual in three respects. Firstly, rather than using a very short-term money market rate (such as the overnight rate) as its reference rate, the SNB uses a market rate with a term of three months. Secondly, it determines a target range rather than a point target. Thirdly, the target refers to an interest rate that is set outside the Swiss market.

This choice was prompted partly by the SNB's need – given the great openness of the Swiss economy and the close international ties of its financial sector – to respond swiftly to changes in the financial markets. This often means limited, short-term intervention in the money market to smooth out exogenous distortions or nip them in the bud. The SNB did not make its operational target public while it was operating a monetarist policy. It was therefore able

to respond very flexibly to disruption in the financial markets and deviate temporarily from its operational target, without having to explain its actions to the public. With the new and more transparent strategy, the National Bank had to find an operational target that would allow it sufficient flexibility. With a target range for a three-month interest rate, it can vary its injections of liquidity for short periods without immediately jeopardising its operational objective. There is, however, another reason to have a broad target range: unlike the overnight rate, the three-month rate is not fully under the control of the central bank. It also reacts to the market's expectations of future trends.

The SNB opted for the Libor as its reference interest rate for three reasons: it is economically relevant, it cannot be manipulated by individual participants in the market and there was no suitable alternative in Switzerland. The National Bank does not see the fact that the Libor is set in London as a problem. This is because, with its monetary policy operations and as the only institution that can create Swiss franc liquidity without restriction, it still influences all Swiss franc money market rates worldwide.

Role of monetary aggregates and exchange rates

Even under the new monetary policy strategy, monetary aggregates are still important indicators that the National Bank uses in its inflation forecasts. M_3 , in particular, is a good indicator over a forecasting horizon of two years or more. Yet the rate at which the monetary aggregate is growing is not the only factor of interest. The money overhang, which results from the difference between the observed level and a theoretical equilibrium level, also has an important role to play. Furthermore, monetary aggregates provide advance information about current economic activity, because they are available much earlier than national accounts data, and subsequent adjustments tend to be minor.

Exchange rates – especially the Swiss franc rate against the euro – also play their part in the new strategy, as their trend is an important factor in the inflation forecast. In addition to having a direct impact on inflation through import prices, they have an indirect impact via their influence on foreign trade and thus the utilisation of production capacity. However, the SNB does not pursue any exchange rate targets.

Decision-making under the new strategy

The introduction of the new strategy has also affected the process by which monetary policy decisions are made. The SNB still holds quarterly monetary policy assessments (in March, June, September and December), but

the preparations for decision-making – which remain the task of Department I – are much more laborious than under the monetarist strategy.

One base scenario and generally two alternative scenarios on global economic developments are submitted to the Governing Board for approval about six weeks prior to a quarterly assessment. These scenarios form the basis of the forecasts. In an effort to make the decision-making process more efficient, the SNB prescribed that the Governing Board agree on the basis for its decisions at the very start of the forecasting process. Economists then produce the forecasts using econometric models, after which the competent bodies discuss the findings and agree on a consensus forecast. Approximately one week before the quarterly assessment, the Governing Board receives a package of background documentation, along with a specific proposal for monetary policy in the immediate future. The Governing Board then takes its decision on monetary policy at the assessment meeting itself, and instructs Department III to put this decision into effect.

Communication and transparency

In parallel with the introduction of the new concept, the SNB also wanted to improve the transparency of its monetary policy and the way in which it is communicated. It made a great effort to explain and document its strategy in detail to the public. It therefore also published the key models on which its inflation forecasts were based in its Quarterly Bulletin.⁷⁶

Moreover, the National Bank has made every effort to provide information on current policy. After each quarterly assessment, it publishes a comprehensive press release stating the current target range for the three-month Libor and the area within the band that it aims to reach, as well as the new inflation forecast. The SNB believes it is very important to provide reasons for its monetary policy decisions and does so at press conferences following the quarterly assessments in June and December. A few weeks after the quarterly assessment, a detailed presentation of all the indicators relevant to monetary policy appears in a corresponding report in the Quarterly Bulletin.

When decisions on monetary policy are made outside one of the quarterly assessments, the SNB also publishes a press release giving both the reasons for the decision and the new target range. However, such cases are not accompanied by any new SNB inflation forecasts. Another important element in the communications strategy is the attendance of National Bank senior

76 Jordan and Peytrignet (2001); Stalder (2001); Jordan et al. (2002); Jordan and Savioz (2003).

management and economists at events and conferences, where they explain the SNB's monetary policy strategy or its current monetary policy.

Differences compared with inflation targeting

Many central banks that have moved away from money supply objectives describe their new monetary policy strategy as inflation targeting. Although its own strategy has certain elements in common with inflation targeting, the SNB consciously refrains from using the term to describe its new monetary policy approach. The key differences, in its view, are the following:

- Although the SNB strategy uses a definition of price stability, it does not actually set a target for inflation. In applying this distinction, the SNB wishes to emphasise that its stability objective is a long-term one and that it does not wish to amend it for the sake of short-term political considerations. By contrast, countries that practice inflation targeting will generally adjust their inflation targets from time to time.
- Within the framework of its statutory and constitutional mandate, the SNB itself defines exactly what it means by price stability. This is a fundamental difference compared with strategies in which the government determines the inflation target. It is therefore impossible in Switzerland for the Federal Council or Parliament to be swayed by political or other reasons to set an inflation target that is incompatible with price stability.
- A further essential difference is that, in the SNB's strategy, the inflation forecast is the main indicator for monetary policy, but not an intermediate target in itself. The SNB's strategy does not provide for any fine-tuning of inflation, and the National Bank is also able to accept temporary deviations from the price stability zone if circumstances so demand. For example, after an inflationary shock, it may exercise a degree of discretion with regard to the period within which it wishes to return to price stability. It is therefore able to take into account the consequences of its policy for the real economy. By contrast, with true inflation targeting, the central bank must at all times gear its monetary policy towards ensuring that its intermediate target – the inflation forecast – corresponds exactly to the inflation target for the time horizon given.

4.4.4 Monetary policy in the context of the new strategy

The SNB's policy since the introduction of the new strategy can be broken down into three phases: the first phase, from December 1999 to mid-2001, was characterised by a gradual tightening of the monetary policy reins. This was followed by a period of expansion in which the National Bank reduced

its key interest rate to almost zero percent. This period lasted until the first half of 2004. The third phase then saw the SNB move gradually towards normalisation.

Phase 1: end of 1999 to the spring of 2001 – tightening

When the SNB presented its new strategy at a press conference on 10 December 1999, it spoke of a slight tightening of its monetary policy for 2000. It set the target range for the three-month Libor at 1.25–2.25 percent and published its first inflation forecast on the assumption of a constant Libor of 1.75 percent. It also predicted a slight upward trend in inflation over the following three years – albeit not on a scale that would jeopardise price stability.

However, it became increasingly clear as early as January 2000 that Switzerland's economic recovery would be much more vigorous than had been expected in December 1999, thanks to the strength of the global economy in general and the relative weakness of the Swiss franc. From mid-January, the SNB thus steered the Libor to the upper reaches of the target range before going on to raise the range itself by a total of 1.75 percentage points in three steps before the year was out.

The first interest rate move came as early as 3 February – i.e. even before the first quarterly assessment – when the target range was moved upwards by half a percentage point to 1.75–2.75 percent. The National Bank aimed the Libor at the middle of the new range. It regarded this unscheduled rate rise as necessary because the Swiss franc had weakened against the dollar, producing an undesirable relaxation in the monetary environment.

The economic data announced after the first rate increase soon confirmed that the Swiss economy had picked up considerably in the second half of 1999 and, furthermore, that the upswing had a broad base. The first signs of overheating were emerging in the labour market, while the Swiss franc remained relatively weak. Given the circumstances, the SNB wanted to move quickly to forestall a rise in inflation. In a similar situation at the end of the 1980s, its response to a rapidly expanding economy had come too late – and the National Bank wanted to avoid repeating the mistake. At the quarterly assessment on 23 March 2000, the SNB therefore raised the Libor target range by 75 basis points to 2.5–3.5 percent, and aimed initially at an interest rate in the middle of this range. The scale of the second rate rise was an unusually clear signal to the markets of the SNB's determination to counter the growing inflation risk and to pursue a monetary policy independent from that of the ECB. Having traded at around 1.60 against the euro since early 1999, the Swiss franc now appreciated markedly, further boosting the restrictive policy impact.

Economic growth continued to pick up nonetheless. Since expectations of higher interest rates had pushed the Libor towards the top of its range as early as the first half of June, the SNB decided at its 15 June 2000 assessment to raise interest rates for a third time. It upped the target range by a further 50 basis points to 3–4 percent and aimed thereafter for a Libor of 3.5 percent. At the same time, the National Bank published its second inflation forecast. This showed that price stability was assured in the medium term thanks to the timely tightening of monetary policy. However, the sharp economic upswing and rise in the oil price, coupled with the long time lag with which monetary policy action affects price trends, led the SNB to expect a temporary increase in inflation to above the 2 percent mark during 2001. It was assuming, however, that the measures that had been taken to rein in the money supply would bring inflation back below 2 percent as early as 2002. At its quarterly assessments on 14 September and 8 December 2000, the SNB therefore decided to leave the target range unchanged at 3–4 percent and to continue to aim for a Libor of 3.5 percent.

The unexpected rise in inflationary pressure in early 2000 had exposed the new strategy to a test of strength only shortly after its launch. It passed the test with flying colours. The inflation forecast and the selection of a broad base of information on which the SNB now made its decisions proved to be very useful and successful in terms of both monetary policy decisions themselves and communications. The broad target range provided the SNB with sufficient leeway when putting its policy into practice, while the early test also gave the National Bank the opportunity to convince the markets of the virtues of its ECB-independent monetary policy very soon after the new strategy had been introduced. The media and the general public responded positively to the strategy and recognised that it constituted a major step forward with regard to transparency.

Phase 2: spring of 2001 to mid-2004 – relaxation and low interest policy

Economic risks rose appreciably during the first quarter of 2001. Although the export industry was still able to benefit from robust economic activity in the rest of Europe, the unexpectedly abrupt downturn in the US economy, the bursting of the equity bubble worldwide and the slowdown in Asia threatened to put the brakes on Switzerland's export growth very soon. The SNB was forced to scale back its growth forecasts despite comparatively healthy domestic demand. This and the decline in the oil price prompted the National Bank to reassess inflation risks. It had become much less likely that inflation would exceed 2 percent. The SNB therefore decided at its assessment

on 22 March 2001 to adjust its course a little, bringing the Libor target range down by 25 basis points to 2.75–3.75 percent.

The target range was then left unchanged at the SNB's next quarterly assessment on 14 June 2001. Its forecast – based on a Libor of 3.25 percent – foresaw inflation settling at almost 2 percent for the next three years. A short time later, however, it became clear that economic growth in the US would be lower than anticipated. The same was true of Europe, and especially of Germany. The SNB was forced once again to downgrade its growth outlook for Switzerland.

Following the terrorist attacks of 11 September 2001, the SNB decided on 17 September – three days before its scheduled assessment – to reduce interest rates in solidarity with the US Federal Reserve and the ECB in order to counter uncertainty in the world's financial markets. It lowered the target range by half a percentage point to 2.25–3.25 percent; a move that had been expected by the markets and that the Governing Board would in any case have made at its regular assessment on 20 September. Once again, the SNB was aiming for a Libor in the middle of the target range.

Since several central banks cut their interest rates at the same time, the interest differential between currencies remained virtually unchanged. The Swiss franc nonetheless appreciated against both the euro and the US dollar in the wake of the tragic events as it reverted once again to its historical role as a safe haven. This led to the SNB expressing concern about the strength of the franc, particularly against the euro. At an extraordinary assessment meeting on 24 September 2001 – only seven days after its previous rate reduction – the National Bank decided to lower its target range by another half a percentage point to 1.75–2.75 percent in order to offset the tighter monetary framework produced by the franc's appreciation.

The same percentage point reduction was adopted at the next assessment, on 7 December 2001, taking the target range to 1.25–2.25 percent in response to a dramatic deterioration of the global economic outlook and the rise of the Swiss franc, as well as subdued prospects for inflation. The inflation forecast published at the same time remained well under 2 percent throughout the forecasting period.

The Governing Board then decided at its 21 March 2002 assessment to leave its monetary policy unchanged. It nonetheless explicitly reserved the right to respond swiftly to any unexpected changes in the world economic situation or to turbulences in the foreign exchange markets. In view of the franc's continued appreciation, the SNB lowered repo rates by approximately one-eighth of a percentage point just a few days later. This resulted in the

Libor declining by the same margin. At an extraordinary assessment meeting on 2 May 2002, the Governing Board responded to the Swiss franc's stubborn strength by again lowering the target range by half a percentage point to 0.75–1.75 percent. This move was followed by another cut – also unscheduled – on 26 July 2002. The target range now stood at 0.25–1.25 percent. This relaxation had been preceded by reports that suggested economic growth would fail to live up to expectations. The SNB subsequently stood firm in its expansionary stance because, given the imponderables surrounding global economic growth, it did not expect the Swiss economy to recover before mid-2003. It did not see any threat to price stability in the short or medium term. Meanwhile, the inflation forecast of December 2002 showed that this policy was incompatible with price stability over the long term.

The economic situation deteriorated once again at the beginning of 2003 and there were fears that the US and Europe could slide into deflation. The general uncertainty was further heightened at this time by the conflict in Iraq. The business climate in Switzerland had become considerably more down-beat and a recovery in the second half of the year no longer seemed a realistic prospect. Furthermore, there was still the risk of a renewed appreciation of the Swiss franc. Inflation fell sharply to only just over zero percent, and the SNB was no longer ruling out a dip into negative territory. At just over 0.5 percent, the Libor was well below its original target value. Against this backdrop, the Governing Board called another extraordinary assessment meeting on 6 March 2003, at which the National Bank lowered its target range by a further 50 basis points to 0.0–0.75 percent, while keeping the Libor at around 0.25 percent for the time being. This cut the width of the target range to just three-quarters of a percentage point. To achieve its aims, the SNB was carrying out repo transactions at 0.11 percent, which represented an all-time low for short-term interest rates in Switzerland. The scope and timing of the decision surprised the markets, but in retrospect it proved the perfect tactical move. The SNB's signal was such a strong one that the franc depreciated gradually over the months that followed. Despite the relatively small reduction in interest rates, the SNB managed in this critical phase to initiate a much more expansionary monetary policy in order to head off the danger of deflation.

At the end of 2002, the SNB had announced that, in the future, it would publish its latest inflation forecast at the same time as its quarterly assessments. The markets and the general public had a new forecast as early as March 2003. It was based on a Libor of 0.25 percent and predicted that inflation would rise as of mid-2004. In the light of an even more expansionary monetary policy, the forecast was higher than that given in December 2002.

Had monetary policy remained unchanged, the upper price stability limit would have been breached in the course of 2005. However, the SNB judged the intervening period as sufficient to adjust its expansionary course and to guarantee price stability even in the medium term. It therefore held its target range at 0.0–0.75 percent, with a target Libor of 0.25 percent, up to the middle of 2004.

The SNB faced major monetary policy challenges during this second phase. However, the new strategy enabled it to appropriately counter a series of negative shocks to the global economy – specifically the bursting of the technology bubble in the equity markets, the uncertainty that prevailed following the terrorist attacks of 11 September 2001, the outbreak of the SARS respiratory disease and the start of the Iraq war. By lowering the Libor target range by a total of 3.25 percentage points, the National Bank succeeded in halting the Swiss franc's uptrend without endangering price stability, amid developments to which the Swiss economy was extremely sensitive. The decision taken on 6 March 2003 was a perfect example of the SNB's refusal to follow the inflation forecast slavishly. Even though a reduction in interest rates was not the obvious solution at the time, the Governing Board – having carefully assessed all the risks – was still able to lower the Libor target range.

Phase 3: mid-2004 onwards – gradual normalisation

The reduction of interest rates to almost zero percent was undertaken in extraordinary circumstances. As the danger of deflation receded, the SNB sought a suitable means of moving away from its policy of ultra-low interest rates. The debate on this 'exit strategy' centred on the timing of and intervals between the necessary rate increases. The Governing Board decided to pursue a gradual process of normalisation, the pace of which would depend on how the economy and inflation developed over time. It took the first step on 17 June 2004, when it lifted the target range by 25 basis points to 0–1 percent, restoring its original width of one percentage point. Within this range, the SNB aimed for a Libor of 0.5 percent. Monetary policy remained extremely expansionary even after this increase, since it was intended to support the emerging economic recovery. Assuming a Libor of 0.5 percent, the inflation forecast for 2004–2006 pointed to a mean rate of less than 2 percent. This would accelerate rapidly from the middle of 2005, however. At the quarterly assessment on 16 September 2004, the Governing Board established that economic activity had picked up in step with the National Bank's predictions and could be expected to continue. It therefore decided to raise the target range by a further 25 basis points to 0.25–1.25 percent.

The SNB decided at its assessment meeting on 16 December 2004 to suspend the process of monetary policy normalisation for the time being because the economic recovery in Switzerland was slowing down. Combined with the weakness of the US dollar and the reduction in the money overhang, this meant that medium-term inflationary pressures had abated. According to the forecast, inflation would not have picked up until 2006 had monetary policy remained unchanged, yet maintaining the normalisation strategy at this point might have jeopardised recovery.

Economic activity in Switzerland remained subdued into the first half of 2005. Weakness in Europe, in particular, made for disappointing growth in Swiss exports and capital spending. The record high oil price also caused mounting uncertainty about the prospects for the world economy. The National Bank was therefore able to maintain its expansionary monetary policy and continue to underpin the economy. The quarterly assessments of 17 March, 16 June and 15 September 2005 saw the Governing Board leave the target range unchanged at 0.25–1.25 percent. Although inflation forecasts pointed to an easing of inflationary pressure in the medium term, the forecast inflation rate exceeded the 2 percent mark at the end of the period. The SNB signalled to the markets that this made a future rise in interest rates inevitable, and that it would return to its normalisation policy as soon as the economic recovery was on a firmer footing. It also monitored developments in the property markets closely, since mortgage borrowing was rising very rapidly and there was a risk of the property market becoming distorted.

Signs of a stronger and broader-based recovery gathered during the second half of 2005 and became particularly evident as the year drew to a close. The Governing Board therefore decided at its 15 December 2005 assessment meeting to return to its normalisation policy and to lift the Libor target range by 25 basis points to 0.5–1.5 percent. Despite the adoption of a higher Libor, the new inflation forecast continued to point to a breach of price stability at the end of the forecasting period. The Governing Board stressed the need for a further, gradual monetary policy correction that should be made in step with economic recovery. The SNB made this correction in 2006 – the Governing Board raised the Libor target range at each quarterly assessment, so that by the end of the year, the Libor stood at 1.5–2.5 percent.

In the third phase, the SNB faced the task of normalising its expansionary monetary policy without choking the economic recovery. The new strategy made it easier to instigate this demanding normalisation process in the money market without affecting the foreign exchange market. There was sufficient room for manoeuvre to interrupt this process for a short time in view of the

weak economy, even though inflation at the end of the forecasting period would exceed the 2 percent mark. With its information policy and its operations in the money market, the SNB was also able to influence the market's interest rate expectations to reflect its own during this delicate phase.

4.4.5 Evaluating the new strategy

The SNB's mandate is to operate monetary policy in the overall interests of the country and to guarantee price stability while taking economic developments into account. The new strategy is a central element in the National Bank's independent fulfilment of this mandate. In the six years since its introduction, it has proven remarkably successful in an economic climate that has been characterised by great international turbulence and major monetary policy challenges. The SNB has been able to respond flexibly to a series of major shocks without endangering price stability. Between 2000 and 2006, average inflation was just under 1 percent per year. It did not exceed the 2 percent mark, which the SNB has set as the ceiling for price stability, in any month during this period. The strategy made it possible to exploit the available scope for fostering economic growth, without forcing medium and long-term inflation forecasts outside the range considered to represent stable prices. The SNB also succeeded in mitigating the upward pressure on the Swiss franc against the euro, despite the enormous weakness of the US dollar.

With the new strategy, the National Bank has been able to make its monetary policy decisions much more systematically and on a much broader and deeper factual basis than was previously the case. The strategy has also proven itself on the implementation front. Thanks to the width of the target range and the choice of a reference interest rate for three-month loans (the three-month Libor), the SNB has had the necessary flexibility to respond rapidly to distortions in the financial markets, without casting doubt on its underlying policy direction. Finally, the logic of the new strategy has made the SNB's communications with the markets and with the general public much easier. The latter has understood the strategy correctly and given it a favourable reception.

That said, other factors have also contributed to the policy's success: strong international competition – a result of advancing globalisation – as well as higher productivity made possible by the revolution in information and communication technologies have made the SNB's task easier. Both trends have dampened inflationary pressure. The fact that, since the foundation of the ECB, monetary policy in large parts of Europe has been geared strictly to maintaining price stability is also likely to have aided the success of Swiss

monetary policy. Switzerland has not had any major currency crisis since it began to pursue the new strategy. In the past, such risks had repeatedly meant tough decisions for the National Bank, as chapter 4.5 explains.

4.5 Monetary policy autonomy and the Swiss franc

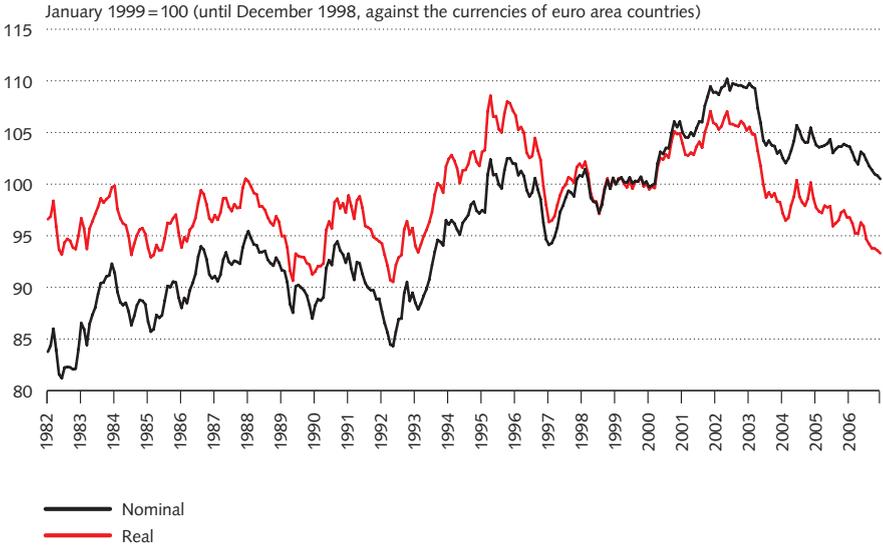
UMBERTO SCHWARZ

4.5.1 Introduction

In recent decades, the Swiss National Bank has made strenuous efforts to preserve the autonomy of its monetary policy and to defend the independence of the Swiss franc. On two occasions during that period, its determination was particularly evident. Firstly, the drawbacks of fixed exchange rates had initially become apparent in 1973, when the Bretton Woods system was abandoned. There was no guarantee that price stability could be preserved in Switzerland as long as the franc remained pegged to the currency of a country that itself was not pursuing a policy of price stability. A second event at the end of the 1970s reinforced the SNB's determination to preserve its autonomy. In October 1978, the National Bank decided to limit the Swiss franc's rise against the German mark by setting a temporary floor of 0.80 francs to the mark. To achieve its desired aim, the National Bank was forced to increase the money supply substantially, a strategy that triggered a bout of high inflation a few years later. These two episodes left a mark on the SNB's collective memory.

Despite the obvious disadvantages of a fixed exchange rate system, the desirability of introducing a fixed parity for the Swiss franc was considered on numerous occasions. There were a number of arguments in favour of such an option. For instance, it was far from certain that the country to whose currency the franc might have been pegged would necessarily pursue inflationary policies, as the United States had done at the end of the 1960s. Moreover, the countries of the European Community (EC) were showing an increasing eagerness for monetary integration, resulting firstly in the European Monetary System (EMS) and subsequently in the Economic and Monetary Union (EMU). Both of these edifices were based on a system of fixed exchange rates. Finally, at the end of the 1980s, Switzerland experienced monetary problems that led the National Bank to question the strategy it had pursued until then. For a number of reasons, however, a return to fixed parities was consistently rejected.

Graph 4.3
Index of Swiss franc exchange rate against euro



Source: SNB, Monthly Statistical Bulletin (various years).

Firstly, tying the Swiss franc to a fixed exchange rate system would have meant the end of the SNB's monetary policy autonomy. Trends in short-term interest rates in Switzerland would have been dependent on monetary conditions abroad, with monetary policy consequently no longer able to respond to the needs of the economy as a whole, but instead focused exclusively on defending parity.

Secondly, the rate of inflation in Switzerland would have been primarily dependent on the monetary policy of the central bank issuing the currency to which the Swiss franc was pegged. Obviously, factors specific to the Swiss economy would have continued to influence price trends in Switzerland. However, no fundamental divergence from the trends resulting from the monetary policy being pursued abroad would have been conceivable. Worse still, the franc's tendency to appreciate in real terms, which had been a feature of this entire period, would have pushed Swiss inflation higher than that of the benchmark country.

Thirdly, pegging the Swiss franc's exchange rate would have reduced the interest rate differential between assets in francs and those in German marks, euros or US dollars. Since Swiss interest rates were lower than rates abroad, this narrowing – synonymous with a reduction in the interest rate bonus – would have made monetary policy more restrictive for a limited period. The

resulting increase in Swiss interest rates would have led to problems for borrowers (companies, property owners and public authorities), who had traditionally enjoyed relatively low rates. The scale of the interest rate rise would have remained modest only if there had been any doubts as to the credibility of the exchange rate peg – which would then have lost much of its usefulness.

4.5.2 Relations with the European Monetary System

Following the collapse of the Bretton Woods system, the issue of fixing the exchange rate of the Swiss franc was examined, notably in the late 1970s, when the EC member states took the decision to create a system of fixed but adjustable parities – the EMS. In 1979, a working group examining the international monetary situation headed by Pierre Languetin, Chairman of the Governing Board of the SNB, considered the options available to Switzerland at the time.⁷⁷ Five such options existed. The first – full membership of the EMS – was rejected from the outset, as Switzerland was not a member of the EC. The second – total abstention by Switzerland – was considered as being no longer relevant, owing to the exchange rate policy that the National Bank had pursued since 1 October 1978. The final three options were felt to be more realistic. The third – participation in the exchange rate system and in the intervention mechanism – had the benefit of emphasising Switzerland's desire to cooperate. However, it was rejected, not because it would have involved adopting a fixed (yet adjustable) parity, but mainly due to the opposition of a key member of the EMS and because of the subordinate position that Switzerland would have occupied in the resulting structure (cf. chapter 2.4.1). The fourth option – under which Swiss policy would be parallel but independent – was rejected in order to avoid giving the impression that Switzerland was distancing itself from monetary cooperation in Europe, a stance that could have had negative consequences for the Swiss franc. The fifth option was therefore chosen, namely cooperation with the EMS without participation in the exchange rate system or in the intervention mechanism. The nature and details of this cooperation were set out in a draft agreement intended to regulate the terms and conditions of possible cooperation between the central banks of EMS member states and the National Bank. Under these procedures, the National Bank could have intervened in the currencies of EMS member countries.

The National Bank entered into informal discussions with a number of European central banks on the procedures for this cooperation. However, it soon became apparent that monetary cooperation with Switzerland was not a

⁷⁷ International monetary situation (1979).

high priority for countries participating in the EMS. The question had also become less urgent for the SNB, in view of the results of the Swiss franc stabilisation policy it had pursued since October 1978 (cf. chapter 2.4.2).⁷⁸

In 1987, the National Bank again carried out a review of relations between Switzerland and the EMS. The conclusions it had reached some ten years earlier were basically reaffirmed. Both close collaboration with the EMS – involving participation in the exchange rate system and in the intervention mechanism – and a wholly autonomous policy were rejected. However, the SNB was anxious to underline its desire to cooperate with the EMS. It took steps in this direction, but using a different approach from that adopted in 1978. It was, in any event, no longer interested in being able to intervene in the currencies of EMS member states, since those very countries themselves were primarily using US dollars and not EMS currencies when intervening in the foreign exchange markets. Furthermore, the SNB was increasingly doubtful about the benefits of sterilised intervention. In other words, it viewed with some scepticism the impact that any change in the makeup of assets on its balance sheet would be likely to exert on exchange rates. It believed that the Swiss franc's external value could be influenced only by the degree of restrictiveness of its monetary policy – that is to say, by a change in its balance sheet total, rather than by the composition of that balance sheet. Accordingly, in order to demonstrate its desire to cooperate and to help strengthen monetary relations between the EC and Switzerland, the National Bank decided to apply to become an 'other holder' of ECU's, the European Currency Unit, a status it obtained in January 1989.

4.5.3 *The issue of the exchange rate regime*

From the mid-1980s, the conduct of monetary policy became a more complex affair. In an environment of relatively strong economic growth, monetary policy became more expansionary. Additionally, towards the end of the decade, a number of external shocks affected monetary demand (cf. chapters 4.3.2 and 4.6.2). Inflation reared its head. Between 1989 and 1993, it exceeded 2 percent annually and, in 1991, even topped 6 percent. Under these circumstances, the SNB carried out a number of reviews of the monetary policy options available to it and, in particular, considered the desirability of moving to a fixed exchange rate.

One argument in favour of such a move was the Austrian experience. Since 1979, the Austrian schilling had been pegged to the German mark – not

78 SNB to the Federal Council delegation for general economic affairs (1979).

without success. However, any comparison with the situation of the Swiss franc was inappropriate on a number of counts.⁷⁹ Firstly, unlike Austrian interest rates, Swiss rates were traditionally lower than those in Germany. Pegging the franc would therefore have led to higher interest rates in Switzerland, contrary to the experience in Austria. Secondly, the spread between Swiss and German interest rates was more volatile than that between German and Austrian rates, a further reflection of the independent nature of Swiss monetary policy. Moreover, the Swiss franc's appreciation against the mark in real terms had been much greater than that of the schilling. If nominal exchange rates were fixed, inflation in Switzerland would thus have been higher than in Austria, and, *a fortiori*, Germany. Another point was that Switzerland's trade links were more diversified than those of Austria, which were primarily focused on Germany. Depending on trends in the German currency, pegging the Swiss franc to the mark could therefore have had unfortunate consequences for the average trade-weighted exchange rate, causing unwarranted problems for trade between Switzerland and third countries or generating inflationary pressures. Finally, Switzerland – as an important financial centre with no restrictions on capital movements – had to be in a position to cope with the replacement of assets in the portfolios of investors, not only by varying the money supply, but also by allowing the exchange rate to fluctuate.

Any challenge to the National Bank's independence in setting monetary policy would have been particularly risky, as it would have occurred at a time when the German mark was preparing to meet a number of challenges. It appeared inappropriate to link the Swiss franc to the mark at a time when the German currency was facing the challenges of German reunification and the upheavals in Central and Eastern Europe, and at a time when the EMU was beginning to take shape.

4.5.4 *The challenge of the Economic and Monetary Union*

Recent decades have seen major developments in what is now the European Union (EU). The Delors Report (1989), the Maastricht Treaty (1992) and the introduction of the euro – initially in book entry form (1999) and subsequently as a physical currency (2002) – constituted the principal steps from a monetary standpoint. These developments, particularly the launch of the single currency, raised a large number of questions in Switzerland. The SNB was therefore obliged time and again to consider the most appropriate

⁷⁹ Cf., in particular, Rich (1990b).

way to manage its relations with the currencies of EU member states and with the euro. The issues raised revolved around fears of a revaluation of the Swiss franc, increased exchange rate volatility, the risk of a loss of independence in terms of monetary policy, and the consequences of increasingly widespread use of the euro in Switzerland – a trend that would have threatened to marginalise the franc over time.

However, any fears and scepticism that the National Bank may have felt about the EMU did not emerge immediately. In 1991, having noted that the Delors Report intended to achieve price stability, proposed central bank independence and envisaged the implementation of complementary fiscal measures, the SNB came to the conclusion that monetary union would not pose any problem, since its economic policy principles were already the determinants of Swiss policy.⁸⁰ However, in 1995, this assessment of the situation changed radically. In the intervening period, price stability had been restored in Switzerland and the Swiss franc had recovered its poise. Within the EU, by contrast, the 1992 crisis in the EMS had sapped the reserves of confidence built up during the 1980s. In Germany, the public had begun to doubt whether the future European currency would prove to be as stable as the mark.

To combat where necessary any excessive appreciation of the Swiss franc against the mark or single currency, the National Bank had, in theory, three types of measures in its armoury – it could tie the franc to the single currency, limit the inflow of foreign capital or relax its monetary policy. The first two options were ruled out due to their major disadvantages, which had emerged from the experience gained in the 1970s. The possibility of pegging the Swiss franc was rejected on the grounds that it would have implied a loss of monetary independence, with responsibility for monetary policy being effectively transferred to the European Central Bank (ECB) and short-term interest rates falling into line with those in the euro area. The interest rate bonus would thus have largely disappeared. The interventionist measures taken in the 1970s, such as negative interest rates and investment restrictions, were also ruled out as being anachronistic and ineffective (cf. chapter 2.4.3). In globalised financial markets, they would have had very limited impact on the exchange rate, but would have created distortions damaging to the economy. Thus, the third option was selected. The SNB believed that, in a period of stagnation or recession following an appreciation of the Swiss franc, temporary relaxation of monetary policy did not constitute a threat to price stability.⁸¹

80 SNB, Minutes of the Governing Board (1991), 29 August, no. 299/3.

81 SNB, Minutes of the Governing Board (1995), 16 November, no. 470.

The SNB announced the policy it intended to pursue in such circumstances.⁸² It stated that if the Swiss franc appreciated to an undesirable extent, it would initially allow the automatic cyclical stabilisers to work, while at the same time maintaining a policy firmly focused on a growth target for a monetary aggregate. The depressive effect of the stronger franc alone would be enough to cause Swiss interest rates to fall, which in turn would suffice to halt the rise of the Swiss franc and breathe new life into the economy. If the fall in interest rates proved insufficient to shield the economy from an excessive appreciation of the franc, the National Bank could adopt a more proactive approach with a significant relaxation in its monetary policy. The SNB was clearly aware that, by so doing, it would be skating on thin ice, as the degree of monetary relaxation necessary in those circumstances to offset a pronounced appreciation of the Swiss franc would be such that medium-term price stability could well be jeopardised. This was tantamount to conceding that, unless it abandoned its objective of price stability, it would probably not be able to prevent all undesirable fluctuations in the exchange rate. Nonetheless, it would avoid the drawbacks of pegging the Swiss franc to the euro.

The issue of how to respond to an excessive appreciation of the Swiss franc was also examined by working groups from the Federal Commission for Economic Policy⁸³ and the Federal Administration,⁸⁴ in which representatives of the National Bank also participated. The analyses of these working groups basically led to the same conclusions as those reached by the SNB, namely that the option of a fixed parity had the undoubted advantage of sending a clear signal to the markets, while its main drawback was its potential to create a significant risk of inflation in the medium term. Two arguments were used in support of this view. Firstly, as the Swiss franc had for many years – and particularly since 1973 – shown a tendency to appreciate in real terms, pegging its exchange rate to the single currency would have pushed inflation higher than under a system of floating exchange rates. Secondly, if that appreciation were the consequence of an inflationary European monetary policy, pegging the franc to the single currency would have been a precarious solution, as one drawback – a rise in the franc – would have been replaced by another – imported inflation. Under these circumstances, parity would have had to be modified sooner or later to restore price stability. However,

82 Lusser (1996).

83 Federal Commission for Economic Policy (1996).

84 Switzerland and the European Economic and Monetary Union (1998).

experience throughout history had shown how difficult it was to take a decision of that kind. One further disadvantage, although its gravity was difficult to gauge at the time, would have been the effects of a probable reduction in the interest rate differential.

In practice, fears of an excessive appreciation of the Swiss franc proved to be unwarranted. The same applied to concerns that the Swiss currency would become increasingly volatile. Indeed, its volatility actually fell after the introduction of the euro. The SNB's monetary policy also showed that its independence had not diminished. Finally, fears that use of the Swiss franc in Switzerland might decline also proved to be groundless. The National Bank had never been convinced by this view in any case, given the high transaction costs involved in the parallel use of two currencies. Only if inflation had risen very strongly – which the SNB would never have tolerated – would consumers have derived any benefit from using the euro in Switzerland.

The monetary policy options outlined above remain valid irrespective of the strategy adopted by Switzerland in its relations with the EU, with the exception of membership itself. The monetary policy sphere will be safeguarded either under a system of bilateral agreements or in the event of Switzerland's membership in the European Economic Area, or even in a scenario in which the country stays entirely on its own. The Swiss franc shall remain the national currency, and the independence of monetary policy will be guaranteed. The situation would be quite different, however, if Switzerland were to join the EU. In which case, the Swiss franc would have to be abandoned sooner or later in favour of the euro. The SNB would become a member of the European System of Central Banks, and Swiss monetary policy would be that of the euro area. The SNB has never taken an official position on the desirability or likelihood of Swiss membership in the EU, recognising it to be a fundamentally political issue. However, its representatives have repeatedly pointed out the monetary and economic consequences of such a decision.

If Switzerland were to join the EU, the consequences of adopting the euro would not differ greatly from those of a fixed exchange rate system. However, they would have certain characteristic features. The National Bank's authority over monetary policy would disappear once and for all, with the long-term consequence that Swiss inflation would be determined essentially by the monetary policy in force in the euro area. Factors specific to the national economy would undoubtedly continue to influence price movements in the domestic market, but not in such a way as to diverge systematically from the trend dictated by the ECB's policy. This loss of monetary independence would of course be partially offset by the fact that the National Bank would be given

a voice in the ECB's decision-making on monetary policy. However, the SNB's representatives have frequently emphasised the very limited influence that Switzerland could exert in a body whose membership is set to increase further and in which certain countries carry enormous influence. The risk of exchange rate fluctuations and the disadvantages of a possible appreciation, or of excessive volatility of the Swiss franc against the euro, would be completely eliminated. Short-term interest rates would be the same in Switzerland as in rest of the euro area. With regard to long-term interest rates, the customary differential between nominal interest rates would very probably fall sharply or even disappear altogether. This decline would be more significant than if the Swiss franc were merely pegged, since the premium to allow for the probability of a subsequent change in the parity – which would then be ruled out completely – would fall to zero.

4.5.5 Exchange rates and the conduct of monetary policy

The SNB's desire for autonomy and its refusal to countenance the possibility of fixed exchange rates between the Swiss franc and a third currency do not mean that the central bank has failed to take account of exchange rate developments when setting monetary policy. The question of the exchange rate system needs to be clearly distinguished from the role of exchange rates themselves. As Switzerland is a small open economy, exchange rates are of vital importance to it in terms of their effect on its inflation rate; they have a direct influence on price levels through changes in the prices of traded goods, and an indirect one through their impact on economic activity. Real depreciation of the Swiss franc thus reduces the price of goods and services produced in Switzerland relative to those produced abroad – a reduction felt in both domestic and foreign markets – which in turn has the effect of stimulating demand for Swiss products and, consequently, boosting economic activity in Switzerland. The result is upward pressure on prices. In other words, Swiss monetary independence is far from absolute.

Despite this, no internal target for exchange rates has ever been set, either implicitly or explicitly. Although certain observers have occasionally hinted that such a target existed, this was probably due to the obvious importance accorded to exchange rates by the central bank. The fact that a floor was set against the German mark in 1978, and that this level was only rarely breached upon the advent of the euro, certainly played a significant role in fostering this belief (cf. chapter 2.4.2 and graph 2.8).⁸⁵

⁸⁵ Genberg and Kohli (1997).

The Annual Reports of the National Bank expressly refer to the role of exchange rate movements in determining monetary policy, although the terms used when commenting on it have varied considerably. For instance, in the Annual Report for 1982, the relaxation of monetary policy was described as appropriate, particularly in view of the strength of the Swiss franc,⁸⁶ while in its 1985 Annual Report the SNB explained that it had sought to maintain a steady policy in the previous years in order to avoid excessive fluctuations in interest and exchange rates.⁸⁷ The Annual Report for 1986 made it clear that, despite signs of overheating, the National Bank's room for manoeuvre could be limited by unwelcome developments in the foreign exchange market.⁸⁸ The 1989 Annual Report pointed out that the SNB had decided to reduce the supply of money more sharply than it had initially envisaged, due in particular to the weakness of the Swiss franc in the foreign exchange markets.⁸⁹ Conversely, the 1990 Annual Report emphasised that the SNB had used the leeway provided by the increased strength of the franc in the foreign exchange markets to ease the severity of its monetary policy slightly.⁹⁰

Although an unwelcome appreciation of the Swiss franc can be offset by a relaxation in monetary policy, an action of this type involves medium-term risks for price stability. The Annual Report for 1995 therefore indicated that the National Bank could not have "conducted a monetary policy which took account of the Swiss franc's exchange rate, as requested in many circles. A far greater degree of relaxation of [that] policy would certainly have weakened the franc in the short term. However, in the medium term it would have threatened the new-found price stability."⁹¹

Exchange rates continued to be the subject of much debate in subsequent years. In its Annual Reports for 1996, 1997 and 1998, the SNB mentioned that it reserved the right to react "to unexpected developments – such as strong shifts in exchange rates or in the demand for money – in order to keep the damage to the real economy as small as possible".⁹² In 1999, the year in which the euro was introduced, the Annual Report noted that the National Bank was following a medium-term strategy, which was giving it the leeway to "take into consideration further indicators such as the economic situation and the

86 SNB, Annual Report, 75^e *rapport de gestion* (1982), p. 8.

87 SNB, Annual Report, 78^e *rapport de gestion* (1985), p. 7.

88 SNB, Annual Report, 79^e *rapport de gestion* (1986), p. 7.

89 SNB, Annual Report, 82^e *rapport de gestion* (1989), p. 11.

90 SNB, Annual Report, 83^e *rapport de gestion* (1990), p. 9.

91 SNB, Annual Report, 88^e *rapport de gestion* (1995), p. 10.

92 SNB, 89th Annual Report (1996), p. 29.

exchange rate, which are relevant, in the short term, for the development of inflation”.⁹³ During the first few months of 1999, the National Bank strove to “keep the Swiss franc exchange rate against the euro as stable as possible”.⁹⁴ In the second half of the year, the exchange rate again remained within a very narrow band.

Finally, a new monetary policy strategy was introduced in 2000. It is based on an inflation forecast developed using a series of indicators, including exchange rates.⁹⁵ Since then, exchange rates have been expressly taken into account by the National Bank in its monetary policy strategy.

4.6 Modernising the tools of monetary policy

CRISTINA BORSANI, KARL HUG AND THOMAS J. JORDAN

4.6.1 Introduction

In the past three decades, the Swiss National Bank has gradually moved away from the implementation of monetary policy by means of sovereign instruments, turning increasingly towards the use of instruments based on market transactions. Dating from the era of fixed exchange rates, the SNB had at its disposal a comprehensive range of sovereign instruments that it could use to intervene directly in the market mechanism (cf. chapter 2.4.3). Instruments based on market transactions, meanwhile, enable it to manage interest rates and the money supply indirectly by buying and selling assets in the market or lending to and borrowing from the banking sector. In this way, the SNB regulates demand for base money in the banking sector and thereby influences interest rates in the money market. After exchange rates were allowed to float in the 1970s, the National Bank adjusted the market transaction-based instruments to the new environment. In 1998, it conducted a comprehensive review of these instruments, taking account of the regulatory and structural aspects that had altered banks’ demand for base money and the new operational objective of its monetary policy (cf. chapter 4.4.3).

93 SNB, 92nd Annual Report (1999), p. 33.

94 SNB, 92nd Annual Report (1999), p. 40.

95 SNB, 93rd Annual Report (2000), p. 34.

4.6.2 From cash liquidity to minimum reserve requirements

Three factors determine banks' demand for base money. Firstly, the banks are obliged by law to maintain base money at a certain minimum level in relation to their short-term liabilities; secondly, the banks need base money to settle their payments; and, thirdly, they hold base money should customers withdraw their deposits. In recent years, the importance of the last two factors has diminished. Thanks to a well-functioning money market, banks can quickly refinance in the event of an unexpected withdrawal of liquidity, which has permitted them to reduce their precautionary balance. In addition, owing to more efficient payment systems and the possibility of obtaining interest-free intraday loans from the SNB, the amount of base money that banks need to hold to settle their payments is declining steadily.

Until the new National Bank Act (NBA) entered into effect in 2004, banks had been subject to cash liquidity provisions. Until the end of 1987, these provisions had obliged banks to hold adequate funds – notes, coins and balances with the SNB, with clearing houses recognised by the Swiss Federal Banking Commission (SFBC) as well as with Swiss Post – to cover what by international standards was a relatively high proportion of their short-term liabilities. The original intention of these provisions was to ensure that the banks held sufficient liquidity to meet unexpected withdrawals of deposits by customers. The provisions thus fell within the remit of the SFBC and were governed by the Banking Act. Yet given their influence on banks' demand for base money, the provisions also had a significant impact on monetary policy.

In addition, the former NBA allowed the SNB to set reserve requirements for the banks. By varying the minimum reserve requirements, the National Bank could directly influence the banks' ability to create money and credit without having to change the level of interest rates via open market operations. However, the SNB had not used this instrument since 1978, because it distorts competition by placing Swiss banks at a disadvantage to foreign financial institutions.⁹⁶

The SNB verified compliance with the cash liquidity provisions on behalf of the SFBC, but did so only at the end of the month, with the result that banks' demand for liquidity regularly soared at this time. As the SNB satisfied only part of this additional demand, at the turn of the month, overnight rates jumped from their normally very low level, generally soaring to as high as 30–80 percent and sometimes even to more than 100 percent. This interest rate volatility was problematic for two reasons. On the one hand, the

⁹⁶ SNB, Annual Report, *81^e rapport de gestion* (1988), p. 40.

fluctuations complicated banks' liquidity planning for the end of the month, because certain financial market participants exploited this volatility in speculative and arbitrage operations. On the other hand, the level of liquidity at the end of the month determined the restrictiveness of monetary policy.⁹⁷ At times, these arbitrary fluctuations in banks' reserves at month-end – and the concomitant interest rate movements they triggered – considerably disrupted implementation of the SNB's monetary policy.⁹⁸

To defuse the end-of-month problem, the regulation governing cash liquidity was changed at the beginning of 1988. Henceforth, the mandatory level of liquid reserves held by institutions governed by the Banking Act was averaged over a month (calculated from the 20th of one month to the 19th of the following month). The level was set at 2.5 percent of total sight and time deposits (with maturities of up to 90 days) and 2.5 percent of one-fifth of savings deposits. This revision greatly facilitated banks' liquidity management. Furthermore, mandatory reserve requirements fell to a normal level by international standards, whereas Swiss banks had previously been compelled to hold excessively high reserves.

The banks adjusted to the new situation – they now seldom needed additional liquidity at the end of a month. Consequently, peak overnight rates at month-end declined dramatically. Moreover, the introduction of the electronic payments system – Swiss Interbank Clearing (SIC) – also reduced the level of reserves that banks needed to hold with the SNB (cf. chapter 5.2.3). This enabled the banks to reduce their liquidity reserves further. After these two innovations in 1988, the average level of reserves held with the SNB fell to 5.8 billion Swiss francs, 2.8 billion lower than in 1987. With the entry into force of the new NBA in 2004, the cash liquidity provisions – which had been based on the Banking Act – were abolished and replaced by a minimum reserve requirement that was more in keeping with the times. The new regulation induces banks to exert a minimum demand for base money and facilitates the implementation of monetary policy. However, it is no longer an alternative to the instruments based on market transactions. This aforementioned complex system of provisions used to control the banks' ability to create money and credit directly – appearing under the same heading in the former NBA – was discontinued. The new regulation governing minimum reserves is based on the old cash liquidity provisions in the Banking Act, but differs from them in two fundamental aspects. Firstly, minimum reserves no

97 SNB, *Geldpolitische Bedeutung des Ultimos und Durchführung der Ultimopolitik* (1986), p. 6.

98 Birchler (1988), p. 78.

longer need to be held for liabilities towards banks that are themselves subject to minimum reserve requirements. Secondly, Swiss franc assets now include only base money (banknotes and banks' balances with the SNB) and coins. Excluded from these are balances with PostFinance and with clearing houses recognised by the SFBC. Under the new NBA, this instrument falls solely within the remit of the National Bank (arts. 17, 18 and 22 NBA). This change in the law affected demand for sight deposits to a much lesser extent than the revision in 1987 had done.

4.6.3 *From liquidity to interest rate management*

Unlike most central banks, the SNB had for a long time set an operational money supply target, rather than an operational interest rate target for implementing its monetary policy. Until 1996, it deduced a target value for bank reserves (sight deposits of domestic banks) – its operational objective – from its estimate of the economy's demand for banknotes (which the SNB had to satisfy in full) and from its intermediate target for the monetary base. However, to avoid any confusion with the intermediate target for the monetary base, the National Bank did not publish this value.

In 1996, mounting uncertainty about developments in the demand for money induced the SNB to change the operational objective of its monetary policy strategy. While it continued to focus primarily on ensuring that reserves met the target level, the SNB also sought to prevent interest rate fluctuations undesirable from a monetary policy perspective. Hence, in exceptional situations, the National Bank was prepared to influence interest rate movements directly and to allow reserves to deviate from the target level.

By 1999, the monetary base no longer functioned as a reliable indicator, and the SNB undertook a comprehensive review of its monetary policy strategy. At the beginning of 2000, the SNB adopted a new strategy of direct interest rate management with a target range for the three-month Libor as the new operational objective of its monetary policy.⁹⁹ The publication of the target range improved the market transparency of the National Bank's operational strategy. Since then, the level of bank reserves held with the SNB has played only a subordinate role. The SNB indirectly influences the Libor through repo transactions. Normally, the three-month Libor is higher than the repo rates, as it is an interest rate for a longer term and for unsecured loans, and thus contains both a time and a risk premium. The SNB uses a mix of instruments to implement its monetary policy. To hold down the three-month Libor, it

99 SNB, 93rd Annual Report (2000), pp. 33–34.

can either lower its repo rates or increase the amount of liquidity in the banking system at the current rate. Conversely, by raising its repo rates or decreasing the amount of liquidity in the banking sector at a given rate, the SNB can induce market interest rates to rise. Such intervention is a flexible and effective means of managing the three-month Libor.¹⁰⁰

4.6.4 *Monetary instruments before the introduction of repo transactions*

Market transaction-based instruments can be divided into open market operations and standing facilities. In open market operations, the SNB takes the initiative in the transaction. It sets the volume and the conditions that will enable it to achieve its monetary policy intentions. Standing facilities, meanwhile, give commercial banks the right to refinance with the SNB at predetermined conditions. Before the introduction of repo transactions in 1998, the most important open market operations included foreign exchange transactions (foreign exchange swaps), the onward placement of Confederation funds, and swaps with money market debt register claims. The SNB provided two standing facilities for banks, the discount credit and the Lombard advance. Historically, the discount rate and the Lombard rate had the function of providing monetary policy signals, but in time their significance dwindled.

After the Swiss franc was floated in the mid-1970s, foreign exchange transactions, in particular foreign exchange swaps, were the primary liquidity management instrument in Switzerland. In this respect, the SNB differed from most central banks, which preferred to conduct open market operations in domestic capital markets rather than in the foreign exchange market; in other words, they implemented monetary policy by buying and selling domestic government bonds on the open market. At the time, two factors militated against this type of open market policy in Switzerland: the tax treatment of securities transactions and a very illiquid capital market. Owing to the size of the country and, at the time, the very low level of government debt, only modest quantities of securities were traded on the Swiss government bond market. By contrast, even then, trading volumes in the foreign exchange market – in particular the dollar market – were high enough to provide the level of liquidity needed to implement monetary policy. In the early 1970s, the National Bank initially resorted for the most part to straight dollar purchases to expand the monetary base, and dollar sales to reduce it. However, for technical reasons and in order to lower its currency risk, the SNB soon shifted the

¹⁰⁰ Jordan (2005b).

focus of its operations to foreign exchange swaps.¹⁰¹ Liquidity swaps involved buying foreign exchange from a commercial bank for Swiss francs in the spot market and immediately selling them to the same bank for forward delivery. In so doing, the reserves of Swiss banks increased only temporarily, i.e. for the term of the swap. After expiry, they automatically reverted to the initial level, with the result that the level of liquidity in the banking system undershot the quantity targeted by the SNB and demanded by the banks. In this way, the SNB forced banks to turn to it regularly for liquidity, which often facilitated the SNB's money supply management. Normally, the National Bank entered into transactions with maturities of between one week and three months, and after expiry of the swaps renewed them as its monetary policy strategy required. In exceptional situations, the SNB would extend the term up to twelve months. In the reverse transaction, the National Bank used swaps to drain off liquidity by buying Swiss francs against foreign exchange, which temporarily decreased bank reserves. For a long time, the dollar swap was the SNB's principal instrument for fulfilling banks' basic liquidity needs. In order to diversify, the SNB also started using swaps against German marks and later against the euro in June 1998.

As currency market transactions are generally not executed (i.e. have no impact on liquidity) until two days after the trade, the SNB needed other instruments to deal with unexpected fluctuations in liquidity. It was hoped that these would enable the SNB to influence the level of liquidity in the banking system without a time lag. In this so-called liquidity fine-tuning, the National Bank placed money that the federal government held with it at selected banks in the SNB's name, but for account and at the risk of the Confederation. As a rule, this instrument had a maturity of between one day (overnight) and two years. Technically, the National Bank did not create any new liquidity with this instrument, but only compensated for the money that had flowed out of the banking system into the Confederation's account with the SNB. By not placing the money, the SNB effectively withdrew liquidity from the system. However, the National Bank could employ this instrument only when there were adequate funds in the government's account with the SNB. As the Confederation's financial situation started to deteriorate in 1992, its holdings with the National Bank became increasingly volatile, which deprived this instrument of the flexibility essential for its purpose. Consequently, the SNB also commenced open market operations with money market debt register claims of the Confederation in September 1992. These

101 SNB (1982), p. 168; Lusser (1983), pp. 4–5.

transactions, too, could be executed without a time lag between trade and settlement. They soon developed into a flexible instrument for regulating short-term liquidity, with the SNB buying claims and simultaneously selling them for forward delivery (liquidity-providing swaps). Occasionally, the National Bank also used them to skim off liquidity for short periods by selling debt register claims and simultaneously buying them for forward delivery (liquidity-absorbing swaps). Such swaps had a term of between one and seven days. To supplement its own portfolio of debt register claims, the SNB also engaged in straight buying. However, the use of this instrument was limited by the number of debt register claims issued.

Traditional instruments of monetary policy also included discount credits and Lombard advances; these were standing facilities available to banks for short-term bridging of liquidity bottlenecks and for end-of-month financing. By the late 1980s, the SNB was generally only granting discount credits by repurchasing bills of exchange and money market debt register claims. It acquired the securities from banks for a fixed term agreed in advance, generally for five days.¹⁰² Normally, the transactions were executed at the official discount rate. As the significance of bills of exchange waned, and with the National Bank ceasing in 1993 to engage in transactions with the compulsory stockpile bills required under Swiss law (cf. chapter 10.4.3), the discount rate retained residual relevance as a monetary policy signal until the end of 1999, when the target range for the three-month Libor assumed this role; the SNB ceased publishing a discount rate in 2000.

A Lombard advance was a loan that the National Bank granted against pledged securities. For each bank that requested it, the SNB set a specific Lombard limit for which the bank had to provide securities as collateral. In the event of an unforeseen liquidity bottleneck, the bank could draw on its Lombard advance facility up to its limit. Under the old regulations governing cash liquidity, banks used their Lombard facilities – as they did their discount credit – almost exclusively to finance liquidity needs at the end of the month. The SNB adjusted the official Lombard rate to market rates only intermittently; hence, at the end of the month it was usually lower than the money market rate, and the resulting arbitrage potential encouraged the banks to exploit their Lombard limits to the full. As a result, Lombard advance facilities were no longer used for their intended purpose. To mitigate this problem – at least to some extent – the National Bank rationed Lombard borrowing by introducing restrictions on the granting of Lombard limits, maximum

102 SNB, Annual Report, 78^e *rapport de gestion* (1985), p. 43.

periods of availment¹⁰³ and an early notification procedure for end-of-month advances. It also made it more expensive to use the Lombard facility by setting a minimum maturity for the credit.¹⁰⁴

The end-of-month peaks in interest rates disappeared when the new cash liquidity provisions entered into force. This enabled the National Bank in May 1988 to simplify procedures by abolishing the early notification requirement for central bank advances and the minimum maturity of such loans, two regulations originally introduced to control the creation of liquidity at the end of the month. To prevent banks from exploiting Lombard advances as a permanent source of refinancing, the SNB introduced indexation of the Lombard rate on 26 May 1989. Henceforth, the Lombard rate would be equal to the overnight rate plus a premium, initially of one percentage point and from 14 December 1989 of two percentage points.¹⁰⁵ This move restored the original purpose of the Lombard advance, i.e. a short-term advance to cover unforeseen liquidity bottlenecks. In 1993, the SNB also relaxed the last – and by then outdated – restriction on Lombard facilities. It set credit limits on the basis of the banks' submissions, rather than on an internal formula of its own. As a consequence of this change in practice, banks' Lombard limits rose significantly.¹⁰⁶ At the end of 2005, the SNB finally replaced Lombard advances with a new special-rate repo transaction.

4.6.5 *Fundamental review of monetary policy instruments*

In the mid-1990s, the SNB decided for various reasons to undertake a comprehensive review of its monetary policy instruments. On the one hand, the monetary policy instruments then in use severely restricted the number of potential counterparties. In particular, the National Bank could conduct foreign exchange swaps only with banks that held sufficient foreign currency. This limited dealings to just a few institutions, in effect the then five big banks. This meant that the SNB was not in a position to spread liquidity through the entire banking system. The big banks took over the function of distributing liquidity to other institutions, sometimes exploiting it to their own advantage. One consequence of the lack of competition and the inefficiencies in the money market was undesirable volatility in liquidity and interest rates.

103 SNB (1989), p. 176.

104 SNB, Annual Report, *81^e rapport de gestion* (1988), p. 32.

105 SNB (1989), pp. 177–178.

106 SNB, Annual Report, *86^e rapport de gestion* (1993), p. 60.

On the other hand, the implementation of the SNB's monetary policy depended to a large extent on other countries' payment systems, because the foreign currency payments involved in foreign exchange swaps – the main instrument of monetary policy – were settled abroad. Moreover, since the transactions were not carried out on the basis of the payment-versus-payment principle, the SNB was exposed to credit risk. It also ran a market risk during the life of the foreign exchange swap in that the value of the collateral – the dollar balance – could drop below the amount of the claim, and in the event of a default by the counterparty, the National Bank could incur a loss. Finally, in the mid-1990s, the SNB felt that because of the controversy regarding the SNB's role in World War II (cf. chapter 10.5) there was a danger that the United States might freeze the SNB's dollar holdings. It was thus put under additional pressure to develop an alternative monetary policy instrument.

Against this background, the National Bank examined the possibility of managing liquidity via repo transactions instead of foreign exchange swaps, a practice that other central banks had been using with success for some time. In a repo transaction, the cash taker sells securities to the cash provider and simultaneously agrees to repurchase securities of the same type and quantity at a later date. The cash taker pays interest (repo interest) for the term of the repo agreement. From a legal point of view, the repo transaction combines a purchase and a sale of securities in which the cash provider acquires ownership of the securities from the cash taker for the duration of the contract. From an economic point of view, however, the repo is a loan backed by securities. Although the cash provider is the legal owner of the transferred securities, interest paid on the securities accrues to the cash taker, who thus remains the beneficial owner. An important feature of repo transactions is the right of the contracting parties to require margin adjustments during the term of the repo if fluctuations in securities prices result in a surplus or shortfall of cover for the loan.

Compared to the SNB's traditional instruments, repo transactions have three fundamental advantages. Firstly, they are a more effective instrument than foreign exchange swaps for managing interest rates, because by setting a repo rate the SNB explicitly informs the markets of its assessment of the current interest rate situation; with foreign exchange swaps the implicit interest rate must be inferred from the exchange rate and the interest rate differential. Secondly, the National Bank has practically eliminated credit risk from its open market operations and, through the margin adjustment, reduced market risk during the term of the repo. Thirdly, the number of counterparties

expanded from just a few to many banks. This gave small commercial banks direct access to SNB liquidity, thereby improving the efficiency of the Swiss franc money market.

4.6.6 Structure of the Swiss repo market¹⁰⁷

On account of these advantages, the SNB decided to introduce repo transactions as a monetary policy instrument. At that time, there was no repo market in Switzerland, so the first step was to create one. Stamp duty had long been an obstacle to the development of a Swiss repo market. Because stamp duty was levied on every transaction regardless of maturity, it made short-term repo transactions in particular prohibitively expensive. At the suggestion of the SNB and the commercial banks, the Federal Tax Administration agreed to a new interpretation of the Swiss law on stamp duty with effect from 1 January 1997. It accepted the economic view, and hence the definition of repo transactions as secured loans;¹⁰⁸ previously they had been treated as a combined purchase and sale of securities. Once repo transactions were no longer subject to stamp duty, the way was paved for the creation of a repo market. Before the National Bank could use repo transactions as a monetary policy instrument, however, the NBA had to be amended. The 1997 amendment authorised the SNB to conduct repo transactions (art. 14 sections 2 and 2^{bis} former NBA).

The SNB was interested in more than just the creation of a new instrument of monetary policy. It wanted to actively develop a broad, standardised repo market in Switzerland: it viewed such a market as a means of boosting the liquidity of the Swiss franc money market and the use of securities as collateral in interbank transactions; standardisation would facilitate automated settlement and thereby enhance the security, efficiency and transparency of the market. The SNB viewed this as a contribution towards improving the stability of the Swiss financial system.¹⁰⁹

The late introduction of a repo market in Switzerland had the advantage that a new repo system could be built from scratch; it would subsequently prove to be the world leader in terms of infrastructure and processing. The SNB, commercial banks and financial service providers collaborated closely to develop the market, drawing extensively on existing international practice. The parties agreed that to be a successful money market instrument, repo

107 Cf. also Cottier (1998), pp. 34 et seq.

108 Federal Tax Administration (1998).

109 Jordan (2005a).

transactions would have to be settled simply and quickly, a broad range of securities would have to be available as collateral, and a large number of potential counterparties would have to be available. This could be achieved by standardising repo transactions and by integrating and automating settlement processes. To standardise transactions, specific types of contracts were created and the deliverable securities pooled in various baskets (general collateral baskets). The most important baskets were defined by the National Bank. They comprise the eligible securities, i.e. those that are accepted by the SNB for its monetary policy repos. It is irrelevant which securities the contracting parties choose from the agreed basket: the sole purpose of the securities is to provide collateral for the transaction, as this repo market is concerned purely with the provision and short-term investment of liquidity, and not the lending of specific securities.

The SWX Swiss Exchange developed a new electronic platform (Eurex Repo) to trade repo transactions. This platform was linked with the SECOM securities settlement system of SIS SegInterSettle AG, which in turn was already linked with the SIC real-time payment system. The Swiss Value Chain could thus also be used for repo transactions from June 1999 (cf. chapter 5.2.6). SIS fulfils the core function of processing and risk management. As a triparty service provider, it automatically performs all settlement processes according to the delivery-versus-payment principle as soon as a repo transaction is concluded. With its risk management system, it limits the participants' credit and market risks during the term of the repo transaction. In addition, SIS evaluates all open repo transactions between any two counterparties on a daily basis (twice a day since mid-2005) by valuing the collateral at market rates and comparing it with the monetary claims. If the difference between the collateral and the claims exceeds the tolerance limit to which the two parties have mutually and unilaterally agreed, the system automatically clears the difference by transferring securities or money. In terms of efficiency and risk minimisation, this system is a global leader.

Repo trading in Swiss francs began on 20 April 1998, initially in the form of telephone dealing. In the same year, the SNB allowed banks abroad to participate in its monetary policy repo transactions. To facilitate their participation, the National Bank decided also to accept euro-denominated government bonds and German Jumbo Pfandbriefe, provided that these securities fulfilled strict requirements with regard to the issuer's credit rating and to market liquidity. The SNB hoped that this broadening would increase the liquidity of the repo market. The list of collateral eligible for SNB repos was considerably expanded (cf. art. 9 para. 1 (c) NBA and chapter 9.6.5) after the

new NBA entered into force on 1 May 2004. This development also required SIS to expand its network of foreign securities depositaries accordingly.

4.6.7 Repo transactions as a modern instrument of monetary policy

With the launch of repo trading in Swiss francs, the National Bank began to use repo transactions to manage liquidity. Although initially viewed only as a supplementary instrument, the introduction of repo transactions fundamentally modernised the SNB's monetary policy instruments. Foreign exchange swaps had already lost most of their significance in 1998 and have no longer been used by the SNB since February 2000. Within a few months, repo transactions had also completely replaced swaps with money market debt register claims. In November 1999, the National Bank discontinued the onward placement of Confederation funds deposited with it. Owing to the diversity and flexibility offered by repo transactions, they had quickly become the SNB's most important monetary policy instrument. The value of outstanding repos rose to almost 20 billion Swiss francs in 1999 and has continued to hover around this level. Finally, at the end of 2005, the SNB replaced its Lombard advance facility with special-rate repo transactions. Since then, all the regular monetary policy instruments of the SNB have been based on repo transactions. The traditional instruments still exist, but merely serve to deal with exceptional situations (cf. chapter 7.4.4).¹¹⁰

Repo transactions enable the National Bank to supply additional liquidity to or withdraw excess liquidity from the banking system at any time required. The SNB sets the conditions (maturity, repo rate and volume) for its open market operations (main financing operations and fine-tuning operations) as needed.¹¹¹ Its main financing operations are concluded with the banks by way of daily auctions, referred to as volume tenders. As cash provider, the National Bank sets the repo rate before the start of the auction; during the auction, the banks inform the SNB of the amount of liquidity they wish to draw at the set rate. If, at the end of the auction, total demand exceeds the SNB's target volume, the National Bank reduces the bids received proportionately. A few minutes after the close of the auction the SNB informs the banks of the amount allotted to each. The SNB sets the maturity of the main financing operations in such a way that the banks are compelled to bid for money on an almost daily basis to maintain their reserves at levels that comply with the minimum reserve requirements. This in turn allows the SNB to set a new

¹¹⁰ SNB, Monetary Policy Guidelines (2004), p. 3.

¹¹¹ Jordan (2005b).

repo rate daily if needed, thereby influencing money market rates in a targeted manner. The SNB also may drain liquidity out of the market. In these liquidity-absorbing transactions, the National Bank functions as cash taker, using repo transactions to sell securities temporarily against bank reserves.

Like swaps with money market debt register claims or the onward placement of Confederation funds before the introduction of repo transactions, fine-tuning operations serve to offset the undesired impact of exogenous factors on the supply of liquidity and to reduce sharp fluctuations in money market rates. The SNB also conducts fine-tuning operations in the form of bilateral transactions with selected banks, for instance if it wants to influence the distribution of liquidity in the banking system. The conditions of such transactions may differ from those that apply to its main financing operations.

In October 1999, the National Bank began to use repo transactions to provide its counterparties with interest-free intraday liquidity to facilitate the settlement of payment transactions via SIC and foreign exchange transactions via Continuous Linked Settlement (cf. chapter 5.2.6). This liquidity must be repaid by the end of the same day at the latest, and therefore does not qualify when evaluating compliance with minimum reserve requirements. In 2006, the banks drew intraday liquidity averaging 7.1 billion Swiss francs per day.

In 2004, a liquidity-shortage financing facility was introduced to replace Lombard advances. This facility provides special-rate repo transactions that banks may use for the short-term bridging of unexpected liquidity bottlenecks. Like the Lombard rate, the special rate is two percentage points above the call money rate. This interest premium is intended to prevent the banks from using the liquidity-shortage financing facility as a permanent source of refinancing. As with Lombard advances, a bank must set up a corresponding credit limit with the SNB before it can make use of this facility. Banks can obtain liquidity in the form of an overnight repo up to this limit – which must be covered at all times by collateral eligible for SNB repos. The securities are held by the counterparty in what is known as the Custody Cover Account ‘SNB’ at SIS.

Owing to the introduction of repo transactions, the National Bank has succeeded in basing all the instruments it uses for the daily implementation of its monetary policy on a single type of transaction, which can be used either in auctions with all banks or bilaterally with individual banks, and then automatically processed via the Swiss Value Chain.

4.7 Phasing out direct market intervention

GUIDO BOLLER

4.7.1 Introduction

From the 1980s onwards, the Swiss National Bank began once again to concentrate increasingly on market transaction-based instruments (cf. chapter 4.6.1). At the same time, it also started to scale down its range of sovereign instruments. The latter had been built up successively, mainly during the era of fixed exchange rates, but also later, when the Swiss franc was under strong upward pressure (cf. chapter 2.4.3). Many of these instruments had originally been introduced as emergency measures when the SNB had been trying to achieve three mutually incompatible objectives – free movement of capital, fixed exchange rates and price stability – at the same time. These instruments were eventually incorporated into the National Bank Act (NBA) in 1978.¹¹²

The SNB made regular use of the instruments according to its monetary policy requirements at the time. In the late 1960s and early 1970s, they were applied against the background of an overheated economy. During that period, the National Bank imposed restrictions on borrowing by domestic borrowers both at home and abroad in order to cool the economy down. The slump that followed the first oil price shock made these measures redundant, as a result of which the SNB rescinded them in 1975. Provisions relating to issues of bonds and shares by domestic borrowers were left in place. There were years in which ceilings continued to be imposed on issues that had to be approved by a special committee set up for this purpose. Towards the end of the 1970s, however, the issuing commission hardly reduced the volume of new issues that required prior approval any more.

The second half of the 1970s saw huge inflows of foreign funds and concomitant strong upward pressure on the Swiss franc. The National Bank took various administrative measures in an attempt to control this situation. Among other things, it prohibited the payment of interest on Swiss franc accounts held by non-residents, demanded that high rates of commission be charged on such accounts and erected barriers against the purchase of Swiss securities by non-residents.

Despite all these measures, the SNB was unable to halt the franc's strong appreciation until it temporarily switched from its money supply policy to an exchange rate policy in 1978. During this period, it came to realise that

¹¹² For an overview of the various measures, cf. SNB (1982), chapter 9.

restrictions on the import of capital were not a viable means of achieving monetary policy objectives, especially since such restrictions could also be easily circumvented (cf. chapter 2.4.3). The SNB thus liberalised capital imports completely in the early 1980s.

However, the tools that the National Bank used to regulate exports of capital remained, in essence, unchanged in the 1970s. Both the granting of loans to non-residents and the issue of Swiss franc securities by foreign borrowers continued to be subject to approval. The SNB employed these measures in an effort to control the internationalisation of the Swiss franc. In so doing, it wanted to give itself greater margin for manoeuvre in its monetary policy. It also pursued the same objective with regard to the power enshrined in the Banking Act (BankA) in order to directly influence the interest rates on the medium-term notes issued by Swiss banks. The National Bank continued to make use of this power even after the transition to floating exchange rates.

The lesson learned from the second half of the 1970s – that the strong appreciation of the Swiss franc had proved impossible to resist by administrative measures – eventually led the SNB to rethink its policy on the international role of the franc as well. Another contributory factor was the fact that floating exchange rates had by then become internationally accepted. The International Monetary Fund (IMF) authorised floating exchange rates in 1978, when the Second Amendment of the IMF's Articles of Agreement came into force. In so doing, it also recognised at institutional level what had already applied *de facto* since the end of the Bretton Woods system of fixed exchange rates. The economic literature, which showed that floating exchange rates are superior to fixed exchange rates, contributed to this acceptance. At the same time, the realisation that exchange rates are determined by monetary policy and expectations about future monetary policy was gaining ground in academic debate, as was the view to the contrary that attempts to control the exchange rate by intervening in the market mechanism were ineffective.¹¹³

Against this background, the National Bank embarked upon a policy of 'controlled internationalisation'¹¹⁴ of the Swiss franc in 1980. It overhauled and relaxed the regulations governing the export of capital. Monetary policy considerations were no longer a prime concern. Instead, the regulations were actually meant to help to keep issues of Swiss franc bonds – and thus an important tax substrate – in Switzerland and to protect a segment of the

113 Cf., for example, Kenen (1994), p. 518.

114 SNB (1982), p. 197.

domestic banking sector. The interests of the Swiss Confederation and the banking sector thus moved to the fore. From then on, these interests dictated the scale and pace of liberalisation. Although the Governing Board repeatedly declared its belief in the free movement of capital, the relaxation of the regulations was a slow and gradual process; it was to take almost another twenty-five years for the last restrictions to be lifted.

4.7.2 Lifting quantitative and price regulations: 1982–1987

At the beginning of the 1980s, there were therefore still two areas in which the National Bank maintained administrative measures: exports of capital and medium-term notes. At that time, the legal basis for the regulations governing the export of capital was to be found in art. 8 of the BankA – a law that was to be amended in the early 1980s. The Governing Board availed itself of this opportunity to examine whether this article should not be incorporated into the NBA and, at the same time, adapted to suit the SNB's needs. To that end, it set up a working group,¹¹⁵ which came to the conclusion that the administrative measures regulating capital exports could no longer be justified by monetary policy interests.¹¹⁶ Their sole remaining purpose was to prevent issuance of Swiss franc bonds moving abroad. This was a real danger, since Swiss banks were operating at the time at a disadvantage to their competitors abroad because of stamp duty. The regulation of capital exports was supposed to offset this competitive disadvantage and to keep issuance, and thus the tax substrate, within Switzerland. The working group therefore proposed easing the regulations governing the export of capital. However, those regulations that counteracted the erosion of the competitiveness of Swiss banks due to stamp duties should, it said, be retained for the time being.

On the whole, the Governing Board shared this view of things, but took issue with the fiscal justification of the regulation of capital exports.¹¹⁷ Although it was prepared, as a pragmatic solution, to support the idea of maintaining the protection of the stamp duty tax substrate for a limited period of time, it anticipated problems if the SNB had to resign itself to the fact that these fiscal constraints would never be abolished.

The declaration of belief in the free movement of capital was therefore clear; the actions that followed the words, however, were only moderate. In

¹¹⁵ SNB, Minutes of the Governing Board (1982), 25 March, no. 179.

¹¹⁶ SNB, Minutes of the Governing Board (1982), 27 May, no. 299.

¹¹⁷ *Ibid.*

the end, political considerations prevailed in the Governing Board: the Confederation's tax revenue should not be jeopardised and the protection of the domestic banking sector should not be reduced on that account. Moreover, the Governing Board was still of the opinion that – despite all the doubts about the effectiveness of administrative measures – it was advisable, for monetary policy purposes, to continue to hold them in the SNB's arsenal 'for a rainy day'. It was supposedly dangerous to renounce any interest in capital export regulations and to push liberalisation too hard.

The amendment of the Banking Act failed. Consequently, art. 8 of the BankA remained unchanged. The Governing Board did, however, gradually adjust the regulations governing the export of capital as described above. It simplified and systematically removed those restrictions that were adversely affecting the domestic banks' freedom of action. In 1987, the only key items remaining were the authorisation requirement for new issues and loans by non-resident borrowers and the syndication rules. The latter stipulated that Swiss franc bonds could be issued only through institutions that were domiciled in Switzerland or – under the terms of the Currency Treaty – in the Principality of Liechtenstein.

Initially, monetary policy considerations had also dominated when it came to the use of the administrative measures applied to medium-term notes. Art. 10 para. 1 of the BankA required the banks to notify the SNB in advance of any increase in interest rates on medium-term notes. Under para. 2 of this article, the SNB had the right to use its influence to prevent the interest rate from being raised. It thus had an instrument that allowed it to influence certain interest rates directly, and not only via the more circuitous route of intervening in the money and foreign exchange markets.

The working group also investigated the rules and regulations governing medium-term notes and proposed that the Governing Board dispense with them entirely, claiming that they should no longer continue to be applied, for both legal and economic reasons. The Governing Board did not accede to this proposal.¹¹⁸ Political reasons were once again the decisive factor here. Banks funded part of their mortgage lending by issuing medium-term notes; through the mortgage interest rate, the interest rate on medium-term notes therefore impacted on residential rents – an extremely sensitive political issue. The Governing Board thus wanted to retain the ability to influence interest rates on medium-term notes, although it had made no use of its power to do so for several years. In order to prevent any circumvention of

118 SNB, Minutes of the Governing Board (1982), 25 March, no. 179.

the provisions, it also wanted to extend the definition of medium-term notes with a view to including other similar debt instruments.

The failure to agree on an amendment of the Banking Act also meant that art. 10 was not changed and the scope of its application not extended. Instead of employing the instrument more strictly, the National Bank gradually relaxed its practice in respect of medium-term notes over the following years. One reason for now acting in this way, in the eyes of the Governing Board, was that a money supply-based policy could dispense with the need to influence interest rates directly through administrative measures.¹¹⁹ By 1987, the only regulation still surviving was the one requiring banks to notify the SNB two days in advance of any increase in their interest rate. From then on, the National Bank made no further use of its influence to prevent any intended interest rate increase from proceeding. As early as 1984, the SNB had also ceased to inform the banks of notifications that it had received, as it had done previously. Not wishing to encourage cartel-like behaviour, it sought instead to prevent interest rate increases from being 'collectivised'.¹²⁰

4.7.3 Removal of authorisation requirement for capital exports: 1988–1995

With effect from 27 October 1988, the National Bank granted general approval for Swiss franc loans made by Swiss banks to counterparties domiciled abroad. It only retained an authorisation requirement for individual transactions for certain countries (such as South Africa).

One of the reasons cited by the Governing Board for this liberalisation was that, in the case of loans and swaps – unlike bond issues – there were no tax grounds for maintaining the syndication rules.¹²¹ However, the Governing Board did persist with the new issue rules, even though it was aware that, in so doing, it would be forgoing the benefits of a liberal policy, such as greater competition and a structural change that would ensure the competitiveness of Switzerland as a financial market.

The provisions governing bond issues came under pressure, however. The main reason for this were developments in the international environment, especially in the European Community (EC). In June 1988, the EC's economics and finance ministers decided to abolish capital controls within the Community by the mid-1990s. In the same year, the EC heads of state and government commissioned a report that was intended to show ways of establishing

119 SNB, Minutes of the Governing Board (1984), 1 November, no. 491.

120 Ibid.

121 SNB, Minutes of the Governing Board (1988), 20 October, no. 450.

an economic and monetary union. Published in 1989, the report led to the decision in 1990 to create the European Economic and Monetary Union in three stages.

The dynamism displayed by the EC in realising the four freedoms of the internal market – free movement of goods and services, free movement of persons and free movement of capital – also had an effect on Switzerland. Together with the other countries of the European Free Trade Association (EFTA), it negotiated the European Economic Area (EEA) Agreement. Membership of the EEA would have meant that Switzerland would have had to adapt the remaining regulations governing the export of capital. In particular, it would have had to amend the syndication rules so that banks domiciled in any EC country would also have been able to issue Swiss franc bonds.

In a referendum held on 6 December 1992, however, the Swiss electorate voted against the EEA Agreement. Thereupon, the Federal Council decided to continue – under the broad title of *Swisslex* – with proposals for various pieces of legislation that EEA accession would have entailed. For instance, the stamp duty payable on Swiss franc issues by foreign borrowers was abolished on 1 April 1993. This allowed the National Bank to replace the syndication rules on the same date using the ‘domestic anchor’ principle, which other European countries also applied. The domestic anchor principle required that only the institution that lead-managed an issue consortium had to have its registered office in Switzerland or the Principality of Liechtenstein. Moreover, it was also required to carry out activities in Switzerland that were typical of a lead manager. Until then, all banks wanting to be members of the consortium had had to prove that they were domiciled in Switzerland or the Principality of Liechtenstein.

One of the reasons cited by the National Bank for the liberalisation of the rules was that without it, the Swiss franc’s share of the international primary market would decline further. While the National Bank had earlier resisted the internationalisation of the Swiss franc, it now feared that the international importance of the franc in new issue business might be jeopardised. The SNB also argued that the willingness of foreign central banks to support it in enforcing strict syndication rules would diminish.¹²² In order to prevail upon banks domiciled abroad to comply with the regulations as well, central banks had to rely on mutual support. The liberalisation in the EC now called this cooperation into question. But the Governing Board did not want to give up the regulations governing new issue business entirely, believing that the

122 SNB, Minutes of the Governing Board (1992), 26 November, no. 510.

domestic anchor principle was necessary for the National Bank to continue to obtain the information it required on Swiss franc issue business and to have appropriate contacts in Switzerland.

The Banking Act was also partially revised as part of the Swisslex package. The SNB's power to intervene directly in the movement of capital at any time was abolished. In art. 8 of the BankA, the Federal Council was given a new power to introduce an authorisation requirement if exceptional short-term capital outflows were to jeopardise Swiss monetary policy seriously. At the same time, in art. 7 para. 5 of the BankA, the National Bank was given the power to take whatever measures might be necessary to monitor the Swiss franc markets. It was on the basis of this article that the SNB was forthwith able to continue to apply the domestic anchor principle. Finally, the requirement imposed upon the banks to notify the SNB of any increases in interest rates on medium-term notes was deleted without being replaced.

The amended Banking Act entered into force on 1 February 1995. With effect from the same date, the SNB revised its instruction sheet relating to banks' reporting requirements in respect of Swiss franc issue business. The formal authorisation requirement for bond issues no longer applied. The domestic anchor principle was coupled with the requirement to report bond issues to the SNB. Exports of capital were no longer subject to any restrictions extending beyond that. When the new instruction sheet was being discussed, the Governing Board wondered whether the National Bank's remaining powers under the Banking Act really justified maintaining relatively complex rules and regulations.¹²³ It answered this question in the affirmative, citing statistical needs – data on bond issues might be important for monetary policy decisions – and the mildly protectionist assistance given to the Swiss financial services sector.

4.7.4 *Complete liberalisation: 1996–2004*

The period between 1996 and 2004 was notable for the growing discrepancy between the international integration of financial markets and the regulations stipulating that certain areas of Swiss franc issue business could only be carried out from Switzerland. This discrepancy was evident, for instance, in the fact that countries that had served as models in the formulation of the domestic anchor principle – such as Germany, the United Kingdom and France – were taking their liberalisation even further. The SNB could therefore no longer rely on the central banks in question to support them if banks

¹²³ SNB, Minutes of the Governing Board (1994), 16/17 November, no. 507.

in their countries were to issue Swiss franc bonds. They no longer had any interest in mutual assistance, since they themselves no longer needed it. What the SNB was left with was moral suasion¹²⁴ – it told banks that issued a Swiss franc bond abroad that they were breaching the domestic anchor principle and drew their attention to the fact that the lead manager for any such issue should be based in Switzerland. The banks concerned took due account of this requirement in all known cases. However, the SNB had no way of checking whether they really were performing the lead management role from Switzerland or whether they were only giving the appearance of doing so.

Problems in enforcing the regulations also arose from the increasing spread of structured products with bond-like properties. The National Bank also had to make these products subject to the domestic anchor principle. If it had not done so, the markets could easily have circumvented the regulations by creating synthetic bonds. Making such products subject to the domestic anchor principle created further problems, however. For instance, it was not possible to define clearly when a structured product had bond-like properties and when it did not. Small changes in the properties of the products could influence the decision in either direction. Furthermore, these synthetic bonds were bond-like in nature only as far as the creditors were concerned. For the issuers – generally banks – they were an instrument for controlling risk.

The SNB was therefore compelled to enforce the domestic anchor principle against products that had nothing at all to do with borrowing in the capital market. It was also constantly having to redefine the boundary between regulated and non-regulated products. The problems of regulation in a rapidly changing environment were perfectly clear. For that reason, the National Bank twice made an attempt to abolish the domestic anchor principle. The first attempt, in 2001, failed because – following consultations with the banks concerned – it estimated that the cost of abolishing the domestic anchor principle in terms of jobs and loss of know-how was higher for Switzerland as a financial market than the cost of regulation itself.¹²⁵ In the second attempt, one year later, the National Bank did take the decision to abolish the domestic anchor principle.¹²⁶ In the meantime, the indications that the domestic anchor principle was undermining the attractiveness of the Swiss franc as a bond currency had increased. However, it was not until after

124 SNB, Minutes of the Governing Board (2000), 2 November, no. 489.

125 SNB, Minutes of the Governing Board (2001), 19 April, no. 167.

126 SNB, Minutes of the Governing Board (2002), 17 July, no. 267.

yet another round of consultations with all interested parties that deregulation would finally go ahead.

By this stage, the NBA had already been amended. It realised the longstanding demand for the SNB's power to collect statistical data to be incorporated into the new NBA. At the same time, art. 7 para. 5 of the BankA, on which the domestic anchor principle was based, was deleted without being replaced. The Federal Council's message to the Federal Assembly on the new NBA stated that for a country like Switzerland free exports of capital were of vital importance;¹²⁷ there were no apparent economic arguments in favour of restrictions on capital movement.

When the new NBA entered into force on 1 May 2004, therefore, the domestic anchor principle was dropped and hence the final restriction on the export of capital was lifted. The National Bank even did away with any reporting requirement, since it could obtain the necessary information through publicly available channels.

4.7.5 Conclusion

Switzerland has a long tradition of free movement of capital and unrestricted access to the capital market. In this respect, it differs from many other countries in Europe. However, despite the general belief in free capital markets, Switzerland has time and again also intervened directly in them. Direct intervention in the market has played no further monetary policy role since the beginning of the 1980s. Its function has been merely to ensure a source of federal government tax revenue and to protect part of the Swiss banking sector from foreign competition.

These objectives were achieved. Thanks to these measures, the Confederation won time to amend the Stamp Duty Act in accordance with its schedule. Without the syndication rules, and with new issue business threatening to move abroad for tax reasons, it would have been forced to exempt the issuance of securities by non-resident borrowers from stamp duty even before 1993. Domestic banks and the domestic financial market also benefited from the protection afforded by the regulations governing the export of capital. Swiss franc issue business, and thus the associated earnings, expertise and jobs, remained within Switzerland.

The costs of this intervention in the market are less easy to evaluate than the benefits. During this period, the Swiss franc lost its role as one of the most important issue currencies. There are various reasons for this. Not least,

127 Message (2002), p. 5713.

deregulation in other countries is likely to have eroded Switzerland's lead. However, the fact that the syndication rules and, later, the domestic anchor principle might also have contributed to this development cannot be ruled out. The artificial compartmentalisation of the market made market access difficult and may therefore possibly have depressed the amount of bonds issued. This also had an adverse effect on liquidity, making the market less attractive for issuers and investors.

The fact that the Confederation had continued to charge stamp duty on foreign currency issues for so long is also likely to have been a contributory factor in international issuance now being concentrated in financial centres, such as London, where no such tax is levied. When the federal government did finally abolish stamp duty on such issues in 1993, the Euromarket was already too firmly established in London for the business to return to Switzerland. For that reason, Switzerland now scarcely reaps any benefits at all from the growth of these markets.

The SNB could have done something to avert this process if it had pressed the Federal Council harder to amend the Stamp Duty Act in good time and thus remove the main reason for maintaining the restrictions on the export of capital. The pressure that the SNB did apply to the Federal Council was, however, rather weak. On the one hand, the SNB did not want to encroach upon the government's jurisdiction in tax matters, just as the Federal Council respected the National Bank's independence in monetary policy matters. On the other hand, the SNB itself had a certain interest in maintaining the restrictions on the export of capital: they made it easier to obtain information on how the Swiss franc was being used internationally.

In the short term, the benefits of the SNB's direct intervention in the market are likely to have exceeded the costs. In the long term, however, the costs probably outweighed the benefits that individual segments of the economy derived from the regulations. The National Bank had been aware of this since the early 1980s. Nevertheless, many of its decisions were governed by short-term considerations of practical political constraints.

4.8 The increasing significance of communications

WERNER ABEGG

4.8.1 Introduction

The new National Bank Act (NBA), which entered into force in 2004, explicitly gives the Swiss National Bank a mandate to inform the public regularly about its monetary policy and to announce its monetary policy intentions (art.7 para.3 NBA). Never before had there been any mention of any such communication obligation. Apart from the provisions relating to the information to be made available to its shareholders (to which the SNB, as a special-statute joint-stock company, is subject), the only obligation laid down in the former NBA was that the Federal Council and the SNB had to inform each other before taking decisions of major importance for economic and monetary policy (art.2 para.2 former NBA). There was no mention of whether notification of such decisions should be made to others.

Information as a component of accountability at various levels – the Federal Council, Parliament and the general public – was given a key role in the new NBA. The act thus gave legal status to what the National Bank had increasingly been practising of its own accord in the previous three decades. But it also took account of developments characterising the way in which monetary policy was being addressed internationally: the growing awareness that a duty to provide information is analogous with central bank independence, and the realisation that it is hardly possible to conduct an efficient monetary policy without systematic communication work.

4.8.2 Background and rationale

For the SNB, the transition to floating exchange rates in 1973 also marked the beginning of the regular and systematic provision of information to the wider public. Since the 1930s, there had already, in fact, been an organisation – the association for a sound currency (*Vereinigung für gesunde Währung*) – which, through its ‘monetary policy correspondence’, represented SNB matters to the media and politicians and brought its views into the public domain. The association’s main objective was to raise awareness of the advantages of a sound and orderly monetary system. It maintained direct relations with the SNB and, to a large extent, was co-financed by it.¹²⁸ For decades, the National Bank had also taken a great interest in what was being reported about it in the media, and it regularly cultivated relations with some

¹²⁸ SNB, Minutes of the Governing Board (1975), 6 March, no. 269.

journalists.¹²⁹ Even so, before the transition to floating exchange rates, monetary policy was a matter discussed mainly by insiders and only selected representatives of the media. At that time, however, most private companies were also extremely reticent in their communication with the public. Once it had decided to make regular public appearances under its own name, the National Bank began phasing out monetary policy correspondence.¹³⁰

The SNB's first press conference took place on 7 November 1974. On this occasion, the National Bank intimated that it would be holding such events at regular intervals. It subsequently stuck mostly to a six-monthly cycle for media events on monetary policy. The first event was largely taken up with explanations and comments on the reduction of the monetary overhang that had arisen as a result of the interventions to defend the Swiss franc's fixed exchange rate.

"This [...] occasion deserves to be recorded for posterity," commented the *Tages-Anzeiger* newspaper. "It is not only a sign of the generation change at the top of the SNB, but it also provides solid evidence of the completely new and increasingly important role that the central bank is now playing in Swiss economic policy. The starting point for the SNB's more influential position was the floating of the franc's exchange rate. Since January 1973, the central bank has been able to pursue an independent money supply policy and is no longer forced to intervene at particular exchange rates."¹³¹

Nevertheless, as a joint-stock company, the SNB had already had to fulfil obligations to furnish information before then, even though these obligations related primarily to explaining its actions retrospectively and less to announcing its intentions. It met these obligations in its increasingly informative Annual Report and the Chairman's addresses at General Meetings. The information contained therein was freely available to the owners of the National Bank (mostly cantons and cantonal institutions, but also many private shareholders), to the markets and to other interested parties.

The SNB had therefore been aware that providing information about monetary policy intentions and the implementation of monetary policy was a key obligation, long before accountability to Parliament and informing the public were formally enshrined in the NBA in 2003. For instance, as far back as 23 April 1981, after it had acquired some experience of media events, the Governing Board issued rules for the public relations work of members of the

129 BoE, *Swiss Journalism* (1937).

130 SNB, *Minutes of the Governing Board* (1975), 6 March, no. 269.

131 Hew (1974).

Governing Board and other SNB representatives. They were based on the fundamental principle of the greatest possible openness, which was remarkably progressive for those days, especially for a central bank.¹³² In 1982, at the Mustermesse convention centre in Basel, Governing Board Chairman Fritz Leutwiler spoke of how the National Bank saw itself in this respect: Switzerland's central bank was not answerable to Parliament, he said, and nor could the Federal Council directly influence central bank policy. "The National Bank therefore enjoys a high degree of independence. This obliges it to provide information."¹³³ As a central bank in a direct democracy, he continued, the SNB was probably also under an even greater obligation to communicate than central banks in other countries: "[...] we live in a referendum democracy in which the voter is occasionally called upon to express a view even on matters relating to the monetary and currency system – sometimes very technical matters [...]. In this respect, Switzerland is certainly unique in the world [...]. Central bank policy [must] have the support of the general public, not just in our country, but here perhaps more than anywhere else, if it wants so succeed."¹³⁴ The SNB followed this principle early – before many other central banks – and has done so consistently ever since. The scale of transparency and the degree of detail of the information made available on monetary policy has changed quite considerably over time, however.

4.8.3 Communications and the efficiency of monetary policy

For the SNB, a key motive behind communicating with the public was to influence inflation expectations among the population and in the markets. Once the anchor that the fixed exchange rate had long represented had disappeared with the transition to floating exchange rates, there was a need for a monetary policy indicator to serve as a guide for business, politicians and the people. With effect from 1975, the annual money supply growth targets fulfilled this function (cf. chapter 4.3.2). They tied the central bank to a criterion and forced it to substantiate its monetary policy decisions and to allow itself to be measured by what it had achieved. In a system of fixed exchange rates, a central bank that only defends a particular exchange rate by intervening in the markets can display greater reticence in its communication than a central bank that pursues an independent monetary policy. The setting of money supply targets had to be explained, and reports on the success in meeting

¹³² SNB, Minutes of the Governing Board (1981), 23 April, no. 231.

¹³³ Leutwiler (1982), pp. 3–4.

¹³⁴ *Ibid.*

these targets had to be submitted. The money supply policy made it incumbent upon the National Bank to provide information. As a result, the transparency of Swiss monetary policy was increased. Improving it still further was again one of the reasons cited towards the end of the 1990s, when the SNB moved from a monetary policy with quantitative targets to an inflation forecast concept (cf. chapter 4.4.3).

For the National Bank, the transparency of monetary policy was a necessary condition for its credibility. Only if outsiders can judge whether and how a central bank is fulfilling its function – the maintenance of price stability – can they place their trust in it. The trust of the markets and the public, in turn, is a major prerequisite for the success of monetary policy.¹³⁵ The adjustment costs of monetary policy measures to the national economy are lower if the monetary policy strategy is readily understandable. If the central bank's credibility suffers, uncertainty about future inflation grows. In such circumstances, issuers of bonds, for example, have to pay an additional risk premium in order to be successful in the market. Their issue proceeds may thus be reduced. Subsequent deviations from forecast rates of inflation change the contract terms implied in the bond. Other contracts, such as wage agreements, are also affected by such uncertainties. However, good communication enables a central bank to reduce uncertainty about future inflation.¹³⁶

If the SNB ever wanted to influence the inflation expectations of the population at large, a legislative oddity peculiar to Switzerland meant that it always found itself faced with a particular difficulty. Conversely, this difficulty practically forced it to improve people's basic knowledge of monetary policy. Swiss tenancy law links the cost of rents to the mortgage interest rate. Any increase in mortgage rates entitles landlords to pass the higher costs on to their tenants; by contrast, if mortgage rates fall, landlords must reduce the rents they charge. Because of this mechanism, the first effect of any tightening in monetary policy is generally higher rents and, with a certain time lag, an increase in the consumer price index. With most of the population living in rented accommodation, it is obviously difficult for them to believe in the need for higher interest rates and especially in the success of the fight against inflation. The initial additional surge in inflation raises doubts about the effectiveness of monetary policy. The central bank's credibility suffers as a result.

¹³⁵ Message (2002), pp. 5744–5745.

¹³⁶ Roth (2005).

This legislative idiosyncrasy specific to Switzerland also highlights a basic problem that arises in connection with the communication of monetary policy, namely how measures that generally do not produce an effect and cannot be monitored until quite some time into the future can be made understandable to a wider public. Why, for example, does the central bank raise interest rates at a time when the growth motor is running smoothly and – to everyone's delight – is accelerating even faster? Or, to put it another way: Why do central banks always hide the punch bowl when the party's only just getting going?

In an economic and political environment that demands quick and visible results, it is not always easy to answer these questions. Only if the central bank has built up the necessary reserves of credibility with a sustained policy of openness can it succeed in making its monetary policy understandable. In this way, communication turns out to be an important prerequisite for the success of monetary policy. It helps consumers and businesses to form expectations about the future supply of money to the economy and makes monetary policy predictable.¹³⁷ Communication therefore makes a crucial contribution to the credibility of a central bank.

4.8.4 *Communication with the financial markets*

The public information policy of central banks towards the financial markets has changed in recent years. Most central banks have moved away from their former conviction that, when it comes to dealing with the markets, some uncertainties are occasionally useful. The National Bank took this step comparatively early. But even the SNB repeatedly adhered to the practice of surprising the markets with some of its monetary policy decisions, although there is inherently no disputing the fact that monetary policy influences the economy through variables that are determined by market expectations. Thus, operating with a high degree of transparency in the financial markets makes it easier for the central bank to conduct its monetary policy.¹³⁸ If a central bank's intentions are readily understandable for the markets, they will often be anticipated by the markets. In that case, market interest rates will react before the central bank changes its official interest rate; the financial markets do the job on the bank's behalf, so to speak.

As a small open economy with traditionally free movement of capital, Switzerland has been more exposed to fluctuations in exchange rates and

¹³⁷ Message (2002), p. 5744.

¹³⁸ Roth (2002).

international interest rate movements than other countries. The SNB has therefore always thought it important to reserve a certain amount of leeway for the implementation of its monetary policy in the markets. Mechanically defined target values were hardly suitable for the implementation of monetary policy. This proved to be the case under the system of quantitative money market steering when it came to determining the level of bank reserves at the National Bank. These balances could fluctuate greatly within a month and were hardly suitable for market participants as a guide to the degree of restrictiveness of monetary policy – or in any event, not without additional explanations and comments. The SNB generally provided the markets with such explanations and comments at the request of the media.

In the monetary policy concept that it has applied since the beginning of 2000, the SNB has retained its flexibility in the implementation of monetary policy by opting for a target range for the money market interest rate instead of a fixed target value (cf. chapter 4.4.3). In so doing, it has sought – in the normal course of events – to keep the money market rate in the middle of the range. Whenever it allowed deviations from this principle, the necessity to keep the financial markets informed grew rapidly. The National Bank has always needed this sort of freedom for the implementation of its monetary policy, but it also continually created a need to provide more detailed information on how certain monetary policy operations should be interpreted in the wider context.

For the National Bank, the Swiss franc exchange rate did not always have the same relative importance in its communication with the markets. While it frequently discussed exchange rate influences in the retrospective analysis of its monetary policy and placed monetary policy decisions in an exchange rate context in its Annual Report, for example, there were lengthy periods in which it largely refrained from making references to the exchange rate when announcing its monetary policy intentions (cf. chapter 4.5.5).

The National Bank found itself in an unusual situation on 1 October 1978 when, in the middle of an exchange rate crisis that saw the Swiss franc appreciating sharply against most major currencies, it announced an intervention target for the franc exchange rate against the German mark. It decided to take a number of different measures to lift this exchange rate “well above 80 Swiss francs per 100 German marks [...]”.¹³⁹ In particular, it announced its intention to buy dollars in the foreign exchange market for as long as it would take for the rate against the German mark to hold steady above this threshold

¹³⁹ SNB, Press release (1978), 1 October.

again. It succeeded in realising this intention, but at the price of a strong expansion of the money supply, with correspondingly negative consequences for inflation in 1980/1981 (cf. chapter 2.4.2).

It was these knock-on effects that later made the National Bank describe the setting of an intervention target and the associated foreign exchange market operations as an experiment. Although this had been justifiable, it said, given the extraordinary circumstances, “[...] we would have to think twice before repeating it”.¹⁴⁰ However, the SNB never formally renounced the earlier intervention target, which, incidentally, would not have been in its own interest either. This is because in tense situations in the foreign exchange market in which the franc was beginning to appreciate, the former intervention target often acted as a psychological resistance point. This phenomenon continued to be observed until the introduction of the euro in 1999. In this area, avoiding complete monetary policy transparency therefore served the National Bank rather well.

At times when the franc was appreciating, the National Bank often ran the risk of being faced with calls from the export or tourism industries for it to relax monetary policy or to intervene in the foreign exchange market. It was therefore reluctant to make statements about the exchange rate, since it did not want to encourage calls for specific action. Under its quantitative monetary policy approach, it declared its conviction that, as a matter of principle, the exchange rate should be left to market forces. Only in unusually tense circumstances did it sometimes become more explicit in its statements in this regard (cf. chapter 4.5.5). When announcing the money supply targets, it regularly stated that it would deviate from the targets it had set in the event of unexpected developments in the financial markets. Exchange rate considerations often lay behind this proviso. However, the National Bank no longer set actual intervention targets after 1978.

Even on the occasion of the foreign exchange market interventions that it carried out until the mid-1990s – generally in concert with other central banks – the SNB made no further pronouncements on exchange rate levels. At any rate, it later regarded the benefit of such interventions as lying mainly in the signal effect that they could have. It thus often justified them by declaring that it wished to provide a counterweight in an extremely one-sided market dynamic. At all events, the National Bank also made an early contribution to transparency in this area, in that it was one of the first central banks to confirm officially that it had been intervening in the foreign exchange

¹⁴⁰ Leutwiler (1984), p. 13.

market. In each case, it specified the currencies that it had used, but did not mention the rates at which it had intervened and provided only summary details of the amounts involved, and then only after a considerable time lag.

Since the introduction of the new monetary policy concept at the beginning of 2000, the National Bank has included the exchange rate more systematically in the statement of its monetary policy intentions (cf. chapter 4.4.3). Comments on this subject assumed particular importance following the terrorist attacks of 11 September 2001 in the United States, which caused a disconcerted foreign exchange market to head once again for the safe haven of the Swiss franc. In the press release of 17 September 2001, relating to an assessment of the monetary policy situation that had been brought forward, accompanied by a cut in interest rates, the comments still appeared somewhat veiled. However, under the pressure of events, they had become more specific by 24 September 2001: the Libor target range was being lowered out of “concern over [the] euro/Swiss franc exchange rate” and “[...] in reaction to the marked and rapid appreciation of the Swiss franc vis-à-vis the euro witnessed in the past few days”.¹⁴¹ In its assessment of the situation at the end of 2001, the National Bank once again mentioned the “[...] undesirable development of the Swiss franc exchange rate”.¹⁴² Since then, the SNB’s press releases relating to its quarterly assessments of the situation have contained a reference to the performance of the Swiss franc exchange rate almost as a matter of routine.

4.8.5 *Communication with the political world*

In early 2005, the National Bank submitted for the attention of Parliament its first formal Accountability Report on the fulfilment of its statutory mandate, thereby complying with the accountability requirement laid down in the new NBA. It had, however, long been standard practice for the National Bank to exchange views with the political authorities. The Governing Board used to hold regular discussions about monetary policy matters and the performance of the economy with a delegation of the Federal Council. The money supply targets were always set after consultation with the Federal Council and, as mentioned above, the former NBA required the National Bank and the Federal Council to inform each other before taking any major economic or monetary policy decisions. Under the new NBA, too, the Federal Council and the National Bank must notify each other of their intentions before taking any

¹⁴¹ SNB, Press release (2001), 24 September.

¹⁴² SNB, Press release (2001), 7 December.

such decisions. The Federal Council is the first official body to approve the Annual Report, which contained significant elements of the later Accountability Report even before the new NBA came into force. Since the majority of the National Bank's shares are owned by the cantons and cantonal institutions, the information submitted to the General Meeting of Shareholders may also be regarded in a broader sense as reporting to political authorities.

However, before the new NBA entered into effect, the main distinguishing feature of the SNB's communication with the political authorities was a certain exclusivity. The dialogue generally took place within a limited circle and before a specialised audience. Since the beginning of the 1990s, there had been regular discussions about monetary policy between the Chairman of the Governing Board and the economics and finance committees of Parliament, which had been initiated at the committees' request. The discussions were generally of a confidential nature; the information made available to the public rarely extended beyond a statement to the effect that an exchange of views had taken place. Although under the new NBA, the Chairman of the Governing Board still delivers his report solely before the parliamentary committees, rather than before a plenary session of Parliament, the formal recipient of the Accountability Report is actually the Federal Assembly. The report is also available to the public.

Parliamentary business affecting the National Bank is normally conducted by the Federal Department of Finance. The National Bank's views are generally fed into the relevant propositions during the preparatory stages. The central bank cannot represent itself before Parliament in its own right, and there is no such thing in Switzerland as the central bank governor giving testimony before the full Parliament, as is the custom in some countries.

However, there has been one exceptional instance of the National Bank directly influencing the course of a parliamentary debate. In the autumn of 1990, the Governing Board wrote a letter to selected members of Parliament expressing its opposition to a Federal Council proposition. The proposition in question was an urgent federal decree concerning anti-inflation measures being applied to mortgage interest rates. If it had been passed, Switzerland would have introduced economic policy-motivated price monitoring of mortgage rates on residential and commercial buildings. Changes to these rates could then have been prevented by political decision. The bill as presented was meant to prevent any further increase in mortgage rates, which had already reached record levels. The National Bank saw this, however, as impinging upon its monetary policy jurisdiction and also described the intrusion as questionable on regulatory policy grounds. It felt that the proposal

struck at the heart of its terms of reference, which is why it resorted to the extraordinary device of a direct appeal to parliamentarians. The mortgage rate price-monitoring project eventually came to naught in this form.

In 2006, the National Bank participated in the events organised by the Confederation and the cantons to explain its opposition to the people's initiative 'National Bank profits for the Old Age and Survivors' Insurance Fund (AHV/AVS)', better known as the Cosa initiative (cf. chapter 9.4.9). In this context, the SNB pointed out that, in its view, the assumptions made by those backing the initiative about National Bank profits were unrealistic, as was the claim that channelling these profits into the AHV/AVS would substantially ease the Fund's position. Above all, however, it feared that linking its monetary policy mandate to the financing of the state welfare system would severely hinder it in the fulfilment of its mandate. Acceptance of the Cosa initiative would almost inevitably have the effect of politicising central bank earnings, and this – in the SNB's view – would seriously jeopardise its independence and its credibility in the eyes of the financial markets.

4.8.6 *Communication with the general public*

For the National Bank, the need to inform the general public about monetary policy issues arose not only because of the above-mentioned mortgage interest rate problems and its reasons for wanting to be able to influence inflation expectations. More to the point, the transition to floating exchange rates had fundamentally changed the monetary policy landscape. The SNB therefore felt duty-bound to make the wider picture comprehensible to broad sections of the population. One means of achieving this was with speeches by members of its Governing Board and management as well as other members of staff. The National Bank visibly expanded its activity in this area and also tried to make public appearances in various parts of the country at more or less regular intervals. The heads of its regional representative offices also played an increasingly important role in this regard. In addition, the National Bank sought to enlighten the public further by adopting what for the 1970s was a novel approach: it produced a series of films entitled '*Histoires de l'argent*'. From 1977, the films were available for lending out to schools and were broadcast on television. They explained basic concepts of monetary policy and illustrated the links between monetary policy and economic activity. In the last part of the series, the Chairman of the SNB visited a school classroom and answered questions.

In 1989, the National Bank carried out a three-part film project: one part depicted the SNB as a business, one explained the nature of money and the

functioning of monetary policy, and the third showed episodes from the history of the Swiss franc. In 2002, as part of a multi-media project that also exploited the possibilities of the internet, the National Bank had another two films made that dealt with money and monetary policy.

Information about banknotes has always played a part in these projects, as they allow the most varied processes to be visualised. Major projects since the 1970s have also included the public information measures on banknotes, intended to make users familiar with the notes' security features. For the eighth series of banknotes issued between 1995 and 1998, the National Bank turned to methods of communication it had never used before: in order to ensure that the population familiarised itself quickly with the appearance of the banknote series and its innovative security features, it conducted an extensive media campaign, which for the first time ever included television commercials and poster advertising. The campaign slogan was 'The new banknotes. Easy to check'.

In 2002, the National Bank took part in the sixth Swiss National Exhibition, Expo.02, with an exhibition on the subject of 'Money and Value – The last taboo'. It was designed by the world-renowned exhibition organiser Harald Szeemann. By making 'value' the subject, the National Bank hoped to contribute to enhancing public awareness and sensitivity. The pavilion consisted of a cube covered with pure gold, inside which a system of pipes on the ceiling symbolised the ceaseless flow of money. It portrayed the history of money and the uncertainty of values brought about by fluctuations in stock exchange prices and exchange rates, presented a currency 'fashion parade' and provided games offering unlimited (but fictitious) opportunities to make and lose money. The centrepiece of the whole pavilion – visible from all sides – was a robot controlling a shredder that cut genuine banknotes (albeit ones due to be withdrawn from circulation) into minute strips. Despite its rather challenging content, the pavilion attracted a million visitors, which made it one of the Expo's most visited exhibitions.

4.8.7 The media as monetary policy intermediaries

A successful monetary policy is seldom an exciting topic of discussion for the public, since it keeps inflation low and enables the economy to grow at a balanced rate. Although the media may report on this, it is difficult to do so over and over again. Monetary policy only becomes interesting when exchange rates fluctuate wildly, when inflation or the economy performs poorly, or when major tensions or other problems arise. A foreign central bank governor once ironically summed up the dilemma nicely when he told

representatives of the media that he hoped that the longer he stayed in office, the more he would bore them.¹⁴³

So it was that, in the past, the media in a wider sense turned their attention to the National Bank mainly whenever monetary policy was going through difficult periods. Because of the effect of higher mortgage interest rates on rents and disposable incomes, the SNB frequently found itself the focus of critical interest whenever it tightened its monetary policy. It was blamed for the rent increases, and its ability to conduct an effective monetary policy was questioned. These debates were sometimes heated and were also conducted in those media that usually pick up only on the more popular topics. This was still the case in the first half of the 1990s, when the National Bank found itself forced to make a particularly drastic correction of its monetary policy course in order to regain price stability.

Ultimately, however, it is a specialised circle of media-makers that regularly report on and analyse central bank policy. This comprises the national and international news and financial agencies, specialist publications from the worlds of business and finance, and specialists from the business sections of the major newspapers and national radio and television stations. The systematic 'central bank watching' cultivated by many media in English-speaking countries is less well developed in Switzerland.

Since 1998, the internet has been another medium that the National Bank, too, uses to gain direct access to the worlds of research, politics and education as well as broad public strata. Central banks have been systematically developing their websites over recent years. Today, this medium is proving an indispensable tool for imparting basic knowledge on monetary policy and explaining central banks' activities. The opportunities offered by the internet are still nowhere near being exhausted as far as the National Bank is concerned, and are being continually developed. At the same time, the immense popularity of the internet has put the traditional media under significant competitive and cost-cutting pressure. It thus remains to be seen whether they will continue to devote considerable resources to covering central bank matters which, at first glance, are not hugely popular.

143 Taken from Roth (2005).

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5 The role of the National Bank in payment transactions

5.1 Cash supply and distribution

GUY MARADAN

5.1.1 *Legal basis and mandate*

The Federal Constitution gives the Swiss Confederation the right to issue banknotes and to mint coins (art. 99). However, under current legislation, these payment instruments are issued by two separate institutions. This segregation is a legacy of the past. With the 1848 Constitution having granted the prerogative of minting coin to the Confederation, Switzerland opted for the French monetary system, and later, with effect from 1865, joined the Latin Monetary Union. This union was based on a system of metallic coin similar to that used in other European countries. Under this system, the face value of coins corresponded to the value of their content of precious metal. The system had few rules, the main one being respect for the parity – in other words the definition of the monetary unit in terms of a certain quantity of precious metal. The circulation of cash was primarily dependent on the economic situation (cf. chapter 1.3).

Banknotes were not in widespread use at the time. They were not legal tender, but did incorporate the right to a certain quantity of precious metal. Private and cantonal banks issued them in accordance with rules set out under the legislation of the various cantons. From 1870 onwards, banknotes became more widespread in Switzerland, a factor that raised the question of their regulation on a federal level and, later, of the centralisation of note issuance. The ensuing protracted discussions led to the establishment, in 1907, of the Swiss National Bank. However, as the arrangements for issuing coin continued unchanged, the question of the same institution taking responsibility for the issuance of both notes and coin was not raised. It was not even discussed when banknotes first became legal tender, shortly after the beginning of the First World War.

The idea of transferring the coinage prerogative to the National Bank first arose during preparations for the 1999 Federal Act on Currency and Payment Instruments (CPIA). In the meantime, precious metal coins had long since given way to banknotes as a legal means of payment. The former had been replaced by lower-value alloy coins, which were only used to settle small transactions. Logically, the remit of minting coin should have been transferred to

the SNB. However, for political and fiscal reasons, the new legislation confirmed the separation of the monopolies for the minting of coin and the issuance of banknotes (cf. chapter 9.5.2).

One of the SNB's responsibilities is to optimise the supply of cash, in other words to provide a given quantity in the required denominations at the desired place and at the appropriate time. A careful balance also has to be struck between considerations of security and cost.

5.1.2 Demand for cash

The demand for notes and coins is generated by economic agents. The National Bank meets all market demand for cash without restriction. The widespread popularity of cash is largely due to its practical advantages, and its visibility has given it an established place in the minds of consumers. There are a number of reasons for this popularity: firstly, being anonymous, its use is simple and discreet; secondly, the banknote is a means of payment that gives the holder an unlimited ability to discharge his liabilities. Its main drawback, however, is the risk of loss and destruction.

Switzerland is a country in which cash plays an important role. At the end of 2005, each inhabitant held an average of 5,600 Swiss francs in cash, compared to 3,300 francs in the United States, 2,800 in the euro area countries, and 1,400 in the United Kingdom. Only the Japanese were larger holders of cash than the Swiss, with an average of 6,500 Swiss francs per capita. However, this type of international comparison should be interpreted carefully, as some of this cash may well be in circulation outside the country. A survey conducted in 1997, for instance, concluded that almost 40 percent of Swiss banknotes were held abroad. This applies in particular to the 1,000-franc note, which serves as an extremely popular international store of value.¹

Over the long term, the volume of notes in circulation tends to increase with economic activity, although the rate of increase is diminishing. The figure rose from 3.5 billion Swiss francs in 1945 to 38.2 billion in 2006, while the ratio of the amount in circulation to nominal gross domestic product (GDP) stood at around 8 percent in 2006 compared to 25 percent in 1945. This trend can be explained by technical progress and innovations in payment methods, which have enabled households and businesses alike to carry out more transactions with the same cash holdings. Cashless payment systems are considerably influencing the quantity of cash in circulation (cf. chapter 5.2.7).

1 SNB, *Wie gross ist der Frankenumlauf im Inland?* (1998).

In the shorter term, the economy is a key factor in determining the demand for banknotes. Its influence is exerted not only through changes in the level of economic activity, but above all in interest rate movements. As a general rule, a period of rising interest rates triggers a decline in banknotes in circulation. In such a situation, holders of liquidity tend to prefer bank deposits, which have the advantage of bearing interest. Cash therefore flows rapidly back to the National Bank. Conversely, a period of falling interest rates fuels stronger demand for cash.

Seasonal fluctuations also have a strong influence on the demand for banknotes. Demand is normally much higher at the end of a quarter, before public holidays, and at the end of the year (up 7 to 10 percent compared to the end of the previous month). Until the late 1990s, it was a peculiarity of the Swiss tax system that the reference date for tax returns was set at the end of even-numbered years. Funds were thus withdrawn from banks at the end of December, as a way of reducing the amount of wealth subject to tax, and circulation of banknotes would then reach a peak. Moreover, until the early 1970s,² the value of banknotes in circulation normally increased by 2 to 3 percent at the end of the month – largely due to the payment of salaries in cash – before reverting to its previous level during the first ten days of the following month. Nowadays, salaries are paid into bank accounts and are not normally withdrawn in a single transaction. As cash dispensers facilitate unrestricted access to cash, the increase in withdrawals at the end of the month is now less marked.

Finally, over the last twenty-five years, exceptional circumstances have given rise to large shifts in the demand for banknotes. This was the case in the run-up to 1 January 2000, when there was considerable anxiety in Switzerland and throughout the world that computer systems would experience glitches or even suffer a total breakdown. The banks had taken steps to build up additional reserves of cash in order to be able to respond to any surge in demand by their clients. The SNB, like other central banks, therefore had extra quantities of notes printed, in particular the 1,000-franc denomination. Banknotes in circulation increased sharply to a total of 37.2 billion Swiss francs on 31 December 1999, an 18 percent increase over the level at the end of the previous year. The ‘millennium changeover’ went off without a hitch, however, and the volume in circulation reverted to its normal level during the first quarter of 2000.

Uncertainty over the physical introduction of the euro on 1 January 2002 drove the value of banknotes in circulation up to 39.8 billion Swiss francs at

2 Klein and Palazzo (2003), p. 58.

the end of 2001, an increase of 12.2 percent on the previous year. During the first few months of 2002, demand for Swiss banknotes, as well as for US dollar and sterling notes, remained buoyant.

5.1.3 *Range of denominations*

The most popular denomination is the 100-franc note, which accounts for over 30 percent of the total number of notes in circulation. In terms of value, the 1,000-franc note is of great importance, with the total value of 1,000-franc denominations amounting to 20 billion Swiss francs and representing half the total value of notes in circulation.

From time to time, there is a debate on the range of denominations, with a view to finding the optimum breakdown for any given set of circumstances.³ The only change from previous generations of Swiss banknotes has been the replacement of the 500-franc note with the 200-franc note. Towards the end of 1985, in view of slack demand for the 500-franc denomination, the National Bank considered two alternatives, one with seven denominations (notes of 200 and 500 francs), the other with six (notes of 200 or 500 francs). It ruled out the former option for three reasons. Firstly, a survey among banking and economic circles had shown a majority preference for the six-denomination option. Secondly, experience in a number of countries after the addition of a new denomination in an existing range of banknotes had been negative. Finally, the large increase in printing costs that would have resulted from the addition of a further denomination was also a factor weighing in the decision. In 1987, the SNB's Governing Board decided to introduce a 200-franc note and to abandon the 500, a decision which also affected demand for the adjacent denominations of 100 and 1,000 francs.

During the preparations for the development of the ninth series of banknotes in 2003, the National Bank considered introducing a 5,000-franc denomination, having decided against it for the sixth series in the 1970s. A note of this size would have met a genuine demand. However, the SNB's Governing Board decided against it, as the addition of this denomination would not have been consistent with the fight against money laundering.⁴

In the 1980s, the Confederation considered replacing the 10-franc note with a coin of the same value. The average life of a 10-franc banknote was shorter than that of a coin, and replacing it would have saved costs. However, in terms of security, it is easier to protect a banknote than a coin from

3 For more on this issue, cf., for example, Kohli (1988).

4 SNB, Minutes of the Governing Board (2003), 13 February, no. 84.

counterfeiting. The relatively high value of a 10-franc piece would have made it too attractive to forgers. In 1991, after receiving negative reactions when consulting the interested parties, the Federal Department of Finance (FDF) abandoned the idea.⁵

In 1983, after 10,000 counterfeit 5-franc coins whose edges featured incuse – or sunk relief – lettering had appeared in Ticino, one of the possible reactions considered was the demonetisation of the 5-franc piece, or its replacement by a 5-franc note. The first of these measures would have triggered an excessive demand for 10-franc notes. The latter would have required two years' work and involved substantial production costs, due to the extremely limited life cycle of a denomination of this size. The FDF opted for a third solution: in 1994, it reintroduced the 5-franc coin with lettering in raised relief, identical to the coin that had been in circulation until 1984. This change made counterfeiting more difficult. The reason for the decision to introduce the 5-franc coin with incuse lettering in 1985 had been its lower cost of production and improved detection by automatic vending machines.⁶

5.1.4 Organising the supply of cash

The provision of cash to meet the needs of the economy requires an appropriate logistical infrastructure. For this purpose, the National Bank has a network of cash distribution services (two head offices and one branch office) as well as agencies and correspondents, which are operated mainly by cantonal and regional banks.

The demand for cash varies from region to region. Although it is largely accumulated and withdrawn in urban areas, it is used to a disproportionate extent in outlying and tourist areas, which therefore systematically build up surpluses. Geographical distribution thus has a vital role in the organisation of cash at the SNB. To ensure supplies to the entire country and cope with particular circumstances, the National Bank has a number of strategically located cash deposit facilities. Its cash offices handle banknotes not merely to fulfil the nation's cash requirements, but also to detect notes unsuitable for circulation and destroy them in a secure manner. This task is primarily dependent on the rate at which cash flows back to the SNB, a result of seasonal factors. The average number of banknotes in circulation is in excess of 270 million, and the National Bank puts over 100 million new notes into

5 SNB, Minutes of the Governing Board (1991), 2 May, no. 158.

6 SNB to agents (2003).

Table 5.1
Series of banknotes issued since the Second World War

Fifth series

Denom.	Front	Reverse	Introduced	Withdrawn
1000	Woman's head	<i>Danse macabre</i>	14.06.1957	01.05.1980
500	Woman's head	Fountain of youth	14.06.1957	01.05.1980
100	Boy's head	St Martin	14.06.1957	01.05.1980
50	Girl's head	Apple harvest	14.06.1957	01.05.1980
20	General Henri Dufour	Thistle	29.03.1956	01.05.1980
10	Gottfried Keller	Herb bennet	01.10.1956	01.05.1980

Sixth series

Denom.	Front	Reverse	Introduced	Withdrawn
1000	Auguste Forel	Three ants and cross-section of an anthill	04.04.1978	01.05.2000
500	Albrecht von Haller	Ecorché figure and orchis purpurea	04.04.1977	01.05.2000
100	Francesco Borromini	Church of San Ivo with ground plan of building	04.10.1976	01.05.2000
50	Konrad Gessner	Eagle owl, primrose, stars	04.10.1978	01.05.2000
20	Horace-Bénédict de Saussure	Mountain scenery and ammonite	04.04.1979	01.05.2000
10	Leonhard Euler	Water turbine and the solar system	05.11.1979	01.05.2000

Eighth series

Denom.	Front	Reverse	Introduced	Withdrawn
1000	Jacob Burckhardt	Antiquity	01.04.1998	–
200	Charles Ferdinand Ramuz	Mountains and lake	01.10.1997	–
100	Alberto Giacometti	<i>'Lotar II'</i> and <i>'Homme qui marche I'</i>	01.10.1998	–
50	Sophie Taeuber-Arp	<i>'Relief rectangulaire'</i> and <i>'Tête Dada'</i>	03.10.1995	–
20	Arthur Honegger	<i>'Pacific 231'</i> locomotive	01.10.1996	–
10	Le Corbusier	Palace of Justice at Chandigarh; Modulor	08.04.1997	–

circulation each year. The average life cycle of a banknote is thus approximately three years. This supply of new notes is more or less equal to the number of worn notes withdrawn by the SNB for destruction. For cost reasons, the central bank tries to keep the number of notes destroyed to an absolute minimum and therefore puts used notes that are still in good condition back into circulation. By ensuring that notes in circulation are of good quality, it makes the introduction of counterfeit banknotes more difficult.

In its role as a supplier of cash, the National Bank has never sought to take the place of the efficient systems used by the banks and Swiss Post, which are able to supply the public through their extensive branch networks, and thereby act as retailers. Instead, the role of the central bank in this area is limited to that of wholesaler.

In principle, each of the National Bank's cash offices supplies only one branch per bank. The branch is then responsible for redistributing the cash within that bank's network. Similarly, the agencies operate primarily on behalf of the banks to which they are attached, which are normally cantonal or regional banks. Correspondents of the SNB, which are only located in places where the National Bank is not represented, regulate the cash movements of bank branches and Swiss Post by meeting the formers' cash requirements and collecting the latter's surpluses. Swiss Post permanently carries a cash surplus, owing to the payment methods habitually used by the Swiss, while the banks have a shortfall. The activities of correspondents therefore allow the transport of funds between the outlying areas and the centres to be reduced. However, ever-increasing security requirements have significantly diminished their importance over the years.

In the 1990s, the SNB set rules to prevent itself from taking the place of specialist cash handling companies, a role it was unwilling to play. It stipulated that a region's shortfalls or surpluses must be consolidated by the banks or Swiss Post. In addition, it banned its partners from withdrawing and returning the same denominations during the same day, except for damaged notes, as access to the central bank's services involves costs related to cash processing operations.

Until the 1980s, the commercial banks tended to handle their clients' cash free of charge. After the outlawing of cartel-type agreements in the early 1990s, competition grew fiercer and new management methods, which required each activity to be organised as a profit centre, gradually became the norm. The banks therefore began charging clients a fee for cash handling. The large retail chains, whose margins were already under severe pressure, were particularly hard hit by this measure. In the circumstances, these

companies had two alternatives: either to handle their cash themselves – a solution that would have involved high costs for the smaller units and therefore dented their profitability – or to have recourse to a specialist service provider. By opting for the outsourcing solution, with lower costs than those of the banks, they created a new type of market demand. Traditionally active in cash transportation, these service providers transformed themselves into cash handling specialists. In 1988, a market leader in this area was the first to offer a global package to the large retailers, including the assumption of full responsibility for cash and its handling. This type of agreement offered large-scale retailers the combined advantages of professionalism, security and time-saving. Subsequently, with a view to generating economies of scale, these specialist companies also offered their services to the banks.

In 1997, the Fraumünster post office in Zurich was the victim of an armed robbery unique in Swiss history, with the theft of 53 million Swiss francs. This event marked a turning point in the process of supplying cash. Until then, Swiss Post had itself consolidated the cash received through its branches, which accounted for almost two-thirds of the total volume of notes returning to the National Bank. In the wake of this event, Swiss Post decided to stop transporting cash itself and to outsource this function to specialist companies. The latter were therefore able to optimise their productivity, owing to the increasing number of clients they were serving (large-scale retailers, the banks and Swiss Post). As a result, there was a sharp decline in the volumes handled by the National Bank and its correspondents.

Towards the end of the 1990s, in an attempt to offer the most advantageous conditions possible, cash processing operators concentrated on those regions with the greatest cash requirements. Their studies had shown that they handled large amounts of cash in terms of value, but very little in terms of volume. Moreover, the high level of security required in their numerous premises was proving expensive. With over 95 percent of its cash transactions handled by these companies, the National Bank felt the effect of this process of concentration. The volume of work increased in the cash offices close to the new processing centres, but fell sharply in the remainder, thereby creating an imbalance. The SNB was therefore forced to undertake major restructuring. As a temporary measure, it entered into an agreement in 1998 with all parties concerned requiring them to take account of the SNB's decentralised handling capability for a three-year period.⁷ Additionally, quotas for cash movements were allocated to each branch office. The National Bank used this

7 SNB, Minutes of the Governing Board (1998), 3 December, no. 528.

period to reorganise its cash processing operations. Cash movements in its agencies, which represented 20 percent of the total in 1981, had fallen by half in the space of twenty years. The improved standards of security achieved by the use of specialist companies eroded the significance of the clearing house role previously exercised by correspondents, and their number declined.

In 1998, the SNB closed its branch offices in Aarau and Neuchâtel. In the following year, it ceased providing cash distribution services in its branch offices in Basel, Lausanne, Lucerne and St Gallen. Its cash distribution services in the Lugano branch office were discontinued at the end of 2006. Specialist companies can now only conduct their operations from one of the SNB's three remaining cash offices, namely at the head offices in Berne and Zurich and at the Geneva branch office (cf. chapter 10.3). This reorganisation enabled economies of scale to be achieved.

There were other opportunities for optimisation. One of these was to use the National Bank's partners for cash deposit facilities. The operation of these cash deposit facilities, managed by the partner on its own premises, is comparable to that of an agency of the SNB. The partner benefits both on a practical level and in terms of security. The SNB also benefits owing to lower volumes of work and the resulting cost reductions. It was in 2003, as a favourable response to market demand, that it awarded the first contract for a cash deposit facility.

The organisation of cash processing operations therefore underwent unprecedented changes at the National Bank. In 1982, the SNB met the country's cash requirements from its two head offices, eight branch offices and seventeen agencies. It also had a network of 581 correspondents.⁸ By the beginning of 2007, cash distribution services were provided by only two head offices, one branch office, sixteen agencies and a network of 195 correspondents.

5.1.5 Security aspects of banknotes

Under the terms of art. 7 of the CPIA, the National Bank issues banknotes as required for payment purposes. It determines their face value and visual appearance. When carrying out this task, security is a matter of particular importance. Rapid advances in reproduction technology mean that the security features of banknotes must be constantly reviewed, and modifications made where appropriate. As far as the image conveyed by the banknote is concerned, including all its cultural aspects, it serves first and foremost as a means of communication.

8 SNB, Annual Report, *75^e rapport de gestion* (1982), p. 48.

The final episode in the story of the fifth series of banknotes, famous for its allegorical images, occurred on 30 April 2000. Legally, the SNB is required to remit the countervalue of recalled banknotes not exchanged at the National Bank within a twenty-year period to the Swiss fund to assist the victims of uninsurable damage caused by natural disasters. For notes recalled in 1980 (including the second-series 5-franc note), the amount paid over to the fund was 244 million Swiss francs.

The sixth series of notes, designed by Ernst and Ursula Hiestand and particularly famous for the 100-franc note dedicated to Borromini, was issued gradually between 1976 and 1979 and recalled on 1 May 2000 after a twenty-four year period in circulation. This had been a groundbreaking series of notes in terms of design and engraving techniques, inspired by kinetic art.⁹ However, given the appearance of serious forgeries of fifth-series notes, the sixth series had to be produced under a degree of time pressure. Until the early 1980s, forgeries were the sole preserve of professionals who had to acquire a mastery of the minutest details of offset printing techniques. This required a considerable investment of time. The sixth series only gave a temporary respite from forgery risks; apart from the engraving techniques, its other main security features – paper, watermark, security strip and printing – added little in the way of innovative developments, and a counterfeit 100-franc note appeared for the first time in the summer of 1984, only eight years after the series had been put into circulation.

However, the real threat came from the unforeseeable progress in reproduction techniques, which sharply reduced the time needed to produce a counterfeit note. In 1987, a new generation of laser colour photocopiers appeared on the market. After conducting reproduction tests, the Governing Board considered that – security features aside – the print quality was exceptionally good. It realised that the risk of counterfeiting would rise very quickly as soon as the prices of these machines fell to more affordable levels.¹⁰ These fears proved well founded as the number of counterfeit notes routinely seized – whether of good or bad quality – increased continuously. In the space of ten years, new technology enabled petty criminals to overtake professional forgers.

In parallel to the series in circulation, the National Bank had taken the strategic decision to develop, amid absolute secrecy, a seventh series, known as the reserve series, designed by the graphic artists Roger and Elisabeth Pfund. The idea was to be able to put a new series of banknotes into

9 Rivaz (1997), p.252.

10 SNB, Minutes of the Governing Board (1987), 16 July, no.330.

circulation rapidly, representing 100 percent of the amount effectively circulating, if serious forgeries of the sixth series appeared. The desired aim was to preserve public confidence in the means of payment and to thwart any attempt to destabilise the economy. Thanks to its different graphic style and the introduction of a new security feature (metallic ink), the reserve series was considered to offer a higher level of security, which could be expected to remain valid for ten to fifteen years. In view of the rapid dissemination of new reproduction technologies, however, it was never put into circulation.

The contract to print the sixth and seventh series of banknotes was awarded to Orell Füssli (OF) in Zurich. These two series were the first to be entirely printed in Switzerland. In 1973, the National Bank and OF signed a framework agreement for the production and supply of Swiss banknotes by OF. Additionally, in 1981, the SNB acquired a large shareholding in OF from the company's majority shareholder at the time. In 1991, it acquired a second block of shares. The SNB had taken a shareholding in the company in order to underpin its long-term future. Additionally, representation of the SNB on OF's Board of Directors made it possible to restructure the company, a move which had become necessary by the early 1990s. Since 1995, the National Bank's stake in the capital of OF (with voting rights) has stood at 33.34 percent.

Thanks to the framework agreement, which was adapted in 1988 and again in 2002 to cater for changing needs, the National Bank has been able to take a hand in the development of new security features by OF and its sub-contractors. Prompted by the delicate situation in the whole area of banknote security, and taking advantage of the numerous technological advances and the international reputation of its partners in Switzerland, the SNB then launched a number of research projects with a view to developing innovative security features. The financial support and technical cooperation provided in the Kinegram® project – a product used by many central banks – were specific examples of this innovative strategy. The security feature concerned – a particularly effective derivative of the hologram – is intended to prevent the high-quality reproduction of banknotes. To create a common front against the dangers of counterfeiting, the National Bank joined leading European central banks in setting up international working groups on banknote printing, such as the Reproduction and Research Center in 1989. Its active role in the search for new security features has given it a sufficient head start over the latest reproduction technologies.

In 1989, tenders were invited for the design of the eighth series of notes. The SNB commissioned the graphic designer Jörg Zintzmeyer to produce this

series, which introduced a number of innovations: it was entirely computer-designed, the front and back were drawn vertically, and it had a number of security features that could easily be discerned by the public. It was gradually put into circulation between 1995 and 1998. For the first time, a famous Swiss woman – and not merely a symbolic female figure – adorned a Swiss banknote, the 50-franc note.

The National Bank became more aware than ever of the dangers posed by technological advances and the widespread availability of reproduction equipment. Logically, it opted not to produce a new reserve series, which – as its security features would no longer have had the element of surprise needed to protect it against reproduction – would have lost all its *raison d'être*. It would have been quickly overtaken by advances in technology, and would have enjoyed only a short life cycle. The new technological environment has also had a major influence on the useful life of banknote series, which is tending to become shorter. The SNB therefore opted for a new strategy, guaranteeing an improved response to risks. Instead of a reserve series, it decided to develop new security features that could be added to the series in circulation. This was the case with microperforation, introduced initially on the large denominations and later extended, with effect from 2000, also to the smaller notes. However, this strategy also has its drawbacks. Different security standards in the same series of banknotes can create confusion in the public mind and, therefore, lead to loss of confidence. For this reason, a new banknote series may prove desirable.

Benefiting from experience gained with the eighth series, and keen to innovate without being under time pressure, the National Bank decided in 2001 to begin the preparatory work for a new ninth series. This was initially considered something of a preventive measure. The SNB launched a design competition in the spring of 2005. After the series devoted to national heroes, landscapes, costumes (second and fourth series), allegories (fifth series), science (sixth series) and culture (eighth series), the main theme of the new series is 'Switzerland open to the world'. The 1,000-franc note shows Switzerland as a platform for economic dialogue, the 200-franc note as a platform for progress in education, research and development, the 100-franc note as a platform for humanity in the field of human rights, the 50-franc note as a platform for events in the fields of tourism and leisure, the 20-franc note as a platform for cultural creativity and the 10-franc as a platform for sporting organisations.

5.2 Cashless payment systems

ROBERT FLURI

5.2.1 Background – voucher-based bank clearing systems

The Swiss National Bank has operated its own giro system ever since it was founded. This plays a central role in the fulfilment of its statutory mandate of facilitating and securing the operation of cashless payment systems.¹¹ For decades, the SNB's giro system was used principally to settle large-value payments between banks, public authorities, companies and private individuals, while smaller transactions conducted via personal bank accounts and some business transactions were channelled through the postal cheque system, which started operating shortly before the SNB was established. In the first half of the twentieth century, the National Bank's giro system and the postal cheque system were the main elements of cashless payment transactions in Switzerland, as the banks did not have an efficient system of transferring sums between customers with accounts at different banks (interbank payments). Between 1949 and 1954, the major banks set up a clearing system in response to growing public use of the banking system for payment transactions. This clearing system essentially recorded incoming and outgoing payments on behalf of member banks.¹² The main innovation was the establishment of clearing houses to which the member banks transmitted payments for settlement. Swiss Bank Corporation, Union Bank of Switzerland, Credit Suisse, Swiss Volksbank, Berne Cantonal Bank and Zurich Cantonal Bank (representing the other cantonal banks) operated as clearing houses. In 1981, the regional banks set up their own clearing house. The SNB provided clearing functions for all other banks. The clearing houses settled the net amounts payable through the SNB's giro system, which thus acted as the central clearing house and third tier in the system. Payments between the banks and the postal cheque system were also cleared through the National Bank.

The banks provided details of payment transactions for clearing either in writing or on magnetic tape. The data processing centre operated on behalf of the banks by Telekurs AG assigned the amounts to the recipient banks and consolidated individual payment instructions to net amounts, which were subsequently credited or debited to the clearing houses' sight deposits at the SNB.¹³

11 Art. 2 para. 1 of the former National Bank Act of 1953; since entry into force of the new National Bank Act in 2004, art. 5 para. 2 (c).

12 SNB (1957), pp. 258 et seq.

13 Vital (1988), pp. 9 et seq.

5.2.2 *Limitations of the bank clearing system – objectives of a new system*

The voucher-based clearing system reached its limits as the volume of business increased. Since it involved a high proportion of manual work, the system was unwieldy and transparency was poor.¹⁴ The banks did not have adequate information on the liquid funds available at any particular time and bank transfers could take up to four days. As efficient cash management was impossible, comparatively high liquidity reserves were required.

The SNB facilitated cash management for the banks by allowing almost unlimited intraday overdraft facilities free of charge. It thus effectively provided a clearing guarantee, which eliminated systemic risk (cf. chapter 7.5.2). However, this meant it assumed substantial credit risks. It therefore required all participants in the bank clearing system to hold two guarantee accounts with it. Their volume was, however, negligible compared with the daily overdraft volume of 20–30 billion Swiss francs.¹⁵ The banks were also exposed to credit risks as a result of the asynchronous settlement of payments and exchange of information.

These risks, together with the online processing capabilities arising from technological progress, prompted the banks to review the outdated system and examine possible alternatives in a bid to speed up payment transactions, increase security and create optimum conditions for the management and monitoring of liquidity. To ensure this, requirements included the immediate transfer of information to banks. However, that could only be achieved by introducing automated clearing procedures. Another objective was to channel payments through the participants' sight deposits at the National Bank, making them final and irrevocable, as this would eliminate the systemic and credit risks inherent in clearing and settlement systems that permit provisional payments and overdrafts. At the same time, the banks wanted to create a system that obviated the need for participants to reconcile incoming and outgoing payments. The initiators expected that this would eliminate sight deposit overdrafts without involving unreasonable costs. Finally, the system needed to be able to handle both large-value and low-value transactions, i.e. wholesale and retail payments.

¹⁴ Fischer and Hurni (1988), pp. 52 et seq.

¹⁵ Vital (1988), pp. 13–14.

5.2.3 *Principal features of Swiss Interbank Clearing*

On 10 June 1987, the Telekurs AG data processing centre put the new interbank clearing system – Swiss Interbank Clearing (SIC) – into operation. The SIC system is now operated on the SNB's behalf by Swiss Interbank Clearing AG, a subsidiary of the Telekurs Group set up specifically for this purpose.

In modern-day terminology, SIC is a real-time gross settlement system (RTGS).¹⁶ This type of system settles each payment individually via a central bank account, providing sufficient funds are available on the account. Payments are final and irrevocable. SIC uses sight deposits at the SNB as the means of payment.¹⁷ Since the new Federal Act on Currency and Payment Instruments (CPIA) came into effect, there has been an unlimited obligation to accept sight deposits at the SNB denominated in Swiss francs – as with banknotes issued by the SNB. In other words, they can be used to settle monetary debts. Before this new legislation was adopted, transfers within SIC were regarded as equivalent to cash payments¹⁸ because the sight deposits could be converted into banknotes at any time.

The sight deposits held by SIC members at the SNB are subdivided into master accounts and SIC settlement accounts. This distinction is made for technical reasons. Legally, the two accounts form a single entity. The master account is used for cash withdrawals and direct transactions with the SNB which are routed through the SNB's system. By contrast, interbank clearing transactions are routed via the SIC settlement accounts in the SIC system. The SNB transfers the liquidity required to operate SIC from the master account to the SIC settlement account at the start of each clearing day. A clearing day starts at 5 p.m. and runs until 4.15 p.m. on the following working day. At the end of the clearing day, the SNB temporarily transfers the remaining liquidity on the SIC settlement account to the master account.

The SIC system processes payment instructions exclusively on the condition that execution will not overdraw the account. If this condition is not met, the payment order is placed in a queuing system, which automatically processes the payment instructions as soon as incoming payments or a transfer of funds from the master account ensure that there is sufficient liquidity on the SIC settlement account. The payments in the queuing system are processed on a first-in first-out (FIFO) basis. However, the remitting bank can influence the order in which transactions are processed by

16 Lüthrig and Spremann (1998), pp. 121 et seq.

17 SNB, Agreement (2005), art. 2 para. 2.

18 Art. 3 paras. 2–3 CPIA; related Message (1999).

assigning them to priority classes. The FIFO principle operates within each priority class.

In addition to gross settlement systems, there are net systems like the old bank clearing system. Their main feature is that they settle incoming and outgoing payments in advance. Final settlement of the net position by the central bank only takes place via the sight deposits at the end of the settlement period. Settlement is performed either at predefined times or when a specific sum or number of payment orders has been reached. Provisional clearing of payments during the settlement period only becomes final and irrevocable when the amounts are booked to the sight deposits at the central banks.

The opportunity costs in the form of foregone interest income are lower in a net settlement system than in a gross system, because less interest-free funding from the central bank is required for settlement. Net systems may therefore seem both attractive and efficient at first sight. However, even their advocates admit that they are less secure than gross settlement systems. Unlike a net system, an RTGS system does not provide any access to incoming payments until final settlement. This eliminates systemic risk and prevents the payment system as a whole from being placed in jeopardy if key participants default, causing others to become insolvent (domino effect).¹⁹

Experience of the SIC system shows that liquidity requirements and the risk of gridlocks can be minimised through a range of technical and organisational measures. SIC takes the following precautions:

- Banks can actively manage the queue by allocating payments to priority classes as outlined above.
- Recipients can call up information on pending payments; however, the remitting bank can revoke payment orders at any time. Consequently, payments are not deemed to have been made while they are in the queue and the recipient is thus not tempted to utilise the funds.
- Payment orders can be stored in the queuing system 24 hours a day and can be entered up to five days in advance.
- The fee structure encourages users to enter orders as early as possible (night-time processing).
- Banks have to split transactions involving more than 100 million Swiss francs into several separate transactions.
- If the next payment to be processed for all participants exceeds the amounts on their accounts, the system switches to ‘circles processing’, i.e. simultaneous settlement of bilateral transactions. In this case, the system

¹⁹ Lührig and Spremann (1998), pp. 121–122.

automatically searches the queue for pairs of banks where the next set of payments can be offset against each other.

- The SNB provides participants with interest-free intraday liquidity through repo transactions.²⁰

Most SIC participants are banks and securities dealers domiciled in Switzerland and the Principality of Liechtenstein. Foreign banks can take part as remote participants if they meet a number of conditions. In particular, the quality of banking supervision in their home country must be equivalent to Swiss standards. PostFinance joined the system in November 2001.

5.2.4 *The SIC project – collaboration between banks and the SNB*

The design and realisation of SIC were the outcome of an intensive and long drawn-out process. The ultimate aim was to find a solution that would meet the needs of the banks and at the same time satisfy the SNB's requirements and reservations.

Initial development began in 1980 with a report on a possible redesign of the bank clearing system known as the Spiezer Paper.²¹ This paved the way for subsequent general and more detailed concepts. The report was compiled by an ad hoc commission set up by the management of the then four big banks. It compared various options on the basis of general assumptions about the volume of transactions to be handled with initial ideas about technical and organisational procedures. Essentially, the ideas presented for the new inter-bank clearing system were the opposite of the previous system.

The banks drew the SNB into the project by involving it in a number of working groups. That was not easy for the National Bank – especially at the start of the project. Although it had examined the problems of clearing systems, its approach had been predominantly theoretical and abstract. At the time, the SNB had no basis for developing its own ideas on how to shape what eventually became SIC. Nor did it regard this as its top priority, as the house philosophy was to indicate the general direction for a solution by supplying fundamental arguments. It felt that it should maintain maximum freedom of action with regard to any final decision.²² Consequently, it is hardly surprising that the SNB's response to the banks' proposals was at times somewhat non-committal.

Nevertheless, it essentially backed the SIC project. Given its statutory

²⁰ Spörndli (1998), pp. 95 et seq.

²¹ Spiezer Paper (1980).

²² SNB, Working group on payment transactions (1984), p. 7.

role in facilitating and securing payment systems, it identified with the objectives that the banks sought to achieve by establishing a new payment system, namely optimising cash management, minimising credit risk, improving customer service, and reorganising and restructuring the procedures for interbank payments. However, the SNB set its own priorities when it came to protecting its interests as a monetary policy institution. It subsequently took a clear stance on the organisational basis of SIC.

The project team assumed that SIC – like its predecessor – would be operated by the data processing centre run by Telekurs AG. It was this that led to the division of the SNB's sight deposits into a master account to process direct transactions with the SNB and a SIC settlement account for transactions settled via the data processing centre. This two-tier concept – as it was referred to at the time²³ – was very controversial within the SNB. There was great concern²⁴ about transferring balances held on sight deposits to settlement accounts at Telekurs AG, because it was feared that permitting payment via sight deposits outside the National Bank would mean the SNB relinquishing one of its core competencies. It was also felt that inadequate oversight of settlement processes or errors could lead to overdrafts. Moreover, it was considered that the legal status of the sight deposit as a single entity could be jeopardised if authority to draw on it were assigned to a third party rather than the SNB. Another concern was that the system itself could allow lending relationships to form (for example, through the queuing mechanism).²⁵ That would have been highly undesirable from a monetary policy viewpoint.

Reflecting these reservations, the SNB set out the following requirements for the project:²⁶

- Only the SNB can be responsible for central account management functions and the definition and administration of credit limits.
- Cover for all payments in SIC is subject to monitoring.
- The remitting bank must be entitled to cancel pending payment instructions unilaterally at all times, and the beneficiary bank should not receive any information on pending incoming payments.²⁷
- Banks should be able to utilise loans from other banks within SIC, providing the lending bank transferred the balance from its sight deposit to that of the bank to which the loan had been granted.

23 SNB, Working group on payment transactions (1984), pp. 4–5.

24 SNB, SIC detailed concept (1984).

25 SNB, SIC review (1985), pp. 5–6.

26 SNB, SIC review (1985), pp. 1–2.

27 SNB to Telekurs AG (1985), p. 5.

- The system should be accessible to all banks.
- In view of the significance of the interbank clearing system, processing by the SNB would make sense. However, a solution based on division of labour should be examined.
- The system must be resistant to crises.

The monetary policy impact of the new clearing system was of central importance to the SNB. At the time, monetary policy focused on the monetary base (banknotes plus banks' sight deposits at the SNB), which was used as an indicator and a monetary target. Since the new clearing system would facilitate liquidity management by the banks, the SNB assumed that demand for sight deposits would decline. However, it was difficult to predict the extent of the decline and the duration of the transition period until a new equilibrium was achieved (cf. chapter 4.3.2). This led to the question of alternatives to the monetary base as an indicator and monetary policy target.

In the summer of 1986, SIC put forward a solution based on the management of SIC settlement accounts by a central computer system to which the participating banks and the SNB would be linked.²⁸ However, a decision had still not been taken on whether SIC should use the monetary base or the banks' sight deposits. Moreover, it had not been decided who would manage the system. Two possible models were under discussion for a system based on the monetary base – an 'SNB solution' and a 'contract solution'.

Under the SNB solution, the National Bank would have operated SIC on its own or as a joint venture over which it had control. This was the option preferred by the SNB. However, it could not have been implemented by the deadline set, so it was out of the question for the banks. They had invested significant amounts in the project and wanted to replace the risky and cumbersome bank clearing system quickly, not in another two to three years (the time that would have probably been required to implement the SNB solution). Moreover, many banks were already aligning their internal systems to SIC. They also feared that the confidentiality of client data would not be guaranteed if they handed over the communication and information functions of SIC to the SNB.

The contract solution, on the other hand, provided for Telekurs AG to operate SIC on behalf of the National Bank. This was the solution preferred by the banks, but it was rejected by the SNB on the grounds that it might not have adequate control over the system. It believed that extensive control was necessary, since it assumed that – as the account keeper – it would be liable to

28 SNB, Minutes of the Governing Board (1986), 3 July, no. 298.

account holders for careful and correct execution of payment instructions and would thus bear the operational risks of the system. However, it did not have the knowledge to exercise such control. In order to acquire this knowledge, it would have had to play an active role in SIC to the extent that the entire principle of a contract solution would have been called into question. Moreover, the National Bank perceived Telekurs AG as an organisation belonging to the banks, rather than as a neutral data processing centre. The SNB was therefore afraid that Telekurs AG would use any latitude it had to the benefit of the banks, and that conflicts of interest would thus be inevitable. Finally, the project managers at the SNB doubted that a suitable contract could be drafted given the complexity of SIC and the lack of experience with such systems.²⁹

With hindsight, the rejection of the contract solution in the final phase of the project seems somewhat odd, given that the SNB did not rule out a solution involving a division of management responsibilities in the initial stages. This had evidently led to incorrect assumptions on the part of the banks about how the management of the system could be organised. It also becomes clear in retrospect that the SNB's assessment of its own potential and capabilities was dominated by a degree of overcautiousness. At the same time, it overestimated the problem of efficient oversight of SIC. There is some irony in the fact that the SNB subsequently accepted precisely this contract solution as a viable operating model.

The alternative solution of avoiding the use of central bank funds did not envisage any direct involvement by the SNB. It was designed as a net payment system. As is typical of such systems, payments would first have been netted in the banks' data processing centre and the net amounts would then have been settled periodically via their sight deposits at the SNB. However, neither the SNB nor the banks were enthusiastic about this solution. In essence, it undermined the spirit of the Spiezer Paper drawn up by the banks. The SNB would have had to expand its giro system to accommodate the periodic settlement of the net positions.

The two sides had thus reached a stalemate in their attempt to find a suitable operating model. They therefore began to search for a compromise that ruled out the delayed introduction of SIC, which would not have been acceptable to the banks, yet took account of the SNB's interests. Finally, they agreed on a two-tier compromise: the contract solution outlined above would be introduced as a temporary solution and replaced by a permanent solution after two to three years.

29 SNB, SIC (1986), pp. 4 et seq.

The aim of the permanent – i.e. target – solution was to split responsibilities between Telekurs AG and the SNB. The SNB would be responsible for the settlement of large-value payment transactions. For this purpose, it would manage the sight deposits on its computer system and assume all tasks related to account management. Telekurs AG meanwhile would be responsible for settling retail payment transactions on its computer system for the banks. Such transactions comprised payments of less than 50,000 Swiss francs. In other words, 11,000 out of 240,000 payment orders (about 5 percent) would be routed via the SNB system, while the remainder would be processed by the Telekurs system.

This division into large-value and low-value transactions met the SNB's demands. It wanted to avoid the need to solve the technical problems associated with processing large volumes of smaller payments which were of no significance for monetary policy. At the same time, this solution reduced concerns initially voiced within the SNB about the two-tier solution (transfer of fundamental SNB competencies if payments via sight deposits were to take place outside the central bank, risk of jeopardising the legal status of the sight deposit, etc.) and the banks' problem concerning the confidentiality of client data.

However, there were also some reservations within the SNB about the proposed definitive system. It was feared that the banks would not be interested in designing a more permanent solution because they could already settle all SIC payments via their sight deposits. The Governing Board shared this concern and therefore made the operation of the interim solution dependent on the development of a permanent solution. Revocation of the agreement regarding the development of a permanent solution for SIC would have meant immediate withdrawal from the agreement on the interim solution.³⁰

The legal relationship between the contracting parties was governed by four interrelated contracts. The main contracting parties were Swiss and Liechtenstein banks (SIC participants), Telekurs AG and the SNB. The contracts contained two agreements on the development of a permanent solution for SIC as well as on the interim solution. The contracting parties to both of these agreements were the SNB and Telekurs AG. The legal relationship between the SNB and the SIC participants was governed by the SIC giro agreement, while an agreement on conduct, the permanent solution and liability for damage governed the relationship between Telekurs AG and the SIC participants. Alongside the contractual management powers assigned to the National Bank in these agreements, the banks took account of the SNB's

30 Hess (1988), pp.31 et seq.

information requirements by offering it a seat on the Board of Directors of Telekurs AG. The contracts came into force on 5 June 1987.

The introductory phase for the interim solution was completed in January 1989. A total of 161 banks were affiliated to SIC, which handled an average of 220,000 payments worth 118 billion Swiss francs a day. In 2005, the system handled around 850,000 payments valuing 170 billion Swiss francs for just over 300 participating banks. When SIC was introduced, the sight deposits of SIC participants dropped significantly from around 7.5 billion Swiss francs to 2.5 billion. Despite this, there were no serious settlement gridlocks. Even between 1990 and 1995 – a phase of restrictive monetary policy when the participants' sight deposits dropped below 2 billion Swiss francs – the functioning of the system was never called into question.

5.2.5 The SIC interim solution – provisional yet durable

SIC proved that a gross settlement system can be operated with virtually no problems. Since Switzerland was, for many years, one of the few countries with a functioning RTGS system, SIC acted as an international role model. Even so, some scepticism was voiced: representatives of foreign central banks regarded SIC as a progressive theoretical model, but questioned whether they would be able to implement it in their own countries. Some felt that the FIFO principle was too rigid and that overdrafts should be permitted, at least within the Lombard limits. Yet others expressed doubts that demand for sight deposits would settle at an acceptable level in the existing conditions.³¹ Optimising the SIC system was also a topic of internal discussion. It eventually led to the measures mentioned in section 5.2.3 above to offset the disadvantages of overly strict application of the FIFO rules. In particular, since 1999, the banks have had access to interest-free intraday liquidity.

In 1995, the Governing Board decided not to pursue the development of SIC towards the target solution, because they felt that this would essentially mean taking a step backwards. Moreover, no radical change to the management structures was proposed. Instead, it recommended optimising the present solution and revising the agreements accordingly.³² This decision was logical, given that after eight years of successful operation, an extensive re-organisation of SIC would have been expensive and entailed considerable risk. It is, however, striking that the SNB never made any serious attempt to implement the target solution within the period set out in the agreements, despite

³¹ SNB, Group of experts (1989).

³² SNB, Payment transactions (1994).

the lively debate it had conducted on this issue at the time. The decision not to implement the target solution demonstrates the flexibility and pragmatism of the SNB. Nevertheless, in retrospect, the SNB's conduct when setting the rules for operation of the system does not seem entirely free of contradictions.

On 8 October 2002, a new agreement on the SIC system replaced the previous agreements on the interim and target solutions. The amendments were of a purely textual nature, as it was already clear that a more extensive revision would be necessary when the new National Bank Act (NBA) came into effect in May 2004. The new NBA entrusted the SNB with an additional assignment: oversight of systemically important payment and securities settlement systems. SIC is regarded as systemically important and is therefore subject to the oversight of the SNB. In the light of this change in the legal framework, the SNB revised its contractual relationship with SIC AG. The new agreement of 23/27 June 2005 clearly defines the services to be provided by SIC AG and the SNB, and aligns the regulatory powers of the SNB within the SIC system with the requirements of monetary policy and the SNB's endeavours to facilitate and secure the operation of payment systems.

5.2.6 SIC as part of a national and international network

The globalisation of the financial sector and progressive European integration (currency union), together with efforts to minimise costs and risks, have led to networked financial market infrastructures.³³ As the following overview shows, the Swiss financial sector, and thus SIC, could not escape this trend.

In March 1995, SIC was linked up to SECOM, a real-time securities settlement system introduced in October 1993 by Schweizerische Effekten-Giro AG (SEGA, later SIS SegaiInterSettle AG), Switzerland's central securities depository. Since then, securities trading in Switzerland has been based on the delivery-versus-payment principle, which functions as follows: when a securities purchase or sale order is issued and the seller has the necessary securities, SECOM freezes the securities position and transmits a payment instruction to the SIC system. If the buyer has sufficient funds on their SIC settlement account, the payment is made. SECOM receives confirmation of payment and executes the transfer of the securities. SECOM is now also linked to the SWX Swiss Exchange, which was created in 1995 from three local stock exchanges. As a result, the processing of a securities transaction from

33 Klein and Palazzo (2003), pp.93 et seq.

trading through settlement to the transfer of the securities became completely automated. This fully integrated settlement system is also known as the Swiss Value Chain.

Since 1999, euro transactions originating in Switzerland have been settled via euroSIC. This essentially functions in the same way as the SIC system for Swiss francs. In the autumn of 2001, the previously separate SIC system for Swiss francs and euroSIC were combined to form a joint platform. Swiss banks are linked to the European settlement system, TARGET (Trans-European Automated Real-time Gross settlement Express Transfer), and the national settlement systems in the member states of the European Union (EU) through the Swiss Euro Clearing Bank (SECB) in Frankfurt am Main, Germany, which is owned by the Swiss banks and PostFinance. As a licensed German bank, the SECB has direct access to the Deutsche Bundesbank's RGTS^{plus} settlement system, which in turn is linked to TARGET. This allows banks in Switzerland to execute cross-border payments in euros on similar terms to the banks in the EU. Conversely, payments from EU banks are channelled to Swiss banks via the relevant national clearing systems, TARGET and RTGS^{plus}. euroSIC is also linked to the SECOM securities settlement system.

Since November 2001, transactions between accounts held by customers of PostFinance and the banks have also been channelled through SIC. Before that, the SNB giro system acted as the link between Swiss Post and the banks. PostFinance has a stake in SIC AG.

The introduction of the multi-currency Continuous Linked Settlement (CLS) system in mid-2002 was another important step in the development of a global financial market infrastructure. CLS, developed jointly by international banks, was created largely in response to pressure from central banks. Following the failure of Herstatt Bank in 1974 (the Herstatt case), which led to heavy currency losses at many banks, the central banks had pressed the financial sector to find a solution that would minimise the risks involved in foreign exchange transactions (cf. chapter 7.1.2). CLS allows currency transactions to be executed using the payment-versus-payment principle. CLS Bank carries out both sides of a currency transaction – crediting and debiting the trading partners – simultaneously (gross settlement principle). It thus eliminates settlement risk and avoids any repetition of the Herstatt case and its grave consequences for the entire financial system. CLS Bank has a direct link to all large-value payment systems in countries whose currencies participate in CLS. Swiss franc transactions in CLS are settled via remote access to SIC. The three largest banks in Switzerland (UBS, Credit Suisse and the Zurich Cantonal Bank) are settlement members and

shareholders of CLS. They settle their currency transactions directly via CLS. Some other Swiss banks (third parties) channel their foreign currency transactions in CLS via the settlement members.

Alongside the payments cleared directly in SIC (SIC payments), the Telekurs Group offers the banks a range of settlement methods for retail transactions. These comprise the ‘bancomat’ cash dispensers, the ‘tancomat’ filling station payment systems, EFTPOS (electronic funds transfer at point of sale) and ‘CASH’ prepaid cards. It also provides the technical support for direct debit systems for recurrent payments. Until 2006, Telekurs AG also operated the data carrier exchange (DTA) system, which companies in the non-bank sector used to settle their bulk payments. Unlike the SIC system, these payments were not settled on a real-time basis. The orders were first combined to total amounts and then offset periodically via SIC.

5.2.7 Retail payment systems

Unlike large-value payment transactions, the SNB does not exert any direct influence on cashless payment transactions by individuals. It leaves it to the market to determine customer needs and to develop and offer suitable systems. However, in exceptional circumstances, it may act as a mediator to reconcile different interests. By contrast, its economic and banking analyses examine trends in retail payment systems for a variety of reasons.

Firstly, innovations in this field affect implementation of monetary policy. For monetary policy purposes, it is important that the use of cashless payment systems should ensure more efficient management of liquid funds. Assuming that the infrastructure is adequate, people who use cashless payment systems are not simply willing to pay, they pay exactly the amount they owe. Conversely, for cash transactions they have to carry sufficient amounts of cash to cover all eventualities – and bear the attendant risks. Costs are thus incurred in the form of foregone interest income. Utilising cashless payment systems thus reduces both costs and risks.

Since cash in circulation and liquid funds held in bank deposits are part of the monetary aggregates that the SNB uses as indicators to assess the degree of monetary restraint triggered by its monetary policy, an increase in the efficiency of payment transactions alters the velocity of money circulation and hence also its behaviour.³⁴ As a result, it is difficult to interpret changes in the money supply. From a monetary policy viewpoint, it is therefore important to be able to estimate the qualitative and quantitative consequences

34 Fluri (1995), pp. 76–77.

of new payment methods on demand for cash.³⁵ The impact on monetary policy is particularly problematic if the adoption of cash substitutes is a spasmodic, rather than a continuous process.

The SNB's statutory role in facilitating and securing the functioning of cashless payment systems is another reason why the National Bank analyses developments in retail payment systems. The technical infrastructure underlying the use of modern payment methods is complex and thus liable to disruption. If payment systems fail, economic activity is impaired, public confidence is undermined and considerable economic costs may be incurred, depending on the duration of the breakdown. To minimise the likelihood of such crises and disruption, the SNB – which is charged with the oversight of payment and securities settlement systems – may intervene by setting minimum standards.

Finally, the SNB plays a role in cashless payment systems at the retail level in its capacity as both the contracting and steering body of SIC. To enable the public to make cashless payments using cards, clearing relationships must be maintained with a range of financial intermediaries such as PostFinance, banks and card issuers. A functioning interbank clearing system such as SIC is needed to allow use of the new payment instruments for bulk payments.

The banks' efforts to step up automation of payment systems can conflict with the SNB's monetary policy and oversight functions. The banks are interested in ensuring an appropriate balance between the cost of payment transactions and the income earned from them. In particular, cash withdrawals handled by counter staff are labour-intensive and thus costly. Handling (counting and sorting) and transporting cash and the related security requirements are also expensive. Because cash does not generate interest, banks endeavour to minimise or replace cash holdings. For example, they have introduced transaction accounts on special terms (often including a low interest rate) to encourage account holders to use cashless payment systems. In 2005, the balances on such accounts (at banks and PostFinance) came to around 100 billion Swiss francs, compared with around 30 billion Swiss francs twenty years previously. Banks also issue credit cards and are thus involved in the consumer credit business.

In the longer term, new payment technologies that reduce the use of cash decrease the seignorage revenues earned by the state and central bank on the issue of notes and coins. Direct debit cards are an example of a new type of payment instrument that would be unthinkable without modern technology.

35 Peytrignet (1995).

Persons holding these cards can use them to withdraw money at cash dispensers around the clock, enabling them to align their cash holdings more accurately to their needs. As a result, demand for cash is declining. A total of 24.9 billion Swiss francs were withdrawn from 5,600 cash dispensers in 2005. That compares with 24.9 billion Swiss francs withdrawn from 2,200 cash dispensers in 1990. Alternatively, cardholders can completely avoid the need for cash by using their debit cards at the point of sale, whereupon the amount owed is directly debited from their bank account. This system avoids the need to withdraw money from cash dispensers. It has also replaced the old system of cashing a cheque at a bank or post office. In 2005, more than 200,000 sales outlets in Switzerland accepted such direct debit cards (1990: 34,000).

At the same time, cheques have entirely lost their importance, both as a means of payment at the point of sale – although they were never very popular in Switzerland – and as a means of withdrawing cash, which was far more cumbersome than present systems. Another reason for the demise of cheques is that handling costs were high, making them uncompetitive for banks.

Credit cards are another substitute for cash. Unlike direct debit cards, the issuer accumulates payments during the billing period and debits the full amount from the cardholder's account at the end of the period (normally once a month). The seller receives the amount due immediately. Credit card issuers thus in effect advance money to cardholders. For this they receive payment in the form of fees from cardholders and commission from retailers. Online technology has made payment by credit card more efficient and more user-friendly.

Electronic money (e-money) comprises balances on electronic payment media on a computer (digital cash or cyber cash) or on the chip embedded in a stored-value card (CASH card), which is generally a debit card containing a chip. Digital or cyber cash is used to make payments via computer networks. By contrast, stored-value cards can be used as a direct means of payment at sales outlets. Normally, electronic money requires a bank or PostFinance account. Holders of stored-value cards can load the required amount onto the cards via cash dispensers (current maximum 300 Swiss francs). This amount is debited from their account. At the same time, the bank credits the amount to a cash pool that is used to settle payments. In Switzerland, the cash pool has the same status as a bank. If a cardholder pays with the stored-value card, the cash pool credits the relevant amount to the seller. The transactions are cleared via the sight deposits at the SNB. Since the maximum balance that can be loaded onto a stored-value card is 300 Swiss francs, these cards are mainly used for smaller transactions, such as at kiosks, ticket machines and car parks.

It is difficult to quantify the substitution effect of the new payment methods. As a result, it is not clear whether withdrawing money from cash dispensers increases the velocity of circulation of money or reduces the public's demand for cash. However, various indicators suggest that the proportion of cash payments for goods and services has declined in recent years. In 2005, 260 million transactions were performed by debit cardholders in Switzerland (1990: 10 million) and their total value was 22 billion Swiss francs (1990: 500 million Swiss francs). Credit cards accounted for 84 million transactions in the same year (1990: 19 million) with a total value of 16 billion Swiss francs (1990: 5 billion Swiss francs). The number of transactions performed with debit and credit cards has thus increased more than tenfold in the past fifteen years. In 2005, there were 6.3 million debit cards and 3.5 million credit cards in Switzerland. Consequently, it is hardly surprising that, while nominal consumer spending by private households in Switzerland increased by about 47 percent from 187 billion to 275 billion between 1990 and 2005, the average volume of banknotes in circulation per annum (excluding 1,000-franc notes, which are mainly held as a store of value) only rose by 14 percent from 14.6 billion to 16.7 billion Swiss francs in the same period.

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6 International monetary relations

6.1 Monetary assistance

UMBERTO SCHWARZ

6.1.1 Introduction

Over the last twenty-five years, the Swiss National Bank has participated in a large number of operations providing monetary assistance to emerging markets, countries in transition and developing countries. Unlike monetary policy, which is conducted independently, monetary assistance is provided in conjunction with the Swiss Confederation.

There are two fundamental reasons underlying the SNB's policy of providing monetary assistance. Firstly, as Switzerland is a small and extremely open economy with an international financial centre, it views the stability of international monetary and financial relations as a matter of great importance. Secondly, monetary assistance earns the National Bank (and therefore Switzerland) goodwill, thereby facilitating access to certain international forums. However, its approach to assistance is a cautious one. On the one hand, it is merely the manager of the country's reserve assets, which form part of the national wealth and therefore do not 'belong' to the SNB. On the other hand, its reticence is also due to the fact that international monetary aid provided too liberally tends to increase moral hazard for the debtor and its creditors. The debtor country may be tempted to adopt irrational economic policies. Creditors may be inclined to grant credit without due regard for the quality of the debtor. Nonetheless, the SNB is fully aware of the fact that taking a solitary stance and refusing to participate in an international monetary aid operation will not reduce global moral hazard; such a position would merely be a threat to Switzerland's international image.

An important watershed was reached in 1992, when Switzerland joined the International Monetary Fund (IMF). Prior to this event, monetary assistance was, to some extent, a substitute for Swiss membership of the Bretton Woods Institutions. After 1992, it served particularly to justify Switzerland's place in these institutions.

The National Bank's monetary assistance has taken the following forms: substitution undertakings for bridge loans, participation in the General Arrangements to Borrow (GAB), medium-term loans to Central and Eastern European countries, additional short-term loans for countries of systemic importance, participation in the New Arrangements to Borrow (NAB),

contribution to IMF facilities for low-income countries, and very short-term bridge loans to countries in the Swiss-led constituency of the IMF.

6.1.2 Substitution undertakings for bridge loans

A debt crisis hit emerging countries in the early 1980s. The oil price, which had begun to rise ten years earlier, saw a further round of increases. However, the defining event in this area was the raising of US interest rates as part of the Federal Reserve's tighter monetary policy intended to stem the increasing tide of inflation. The result was a sharp rise in the debt burden of those countries, which was short-term in nature and, to a large extent, denominated in US dollars.

In this context, the National Bank's monetary assistance – supplied on the basis of the federal decree of 1963 governing Switzerland's cooperation in international monetary measures – consisted primarily of substitution undertakings (guarantees) for bridge loans granted by the Bank for International Settlements (BIS) in Basel. These loans enabled the debtor countries to meet their external obligations until an agreement could be reached with the IMF. The agreement comprised a loan facility from the Fund, which could be drawn if certain economic policy conditions were met by the country concerned. Once the agreement had been signed, the country used an initial tranche of the resulting loan to repay the BIS, and consequently the substitution undertakings – issued jointly by the SNB and other central banks – expired. The SNB granted similar undertakings to a number of Latin American countries as well as to Hungary and Yugoslavia (cf. table 6.1).

Basically, Switzerland's participation in this type of international monetary assistance was not controversial, although the discussions on the subject within the National Bank occasionally revealed a certain unease, due to the speed – in some cases considered excessive – with which these operations were undertaken and to the implicit risk of creating a precedent. Doubts of this type were voiced, in particular, in connection with the operation on behalf of Mexico.¹

6.1.3 Participation in the GAB and the federal decree on Switzerland's cooperation in international monetary measures

The debt crisis of the 1980s revealed the fragility of the international financial system. It showed that emerging countries also represented a potential danger and that the IMF's available financial resources could prove to be

1 SNB, Minutes of the Governing Board (1982), 26 August, no. 446.

Table 6.1
Substitution undertakings for bridge loans (1982–1983)

Beneficiary country	Year	SNB share (in millions of US dollars)	Total amount (in millions of US dollars)
Argentina	1983	20	500
Brazil	1982	30	1,200
Hungary	1983	40	300
Mexico	1982	25	1,250
Yugoslavia	1982	50	300

Source: SNB, Annual Report (various years).

inadequate. To meet these challenges, the GAB, which constituted a line of credit to the IMF from the ten industrialised countries² and Switzerland, were amended in 1983. The volume of funds available to the IMF under the GAB was increased at that time from 6.4 billion Special Drawing Rights (SDRs) to 17 billion. The range of beneficiaries of the GAB was increased to include all IMF members, whereas previously, only parties to the GAB could benefit from them. There were three conditions to be met before the GAB could be activated in favour of a non-member country, namely the existence of a threat to the stability of the international financial system, a shortage of ordinary resources at the IMF, and the establishment of economic policy conditions prior to granting the IMF loan.

Switzerland took the opportunity of this revision to become a full member of the GAB, whereas since 1964 its status had been that of an associate member (cf. chapter 2.3.3). There were many reasons for this change of status. Even before the 1983 revision, Switzerland had been providing a substantial financial contribution, although it was unable to participate formally in the decision to activate the GAB. Full participation enabled it to achieve a balance between its rights and obligations. The revision provided for the ranks of associate members to be increased, but Switzerland was unwilling to share this status with other countries.³ This type of participation was sometimes viewed as a possible alternative to IMF membership, and, at the time, Switzerland was still not yet a member of that institution. By becoming a fully-fledged member of the GAB, Switzerland acquired its full place as a

2 Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States.

3 SNB, Minutes of the Governing Board (1983), 13 January, no. 20.

member of the Group of Ten (G10) and ceased to be a mere observer. The National Bank was enthusiastic about this participation, for which the only drawback – in its view – was that Switzerland would no longer be able to decide on a case-by-case basis whether or not to participate in financial support operations.

Switzerland's share in the GAB rose from 865 million Swiss francs to 1,020 million SDRs, the equivalent of 2.3 billion francs at that time. This share – 6 percent of the total – was substantial for a small country such as Switzerland. The size of the share was largely due to the strength of the Swiss franc (which had pushed up its share from 3.2 percent in 1964 to 6 percent in 1983), to the country's current account surplus, to the size of its reserve assets, and to the fact that Switzerland was not contributing to the ordinary resources of the IMF. Its high share was also a token of its desire for international co-operation.

One of the features of Swiss membership in the GAB is that the National Bank has the capacity of a participating institution, financing the Swiss contribution. To fulfil its role, the SNB collaborates with the Federal Department of Finance (FDF), notifying it of all proposals and all calls for funds from the IMF. The FDF is responsible for relations between the Confederation and the SNB. In the event of any disagreement between the government and the central bank, a Federal Council delegation and the SNB's Governing Board is required to find common ground. The Confederation's guarantee for loans granted by the SNB as part of the GAB was abolished at the time of the 1983 revision, on the grounds that the central bank's provisions were large enough to enable it to shoulder this risk. Swiss membership of the GAB entered into force in 1984 and its participation has subsequently been renewed by Parliament every five years.

Following the establishment of a specific legal basis for participation in the GAB, the federal decree on Switzerland's cooperation in international monetary measures – which had hitherto provided a legal basis for the GAB – was amended and extended in 1984. The limit for loans and guarantees was reduced from 2 billion Swiss francs to 1 billion. Conversely, the Confederation's guarantee for the National Bank's liabilities was extended to cover interest, whereas previously only the principal sum had been covered. The guarantee reflects the Confederation's political co-responsibility in the granting of monetary assistance loans. It appeared necessary, as such shared responsibility was not demonstrated in any other way. For the GAB, co-responsibility was now enshrined in a specific legal instrument.

Finally, in order to avoid certain problems of interpretation, the principles

to be followed when applying the decree were set out in the related message. These principles sought to establish a clear demarcation from export promotion and development aid. Although the SNB's participation in international monetary measures is justified as a way of facilitating the operation of the international payments system, helping to prevent international financial crises and ensuring the stability of the Swiss banking system, the National Bank had never been empowered by law to promote Swiss exports or finance development aid.⁴

The federal government's demands in relation to a loan to Yugoslavia in 1983 were a good example of what had to be avoided. The Confederation wanted the National Bank to grant a loan of 100 million US dollars linked to the purchase of Swiss goods. This loan was far more controversial than the substitution undertakings referred to above. The SNB argued, in particular, that linking export credits to the federal decree on Switzerland's cooperation in international monetary measures constituted an abuse of a monetary assistance instrument and was therefore in breach of the law then in force.⁵ The loan was only granted on the insistence of the Confederation and after bitter discussions with it. The SNB, however, managed to scale back the Confederation's initial demands. In August 1983, it finally granted medium-term monetary assistance of 80 million US dollars to Yugoslavia. Half of that sum went to reimburse the SNB's share in a bridge loan granted in the same year, while the remainder was a financial loan with no strings attached.

6.1.4 *New substitution undertakings*

During the second half of the 1980s, there was still no solution in sight for the debt crisis. New substitution undertakings for bridge loans were granted by the National Bank with the Confederation's guarantee. The beneficiaries of these loans were the three major countries of Latin America (cf. table 6.2). During that period, the SNB noted a drift towards a less rigorous approach in allowing access to loans. For instance, a bridge loan was granted to Argentina in 1988, even though the IMF's loan was still far from being approved. The request for a bridge loan was accompanied only by a note from the IMF to the effect that it supported Argentina's efforts to obtain bridging finance and that it was ready to negotiate a new loan. Moreover, the Argentine government had made no statement of intent in relation to its economic policy. Additionally, repayment of the bridge loan was to be achieved, in part, by drawing on a

4 Message (1984), p. 1516.

5 SNB, Minutes of the Governing Board (1983), 13 January, no. 20.

Table 6.2
Substitution undertakings for bridge loans, 1986–1995

Beneficiary country	Year	SNB share (in millions of US dollars)	Total amount (in millions of US dollars)
Argentina	1987	20	500
	1987	14.25	475
	1988	12.5	500
	1995	35	1,000
Brazil	1988	12	500
Mexico	1986	30	1,100
	1989	20.2	1,700

Source: SNB, Annual Report (various years).

World Bank line of credit. This was therefore yet another problem in a difficult transaction, since that line of credit still had to be approved and the World Bank is primarily a long-term lender.⁶

The loan was granted, even though the National Bank had stated in February 1987 that three conditions would essentially have to be met before it could participate in an operation of this type, namely the existence of a threat to the international financial system, the prospect of the beneficiary country signing a stand-by arrangement with the IMF, and the involvement of a representative number of central banks.⁷ In September 1988, within the context of the BIS, the SNB added its voice to the other central banks calling for a more careful analysis of the principles to be followed when granting bridge loans. The BIS set a number of rules, but the United States opposed their mandatory application. Subsequently, the SNB refused to participate in a bridge loan to Venezuela (1989), arguing that the country did not appear to be in immediate need of liquidity.⁸

6.1.5 *Medium-term loans to countries in Central and Eastern Europe*

The upheavals in Central and Eastern European countries in the late 1980s and early 1990s led them indirectly into a situation of temporary balance of payments weakness. The international community responded to these challenges in a number of ways.

6 SNB, Minutes of the Governing Board (1988), 1 September, no. 394.

7 SNB, Minutes of the Governing Board (1987), 26 February, no. 111.

8 SNB, Minutes of the Governing Board (1989), 21 December, no. 544.

Table 6.3
Substitution undertakings for bridge loans to Central and Eastern European countries, 1988–1991

Beneficiary country	Year	SNB share (in millions of US dollars)	Total amount (in millions of US dollars)
Hungary	1990	5	280
Poland	1989	7.5	500
Romania	1991	10	300
Yugoslavia	1988	10	250

Source: SNB, Annual Report (various years).

Table 6.4
Medium-term loans to Central and Eastern European countries, 1991–2000

Beneficiary country	Year	SNB share (in millions of US dollars)	Total amount (in millions of US dollars)
Bulgaria	1993	32	800
	2000	12	350
Czechoslovakia	1991	40	1,000
Hungary	1991	30	700
Romania	1992	40	1,000
	1993	7.2	180

Source: SNB, Annual Report (various years).

The National Bank participated in substitution undertakings for bridge loans (cf. table 6.3). This type of monetary aid did not fall squarely within the terms of the federal decree on Switzerland's cooperation in international monetary measures. For instance, when a credit undertaking was granted to Poland in 1989, the SNB felt that the country's balance of payments problems did not pose a threat to the international monetary system and that participation in this bridge loan would undoubtedly constitute a precedent for loans to other Eastern European countries. In the end, it decided to participate because the operation was organised under the aegis of the Fund, a substitution undertaking for a bridge loan had already been granted to Yugoslavia in 1988, and all the other G10 countries were participating.

Additionally, the National Bank granted medium-term (normally seven-year) bilateral loans as part of the international action coordinated by the group of OECD member states – G24 (cf. table 6.4). The aim of these loans was to support IMF adjustment programmes. If there was a degree of reticence

on the issuance of substitution undertakings for bridge loans, the granting of medium-term loans was even more controversial. Initially, the SNB expressed doubts about the possibility of bringing these loans within the scope of the federal decree on Switzerland's cooperation in international monetary measures. Ultimately, it concurred with the Confederation's view, noting that the first condition for the application of the federal decree – namely the existence of serious disruption to the international monetary or financial system – could not be viewed in isolation from the third condition, which in turn stipulated that this type of assistance could be made available to countries not benefiting from development aid, a condition obviously fulfilled in this case. Moreover, these loans were not tied to the purchase of Swiss-made goods or services, and their pricing was in line with market conditions. Furthermore, they were being granted as part of a concerted international action, and precedents were cited on each occasion.

6.1.6 Additional short-term loans

From the mid-1990s, financial crises hitting the emerging economies assumed a new dimension. Their problems were no longer merely the result of current account deficits, but also of capital account deficits. A country in difficulty was normally unable to refinance its (generally short-term) external debt on anything other than prohibitively expensive terms. The provision of monetary assistance now required the deployment of substantially larger amounts than in the past. Moreover, this aid had seen a fundamental qualitative change. It was no longer a question of merely providing a bridge loan linked to another source of finance, but instead funding was required in addition to the loans granted by the IMF, the World Bank and regional development banks.

In February 1995, Mexico was the first country to benefit from a monetary assistance loan of this type. The SNB issued a substitution undertaking for 120 million US dollars for an additional BIS loan of 10 billion dollars. This operation, launched on the initiative and at the insistence of the United States, formed part of a financial package totalling approximately 50 billion US dollars granted by the US, Canada and the IMF. As regards repayment of the loan, the issue of security was a far more acute problem than in the case of bridge loans. It was planned, firstly, that the BIS loan would be used after, and repaid before, loans from the US and Canada, and, secondly, that Mexico's drawings from the BIS facility could not be used and would be blocked in the books of the BIS – an exercise in window dressing. In retrospect, the National Bank expressed doubts as to the point of this type of aid: the

international financial system was not under threat, there were no systemic risks as there had been in 1982, and creditors were primarily institutional investors. It would therefore have been preferable to rely on a market-based solution, which would have involved a loss for investors, a reduction in Mexico's reserve assets, the depreciation of its currency and the implementation of credible economic policy measures by its government.⁹

In January 1988, the National Bank granted a line of credit of 312.5 million US dollars to South Korea, as part of a large-scale international operation involving 57.5 billion dollars in total, of which 23 billion were to be provided by a number of countries including the G10 states. This line of credit was granted on a bilateral basis and coordinated by the BIS. The SNB sought identical treatment for creditors in terms of draw-downs and any extensions, repayment and security. Its view was accepted only on the latter two of these points.¹⁰ Despite the risks involved, Switzerland decided to participate in this additional loan, in view of the economic difficulties then being experienced by South Korea (due to the size of its short-term debt and the sharp depreciation of its currency) and the potential systemic risk that could arise. Furthermore, the IMF was already deeply involved in the country and recourse to the GAB would have virtually exhausted the resources available under that scheme.

In November of the same year, the National Bank participated in a financial package in favour of Brazil. It issued a substitution undertaking for 250 million US dollars for an additional BIS loan of 14.5 billion dollars. This additional loan was part of a 42 billion US dollar package granted by the IMF and other international financial institutions. Here again, the SNB had doubts regarding the applicability of this action. The operation in question was accompanied by a stabilisation programme that did not involve a devaluation of the currency. It made it possible to reduce the losses suffered by foreign investors. In the SNB's view, it was clear that the operation was very much in the interests of the United States. However, Swiss banks and the Swiss economy also had substantial involvement in Brazil and therefore had an interest in the provision of support to that country.¹¹

The limit set in the federal decree on Switzerland's cooperation in international monetary measures was almost reached through the commitments undertaken by the National Bank, all of which benefited from the Confederation's guarantee. In 1999, the limit was lifted from 1 billion Swiss francs to

9 SNB, Minutes of the Governing Board (1995), 23 March, no. 148.

10 SNB, Minutes of the Governing Board (1998), 16 April, no. 184.

11 SNB, Minutes of the Governing Board (1998), 5 November, no. 464.

2 billion. On that occasion, the question of the guarantee was again examined. Three reasons appeared to justify retaining it. Firstly, Switzerland would continue to participate in international aid operations in situations in which the threat to international monetary relations was not obvious. Secondly, the Confederation had considerably more influence than the SNB in the decision-making process for the granting of monetary assistance loans. Finally, since the reserve assets include the central bank's profit, and since they do not revert in full to the Confederation, their use for purposes of monetary assistance without the Confederation's guarantee constituted a source of moral hazard. The guarantee therefore offered a counterweight to the imbalance in that situation.¹²

6.1.7 Participation in the NAB

After the Mexican crisis of 1995, the IMF became aware of the limits of its resources. The Fund's Managing Director felt that it should have access to additional financial resources to cope with similar situations, which would undoubtedly occur in the future. The US was wholly in agreement, but was unwilling for the increased funds to be provided by an increase in quotas. The focus therefore shifted to inviting new participants into the GAB or creating a parallel agreement. A majority of the G10 countries, including Switzerland, wished to preserve their independent decision-making powers. They were unwilling to see any threat to the role and operation of the G10, and were consequently in favour of a parallel agreement. However, the new participants would have preferred to join the GAB. The option finally selected was to leave the GAB unchanged and to channel new resources – including those from the GAB – into a parallel agreement. The New Arrangements to Borrow (NAB) were thus introduced.

Fundamentally, the NAB operate in a similar manner to the GAB. They constitute a line of credit on which the IMF can draw in case of need. The total amount of this line of credit is 34 billion SDRs.¹³ Under these new arrangements, each participant has the same rights and responsibilities, in proportion to its share in the total credit undertakings.¹⁴

The National Bank is a participating institution in the NAB, as in the

¹² SNB, Minutes of the Governing Board (1999), 14 January, no. 18.

¹³ The GAB share is already included in this amount.

¹⁴ The original participants in the NAB, apart from the G10 members, were Australia, Austria, Denmark, Finland, the Hong Kong Monetary Authority, Kuwait, Luxembourg, Malaysia, Norway, Saudi Arabia, Singapore, South Korea, Spain and Thailand. They were joined by Chile in 2003.

GAB. Its share is 1,557 million SDRs, or 4.6 percent of the total. As with the GAB, the Confederation does not guarantee the loans made by the SNB. The NAB were first activated in 1998 when an IMF loan was granted to Brazil. In this case, the SNB's tranche (455 million SDRs) was higher than its theoretical share (some 5 percent of the total), since a number of countries were unable to participate in this monetary assistance. This first activation occurred before the internal decision-making process between the Federal Finance Administration and the National Bank was complete. However, this did not cause any problem, as the procedure used for the GAB was applied by analogy. Renewal of the NAB is the responsibility of the Federal Council, and a first extension occurred in 2003.

6.1.8 Contributions by the SNB to IMF facilities for low-income countries

Since the mid-1980s, the IMF has increased its efforts with low-income countries, to which it makes long-term loans at preferential rates of interest. It has devised specific facilities for this purpose (cf. chapter 6.2.7), which it manages on a fiduciary basis. The principal sum and interest subsidy for these facilities are not financed from the IMF's ordinary resources, but from exceptional resources or bilateral contributions by certain member states.

The National Bank contributed to the Enhanced Structural Adjustment Facility (1995: 151.7 million SDRs), renamed the Poverty Reduction and Growth Facility (PRGF) in 1999, and to the interim PRGF (2001: 250 million SDRs). The Confederation had been particularly enthusiastic about seeing the SNB become involved. Given both the determination to see the standing of Switzerland within the IMF consolidated and the federal government's tight financial situation, the SNB felt that it had to respond positively to this request. However, in view of the nature of the beneficiaries, and of the term and remuneration of the loans to be financed under these facilities, it set a number of conditions for its involvement. As it was neither able nor willing to finance development aid, it asked in particular that the Confederation guarantee repayment of the principal sum supplied to the Fund and requested that its contribution be remunerated at market rates. The Confederation agreed to both of these points.

6.1.9 The new legal framework and aid to members of Switzerland's IMF constituency

A new legal framework for the provision of monetary aid was introduced in 2004. Although the former framework had undergone a number of changes over the years, it remained inadequate in many respects. Firstly, the granting

of loans to Central and Eastern European countries in the early 1990s had required a broad interpretation of the federal decree on Switzerland's cooperation in international monetary measures. Secondly, as Switzerland's contributions to the IMF's facilities for low-income countries had no generic legal basis, decisions to participate were taken on a case-by-case basis via ad hoc federal decrees. Thirdly, Swiss aid to the countries in its IMF constituency was coming up against serious and growing problems. For instance, the National Bank financed payment of the membership quotas of a number of the countries by means of an intraday credit facility, based on an inadequate provision of law.¹⁵ Additionally, Yugoslavia's arrears to the Fund were settled thanks to a bridge loan from the SNB, guaranteed by the Confederation on the basis of the federal decree on Switzerland's cooperation in international monetary measures, with the only other party involved being Norway – as a means of satisfying the condition that the loans be multilateral in nature. Finally, in 2000, the SNB was compelled to refuse a loan to Tajikistan intended to bridge a loan to be obtained subsequently from the European Union, as none of the conditions of the federal decree were met. International monetary relations were not under threat, Tajikistan is a developing country and the loan concerned was bilateral and not multilateral in nature. In 2001, the SNB gave a similar reply to a request for a bridge loan from Yugoslavia. These refusals, although perfectly justified from a legal point of view, were contrary to the interests of these two member states of Switzerland's constituency within the IMF, and consequently were also against the interests of Switzerland as a player in the international monetary arena.

To respond adequately to these various difficulties, Parliament passed a Federal Act on International Monetary Assistance (MAA), which replaced the decree on cooperation in international monetary measures. The act governs Switzerland's participation in financial aid operations that aim to prevent or correct serious disruptions in the international monetary system (systemic aid). It also sets rules for the granting of loans to countries with which Switzerland works closely (particularly the members of Switzerland's IMF constituency) and for participating in special funds set up by the IMF, which are designed especially for financing loans at preferential rates to low-income countries. It allows the National Bank to finance loans in the systemic aid category, and stipulates that these loans be covered by a Confederation guarantee. Short or medium-term loans to countries with which Switzerland cooperates closely are financed by the Confederation. Finally, the SNB may

15 Klauser (1987), p. 145.

participate in IMF special facilities at the request of the Federal Council, with the Confederation subsidising interest and guaranteeing the repayment of such loans.¹⁶ While an agreement on the division of labour was reached immediately between the FDF and the SNB in respect of the first two points – systemic aid and loans to countries with which Switzerland works closely – the same did not apply to participation in IMF special facilities. Initially, the SNB sought to use this systematic updating of the legal instruments governing monetary assistance as an opportunity to withdraw from the financing of these facilities. It argued, in particular, that development matters were firmly outside its remit. The FDF, however, maintained that the SNB was effectively doing no more than tying up capital that was remunerated at market rates and covered by a Confederation guarantee. The FDF also invoked the precedents represented by the SNB's contributions to the PRGF and interim PRGF.¹⁷

The National Bank would have preferred to withdraw from the financing of special funds, as the new National Bank Act (NBA), which had entered into force in 2004, gave it an extended responsibility in an area that fell squarely within its remit. Under the terms of the NBA, the SNB may grant secured loans (such as swaps) and bridge loans where the risk involved is slight.¹⁸ For bridge loans, two conditions must be met. Firstly, when the contract is entered into, an institution of undoubted solvency must confirm that it will continue with the financing operation when the bridge loan falls due for repayment, and secondly, the term of the bridge loan may not exceed six months. These loans do not carry the Confederation's guarantee. Although they may be granted without a political commitment from the Confederation, collaboration between the SNB and the Confederation is nonetheless required, as the granting of a bridge loan by the SNB must be in accordance with the Confederation's foreign policy.

Thus, with the MAA, the final element was added to the legal edifice on which monetary assistance from Switzerland and the National Bank is based. It is a useful complement to the NBA, the federal decrees on GAB and NAB participation, and the Federal Act on Swiss Participation in the Bretton Woods Institutions.

16 Message (2003), p. 4322.

17 SNB, Minutes of the Governing Board (2003), 16 January, no. 25.

18 Message (2002), pp. 5751–5752.

6.2 Switzerland and the International Monetary Fund

ROBERTO CIPPÀ

6.2.1 Introduction

On 29 May 1992, Federal Councillor Otto Stich signed the Articles of Agreement of the International Monetary Fund (IMF) on behalf of Switzerland, making the country the 164th member of this institution. For nearly half a century, Switzerland had remained officially outside the Bretton Woods Institutions (BWIs), despite sharing their main objectives and believing that the interests of a small country are generally best defended within an international system of multilateral cooperation. What had prevented Switzerland from joining the IMF at an earlier stage was not a fundamental disagreement with the Fund's mandate or activity, but rather the desire to protect a number of characteristics of its economic and financial settings (cf. chapter 2.3.3).¹⁹ Not until 1982 did the Federal Council conclude that the benefits of full membership would outweigh the drawbacks and that it would be in Switzerland's best interests to become a member of both the IMF and the World Bank. It was some time, however, before any concrete action was taken. The main reason for postponing the membership process was that at the time priority was being given to joining the United Nations (UN). This political decision, followed by the March 1986 popular vote that heavily rejected UN membership, effectively deferred the BWI membership debate to the end of the 1980s. It was not until 5 June 1990 that formal requests to join the IMF and the World Bank were submitted to Washington.

The cooperation between Switzerland and the BWIs, namely the IMF, in the decade preceding membership remained intense. Two events – joining the GAB as a full member in 1984 (cf. chapter 6.1.3) and participating in the IMF's Enhanced Structural Adjustment Facility (ESAF) in 1988 – sparked heated political discussion within Switzerland as to the role and function of the BWIs, and laid the groundwork for the real debate that ensued in 1991.

Upon joining the GAB, the role and activity of the IMF was debated for the first time in Swiss Parliament. Despite fierce opposition from both ends of the political spectrum, Switzerland eventually became the eleventh member of the GAB. In many respects, this experience served as an indication of the difficulties that the authorities could expect from the BWI membership debate, despite the fact that joining the GAB was an easier endeavour insofar

19 For a complete description of the perceived pros and cons of joining the BWIs in the 1946–1982 period, cf. Kaeser (2004).

as it was the exclusive prerogative of Parliament, with no possibility of a referendum. It became clear that joining the BWIs would prove very difficult indeed. For this reason, and fearing that rejection could jeopardise what were then considered to be good – albeit not totally satisfactory – relations with the IMF, the Swiss National Bank was among those to come to the conclusion that full GAB membership could be a good alternative to joining the IMF. Another reason for the SNB's stance was its role as the sole participating institution in the GAB, whereas in the event of IMF membership, the relative role of the SNB in representing Switzerland would have been reduced substantially – to the benefit of the federal government. Switzerland's agreement to support the ESAF with a grant of 200 million Special Drawing Rights (SDRs) in 1988 was its second major collaborative undertaking with the Fund in the decade preceding membership and was of crucial importance in finally overcoming the scepticism towards the Fund on the part of non-governmental organisations (NGOs) and in winning their support for the membership cause.

6.2.2 Membership process

In 1989, only three years after the UN setback, the issue of joining the BWIs was resumed in earnest. Its complexity and the realisation that the battle would be hard-fought both on internal and external fronts suggested that a cautious start would be advisable. It all began in the first half of 1990, when Switzerland launched a diplomatic effort among partners of the Group of Ten and other countries to discern whether the conditions it attached to its demand to join the IMF and the World Bank could be realistically accommodated. The main condition was of course a sufficiently high quota that would enable Switzerland to lead a constituency of countries and elect Swiss Executive Directors in both institutions. The National Bank shared the almost unanimous view that without a direct presence in the decision-making bodies of the BWIs, the benefits of membership for Switzerland would be too few to justify the effort, and the status quo would have been preferable. Although the diplomatic effort fell short of providing the desired assurances regarding proper representation, it clearly showed that Switzerland still enjoyed substantial goodwill in the international community and that there was a good chance of success. This prompted the Federal Council to move ahead and apply formally for membership in both the IMF and the World Bank on 5 June 1990.

The effort involved in Switzerland's quest for a politically acceptable membership in the BWIs was threefold. Firstly, obtaining a high admission quota; secondly, mobilising the necessary internal support, initially in Parliament,

and subsequently with the population at large in the event of a referendum; and thirdly, since Switzerland could not realistically expect to occupy a seat alone on the two Executive Boards, it was imperative that it seek out countries willing to share a constituency under its leadership.

6.2.3 *Negotiating a high initial quota*

In June 1990, the IMF visited Switzerland on an exploratory mission in order to gather the necessary information it needed to calculate its initial quota. The Swiss case was unusual from the outset and the standard quota calculation procedure could not be applied. The uniqueness of Switzerland's financial, monetary and creditor position in the world, as well as its past record of generous contributions to various multilateral initiatives, all spoke in favour of a relatively high quota. This notwithstanding, negotiations within the membership committee of the Executive Board, which was appointed in August 1990 to address the Swiss case, proved unexpectedly difficult. It took an unprecedented five tumultuous meetings and all the skill of the French Executive Director Jean-Pierre Landau – chosen by the Swiss authorities to defend their interests within the membership committee – to eventually reach a consensus. Resistance came mainly from those countries that feared a major reshuffling of Board representation in the event that Switzerland's request for a high quota be accommodated. Only after Switzerland had given public assurance that it would never seek a seat on the Board to the detriment of the weakest members, particularly by evicting a constituency of developing countries, could these concerns be assuaged. On 20 March 1991, the Executive Board of the IMF set the Swiss quota at 1.7 billion SDRs, equivalent to 1.73 percent of total voting power. Although this quota was less than the one hoped for (the country's starting position in the negotiation process was 2.1 billion SDRs), Switzerland felt that the amount obtained was sufficient to keep reasonable hopes of proper representation alive. On this basis, the federal government, in agreement with the SNB, decided to move ahead.

6.2.4 *Winning internal support*

As soon as the battle over the quota had been settled, an intensive information campaign to win support within Switzerland began. Documentation was prepared for both houses of Parliament.²⁰ The Council of States, quite surprisingly, approved the project unanimously. This also included support for art. 6 of the Federal Act on Swiss Participation in the Bretton Woods

²⁰ Message (1991).

Institutions of 4 October 1991,²¹ which was strongly backed by the NGOs and which stipulated that any decision taken by Switzerland within either the IMF or the World Bank would reflect the principles and objectives of its development policy. Debates in the National Council proved more difficult, however. As expected, nationalist groups tried hard to portray the status quo as preferable to membership, which was considered excessively expensive compared to the still uncertain benefits. Furthermore, some left-wing factions of Parliament harshly criticised the IMF for its policies in low-income countries, instead strongly advocating enhancement of the Swiss bilateral effort. Even in the National Council, however, a positive outcome of the discussion was never in jeopardy. Eventually, three-quarters of the National Council approved the proposed legislative base for membership.²²

The surprisingly strong support in Parliament, however, could not prevent a referendum from being launched. The battle was therefore far from over, and a renewed and more comprehensive effort to inform the wider public had to be organised. The task was difficult and the recent débâcle on UN membership was anything but promising. The referendum complicated things on another two fronts. Firstly, the search for a constituency that Switzerland could possibly lead – a difficult task in itself, especially for a neophyte – was seriously undermined by the protracted uncertainty about the final outcome of the whole process. With Swiss membership not yet secured, countries were understandably reluctant to commit themselves to joining a Swiss-led group. Secondly, because of the referendum, the time constraint was becoming increasingly tight. In particular, it was imperative that the popular vote take place in early 1992 to ensure, in the event of success, that the 1992 Executive Board election deadline would not be missed. This deadline was all the more crucial as it was becoming clearer that many of the former Soviet Union countries would have joined the Fund by then. This was a golden opportunity to secure the support of at least some of these countries.

21 *Loi fédérale concernant la participation de la Suisse aux institutions de Bretton Woods du 4 octobre 1991*, RO 1992 2567.

22 In addition to the Federal Act of 1991, two further decrees were adopted on 4 October 1991. The federal decree on Swiss accession (*Arrêté fédéral concernant l'adhésion de la Suisse aux institutions de Bretton Woods*, FF 1991 III 1569) approved membership and gave the Federal Council the green light to proceed with the membership process, while the decree on the opening of a credit line to finance Swiss membership (*Arrêté fédéral ouvrant un crédit-cadre destiné à financer les prestations de subventionnement versées par la Suisse à la banque internationale pour la reconstruction et le développement, à l'Association internationale de développement, à la Société financière internationale*, FF 1991 IV 204) opened a credit line of 4,986 million Swiss francs to finance membership in the World Bank group. No additional decree was necessary for the financing of Fund membership, since this was the SNB's remit.

Indeed, it was increasingly felt that this would be Switzerland's last real chance to form a constituency.

Finally, on 17 May 1992, contrary to all expectations, 56 percent of the population and a large majority of cantons supported membership. Less than a fortnight later, Switzerland became a member of the IMF and the World Bank.

6.2.5 New constituency, additional seat

With membership and a relatively large quota secured, the prospects for Switzerland to build a constituency looked much brighter than before. Nonetheless, the final few steps proved to be yet another uphill battle. Homogeneity among member countries was generally felt to be the main factor in ensuring the efficiency of a constituency. For this reason, a constituency comprising a number of small central European countries was often mentioned as the ideal option for Switzerland. Swiss negotiators soon realised, however, that constituencies are actually fairly stable groupings of countries and that shopping around for countries was unusual in Fund practice. The desired homogeneity could only have been obtained by joining existing constituencies. This would have been irreconcilable with Switzerland's primary wish to head a group and secure permanent direct representation in the decision-making bodies of the BWIs. After much negotiation, a solution was finally found and a constituency satisfying this latter condition was formed, comprising Poland and four newly independent former Soviet Union states, namely Azerbaijan, Uzbekistan, the Kyrgyz Republic and Turkmenistan.

The second obstacle still facing Switzerland was the size of the Executive Board, which until 1992 comprised twenty-two seats. Indeed, without an enlarged Board, and given the existing constellation of Board alliances, Switzerland could only have gained a seat at the expense of a developing country group. Such an option would have gone against what had been declared when the quota was initially being negotiated, as well as being politically unacceptable for other Fund members. The alternative, i.e. withdrawing from the game and waiting for the next elections in 1994, was not acceptable for Switzerland. The only workable solution was to add another seat to the Executive Boards of both the IMF and World Bank to accommodate Switzerland, on top of the twenty-third seat that had been added to accommodate Russia, bringing the total number of seats to twenty-four. It is not clear exactly how the fierce US opposition to an enlargement of the Board was finally overcome, but Swiss determination and strong Polish support are often singled out as the most decisive factors.

Since 1992, the Swiss-led constituency has been enlarged twice, once in 1993 to welcome Tajikistan, which missed the 1992 deadline because of internal political turmoil, and again in 2000, to include the former Federal Republic of Yugoslavia.²³ At the end of 2006, the voting power of the constituency was 2.80 percent of the IMF total. The Swiss-led constituency thus ranks eighteenth among the twenty-four chairs of the Executive Board.

6.2.6 Switzerland as an IMF member

Following the entry into force of the ninth general review of quotas in November 1992, the initial Swiss quota of 1.7 billion SDRs was increased to 2.47 billion SDRs. Since then, under the eleventh review in 1999, Fund resources have increased by an additional 45 percent. Meanwhile, membership has steadily expanded. At the end of 2006, the Fund comprised 184 member countries and its total general resources amounted to 217 billion SDRs. By then, the quota for Switzerland had increased to 3.46 billion SDRs (about 6.3 billion Swiss francs), equivalent to a voting share of 1.6 percent, slightly lower than its original quota share. The SNB financed three-quarters of Switzerland's initial (and all subsequent) contributions to the Fund's capital in Swiss francs, while the remaining quarter was subscribed in US dollars. While Switzerland has never drawn on Fund resources, the Fund has drawn regularly – and continues to draw – on the Swiss quota in order to finance its lending operations. In such cases it replaces the amounts drawn with equivalent amounts in SDRs. Although the total value of a country's quota remains constant over time, its composition varies. For instance, when the Fund draws on the Swiss quota, the Fund's holdings of Swiss francs decline, while the remaining part of the quota – the reserve tranche – increases. The reserve tranche is a liquid claim on the IMF that earns a market-related interest rate and can be drawn on demand. It forms part of the SNB's international reserves and, at the end of 2006, amounted to about 555 million Swiss francs, roughly 8.7 percent of the Swiss quota.

The 1991 Federal Act on Swiss Participation in the BWIs designated the SNB as the depository of Fund resources in Swiss francs and as the fiscal agent responsible for the financial relations between Switzerland and the Fund. It also states that the Federal Council should cooperate with the National Bank in conferring membership status in the IMF and in appointing

23 At the time, the Federal Republic of Yugoslavia comprised Serbia and Montenegro. These later separated to become two independent republics, of which only Serbia remained part of the Swiss-led constituency.

Swiss representatives to the institution. The agreement between the Federal Council and the SNB of 16 September 1992 elaborated on this cooperation.²⁴ The outcome was an exercise of checks and balances between the two participating institutions – the SNB and the Federal Department of Finance (FDF) – whereby the Chairman of the Governing Board of the SNB is designated as the Governor for Switzerland at the IMF and the Finance Minister as the Alternate Governor. The Finance Minister is also the Swiss member in the Interim Committee of the IMF (since 2000, International Monetary and Financial Committee) and heads the Swiss delegation to the Annual Meetings. As for the position of Executive Director, candidates are nominated by the Federal Council in agreement with the National Bank. The 1992 agreement also elaborates on the sharing of responsibilities. Leadership on most policy-related issues concerning the IMF is attributed to the FDF, whereas the SNB is responsible for issues related to Swiss monetary policy or, more generally, for issues with a strongly monetary character. An important element of the agreement is that any statement, position or information to be submitted to the IMF needs to be agreed upon by both the SNB and the FDF. In the event of an irreconcilable disagreement – and contrary to the procedure followed in the context of the GAB – the Federal Council makes the final decision.

6.2.7 Swiss priorities in the IMF

The main reason that the Swiss authorities advocated IMF membership was the desire to participate in the decision-making processes of the institution and to be able to influence its policies and operations. To this end, it was felt that obtaining a seat on the Board was crucial. Nearly fifteen years of membership can only confirm that this opinion was indeed correct. Although a country can use various means to try to influence the policies of the IMF, the most important and direct channel of influence is through the activity of its own Executive Director.

According to the Articles of Agreement, the main decision-making body of the IMF is the Board of Governors. In reality, however, and with a number of notable exceptions, such as amending the Articles of Agreement, changing quotas, allocating SDRs, or accepting new members into the institution, most decisions affecting Fund operations and policies are delegated to the Executive Board. Executive Directors, or their representatives, attend all Board meetings and enjoy privileged contacts with both management and staff. The voting power of these directors depends on the cumulative quota of the

²⁴ Agreement (1992).

constituencies they represent. However, their influence is not necessarily proportional to their voting power. The IMF is a strongly cooperative institution in which decisions are usually taken by consensus. Skilled Executive Directors with credible, good and timely arguments are in a position to influence the consensus process, irrespective of their quota share. The capacity to build alliances and forge compromises is also crucial in the Board's decision-making. It is often the case that a stand-alone position quickly loses any possibility of influencing Board discussions. The fact that the Swiss Executive Director represents a so-called mixed constituency (i.e. a group including both creditor and debtor countries) has made its influence particularly constructive. Indeed, the diversity of interests within mixed constituencies is often a broad reflection, albeit on a smaller scale, of the variety of interests among the membership at large. Mixed constituencies have been crucial in forging a consensus on more than one occasion.

The concerns that many had expressed regarding the unmanageability of a heterogeneous group of countries such as the Swiss-led constituency have proven unfounded. The decision-making process within the Swiss group has been quite efficient to date. This can be explained mainly by the flexibility and commitment that Switzerland has shown in considering and pursuing its partners' interests. It may also be due to the fact that many partners in the constituency have so far prioritised their own economic development, focusing on the opportunities that could stem from their cooperation with the Fund and giving their leader greater freedom in dealing with the general policy of the institution.

Promoting international financial stability

The IMF's primary mandate is to promote and safeguard international financial stability. Helping the Fund pursue this mandate is a long-standing priority for Switzerland. A strong and resilient international financial system is crucial for global growth and prosperity. It is of vital importance for a small, open country with a major financial centre. This is even more so the case after the structural changes of the last decade, which led to a sharp increase in the size, integration and sophistication of international capital markets. In its endeavours to promote stability as a global public good, the IMF has always put the most emphasis on prevention. The Fund's main tool in this domain is surveillance. With globalisation, not only surveillance needed to be intensified, but the framework of surveillance itself had to be reformed. This reform effort started in the aftermath of the Asian crisis with the aim of building a new architecture for the international financial system. Switzerland strongly

supported this effort and all related initiatives. An important aspect of this project involved refocusing Fund surveillance on financial markets. In this regard, Financial Sector Assessment Programs (FSAPs) were developed. FSAPs are health check-ups of national financial sectors aimed at strengthening the monitoring of financial systems, identifying vulnerabilities and helping countries develop appropriate responses at an early stage. Switzerland was among the proponents of the FSAPs and, as one of the very first candidates, volunteered to undergo such a check-up in 2001. Enhanced transparency and improved, more reliable data dissemination, which would facilitate a smoother functioning of markets and market discipline, are other important elements in the new architecture. In this regard, Switzerland has also supported the new orientation from the very beginning and subscribed to the Special Data Dissemination Standard established by the IMF in 1996.

Strong efforts at crisis prevention are no guarantee that crises will never occur. Restoring stability when a crisis erupts is the second pillar of the Fund's stability mandate. While the new global and more liberalised international setting allows a more efficient redistribution of world savings and has provided the basis for staggering economic results in many emerging countries, it also makes them vulnerable to sudden shifts in market sentiment, sometimes driven only by contagion. The 1994 Tequila crisis that hit Mexico was only an indication, on a relatively small scale, of what emerging economies would endure later, namely in Southeast Asia and Latin America. The economic and social costs of the new crises also increased dramatically. Faced with the magnitude and nature of the new so-called capital account crises, the Fund had to increase its financial assistance quickly and dramatically, and its provision became a matter of greater urgency than it had been previously. Switzerland cooperated strongly with the Fund's efforts to cope with this new phenomenon, both by defining new instruments of intervention and by making Fund resources more commensurate with the new challenge. In 1999, Switzerland agreed to a 45 percent general increase in quotas.

Switzerland never shied away from contributing to solving financial emergencies (cf. chapter 6.1.4). Nor did it believe, however, that bailing out international creditors, as was the case during the Asian crisis, should be – or is – the only and most efficient remedy for financial turmoil. The use of public resources in crisis resolution is and ought to remain limited, not only to reduce financial risks for the institution, but also to contain moral hazard and foster market discipline. Looking for efficient ways to involve the private sector in resolving financial turmoil is all the more necessary, as it is doubtful whether Fund resources can continue to keep up with the explosion of private

financial flows. Accordingly, in the early 2000s, Switzerland supported the introduction of Collective Action Clauses in sovereign bonds to ensure a more efficient decision-making process in cases where debt restructuring is inevitable. Switzerland would have preferred a more statutory approach, encompassing all types of debt, but the proposal to establish a Sovereign Debt Restructuring Mechanism was abandoned in 2003 due to lack of sufficient support, and in particular to the opposition of the United States. At the same time, the SNB strongly insisted on a strategy to help preserve the financial solidity of the IMF, combining cautious lending, both with respect to amounts and concentration, with a strict reserve policy to include a conservative approach regarding Fund gold holdings.

Supporting Fund activities in low-income countries

As contained in the Federal Act on Swiss Participation in the BWIs, any Swiss position taken in the IMF must be consistent with the principles and objectives of its development policy. Over the years, this has translated into strong Swiss support for the Fund's involvement in low-income countries (LICs) aimed at helping them achieve far-reaching and lasting poverty reduction through policies that promote growth, generate employment and target assistance to the poor. At the same time, Switzerland also believes that this general goal of the Fund should only be pursued in close collaboration with other development partners, particularly the World Bank.

The nature of the Fund's general resources (foreign exchange reserves) is such that only traditional, market-related Fund lending is permissible. However, this type of lending is unsuitable for support to LICs, which must be made at concessional terms. It is for this reason that, in providing financial assistance to LICs, the IMF has generally acted as a trustee, channelling bilateral contributions (or proceeds from Fund gold sales) through a number of trust funds. Fund concessional lending began in 1976 following the first IMF gold sale. It evolved and expanded throughout the 1980s and 1990s with three new instruments: the Structural Adjustment Facility (SAF) in 1986, the Enhanced Structural Adjustment Facility (ESAF) in 1987, and the Poverty Reduction and Growth Facility (PRGF) in 1999. In addition to these, the IMF and the World Bank jointly launched the Heavily Indebted Poor Countries (HIPC) initiative in 1996 in order to reduce the external debt burden of the poorest countries to a sustainable level. Switzerland's contribution to such initiatives has been substantial. As far as the SNB is concerned, it contributed to the PRGF. The Swiss effort was not only financial: since becoming a member of the BWIs, Switzerland has played an active role in the

conceptualisation and design of the various instruments, insisting on promoting high-quality growth compatible with sustainable social and environmental developments.

The National Bank, while sharing the general principles of Switzerland's involvement in LICs, has always insisted on preserving the monetary character of the IMF. Accordingly, the Fund ought to be selective in its approach and focus on its core areas of responsibility and expertise, namely helping countries to achieve stable macroeconomic conditions. Financing development is not a Fund mandate. The IMF should therefore not engage in protracted concessional lending. The poorest members should instead benefit from more policy advice and technical assistance.

Defending constituency members' interests

Over the last fifteen years, all the partners in the Swiss-led constituency have gone through painful economic transitions from centrally planned towards market regimes. Switzerland has made it a priority to help them in this endeavour. This has translated into a variety of actions, some of them at a bilateral level, others as part of Switzerland's support and promotion of initiatives taken in a multilateral context. Included in the first category are the loan for the Stabilization Fund for Poland in 1989, transformed into a grant in 1995 to help the restructuring of the Polish banking system; the various bridging loans to facilitate some of the countries' membership processes (cf. chapter 6.1.9), or again, the sizeable resources that various federal departments and the SNB have devoted to technical assistance to the constituency since 1989. As part of the multilateral initiatives, Switzerland strongly promoted the creation of the Systemic Transformation Facility (STF) of the IMF in 1993, especially suitable for countries in the early stages of transition. Such a facility provided access to Fund resources with relatively low conditionality. In 1996, the Swiss government agreed to finance a 'sub-account Switzerland' within the IMF to finance Fund technical assistance projects. In April 2004, a cumulative contribution of 11.4 million Swiss francs was granted, a substantial part of which went towards the support of technical assistance in Central Asia. Last but not least, in 1997, Switzerland was among the promoters of the Fourth Amendment to the Articles of Agreement to allow for a special one-off allocation of SDRs that would particularly benefit those countries, including all the countries in the Swiss-led constituency that joined the Fund after 1981, the date on which the last general allocation of SDRs had taken place. Before this amendment can enter into force, however, it must first be ratified by a sufficiently large majority of governors. The National Bank only

reluctantly agreed to endorse such a one-off allocation of SDRs, doing so solely out of solidarity with the rest of the constituency. As a matter of fact, the SNB was of the opinion that such an allocation would not be justified on the grounds of global shortage of international reserves, the traditional condition for allocating SDRs.

Promoting transparency and accountability

Another general Swiss priority in the IMF is the promotion of transparency and accountability. This is part of a broader project to enhance good governance, both at the level of the member countries' policies and institutions and at the IMF itself. The Fund in particular, like any public institution, is constantly confronted with the need to justify its actions. Although, strictly speaking, the Fund remains accountable only to its members' authorities, in reality the legitimacy bar has been raised in recent years. A growing section of society is interested in Fund business and is willing to engage the institution in a constructive dialogue on various aspects of its activity. Switzerland welcomes this development. Over the past decade, it has always been very active in pushing the transformation of the IMF into a more transparent and open institution – an institution that is more willing to listen to criticism and learn from past mistakes. A milestone in this endeavour was the institutionalisation of an Independent Evaluation Office, set up in 2001 to assess Fund activities.

6.3 Technical assistance

WERNER HERMANN

6.3.1 Concept and evolution

Although not all central banks have precisely the same mandate, many of them are faced with similar challenges. For that reason, like colleagues, they regularly exchange ideas and have now been working together successfully in many areas for a long time. It is also a matter of course for them to seek the advice and support of a central bank that is a leader in a particular field. Mutual assistance can range from a one-off piece of advice or collaboration on a project to the intensive training of a team of specialists for a new task. Such assistance is required whenever there are no competent or reliable advisors available to build up the specific knowledge and skills required by central banks. This kind of support has come to be known among central banks as technical assistance.

The Swiss National Bank had provided technical assistance on and off for a long time. For instance, during the Second World War it provided the Central Bank of Iran with an expert on currency matters to act as an advisor; in the 1970s it assisted the Central Bank of Iraq on cash matters; and in the early 1980s it advised a number of African central banks.

With the transition of Eastern Europe to a market economy, the central banks of these countries found themselves faced with entirely new challenges, and their interest in technical assistance increased dramatically. A little later, the collapse of the USSR resulted in the establishment of a number of new sovereign states which recognised that having their own currency was a way of demonstrating their independence. Yet this required each country to have a central bank – which, however, still had to acquire the necessary expertise. As a result, the number of requests for technical assistance once again rose dramatically.

Since these fledgling central banks often addressed their requests not just to one Western central bank, but to several at a time, problems of duplication and jurisdiction arose. For that reason, in 1990, the central bank governors of the Group of Ten countries and Austria decided to coordinate their technical assistance under the auspices of the Bank for International Settlements. The International Monetary Fund (IMF) also participated in the coordination meetings; with its detailed knowledge of the individual transition countries, it played the key role in the organisation of technical assistance.

6.3.2 Guiding principles

Initially, the SNB assessed the requests for technical assistance that it received on a case-by-case basis. In 1992, the Governing Board created a central unit, which has been processing and coordinating the requests ever since. This has allowed the requests to be assessed in accordance with standard principles. Although there were still no explicit formal criteria to begin with, it was, for example, clear that the SNB would respond only to requests from official bodies and did not solicit requests on its own initiative. The Governing Board wanted the National Bank to avoid becoming too actively involved. While it was prepared to make highly qualified specialists in management positions available for temporary technical assistance duties, the Governing Board was keen for these people to be deployed effectively.

In the same year, Switzerland joined the Bretton Woods Institutions and, together with Poland and a number of countries from the former Soviet Union, formed a separate IMF constituency. After that, the Governing Board issued instructions for a technical assistance plan to be drawn up, and

approved the principles of the plan in early 1993. These stipulated that technical assistance should be provided in specialist areas in which SNB staff were particularly well-versed. Requests from members of its own constituency or projects undertaken in consultation with the Swiss Federal Administration were to be given priority, and assistance was to be tailored to meet the needs of the recipient. The Governing Board also wanted the SNB to concentrate on assistance required for IMF or World Bank projects.

Although providing technical assistance called for a certain amount of spare capacity in personnel resources, the Governing Board did not initially create any additional posts. Towards the end of the 1990s, however, technical assistance was making such heavy demands on individual members of staff that it was written into their job specifications. Nevertheless, compared to other central banks, the level of involvement remained rather modest. In the first half of the 1990s, the value of technical assistance provided by the SNB averaged an estimated one person-year; since the turn of the millennium, it has been around four to five person-years.

6.3.3 Activities and focal points

Most of the newly established central banks of the former Soviet republics were created from the branches of the Central Bank of the USSR. Although some of their employees were familiar with the standard cash transactions executed at branch office level, they had little or no idea of head office functions. Once they started issuing their own national currencies, most of these new central banks therefore needed advice on organising the supply of cash and, later, on investing their currency reserves. It was in view of such needs that, as early as the end of 1992, the SNB began offering an intensive and lasting programme of advice to the National Bank of the Kyrgyz Republic. To start with, other central banks from the Swiss constituency experienced occasional difficulties in articulating their needs, or these needs did not match what the SNB could offer. This was frequently due to the fact that their terms of reference were much wider than those of the SNB, as a result of which many applications were completely outside the SNB's remit. When it came to seeking clarification, mutual understanding was also a problem in the early days – hardly any of the members of these central banks spoke English, and the SNB had no one with a command of Russian.

A typical example of how a project works is provided by the assistance the SNB gave the National Bank of the Kyrgyz Republic in 1993 at the request of the IMF. The Governing Board first of all despatched the Head of Investment to help set up a department that would be responsible for managing

the liquidity of the Kyrgyz economy and for investing the country's prospective currency reserves wisely and professionally abroad. It was clear that this objective could never be achieved in a two-week mission. Under the terms of the project that arose from this initial visit, various specialists from the investment unit regularly spent time in Kyrgyzstan in order to familiarise their colleagues there with the basic concepts of liquidity management and with trading in US government securities, and to provide on-the-job training. In addition, various employees of the National Bank of the Kyrgyz Republic completed short internships at the SNB. Later on, the SNB also conducted similar projects for the central banks of Azerbaijan, Serbia and Montenegro.

In other cases, it was not the training of staff members at the new central banks that was the main purpose of the SNB's technical assistance, but supporting a central bank in negotiations by providing an expert or merely by bringing its international standing to bear. For instance, in 2001, the SNB assisted Tajikistan in its debt rescheduling and helped it to secure the forgiveness of a significant proportion of its debts to the European Union, its largest creditor.

Cashless payments, in which the SNB had become an international pioneer with the introduction of the Swiss Interbank Clearing system in 1987, were another main focus of technical assistance.

6.3.4 Study Center Gerzensee

To mark its 75th anniversary, the SNB established the Study Center Gerzensee Foundation – initially as a training centre for central bankers from developing countries. To that end, it purchased the *Neues Schloss* (Manor House) in Gerzensee, a village to the south of Berne. Following extensive renovation and construction work, it was officially declared open on 6 May 1986. Thanks to the high standard of its training courses and conferences, the Study Center quickly acquired an excellent reputation.

In the past few years, employees from over 150 central banks have attended the two or three-week courses on the core subjects of monetary policy, finance and banking supervision. The Study Center signs up specialists from both Switzerland and abroad as lecturers.

Then, in 1992, it extended its programme and began offering a course to doctoral students of economics at Swiss universities. The one-year course under the guidance of professors from leading colleges and universities in the United States and Europe represents a significant enhancement of the value of studying for a doctorate in Switzerland and gives the graduates

in-depth knowledge at the highest level. One-week courses in various specialist areas of economics complete what the Study Center has to offer in the way of training.

Study Center Gerzensee also serves as an international meeting place. It regularly organises international conferences on financial and economic issues for academics and central bank officials, and often publishes the proceedings in journals.

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7 Financial system stability from the viewpoint of the National Bank

7.1 The National Bank's closer focus on the stability of the system

URS W. BIRCHLER

7.1.1 *The significance of banks for monetary policy*

One key trend over the past twenty-five years has been the Swiss National Bank's increasing focus on issues relating to the stability of the banking and finance system. The financial markets, and above all the banking sector, have always been an important link between the real economy and money supply. However, following the collapse of the Bretton Woods system in 1973 and the transition to management of the money supply, the SNB realised that trends in the banking system can hamper monetary policy.

The introduction of the Swiss Interbank Clearing (SIC) system and the simultaneous review of statutory requirements for the liquidity of banks in 1988 led to a reduction in demand for base money that was difficult to predict. Moreover, after decades of prosperity in the Swiss banking sector, banking crises in other countries and the Chiasso débâcle at Credit Suisse (1977) provided a salient reminder that the sector should be taken seriously as a potential source of domestic disruption.

In the early 1980s, the National Bank began to monitor developments in the banking sector more closely. It increasingly turned its attention to micro-economic sources of disruption rooted in the conduct of individual banks. Initially, the SNB regarded its contribution to the stability of the banking system principally as maintaining price stability. This included its function as lender of last resort, which involved providing the banking system, or major parts of it, with additional liquidity in the event of a crisis.

The increasing internationalisation of the banking sector and the development of a crucial financial market infrastructure subsequently heightened the SNB's awareness of the vulnerability of banks and, above all, the banking system as a whole. It recognised the danger of the international knock-on effect of a bank's collapse, and the risk of disruption of the entire system emanating from the breakdown of a key element in their shared infrastructure. In addition, it stepped up its role in the international debate on the expediency of regulating banks, financial markets and payments systems, principally under the aegis of the Bank for International Settlements (BIS). During the past twenty-five years, the SNB has thus assumed a more active

role in securing the stability of the system – especially towards the end of this period, when this task was enshrined in the new National Bank Act (NBA).

The SNB saw its role chiefly as identifying emergent trends that affect the banking system as a whole (such as a stock market crash) or that spread across the banking system (through the interbank market or a loss of confidence in the sector) and taking steps to counteract their impact. It therefore concentrated on systemic risks, which are often difficult for individual banks to identify. Although it was aware that the stability of individual banks was the key to the stability of the overall system, supervision of individual banks remained the responsibility of the Swiss Federal Banking Commission (SFBC).

In the meantime, the financial markets had undergone a fundamental change (cf. chapter 7.2), which also brought massive changes to the banking sector (cf. chapter 7.3). In the light of this, the SNB felt obliged to review its function as lender of last resort (cf. chapter 7.4), assume the oversight of major payments systems and work towards a revised NBA that would reflect the new situation (cf. chapter 7.5).

7.1.2 Problems at Swiss and foreign banks

An early indicator of the subsequent problems in the banking sector was the collapse of Herstatt Bank in Germany in 1974. This highlighted the serious risk of an international domino effect. When Herstatt went out of business it had substantial open foreign exchange positions in a number of time zones. This experience led to the establishment of the Basel Committee on Banking Supervision in 1974. In other words, central banks explicitly began to concern themselves with issues of banking supervision. It also triggered the development of payment systems that minimised interbank liabilities on an intraday basis. At the same time, the financial markets were endeavouring to free themselves from the constraints of tight regulations dating from the wartime period or the fixed exchange rate regime. The SNB was therefore faced with a rising number of issues relating to the regulation and stability of the banking sector.

At first, problems at microeconomic level were confined to other countries. A number of Spanish banks collapsed in the early 1980s as a result of the aftershocks of the oil crisis. In the United States, large numbers of savings and mortgage banks went bankrupt due to an accumulation of hidden risks resulting from statutory intervention in the market mechanism – specifically ceilings on the interest paid on deposits and far-reaching deposit insurance. Deterioration in the economic situation, accompanied by the removal of

restrictions on the interest rates paid on bank deposits, increased loan losses and the cost of refinancing, causing serious problems in parts of the US banking system. In the late 1980s, the Scandinavian countries, especially Norway and Sweden, suffered a serious banking crisis after a speculative property bubble.

The 1990s provide examples of the full range of possible banking crises. The sudden collapse of the British-based Bank of Credit and Commerce International (BCCI) in 1991 and of Barings in 1995 were consequences of internal problems at *individual* banks. By contrast, the ten-year downturn in the Japanese banking sector was a problem affecting the *entire system*. The banking systems in numerous emerging markets in Southeast Asia and South America were also badly hit, mainly as a result of balance of payments crises. Finally, many banks in the former Communist economies in Eastern Europe proved incapable of surviving in free market conditions.

The banking system in Switzerland also went through a very difficult period in the early 1990s. Competition between banks had become tougher. Together with the reduction in cartel agreements and other anti-competitive practices, this increased the Swiss banks' vulnerability to an economic downturn. Problems in the real estate sector following an unparalleled rise in property prices brought a number of banks, especially regional banks, to the brink of bankruptcy. The so-called regional bank crisis – a simplification that is not entirely apt – was the biggest test of the Swiss banking sector since the far more serious crisis of the 1930s. The banking sector ultimately managed to overcome the crisis largely on its own. However, it increased the consolidation of the Swiss banking sector.

7.1.3 Systemic stability as a new task

The problems in the banking sector in Switzerland and abroad prompted the National Bank to play a more active role in securing the stability of the banking sector. In the early 1980s, the Governing Board set up a special department to deal with banking and regulatory issues. The SNB also began to extend its statistics on such problems. It had become clear that, despite the traditional soundness of their management, Swiss banks were not entirely impervious to crisis. As experience at home and abroad had shown, banks get into difficulties all too easily, particularly when macroeconomic fluctuations coincide with a reduction in barriers to competition. Thanks to the supervision by the SFBC, Switzerland had recognised the problems before they could spread to the entire system. Nevertheless, it had become evident that banks could collapse despite supervision.

In the early 1980s, the SNB also put its cooperation with the SFBC, which is responsible for the supervision of individual banks, on a more formal footing. Since December 1985, the Governing Board of the SNB and SFBC management have met twice a year to discuss fundamental issues. On a technical level, the contact has become closer over the years. For example, the SNB provides the SFBC with data and analyses from its banking statistics. The National Bank also made a material contribution to the work of the SFBC, for example by developing a concept to measure the risk to banks arising from changes in interest rates and participating in stress testing of banks.

Although the Swiss banking community had proven its ability to overcome crises independently, it had become evident that statutory instruments were not adequate to deal with serious problems. The National Bank came to the conclusion that in future crises, the authorities should not rely on the banks' collective capacity for self-help, or on existing statutory instruments. It therefore advocated a review of the relevant provisions of the Banking Act.

It had also become clear that the SNB could not fulfil its role as lender of last resort effectively, partly because the statutory basis was too narrow and inflexible (cf. chapter 9.6.5), and partly because numerous examples had shown how difficult it was to assess the solvency of banks in the event of crisis and to distinguish between insolvency and illiquidity. Nevertheless, the SNB still regarded solvency as the prerequisite for providing liquidity assistance. It had always rejected the possibility of providing more far-reaching aid, not least because of the danger that this could act as a precedent and encourage undesirable trends. Partly on these grounds, it decided to pay more attention to preventive measures to protect the stability of the financial system. It defined systemic stability as the ability of payment systems and banks to play their economic role in the clearing and settlement of payments and as intermediaries between debtors and creditors, even in periods of difficulty and in the face of external disruptions.

The experience of the 1990s prompted the SNB to review its concept of lender of last resort. When the NBA was revised, the National Bank made sure that its contribution to maintaining the stability of the banking system was specifically mentioned and that the definition of its tasks and instruments in this area was revised. In order to implement the new NBA, the National Bank developed capacity to oversee the payment and securities settlement systems.

7.2 Developments in the financial markets

VINCENT CRETOL

7.2.1 *The SNB's interest in financial markets*

Given its increasing interest in the stability of the financial system, the Swiss National Bank keeps a close eye on developments in the financial markets. However, there are other reasons for this interest. Firstly, volatility in financial markets sometimes causes disturbances that require adjustments to monetary policy. Secondly, liquidity is supplied through open market operations, and the SNB must ensure that the markets in which it deals operate in an orderly manner. Finally, its role as an asset manager requires it to have a command of the financial instruments in which its funds are invested.

Over the past twenty-five years, financial markets have seen remarkable developments. The range of traditional instruments for the collection and investment of savings has expanded enormously. The use of derivatives has now become commonplace and their areas of application have expanded. Additionally, new financial intermediaries have come to the fore. Having previously been segmented and limited to a purely domestic role, financial markets now operate on a global scale.

7.2.2 *The development of traditional instruments for savings and investment*

The primary role of financial markets is to provide a platform for the interaction of savings and investment. The flow of funds from lenders to borrowers is basically routed through three channels: the purchase of negotiable equity instruments (shares), the acquisition of negotiable acknowledgements of debt (bonds) and bank intermediation. In the latter of these three channels, banks reinvest their deposits, assuming the risk of non-repayment of the loans granted. A study has shown that the global stock of these instruments increased tenfold between 1980 and 2004 to a figure of 118 trillion US dollars,¹ the equivalent of 300 percent of global gross domestic product (GDP), compared to a figure equivalent to only 100 percent in 1980.

Between these two dates, the global capitalisation of companies listed on the world's leading stock exchanges rose from 2.8 trillion US dollars to 33 trillion. This represented a slight increase in its share of the world financial stock, to 28 percent. However, this figure has seen substantial swings, peaking at 38 percent in 1999, immediately prior to the collapse of the dot-com bubble. The increase in market capitalisation was mainly the result of an increase in

1 McKinsey (2005).

the value of companies already listed. This in turn was due to the growth in earnings and to a more favourable assessment of the outlook, reflected in an improvement in price/earnings ratios. The privatisation of public sector companies in Europe and the numerous new listings of private companies in the United States also contributed to the rise in market capitalisation. Conversely, share buyback programmes, a phenomenon that began in the 1990s, have tended to slow down this development. In Switzerland, market capitalisation also rose sharply, from 76 to 780 billion Swiss francs.

The expansion of the bond market was no less impressive than that of equities: total bond holdings reached some 58 trillion US dollars in 2004, compared to less than 4 trillion in 1980.² From the 1990s onwards, the greatest dynamism and innovation was evident in the corporate bond segment, which grew by almost 10 percent per annum and, by 2004, accounted for almost 30 percent of the total bond market. The practice of securitising bank loans – essentially in the mortgage and consumer credit sectors – began in the US and spread to the other developed markets, also contributing to the expansion of private bond issuance. The international bond sector was also highly dynamic, particularly the Euromarkets. International loans accounted for almost 20 percent of the total bond market in 2004, compared to 12 percent in 1990. However, the dominant players were still sovereign issuers, which represented over half of total amounts outstanding, as spiralling budget deficits compelled governments to increase their borrowing. The gross central government debt of the world's seven major industrialised nations (G7) thus rose from 44 percent of GDP in 1980 to 82 percent by 2004. However, this worrying trend did have one positive side effect, namely of increasing market liquidity, a process further encouraged by the standardisation of bond issues and the wider use of negotiable instruments to finance public debt.

From an international perspective, the Swiss franc bond market expanded at a rate lower than the average, increasing from 95 billion Swiss francs in 1980 to 530 billion in 2004. At that point, it accounted for less than 1 percent of the global total. During the 1980s, the market benefited from the increased presence of foreign issuers, particularly Japanese. Growth in the 1990s was spurred by increases in the Swiss Confederation's debt levels, which rose by 89 billion Swiss francs between 1990 and 2004 to a total of 127 billion.

Part of the growth in the bond market was achieved at the expense of bank

2 For these and subsequent figures, cf. BIS, *Quarterly Review* (various years); Merrill Lynch (2004).

deposits, which nonetheless managed to grow – according to the study cited previously – from 5.4 trillion US dollars in 1980 to 35.4 trillion in 2004, after which bank deposits still accounted for almost 30 percent of the global stock overall, compared to 45 percent in 1980. This proportion was higher in Japan and Europe than in the US.

7.2.3 The expansion of derivatives markets

The second role of financial markets is to facilitate the management of certain risks. In recent years, this aspect has acquired greater importance owing to the rapid expansion of financial derivatives. These instruments are by no means a new invention: they can be traced back as far as the agrarian markets of the eighteenth century. However, the higher level of volatility, brought about by the move to floating exchange rates, triggered a strong upturn in demand for this type of product in financial markets. With advances in financial theory and computerisation making it possible for supply to meet this demand, the scene was set for derivatives to develop rapidly.

Derivatives are fixed or conditional promises to pay, based on movements in the price of an underlying asset. The most common derivatives are forward contracts, options and swaps. As a general rule, derivatives are traded by financial intermediaries and not directly between the end-users. They fall principally into two categories: instruments traded on organised exchanges and those traded over the counter by a particular financial institution. The advantages of the former type are their higher level of liquidity and lower credit risk, while the latter benefit from the fact that they can be customised and are subject to fewer regulatory constraints.

Statistics of the Bank for International Settlements (BIS) reflect the vitality of the expanding market for derivatives since 1986. Notional outstandings of underlying assets in these instruments (futures and options on interest rates, currencies and equity indices traded on organised markets) have increased at an annual rate of 25 percent, reaching 47 trillion US dollars by the end of 2004. The figure for derivatives traded over the counter, amounting to over 248 trillion US dollars, should also be added to this total. However, the gross market value of these derivatives represented only a fraction of this amount (9.1 trillion US dollars) and the resulting credit risk was a mere 2 trillion US dollars, thanks to netting agreements between participants and the increased use of collateral.

Initially confined to the management of market risk (exchange rates, interest rates, stock exchange or commodity prices), derivatives gradually expanded into new areas. Since the mid-1990s, they have also been used to manage credit

risk. Their yield is dependent on movements in interest margins on lower-quality debtors, the probability of default or the deterioration in the quality of a debtor. By June 2004, they accounted for 3 percent of all derivative products. More recently, new types of derivatives have been launched, based, for example, on economic indicators, demographic indices (longevity bonds) or even meteorological data. Their potential for development appears infinite. The only requirements are a significant level of demand for a standard product, an underlying asset value that cannot be manipulated and statistical properties that can be modelled.

Central banks have carried out extensive research into the potential risks linked to the growth of derivatives. These studies, to which the SNB has also contributed, have concluded that derivatives are fundamentally beneficial, as they enable their users to manage risks more efficiently. However, the analyses have also highlighted a number of shortcomings. Efforts have therefore been made to limit the inherent settlement and counterparty risks in the derivatives business and to take those risks into account when calculating banks' capital requirements in respect of their exposure to market risk.³

7.2.4 The emergence of institutional investors

While bank intermediation in the narrow sense of the word (deposits and loans) has declined in importance over the last twenty-five years, other intermediaries have assumed a wider role in the collection and investment of savings. These include, in particular, insurance companies, pension funds and investment firms. Today, these institutional investors exert a considerable influence over the markets. In 2001, they held 35 trillion US dollars' worth of assets under management, compared to 14 trillion in 1990.⁴ In Switzerland, institutional investors had over 1 trillion Swiss francs in assets under management in 2001. The independent pension funds accounted for 49 percent of this figure, insurance companies for 37 percent and investment firms for 14 percent.

The growth and development of institutional investors have had a marked effect on financial markets' size, microstructure and capacity for innovation. For instance, their increasing demands for risk control have stimulated the development of financial engineering. Moreover, the impetus provided by institutional investors has made a vital contribution towards improving the quality of financial information, as well as the liquidity and security of

³ BIS (1992b, 1994, 1995).

⁴ OECD (1998, 2003).

trading and settlement systems. Institutional investors have also systematically applied the lessons of financial theory to fund management.

One particular category of institutional investors that has exerted an increasing influence on financial markets is hedge funds. These are private investment vehicles following differing investment strategies with the aim of producing high absolute rates of return. Assets managed by hedge funds had risen from less than 40 billion US dollars in 1990 to over 1 trillion dollars by June 2005. The managers of these funds enjoy considerable operational freedom and their remuneration is closely linked to performance. Exploitation of the leverage effect is also a key feature of hedge funds. They have often been accused of having a destabilising influence on the markets. At the time of the 1998 crisis in the LTCM fund, the Federal Reserve of New York was forced to intervene in order to ensure an orderly liquidation of the fund. It became clear that excessive leverage constitutes a potential risk to the financial system. In the wake of that experience, many institutions, including the central banks, looked at the influence of hedge funds on markets and considered the need for additional regulations. The SNB also took part in this work. Its view was that, in general, hedge funds increased the liquidity of financial markets and rendered them more efficient and flexible, although it was possible that certain segments of the industry could, on occasion, exacerbate existing tendencies or cause discontinuity – or even abrupt reversals – in price trends. As regards the threat posed to the stability of the financial system, the SNB concluded that the risk was still slight, since the main business partners of hedge funds, which tended to be the global investment banks, had a prudent and disciplined approach to risk management.⁵

7.2.5 Increasing globalisation of financial markets

The last twenty-five years have seen major strides in the globalisation of financial markets. This trend has been in response to the same economic logic prevailing in the markets for goods and services. Global financial markets make it possible to channel individual savings into areas in which they will be most productive. In particular, they enable national economies to decouple savings decisions from investment decisions. Financial markets had begun to open up gradually after the 1960s, but, in the early 1980s, were still highly segmented. At that time, the global stock of assets invested abroad was equal to some 25 percent of global GDP. This proportion was much

5 Hildebrand (2005); SNB (2005a), p. 23.

higher than the level seen in 1960 (6 percent). However, it barely exceeded the estimated level of 1914, a year that represented the high water mark of early twentieth century globalisation. Since 1980, the proportion of assets invested abroad has continued to increase, reaching 90 percent of GDP by 2000.⁶ The figures for Switzerland, a small open economy with a highly developed financial market, are even more striking. In 2003, assets invested abroad represented 550 percent of GDP, compared to 175 percent in 1983. The influence of foreign investors had increased in all markets. In the United States, for instance, the share of equities held by foreign investors multiplied threefold between 1975 and 2003, while that of foreign holders of corporate bonds grew by a factor of 25. Similarly, US holders of equity portfolios had 12 percent of their funds invested in foreign stocks in 2000 compared to 1 percent twenty years earlier – a higher proportion, but still much lower than would have been the case if investment had been optimised solely on considerations of risk and reward. The bias in favour of domestic investment therefore remained significant.

Factors that contributed appreciably towards the globalisation of markets included technological advances in the area of data processing and transmission, the emergence of institutional investors and, in Europe, the introduction of the single market and the monetary union. The reduction in legal obstacles to the free movement of capital also played a fundamental role. Despite this, in the developed economies, it was not until the beginning of the 1990s that the last barriers to capital movement were swept away. In this regard, Switzerland was a pioneer in Europe for many years. In the emerging markets, the movement was more gradual: the degree of liberalisation achieved in these countries by 2000 was similar to that reached by the developed economies twenty years earlier.⁷ However, after the Asian financial crisis of 1998, it had been considered preferable to achieve a certain level of internal financial stability before moving to the full liberalisation of capital movements.

It is tempting to think that the main driving force for international capital flows is the differing levels of domestic savings and investment, and the opportunities resulting from this phenomenon. However, the trends for gross and net capital flows between countries reveal a completely different picture. The greatest increases have actually occurred in the gross movements from developed countries into other developed countries, whereas net positions have remained modest. Switzerland is something of an exception in this

6 Obstfeld and Taylor (2004).

7 Miniane (2004).

respect, with its net external wealth representing the equivalent of 140 percent of GDP. This dichotomy between gross and net positions would tend to support the view that international capital movements are primarily the result of the desire of investors in the developed countries to diversify their assets beyond national borders. The concentration of financial flows in developed countries has meant that the involvement of the emerging economies in financial markets has remained lower than their economic importance. While these countries accounted for 25 percent of global GDP at the end of 2003, their share in the capitalisation of world equity markets was a mere 13 percent, with a less than 6 percent share of global bond markets.

7.2.6 Consequences for the stability of financial markets

Have increasing levels of financial activity, the proliferation of derivative instruments, the emergence of new financial intermediaries and the increased globalisation of financial flows tended to increase instability in financial markets in recent decades? Fundamentally, these trends should have resulted in markets becoming more efficient. Households and companies now have a more varied range of financial services available to them. They can hedge risks against which there was previously no protection. Moreover, they can gain access to information more quickly, and that information is of better quality. Similarly, the higher degree of liquidity in the market enables larger transactions to be absorbed without price fluctuations. So, is everything for the best in the best of all possible worlds? The financial crises of the last twenty-five years suggest that this may, perhaps, be something of an oversimplification. Since 1980, we have seen two stock market crashes (1987 and 2000), one severe crisis in the European monetary system (1992) and six major crises in the emerging markets. The International Monetary Fund identified 64 bank crises and 79 currency crises of lesser importance between 1970 and 1988. How can these events be squared with the improved efficiency of financial markets?

Firstly, it must be said that financial crises are not always an indication of dysfunctions in the financial markets. The price of a financial instrument is equal to the present value of its future cash flows. This value will therefore be dependent on a range of factors that are liable to change in line with the expectations of economic agents. It is therefore not surprising that unexpected events can give rise to abrupt corrections in the prices of certain assets, in the most extreme cases even triggering a financial crisis. Similarly, the contagiousness of financial crises often has fundamental causes (sensitivity to the same shocks, economic dependency) and is not necessarily an indication of

over-reaction by financial markets. The increased interdependence now characterising financial markets is therefore merely the reflection of the greater integration of national economies.

The recurrence of crises could also be no more than a passing phase – inevitable in a period in which new markets are developing.⁸ The smooth running of the financial system depends on the unrestricted circulation of information and tight market discipline. Economic agents have to become familiar with complex instruments – a learning process in which they often pay dearly. Promotion of financial stability by the supervisory authorities should, therefore, encourage self-discipline by markets and ensure that unavoidable crises are resolved without systemic risk.

However, the possibility that the liberalisation of the capital markets has accentuated cyclical rises and falls in the prices of financial assets cannot be ruled out. These cycles are often the result of a wave of optimism that underestimates the degree of risk, of over-generous extension of credit, excessive rises in asset prices, over-investment by companies or over-consumption by households. Once expectations become more realistic, the imbalances are corrected, often triggering an economic recession. Since the end of the 1990s, these cycles appear to have affected equity, bond and property markets. They have made the job of central bankers more complicated, as it is usually difficult to identify potential imbalances in good time, while the required remedy may conflict with the primary goal of price stability. Although its remit is not to stabilise the prices of financial assets directly, the SNB accepts that it cannot ignore their trend, particularly where this could have repercussions on future inflation.⁹

7.3 Developments in the banking sector

URS W. BIRCHLER

7.3.1 *Swiss banks and the international economy*

With the globalisation of the financial markets, the international exposure of the Swiss banks and financial markets has increased steadily over the past twenty-five years. At the same time, possible limitations to Switzerland's role as a financial centre have become clear.

⁸ Crockett and Cohen (2001).

⁹ Roth (2002).

Switzerland has remained an international hub for capital. For example, gross capital exports (lending to foreign borrowers) have consistently been many times higher than net capital exports (the current account surplus). Although capital exports have continued to rise in absolute terms, the percentage of international borrowing executed in Swiss francs has declined significantly. Similarly, some issuing business has shifted to foreign markets (London), although the Swiss National Bank tried to prevent this for a long time, for example by liberalising its policy on approving capital exports. It also tried to prevent the issue of Swiss franc bonds in foreign jurisdictions by applying the domestic anchor principle (cf. chapter 4.7).

Foreign banks also continued to expand their presence in Switzerland in this period. The number of such banks (both legally independent subsidiaries and dependent branches, but excluding finance companies) rose from 120 to 326. At the same time, Swiss banks increased their presence in other countries. By 2005, one in six (and at the big banks, one in four) employees worked outside Switzerland. International competition forced Swiss banks to diversify their sources of revenue and to take action in order to continuously raise efficiency, both of which are vital for long-term stability. Moreover, the short-term risks of a presence in the international financial markets regularly made themselves felt. In some years, Swiss banks reported losses in highly competitive areas such as investment banking. There has also been an increase in legal risks, for example, as a result of violation of national regulations on initial public offerings (IPO) and takeovers.

Foreign deposits and liabilities at Swiss banks have grown substantially in the past twenty-five years. Foreign deposits have increased from 38 percent to 65 percent of the aggregate balance sheet total, while foreign liabilities have risen from 32 percent to 59 percent. That does not include fiduciary assets, most of which relate to foreign clients and are fully invested outside Switzerland. Since they are not subject to withholding tax, they have proven an attractive alternative to time deposits – especially in periods of high short-term interest rates, as interest on time deposits was subject to withholding tax. On average, fiduciary assets were equivalent to about one-sixth of the balance sheet total, but temporarily rose to over a quarter in the high-interest period in the early 1990s.

The vast majority of assets invested outside Germany were placed in industrialised countries. Swiss banks were therefore able to withstand the Southeast Asian and Latin American crises in the second half of the 1990s, as these regions accounted for only 3 percent and 1 percent of foreign investments respectively.

7.3.2 *The crisis in the Swiss banking sector...*

The first half of the 1990s was the most difficult period for Swiss banks in the past twenty-five years and possibly the most difficult period they have faced since the 1930s.¹⁰ The problems leading to the crisis built up gradually. For a start, the banks had restricted competition in the Swiss market for years through cartel agreements under the aegis of the Swiss Bankers Association (SBA). These were removed in the late 1980s, partly voluntarily and partly in response to pressure from the Cartel Commission (now known as the Competition Commission) and a decision by the Federal Department of Economic Affairs, supported by the Federal Supreme Court.¹¹ Less profitable banks that had managed to survive as a result of these agreements thus found themselves facing difficulties.

Moreover, in the second half of the 1980s, the overheating of the economy and low interest rates had resulted in spiralling property prices. Prices of single-family homes, for example, doubled between 1980 and 1990. The property boom was at once the cause and the result of rapid expansion in bank lending. On the one hand, higher prices enabled borrowers to borrow larger amounts; on the other, the additional loans fuelled demand for real estate and pushed up prices. Between 1988 and 1991, the loan volume grew at double-digit annual rates. In 1991, when the SNB switched to a restrictive monetary policy (cf. chapter 4.3.2), property prices dropped by about 20 percent and growth in bank loans came to a virtual standstill.

Despite matching maturities, many banks found themselves unable to pass on the rising refinancing costs to clients. Many borrowers, especially those who had bought property at the height of the boom, found themselves having to pay rising interest rates just as revenues were contracting following the cyclical downturn. Consequently, the proportion of non-performing loans on the banks' books increased. The Swiss Federal Banking Commission (SFBC) estimates that Swiss banks had to write off 8.5 percent of their aggregate lending volume between 1991 and 1996. Although the big banks had to write off 10 percent of their credit portfolios in this period, they were able to offset this through revenues from other activities, especially foreign business. The regional and cantonal banks had to write off about 5 percent of loans. Worst hit were the regional banks, which had particularly high exposure to the domestic lending market. By contrast, the Raiffeisen banks, which are

10 For a comparison of the crisis in Switzerland and other industrialised nations, cf. BIS (2004), pp. 43–48.

11 ATF 117 Ib 481 (25 October 1991).

organised in the form of cooperatives and specialise in first mortgages in rural areas, came out almost unscathed.

Consequently, this episode has gone down in history as the ‘regional bank crisis’. The first bank to collapse was Spar+Leihkasse Thun, a medium-sized regional bank with total assets of just over 1 billion Swiss francs. The SFBC closed the bank in October 1991 as a result of refinancing problems and indications that its liabilities exceeded its assets. This move came as a complete surprise to the general public and created a situation that was unusual for Switzerland. Shortly beforehand, the bank had applied to the relevant cantonal court for a moratorium. This was granted. As a result, both a court-appointed trustee and an SFBC liquidator were in a position to issue directives to the bank. Ultimately, the relationship between them had to be clarified by the Federal Supreme Court.¹² Long queues formed at the bank when the first instalment of credit balances was paid out to creditors, and television stations broadcast pictures to the world at large that were reminiscent of the 1930s.

A number of other regional banks ran into difficulties in the following months. Unlike the big banks and larger cantonal banks, they had hardly any revenues from other operations that could be used to offset losses on their mortgage and property financing business. The worst affected were banks that had grown rapidly during the property boom, had not selected borrowers prudently enough and had refinanced loans with expensive time deposits, rather than comparatively inexpensive savings deposits. Between 1991 and 1996, more than half of Switzerland’s 180 or so regional banks disappeared. However, Spar+Leihkasse Thun was the only one that actually went bankrupt resulting in losses to creditors. Other banks that ran into difficulties were taken over, mainly by the big banks or cantonal banks.

7.3.3 ... and how it was overcome

Ultimately, the crisis was dealt with effectively through adroit crisis management. Faced with a steady deterioration in the situation in the regional banking sector following the closure of Spar+Leihkasse Thun, the SFBC set up a special committee on regional banks. As well as representatives of major banks, it included delegates from the SBA and the National Bank.

The SFBC and the SNB initially held differing views on the situation. The SFBC, which was responsible for the supervision of individual banks, was afraid that mounting problems could lead to a general loss of confidence that

12 ATF 117 III 83 (18 December 1991); ATF 119 III 37 (20 January 1993).

could spread rapidly through the sector. It therefore welcomed the idea of the National Bank or the Swiss Confederation providing assistance to the regional banks. By contrast, the SNB did not believe that the crisis was systemic. At the end of 1991, the regional banks accounted for only 8.3 percent of the Swiss banking system's aggregate balance sheet total. Since the majority of regional banks were still in good shape, those actually facing difficulties represented less than 3 percent of the banking system. Moreover, the SNB feared that public sector intervention could establish a dangerous precedent. It was therefore keen for the problems to be resolved by market forces. At the same time, it made it clear that solvent banks could rely on it as a lender of last resort.

The special committee discussed various possible solutions. As early as 1991, the banks suggested setting up a lifeboat company for banks in difficulty, with the Confederation and cantons providing some of the risk capital. Another model involved the formation of a liquidation company to take over solvent banks that did not have a long-term future. This would have been financed by the banks, but would have also had a guarantee from the federal government.

The National Bank rejected all plans involving public sector financing out of hand, even though it was concerned to find a quick and clear solution in view of the fluctuating level of public confidence in the regional banks. Its statistics indicated there had been a net outflow of funds from regional banks since the closure of Spar+Leihkasse Thun. In its capacity as lender of last resort, the SNB was essentially prepared to provide liquidity assistance to solvent banks in an emergency. In mid-1992, it therefore agreed to provide 30 million Swiss francs to refinance a crisis fund established by the SBA. It also put forward a three-point plan:

- Application of capital adequacy rules based on current valuations.
- Closure of banks that did not meet the capital adequacy requirements within the deadline set.
- A liquidity guarantee for all banks that met the capital adequacy requirements.

Liquidity problems were also discussed by the special committee. It examined the scope for liquidity assistance in conformity with the restrictive statutory definition of securities eligible as central bank collateral in force at the time. The principal option – borrowing funds from the mortgage bond bank of the Swiss mortgage institutions (Pfandbriefbank, PBB) – would have met the requirements of the SNB, but proved difficult to reconcile with the role of the PBB itself. Consequently, the special committee and the Federal

Department of Finance examined the possibility of using the statutory scope for debt rescheduling. The crisis came to a head in January 1993. With many banks expected to post poor results for 1992 in the coming reporting season, there were fears of a further – possibly critical – loss of confidence in the regional banks.

However, with the assistance of the banks, the special committee managed to find solutions for those banks that were in difficulty, and public confidence in the regional banks was gradually restored. The SFBC facilitated the takeover of banks in difficulty by temporarily reducing the capital adequacy requirements for real estate owned by the banks, including properties acquired from insolvent debtors. Consequently, neither a lifeboat company nor a liquidation company was set up; the National Bank's three-point plan was not implemented and debt rescheduling proved unnecessary.

7.3.4 Consolidation and concentration

The banking sector thus managed to resolve the problems at the regional banks largely unaided. The healthy regional banks closed ranks more firmly within the regional bank association and reformed their common infrastructure. Two-thirds of the regional banks joined forces in RBA Holding, a new umbrella organisation for regional banks established in 1994. Various regional banks that were in jeopardy were taken over or merged with each other, but the new entities – such as the Neue Emme Bank and the Seeland Bank – were not always viable. Eventually, most of the weaker regional banks were therefore acquired by the big banks or, in a few cases, cantonal banks. The special committee played a key role in ensuring the timely exchange of information and in searching for viable solutions.

One exception was Banque Vaudoise de Crédit, which was the second largest regional bank at the onset of the crisis. It was threatened with closure by the SFBC in December 1993 as its liabilities exceeded its assets, but was bailed out by a guarantee from the canton and subsequently integrated into Banque Cantonale Vaudoise. In an audit report published just one month beforehand, the SFBC had not expressed any qualms about the continued operation of the bank. This made the SNB as lender of last resort acutely aware of the problem of assessing the solvency and thus the credit standing of a bank in difficulty.

The crisis did not leave the cantonal banks unscathed. Some were also faced with problems or had to be restructured at the taxpayer's expense. The biggest loss was sustained by Berne Cantonal Bank, which had merged with the cantonal mortgage bank in 1991 and sustained a loss of 3 billion Swiss

francs in the early 1990s. The cantons of Geneva and Vaud both had two cantonal institutions that merged in the 1990s and subsequently ran into difficulties. The cantonal bank of Solothurn, which also found itself in trouble, was acquired by Swiss Bank Corporation in 1995 in a takeover subsidised by the canton, and was later sold to Bâloise Insurance as SoBa. At the beginning of 1997, the Appenzell Ausserrhoden cantonal bank was taken over by Union Bank of Switzerland. The number of cantonal banks therefore dropped from 29 to 24 between 1990 and 1998.

Statutory instruments such as moratoria and debt rescheduling proved unsuitable for dealing with this crisis.¹³ Amendments were therefore made to the provisions in the Banking Act relating to the emergency restructuring and liquidation of banks and to the protection of depositors (sections 11–13). However, these did not take effect until mid-2004. Their aim was to streamline procedures and provide a statutory basis for the SFBC's authority to act in the event of a crisis. At the same time, the amendments aimed to simplify unplanned restructuring of banks facing financial problems. Liquidation procedures were also revised. Finally, the law improved the protection of depositors in the event of restructuring or liquidation (the first 30,000 Swiss francs per depositor were given the status of senior claims) in keeping with the SBA's agreement on depositor protection.

The National Bank was involved in the revision of the legislation from the outset and shared the aim of improving protection for small-scale creditors. However, it focused specifically on rights that would allow rapid restructuring of a bank's balance sheet in extreme circumstances and, if absolutely necessary, without interrupting operations. The new statutory provisions give the SFBC an almost free hand in drawing up a restructuring plan. As the final recourse, this includes compulsory conversion of debt into equity.¹⁴ This facilitates rapid restructuring without having to resort to public funds. Since the SFBC thus has an effective means of restoring a bank's solvency, the SNB is better able to fulfil its role as lender of last resort to banks facing liquidity shortages.

Although the big banks acted as a stabilising force in this crisis, they had to overcome a number of problems themselves – in addition to absorbing their own losses from property loans. These included finding the right size and structure. Credit Suisse adopted a variety of organisational structures. First, it set up a holding company, CS Holding (later Credit Suisse Group), for

¹³ Zulauf (1998a).

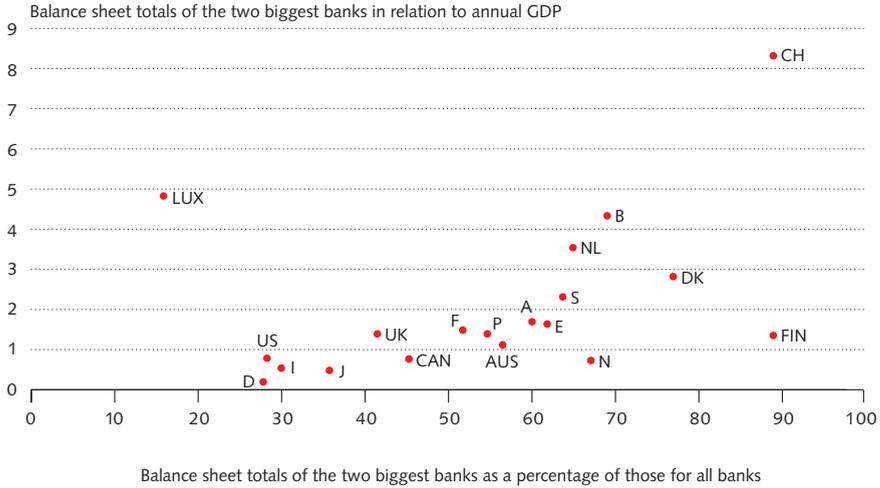
¹⁴ Zulauf (1998b); Birchler and Egli (2003).

two of its five major banks. In 1990, it acquired Bank Leu, previously an independent bank, and in 1993, it purchased Swiss Volksbank, which was not only suffering similar problems to the regional banks, but also had to absorb losses from precious metals trading. Swiss Volksbank was subsequently merged entirely into Credit Suisse. In 1994, CS Holding acquired the Neue Aargauer Bank, which at the time was the country's largest regional bank. In 1997, it acquired Winterthur Insurance, following the general trend at the time to combine banking and insurance business into what became known as banc-assurance groups. When the stock market bubble burst in 2000, many insurance companies, including Winterthur, sustained losses on their life insurance operations. Moreover, Credit Suisse First Boston – the investment banking arm of Credit Suisse Group – reported a loss in two separate business years. As a result, Credit Suisse Group suffered a substantial loss in 2000. That generated a wave of unease and showed that the SNB's role as lender of last resort is not merely theoretical.

In mid-1998, Union Bank of Switzerland merged with Switzerland's third remaining big bank, Swiss Bank Corporation, to form UBS, the country's largest bank by a wide margin. The merger was preceded by a long drawn-out battle for control of Union Bank of Switzerland. BZ Group, itself formed from BZ Bank, which was set up in 1985 and held a substantial stake in Union Bank of Switzerland, played a major role in this. However, it did not succeed in its takeover plan, partly because of restrictions on voting rights. Legal disputes in the aftermath of the takeover battle temporarily limited the scope for action of Union Bank of Switzerland's management team.

Over the past twenty-five years, the relative weight of the country's two increasingly international big banks has risen enormously, both within the banking sector and in the economy as a whole. In 1982, their combined balance sheet total was one-third of the balance sheet total of the entire banking sector, which was roughly equivalent to the country's gross domestic product (GDP), in other words, aggregate added value of one entire year. In 2005, the two biggest banks together accounted for 90 percent of the balance sheet total of all banks, which was eight times annual GDP. As graph 7.1 shows, the figures for Switzerland differ enormously from those of other industrialised countries. Switzerland thus faces an even greater challenge than other countries to maintain the stability of the banking system as an extremely precious asset. Restoring stability in the event of a crisis would be well beyond the means of the public sector. This explains why systemic stability has assumed such great importance for the SNB.

Graph 7.1
Economic significance of the two biggest banks in 19 industrialised countries
(balance sheet totals at end-2002)



Sources: Rime (2005); OECD (2002); SFSO (2005); SNB (2005b).

7.3.5 *Bankers: advisors, lenders or risk managers?*

The banking profession has changed enormously over the past twenty-five years. Private banking (asset management for private clients) has traditionally been a core area of business at Switzerland’s international banks. This business has continued to flourish and has remained their main source of revenue. However, it has gradually shifted from an exclusive preserve of Swiss banks to a highly competitive international market. Institutional clients looking for capital growth have largely replaced traditional private clients with a pronounced need for discretion. Consequently, the significance of Swiss banking secrecy as a competitive factor waned. The Swiss banks therefore tried to maintain their competitiveness through highly professional asset management. They also started to set up foreign branches to be closer to their customers. Finally, they began to move away from the tradition of personally liable private bankers, and formerly family-owned banks began to broaden their ownership structure.

Providing customised financial products for the corporate sector and institutional investors has also become more important in the past twenty-five years, certainly at the international banks. That includes bringing companies to the stock market (IPO business). Finally, the banks have repositioned themselves as professional risk managers, making increasing use of quantitative

statistical and mathematical models. The regulators have also come to recognise the importance of such models. In 1995, the recommendations issued by the Basel Committee, which were adopted by Switzerland, permitted banks to use internal models to assess their market risks.

7.3.6 The challenge of regulation

In response to the ongoing deregulation in financial markets in the period after 1982, which has eliminated outdated state intervention in the market and private cartel arrangements, the search for suitable prudential regulation arrangements has gathered pace. The SNB was involved in this through its close cooperation with the SFBC.

One specific trend in banking regulation was to broaden the scope of protection. The first (and then still cantonal) banking laws focused on providing protection for small-scale savers. This is illustrated by the fact that, until 1993, only savings deposits were classified as senior claims in the event of insolvency. However, the focus of attention subsequently broadened to include the protection of all creditors and finally to ensuring the bank's continued operation. Capital adequacy requirements have therefore played a central role in banking regulation in recent decades. At the same time, the basis for regulation has been altered. Until 1975, capital adequacy requirements related to the total liabilities of a bank. In other words, they were originally seen as a sort of buffer that would protect creditors if a bank were to collapse. However, by the mid-1970s, the Banking Ordinance had defined capital adequacy as a percentage of various assets – although strictly speaking this conflicted with the Banking Act. This reveals a fundamental change of attitude – it was felt that equity should reflect current risks, not least to avoid creating inappropriate incentives. The new Basel Capital Accord (Basel II) signed by the industrialised nations in 2005 is a logical extension of this idea.

The extension of protection was not confined to banking supervision. The Stock Exchange Act adopted in 1995 gave investors the right to protection and thus raised the issue of regulation of asset managers and even investment advisors. Another issue discussed was the optimum organisation of supervision for various financial market participants, one in which the SNB also participated.

The internationalisation of the banking business has made close cooperation with other central banks and regulators essential. The most important common institution over the past quarter of a century has been the Basel Committee (known for a long time as the Cooke Committee), which was founded by the central bank governors of the Group of Ten (G10) countries in

1974. This has two sister committees, the Committee for the Global Financial System (originally Eurocurrency Standing Committee) and the Committee for Payments and Settlement Systems. All three committees meet under the auspices of the Bank for International Settlements (BIS) in Basel. The Basel Committee works with the International Organization of Securities Commissions (IOSCO) and the International Association of Insurance Supervisors (IAIS). It also maintains contact with accounting experts on the International Accounting Standards Board (IASB). The National Bank has had a seat on all three G10 committees since their inception and has always played an active role in their work.

In 1983, the Basel Committee issued a concordat on international cooperation between banking regulators in the event of a crisis. It provided the first ever definition of adequate consolidated supervision by the authorities in a bank's home country and set out the duties of the authorities in the host country to supervise any parts of a banking group operating there. The aim was to ensure that no bank could operate without consolidated supervision.

By the 1980s, the capital base of the international banks was wearing increasingly thin, and the Japanese banks, in particular, were expanding rapidly (at one time, Japan had eight of the world's ten largest banks). In 1988, the Basel Committee therefore published the Basel Capital Accord, which recommended that the capital of banks operating internationally should not be less than 8 percent of their risk-weighted assets. This recommendation was recognised worldwide, not just in the industrialised countries, and was generally implemented. Subsequent supplements dealt with off-balance-sheet business and market risks.

Finally, in 2004, after years of work, the Committee adopted a new Capital Accord (Basel II, cf. above). This is based on a three-pillar approach (capital requirements, national supervisory review and market discipline supported by transparent reporting). The recommendations on capital requirements offer a number of options. In particular, banks can choose between a standardised approach, built on the 1988 Capital Accord, and an internal ratings-based approach. Banks that use sophisticated risk assessment methods are rewarded by lower capital adequacy rates. The SNB helped shape Basel II in conjunction with the SFBC. Both welcomed the more risk-focused approach, but warned of the dangers of reducing the capital requirements in the international banking sector. However, they did not succeed in having the risk of changes in interest rates included explicitly in the capital adequacy ratios.

The banking crises in a number of emerging markets prompted the Basel Committee to formulate core principles for effective banking supervision

(1997). These were developed in close collaboration with regulators outside the G10 countries, partly in response to demands from the International Monetary Fund (IMF), which wanted its recommendations – that were more geared towards monetary and fiscal policy – to be supported by financial market stability. For the same reason, the IMF introduced the Financial Sector Assessment Program, which Switzerland was one of the first countries to join in 2001. To improve coordination between the various bodies, the G7 countries set up the Financial Stability Forum (FSF) in 1997, which includes representatives of the IMF, World Bank and Basel Committee. The Forum is chaired by the BIS. As a major international lender, Switzerland did not become a member of the FSF until 2007; precedence was originally given to major debtor countries.

Despite all these efforts, a number of key issues relating to international responsibilities in the event of a crisis have not yet been resolved. For example, the collapse of a bank with branches in several countries would raise questions about the jurisdiction of national courts and applicable law during restructuring, closure and subsequent liquidation. Clarification is also needed on which assets are assigned to which creditors. Conflicts between jurisdictions that apply the single entity approach, regarding all components of a company as a single entity, and those that adopt the separate entity approach, whereby national assets and liabilities are considered separately from the rest of the bank, are thus inevitable in the event of a crisis and may hamper the efficient resolution of problems. While the amendment of legislation on bank insolvency in Switzerland means the country now has modern tools to deal with such eventualities, there is no international consensus on the allocation of responsibilities and assets in the event of a crisis. This tricky but important issue remains unresolved.

7.4 The National Bank as lender of last resort

DANIEL HELLER AND HANS KUHN

7.4.1 Introduction

One of the conventional roles of banks is to accept deposits for short periods and to lend funds for longer periods. The difference between the maturity of deposits and liabilities can lead to liquidity bottlenecks if clients withdraw their funds sooner than expected. This can occur, in particular, if clients lose confidence in their bank.

Traditionally, the central bank is responsible for supplying the banks with sufficient liquidity to overcome such crises. The central bank thus acts as lender of last resort.¹⁵ The purpose is to avoid the unnecessary closure of banks and thus prevent undesirable panic and chain reactions. This task falls to the central bank because it is the only institution that has unrestricted access to (central bank) money.

The key elements of the conventional lender of last resort model were developed by Henry Thornton and Walter Bagehot in the nineteenth century.¹⁶ Bagehot postulated five principles that a central bank should follow in the event of a liquidity crisis. These are still the central elements of the lender of last resort policy at many central banks:

- The lender of last resort should lend freely.
- Its readiness to lend freely should be stated clearly in advance.
- Liquidity assistance should only be provided to solvent borrowers.
- Lending should always be based on adequate collateral.
- Interest should be imposed at the rate customary before the crisis.

7.4.2 *Constructive ambiguity*

A well-known problem in insurance economics is what is known as moral hazard. This refers to the way in which concluding an insurance policy can influence behaviour. The knowledge that the policyholder will not have to bear the full cost of an insured event can result in a lack of caution. Transferring this principle to that of a lender of last resort suggests that banks might assume higher liquidity risks if they know that they can rely on the central bank to bail them out in the event of a liquidity shortfall.

For a long time, central banks therefore kept market players in the dark about how they would act in the event of a crisis and refrained from disclosing details of their strategy in advance.¹⁷ They called this strategy, which conflicts with Bagehot's second principle, constructive ambiguity. The term comes from diplomatic circles and refers to the fact that negotiators dealing with particularly contentious issues may deliberately use ambiguous wording in order to resolve at least some of the outstanding issues.

Central banks now regard the moral hazard associated with emergency liquidity assistance as being on the decline and have therefore moved away from the principle of constructive ambiguity. In other words, they have become

¹⁵ In recent years, it has become customary to refer also to emergency liquidity assistance, rather than only to lender of last resort.

¹⁶ Thornton (1802); Bagehot (1873); cf. also chapter 1.8.

¹⁷ George (1993), p. 9.

convinced that greater transparency about the conditions in which they provide emergency liquidity assistance is a more effective economic strategy.

7.4.3 *The SNB's policy under the former National Bank Act*

In the past twenty-five years, the Swiss National Bank has given various different views on its role as lender of last resort. In 1987, Markus Lusser, Vice-Chairman of the Governing Board, stressed that the SNB's role included supporting the stability of the financial system.¹⁸ During the regional bank crisis in the early 1990s, he outlined the principles of the National Bank's policy as lender of last resort.¹⁹ The first of the three principles was that the SNB would only provide emergency liquidity assistance in return for collateral 'as defined in the legislation'. Since the former National Bank Act (NBA) of 1953 set specific criteria²⁰ for the collateral that was eligible for acceptance by the SNB, its scope was restricted. If a bank requesting liquidity assistance did not have sufficient collateral eligible for acceptance by the SNB, the National Bank could only provide emergency liquidity assistance on the basis of an emergency decree issued by the Federal Council. The second principle was that the SNB would only provide liquidity assistance to solvent banks. This restriction was based on the consideration that, in the event that a bank was declared bankrupt, the National Bank did not want to run the risk of having reduced the assets available to satisfy creditor claims by accepting collateral. Moreover, it did not wish to help maintain outdated structures through its liquidity assistance. The third and last principle was that no bank had an automatic right to receive emergency liquidity assistance. In other words, the SNB explicitly reserved the right to decide on a case-by-case basis.

Two aspects of the policy outlined by Lusser – the solvency and collateral requirements – were identical to the recommendations made by Bagehot. No details were given of the interest rate that would be applied. In keeping with the policy of constructive ambiguity at that time, the SNB did not provide any information on how it actually intended to fulfil its role as lender of last resort.

7.4.4 *Lender of last resort under the new National Bank Act*

Between 2002 and 2004, the National Bank undertook a fundamental review of its policy as lender of last resort. This was partly due to growing disquiet about the policy it had pursued until then. In particular, a number of

18 Lusser (1987), p.9.

19 Lusser (1993), pp. 14 et seq.

20 Type and structure of instruments, debtors and maturity of receivables; cf. art. 14 former NBA.

indications suggested that market expectations did not correspond to its ideas or the legal framework. The SNB regarded this as a serious discrepancy, which it felt should be addressed. It came to the conclusion that moral hazard is a relatively insignificant factor if the central bank makes it clear that it will provide emergency liquidity assistance, but only against suitable collateral. Although it could not rule out the possibility that banks would maintain a lower level of liquidity or assume higher liquidity risks if they knew that they had recourse to a lender of last resort, minimum liquidity requirements were already in force and the risk of that possibility had to be weighed against the risk of unnecessary closure of banks and the value destroyed in the process. Moreover, the marginal costs to a central bank of providing liquidity are very low, as collateral can be converted into central bank money easily and without restriction.

The SNB remained convinced that banks would primarily endeavour to resolve liquidity bottlenecks via the market. However, it did not rule out the possibility of market failure or of an incorrect assessment of the market response, as creditors have less information on the solvency of a bank than the regulators and the bank itself (asymmetric information supply). In particular, the herd mentality means that creditors endeavour to withdraw their funds given the lack of information. In such cases, most deposit insurance funds offer only limited protection, because most of a bank's liabilities are to other banks, rather than to private individuals.

The aim of the National Bank's new approach was to raise transparency in order to overcome future liquidity crises more effectively. It therefore published details of the basic principles of its new policy.²¹ The focus was on two main changes. Firstly, in contrast to previous policy, the SNB would no longer grant liquidity assistance to all banks. Assistance would only be available where a liquidity problem was likely to trigger a systemic risk. This was justified by the fact that the external costs of a liquidity crisis caused by systemic risk are particularly high. Secondly, the range of acceptable collateral was extended significantly in the new NBA. The SNB specifically highlighted the following criteria:

Subsidiarity of emergency liquidity assistance

The SNB will only grant emergency liquidity assistance if one or more banks are no longer able to cover their liquidity requirements on the market.

21 SNB, Monetary Policy Guidelines (2004); Blattner (2005), pp.5 et seq.

Systemically important banks

The SNB will only grant emergency liquidity assistance to banks or groups of banks that are of significance for the stability of the financial system and whose collapse must therefore be avoided. The National Bank provided further details of this in its Monetary Policy Guidelines, which state that a bank or group of banks is of systemic importance if its inability to pay would seriously impair the functioning of the Swiss financial system or major parts thereof and have a negative impact on the economy.²²

Liquidity assistance only, no solvency aid

The SNB is only authorised to grant liquidity assistance, not aid, in order to restore solvency. Since state solvency aid implies definitive allocation of public funds, it is not covered by the National Bank's role of managing monetary policy in accordance with art. 99 para. 2 of the Federal Constitution (Cst.). Solvency aid has to be based on the federal government's overall responsibility for economic policy (specifically arts. 100 and 103 of the Cst. on economic development policy and structural policy respectively).

Since it may be difficult to distinguish between solvency and liquidity problems in a crisis, before granting liquidity assistance the National Bank obtains a binding statement from the banking regulator – the Swiss Federal Banking Commission (SFBC) – on the solvency of the bank and its ability to meet the other criteria required for such assistance. Obtaining confirmation of the solvency of the bank from the SFBC does not exempt the National Bank from its responsibility of assessing whether the criteria for granting liquidity assistance are met. If the SFBC cannot confirm the solvency of the bank, restructuring must be initiated before, or simultaneously with, the granting of liquidity assistance. Such measures are outside the remit of the SNB.

Collateral

The former NBA contained a number of criteria that restricted the collateral eligible for acceptance by the SNB. The new NBA retains the collateral requirement, but only requires that loans should be granted on the basis of 'adequate collateral' (art. 9 para. 1 (e) NBA). This is defined in the SNB's Terms of Business and Investment Policy Guidelines (art. 9 para. 2 NBA). Analogously to previous practice, marketable financial instruments with high liquidity are acceptable for normal monetary policy operations. The requirements set for emergency liquidity assistance are less restrictive: the collateral

22 SNB, Monetary Policy Guidelines (2004), section 4.

does not have to be either liquid or marketable. Specifying that the SNB can only grant emergency liquidity assistance in return for collateral ensures that its funds cannot be misused as solvency aid. In other words, the collateral requirement for emergency liquidity assistance is principally a means of drawing a distinction between responsibility for liquidity assistance, which is provided by the SNB, and solvency aid, which is provided by the federal government or other creditors.

As a form of collateral with relatively low liquidity and marketability, mortgages are the most prominent form of security, because they make up a significant proportion of many banks' balance sheets. They are excellent collateral because of their high credit standing. It is precisely their low liquidity that makes it particularly effective to assign them to the SNB in return for central bank money in the event of a liquidity bottleneck. Assignment of a mortgage portfolio enables the SNB to provide large amounts of liquidity relatively quickly.

However, from a legal and operational viewpoint, the assumption of mortgage loans is time-consuming and expensive. The assignment of mortgages and mortgage certificates can only be accepted within a reasonable period if they are managed centrally at the bank requiring liquidity. Moreover, the assumption of mortgages requires the agreement of the debtor. The bank has to obtain this by incorporating a securitisation clause in its lending agreements.

Since the collateralisation requirement associated with liquidity assistance stems from the federal competencies that are in turn based on the Constitution, not even emergency measures (emergency federal legislation, police emergency decrees) may deviate from this requirement. This ensures that the SNB cannot be forced to provide unsecured loans.

The National Bank assumes that, in the event of a crisis, there is relatively little time in which to reach agreement and provide emergency liquidity assistance. It is therefore important for systemically important banks and groups of banks to make extensive advance preparations for such eventualities.

Without the shift away from the principle of constructive ambiguity to a principle that could be defined as 'constructive clarity', in other words, providing information on the criteria that have to be met to obtain emergency liquidity assistance, the banks would not be able to correctly assess the liquidity risks in the event of a crisis and make suitable administrative preparations.

7.5 Oversight of payment systems

ANDY STURM

7.5.1 Introduction

The fundamental transformation of the financial markets in the past twenty-five years and especially the enormous growth in domestic and cross-border payments and financial flows have prompted central banks to broaden their horizons and pay greater attention to the safety of payment systems. Taking a closer look at how the risks inherent in payment transactions could be monitored was a logical extension of the Swiss National Bank's previous policy in three ways. Firstly, facilitating payment transactions had always been part of its remit. Secondly, as the central bank, the SNB requires safe and efficient payment systems in order to implement its monetary policy and supply the banks with liquidity. Thirdly, cashless payment systems involve specific risks, which in extreme cases can cause widespread disruption of the financial system and jeopardise its stability.

The oversight of payment systems therefore gradually became a separate task of central banks in the interests of maintaining financial stability. In view of this, the SNB has taken on the task of monitoring and analysing existing and planned payment systems, and assessing their impact on financial stability, initiating suitable amendments where necessary. Oversight thus covers both standards and regulatory requirements, as well as the tools with which a central bank endeavours to foster and uphold the safety and efficiency of payment systems.²³

7.5.2 Risks inherent in payment systems

Cashless payment transactions entail a variety of risks. Viewed from the standpoint of the participants in such systems, risks fall into three categories: credit, liquidity and operational risks. Credit risk comprises the risk that counterparties will not fulfil their obligations, either on the due date or subsequently. It also entails the risk of finding a substitute for business that has not been executed (replacement risk). Liquidity risk comprises the risk that participants in the system will be unable to fulfil their obligations promptly or in full as a result of temporary liquidity bottlenecks. This in turn impairs the liquidity position of their counterparties, who had earmarked the unpaid amounts for other purposes that now have to be covered from a different source, entailing both the cost of finding an alternative and the interest

23 Padoa-Schioppa (2004).

expense. Finally, operational risk comprises the risk that payments cannot be settled as expected. In this case, the problem may emanate from a participant in or from the operator of the system. There are several possible causes: faulty internal processes or technical equipment, human error, external factors such as power failures caused by storms, or vandalism, which can interrupt normal operation.

The risks involved in a specific payment system are closely related to its structure. This can be illustrated by comparing the Swiss Interbank Clearing (SIC) system with its predecessor, the bank clearing system (cf. chapter 5.2.1). In the bank clearing system, payment orders were netted during a day and the balance was settled only at the close of business (end-of-day finality). If a bank failed to meet its obligations, the systems operator had to reverse – or unwind – all payments to that bank and all its payment orders, and subsequently repeat the clearing process without that bank. Apart from the enormous workload involved, unwinding entails a risk that other banks will face liquidity problems because they are waiting for payments from the first bank that was unable to pay. By contrast, SIC is a real-time gross settlement system, which clears individual payments irrevocably, providing there are sufficient funds to cover the transaction on the relevant clearing account (intraday finality). It thus eliminates credit risk/s. In principle, such systems require higher levels of liquidity than systems that offset payments, so they increase the liquidity risks. However, experience with SIC has shown that the liquidity risks can be reduced considerably by providing suitable conditions (cf. chapter 5.2.3).

Credit, liquidity and operational risks are inherent in all payment systems. However, their consequences are not always the same. The SNB concentrates on the oversight of payment systems whose transaction volumes are so high that they could endanger the stability of the financial system – for example, if credit or liquidity problems at one bank were to spread like wildfire through the system and affect other banks (systemic risk). In such cases, the payment system would essentially fan the flames of the crisis. Payment systems can also trigger systemic risks themselves, for instance, if technical problems – particularly in the operation of the system – delay the settlement of payments substantially or cause the system to come to a complete standstill. This could lead to serious credit and liquidity problems for users of the system and prevent them – and possibly the entire financial market – from fulfilling their function (systemic crisis).

A systemic crisis can be very expensive. The main problem from an economic viewpoint is that the costs do not have to be borne solely by the organisation causing the crisis; a large proportion would impinge on third parties

(negative externalities). If a major payment system were to jeopardise the stability of the entire financial system as a result of a technical failure, for instance, this would affect member banks and their customers as well as the system operator. Although system operators can take technical and organisational precautions to reduce the probability of a systemic crisis, the costs that would have to be borne by third parties in the event of a crisis are not normally factored into investment calculations – or, at any rate, not given sufficient attention. If decisions on the level of security required by a system are left to the operator alone, systemic risks are likely to be above the economically acceptable level. The SNB's aim in the oversight of payment systems is therefore to reduce the systemic risks.

7.5.3 Changing views on oversight

The oversight of payment systems is now generally recognised as being a task for central banks. In fact, in many countries, the central bank has an explicit statutory obligation to exercise its oversight function. Moreover, there is a high level of consensus among central banks on the purpose of oversight and how it should be performed.²⁴ This was not always the case. Although the SNB and other central banks have always been interested in issues relating to cashless payment systems, as recently as the 1970s, central banks were still mainly concerned with coping with the rapid advances in electronic data processing technology and the new opportunities it presented. Until the early 1980s, most central banks accorded the systemic risks of payment systems little or no attention. The oversight of payment systems with a view to guaranteeing financial stability was at best rudimentary.

It was not until the early 1980s that settlement risks began to play a more prominent role at central banks. This was due mainly to the sharp rise in domestic and cross-border payment transactions following the liberalisation and deregulation of the financial markets. Another reason was the desire to avoid a repetition of the Herstatt débâcle (cf. chapter 7.1.2). In 1980, the central bank governors of the Group of Ten (G10) therefore set up a Group of Experts on Payment Systems to analyse the development of these countries' payment systems and examine how suitable rules and procedures could reduce settlement risks. The findings partly influenced the architecture of the SIC system, which the Swiss banks were establishing at that time.

Although the introduction of SIC in 1987 gave Switzerland one of the first real-time gross settlement systems, netting systems remained standard in

24 BIS (2005).

many countries until well into the 1990s. However, in a bid to reduce the risk of unwinding transactions, the central banks pressed for improvements to these systems by introducing a range of measures such as credit limits and insurance funds. In 1990, the central banks of the G10 countries agreed on minimum standards for the operation of bilateral and multilateral netting systems.²⁵ For example, a netting system should be designed at least to withstand the default of the biggest member. At the same time, the central banks laid the foundations for cooperation on the oversight of cross-border systems.

In 1990, the central banks of the G10 countries established the Committee on Payment and Settlement Systems (CPSS) which has since acted as a permanent forum for discussion and for monitoring and analysing national and international developments in the field of payment and securities settlement systems. In the early days, the CPSS primarily addressed the issue of what oversight should entail. Later, it also influenced the way in which central banks assumed and developed their oversight functions. It published various reports on large-value payment systems, securities settlement systems, clearing and settlement mechanisms for exchange-traded derivatives, and retail payment instruments. The analyses contained in these reports influenced the development of national and cross-border financial market infrastructures. This can be illustrated by two examples.

In the early 1990s, the CPSS analysed various mechanisms that could be used to eliminate settlement risk in securities transactions by applying the principle of delivery versus payment.²⁶ In Switzerland, this move supported efforts to link SIC to the SECOM securities settlement system and the SWX Swiss Exchange to form the Swiss Value Chain. Thanks to this step, securities transactions in Switzerland have been executed on an individual and fully automated basis using the delivery-versus-payment principle since 1995.

In the second half of the 1990s, the central banks launched a new attempt – under the aegis of the CPSS – to reduce settlement risk in foreign exchange transactions.²⁷ Settlement of foreign exchange transactions had hardly changed since the collapse of Herstatt Bank, although the volume of such transactions had increased substantially and the central banks had serious qualms about the related settlement risks. Adopting a multi-track strategy, the central banks called on the banking sector to design procedures for the low-risk settlement of foreign currency transactions. In response to this, a

25 BIS (1990).

26 BIS (1992a).

27 BIS (1996).

consortium of international banks, including the two Swiss big banks, set up the Continuous Linked Settlement (CLS) system. Since its introduction in 2002, CLS has permitted the execution of currency transactions in the major currencies using the principle of payment versus payment, therefore helping to reduce settlement risk. The SNB supported the creation of CLS and ensured that foreign currency transactions involving the Swiss franc could be settled in the system from the start.

Much of the experience gained by the SNB through its work on the CPSS has been used in its own oversight activities. However, for many years it analysed current issues on a comparatively ad hoc, stand-alone basis as it lacked a conceptual framework for an integrated assessment of various risk factors. This changed at the start of the new millennium, when central banks increasingly began to turn their attention to setting standards and issuing recommendations. The ten core principles for payment systems published by the CPSS in 2001 provided central input for the ongoing development of the SNB's oversight activities.²⁸ These basic principles, which rapidly gained worldwide recognition as an international standard, form a full and consistent basis for evaluating payment systems that are of relevance for the stability of the financial system.

7.5.4 Legal basis and implementation in Switzerland

Under the former National Bank Act (NBA), the SNB cited its very general task of “facilitating payment transactions” (art. 2 para. 1 former NBA) whenever it wanted to exert an influence on the development and structure of payment systems. Its options were limited, however. To influence a payment system or its operator, the SNB essentially had recourse to the tactics of moral suasion.²⁹

The National Bank used the revision of the Federal Constitution and the NBA to provide a statutory basis for its oversight functions and to stress the related objective of protecting the stability of the financial system. These roles are reflected in the amended law in two ways. Firstly, the new NBA gives the SNB the joint task of facilitating and securing the functioning of cashless payment systems (art. 5 para. 2 (c) NBA). Secondly, it defines this new role by setting out principles for the oversight of such systems. Details of how the function is to be carried out are contained in the National Bank Ordinance (NBO).

²⁸ Ibid.

²⁹ Heller and Sturm (2003).

In addition to payment systems, the NBA also entrusts the SNB with the task of overseeing systems for the clearing and settlement of financial instruments, especially securities (securities settlement systems). There were two reasons for extending its powers of oversight. Firstly, securities settlement systems are exposed to similar settlement risks as payment systems, so charging one institution with the oversight of both types of system generates synergies. Secondly, the main payment and securities settlement systems in Switzerland are integrated into the Swiss Value Chain. This results in interdependencies that make oversight by a single authority logical.

The National Bank's oversight function is designed to ensure the stability of the financial system. It is therefore empowered to set minimum requirements for the operation of payment and securities settlement systems that could potentially jeopardise the stability of the Swiss financial system. Less significant payment systems, such as those operated by credit card companies, are thus not subject to its oversight if they do not represent a risk to the financial system. In defining the minimum requirements, which are set out in the NBO (arts. 22–34), the SNB drew mainly on international standards,³⁰ but in some areas its requirements are more detailed.

The NBO lists a range of criteria for judging whether a system is significant for the stability of the financial system; for example, the type and volume of business cleared or settled through it and, where appropriate, its links with other systems. On the basis of all these criteria, the SNB came to the conclusion in 2004 that it essentially only has to oversee four systems in Switzerland. Firstly, the three systems that are integrated into the Swiss Value Chain: the SIC payment system, the SECOM securities settlement system operated by SIS SegInterSettle AG, and x-clear, which acts as a central counterparty in exchange trading and is run by SIS x-clear AG. The operators of these systems must meet minimum requirements set by the SNB. The CLS multi-currency payment system is also of systemic importance. However, since it is operated by CLS Bank International, which is domiciled in New York and thus subject to oversight by the US Federal Reserve, the National Bank exempts CLS from meeting its minimum requirements.

To ensure that the operators of SIC, SECOM and x-clear meet the minimum requirements, the SNB receives constant information on all three systems. Its information comes from a variety of internal documents and statistics provided by the operators and audit reports drawn up by internal and external auditors. It also meets up regularly with the operators to discuss

³⁰ BIS (2001a, 2001b).

oversight issues. If this information indicates that an operator does not meet its requirements, the SNB notifies it of its findings and gives it an opportunity to comment. If the comments received are unsatisfactory, the SNB issues a recommendation calling on the operator to comply with statutory requirements. If the operator disagrees, it can demand that the SNB issue an appealable order. Alternatively, the National Bank can do this itself if the operator fails to comply with a recommendation. The SNB is also empowered to issue statements on certain issues and developments if it sees scope for improvements that exceed the minimum requirements.

SIS SegInterSettle AG and SIS x-clear AG both have a banking licence and are therefore also subject to supervision by the Swiss Federal Banking Commission (SFBC). The National Bank and SFBC work together closely to prevent duplication of work and shortfalls in their oversight and supervisory functions. This mainly involves information gathering. Following adoption of the new NBA, the National Bank and SFBC agreed that the SNB would rely on information compiled by the SFBC or statutory banking auditors when assessing compliance with the minimum requirements prescribed by the Banking Act. Another element of this cooperation is the National Bank's obligation to consult the SFBC before it issues a recommendation or order.

Systems run by operators domiciled in Switzerland may also represent a potential risk to the stability of foreign financial systems. Similarly, foreign systems can impair the stability of the Swiss financial system. The law therefore empowers the SNB to work together with foreign oversight and regulatory authorities. For example, in the case of CLS it is part of a cooperative oversight framework with other central banks whose currencies are also settled via the system. The Federal Reserve, which acts as the primary oversight authority, regularly discusses CLS-specific issues that are of relevance to financial stability with the SNB and the other central banks involved. In short, the new NBA has created a basis for the National Bank to ensure effective and efficient oversight of the payment and securities settlement systems that are of significance for the Swiss financial system, and to cooperate with other domestic and foreign authorities where necessary.

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8 Management of the National Bank's assets

8.1 The significance and development of the assets

M. SOPHIE FABER AND DEWET MOSER

8.1.1 Introduction

The Swiss National Bank's principal function is to provide the economy with base money. It does this by purchasing assets – gold, foreign exchange and securities – from the banks and then crediting payments to their sight deposits in return. Essentially, the SNB's asset holdings are determined by capital and monetary base levels, while the structure of the assets reflects the business activities conducted with the banks. From the point of view of monetary policy, the operations that the SNB uses to manage the monetary base are only of secondary importance. The type of assets acquired depends on institutional conditions and the framework in which it operates, especially the exchange rate regime, the statutory requirements relating to permissible transactions, and the financial market trends.

When the Swiss franc was on the gold standard and during the fixed exchange rate regime, the SNB essentially had to have sufficient currency reserves – i.e. gold and foreign exchange – to cover the monetary base. The National Bank was required to use its currency reserves as necessary to cover any demand for gold or foreign exchange that exceeded supply, thus maintaining the gold parity rate or the exchange rate. Conversely, in periods of high demand for Swiss francs, it built up its currency reserves. The level and structure of the SNB's assets were thus directly dependent on the implementation of monetary policy. Until the 1960s, the SNB's assets were dominated by gold reserves, and later by foreign exchange reserves.

After 1973, under the system of floating exchange rates, currency reserves were theoretically no longer required to implement monetary policy, as the supply and demand for Swiss francs was regulated by the exchange rate. However, reducing currency reserves was not an issue, as they were the primary backing for the monetary base. Furthermore, the SNB required currency reserves to enable it to intervene in the foreign exchange market in order to influence the exchange rate of the US dollar against the Swiss franc. From the 1980s, currency reserves were increasingly seen as a means of preventing and dealing with crises.

The sharp rise in foreign exchange reserves in the 1970s and the abolition of fixed exchange rates enabled the SNB to structure its assets largely

independently of monetary policy requirements. This led, among other things, to questions about the structure, management and – in the 1990s – the correct level of assets, especially currency reserves. This has been a major source of debate in the past twenty-five years, culminating in the definition of both an investment policy (cf. chapter 8.3) and a provisioning policy for the National Bank and their subsequent incorporation into Swiss legislation. This was a gradual process. Because it included the SNB's profit distribution policy (cf. chapter 8.4), the debate was also dominated by domestic policy aspects. However, until the late 1990s, the SNB's scope to manage its assets was greatly restricted by the application of a gold standard for the Swiss franc (cf. chapter 9.1.3) and other statutory requirements.

8.1.2 *Development of assets*

The years immediately following the establishment of the National Bank were dominated by efforts to build up gold and silver reserves to meet statutory requirements and allow for banknotes to be converted into gold or silver at all times.¹ Gold accounted for by far the highest proportion of these reserves. Foreign exchange started to play a more prominent role in the SNB's balance sheet in the 1920s, as the US dollar and pound sterling returned to the gold standard after the First World War. However, gold remained its most important asset, especially after April 1930, when the convertibility of the Swiss franc into gold was placed on a statutory basis.² At the end of 1930, gold accounted for about 50 percent of the SNB's balance sheet total of 1.4 billion Swiss francs, while foreign currencies accounted for about 25 percent. The proportion of domestic assets, which had accounted for about half the balance sheet total after the First World War,³ dropped rapidly after 1930 and remained insignificant until the late 1990s.

While gold reserves, valued in Swiss francs, rose eightfold between 1930 and 1950, sustained growth in foreign exchange reserves did not start until the 1960s. An extremely expansionary monetary policy in the United States forced the National Bank to undertake massive purchases of dollars to support the exchange rate until 1973 (cf. chapter 2.3.4, graph 2.5). Even after the introduction of floating exchange rates, the SNB endeavoured to limit the appreciation of the

1 SNB (1982), p. 22.

2 From then onwards, only gold held in the SNB's precious metals reserves could be counted as backing the Swiss franc.

3 During the war, the SNB discounted large volumes of Confederation rescriptions and thus helped to finance the state deficit. As a result, the proportion of domestic assets rose to a record level. Cf. chapter 1.4; Ruoss (1992), p. 92.

Swiss franc, in particular by purchasing foreign currencies. Thus, average annual foreign exchange reserves exceeded gold reserves valued at the parity rate for the first time in 1976. From 1974, foreign exchange reserves were also boosted by foreign exchange swaps (US dollar/Swiss franc), which the SNB used to manage the money supply and which became the central instrument of its monetary policy in the following twenty years (cf. chapter 4.6.4). The swap dollars were currency-hedged instruments whose return was equivalent to that on domestic assets. Their level depended on monetary policy requirements and varied between 10 billion Swiss francs and a maximum of 20 billion Swiss francs. When foreign exchange swaps were replaced by repo transactions in 1998, the domestic portfolio gained significance again for the first time since the 1920s. Since then, repo transactions have accounted for about a quarter of the SNB's assets.

Unhedged foreign exchange reserves continued to rise in the 1980s and 1990s. The average annual growth rate between 1980 and 1999 was 7.5 percent, driven principally by high interest income from foreign currency investments, which more than offset the depreciation of the US dollar in this period. By contrast, irregular and low-volume intervention in the foreign exchange markets no longer had an appreciable impact on foreign exchange reserves. At the end of 1999 – before the SNB began to sell off gold reserves – foreign exchange reserves totalled 47 billion Swiss francs. By the spring of 2005, they had temporarily increased by a further 16 billion Swiss francs as a result of the gold sales. Without the proceeds from the gold transactions, foreign exchange reserves would have stagnated from 2000 onwards as a result of higher profit distributions.

Unlike foreign exchange reserves, the SNB's gold reserves remained virtually constant after 1971, when the US suspended the convertibility of the dollar into gold. Valued at the official parity rate, gold reserves were worth 11.9 billion Swiss francs. Following the entry into force of the amended monetary constitution in 2000, the National Bank valued its gold reserves at market prices. This raised their value to 39.3 billion Swiss francs. Since then, the value of the gold reserves shown on the balance sheet has fluctuated considerably due to the volatility of the gold price. The sale of gold between May 2000 and April 2005 halved physical reserves to around 1,300 tonnes (cf. chapter 8.2.4). In April 2005, when the sell-off of gold reserves had been completed, gold reserves were valued at 21 billion Swiss francs.

8.1.3 Asset structure: foreign currency investments versus Swiss franc investments

When the system of fixed exchange rates collapsed and the turbulence in the foreign exchange markets had subsided, intervention in the foreign exchange markets became less of an issue. This meant that the SNB no longer

necessarily required currency reserves for its monetary policy. In the late 1970s, it therefore began to consider what sort of assets it could acquire to secure liquidity and how its long-term asset structure should look. At that time, the Governing Board considered currency reserves to be high by international standards and felt there was considerable risk of losses on dollar reserves. Consequently, it saw no reason to raise reserves further.⁴ By contrast, the proportion of Swiss franc assets was low. Alongside the domestic portfolio, which mainly comprised discounted bills and made up less than 10 percent of assets in 1980, the SNB had a small stock of Swiss franc bonds, because towards the end of the 1970s it had frequently intervened in the bond market to influence the yields on Swiss Confederation bonds (cf. chapter 10.4.7). Apart from the monetary policy pros and cons of a stronger focus on domestic assets, the Governing Board also discussed the possible impact on earnings. In 1976, Professor Jürg Niehans was commissioned to produce a report on this issue.⁵ He found that transactions involving domestic assets and foreign currency transactions, especially with short maturities, differ with respect to their impact on interest rates and exchange rates. Giving the SNB the scope to undertake both types of transactions would therefore increase its flexibility. The report also examined earnings aspects and explained the fiscal and economic impact of the various transactions. Calculations showed that, in the past, the return on Swiss franc investments had been higher than the return on dollar investments.

Ultimately, the Governing Board was swayed by the prospect of increasing monetary policy flexibility. To ensure that the SNB could sell large volumes of Swiss franc assets as well as act as a purchaser, it decided to expand its portfolio of Swiss franc securities. At the same time, an increase in the Swiss franc bond holdings enhanced currency diversification. As a longer-term objective, the Governing Board felt it would make sense to strike a balance between its portfolios of gold, foreign exchange and domestic securities. In the spring of 1981, it therefore decided to raise holdings of domestic bonds each year by one-third of the growth in the money supply. It was nevertheless aware of the problems inherent in investing in Swiss franc bonds. In particular, it did not want its transactions to affect the level or the maturity structure of yields. Moreover, it wanted to avoid any suggestion that it was financing the federal deficit or undertaking structural policies to benefit specific cantons or banks.⁶

4 SNB, Minutes of the Governing Board (1978), 29 July, no. 446.

5 SNB, Minutes of the Governing Board (1978), 6 April, no. 242.

6 SNB, Minutes of the Governing Board (1981), 5 March, no. 143.

Finally, the SNB could not undertake active portfolio management because it could have used its advance knowledge of interest rate trends.⁷

During the next ten years, its portfolio of Swiss franc bonds grew from 1 billion Swiss francs to nearly 3 billion. However, from a monetary policy perspective, the portfolio did not assume any major significance. There was never any pressing need for liquidity-absorbing operations, not least because the importance of sterilised intervention in foreign exchange markets – i.e. intervention where the impact on the domestic money supply was offset by counter-transactions in Swiss franc securities – had declined. Liquidity remained low in the Swiss bond market, so the SNB's scope to buy and sell bonds was restricted. This was partly attributable to stamp duty, which increased the cost of trading in Swiss securities. By contrast, the dollar swap market was highly liquid and transaction costs were low. Investing in Swiss franc bonds was also a controversial policy. It is true that yields were similar to foreign currency investments and the risk was lower. However, since no extensive analysis of the SNB's assets was carried out at the time, the investment policy benefits of the Swiss franc portfolio could not be assessed conclusively. In 1992, the Governing Board established a working group to propose an optimum asset structure from an investment policy viewpoint (cf. chapter 8.3.3). In the following years, holdings of Swiss franc securities were increased only marginally. However, the switch to mark-to-market valuation raised their value by 1.5 billion Swiss francs in 1996.

When repo transactions were introduced as a monetary policy tool in 1998, the SNB intended to use Swiss franc bonds for liquidity-absorbing operations and margin calls.⁸ However, a volume of 1 billion Swiss francs was sufficient for margin calls and there was little demand for liquidity-absorbing operations. Moreover, the SNB could also use the securities deposited by the banks to absorb liquidity. In view of the high volume of repo transactions, the increased diversification of foreign currency investments and the low liquidity of the Swiss bond market, Swiss franc bonds became less significant as an investment policy tool. Finally, the conflict potential relating to the Swiss franc portfolio increased as corporate governance issues moved into the limelight.⁹ In 2004, the SNB therefore started to scale back its Swiss franc portfolio.

7 SNB, Bond purchases (1991).

8 SNB, Working group on asset management (2000).

9 Message (2002), pp. 5687 et seq.

8.1.4 *Rising revenues and the establishment of provisions*

Until the early 1960s, the SNB's assets generated only modest returns. In the first two decades of its existence, discount operations made the highest contribution to total income, followed by interest income and income from foreign exchange and gold transactions. Until 1930, average gross annual income was just over 11 million Swiss francs. Following the introduction of gold parity, the relative significance of income from gold and foreign exchange transactions increased. However, since assets mainly consisted of non-interest-bearing gold, there was little change in income. In 1950, the SNB reported a return of only 15.3 million Swiss francs on its assets of just below 6.5 billion Swiss francs. Income did not rise significantly until the second half of the 1960s, when holdings of interest-bearing foreign currency investments increased.

Higher foreign exchange holdings did not merely increase income, however. Following the introduction of floating exchange rates, there were far higher fluctuations in income as a result of the volatility of exchange rates. Exchange gains and losses often far exceeded annual interest income. The heavy losses sustained in 1973 and 1977/1978 prompted a number of parliamentary initiatives.¹⁰ However, the SNB regarded the losses as irrelevant as long as it did not have to sell foreign exchange at a low rate. At the time, it felt that valuing foreign exchange holdings at daily rates was more or less arbitrary given the sharp volatility of exchange rates. In 1973, the Governing Board argued that 'correct' valuation would only be possible once a new fixed exchange rate had been established for the Swiss franc against the US dollar. In those days, it regarded floating exchange rates as a transitional arrangement.¹¹ At the end of 1977, the SNB deliberately valued its unhedged dollar holdings at an excessively high rate because it felt that the dollar was severely undervalued. This slightly reduced its net loss. In a reply to a question from Parliament, the Federal Council, in consultation with the SNB, stated that the decision had been based on currency policy considerations and that the valuation reflected the SNB's view of future exchange rate trends. The National Bank assumed that the extreme volatility of exchange rates would correct itself and the higher interest income earned on foreign currency investments would offset the exchange losses in the long term. In retrospect, it was proven right.

10 Interpellation by Fischer on 26 June and 18 September 1973, BO CN (1973), pp. 1402–1403, 1541 et seq.; Questions by Jaeger and Schmid on 17 and 19 April 1978, BO CN (1978), pp. 1454, 1454–1455.

11 SNB, Minutes of the Governing Board (1973), 25 October, no. 759.

Between the beginning of 1985 and the end of 1987, a pronounced weakness of the dollar led to total exchange losses of 10.8 billion Swiss francs. Although these losses were covered by releasing provisions, there was mounting public criticism of the SNB's high investments in US dollars.¹² At the end of 1986, 87 percent of unhedged foreign exchange holdings were invested in US dollars, 9 percent in German marks and 4 percent in yen. The National Bank considered diversifying its foreign exchange reserves even further. However, it expected this to stabilise rather than raise returns, because it assumed that, in the long term, yields on the various currencies would converge. At the same time, increased diversification would widen the scope for intervention in foreign exchange markets and make currency reserves less vulnerable to crises.¹³ However, efforts at diversification were hampered by market conditions and legal constraints. Given the high volume of transactions and the fact that it was only permitted to invest in short maturities, the SNB was essentially forced to place a large proportion of its investments in the liquid US market. Moreover, most central banks were opposed to the use of their currencies as foreign exchange reserves.¹⁴

Despite high losses in specific years, the average annual return on invested assets between 1980 and 1999 – taking exchange-based fluctuations in value into consideration – was 2.5 billion Swiss francs, of which 90 percent came from foreign currency investments. Exchange gains and losses almost entirely cancelled each other out over this period. However, this does not take account of fluctuations in the value of gold reserves, which were recorded at the official parity rate until May 2000.

Given that the SNB had not distributed any profits since 1932 – apart from dividends and the cantonal share – investment income increased its balance sheet total. In 1971, it recognised provisions for currency risks as liabilities on the balance sheet for the first time. In 1976, these were written back entirely to cover the 1971 revaluation loss. The Confederation had assumed this loss by issuing a non-interest-bearing debt certificate on the proviso that it would be repaid by the SNB by 1976 (cf. chapter 2.3.5).¹⁵ In view of its poor earnings situation, the SNB was unable to make further allocations to provisions until 1980. However, provisions then grew rapidly and by the end of 1990 totalled 17.1 billion Swiss francs. Rising provisions increased the pressure on the SNB

12 National Council Question Time, June 1984, National Councillor Meier, BO CN (1984), p. 807; Question by Meier on 20 June 1988, BO CN (1988), p. 1537.

13 SNB, Minutes of the Governing Board (1987), 23 April, no. 201.

14 SNB, Minutes of the Governing Board (1984), 4 October, no. 445; (1989), 13 April, no. 165.

15 SNB, Annual Report, *64^e rapport de gestion* (1971), p. 55.

to distribute some of its income to the public sector. In 1991, the first profit distribution agreement between the SNB and the Federal Department of Finance (FDF) entered into effect (cf. chapter 8.4.3). This limited the establishment of provisions and thus had a direct impact on balance sheet growth. Since the development of the assets required to implement monetary policy – such as currency swaps, and later, repos – was based on monetary policy requirements, the agreement mainly restricted growth in currency reserves. Consequently, the correct level of currency reserves was an issue discussed extensively at the SNB in preparation for the profit distribution agreement.¹⁶

8.1.5 *Function and level of currency reserves*

Currency reserves were regarded primarily as a means of preventing crises. In 1983, an internal working group described the principal function of currency reserves as protecting part of the national wealth from international erosion of purchasing power.¹⁷ Currency reserves should be used to pay for the imports that would be necessary in the event of war or crisis. In the 1990s, boosting confidence in Switzerland as a financial hub also became a central argument, partly because it was felt that the SNB, in its role as lender of last resort, should also be able to cover the banking sector's foreign currency obligations, and partly because it was felt that high currency reserves could prevent a crisis of confidence in the financial sector.¹⁸

One traditional argument dating back to the era of fixed exchange rates was that currency reserves provided scope to influence the Swiss franc exchange rate by intervening in foreign exchange markets. However, in the 1980s and 1990s, the SNB intervened relatively rarely and the volume of such intervention was low. Sterilised intervention was normally undertaken only in consultation with the central banks of the other Group of Ten countries, and chiefly out of solidarity, rather than to protect its own interests. In 1978, when the US dollar slipped markedly, the Governing Board felt that, ultimately, the exchange rate trend could only be influenced if monetary policy were altered.¹⁹ At most, sterilised intervention would have been a pointer. In the mid-1980s, the SNB often stood on the sidelines during concerted intervention by other central banks, which was a source of some annoyance to them.²⁰

16 SNB, Minutes of the Governing Board (1990), 30 August, no. 346.

17 SNB, Working group on investment policy (1983).

18 SNB, Working group on asset structure (1996).

19 SNB, Minutes of the Governing Board (1978), 5 January, no. 26.

20 For information on the debate, cf., for example, SNB, Interventions in foreign exchange market (1983); SNB, Minutes of the Governing Board (1985), 3 October, no. 421.

On the whole, however, they too were becoming increasingly sceptical about the effectiveness of the sterilised intervention route. The SNB subsequently undertook only two major independent interventions in the foreign exchange market, selling 545 million US dollars in December 1989, and 685 million US dollars and 730 million German marks in two steps in March 1992 to support the weak Swiss franc. Between mid-1994 and the end of 2006, it did not intervene in the market at all. In 1994, an internal working group therefore concluded that there was no longer any justification for holding such large volumes of foreign exchange reserves in the form of short-term US dollar investments. Instead, a modest level of reserves was deemed to be sufficient to cover intervention requirements as long as Switzerland did not intend to reintroduce a fixed exchange rate regime.²¹

As part of the national wealth, currency reserves should generate an appropriate return. In view of the high write-downs on dollar investments, income considerations had already been addressed by the Governing Board in the 1970s. However, in those days, it had virtually no scope to raise returns. Optimising the asset structure in the 1990s paved the way for a more return-based approach. It was felt that return considerations should be paramount for currency reserves exceeding the level required to deal with a crisis.²² At a closed meeting in September 1996, the Governing Board also expressed its fundamental support for a more return-based approach.²³

For a long time, it remained unclear how the SNB should calculate the necessary level of currency reserves. The appropriate level cannot be determined scientifically; currency reserves depend on the specific nature of a country, its size and international exposure, and its reasons for maintaining them (cf. chapter 16.4.1, table 16.3). The literature normally measures and compares a country's currency reserves, generally in relation to imports, money supply and short-term foreign currency obligations.²⁴ However, specific reserve requirements – for example for intervention or crises – can hardly be quantified in advance. It is even more difficult to assess the level of reserves required to boost confidence. Together with the debate on the distribution of profits, the Governing Board finally came to the conclusion that there is no objectively appropriate level of currency reserves, and that such decisions would therefore remain subjective. The 1991 profit distribution agreement contained an implied growth in currency reserves in

21 SNB, Working group on asset structure (1994, 1996).

22 Ibid.

23 SNB, Minutes of the Governing Board (1996), 16 September, no. 370.

24 Cf., for example, Grubel (1971); Roger (1993).

line with nominal economic growth. Reserves at the end of 1990 were taken as the basis for this.

In 1996, a working group comprising representatives of the SNB and the FDF examined the level of currency reserves, among other things, and reviewed the conditions for the agreement on profit distribution. It based its considerations on other small countries comparable to Switzerland, such as Sweden, Belgium, the Netherlands and Austria. It concluded that, in view of the Swiss economy's high international exposure and the significance of its financial sector, the level of currency reserves was appropriate. However, the analysis did not include gold reserves, as these were still valued at the parity rate and could not be sold under the statutory regulations in force at the time. The working group pointed out that currency reserve levels should be reconsidered if the forthcoming review of the monetary constitution were to abolish the Swiss franc's link to gold.²⁵

Internally, the SNB had been considering the gold issue for some time. The Governing Board had mixed feelings about a possible demonetisation of gold. Severing the ties between gold and the Swiss franc and the mark-to-market valuation of gold reserves would mean a sudden rise in effective currency reserves, and thus in provisions. As a result, Switzerland would have far higher reserves than comparable small countries. The Governing Board feared that revaluing the gold reserves would inevitably lead to higher profit distributions to the public sector, thus greatly depleting foreign exchange reserves. It considered this dangerous in view of the high yearly fluctuations in the price of gold.²⁶ Nevertheless, a reduction in gold reserves for investment policy purposes was not ruled out entirely within the bank. In 1994, a working group explicitly favoured converting part of the gold reserves into other investments. It saw no reason why this should weaken confidence in the Swiss franc or in the SNB. After all, confidence could be maintained just as easily by imposing a legal obligation on the National Bank to maintain price stability.²⁷

In the 1990s, the purpose and appropriate level of currency reserves was also discussed outside the SNB, by specialists and in Parliament. The reasons for holding reserves – especially gold – were being increasingly questioned. This was due in part to the fact that there had been no severe political or economic crises and in part to the decreasing significance of intervention in foreign exchange markets. The debate focused on two central aspects. Firstly,

25 SNB, Working group on investment policy and profit distribution (1996).

26 SNB, Minutes of the Governing Board (1996), 9 May, no. 172; 23 May, no. 194; 28 November, no. 493.

27 SNB, Working group on asset structure (1994).

the SNB's high level of gold reserves and their valuation at the parity rate were criticised. Many people believed that the role of gold as backing for banknotes was outdated because the obligation to convert banknotes into gold had been suspended in 1954. It was felt that confidence in the Swiss franc depended on the National Bank's stability-oriented monetary policy, rather than the fact that the currency was backed by gold.²⁸ Moreover, the SNB's gold reserves had always been very high compared with other central banks. Initiatives to revalue the gold reserves therefore generally included selling off some of the reserves. The proceeds should either be used to increase income-bearing assets or for public purposes, such as to repay the federal debt. These proposals were reinforced by the fact that the Belgian and Dutch central banks had already sold gold reserves. The second issue was the SNB's investment policy, which came in for sharp criticism, especially from Professor Thomas von Ungern-Sternberg.²⁹ According to the critics, the high reserves of gold and unhedged dollars, along with the short maturities of the investments, generated high risks and greatly reduced earnings potential. They emphasised the need to amend statutory provisions preventing the SNB from engaging in a more efficient investment policy.

In February 1996, the Head of the FDF suggested that the criticism be examined.³⁰ He proposed that the SNB and the FDF set up a joint working group to find a solution that would expedite efficient management of gold and foreign exchange reserves in order to generate higher returns. The working group's proposals eventually led to a partial revision of the National Bank Act, which increased the SNB's investment scope to some extent (cf. chapter 8.3.4). By contrast, it was felt that the question of gold reserves, which the SNB rarely discussed in public, should be tackled as part of the reform of the monetary constitution (cf. chapter 9.3.1). The group of experts charged by the Confederation to look into this issue examined the appropriate level of gold reserves following the severance of the Swiss franc's link to gold. For the first time, its analysis included gold reserves valued at market prices. On the basis of international comparisons, the group of experts came to the conclusion that the SNB's gold reserves were too high. It proposed that some of these holdings be removed from the balance sheet.³¹ However, it felt that the increase in

28 Parliamentary initiative by Hafner of 21 June 1990, BO CN (1991), pp. 1910 et seq.; postulate of the preparatory committee to the National Council on 19 November 1990, BO CN (1991), p. 1915; motion proposed by Spielmann on 16 December 1993, BO CN (1995), pp. 564–565; postulate of the LdU/AdI and EVP/PEV parties of 17 June 1994, BO CN (1996), pp. 561 et seq.

29 Ungern-Sternberg (1996).

30 SNB, Minutes of the Governing Board (1996), 22 February, no. 69.

31 Group of experts (1997), pp. 49 et seq.

currency reserves resulting from the revaluation of the remaining gold reserves would be justified by the major significance of Switzerland as a financial centre. The subsequent decision by the Federal Council and the Governing Board to reduce the SNB's gold reserves by 1,300 tonnes, which was slightly more than half of the reserves, was based on this analysis. The move to define the appropriate level of the SNB's currency reserves and to confirm the provisioning policy meant that, by the end of the 1990s, key issues relating to the level and growth of the currency reserves had been addressed.

8.2 The National Bank's gold operations

VINCENT CRETTOLO

8.2.1 *Background*

The majority of the Swiss National Bank's stock of gold was accumulated under the Bretton Woods monetary system. Between 1946 and 1971, these holdings rose from 1,016 to 2,585 tonnes. During that period, changes in the SNB's gold reserves were a direct result of the stabilisation of the external value of the Swiss franc, as the National Bank regularly converted the US dollars it accumulated into gold. There were two principal reasons for this conversion policy. Firstly, it was justified by the fact that the Swiss franc was still defined by reference to gold, rather than to US dollars. Secondly, confidence in the stability of the US dollar had been declining long before the collapse of the Bretton Woods system. By converting dollars into gold, the SNB therefore sought to avoid losses in the event of a devaluation of the US currency (cf. chapter 2.3.2).

During the 1960s, the stability of the gold price was preserved by the gold pool, an alliance comprising the National Bank and seven other central banks (cf. chapter 2.3.3). Operations were undertaken on previously agreed allocation criteria, with the SNB holding a share of 7.4 percent. Between 1961 and 1964, the net outcome of these operations was the purchase of gold equivalent to 1.5 billion US dollars. Conversely, over the next few years, the pool was forced to sell gold in order to prevent the price from rising. It suspended its operations in 1968, and the central banks decided to introduce a dual price, namely an official price to be used in dealings between monetary authorities, and a free market price. In August 1971, larger-scale conversions of dollars into gold dented US reserves of the metal to such an extent that the President

of the United States decided to suspend dollar convertibility into gold.³² After the move to floating exchange rates, the SNB's gold operations lost their importance. On the one hand, monetary policy no longer required the external value of the Swiss franc to be stabilised – thereby removing the main reason for buying or selling gold. On the other, the possibility of managing the gold holdings on the basis of considerations other than monetary policy was hampered by a legal framework which, for many years, remained at least partially based on the gold standard. Here, three rules proved to be particularly restrictive. Firstly, the fact that the gold parity of the Swiss franc was maintained until 2000 categorically ruled out any purchases or sales of gold by the SNB against Swiss francs at any rate other than the legally prescribed rate (of 4,595³⁵/₄₇ Swiss francs per kilogram of fine gold). Secondly, the obligation to comply with the gold coverage of banknotes in circulation set a minimum floor on the SNB's gold holdings. Lastly, only with the 1997 revision of the National Bank Act (NBA) was the way at least partially opened to operations aimed at making profitable use of the reserves.

To be fully understood, therefore, gold operations should be seen in the legal context of the time. During the 1970s, the SNB adopted a fairly liberal interpretation of a framework it considered to be divorced from reality. After internal and external analyses of the legal situation, it reconsidered its position and discontinued certain operations that it had initially regarded as being in conformity with the law.

Gold dealings undertaken after 1973 were no longer linked to the requirements of monetary policy and were instead based on other considerations. The need to comply with the minimum coverage of banknotes long remained an important factor, particularly in terms of decisions concerning the geographical distribution of the gold reserves. Although profitability long remained an issue of secondary importance for the National Bank, the desire to generate capital gains or to improve the profitability of the existing holdings was also clearly a factor underlying certain operations. Lastly, until the end of the 1970s, the SNB felt it had a certain role to play – in conjunction with other central banks – in regulating the gold market.

The National Bank's gold operations can be divided into three types: those intended to alter the make-up and geographical distribution of the existing holdings, those intended to generate profits, and those involving gold sales and purchases. Operations of the first type occurred throughout the period under discussion. However, operations to increase the profitability of the gold

32 SNB (1982), pp. 86, 233.

holdings only began on a large scale in 1997. Finally, purchases and sales of gold remained marginal until May 2000.

8.2.2 *Geographical distribution and composition of reserves*

The need for security in the event of a crisis has always provided the main basis for the geographical distribution of the gold holdings. Gold thus had to be deposited in a range of locations; but only countries with undoubted economic and political stability could be considered as eligible. Here, a guarantee of immunity by the depository country in respect of central bank assets was a key factor. A second condition was that the country of deposit should have a market in which the holdings could be liquidated in case of need.³³ The strategic allocation approved in 1976 and 1983 by the SNB's Governing Board stipulated that equal proportions of the metal should be deposited in Switzerland and abroad.³⁴ However, due to the requirements of the coverage of banknotes in circulation by gold, this strategy was not implemented. According to art. 19 of the 1953 NBA, the National Bank was obliged to maintain a minimum coverage of 40 percent by gold that was held in Switzerland and valued at the official parity. To comply with this, the SNB repatriated part of its gold holdings deposited abroad.³⁵ These transfers took the form of gold shipments or location swaps with banks in the markets concerned, where the SNB made gold held abroad available against gold stored in Switzerland. The proportion of gold deposited in Switzerland thus rose from 56 percent in 1971 to 67 percent by 1978. In order to give itself further leeway, the SNB took the view, from 1974 onwards, that it was not required to comply with the minimum coverage at all times, but merely on average throughout the year.³⁶ It argued in favour of abandoning this legal requirement at the time of the 1978 revision of the NBA. Although the Federal Council took the same view in its message to Parliament, the federal chambers opted nonetheless to retain the minimum coverage of 40 percent. However, the law was altered so that the gold held abroad could also be used as cover.³⁷ With the main reason for giving preference to deposits in Switzerland now no longer applicable, the 1980s saw gold shipments and location swaps intended to increase the proportion of gold deposited abroad. A reappraisal of geopolitical risks led the National Bank to make greater use of deposits abroad during its progressive sale of 1,300 tonnes

33 SNB, Minutes of the Governing Board (1993), 18 November, no. 493.

34 SNB, Minutes of the Governing Board (1983), 6 October, no. 522.

35 SNB, Minutes of the Governing Board (1972), 17 August, no. 735.

36 SNB, Minutes of the Governing Board (1973), 3 May, no. 305.

37 Schürmann (1980), art. 19, note 12.

of gold commencing in May 2000, with the result that, by 2005, the bulk of the SNB's gold holdings was once again stored in Switzerland.

The National Bank has commissioned numerous refining operations during the last thirty years in order to obtain the 'good delivery' quality label for its entire gold holdings. Swiss gold refining firms were prepared to undertake these operations free of charge, as the SNB provided them, in return, with a 'working capital' of several tonnes – more than was strictly necessary for their activity on behalf of the central bank. This mutually profitable arrangement was challenged in 1982, when the SNB's legal services concluded that it raised a number of problems, in particular that it effectively constituted an unsecured advance, similar to a gold loan. The National Bank's deposits with refining firms were therefore liquidated in the same year,³⁸ and subsequently, the cost of refining operations was invoiced directly to the SNB.

8.2.3 *Generating a return*

Central banks' gold reserves are a non-interest-earning fixed asset. One way of achieving a return on these assets is to lend them on a commercial basis for a limited period. Two types of counterparty could be interested in borrowing gold. The first of these are the gold producers who, by borrowing gold for immediate resale in the market, can finance their infrastructure more cheaply and cover the risk of fluctuation in the price of their future output. The second are the refiners and jewellery manufacturers, who are able to finance their gold holdings without the risk of price fluctuations during the period of production. Normally, temporary loans are made through the intermediary of a financial institution, such as a commercial bank. The interest rate on gold loans is generally lower than the rate on a corresponding investment in dollars.

Until 1987, the market for gold loans remained fairly marginal; after that point, the mines began to develop their hedging operations in response to a downturn in the gold price. According to some estimates, total gold loans increased from less than 1,000 tonnes in 1986 to almost 5,500 in 1999.³⁹ The majority of this gold was lent by central banks – an activity not without its risks. For instance, in 1990, the collapse of the investment bank Drexel Burnham Lambert caused serious losses to a number of central banks engaged in this type of operation.⁴⁰ From 1999, producers again began to scale back their

38 SNB, Minutes of the Governing Board (1972), 6 January, no. 9; 2 March, no. 214; (1977), 16 June, no. 441.

39 Gold Survey (1999); Cross (2000).

40 O'Callaghan (1993), p. 27.

hedging operations. With supply from central banks remaining abundant, the rates available on gold loans naturally began to fall.

It was not until the partial revision in 1997 of the NBA that the National Bank was expressly authorised to undertake gold lending operations; although it had already carried out a number of similar transactions in the past. Between 1973 and 1976, for instance, it had lent between 10 and 30 tonnes of gold to the Bank for International Settlements (BIS) on a number of occasions, for a maximum term of six months and at a rate of between 0.0625 percent and 0.25 percent. In 1977, it called a halt to these operations in view of the legal problems they created.⁴¹

Gold lending began on a large scale on 3 November 1997, when the partial revision of the NBA entered into force – a revision which not only expressly authorised lending, but which also reduced the gold coverage of banknotes from 40 percent to 25 percent. A decision was taken to begin by devoting 10 percent of the gold holdings – or 260 tonnes – to this type of operation. As the market was so narrow, it took a number of years for gold lending to develop. The standard term of a gold loan was from a few months to one year, and the counterparties were first-class institutions in Switzerland and abroad. From mid-1999, the SNB also began to make loans secured by the deposit of securities. As the credit risk was much lower on this type of operation, these loans could be made for periods of up to five years. In September of the same year, the National Bank and a further fourteen European central banks undertook, as part of an agreement to place a limit on future gold sales, to freeze their gold loans at the level then existing. For the SNB, that limit was 328 tonnes. Over the next few years, the sharp fall in interest rates on gold led the SNB to reduce its unsecured lending. By the end of 2006, total lending had fallen to 119.5 tonnes, with secured loans accounting for the entire amount. The reduction in loans and the decline in interest rates led to a severe drop in the profitability of this activity. After peaking at 91 million Swiss francs in 2000, profits on gold loans declined steadily to less than 16 million in 2006.

8.2.4 *Purchases and sales*

Until May 2000, the legal definition of the gold parity of the Swiss franc provided a basis for calculating the price at which the SNB could both buy and sell gold and account for it in its balance sheet. With the gold price having

41 SNB, Minutes of the Governing Board (1974), 8 August, no. 728; 7 November, no. 1124; (1976), 29 January, no. 114; (1977), 24 February, no. 138/4; 10 March, no. 181; 21 April, no. 301; 16 June, no. 441.

stood well above parity since 1973, this constraint ruled out any purchase or sale of the precious metal against Swiss francs. However, the National Bank made a number of attempts to increase flexibility.

In 1974, the National Bank's legal services pondered the issue of whether or not the SNB could sell gold on the market. It came to the conclusion that this was impossible at a rate equal to the parity, either directly or through an agent such as the Swiss Confederation. However, operations to exchange gold coins for ingots appeared permissible.⁴² Since the premium of coins over gold bars had increased five-fold since 1972, to stand at 100 Swiss francs per *Vreneli* gold coin (face value of 20 francs), this was a particularly attractive financial prospect. The SNB therefore contacted a leading bank in the market dealing in coins to organise a system for swapping *Vreneli* coins for ingots. Between 1974 and 1979, over 3 million coins were exchanged in this way, under maximum secrecy in order to maintain the premium. These operations earned the SNB profits of more than 160 million Swiss francs. However, over time, they placed the central bank in an increasingly difficult situation. Alerted by the increased supply of coins, other banks began to suspect the existence of this type of operation and asked to be allowed to participate in these exchanges. Moreover, the Confederation, which was wholly unaware of their existence, asked the SNB to exchange 25 and 50 Swiss franc coins minted during the 1950s, in order to benefit from the premium.⁴³ An external legal study commissioned by the National Bank concluded that the very principle of exchanging coins for ingots was illegal, a view which revived the debate on the legality of operations involving the exchange of *Vrenelis*.⁴⁴ In the summer of 1979, a legal study by the Federal Department of Finance (FDF) also concluded that the SNB was not permitted to exchange coins directly for ingots.⁴⁵ In addition to these legal problems, it was becoming increasingly difficult to maintain secrecy surrounding the exchange of *Vrenelis*. The SNB therefore terminated these transactions in August 1979.⁴⁶ In 1997, following a request from the FDF, the possibility of exchanging gold coins for ingots was again examined. Since market conditions left very little scope to earn a profit, and with fundamental changes in the monetary order in the pipeline, the SNB persuaded the Confederation to withdraw its request.⁴⁷

42 SNB, Minutes of the Governing Board (1974), 28 February, no. 191; 21 March, no. 244.

43 SNB, Minutes of the Governing Board (1976), 23 September, no. 825; (1979), 7 November, no. 696.

44 SNB, Gold coins (1978); SNB, Minutes of the Governing Board (1978), 26 April, no. 300.

45 SNB, Minutes of the Governing Board (1979), 7 November, no. 696.

46 SNB, Exchange transactions (1979).

47 SNB, Minutes of the Governing Board (1997), 16 October, no. 478; (2000), 22 June, no. 285.

In 1976, when the International Monetary Fund (IMF) began to auction off its gold at a time when the metal's price was falling, the SNB considered the advantages of buying. Its aim was to demonstrate its attachment to gold and participate in efforts to stabilise the gold price. Additionally, it believed that such purchases would not be in breach of the Coinage Act, provided that they were made against dollars and that the gold thus acquired was shown in its balance sheet at the official price.⁴⁸ It therefore participated in two auctions, acquiring a total of 2.4 tonnes of gold. Conversely, in 1979, the National Bank considered selling gold on the market, in a coordinated action with other central banks, with the aim of stabilising the price. However, the idea was rejected due to the constraints of the gold coverage of banknotes, which was in danger of proving inadequate in the medium term.⁴⁹ In 1981, the same concerns triggered a debate on the need to purchase gold.⁵⁰ The slower-than-expected growth in banknotes and the 1997 revision of the NBA, which reduced the minimum coverage of banknotes from 40 percent to 25 percent, enabled the SNB to meet the coverage requirement without being forced to buy gold. Only a few kilograms were purchased for dollars in 1984, 1986 and 1987, to offset weight differences due to the transfer of ingots from one store to another. Due to differences in the method for rounding the weights recorded, it is quite conceivable for transfers of gold from one depot to another to bring about a very slight change in the weight of ingots.⁵¹ From the end of the 1980s, the legal opinion was that purchases and sales made against foreign currencies should also be avoided, as they could be considered as a *fraus legis* – an act intended to circumvent a prohibition.⁵²

During the 1990s, the issue of the importance of the National Bank's reserves emerged more frequently in public debate. In June 1990, a parliamentary initiative was launched proposing to use the proceeds of gold sales to repay the Confederation's debts. Invited to take a stance on this issue before a committee of the National Council, the SNB insisted that such an option would require a change in the law and an amendment to the Constitution.⁵³ In September 1996, an internal report discussing the ideal structure of the SNB's assets emphasised that there was an excessive concentration on gold (40 percent compared to a level of 20–30 percent considered as optimum), but

48 SNB, Minutes of the Governing Board (1976), 28 April, no. 387; 10 June, no. 534; SNB (1982), p. 233.

49 SNB, Minutes of the Governing Board (1979), 31 May, no. 328; 27 June, no. 410.

50 SNB, Minutes of the Governing Board (1981), 12 February, no. 83.

51 SNB, Minutes of the Governing Board (1986), 6 March, no. 110; (1987), 9 April, no. 184.

52 Junod (1988), art. 39, note 69; Nobel (1987), p. 306.

53 SNB, Minutes of the Governing Board (1990), 23 May, no. 199.

that nothing could be done without a revision of the Federal Constitution.⁵⁴ This condition, moreover, was reiterated in the Federal Council's message of 17 March 1997 on the revision of the NBA.⁵⁵

By the end of the 1990s, Switzerland's official holdings of 2,590 tonnes of gold meant that it had the world's fifth-largest stock of gold. In terms of holdings per head of population, the Swiss figure of 365 grams of gold was well ahead of the average for the Group of Ten (G10) countries, and the second-placed country in this group – the Netherlands – trailed far behind with only 69 grams per capita. Moreover, the SNB stood out not only because of the size of its holdings, but also because of the extent of its provisions. The idea of using part of its gold reserves for a different purpose materialised in March 1997 when, on the initiative of the SNB's Chairman, the President of the Confederation considered revaluing the National Bank's gold holdings and using part of the resulting profit (7 billion Swiss francs) to finance a 'solidarity foundation' (cf. chapter 9.4.1). In May 1998, in its message on the new monetary article of the Federal Constitution, the Federal Council proposed using 1,300 tonnes of the SNB's gold for a purpose other than that of monetary policy. However, a further two years would elapse before the legal framework authorising gold sales was finally established. In April 1999, the people and cantons agreed to a total revision of the Federal Constitution, which abolished the gold parity of the franc (cf. chapter 9.2). In June of the same year, the SNB's Governing Board officially informed the market that its programme of gold sales would involve a total of 1,300 tonnes of gold.⁵⁶ In December 1999, Parliament passed the new Federal Act on Currency and Payment Instruments, which removed all reference to gold. It then entered into force in May 2000 (cf. chapter 9.5.5), allowing the sale of the 1,300 tonnes to begin.

Twelve months earlier, market conditions had been far from favourable. Other central banks had not waited for the SNB before beginning gold sales. Between 1996 and 1998, Argentina, Australia, Austria, Belgium, Canada, the Czech Republic, India and Luxembourg had all sold gold. A plan with similar objectives was also under discussion at the IMF, and the market feared that the major European countries were about to jump on the bandwagon. In May 1999, the decision of the UK Treasury to sell 415 tonnes caused prices to fall further, and the gold price settled at its lowest level in twenty years. During the annual meeting of the Bretton Woods Institutions in September 1999,

54 SNB, Working group on asset structure (1996).

55 Message (1997), para. 215.22.

56 SNB, Minutes of the Governing Board (1999), 16 June, no. 262; Roth (1999).

fifteen European central banks, including the SNB, issued a joint statement agreeing to limit their gold sales in the following five years to 2,000 tonnes, or roughly 400 tonnes per annum. They also undertook not to increase their gold lending operations and gold forward transactions during the same period. The agreement had an immediate effect on prices, as it removed much of the uncertainty on the future policy of official holders of the metal. In September 2004, it was renewed for a five-year period and the maximum limit on sales was increased to 2,500 tonnes.

For Switzerland, the agreement of September 1999 was particularly interesting, as the 1,300 tonnes of gold that the SNB was planning to sell were initially included in the total limit of 2,000 tonnes. In exchange, the National Bank had to be bound by the requirements of the agreement, which meant that it could not exceed its annual limits or hedge the risk of price fluctuation on the gold holdings still to be sold. The annual limits were negotiated after signature of the agreement. As requests were some 10 percent higher than the 2,000 tonnes announced, some of the planned sales had to be cancelled. Like other central banks, the SNB agreed to defer the sale of 10 percent of its planned 1,300 tonnes until after September 2004.⁵⁷

Initially, the National Bank commissioned the BIS to carry out the sales, in view of its greater experience in this area. Between May 2000 and March 2001, the BIS sold 220 tonnes on the market on the SNB's behalf. From April 2001, the SNB began to conduct the sales itself. The operations were of two types, namely spot sales and sales programmes with option characteristics. A total of 730 tonnes were sold spot. Each day, the SNB sold ingots to financial institutions operating in the gold market. A further 350 tonnes were sold on the basis of a contract with a performance guarantee linked to the London fixing, but with a maximum price set in order to improve the premium. This type of transaction was the equivalent of regular sales at the London fixing combined with the sale of out-of-the-money call options. The different programmes, which involved regular sales of 25 or 50 tonnes, were allocated to a limited number of market participants via an auction process. Compared to sales on the spot market, they enabled an extra premium of between 1.4 and 3.5 US dollars per ounce to be achieved.

For the SNB, the possibility of actively managing gold risk was restricted by the September 1999 agreement. To limit the risk of a fall in the dollar depressing future sales, it nonetheless managed, with effect from December 2000, to insure the Swiss franc value of part (35 percent) of the dollars to

⁵⁷ SNB, Minutes of the Governing Board (1999), 16 December, no. 546.

be received. Hedging operations generated approximately 830 million Swiss francs of extra revenue.

The sale of the 1,300 tonnes of gold between March 2000 and May 2005 yielded a total of 21.1 billion Swiss francs, equal to an average price of 16,241 Swiss francs per kilogram. An ounce of fine gold was sold at an average price of approximately 351 US dollars, 17 dollars more than the average fixing over the period. Over three-quarters of this additional gain was the result of profits from hedging the dollars to be received.

In general, the gold sales took place against a market backdrop that was considerably more benign than could have been anticipated in 1999. The National Bank's transparent and market-compliant procedure also proved astute in terms of revenue, as it enabled the SNB to sell its gold for a higher average price than that prevailing in the market during the same period.

8.3 The National Bank's investment policy

DEWET MOSER AND THOMAS STUCKI

8.3.1 Introduction

The role of the Swiss National Bank's assets has essentially remained unchanged since it was founded. They are used to implement monetary policy and to strengthen confidence in the Swiss franc and Switzerland's financial system. However, the SNB's ability to structure and, above all, to manage its assets has increased considerably in the past three decades. Its investment policy developed gradually over this period, starting in the 1970s, when foreign exchange reserves were its most important asset. At that time, these reserves mainly consisted of US dollars, and strategic management focused on maximising security and liquidity. Nevertheless, the SNB endeavoured to utilise the scope it had to generate returns. From 1984, it therefore developed in-house expertise in portfolio management.

However, until the mid-1990s, statutory and market constraints, along with the Governing Board's monetary policy concerns, prevented the full-scale management of foreign exchange reserves. The partial revision of the National Bank Act (NBA) in 1997 accorded returns a strategic place as an investment criterion, and when the completely revised NBA entered into force in 2004, investment policy was defined as one of the SNB's core tasks. Both were fundamental preconditions for the introduction of a modern investment policy geared to optimising the risk/return profile of the SNB's assets – but

only insofar as permitted by monetary policy, which takes precedence over investment policy at all times.

The National Bank's investment policy is designed to maintain the protective function of currency reserves. This is expressed in its legal obligation to hold currency reserves – by accumulating provisions – at the level required for monetary policy. Some of these reserves must be held in gold. To form the required provisions and currency reserves, the SNB needs to generate an appropriate return on its assets. In other words, its investment policy should not be geared solely to security and liquidity; sufficient attention must also be paid to return criteria. A professional investment policy also strengthens the National Bank's credibility and its reputation as the custodian of part of the nation's wealth. Conversely, its investment policy must not undermine the SNB's reputation in any way, because its credibility hinges just as much on its investment policy as it does on its monetary policy.⁵⁸

Establishing investment policy as one of the National Bank's core tasks was not entirely straightforward; and yet the SNB has repeatedly emerged as one of the pioneering central banks, not least in respect of its attitude to the investment process and investment instruments. It was one of the first central banks to work with professional asset management companies (from 1978), develop independent portfolio management operations (from 1984), establish an independent risk management function (from 1997), and invest some of its foreign exchange reserves in equities and corporate bonds (from 2004).⁵⁹

8.3.2 *Origins of the SNB's investment policy*

Managing foreign exchange reserves was an issue first raised in the mid-1970s. In view of the considerable currency losses sustained by the SNB following the introduction of the floating Swiss franc exchange rate, the Governing Board endeavoured to increase returns, at least on its US dollar investments. It therefore increased its portfolio of bank investments, which commanded higher interest rates than US treasury bills. Since statutory provisions limited the residual maturity of foreign currency investments to three months until the NBA was amended in December 1978, its investment activities remained largely passive. In other words, it held investments until they matured and then automatically renewed them.

The first investment policy considerations date from 1976, when the Deputy Head of Department I came to the conclusion that even a central bank

⁵⁸ SNB, *Targets and restrictions* (2006), p. 2.

⁵⁹ *How Countries Manage Reserve Assets* (2003); *RBS Reserve Management Trends* (2005).

should not be prevented from seeking to maximise returns, providing it could ensure the necessary liquidity and security. The extent to which the SNB as a central bank should engage in investment policy in addition to monetary policy became a much debated issue. From then on, the National Bank paid greater attention to the management of foreign exchange reserves. In 1978, it concluded a portfolio management agreement with an asset management company in New York and transferred some of its dollar reserves to it for management.

However, as investment requirements increased, the restrictions on maturities began to prove problematic, not simply in terms of returns. The SNB absorbed up to a quarter of some issues of treasury bills, which reduced their liquidity and even threatened to disrupt the Federal Reserve's open market policy. Once the permitted maturity had been extended from three to twelve months in 1978, the SNB drew up its first investment policy for foreign exchange reserves.⁶⁰ The aim was to distribute investments among the various maturities and undertake limited active management. The National Bank thus lengthened the average residual maturity of its portfolio when it expected rates to remain stable or decline, and reduced it when it expected rates to rise. At the same time, it endeavoured to utilise temporary anomalies in the yield curve through arbitrage between different series of treasury bills. It also took positions in short-dated government paper and bank bonds in the expectation that the interest rate spread between them would change. When taking its first steps towards actively managing its portfolio, the National Bank relied mainly on investment recommendations made by its US asset manager, which was more familiar with the market. In 1980, the SNB greatly increased the dollar value of the assets entrusted to this company and began to calculate the return on the assets managed using the mark-to-market method, in other words, taking account of both realised and unrealised gains and losses. It also started to compare returns against a benchmark portfolio in order to assess the performance of active asset management.

8.3.3 Selective portfolio management of foreign currency investments from 1984

In 1983, the Governing Board undertook its first extensive review of the National Bank's foreign currency investment policy.⁶¹ It established a working group to define the investment policy goals from the viewpoint of a central

⁶⁰ SNB, Minutes of the Governing Board (1979), 27 September, no. 608.

⁶¹ SNB, Working group on investment policy (1983).

bank and evaluate the results of the investment concept used to date. Modern portfolio theory was used as the basis for this.⁶² The review led to a plan of action to establish a systematic investment and control process. The aim was to apply professional portfolio management principles to its foreign currency investments, at least insofar as this could be reconciled with statutory provisions and did not hinder monetary policy. In 1984, the Governing Board therefore set up an independent investment unit and separated portfolio management from back-office activities on an organisational level. It also integrated swap dollars (cf. chapter 4.6.4) into the investment portfolio. These had previously been invested with the Bank for International Settlements on an entirely passive management basis, independently of foreign exchange reserves. A benchmark portfolio that accurately reflected the SNB's liquidity, risk and return requirements of the dollar investments was used to measure performance. New software allowed daily valuation of all foreign currency investments at market rates and daily calculation of returns. The SNB's management set a narrowly defined corridor within which the investment unit had to maintain the average residual maturity of the foreign currency portfolio. Like the external asset manager, this unit had to try to earn a return in excess of the benchmark portfolio through careful positioning on the yield curve. It had to report on a daily, weekly and quarterly basis to various levels within the SNB on the risks taken and the returns generated. It subsequently became evident that over the years there was a close correlation between the investment results of internal and external portfolio managers.

In addition to this action plan, the status review, which was carried out in 1983, went a step further. The working group suggested examining whether the statutory limits on maturities could be widened and whether the portfolio could be diversified by using derivative financial instruments, i.e. futures and options. However, the Governing Board was sceptical about these proposals.⁶³ It feared potential conflict between a more active investment policy and monetary policy, and was concerned about the political problems that could arise if the focus on returns were increased. However, these issues remained on the agenda and dominated internal investment policy debates in subsequent years. In 1987, the Governing Board finally agreed to a gradual diversification into German marks and yen.⁶⁴ However, the SNB did not start to diversify its currency portfolio until 1989 – in deference to the currency environment in

62 Cf., for example, Rudd (1982).

63 SNB, Minutes of the Governing Board (1983), 8 December, no. 659.

64 SNB, Minutes of the Governing Board (1987), 23 April, no. 201.

the foreign exchange market and to the other central banks, in line with the custom of consulting them in advance about the operational aspects of such changes.⁶⁵ The proportion of German mark and yen investments subsequently increased from 7 percent to 13 percent by 1995.

In the meantime, financial market specialists had become increasingly dubious about the suitability of residual maturities as an indicator for the liquidity of investments. On the contrary, an investment was considered liquid if large volumes could be sold quickly without any reduction in price. In view of this, statutory limits on maturities were no longer an adequate tool for managing liquidity. In fact, they tended to restrict liquidity because they resulted in an unduly high concentration of SNB investments in certain segments of the US money market. As a consequence, SNB transactions had a considerable impact on prices. The markets for short-term German mark and yen investments were not sufficiently liquid to allow even low volumes of investment. In 1988, the Governing Board therefore decided that, under a future amendment to the NBA, the permitted maturity of investments in government paper should be raised to five years, if possible. Besides, investing in longer maturities would increase the scope to earn higher returns.⁶⁶ In 1989, the Governing Board examined the use of futures and options. Analyses showed the usefulness of these tools for managing foreign exchange reserves. In view of their rapid growth, some areas of the derivatives markets were already more liquid than the spot markets. However, the necessary legal basis for the use of derivatives first had to be created.⁶⁷ The time was not yet right for an amendment to the NBA motivated by investment policy considerations, especially as it would have meant that the National Bank was moving into waters as yet uncharted by central banks.

Nevertheless, in the early 1990s, the SNB extended its investment policy considerations to other types of assets. An internal working group drew up proposals to optimise the structure and management of assets.⁶⁸ It endeavoured to find the optimum balance between a central bank's asset requirements and the investment policy options, and highlighted the National Bank's scope to undertake a more return-based investment policy. The proposals were geared to extensive diversification with a view to improving the risk/return profile in the long term. The working group proposed that assets should be divided between a crisis portfolio, where security and liquidity

65 SNB, Minutes of the Governing Board (1989), 13 April, no. 165.

66 SNB, Minutes of the Governing Board (1988), 28 April, no. 193.

67 SNB, Minutes of the Governing Board (1989), 22 June, no. 264.

68 SNB, Working group on asset structure (1994, 1996).

would be paramount, and a return-oriented investment portfolio, which could contain equities as well as international bonds. However, the Governing Board rejected the idea of a separate investment portfolio. It felt that this could give the impression that it did not need all of its assets to fulfil its monetary policy mandate.⁶⁹ Moreover, the proposed diversification strategy extended well beyond its statutory framework. By 1996, the climate was more conducive to amending the law for investment policy reasons, paving the way for the next step in the development of the SNB's investment policy.

8.3.4 The 1997 amendment of the National Bank Act motivated by investment policy

A working group was set up by the National Bank and the Federal Department of Finance in June 1996 to examine how foreign exchange reserves could be managed with a view to generating higher returns, and to propose the necessary amendments to the NBA. The fact that these amendments were motivated specifically by investment policy highlighted the significance that was by then being attached to generating returns as one of the SNB's tasks. The working group confined its considerations to amendments that could be incorporated into the existing NBA. It suggested three changes. Firstly, the restrictions on the residual maturity of foreign investments were to be abolished. This would enable the SNB to hold bonds across the entire maturity spectrum. It would also allow the SNB to invest in currencies other than the US dollar, because government bond markets in other countries – unlike money markets – were liquid enough to meet the National Bank's needs. Secondly, it suggested that the SNB should be permitted to use forwards, swaps, futures and options to manage the market risks of its foreign exchange reserves. It proposed that derivatives on all investments that the SNB could purchase directly should be permitted. Thirdly, it suggested accepting securities repurchase transactions as a new instrument, giving the National Bank access to the rapidly growing repo markets. Repos would reduce the risk of investments with banks by using government bonds as collateral. The working group estimated that the proposed amendments to the NBA would raise the return generated by the SNB by around 400 million Swiss francs a year.⁷⁰ The amended version of the NBA containing these three changes came into effect on 1 November 1997.

⁶⁹ SNB, Minutes of the Governing Board (1996), 19 September, no. 370.

⁷⁰ Message (1997), p. 895.

8.3.5 Revision of investment policy after 1997

Prior to these statutory changes, the National Bank had undertaken an extensive review of its investment process. It had extended its investment structures and stepped up staff and technical resources in order to raise the professionalism of its portfolio management activities. The Governing Board had defined three decision-making levels. At the strategic level, the Governing Board would set an annual strategy by defining a target portfolio for foreign exchange reserves. Within the strategic framework set by the Governing Board, an internal Investment Committee consisting of representatives of all three SNB departments would take decisions on tactical deviations from the general strategy, and set investment guidelines for the portfolio managers. Finally, at the operational level, the portfolio managers would manage their portfolios on the basis of the guidelines set by the Investment Committee. The performance of the Investment Committee and portfolio managers would be measured separately against their benchmark portfolio. The Governing Board also set up a separate risk management unit to draft investment strategy and monitor risks.⁷¹

Over the next few years, the SNB gradually utilised the new opportunities offered by the amendments to the NBA. This brought a sustained improvement in the risk/return profile of its assets. The first target portfolio defined under the new conditions led to considerable restructuring of currency holdings and increased the average duration of the portfolio to three years. From November 1997, the National Bank started to buy bonds with longer maturities and made its first investments in Dutch guilders. By the summer of 1998, it had reduced the proportion of foreign exchange reserves held in US dollars from 85 percent to 55 percent. It achieved this mainly by shifting into German marks, but also invested in the Danish krone and the British pound. This was a key step in diversifying its portfolio and reducing currency risk. The SNB also increased the diversification of its bond portfolio. Foreign currency bonds issued by states and international organisations, bonds issued by the US mortgage agencies Fannie Mae and Freddie Mac, and German Pfandbriefe were added to its portfolio. Interest futures were used to manage interest rate risk. When the SNB switched from foreign exchange swaps to repo transactions for monetary policy implementation, starting in 1998 (cf. chapter 4.6.6), foreign exchange holdings dropped appreciably. The inflows and outflows previously attributable to swap transactions were eliminated, thus facilitating management of foreign currency investments.

71 SNB, Minutes of the Governing Board (1997), 25 June, no. 300.

As part of its strategy for 1999, the National Bank extended the range of European government bonds in which investment was permitted to all eleven members of the new monetary union. In particular, the inclusion of French and Italian government bonds – both high-volume markets – greatly improved the liquidity of its foreign currency investments. In 2000, euro investments exceeded US dollar investments for the first time. The Governing Board gradually raised the duration of investments to five years, thus still further improving the risk/return profile. At the same time, it decided to extend external asset management to exploit the statutory investment opportunities to the full, and to tap into broader specialist expertise. It therefore extended investments to US mortgage-backed securities and awarded asset management mandates for bond portfolios in various currencies. The SNB's aim was to gain experience in the active management of foreign positions without playing a direct role in the foreign exchange market. About 8 percent of foreign currency investments were therefore managed by external portfolio managers.

From the early 1980s, the SNB had also built up a portfolio of domestic bonds, which had been increased by around 100 million Swiss francs a year (cf. chapter 8.1.3). From the outset, a rule-bound approach was adopted, because active management of Swiss franc investments could have led to a conflict between monetary policy and investment policy. In 1999, the Governing Board also stepped up diversification of this portfolio. Alongside domestic issuers, the portfolio could now be invested in Swiss franc bonds issued by foreign governments, international organisations and banks. In return, in a bid to avoid potential conflicts of interest with its new role as the body responsible for the stability of the financial system, the SNB gradually reduced its holdings of bonds issued by Swiss banks with a view to the complete revision of the NBA.

The demands made on risk management grew as the investment opportunities were widened. As the spectrum of market and credit risks increased, the tools used to measure and analyse risk constantly had to be extended. From 1998, the Governing Board commissioned regular sensitivity analyses, value-at-risk calculations and historical simulations. To ensure a coherent risk policy for all the SNB's financial market transactions, from 1999, all assets – including externally managed portfolios – were integrated into the internal risk monitoring system. Market and credit risks were reported and monitored on an aggregate basis. The Governing Board also involved the Bank Council in its risk monitoring system. The Bank Council assigned risk oversight to a delegation comprising two of its members. At an operational

level, the Governing Board established a Risk Committee comprising representatives of all three SNB departments. The independence of risk monitoring was highlighted by the fact that the relevant unit reported to the Governing Board and had to submit reports to the Bank Council's Risk Committee.

8.3.6 *Optimisation of investment policy after 2004*

In view of the successful amendment of the NBA, the reform of the monetary constitution and the complete revision of the NBA, the Governing Board concluded in 1999 that a fundamental review of the National Bank's role as asset manager and of the structure of its assets was necessary.⁷² It set up an internal working group to propose an optimum long-term investment structure for its assets and to examine how the various portfolios could be managed. The working group's mandate went well beyond simply reviewing investment policy.⁷³ In particular, it was asked to outline the types of market and credit risks the SNB should assume as a central bank and which asset classes and instruments were suitable for this task. At the same time, it had to bear in mind the role of the SNB and thus the primacy of monetary policy. It also had to consider a whole range of monetary policy restrictions affecting investment policy. For example, the volume of repo transactions had to ensure smooth implementation of monetary policy. Currency reserves had to be invested in such a way that they would maintain their purchasing power, especially in periods of crisis, and could also be sold easily. Other restrictions were required to avoid conflicts of interest with monetary policy and to ensure that investments did not undermine the SNB's reputation. The working group performed extensive optimisation calculations on this basis. The results indicated that the SNB could further strengthen its strategy of diversification. In particular, it showed that the risk/return profile could be improved further by scaling back US dollar investments and moving into new investment classes such as equities and corporate bonds.⁷⁴ The Governing Board supported these proposals. However, they could not be implemented until the revision of the NBA had been completed.

Besides examining the structure of the SNB's assets, the working group examined how they should be managed. The focus was on whether active or passive management was likely to prove more successful, and on the relative merits of internal and external management. In 2003, the SNB conducted a

72 SNB, Minutes of the Governing Board (1999), 10 June, no. 251.

73 SNB, Minutes of the Governing Board (1999), 8 July, no. 299.

74 SNB, Working group on asset management (2002).

review of the external asset management mandates. This showed that active management of standardised bond portfolios by external portfolio managers did not generate a higher return over time. The SNB therefore terminated its contracts with external asset managers.

All statutory investment constraints were removed with the entry into force of the NBA in 2004.⁷⁵ This suggested that the legislators had recognised the problems caused by the excessively tight framework imposed by the old law. At the same time, the new NBA defined asset management as a distinct task of the SNB, underscoring the fact that this task had become increasingly significant in the past quarter of a century. The Federal Council's message on the new NBA specified the aims with reference to modern portfolio theory. The NBA itself reallocated responsibilities as follows: the Governing Board decides on the investment of assets; in other words, it determines the composition of currency reserves and other assets. The Bank Council is responsible for integrated oversight of the investment and the risk control process (cf. chapter 10.2.3). Its role is to assess the underlying principles and monitor compliance with them. It is supported in this task by a three-member Risk Committee, whose main task is to oversee the National Bank's risk management. Risk reports are submitted by the relevant organisational unit at the SNB directly to the Governing Board and the Bank Council's Risk Committee.

The National Bank took the new NBA as an opportunity to introduce formal and structural changes to its investment and risk control processes. In response to the SNB's broader investment scope and the higher public disclosure and reporting requirements, the Governing Board issued general Investment Policy Guidelines in May 2004 and published them on its website.⁷⁶ These define the investment policy principles and outline the investment instruments that may be used as well as the basic principles of the investment and risk control processes. At the same time, the SNB started to publish quarterly information on the structure of its assets and the returns generated. Detailed information on its investment transactions is also contained in the Accountability Report for the Federal Assembly and the Business Report. Moreover, the Governing Board provides information on current investment trends at its news conferences.

Substantial changes were made to the strategy definition process and the investment instruments used. Until then, security, liquidity and return

⁷⁵ Message (2002), pp. 5683 et seq., 5738.

⁷⁶ SNB, Investment Policy Guidelines (2004).

requirements had only been described in qualitative terms. To improve monitoring of its investment policy, the SNB now intended to quantify these requirements as far as possible. At the beginning of March 2004, the Governing Board defined minimum requirements for the liquidity of foreign exchange reserves and the security of all assets. It quantified its risk tolerance by setting a corridor for value at risk.⁷⁷ Shortly afterwards, it extended its investment universe to include corporate bonds and equities, expecting that this would improve the risk/return profile.⁷⁸ However, to preserve its monetary policy latitude and ensure that its reputation would not be undermined by potential conflicts of interest, only equities and bonds issued by foreign companies could be used for investment purposes. Moreover, it decided that equity investments must be managed on an index-tracking basis and that only equities in blue chip companies could be purchased. The aim was to prevent the SNB from gaining a controlling interest in any company. Its rating requirements for bonds were reduced, allowing investment in any investment grade bond. The proposals made by the working group on asset structure in 2002 were thus essentially adopted.

The SNB started to implement this change of strategy in July 2004. It continued to manage the bulk of its assets internally. External portfolio managers were used only for complex asset classes such as US mortgage-backed securities or to benchmark the performance of internal portfolio management. To manage and control risk, the National Bank extended its system of benchmark portfolios as well as its investment guidelines and investment limits. The risk management unit monitors compliance with guidelines and limits for material parts of the portfolio on a daily basis, and carries out value-at-risk calculations and sensitivity and stress analyses. Credit risks are still assessed principally on the basis of information from rating agencies. At an operational level, the SNB strengthened the performance responsibility of the relevant units.

8.3.7 Management of free assets: 2000–2005

In early May 2000, the National Bank started to sell off 1,300 tonnes of surplus gold reserves (cf. chapter 8.2.4). A separate portfolio of what were known as 'free assets' was established for the proceeds of these transactions and for the gold earmarked for sale. This was managed on the basis of an independent investment strategy. However, until 2004, the portfolio was also subject to the same narrow statutory constraints as other investments. The

⁷⁷ SNB, Minutes of the Governing Board (2004), 4 March, no. 71.

⁷⁸ SNB, Minutes of the Governing Board (2004), 18 March, no. 91.

Governing Board endeavoured to tailor the investment strategy for these assets to their expected purpose and investment horizon. Unlike monetary assets, they were not subject to monetary policy constraints.

The SNB concluded that the value of these assets in Swiss francs would be the relevant parameter at the time they were assigned, and that this would be at least three years hence. From this, it concluded that the foreign exchange risk should be minimised. It also assumed that the funds would be transferred rapidly after the decision on their use, so they were invested mainly in liquid markets. The Governing Board therefore set a limit for the percentage that could be invested in Swiss franc bonds. It also wanted to use the available scope for diversification and endeavoured to generate a return above the money market rate for Swiss francs, while minimising the risk of a loss of value.⁷⁹ The SNB therefore invested 90 percent of the proceeds from the sale of the gold reserves in foreign bonds and hedged most of the currency risk. It thus benefited from the liquidity of foreign markets without being exposed to major currency risks. The remaining 10 percent of the portfolio was invested in Swiss franc bonds. The portfolio duration was three years, in other words, slightly lower than that of the foreign exchange reserves.

Initially, when the free assets mainly consisted of gold that had not yet been sold, they were exposed to two main risk factors: the price of gold in US dollars and the US dollar/Swiss franc exchange rate. The agreement on gold sales concluded in September 1999 between central banks greatly limited the ability to hedge gold price risks (cf. chapter 8.2.4). Derivatives on gold were not authorised outside the agreed quotas. By contrast, the National Bank was allowed to manage the currency risk relating to the proceeds of gold sales in US dollars. It did so through forward sales of around one-third of the expected dollar proceeds against the Swiss franc and the euro. In the SNB's view, fully hedging the currency risk did not make sense, because in the past the price of gold had generally risen when the US dollar had weakened against the Swiss franc. Since the US dollar slipped by nearly 30 percent to 1.20 Swiss francs during the period in which the SNB was selling off its gold reserves, the hedging policy paid off.

The funds invested eventually rose to just over 20 billion Swiss francs once the gold sales had been completed. The National Bank slightly increased the interest and credit risks during this time, but hedged most of its currency risks. It thus achieved a higher return without jeopardising the value of its assets. The return on the portfolio was disclosed in the SNB's income

79 SNB, Minutes of the Governing Board (2000), 22 June, no. 283.

statement and, as of the 2003 financial year, was paid out to the Swiss Confederation and cantons in addition to their usual profit distribution.⁸⁰

In early 2005, when it became clear that rapid distribution of funds to the Confederation and cantons would be required, the SNB greatly reduced the market risks of the portfolio⁸¹ by hedging the remaining currency risk on foreign exchange holdings through additional forward sales. Between the beginning of May and mid-July 2005, it paid out a total of 21.1 billion Swiss francs to the Confederation and the cantons in ten weekly tranches. It had liquidated the underlying investments without any problems and without affecting the markets.

8.4 Profit distribution

PETER KLAUSER

8.4.1 Introduction

Under the fixed exchange rate regime, the Swiss National Bank had little opportunity to generate profits. Its assets were dominated by gold reserves. In the early decades of its existence, the SNB actually had difficulty paying the statutory fixed profit share of 80 centimes per head of population to the cantons in addition to the dividend to its shareholders. The last time it had distributed additional profits to the Swiss Confederation and the cantons was in 1932.⁸² After that, its policy had been to accrue a modest level of hidden reserves rather than distribute profits.

The SNB's earnings position changed substantially in 1971, when the United States abolished the convertibility of the dollar into gold. From then on, non-interest-bearing gold reserves remained relatively stable, while interest-bearing foreign exchange reserves continued to grow. The ratio of foreign exchange reserves to gold reserves – valued at the parity rate – rose from around 1 to 7 percent in 1966 to around 4.6 to 1 percent by the end of 1999 (including foreign exchange swaps). In the early 1980s, the SNB also began to build up a portfolio of domestic securities for open market operations. Consequently, its income statement showed a sharp rise in interest income (cf. chapter 8.1.4). Another watershed was the switch to floating exchange rates in

⁸⁰ Supplementary agreement (2003).

⁸¹ SNB, Minutes of the Governing Board (2005), 20 January, no. 20.

⁸² SNB (1957), pp. 335–336.

January 1973, as this increased the exposure of the SNB's foreign exchange reserves to exchange rate losses.⁸³

8.4.2 *Higher earnings volatility and rising profit expectations*

In the 1970s and 1980s, the National Bank's earnings fluctuated greatly as a result of changes in the value of its assets due to exchange rate movements. In the 1978 financial year, the loss on foreign exchange holdings exceeded both interest income and accumulated provisions for currency and other risks. The resultant loss was offset by recourse to the hidden reserves on gold. This enabled the SNB to post a net profit that was high enough to cover a dividend payment of 6 percent to its shareholders and the per capita profit share of 80 centimes to the cantons. In 1977, 1979, 1985, 1986 and 1987, losses on foreign currency investments also exceeded interest income, but the difference was covered by releasing provisions. The SNB saw the increased earnings volatility as a reason for prudent accounting. In the 1980s, its policy was to use surplus earnings to build up provisions as a cushion against exchange rate risks. All earnings above the normal profit level were therefore allocated to provisions.⁸⁴

Although the Federal Department of Finance (FDF) and the Federal Office for Foreign Trade had stated in the early 1980s that the SNB should make a one-off contribution to the federal budget or assume part of the deficit of the Export Risk Guarantee agency, the Governing Board rejected this as incompatible with the statutory rules on the distribution of profits to the Confederation (one-third) and the cantons (two-thirds). In principle, the Governing Board and the Bank Council were opposed to additional profit distributions because they saw a risk that these could undermine the SNB's freedom of action in matters of monetary policy and thus its independence.

However, calls for additional profit distributions became more insistent as provisions increased. For instance, in 1982, the director of finance of the Canton of Geneva voiced surprise that the SNB's distribution policy had not been adjusted to reflect the high level of profits. The cantonal finance directors subsequently made several attempts to force a change of policy. At the General Meeting of Shareholders in 1987, the representative of the Canton of Geneva withheld approval of the National Bank's annual accounts as a mark of protest.⁸⁵ Yet until well into the 1980s, the SNB was afraid that an

83 SNB (1982), p. 317.

84 Message (2002), pp. 5670–5671.

85 SNB, Minutes of the General Meeting of Shareholders (1987), pp. 7–8, 12.

additional profit distribution could set a precedent and cause problems for the conduct of monetary policy. In a speech in March 1984, the Chairman of the Governing Board, Fritz Leutwiler, explicitly warned against the undesirable effects of a profit distribution and of the politicisation of the National Bank. The Head of the FDE, Otto Stich, felt that additional profit distributions by the SNB should only be considered when federal finances were healthy.

In 1989, after the pressure on the SNB had temporarily declined as a result of heavy exchange rate losses, the Governing Board again addressed the question of whether the National Bank should distribute surplus profits to the Confederation and the cantons, and if so, to what extent. Although it remained sceptical about such profit distributions, it could not see any plausible economic justification for rejecting them out of hand. Besides, it felt that the SNB could more effectively resist pressure to make concealed profit distributions by providing financing in certain circumstances if it had the option of offering a supplementary distribution.⁸⁶ In the autumn of 1990, in a reply to a motion proposed in the National Council, the Federal Council expressed the opinion that it was time to consider an additional profit distribution by the National Bank. The federal politicians hoped that this would contribute to the ongoing programme of measures designed to put the federal finances in order.

8.4.3 Paradigm shift in the early 1990s

In fact, the SNB's annual accounts for 1990 contained provisions for currency risks totalling 17.1 billion Swiss francs, equivalent to nearly three-quarters of its unhedged foreign exchange reserves of around 22.5 billion Swiss francs.⁸⁷ As a result, the Governing Board felt that the level of provisions at the end of 1990 was adequate to cover the high exchange rate and interest risks to which the currency reserves were exposed. No one questioned the policy that one-third of the revenues stemming from the SNB's note-issuing monopoly should be distributed to the Confederation as the present monopolist and two-thirds should go to the cantons as the former monopolists, in line with the statutory and constitutional provisions. The Governing Board's opinion was, however, that even under a regime allowing the distribution of surplus profits, the National Bank must be able to fulfil its monetary policy role without earnings pressure and to form the provisions deemed necessary on operational and economic grounds.

⁸⁶ SNB, Minutes of the Governing Board (1989), 26 January, no. 54/1.

⁸⁷ SNB, Annual Report, 83^e rapport de gestion (1990), pp. 53, 63, 67.

The task of finding a convincing formula for such profit distributions was not easy. The National Bank Act (NBA) of 1953 did not contain any specific provisions on how the SNB should calculate its profit (arts. 25–27 former NBA), while the applicable accounting principles set out in the Swiss Code of Obligations provided far too much freedom with regard to the establishment of provisions. A formula on how to calculate profits was therefore needed to clarify how much of the central bank's earnings should be allocated to provisions and how much should be distributed as profit. This had not been necessary in the past, as the SNB's assets had not been exposed to high risks. Throughout the debate, it was undisputed that the profit distribution must not result in a further increase in the money supply.

In early 1992, the FDF and the SNB agreed on a profit distribution concept that formed the basis for subsequent annual accounts.⁸⁸ One central principle was that the National Bank's unhedged foreign exchange reserves (foreign currency investments excluding swaps) should be allowed to rise steadily in view of their key role in preventing and dealing with crises (cf. chapter 8.1.5). Moreover, it was recognised that, since the 1980s, the creation of money had no longer been linked to an increase in unhedged foreign exchange reserves. On the contrary, since the money supply was regulated through foreign exchange swaps at that time, unhedged foreign exchange reserves grew only when the SNB generated surplus income and increased its provisions accordingly. From this, the National Bank derived its demand that its provisions should rise in tandem with the nominal gross national product (GNP). The steady increase in provisions was designed as a confidence-building measure to demonstrate to the general public that profit distributions would not undermine the stability of the Swiss franc. The FDF and the SNB did not take gold reserves into account, because they were still valued at parity against the Swiss franc at the time and could therefore not be liquidated (cf. chapter 8.2.1). It was agreed that any earnings remaining after the planned increase in provisions would be distributed to the Confederation and the cantons as additional profits. The planned percentage rise in provisions was defined with reference to the moving average of annual growth in nominal Swiss GNP in the preceding five years. This was essentially the first principle of the profit distribution concept.

Because the SNB's earnings varied considerably from year to year as a result of massive fluctuations in exchange rates and interest rates, the FDF and the SNB came to the conclusion that profit payments needed to be smoothed in some way to give the Confederation and the cantons a reliable

⁸⁸ Message (2002), p. 5672.

basis for planning. Various methods were considered. One option would have been to set profit distributions on the basis of forecast average surplus earnings in the future. The amount paid out to the Confederation and the cantons would have thus been known in advance and would have remained constant for a given period. The drawback of this approach was that the National Bank would have had to adjust the method of distribution continually to take account of forecasting errors, which evidently could not be ruled out. Consequently, it was decided that the SNB would only distribute profits it had effectively earned in the past. To prevent excessive fluctuations in these payments, a ceiling of 600 million Swiss francs per annum was set. Any distributable surplus above this level would be allocated to provisions. Should losses cause provisions to fall below the target level, the amount distributed would be reduced. This was the second principle set out in the profit distribution concept.

The FDF and the SNB set the ceiling at a relatively low level out of prudence, because the Confederation and the cantons were not interested in receiving sudden high payments in individual years. Moreover, the National Bank was uncertain about future earnings trends and felt it needed to gain experience in this new system of additional profit distributions. To simplify budgeting, the SNB and the FDF agreed that, after approval of the annual accounts at the General Meeting of Shareholders, the SNB would transfer the amount due for distribution to the FDF at the beginning of the following year. The Confederation and the cantons would thus know mid-year exactly how much of the distribution they could factor into their budgets for the following year. The National Bank made its first additional distribution of 600 million Swiss francs to the Confederation and the cantons at the beginning of 1993 on the basis of its profit for 1991.

8.4.4 *Rising profit distributions*

Since the SNB generated a high profit in the 1991 financial year, it was able to retain a sizeable 'distributable surplus' of around 3 billion Swiss francs even after paying the maximum supplementary distribution of 600 million francs.⁸⁹ This created a buffer that enabled it to pay out the maximum additional amount to the Confederation and the cantons for the 1992–1994 financial years as well. However, in the mid-1990s, it became evident that earnings on unhedged foreign exchange reserves – and hence also the distributable surplus – could fluctuate massively. Following significant write-downs

⁸⁹ SNB, Annual Report, *84^e rapport de gestion* (1991), p. 66.

on foreign exchange reserves in 1994 and 1995, the SNB was only able to distribute a profit of 142 million Swiss francs for 1995, as the distributable surplus had been used up by the end of that year.⁹⁰ By revaluing marketable investments at market prices at the end of 1996, the SNB released hidden reserves, resulting in a sharp rise in the distributable surplus. The profit recognised for 1996 thus allowed it to make a retroactive payment to cover the difference between the amount paid out for 1995 and the ceiling of 600 million Swiss francs, although this was not what had been agreed in the concept. The payment for 1996 thus totalled 1,058 million Swiss francs.⁹¹ In this way, the SNB was able to meet the expectations of the Confederation and the cantons. At the same time, the retroactive ‘top-up’ payment illustrated the extent to which the public sector had become accustomed to receiving the maximum annual profit distribution from the National Bank and had factored them into their budgets. The last payment of 600 million Swiss francs based on the concept agreed in 1991 was for the 1997 financial year.

Although the 1991 agreement had not been concluded for a specific period, the amendments to the NBA adopted on 20 June 1997 altered the basis on which the FDF and the SNB had developed the concept. The amendments extended the SNB’s investment scope and paved the way for more efficient management of currency reserves, enabling it to generate higher returns. In its message to the Federal Assembly, the Federal Council estimated the additional income at approximately 400 million Swiss francs per annum.⁹² Moreover, the distributable surplus – the difference between actual and target provisions – rose to 9.7 billion Swiss francs in the year-end accounts for 1997.⁹³ Finally, the Confederation and the cantons expressed a desire for more pronounced smoothing of profit distributions to give them a sounder basis for budget planning. In the light of this, it became evident that the 1991 profit distribution concept needed to be replaced.

Following swift negotiations, a new agreement was reached on 24 April 1998. In this agreement, the FDF and the SNB maintained the basic principle that the National Bank’s provisions should rise in step with growth in nominal GNP. At the same time, however, they altered the smoothing process and level of payments. On the basis of the SNB’s earnings forecast, they set fixed annual payments to the Confederation and the cantons for a period of five years. The policy of paying only the surplus effectively earned to the

90 SNB, Annual Report, 88^e *rapport de gestion* (1995), pp. 69–70.

91 SNB, 89th Annual Report (1996), pp. 61, 70, 80.

92 Message (1997), pp. 866, 895.

93 SNB, 90th Annual Report (1997), p. 86.

Confederation and the cantons had basically been ousted by their expectations of a steady inflow of funds from the SNB's profits. However, a safety net was put in place to ensure that the obligation to pay a constant profit distribution for five years would not undermine confidence in the National Bank. It was agreed that if the SNB's provisions fell 60 percent short of the target, the payments to the Confederation and the cantons would be reduced or omitted entirely, even during the five-year period. The payments for 1998–2002 were set at 1.5 billion Swiss francs per annum.⁹⁴ They comprised two components. Firstly, a phased reduction in the distributable surplus that had accrued; and secondly, the estimated future earnings on assets, based on an estimated average return of 3 percent per annum.

By holding the payments unchanged over a longer period, the SNB was able to transfer the amounts to be distributed to the FDF immediately after the General Meeting of Shareholders. To distribute payments more equally in the transitional period between the old and new agreements, it transferred the 600 million Swiss francs relating to the 1997 financial year at the end of April 1998 instead of in January 1999. As a result, the Confederation and the cantons received a total payment of 1,200 million Swiss francs for 1996 and 1997 in the spring of 1998.

In the 1998–2001 financial years, the SNB earned very high returns, so it was able to transfer the agreed annual profit distribution of 1.5 billion Swiss francs without difficulty. Moreover, by the end of 2001, the distributable surplus had increased to 13.4 billion Swiss francs.⁹⁵ This showed that the earnings forecasts used by the SNB in the 1998 profit distribution agreement had been too cautious.

8.4.5 *The 2002 and 2003 distribution agreements*

For the FDF and the SNB, there was no question that the substantial discrepancy between actual and target provisions had to be corrected at the end of the five-year period. The level of the SNB's provisions was also questioned by Parliament.

The FDF and the SNB discussed various ways of reducing the high level of provisions. All the proposals centred on the National Bank's ten-year earnings forecast for the 2003–2012 period. One option seriously considered by the SNB was a one-off payment to reduce provisions immediately. In the end, the Federal Council and the SNB's Governing Board chose an option

⁹⁴ Message (2002), pp. 5672–5673.

⁹⁵ SNB, 94th Annual Report (2001), p. 104.

based on steady payments geared to eliminating the distributable surplus entirely by the end of 2012. On 5 April 2002, the FDF and the SNB therefore signed a ten-year profit distribution agreement. Although this spread elimination of the surplus over an entire decade, it greatly increased annual payments, which were set at a total of 2.5 billion Swiss francs from the 2003 financial year. At the same time, it was agreed that the profit for 2002, which was scheduled for distribution in the spring of 2003, would also be increased to 2.5 billion Swiss francs by means of an additional one-off payment of 1 billion francs.⁹⁶ However, the income earned on the National Bank's 'free assets' was deliberately excluded from the agreement because both the SNB and the FDF assumed that the surplus gold reserves would be assigned a different use following the referendum of 22 September 2002 (cf. chapter 9.4.4). The SNB announced publicly that, as of 2013, its earnings potential would drop to around 900 million Swiss francs per annum due to the lower asset base.⁹⁷ This forecast was based on an estimated average return of just below 3 percent per annum on total assets, including the monetary gold reserves remaining with the SNB. The 2002 agreement contained a number of refinements. The rule of thumb that the SNB's provisions should rise in line with economic growth was now based on nominal gross domestic product (GDP), rather than on GNP as in the past. GDP can be calculated more easily and more quickly than GNP. Since 2002, the yardstick used to measure the target level of provisions has taken into account the risks relating to all currency reserves. Including the SNB's monetary gold reserves totalling 1,290 tonnes in the risk assessment was a logical consequence of the fact that gold had been valued at market price since 1 May 2000 (cf. chapter 9.5.5). The 2002 agreement also set a minimum level of provisions. If effective provisions fell short of the target by more than 10 billion Swiss francs, the profit distribution for the year would be reduced accordingly. Similarly, the payment for a year would be increased if the effective provisions were to exceed the target by more than 10 billion Swiss francs. Since there is evidently a high degree of uncertainty inherent in earnings estimates for a whole decade, it was decided that the agreement should be reviewed after five years, so the payments could be adjusted if necessary.

In fact, the fixed annual payments of 2.5 billion Swiss francs would not even continue for that long, as framework conditions had changed again in the meantime. Following the rejection of both the gold initiative and the

⁹⁶ Message (2002), p. 5673.

⁹⁷ SNB, 95th Annual Report (2002), p. 49.

Federal Assembly's counter-proposal in the referendum on 22 September 2002 (cf. chapter 9.4.4), the Federal Council and the SNB ceased to count on the rapid transfer of assets no longer required for monetary policy purposes. By the end of 2002, the SNB had already sold half of the 1,300 tonnes of gold reserves earmarked for disposal and invested the proceeds in interest-bearing securities. This increased the SNB's earnings potential, which in turn raised the question of how it should be reflected in the profit distribution. The FDF was particularly in favour of an additional ruling on this, as income earned on the free assets was recorded in the annual income statement together with 'regular' earnings pending a final decision on the appropriation of the gold assets. If no additional profit distributions were made, the planned reduction of the distributable surplus would be delayed. For its part, the Governing Board did not see this as a serious drawback, since the 2002 distribution agreement provided scope to increase payments as of 2007. However, the Federal Council insisted on the income generated by the free assets being distributed as soon as possible. It felt that – in accordance with the law – one-third should be distributed to the Confederation and two-thirds to the cantons.

In a supplementary agreement, dated 12 June 2003, on the distribution of income accruing to assets held by the SNB and no longer required as reserves, the FDF and the SNB decided that – in addition to the agreed payment of 2.5 billion Swiss francs for 2002 – a fixed sum should be distributed each year on the basis of earnings estimates. This met the cantons' desire for a more reliable basis in planning their income. The FDF and the SNB agreed on supplementary annual payments reflecting the progressive sale of the gold reserves, starting at 300 million Swiss francs in the spring of 2004 (for 2003) and rising to 400 million in the spring of 2005 (for 2004) and 500 million in the spring of 2006 (for 2005).⁹⁸

8.4.6 *Distribution of the proceeds from the gold sales*

The supplementary agreement was designed to be an interim arrangement until a final agreement could be reached on what to do with the proceeds from the sale of the gold reserves. The Confederation and the cantons found the outcome very satisfactory. However, in a letter to Finance Minister Kaspar Villiger dated 12 June 2003, the Bank Council and the Governing Board of the National Bank expressed their concern that the latest rise had brought profit distributions from the SNB to the Confederation and the cantons up to

98 Message (2003), pp. 5604–5605.

a level that was clearly unsustainable in the longer term. They were concerned that a later return to a more 'normal' level of payments of only around 1 billion Swiss francs per annum would cause considerable political problems.

However, the supplementary agreement of 12 June 2003 was to apply for only two years. After Parliament rejected the second bill on the appropriation of the surplus gold reserves, the proceeds from the value of the gold assets were distributed to the Confederation and the cantons more quickly than had been expected (cf. chapters 9.4.7 and 9.4.8). In addition to the agreed profit distribution of 2.9 billion Swiss francs for 2004, in the early summer of 2005, the SNB distributed the proceeds from the gold sales amounting to 21.1 billion Swiss francs. This total payment of around 24 billion Swiss francs was equivalent to around 5 percent of Switzerland's annual GDP, making it an all-time record. The SNB used money market operations to offset the related increase in the money supply, so its stability policy was not undermined at any time.⁹⁹ After this peak, annual payments dropped back to 2.5 billion Swiss francs, as distribution of the proceeds from the gold sales effectively cancelled the agreement of 12 June 2003 on the supplementary distribution of income from the free assets.

Between 2002 and 2005, the SNB had rapidly increased its regular profit distributions to the Confederation and the cantons from 1.5 billion to 2.9 billion Swiss francs per annum. This appeared to be the start of a golden age for public sector budgets, especially as the National Bank was also distributing the proceeds from the gold sales. Despite everything, the SNB felt that the profit distribution concept developed in the early 1990s had withstood the test of time. The formula for calculating profit had allowed it to make the necessary allocations to currency reserves over a prolonged period, regardless of the development of the monetary base. The principles had also been incorporated into the new NBA (art. 30), which imposed an obligation on the SNB to take into account the development of the Swiss economy when setting up provisions. The principle that the level of annual profit distributions to the Confederation and the cantons should be stabilised in the medium term is also enshrined in the new NBA (art. 31).

99 Hildebrand and Jordan (2005).

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9 The reform of the monetary order

9.1 Problems with the existing monetary order

PETER KLAUSER

9.1.1 Introduction

In the publication issued to mark its 75th anniversary, the Swiss National Bank made it clear that resolving the gold question – in other words, abolishing the link between the Swiss franc and gold – would not be possible without extensive amendments to Switzerland’s monetary constitution. It planned to tackle this task in the 1980s.¹

However, it was a good deal longer before an extensive reform of the Swiss monetary order became reality. There were several reasons for this. Firstly, the unresolved gold problem did not interfere directly with monetary policy. Secondly, the SNB was aware that the reform of the monetary order would have to be tackled at constitutional level. As it turned out, the complete revision of the country’s Constitution, which was already under discussion at the time, was then delayed for many years. Moreover, the SNB hoped that the debate on the creation of a single European currency would act as a catalyst for the reform. Consequently, it did not actively address the issue until the early 1990s.

In this chapter, the term ‘monetary order’ is used to refer to both the relevant constitutional provisions and the corresponding statutory and administrative laws.

9.1.2 Monetary constitutional and statutory law after the Second World War

The Swiss franc remained tied to gold for longer than the currency of any other industrialised country. The constitutional and statutory legislators had great difficulty keeping up with the changes in international monetary conditions after the Second World War. Moreover, despite the international nature of the monetary system, Switzerland endeavoured to uphold the appearance of national legislative autonomy at all costs.

Until the mid-twentieth century, setting the external value of a currency was regarded as part of national sovereignty. However, the Monetary and Financial Conference held in Bretton Woods in July 1944 led to a general conviction that “an exchange rate in its very nature is a two-ended thing and

1 SNB (1982), p. 155.

changes in exchange rates are therefore properly matters of international concern”.² The International Monetary Fund (IMF) – created as a result of the Bretton Woods Conference – set itself the task of establishing an international monetary system with stable exchange rates and introducing the convertibility of all currencies. It established a system of fixed exchange rates using a gold/dollar standard. Each IMF member was obliged to set the value of its currency in terms of either gold or the US dollar and to maintain its parity within a narrow band by buying and selling gold or currencies that could be converted into gold. The par value could only be changed in consultation with the IMF in the event of a “fundamental disequilibrium in the balance of payments”.³ Switzerland did not join the Bretton Woods Institutions at that stage because its authorities feared the attendant obligation to relinquish monetary sovereignty.⁴

At the same time, the Swiss constitutional legislator set about abolishing the mandatory convertibility of banknotes (into a precious metal), which had been enshrined in art. 39 para. 6 of the former Federal Constitution (Cst.) since 1891. In its message to the Federal Assembly on 5 November 1948 on the revision of art. 39, the Federal Council proposed that the obligation to accept banknotes as a means of payment, which was introduced in 1936 by an emergency act, should be legalised.⁵ In the meantime, it had become evident that other countries had no intention of reintroducing the convertibility of their currencies into gold, so if Switzerland unilaterally reintroduced the convertibility of banknotes, it would risk an outflow of the SNB’s gold reserves. Although the bill was adopted almost unchanged by Parliament, it was rejected in a national vote on 22 May 1949. The majority of Swiss citizens were afraid that the state would not be able to ensure sufficient monetary stability if banknotes were simply paper money without the constitutional link to gold.⁶ Most people seemed unaware that Swiss banknotes could no longer actually be converted into gold, even in the event of a loss of public confidence in the SNB.

It is therefore hardly surprising that the 1951 revision of the central bank article in the former Constitution⁷ was not very far-sighted. The constitutional legislator did not wish to rule out a return to the gold standard defini-

2 Gold (1982), p. 176.

3 SNB (1982), p. 81.

4 SNB (1957), p. 310.

5 Message (1948), p. 714.

6 Junod (1988), art. 39, note 6.

7 Report of the Federal Council of 21 April 1950 on the people’s initiative on the revision of art. 39 of the Cst. (*Initiative pour la monnaie franche*), FF 1950 I 845 et seq., 864.

tively, but merely wished to do so in times of war and in periods of monetary disequilibrium (art. 39 para. 6 former Cst.).⁸ In such cases, the SNB – under the former National Bank Act (NBA) of 1953 – was required to maintain the value of the Swiss franc at the statutory par value (art. 22 sentence 2 former NBA). The constitutional amendment thus provided the basis – through the back door, so to speak – for the Swiss franc to be linked unilaterally to the Bretton Woods system of fixed exchange rates by defining a par value in terms of gold. The Constitution specifically mentioned gold as a component of the required coverage for banknotes in circulation (art. 39 para. 7 former Cst.).

The 1952 revision of the Coinage Act was similarly ambivalent. On the one hand, it revised the ‘monetary standard’ to reflect the devaluation of 1936, in other words, the Bretton Woods gold/dollar standard was introduced into Swiss law. In the Constitution of 1874 (art. 38 para. 3 former Cst.), the term ‘monetary standard’ also included the Confederation’s power to set the par value of the Swiss franc. At the same time, the Coinage Act retained the Confederation’s right to mint new gold coins with unlimited intrinsic (i.e. face) value and thus provided a reference base for the use of the gold standard.

When the NBA of 1953 entered into force, the Federal Council declared that banknotes had to be accepted as legal tender and abolished the SNB’s obligation to convert them into gold.⁹ Constitutionally, the Swiss franc remained on the gold standard, yet recourse to extensive escape clauses meant that the Swiss monetary order in the post-war era effectively reflected a gold-backed currency. Gold was no longer used for payment transactions in Switzerland; it was stored by the central bank as partial cover for banknotes in circulation. At the same time, it acted as an international currency between central banks that could use it to smooth disequilibria in their balance of payments. Effectively, this meant that periods of monetary disequilibrium had become a permanent fixture.¹⁰

9.1.3 Legal gold parity of the Swiss franc and floating exchange rates

On 15 August 1971, the United States abolished the convertibility of the US dollar into gold and suspended the fixed rate of exchange between gold and the US dollar. However, the new exchange rate parities defined in the

8 For further details on the meaning of ‘monetary disequilibrium’, cf. Schürmann (1980), art. 22, note 5.

9 Federal Council decree of 29 June 1954 on the par value of banknotes and abolition of the statutory obligation to convert them into gold, RO 1954 668.

10 Cf. Klauser (1997b), p. 189.

Smithsonian Agreement signed by the Group of Ten monetary authorities in December 1971 – following devaluation of the US dollar – were to last only fourteen months. The currency realignment collapsed in February 1973. The major industrialised nations then abolished fixed dollar exchange rates and allowed their currencies to float outside the agreed range. On 23 January 1973, the SNB agreed with the Federal Council that it would cease to intervene in the foreign exchange market to defend the parity of the Swiss franc.¹¹

The decision to allow the Swiss franc to float, which was intended as a temporary measure, shook the Swiss monetary order to its core. The exchange rate for the Swiss franc could no longer be determined with reference to the parity rate versus gold defined by the Federal Council on 9 May 1971¹² on the basis of the 1970 Coinage Act,¹³ as none of the other currencies were tied to gold.¹⁴ As a result, the SNB could no longer fulfil the obligation set out in art. 22 of the former NBA to maintain the legal parity of the Swiss franc. From then on, parity was used solely as a yardstick for valuing the SNB's gold reserves. These reserves were thus virtually immobilised for almost three decades because the restrictions set by regulations on the purchase and sale of gold only permitted the price to fluctuate from the parity rate by a maximum of 1.5 percent in either direction.¹⁵

9.1.4 *Disparity between written law and monetary reality*

Under the system of floating exchange rates, the forces of reality played the dominant role. In 1978, the freedom of states to determine their exchange rates was recognised in international law. The IMF revised its Articles of Agreement (art. IV section 2 (b)), empowering member states to set the value of their currency however they wished, except in terms of gold. Gold was thus demonetised in international law. In the spring of 1992, Switzerland became a member of the Bretton Woods Institutions (cf. chapter 6.2.1).¹⁶ Although its national regulations on setting the exchange rate for the Swiss franc clearly contravened the IMF's statutes, the IMF accepted Switzerland's declaration of accession without reservation. This was only possible because the IMF's assessment of whether Switzerland met the criteria for membership had been

11 SNB (1982), p. 216–217.

12 Federal Council decree of 9 May 1971 setting the gold parity of the Swiss franc, RO 1971 465.

13 Federal Coinage Act of 18 December 1970, RO 1971 360.

14 Cf. Richli (1988), p. 349.

15 Art. 3 Federal Council decree of 29 June 1954 on the par value of banknotes and abolition of the statutory obligation to convert them into gold, RO 1954 668.

16 Federal decree of 4 October 1991 on Switzerland's accession to the Bretton Woods Institutions, RO 1992 2570.

based solely on the monetary regime actually practised. From this point onwards, it became impossible – de jure as well as de facto – to set the Swiss franc's exchange rate with reference to the par value in gold.¹⁷

Written monetary law thus increasingly became divorced from reality, a situation that was also reflected in a certain degree of conflict between norms. Both the obligation to maintain minimum gold reserves to cover banknotes in circulation (art. 19 para. 2 former NBA) and the par value of gold (art. 2 former Coinage Act) remained in force. Since the volume of banknotes in circulation had increased by an average of approximately 2 percent a year in the 1980s and 1990s, by 1996, gold reserves were close to the statutory minimum of 40 percent of banknotes in circulation. At the same time, the practice of valuing gold at the parity rate could not be altered without amending the Constitution, because the concept of a monetary standard was explicitly incorporated in art. 38 of the former Cst. In response to a proposal made by the SNB, the Federal Council therefore requested that Parliament reduce the minimum gold coverage for banknotes from 40 percent to 25 percent when the NBA was amended in 1997.¹⁸ This enabled the SNB to fulfil the relevant regulations without difficulty until the proposed revision of the monetary constitution.

The discrepancy between written monetary law and the actual state of affairs eventually led to a tacit shift of competencies between the Federal Council and the SNB. It was no longer the Federal Council that set the exchange rate for the currency as prescribed by art. 2 of the 1970 Coinage Act. Instead, the exchange rate was set by the forces of supply and demand, which depended primarily on the restrictiveness of monetary policy. Moreover, the SNB tried to influence it on various occasions by intervening in the foreign exchange market. Swiss monetary policy thus effectively shifted from the government to the central bank, subject to the obligation introduced in the 1978 amendment of the NBA to coordinate monetary and economic policy decisions.

9.1.5 *A prolonged legal fiction: waiting for new impetus*

Although it was clear by the late 1970s that Switzerland could not reinstate the convertibility of the Swiss franc into gold, little effort was made to reform the Swiss monetary order. The amendments to the NBA passed in 1978 introduced new sovereign instruments, and the SNB initially wanted to wait for

¹⁷ Klauser (1997b), p. 193.

¹⁸ Message (1997), pp. 889 et seq.

future developments to take their course. However, a number of legal reservations were voiced about the fact that concepts such as ‘monetary standard’, ‘coverage of banknotes’ and ‘redemption obligation’, which had previously played a central role in the Swiss monetary order, had ceased to exert any influence whatsoever.¹⁹ The written monetary order, which was strewn with relics from the days when the Swiss franc had been on the gold standard, obscured the view of the constitutional principles on which the Confederation’s monetary sovereignty was based. Moreover, the international monetary system, which had turned its back on gold as a monetary determinant and now allowed for a wide variety of different exchange rate systems, had taken on a structure that could no longer be captured even in a modern interpretation of the coinage and central bank articles contained in the Federal Constitution (arts. 38–39 former Cst.). Switzerland’s extremely belated reaction to bridge the obvious gulf between written monetary law and the legal reality was probably rooted in the explanations given at the beginning of this chapter.

Towards the end of the 1980s, the Federal Assembly embarked on a new attempt at constitutional reform. The federal decree of 1987 described the purpose of a total revision of the Constitution as follows: “The draft aims to incorporate applicable written and unwritten constitutional law, present it in a clear and structured manner and harmonise the language used and level of detail.”²⁰ The SNB felt that plans to realign the written constitution with monetary reality fitted in well with this project. In the 1990s, it therefore started to consider how the monetary constitution could best be reformed. This culminated in an extensive internal study on the reform of the monetary constitution, which was adopted by the Governing Board on 1 December 1994 and subsequently submitted to Arnold Koller, Head of the Federal Department of Justice and Police, for consideration in the full review of the Constitution. The study was based on fundamental economic thinking and an analysis of legal history, legal systems and comparative law. It contained an explicit proposal for new constitutional and legal provisions (cf. chapter 9.2.1).

At the same time, plans were beginning to take shape in Europe that would put the whole monetary system on a new footing. In 1992, the Treaty of Maastricht laid the foundations for a single European currency within the framework of European monetary union.²¹ The SNB saw this as an oppor-

19 Junod (1988), art. 38, note 8; art. 39, notes 65, 69.

20 Art. 3 federal decree of 3 June 1987 on the total revision of the Federal Constitution, FF 1987 II 977.

21 ESCB Statute (1992).

tunity to measure the fundamental principles of the reform of the Swiss monetary constitution against a broadly accepted international yardstick. The constitution of the European Monetary Union, as set out in the Maastricht Treaty, combines the key elements of a modern monetary order. In particular, it enshrines price stability as the central priority of the European Central Bank (ECB) and explicitly gives the ECB the independence required to carry out its function. This framework thus became the model for a modern central bank's charter. It subsequently became clear that the new European monetary order was of enormous benefit to Switzerland's efforts to reform its monetary constitution. Although membership of the European Economic Area was rejected in the referendum on 6 December 1992, this did not alter the SNB's efforts to shape a Swiss monetary constitution that was compatible with the European system.

9.2 Money and the total revision of the Federal Constitution

PETER KLAUSER

9.2.1 *The SNB's objectives for constitutional reform*

In its study on the revision of the monetary constitution dated 1 December 1994, the Swiss National Bank set out its ideas for a new monetary order to be enshrined in the completely revised Federal Constitution (Cst.). The Governing Board singled out three main objectives:

Abolishing the statutory link between the Swiss franc and gold

The SNB saw two main reasons for severing the link between the Swiss currency and gold. Firstly, to provide a legal basis for the free floating of the Swiss franc, as actually practised. Secondly, to enable Switzerland to formally meet the statutory obligations it had accepted when it joined the International Monetary Fund. Abolishing the link to the Swiss franc would give gold the status of a currency reserve like any other.

Establishing new guiding principles for monetary policy

Even under a floating exchange rate regime, it was broadly accepted that money could only fulfil its function as a unit of currency, unit of accounting and store of value if its value were stable. Consequently, the SNB began to look for new guiding principles that would provide a convincing constitutional framework for the country's monetary policy. Since the stability of the

national currency could no longer be ensured through natural shortages once the gold standard had been abolished, it made sense to focus the policy of the central bank, which could now determine the money supply autonomously, on the primary aim of ensuring monetary stability. The SNB therefore postulated that the aim of maintaining the stability of money should be written into the Constitution as a new guiding principle for Swiss monetary policy.²²

Moreover, the study was based on empirical evidence that only truly independent central banks can guarantee long-term price stability.²³ History has shown that central banks subject to significant state influence tend to adopt a less dynamic approach to the combating of inflation²⁴ and are unable to prevent inflationary financing of public sector deficits as efficiently as central banks that have complete freedom of action in the fulfilment of their mandate. Consequently, the Governing Board recommended that the independence of the central bank be written into the Constitution as a guiding principle for the monetary order.²⁵ By establishing both price stability and the independence of the central bank as new guiding principles, it was felt that a high degree of compatibility with European monetary policy should be achieved. Nevertheless, the SNB had no intention of transferring monetary sovereignty in any way to a supranational organisation.

In addition, the National Bank's study favoured a constitutional basis for the procedure it used to calculate its profit. It proposed that the Constitution should prescribe that, before distributing any profits, the SNB create "sufficient monetary reserves" from its profits. By establishing an obligation to create sufficient monetary reserves, the SNB aimed to cushion the abolition of its obligation to provide gold cover for banknotes and thus strengthen confidence in the Swiss franc. At the same time, its intention was to protect itself from public sector demands.

Rationalisation and simplification

A third objective for the National Bank was to simplify the Swiss monetary order and focus it on essentials. To keep pace with changes in the actual monetary system, it felt that a revised monetary constitution should concentrate on just a few basic principles and that these should be carefully structured and expressed in an understandable manner.²⁶ The proposal put

22 Lusser (1996), p. 158.

23 Alesina and Summers (1993), pp. 151–152.

24 Heise (1992), p. 175.

25 Lusser (1996), p. 159.

26 Klauser (1997a), p. 22.

forward in the SNB's study on the inclusion of a monetary and a central bank article in the new Constitution thus entailed a substantial degree of deregulation. However, its efforts to rationalise were obstructed by the need for constitutional rulings to take account of the delicate financial relationship between the Confederation and the cantons. Owing to the nature of the federal state, it was regarded as unadvisable to alter the principle that at least two-thirds of the SNB's profit be allocated to the cantons. From a systematic viewpoint, however, this distribution rule belonged in the body of statutory law.

9.2.2 The 1995 preliminary draft

At the end of June 1995, the Federal Department of Justice and Police (FDJP) presented the preliminary draft of the new Federal Constitution²⁷ to the public. In this version, arts. 38 and 39 of the former Cst. were replaced by art. 79 – entitled 'Monetary Policy' – and contained some of the suggestions made by the National Bank. It included the Confederation's monetary sovereignty, which had not previously been stated explicitly, and gave the Confederation a monopoly over the issue of coins and banknotes. The SNB's mandate was based on the wording of the former art. 39 para. 3 ("shall follow a monetary policy which serves the general interest of the country"). As a new addition, the text mentioned the Swiss National Bank by name and referred to it as an independent central bank – but without giving any indication of its legal status. The previous profit distribution rule (art. 39 para. 4 former Cst.) was pared down to its essence in the draft and merely stated that the cantons should receive at least two-thirds of the SNB's profit. All constitutional provisions that would have indicated a link between the Swiss franc and gold (monetary standard, redemption obligation, coverage of banknotes in circulation) were deleted.

On 29 February 1996, as part of the consultation phase on the 1995 preliminary draft, the Governing Board approved the plan of combining those elements of the coinage and central bank articles that were still applicable into a single, succinct constitutional provision. It also welcomed the fact that the draft explicitly referred to the independence of the SNB, as this meant that one of the guiding principles of a modern monetary order had been included in a readily understandable manner. Moreover, the Governing Board felt that it was acceptable for only the SNB's core mandate to be enshrined in the Constitution, with the individual tasks (facilitating payment transactions, management of currency reserves, etc.) being defined at the legislative level.

²⁷ Preliminary draft (1995).

However, it regretted that the 1995 draft did not mention the objective of maintaining monetary stability. In its explanatory notes, the FDJP had argued that including monetary stability as a primary objective of the National Bank's policy went beyond the scope of a constitutional amendment. It was feared that this would result in a conflict between art. 79 para. 2 (central bank mandate) and art. 80 para. 1 (policy on economic development) because the amended article on economic policy kept the prevention and combating of unemployment and inflation as stability objectives for the Confederation. The SNB could not completely reject the force of this argument.

However, it could not accept the proposal that art. 39 para. 7 of the former Cst. – dealing with the obligation to provide cover for banknotes in circulation – be deleted without being replaced by any equivalent provision. It argued that eliminating this obligation would have to be offset by an explicit constitutional ruling on monetary reserves in order to qualify as an amendment to the Constitution. In this context, it specifically drew attention to the amendment of the National Bank Act (NBA) adopted in 1978. At that time, both federal chambers had rejected the Federal Council's proposal to abolish the provision that gold reserves should cover at least 40 percent of banknotes in circulation (art. 19 para. 2 former NBA).²⁸ Even in the 1990s, the population at large still seemed to believe that the money issued by the central bank should be backed by 'real assets'. The Governing Board therefore repeated its proposal that the obligation to create sufficient monetary reserves from its profits be enshrined in the Constitution in place of the obligation to provide cover for banknotes. It regarded inclusion of this confidence-building clause in the Constitution as particularly important should the final version of the new Constitution not include monetary stability as one of its primary goals.

9.2.3 *The 1996 draft*

Having examined the results of the consultation procedure, the Federal Council submitted a message to the Federal Assembly in November 1996 containing a draft version of the new Constitution.²⁹ In this draft, the amended provision on monetary policy appeared as art. 89. As part of the preceding consultation between the federal offices, the SNB had played an active role in phrasing this article and the related message to the Federal Assembly.

²⁸ RO 1979 983, 993. For information on the debate at that time, cf. Schürmann (1980), art. 19, note 12.

²⁹ Message (1996), pp. 1 et seq.

Art. 89 contained two main differences compared with art. 79 of the preliminary draft. The wording used to describe the SNB's mandate was even closer to the wording of art. 39 para. 3 of the former Cst. (para. 2: "As an independent central bank, [the Swiss National Bank] shall follow a monetary policy [...]"). The phrase "[...] which serves the general interest of the country" remained unchanged. To prevent a loss of confidence arising from the abolition of the requirement to hold gold reserves to cover the banknotes in circulation, art. 89 contained a third paragraph: "The Swiss National Bank shall create sufficient monetary reserves from its profits". Following the Governing Board's proposal, the amended monetary constitution thus contained a provision offering a 'functional equivalent' to the former obligation to provide cover for banknotes. The Federal Council's message to the Federal Assembly justified this by explaining that the creation of reserves was a suitable way of promoting public confidence in the currency and that it had already been practised for years.³⁰

The message also contained two statements on art. 89 that were significant in the SNB's view. Firstly, it specifically stated that, in its consultation, the SNB had asked for monetary stability to be included in its mandate. Secondly, it stated that the wording of the mandate did not prevent the central bank "from giving high priority to the objective of monetary stability because, with its instruments, it could contribute the most to achieving this economic policy objective".³¹

The Governing Board accepted the 1996 draft version of the Constitution at the end of November 1996, commenting that although not all its proposals had been incorporated, the most important issues had been covered.

9.2.4 Discussion in Parliament

The amended art. 89 of the draft Constitution as put forward by the Federal Council was debated by the Council of States in March 1998 and the National Council in April 1998. Both federal chambers accepted para. 1 (monetary sovereignty of the Confederation, coin and note-issuing privilege), para. 2 (the SNB's mandate) and para. 4 (profit distribution) unaltered. However, the third paragraph gave rise to a lengthy debate. This showed that, in the eyes of the politicians, gold still played a symbolic role as a special monetary reserve and was capable of arousing strong emotions. Although both chambers recognised that the link between the Swiss franc and gold had

³⁰ Message (1996), p. 308.

³¹ Ibid.

to be abolished as part of the revision of the Federal Constitution, they were not prepared to delete gold entirely from the monetary constitution. They therefore supplemented the wording proposed by the Federal Council (para. 3 “The Swiss National Bank shall create sufficient monetary reserves from its profits”), stating that part of these reserves was to be held in gold. According to the Council of States, it was important – precisely at a time when an expert report was examining the range of alternative uses for ‘surplus’ gold reserves (cf. chapter 9.3.2) – to stipulate explicitly that part of the gold reserves should remain with the SNB.³² Some members of the National Council felt that it was self-evident that part of the monetary reserves be held in gold and that this could easily be incorporated into statutory law. However, they were heavily outvoted: most members of the National Council felt that the central bank’s gold reserves increased confidence in the country’s credit standing and should therefore be mentioned in the Constitution.³³

The SNB did not oppose the reincorporation of gold into the monetary constitution, as it had already become clear from consultations with the relevant parliamentary committees that this was likely. Since it intended to hold some of its reserves in gold anyway – even after the Swiss franc ceased to be a gold-backed currency – it did not consider that the supplement to art. 89 para. 3 of the Cst. restricted its scope for action.

The Federal Assembly passed the completely revised Federal Constitution on 18 December 1998. As a result of a final renumbering of the clauses, the monetary clause eventually became art. 99.

9.2.5 Outcome

The new Federal Constitution was adopted by a majority of voters and cantons in a national vote held on 18 April 1999, and entered into effect on 1 January 2000.³⁴ It was already clear by then that art. 99 of the Cst. would form the basis for the Swiss monetary system for the foreseeable future, since an attempt in the late 1990s to push through extensive modernisation of the monetary constitution in a separate reform procedure had failed (cf. chapter 9.3.5).

Nevertheless, the revision of the Federal Constitution was a major step forward in the reform of the Swiss monetary order. In particular, it put an end to the fictitious, prolonged state of emergency (‘monetary disequilibrium’)

32 Motion by Spoerry (FDP/PRD, Zurich), BO CE (1998), p. 241.

33 BO CN (1998), pp. 973 et seq.

34 FF 1999 176, 5306; RO 1999 2556.

and provided a sustainable legal basis for the system of floating exchange rates that had been practised by Switzerland since 1973. Since the provisions specifically referred to the independence of the central bank and its obligation to create sufficient monetary reserves, the constitutional legislator provided a distinct counterweight to the abandonment of the gold link of the Swiss franc. Moreover, the monetary article in the new Federal Constitution is formulated in a transparent and binding manner.

Nevertheless, academics criticised the wording of the SNB's mandate as being too vague. It was felt that the expression "the general interest of the country" did not clearly define the purpose served by monetary policy and that it left too much scope for interpretation.³⁵ The SNB was aware that the constitutional obligation to ensure that its monetary policy served "the general interest of the country" was essentially self-evident, since central bank policy cannot be used to serve the interests of individuals or specific groups. That is why it had wanted monetary stability to be explicitly included in the Constitution as the primary objective of monetary policy. That would have fully offset the abolition of the gold standard as a stability factor. Since it had not been able to achieve this in the amendment of the Constitution, the Governing Board was therefore determined to set out the purpose of the central bank's policy in the forthcoming total revision of the NBA (cf. chapter 9.6.3).

9.3 Attempt at a separate reform of the monetary constitution

PETER KLAUSER

9.3.1 *Introduction*

In the mid-1990s, various attempts were made in Parliament to facilitate a more profitable management of the currency reserves and to revalue the Swiss National Bank's gold reserves. These initiatives had been prompted not least by criticism from academic circles that the SNB was sitting on excessively high currency reserves and – because of the huge gold component in its portfolio – was operating a low-return, high-risk investment policy.³⁶ The National Bank, for its part, referred to the restrictive conditions imposed upon it by the Swiss franc having a statutory link to gold and restrictive legal

³⁵ Giovanoli (1997), p. 120.

³⁶ Cf., for example, Ungern-Sternberg (1996), pp. 6 et seq.

investment regulations. In January 1997, the Committee for Economic Affairs and Taxation (CEAT) of the National Council approved two parliamentary initiatives³⁷ proposing that the SNB's gold reserves be valued at market prices and reduced, and decided to push ahead with a new constitutional article on monetary policy separately from the complete revision of the Federal Constitution. The Federal Council declared that it was prepared to have the reform of the monetary constitution dealt with independently of the revision of the Constitution (cf. chapter 9.2) in a 'fast track' procedure by a group of experts. This was because, in early 1997, it was very difficult to predict when the total revision of the Constitution – which had only just begun – would be completed.

Shortly thereafter, the project was given unexpected impetus. On 5 March 1997, against the backdrop of the political debate surrounding Switzerland's role in the Second World War, the President of the Confederation, Arnold Koller, announced that a foundation was being set up to "breathe new life into the notion of solidarity and public spirit both at home and abroad, since it was currently under such serious threat".³⁸ The Swiss Solidarity Foundation was to be funded by the transfer of 7 billion Swiss francs from the revaluation of the National Bank's gold reserves. The original suggestion had come from the Chairman of the Governing Board, Hans Meyer. This initiative provoked heated debates in the Governing Board and in the bank authorities (Bank Committee, Bank Council). In order for the gold reserves to be revalued and as a precondition for the sales of some of the National Bank's gold that had been announced, a comprehensive modernisation of the monetary constitution and legislation had to be prepared for submission to Parliament under extreme time pressure. However, linking this proposal with the Holocaust debate, which was unfolding at the same time (cf. chapter 10.5), was to prove calamitous, resulting in the reform bill being rejected in the final vote in both chambers of Parliament.

In April 1997, the Head of the Federal Department of Finance (FDF) commissioned a group of experts for the reform of the monetary order to draft a proposal for a new monetary constitution. The group of experts, which consisted of three representatives each from the FDF, the SNB and the academic world, and which was under the joint chairmanship of the Director of the Federal Finance Administration (FFA) and the Chief Legal Officer of the SNB,

37 CEAT NC: *Constitution fédérale. Articles sur le régime monétaire*; Ledergerber: *Révision de la loi sur la Banque nationale*, BO CN (1997), pp. 1165 et seq., 1170–1171.

38 Message (2000), p. 3665.

was to examine all the issues raised by severing the franc's link to gold on both a legislative and regulatory level. These also included determining the appropriate level of the SNB's total currency reserves. The question of how much currency reserves the SNB needed was then also thrown increasingly open to a wider public.³⁹

9.3.2 Group of experts' report

Decoupling the reform of the monetary constitution from the project to revise the Federal Constitution gave greater freedom of action for the modernisation of the monetary order. One reason for this was that the constraints of the parliamentary reform mandate of 1987 (cf. chapter 9.1.5), which had largely ruled out new legal creations, were no longer relevant. Secondly, this decoupling offered an opportunity to discuss the future basic structure of the Swiss monetary system in a broader context and with a greater focus on the European Monetary Union that was just coming into being.

The group of experts fulfilled the first part of its mandate with the presentation of its report of 24 October 1997 on the new monetary article in the Federal Constitution. In this report, it proposed that such an article should differ in a number of respects from art. 89 of the 1996 draft Constitution:⁴⁰

- In addition to federal jurisdiction in monetary matters, para. 1 established the principle that the Confederation determines the currency unit and designates the legal tender. This was intended to set out the essence of the Confederation's monetary sovereignty in a clear and uncomplicated fashion.
- Enshrining the Confederation's monopoly over the issue of coins and banknotes in para. 2 of the proposed article was supplemented by transferring the right to issue banknotes to the Swiss National Bank.
- In para. 3, the proposed article obliged the SNB to conduct monetary policy with the primary objective of price stability. The additional words: "Without prejudice to this objective, the Swiss National Bank shall support the general economic policies of the Confederation" were based on the wording of the Statute of the European System of Central Banks (art. 105 para. 1 Treaty establishing the European Community).

The group of experts considered that a specific central bank mandate was necessary not least in view of the SNB's independence. It believed that if the National Bank's independence were to be enshrined in the Constitution

³⁹ Cf., for example, Buomberger (1997), p. 23.

⁴⁰ Group of experts (1997), pp. 19 et seq.

without being given a clearly worded mandate, this might cause problems with regard to the rule of law.⁴¹ In its report, the group of experts stressed that the central bank's duty to manage the money supply in such a way as to meet the primary objective of price stability did not imply any downgrading of growth and employment objectives. A monetary policy geared towards maintaining price stability would have a stabilising effect on the economy and thus contribute to the economic policy objective of balanced economic growth. The group of experts interpreted the additional mandate of supporting economic policy as meaning that, when formulating its monetary policy, the SNB should use whatever leeway it had to mitigate cyclical fluctuations in output and employment.⁴²

As part of its examination of how much currency reserves the National Bank should hold in order for it to conduct monetary policy once the gold parity had been abandoned, the group of experts first analysed the function and level of the currency reserves. It then compared the SNB's holdings of currency reserves (gold, foreign exchange) with those of the Group of Ten countries and Austria. The ratios it used for the purposes of the comparison were currency reserves in relation to gross domestic product, to the importance of foreign trade (in terms of the volume of imports), and to the importance of the financial market (in terms of the financial sector's external liabilities). Although the appropriate level of currency reserves cannot be determined with scientific precision, the investigations did allow a number of relevant conclusions to be drawn. For example, at the end of 1996, the SNB did not have unusually high (unhedged) foreign exchange reserves by international standards. However, the extremely well-stocked gold reserves of 2,590 tonnes remained an outstanding feature. The experts postulated that, compared to the central banks of industrialised nations of a similar size, the SNB needed to hold additional currency reserves in order to effectively bolster Switzerland's stability as an international financial centre. In view of the Swiss banks' high level of short-term claims against and liabilities towards non-residents, they estimated that the additional requirement for financial market purposes was equivalent to approximately 1,200 tonnes of gold. In their overall assessment, they came to the conclusion that a total of roughly 1,400 tonnes of gold reserves could be taken off the SNB's balance sheet and made available for other public purposes.⁴³

41 Group of experts (1997), p. 28.

42 Group of experts (1997), pp. 34 et seq.

43 Group of experts (1997), pp. 49 et seq., 61–62.

In its report, the group of experts also proposed that the disposal of the gold reserves no longer required for monetary policy purposes should be governed by a transitional provision in the Federal Constitution. It assumed that the surplus gold would one day be sold and the proceeds invested in income-yielding assets. The group of experts were of the opinion that these assets should not be managed by the National Bank, in order to avoid conflicts of interest between the SNB as the monetary policy authority on the one hand and as an asset manager on the other. The experts considered that a transitional provision relating to the new monetary article in the Federal Constitution was essential in order to make it clear that any other use of the surplus gold reserves would not be subject to the general profit distribution rule of the Constitution. The proposed constitutional norm provided for the transfer of 1,400 tonnes of gold by the SNB to the Confederation. It further stipulated that federal legislation should govern the ownership and use of the gold reserves, “with the cantons being entitled to an appropriate proportion”. The group of experts did not think that any mention of the Solidarity Foundation in the transitional provision was advisable, since this might have impacted on the constitutional referendum on the new monetary article.⁴⁴

9.3.3 *Federal Council’s opinion and consultation procedure*

The Federal Council, which discussed the group of experts’ report on 1 December 1997, decided on a shift of emphasis on two points. Firstly, with regard to the central bank mandate, the Federal Council felt that the proposed prioritisation of price stability raised fears that the SNB might gear its monetary policy too one-sidedly in favour of price stability, and not take enough account of the economic situation. It therefore advocated the following formulation: “The Swiss National Bank shall follow a monetary policy which serves the general interest of the country, while giving priority to its primary goal of price stability.” This government’s decision did not come as a complete surprise, although even before publication of the experts’ report representatives of left-wing parties had already begun to engage in polemics, claiming that the new monetary article would “undermine solidarity with the working population” and that “monetarist dogmatists” had been at work in the group of experts.⁴⁵ Secondly, as far as the surplus gold reserves were concerned, the Federal Council proposed that only the gold required to fund the Solidarity Foundation should be taken off the SNB’s balance sheet for the

44 Group of experts (1997), pp.69 et seq.

45 Strahm (1997), pp.1–2.

present. The Federal Council refrained from creating a legal basis for the disposal of the surplus gold reserves within the context of the reform of the monetary constitution.

As expected, the abandonment of the Swiss franc's link to gold encountered no opposition in the consultation procedure, although a number of participants did propose that the Constitution should continue to mention gold as a component of the monetary reserves. The wording of the central bank mandate was the subject of some controversy. The centre-right parties and the majority of the cantons attached great importance to the priority of price stability appearing in the Constitution, since it was considered to be an important confidence-building factor. The Social Democratic Party (SP/PS) and the unions, meanwhile, insisted that the objectives of full employment and stable economic growth should rank at least equally with price stability in the central bank mandate. The removal of the surplus gold reserves from the SNB's assets, which the Federal Council was considering, received a generally positive response.⁴⁶

9.3.4 *Message regarding new monetary article in the Federal Constitution*

On 27 May 1998, the Federal Council approved the message to both federal chambers regarding a new monetary article in the Federal Constitution. While its content corresponded largely to the group of experts' report, it differed in three main areas:⁴⁷

- With regard to the wording of the central bank mandate, the Federal Council adhered to its version. In the preceding consultation between the federal offices, the Governing Board had vigorously resisted a qualification of the stability objective, put forward unexpectedly by the FFA, which read: “[...] while giving priority to its primary goal of *long-term* price stability”. The Governing Board believed that this formulation, proposed as a political compromise, deviated too much – on account of its ambivalence – from the international standard.
- At the same time, the Federal Council expressed its wish to include accountability in the Constitution as a counterweight to the autonomy granted to the National Bank (principle of ‘accountable independence’⁴⁸). In the new monetary article (para.4), the Federal Council therefore wanted to impose on the SNB a requirement to report its monetary policy

⁴⁶ Message (1998), pp. 3499 et seq.

⁴⁷ Message (1998), pp. 3495, 3513, 3527, 3549.

⁴⁸ Lastra (1992), p. 481.

to the government and the public. In the consultation between the federal offices, the Governing Board had argued in favour of such an accountability requirement being written into the new article in the Constitution.

- Finally, the Federal Council’s bill (in para. 5 of the monetary article) once again instructed the SNB to hold the monetary reserves necessary for it to fulfil its mandate. In view of the ‘real value’ thinking that had emerged in Parliament regarding the revision of the Constitution (cf. chapter 9.2.4), the Federal Council also inserted an additional phrase into the reform bill stating that part of the reserves was to be held in gold.

The new monetary article submitted to Parliament thus brought together the three key elements which, according to international standards, constitute a basic modern monetary system: a clear mandate for the SNB, with priority being given to price stability; independence in fulfilling this mandate; and formal central bank accountability.

The Federal Council’s message went to great lengths to spell out the central bank mandate. In order to dispel the doubts expressed in the consultation procedure, it stressed the SNB’s overall economic policy responsibility, citing the concept of “the general interest of the country”. The Federal Council argued that because Switzerland was a small open economy with a strong currency, it might be advisable in certain situations for monetary policy temporarily to attach greater importance to the exchange rate.⁴⁹

9.3.5 *Discussion in Parliament*

In December 1998, the National Council – as the primary council – opened discussions on the new monetary article. The debate was marked by fierce attacks from left-wing parties against the price stability objective in the central bank mandate, with their members persistently trying to make what they claimed to be the SNB’s over-emphasis on the fight against inflation responsible for Switzerland’s growth problems in the 1990s. At times, the debate became quite heated.⁵⁰ Nonetheless, the National Council accepted the wording of the central bank mandate proposed by the Federal Council by a clear majority, and also adopted the text of most of the remainder of this article of the Constitution. It did, however, concur with the group of experts in considering that the currency reserves no longer required for monetary policy purposes should only be taken off the SNB’s books if an explicit provision were written into the Constitution permitting a departure from the

49 Message (1998), pp. 3514 et seq.

50 BO CN (1998), pp. 2723 et seq.

Constitution's profit distribution formula. It therefore added a sixth paragraph to the article submitted by the Federal Council, which read: "Federal legislation shall govern the use of the monetary reserves no longer required for monetary policy purposes at the time this provision comes into force and of the earnings thereon".

In March 1999, the Council of States fully endorsed the National Council's version in all material respects. During the debate, a number of speakers stressed that price stability was a desirable objective and could best be ensured if monetary policy were in the hands of an independent central bank.⁵¹ The proposed wording of the central bank mandate had thus withstood all attempts to weaken or strengthen the primary objective of price stability. The Council of States then decided to include the basis for any other use of the surplus currency reserves in a transitional provision of the Constitution, rather than in the monetary article itself.

When the process of reconciling the differences between the National Council and the Council of States began in June 1999, the completely revised Constitution had already been passed by the popular vote of 18 April 1999. Although it had originally been intended to be fast-tracked, the separate reform of the monetary constitution had been overtaken by the complete revision of the Federal Constitution. By that time, it had become perfectly clear to Parliament that both the revision and the reform variants would abolish the Swiss franc's link to gold at constitutional level and would – after appropriate changes at legislative level – allow the National Bank's gold to be valued at market prices.

In the June session, the National Council initially endorsed the Council of States' version by a narrow majority.⁵² In the final vote on 18 June 1999, the Council of States accepted the revised new monetary article by 34 votes to 6; the National Council, however, rejected it by 86 votes to 83 (with 9 abstentions).⁵³ In the National Council, those parliamentarians who were opposed to price stability being enshrined in the central bank mandate were joined by those opposing a constitutional provision that would have allowed the transfer of the surplus gold reserves to the planned Solidarity Foundation. The separate reform of the monetary constitution had thus failed. Much of the experience acquired in the course of this process did, however, subsequently feed through into the complete revision of the National Bank Act (cf. chapter 9.6).

51 BO CE (1999), pp. 217 et seq.

52 BO CN (1999), p. 1224.

53 BO CE (1999), p. 598; BO CN (1999), pp. 1403–1404.

9.3.6 Outcome

The ‘unholy alliance’ between left-wing and right-wing parties in the final vote was due to the fact that the monetary constitution reform and the Solidarity Foundation had increasingly been bracketed together in the debates, both in Parliament and in the media. The opponents of the Foundation wanted a guarantee that it could not be created by a simple federal act, but – because the new, revised version of the Constitution contained no legal basis for the disposal of the surplus gold reserves – would require a national vote. Such a referendum did then in fact prove necessary (cf. chapter 9.4.4). The opponents of the price stability objective felt that, with the revision of the Constitution, revaluation of the SNB’s gold reserves was in any case only a matter of time. They could vote against the separate reform of the monetary constitution without jeopardising the deployment of the surplus currency reserves for other public purposes.

The National Bank regretted that the separate reform of the monetary constitution had failed. The lack of a precise definition of the central bank mandate deviated significantly from the European constitutional standard. However, the Governing Board took the realistic view that art. 99 of the revised Constitution would provide the constitutional basis for Swiss monetary policy for the foreseeable future. The chances of any renewed attempts at reform at constitutional level appeared slim. There was no doubt, however, that the National Bank would continue to pursue a stability-oriented monetary policy in the future.

9.4 Dispute over the appropriation of surplus gold reserves

PETER KLAUSER

9.4.1 A solidarity foundation

In the second half of the 1990s, Switzerland found itself unexpectedly confronted with the issue of its conduct during the Second World War. The interest and criticism focused on Switzerland’s economic and financial relations with the warring parties (cf. chapter 10.5). The idea of a Swiss solidarity foundation, which the then President of the Confederation, Arnold Koller, presented to the United Federal Assembly on 5 March 1997, was intended to “create a genuine symbol of the confirmation of Switzerland’s humanitarian tradition and gratitude for being spared in two World Wars”.⁵⁴

54 Message (2000), p. 3678.

Although there had originally been talk of “easing severe human hardship at home and abroad” as the general aim of the Foundation, the federal authorities later launched the initiative more as a national, forward-looking project. For it had not escaped their notice that large parts of the population viewed the Solidarity Foundation as a gesture of national reparation in response to foreign pressure.

Various government working groups addressed the idea of the Foundation in detail. The Swiss National Bank was represented by a member of the Governing Board in the working group on Foundation funding. The SNB representative’s main concern was that the central bank should not end up in the role of an asset manager for the Foundation.⁵⁵ In late June 1998, the Federal Council submitted the draft act on the Swiss Solidarity Foundation for consultation; the project was given a mixed reception. While some welcomed it as a symbol of gratitude for 150 years of peace and democracy, others rejected it for foreign or fiscal policy reasons, or as a matter of principle. From the very beginning, there was strong criticism of the timing and circumstances of the launching of the project.

9.4.2 *People’s initiative ‘Surplus gold reserves for the AHV/AVS’*

In June 1999, the Federal Council’s intention that the proceeds from the SNB’s gold sales should go towards the Solidarity Foundation’s capital prompted political circles opposed to the idea of the Foundation to launch the people’s initiative ‘Surplus gold reserves for the Old Age and Survivors’ Insurance Fund (AHV/AVS)’, better known as the gold initiative.⁵⁶ The initiative called for the Federal Constitution of 18 April 1999 to be amended by the addition of a new art.99 para.3 (a), under which “currency reserves no longer required for monetary policy purposes or the earnings thereon” would be transferred from the National Bank to the AHV/AVS. The main argument of those backing the initiative was that the SNB’s surplus gold reserves had been accumulated by several generations of Swiss citizens; and that as a national asset they should be employed to provide for old-age and surviving dependants’ pensions in Switzerland. The Federal Council asked Parliament to recommend that the electorate vote against the initiative.⁵⁷

55 SNB, Minutes of the Governing Board (1997), 18 June, no. 292; 24 July, no. 353.

56 FF 1999 5116.

57 Message (2001), pp. 1311 et seq.

9.4.3 *Message on appropriation of gold reserves and Solidarity Foundation Act*

The parliamentary debate on the separate reform of the monetary constitution had brought it home to the Federal Council that the establishment and funding of the proposed Solidarity Foundation required a special constitutional basis (cf. chapter 9.3.5). In its message dated 17 May 2000, the Federal Council therefore submitted to Parliament a proposed amendment to the Constitution that would allow the legislator to lay down separate rules governing the appropriation of the proceeds from the sale of the gold reserves no longer required for monetary policy purposes. For the sake of simplicity, the Federal Council – in consultation with the Governing Board – put the surplus gold reserves at around half of the total holdings at the time, in other words 1,300 tonnes. Based on the proposed transitional provision in art. 99 of the Constitution, the Solidarity Foundation could then have been established with the proceeds from part of the surplus reserves. Already at this stage in the proceedings, the SNB felt it was up to the politicians to decide on the uses to which the surplus gold reserves should be put and expressed no opinion on the matter.

With the same message, the Federal Council sent both federal chambers the draft of the Federal Act on the Swiss Solidarity Foundation.⁵⁸ The draft act outlined the purpose and functions of the Foundation, its organisation and funding, and the management of its assets. The Solidarity Foundation was intended to promote solidarity both at home and abroad, alleviate the causes of poverty and violence, and help those concerned to shape a better world for the future. As its general maxim, the Foundation was to focus on offering prospects and development opportunities to children and young people. It was proposed that the Foundation's capital consist of an initial tranche of 500 tonnes of National Bank gold, or a maximum of 7 billion Swiss francs.⁵⁹

9.4.4 *Parliamentary deliberation and people's referendum*

The two chambers of Parliament made considerable changes to the Federal Council's bill in the deliberation stages. In particular, the Federal Assembly decided to define in more specific terms the transitional provision of the Constitution – hitherto worded in a general fashion – so that the appropriation of the 1,300 tonnes of gold no longer required for monetary policy purposes would be governed in detail. In this way, the Federal Assembly was able to offer the electorate and the cantons a counter-proposal to the gold initiative.

58 Message (2000), pp. 3705 et seq.

59 Message (2000), pp. 3685, 3690.

The transitional provision that was adopted by the Council of States and the National Council on 22 March 2002 stated that the proceeds from the sale of the 1,300 tonnes of gold should be transferred to a legally independent fund to be set up by the Federal Council, that the real value of the fund's assets should be preserved, and that over a period of thirty years its income should be distributed in three equal parts to the AHV/AVS, the cantons and a foundation to be established by statute. Much to the SNB's satisfaction, the parliamentary debates never seriously questioned the level of currency reserves required by the National Bank to fulfil its functions once the Swiss franc's link to gold had been abolished (and hence also never the amount of gold that would be made available).

After a fiercely contested referendum campaign, the electorate accepted neither the gold initiative nor the Federal Assembly's counter-proposal in the 22 September 2002 ballot. The gold initiative received 47.6 percent 'yes' votes, the counter-proposal 48.2 percent. On the supplementary question that asked which of the two proposals the voter would prefer should both be accepted, 52.0 percent expressed a preference for the counter-proposal.⁶⁰ The monetary article of the amended Constitution (art. 99) therefore remained unchanged. The question regarding the appropriation of the surplus gold reserves was once again up in the air. For the time being, the free assets remained on the SNB's balance sheet, and the income from the investment of the proceeds of the gold sales continued to be credited to its ordinary income statement. However, the National Bank still considered it desirable to remove the surplus reserves from its books in order to avoid conflicts of interest between monetary policy and third-party asset management.

9.4.5 Political interventions on appropriation of gold and the Cosa initiative

Following the double 'no' vote of 22 September 2002, a great many political interventions were made to resolve the issue of the appropriation of the surplus gold reserves. These took the form of motions, interpellations, parliamentary initiatives and cantonal initiatives. The proposals included reducing public sector debt, appropriating the gold reserves for the AHV/AVS, education and research, and the family, as well as creating a new stock of rented housing and increasing child allowances throughout Switzerland.⁶¹ These proposals bore eloquent witness to the enormous creativity that politicians can display when it comes to allocating public funds. The Governing Board,

⁶⁰ Message (2003), p. 5603.

⁶¹ Message (2003), p. 5606.

however, confirmed its earlier stance of leaving it to the politicians to define the purposes for which the gold assets might be used.

A new element was added to the discussion on the appropriation of the free assets by another people's initiative – 'National Bank profits for the Old Age and Survivors' Insurance Fund (AHV/AVS)', also known as the Cosa initiative – that was submitted in October 2002.⁶² This initiative proposed allocating the net profit of the National Bank – less 1 billion Swiss francs a year for the cantons – to the AHV/AVS. Although the proponents of the initiative claimed that this did not refer to the gold assets, but to the SNB's current earnings from the management of its assets, it was unclear whether – in the event that the initiative were approved – the National Bank's net profit would include the gold assets or not. Either way, in the eyes of the Confederation and cantons, the initiative posed a threat to their financial interests. If it were approved, they would risk losing a considerable amount of annual income from the time the initiative would enter into effect until the expiry of the 2002 profit distribution agreement (cf. chapter 8.4.5). In addition, it was quite conceivable that if the initiative were approved, it would become difficult to allow the value of the gold assets or the income from them to be devoted to purposes other than the AHV/AVS – should the question of the appropriation of the gold not yet have been resolved.

The National Bank also opposed the Cosa initiative, albeit for different reasons, and made its view publicly known. It believed that its independence would be threatened if a social policy objective – the funding of the AHV/AVS – were to be written into the central bank article of the Constitution. Because those backing the initiative were basing their argument on completely unrealistic profit projections ("lasting distributions of just over 3 billion Swiss francs a year"), the Governing Board believed there was a danger that the SNB might be put under political pressure to increase its distributions in favour of the AHV/AVS should the latter experience funding problems. The Board anticipated a worsening of the conflicts if at any time the SNB's distributions were to fall to the long-term earnings potential of around 1 billion francs (cf. chapter 8.4.5), because none of its profit would then be left for the AHV/AVS.

9.4.6 *Message on appropriation of 1,300 tonnes of gold and the Cosa initiative*

After examining various options, the Federal Council decided in late January 2003 that two-thirds of the income from the 1,300 tonnes of gold no longer required by the SNB for monetary policy purposes should be allocated

62 FF 2002 6823.

to the cantons and one-third to the Confederation. The real value of the gold assets would thereby be preserved, and the assets transferred to an external fund for management. In arriving at this decision, the Federal Council was significantly influenced by a VOX analysis of the results of the votes on 22 September 2002, which strongly suggested that large sections of the population were in favour of the real asset value of the gold being preserved.⁶³

The National Bank, which had been consulted ahead of this decision, stressed its concern to be relieved of the management of the free assets as soon as possible. For that reason, the SNB would have preferred the real asset value to have been distributed immediately upon completion of the gold sales in accordance with the existing distribution formula of one-third to the Confederation and two-thirds to the cantons. This solution, which would have been in accordance with the Constitution and the statute, would have liberated the SNB quickly and completely from its function of state asset manager, and the SNB's free assets would have ceased to be a political football.

With its message of 20 August 2003, the Federal Council subsequently presented Parliament with two separate bills: a draft of a constitutional basis for the appropriation of 1,300 tonnes of National Bank gold and a federal decree on the people's initiative.⁶⁴ Under the Federal Council's proposal, the proceeds from the sale of 1,300 tonnes of the SNB's gold would be transferred to a legally independent fund to be set up by the Federal Council, the real value of this fund's assets would be preserved and its income would be distributed over a period of thirty years, with one-third going to Confederation and two-thirds to the cantons. At the end of the thirty-year period, the fund's assets would then be distributed to the Confederation and the cantons in the same proportion, unless the electorate or the cantons decided in the meantime to extend the period or amend the terms. By insisting on the preservation of the real value of the fund's assets – i.e. topping them up each year to account for inflation – the Federal Council wanted to ensure that the gold assets that had been built up over decades would still be available for future generations. To achieve this, it considered a special constitutional basis necessary.⁶⁵

The Federal Council recommended that the Cosa initiative be rejected, without offering a counter-proposal. It felt that it would in any case not have been able to achieve the desired effect – a long-term solution to the AHV/AVS's funding problems. The Federal Council also considered that enshrining

63 Message (2003), pp. 5603–5604.

64 Message (2003), pp. 5597 et seq.

65 Message (2003), pp. 5613 et seq., 5640.

ing an AHV/AVS funding objective in the constitutional article on monetary policy would jeopardise the central bank's independence.⁶⁶

9.4.7 Discussion in Parliament

From the very beginning, there was only a slim chance that the Federal Council's proposals for preserving the real value of the assets, having them managed by a fund and distributing the income in accordance with the existing formula would be supported by a majority of both chambers of the Federal Assembly. Following the double 'no' vote by the electorate, the cantons were looking for more than a mere distribution of the investment income; hence their interests varied too widely from those of major political parties that favoured putting funds into the popular AHV/AVS scheme.

The National Council – as the primary council – dealt with both bills in June 2004. It decided to allocate two-thirds of the real income from the proceeds of the sale of the surplus gold reserves to the AHV/AVS and one-third to the cantons. It then submitted a counter-proposal to the Cosa initiative recommending that future National Bank profits be divided equally between the AHV/AVS and the cantons.⁶⁷ The SNB, whose views had also been heard by the preparatory committee, had argued in vain against linking the National Bank's profits to the funding of a social welfare institution, emphasising that no such link was to be found in the monetary constitution of any OECD country.

In September 2004, the Council of States decided not to consider the Federal Council's proposed constitutional amendment on the preservation of the asset value of the proceeds from the gold sales. With this move, it indirectly rejected the amended formula put forward by the National Council for distributing the real income from the gold assets. The Council of States also voted against the Cosa initiative – which it recommended should be rejected by the electorate – without offering a counter-proposal.⁶⁸

In the December 2004 session, the National Council initially adhered to its earlier decision to consider the Federal Council's bill on the appropriation of the surplus gold reserves. It also stood firm on its counter-proposal to the Cosa initiative.⁶⁹ The very next day, on 16 December 2004, the Council of States confirmed its decision not to consider the bill.⁷⁰ And so the politicians'

66 Message (2003), pp. 5624 et seq., 5641.

67 BO CN (2004), pp. 948, 966, 976.

68 BO CE (2004), pp. 500 et seq.

69 BO CN (2004), pp. 2090, 2103.

70 BO CE (2004), pp. 908 et seq.

second attempt to allocate the SNB's surplus gold reserves to some other purpose had also failed. Thus ended what Federal Councillor Hans-Rudolf Merz termed a "politico-democratic drama".⁷¹

9.4.8 Rapid distribution of surplus gold assets

In taking its second decision not to consider the Federal Council's proposals, the Council of States had made it clear that it now expected the National Bank's surplus gold reserves to be distributed to the Confederation and cantons as profit in accordance with the existing law. In fact, the proceeds from the sale of this gold – completed except for a residual amount of 64.1 tonnes by the end of 2004 – were ultimately also 'distributable profit' pursuant to art. 30 para. 2 of the National Bank Act. Although the SNB had kept these assets on its balance sheet until then, and had distributed the income on them, it took the view that this course of action was justified only as long as Parliament was debating a bill on the appropriation of the gold assets for other purposes.

The Council of States' decision of 16 December 2004 suggested that a new bill on the appropriation of the gold would be just as unsuccessful in gaining the support of a majority in Parliament. On 2 February 2005, the Federal Council bowed to the political realities and decided that two-thirds of the gold assets should be distributed to the cantons and one-third to the Confederation. It left the timing of the distribution open; the cantons, however, pressed for a payout as early as possible. In late February 2005, a special agreement was reached between the Federal Department of Finance and the SNB governing the distribution of the proceeds from the sale of 1,300 tonnes of gold – specifically, 21.1 billion Swiss francs. The National Bank distributed the funds out of its 2004 annual result in ten tranches between early May and mid-July 2005.⁷²

The rapid distribution of the proceeds from the sale of the gold freed the National Bank from its problematic dual role as monetary policy authority on the one hand and third-party asset manager on the other. The battle over the apportionment of the surplus gold reserves, which had dragged on for almost eight years, was damning evidence that the political apparatus of Switzerland was incapable of bringing this limited technical problem to a satisfactory conclusion within a reasonable time frame. The distribution of the gold assets to the very bodies that were granting – or had once granted – the central bank

⁷¹ BO CE (2004), p. 911.

⁷² Hildebrand and Jordan (2005), p. 29.

its monopoly position was therefore welcomed with widespread relief. In the end, this chapter of the central bank's more recent history has thus been dubbed, among other things, "the curse of the gold blessing" or "the dance around the golden calf".

9.4.9 Referendum on the Cosa initiative

The people's initiative 'National Bank profits for the Old Age and Survivors' Insurance Fund (AHV/AVS)' was blocked in Parliament for several months in 2005. At the end of October 2005, the political parties represented in the Federal Council submitted their joint proposal to the National Council's preparatory committee. The proposal suggested channelling the Confederation's share of the proceeds from the sale of the SNB's surplus gold reserves (approximately 7 billion Swiss francs) into the AHV/AVS. The preparatory committee subsequently drafted a federal act on the use of the Confederation's share of the National Bank gold. The legislation was seen as an indirect counter-proposal to the Cosa initiative, its entry into force being conditional on the failure of the people's initiative at the ballot box. It was adopted by Parliament in its December 2005 session, during which there was also a majority decision to recommend to the Swiss electorate and the cantons that the Cosa initiative be rejected.

The way was now clear for the referendum campaign, which was fought with growing intensity from the spring of 2006 onwards. The combined forces of the left – the unions, Social Democrats and Greens – closed ranks with the initiators. Meanwhile, an alliance of over 140 National Councillors and Councillors of State from the conservative end of the political spectrum massed in opposition to the Cosa initiative. They were supported by business organisations and cantonal directors of finance. Key figures at the National Bank also spoke out in unequivocal terms against the initiative. The initiators had called upon the National Bank to keep out of the referendum campaign.⁷³ However, in the interests of ensuring a true representation of the facts, SNB's management repeatedly felt obliged to state publicly that the initiative presented an unrealistic picture of the National Bank's profit potential, and also posed a serious threat to the independence of Switzerland's central bank.⁷⁴ The Chairman of the Governing Board, Jean-Pierre Roth, for example, pointed out that, were the Cosa initiative to be passed, more aggressive policies would

73 SNB, Minutes of the General Meeting of Shareholders (2006), p. 5 (motion by National Councillor Rudolf Rechsteiner).

74 Cf., for example, NZZ (2006a); Roth (2006), p. 6.

be required to convince the financial markets that the SNB genuinely intended to maintain price stability in the long term.⁷⁵

The Cosa initiative was defeated by a clear 41.7 percent in favour, versus 58.3 percent against, in an above-average turnout for the referendum on 24 September 2006. Only the cantons of Basel-Stadt, Geneva and Ticino turned in modest ‘yes’ majorities. The electorate’s clear rejection of the initiative is broadly interpreted as an endorsement of an independent monetary policy. The National Bank was pleased with the outcome of the vote, knowing that it would be able to continue pursuing its stability-oriented policy under unchanged conditions.

9.5 New Currency and Payment Instruments Act

PETER KLAUSER

9.5.1 Introduction

Preparatory work on the federal legislation intended to implement the severance of the Swiss franc’s link to gold had already begun during the parliamentary discussion on the revision of the Federal Constitution (Cst.) and the separate reform of the monetary constitution. In the autumn of 1998, the group of experts set up to address the reform of the monetary order submitted the draft of a new Federal Act on Currency and Payment Instruments (CPIA), together with an explanatory report, to the Federal Department of Finance (FDF).⁷⁶ In so doing, it fulfilled the second part of its mandate (cf. chapter 9.3.1).

It had become necessary to create a new act for two reasons. Firstly, the new Constitution no longer divided ‘money and currency’ into separate coinage and central bank articles. The system of federal legislation that had applied until then, which was based on the material form that cash took – the Coinage Act pursuant to art. 38 of the former Cst. and the former National Bank Act (NBA) pursuant to art. 39 of the former Cst. – was therefore no longer tenable. The traditional law governing the Swiss currency in the Coinage Act could only really be explained in historical terms: it dated back to the days when the face value of coins was equal to that of their constituent metals. By this time, the consequences arising from currency’s legal regime had long since extended

⁷⁵ NZZ (2006b).

⁷⁶ Group of experts (1998), pp. 2 et seq., 30.

far beyond the coinage system, by virtue of the fact that all money expressed in the national currency was the object of monetary policy. For that reason, it appeared logical for the characteristics of the Swiss currency to be governed by a comprehensive piece of new legislation.

Secondly, practical considerations also militated in favour of coin and note provisions being consolidated in a single law. Up to this time, citizens had been forced to laboriously find their way through a maze of different pieces of legislation in order to find out their rights as bearers of banknotes and coins. Now, all the rules and regulations relating to the legal tender status of money issued by the state and the rights of bearers of these means of payment were to appear in a single act, which would govern all the characteristics of currency and legally accepted money that are of relevance to the general public.⁷⁷

9.5.2 Group of experts' draft act and consultation procedure

The draft submitted by the group of experts implemented the severance of the franc's link to gold at legislative level; it consisted of five chapters with just twelve articles. Chapter 1 defined the Swiss currency unit and described the instruments serving as legal tender. The coinage system (chapter 2) and the note system (chapter 3) mainly governed the responsibilities of the Federal Council, the FDF and the Swiss National Bank in the exercise of their respective privileges to issue cash. Chapter 4 dealt with sight deposits at the SNB, while chapter 5 summarised the various penal provisions for the protection of the coin and note-issuing privilege. The draft act replaced the earlier Coinage Act completely and adopted the banknote provisions from the NBA of 1953 (arts. 17–23 former NBA). This regulatory approach subsequently made it possible to concentrate the content of the new NBA on National Bank functions other than the distribution of cash, as well as on the SNB's monetary policy instruments and organisational provisions (cf. chapter 9.6).

The group of experts considered, but then rejected, the proposal that the exclusive right to issue coins should also be transferred to the National Bank as part of the implementing legislation on art. 99 para. 1 of the Cst. Although this would have given the SNB direct control of all state money creation, the Swiss Confederation – as its representatives in the group of experts argued – did not want to hand over to the cantons two-thirds of the net revenue (seignorage) made from issuing coins, as would have been the case under the profit distribution formula of art. 99 para. 4 of the Cst. For its part, the SNB had not actively sought the exclusive right to issue coins. The ratio in value

⁷⁷ Group of experts (1998), pp. 7–8.

terms between coins and notes in circulation was around 1:14 at the end of 1999, which meant that the Confederation's monopoly on issuing coins did not really pose a problem for the conduct of Swiss monetary policy.

The Federal Council considered that the group of experts' draft act and commentary formed a suitable basis for a bill to be put before Parliament. The draft was also very well received in the consultation procedure, which lasted from late October 1998 to mid-January 1999. The only substantial calls for amendments came from those with a vested interest in numismatics, who were critical of the fact that the obligation to accept commemorative and investment coins as legal tender in future was no longer to apply to everyone, but was to be limited to the National Bank and the public cash counters of the Confederation. They were afraid that it would lead to a weakening of demand for such coins should their eligibility as legal tender be reduced.⁷⁸

9.5.3 *CPIA: message and broad outline*

On 26 May 1999, the Federal Council adopted the message to Parliament on a Federal Act on Currency and Payment Instruments. Compared to the experts' draft, the bill had undergone only one minor adjustment of a definition. To ensure legal certainty, however, the limited obligation to accept commemorative and investment coins as legal tender was retained, since the public is much less familiar with them than with coins intended for circulation.⁷⁹

As its title indicates, the CPIA first of all designates the 'currency', in other words, money in its abstract function as a unit of account and standard value.⁸⁰ Art. 1 of the CPIA designates the Swiss currency unit (name and division). Two peculiarities of the legislation are worth special mention. Unlike foreign currency acts, the Swiss act contains no rules stipulating the national monetary system. From an economic and functional point of view, this reflects the readiness of the legislator to accept either of two different basic monetary policy options: the SNB should be able to strive for the stability of the currency's internal value – i.e. price stability – by controlling monetary variables, or strive for the stability of its external value by linking the Swiss franc's exchange rate to that of another currency or to a basket of currencies.⁸¹ The draft act deliberately refrained from stipulating procedures and responsibilities for determining the external value of the currency in case the choice was made to peg the franc's exchange rate – to the euro, for example. There

78 Message (1999), p. 6544.

79 Message (1999), pp. 6547–6548.

80 Schar-Schuppisser (1989), pp. 71 et seq.

81 Klauser (2000), p. 21.

would, in fact, have been a precedent for such legislation in European Union law, which states that the Economic and Financial Affairs Council may, acting on a recommendation from the European Central Bank (ECB) or from the Commission, and after consulting the ECB, conclude formal agreements on an exchange rate system for the euro in relation to non-Community currencies (art. 111 para. 1 Treaty establishing the European Community). However, in its message, the Federal Council openly admitted how difficult it would be to submit criteria or a clearly formulated allocation of competences for the actual decision on a fixed or floating exchange rate system “as long as the question of Switzerland’s relationship with the European Monetary Union remains open”.⁸² The SNB shared this pragmatic stance.

Furthermore, the CPIA took account of the fact that money in its material form as a ‘payment instrument’ had undergone a profound change during the course of the twentieth century. From the very start, it was quite clear that privately issued means of payment – including cheques, cheque guarantee and payment cards, bank and postal account deposits, and electronic money – could not fall within the scope of the act. In a free market economy, the issue of such means of payment has to be left to market forces. The CPIA deals exclusively with the money that is issued by the state or by the central bank and with which a debtor may legally discharge a money debt (legal tender).⁸³ It governs the obligation of a person who is owed a money debt denominated in Swiss francs to accept legal tender in satisfaction of that debt – an obligation that may differ according to the type of legal tender in question. In addition to Swiss banknotes and coins, the act now also designates Swiss franc sight deposits with the SNB as legal tender (art. 2 CPIA). Crucial to the group of experts’ thinking was that sight deposits with the central bank may easily be converted into banknotes (or coins) at any time and are not exposed to any solvency risk.⁸⁴ All those with sight deposit accounts at the SNB are obliged to accept payments being credited to those accounts in unlimited amounts (art. 3 para. 3 CPIA). However, only those involved in the operation of payments systems are entitled to hold such accounts (art. 10 CPIA).

The penal provisions contained in the CPIA in respect of legal tender are intended to protect different legal interests. Because of the state’s exclusive right of issue and their legal tender status, banknotes and coins enjoy a particularly high degree of public confidence. For that reason, the unhindered

⁸² Message (1999), p. 6542.

⁸³ Klauser (2000), pp. 23–24.

⁸⁴ Giovanoli (1993), pp. 110 et seq.

exercise of the Confederation's exclusive right to issue coins and the National Bank's note-issuing privilege is protected under criminal law (art. 11 CPIA). To improve the security of cash transactions, the Swiss Penal Code (PC) has been amended by way of an annex to the CPIA concerning the reproduction of banknotes and coins where there is no intent to commit forgery, but merely a risk of the reproductions being confused with genuine notes or coins (art. 243 PC).⁸⁵

Owing to the abolition of the Swiss franc's link to gold, a number of other provisions in the former NBA also no longer applied and were not adopted in the CPIA chapter pertaining to banknotes (arts. 7–9 CPIA). In particular, the requirement that at least 25 percent of the note circulation be backed by gold (art. 19 former NBA) as well as the implementing provisions relating to the obligation to redeem banknotes and to the gold parity (arts. 20–22 former NBA) were dropped.

9.5.4 *Discussion in Parliament*

In the parliamentary deliberation, the CPIA – widely regarded as a piece of technical legislation – did not cause much of a stir. The left-wing parties did, however, take advantage of the National Council debate to criticise the Federal Council and the SNB for not taking the necessary measures to sever the Swiss franc's link to gold until that time, claiming that part of the nation's assets had been squandered because of the fall in the price of gold in the preceding years.⁸⁶

The National Council discussed the act in early October 1999, leaving the draft virtually unchanged. It rejected only the Federal Council's proposal that the authorisation requirement under administrative law for the production or importation of coin-type items be replaced by a provision in the Penal Code. This provision should directly prohibit the reproduction of coins that could be confused with genuine coins, even when there is no intent to commit forgery. This change had actually been intended as a liberalisation measure. However, a majority of the National Council feared that the risk of criminal liability would make it more difficult for cantons, municipalities and private organisations and individuals to issue commemorative or anniversary medals to mark important events.

The Council of States, meanwhile, followed the Federal Council's bill in its entirety in the December 1999 session; with a slight alteration to the text,

⁸⁵ For this issue as a whole, cf. Klauser (2000), pp. 27–28.

⁸⁶ BO CN (1999), pp. 2026 et seq.

it also wanted to keep open the possibility of the Confederation's official mint being privatised.⁸⁷ When it came to reconciling the differences, the National Council endorsed the Council of States' version without further ado, and both chambers passed the act by a large majority on 22 December 1999.⁸⁸

9.5.5 *Outcome*

The CPIA entered into force on 1 May 2000. On the same date, the Federal Council issued an ordinance on the repeal of currency law legislation dating from the time of the gold standard. Specifically, the Federal Council decree of 29 June 1954 concerning the statutory rate of banknotes and the abolition of their redemption in gold and the Federal Council decree of 9 May 1971 relating to the fixing of the Swiss franc's gold parity (cf. chapter 9.1.3) were removed from the statute book owing to the entry into force of the CPIA. With the constitutional basis for monetary policy (art. 99 Cst.) having been revised, the second element in the reform of Swiss monetary order was now in place. At the same time, the legal basis for future SNB gold sales had been created. In its balance sheet as at 1 May 2000, the National Bank valued its gold holdings at market prices, giving rise to a book profit of 27.7 billion Swiss francs.⁸⁹ This was the visible sign that the SNB's gold had now been demonetised and had become an asset just like any other. In addition, on 1 May 2000, the Federal Council also issued a new version of the Coinage Ordinance, revised to take due account of the content and systematology of the CPIA. Among other things, it set out in greater detail the role of the SNB as a central agency for the distribution of coins.

9.6 Total revision of the National Bank Act

HANS KUHN

9.6.1 *Introduction*

The group of experts established by the Federal Department of Finance (FDF) in April 1997 to draft proposals for the reform of the Swiss monetary order (cf. chapter 9.3.1) was also asked to draw up a draft message for a revised National Bank Act (NBA) as the third part of its assignment. This took

⁸⁷ BO CE (1999), pp. 1041 et seq.

⁸⁸ BO CN (1999), p. 2506; BO CE (1999), p. 1205.

⁸⁹ SNB, 93rd Annual Report (2000), pp. 87, 89.

on special significance following the failure of the separate reform of the monetary constitution. In particular, the Swiss National Bank's mandate, which is described in only very general terms in art. 99 para. 2 of the Federal Constitution (Cst.), needed to be placed on a more detailed statutory footing (cf. chapter 9.2.5). This was necessary not least because the independence of the SNB, which is enshrined in the revised Federal Constitution, had to be embedded in a specific mandate if it were to assume more tangible form.

The former NBA of 23 December 1953, which came into force on 1 July 1954,⁹⁰ replacing the original NBA of 6 October 1905,⁹¹ urgently needed to be revised for other reasons as well. There was a growing gulf between the statutory regulations on which the SNB's instruments were based and actual practice. The NBA was dominated by sovereign instruments, especially as the instruments adopted under emergency legislation (minimum reserves, control of new issues, restrictions on the inflow of funds from abroad) had been placed on a regular legal basis within the context of the partial revision in 1978.⁹² These instruments, however, had not been used since the 1980s. Instruments based on market transactions, which were far more important for the implementation of monetary policy, were set out in detail in the former NBA. However, the drawback of such detailed regulation was that the SNB was unable to keep pace with changes in the financial markets. Its organisational structure was also outdated. Above all, it was bloated by seven separate governance bodies and failed to meet modern corporate governance requirements (cf. chapter 10.2). Finally, after three partial revisions and the removal of the cash and coinage provisions, the NBA no longer reflected current needs, even from a formal viewpoint. A thorough revision was therefore necessary. However, the constitutional basis had to be adapted first.

9.6.2 *Revision process*

The group of experts that had been convened to address the reform of the monetary order embarked on its revision of the NBA as soon as the preliminary draft of the Federal Act on Currency and Payment Instruments was completed in the summer of 1998. In just over two years, it drew up a preliminary draft comprising 51 articles. An extensive explanatory report was prepared on the preliminary draft.⁹³ It also contained a thorough academic review of the legal and economic basis for a reform of the statutory frame-

90 Federal Council decree of 18 May 1954, RO 1954 613.

91 FF 1905 V 317.

92 Federal Act of 15 December 1978, RO 1979 983.

93 Group of experts (2001).

work for the National Bank. Major contributions were made by a working group set up within the SNB, which undertook extensive analyses of aspects such as the economic function of minimum reserves and a legal comparative review of the elements of a modern central bank statute.

The group of experts submitted its draft and explanatory report to the Head of the FDF in October 2000. This was the third and final component required for the reform of the Swiss monetary order. In mid-March 2001, the Federal Council submitted the preliminary draft to consultation for three months. Submissions were received from a total of 62 institutions (cantons, professional associations and other organisations), including an extensive submission by the SNB itself. On the whole, the preliminary draft prepared by the group of experts was well received. However, two questions emerged at this stage that were to play a central role in the political debate surrounding further revision stages – the wording of the SNB’s mandate and the procedure to be applied in order to determine its profits. At the beginning of 2002, the Federal Council was informed of the results of the consultation procedure. It subsequently set out guidelines for drafting its message to the Federal Assembly. The draft act was submitted to Parliament through its message on 26 June 2002.⁹⁴ It was discussed by the Council of States at its spring session in 2003 and by the National Council at its autumn session in the same year. Following the settlement of one disputed point, the new NBA was adopted on 3 October 2003 by 39 votes to 5 in the Council of States and by 142 votes to 37 in the National Council (with 10 abstentions and 10 absences). Following expiry of the referendum deadline on 22 January 2004, the Federal Council brought the new NBA into force on 1 May 2004, one day after the SNB’s General Meeting of Shareholders.⁹⁵

Three secondary regulations concluded the reform. The National Bank Ordinance (NBO), which was issued by the Governing Board and also entered into force on 1 May 2004, contains provisions implementing its sovereign instruments (statistics, minimum reserves and oversight of payments and securities settlement systems). At its constituent meeting on 14 May 2004, the Bank Council adopted Organisation Regulations detailing the organisational structure of the SNB and the rules of procedure for its governing bodies. Finally, the Governing Board set out further details of its instruments based on market transactions in its Guidelines on Monetary Policy

⁹⁴ Message (2002).

⁹⁵ Federal Council decree of 24 March 2004, RO 2004 2002. By contrast, the revised version of art. 4 of the Banking Act in the annex to the new NBA only entered into effect on 1 January 2005.

Instruments (25 March 2004) and Investment Policy Guidelines (27 May 2004). Unlike the NBO and the Organisation Regulations (OrgR), these guidelines are not legally binding. Rather, they describe the instruments and procedures that the SNB uses to implement its monetary policy and manage its currency reserves.

Essentially, the revision of the NBA and the related political debate can be divided into six main areas:

- Mandate and tasks of the National Bank
- Independence and accountability
- Instruments based on market transactions
- Sovereign instruments
- Determination and distribution of profits
- Organisation

9.6.3 *Mandate and tasks of the SNB*

From a policy perspective, the main dispute centred on the wording of the National Bank's mandate. Art. 99 para. 2 of the Cst. defines its mandate in very general terms and requires the SNB to pursue a monetary policy that "serves the general interest of the country". The wording comes from art. 39 para. 3 of the former Cst. and art. 2 para. 1 of the former NBA, and was included in the new version of the Federal Constitution (cf. chapter 9.2.2). Its normative content is relatively low because it is so general. Defining the tasks of the SNB thus became a central aim of the separate revision of the monetary constitution and assumed special significance following the failure of this reform (cf. chapter 9.3.5).

The group of experts suggested that the NBA define price stability as the National Bank's primary objective, but that the SNB also be required to take due account of the development of the economy.⁹⁶ As in its deliberations on reforming the monetary constitution (cf. chapter 9.3.2.), the group of experts was guided by the realisation that the core task of a central bank is to control money creation. Although it can occasionally influence output and employment in the short term, monetary policy has a far more restricted impact on these areas. In particular, it cannot exert an effective influence on long-term output and employment.⁹⁷ In the consultation phase, the political divisions were broadly the same as those that emerged during the debates on the new monetary article in the Constitution (cf. chapter 9.3.3). While the left-wing

⁹⁶ Group of experts (2001), art. 5 para. 1.

⁹⁷ Group of experts (2001), pp. 100 et seq.; Message (2002), pp. 5733–5734.

parties and trade unions wanted the goals of full employment and stable economic growth to enjoy at least the same priority as price stability in the SNB's mandate, the centre-right parties FDP/PRD and SVP/UDC, as well as the Swiss business federation, *economiesuisse*, wanted greater priority to be given to price stability and to avoid the vague wording "interests of the country as a whole". Finally, a majority of the cantons, the Christian Democratic party CVP/PDC, the Swiss trade association, the Swiss Bankers Association (SBA) and the SNB itself supported the balanced version of the preliminary draft. The Federal Council also adhered to this draft in its message to Parliament.⁹⁸

The National Bank's mandate was also at the forefront of parliamentary deliberations. The left-wing parties submitted minority motions to the preparatory committees and the plenary sessions of both chambers. Their aim was to eliminate the clear ranking of the bank's objectives set out in the draft version of the NBA presented by the Federal Council, and to have price stability and balanced economic development recognised as equal priorities.⁹⁹ Another motion maintained the priorities defined, but aimed to increase the weighting given to full employment as part of economic policy. In some cases, the background to these efforts was a desire to curb 'monetarist' policies. However, even those who opposed making price stability the SNB's central objective had to admit that the bank's policy at the time was anything but dogmatic.¹⁰⁰ Federal Councillor Kaspar Villiger stated: "The attempt to generate sustained growth by means of permanent monetary stimulation has failed and has led to this undesirable inflationary trend, which has had to be countered at great sacrifice through a tough monetary policy. That is why it is dangerous to give a central bank such a mandate."¹⁰¹ Despite the lively and oratorical debate – the minutes record several jovial moments – the Federal Council's conciliatory motion was finally adopted by a clear majority, with only one minor amendment.¹⁰² This related to the SNB's duty to take due account of the development of the economy when pursuing its primary aim of maintaining price stability. Whereas the preliminary draft drawn up by the group of experts and the draft submitted by the Federal Council stated that it should 'consider' the development of the economy, the wording of the

98 Message (2002), art. 5 para. 1.

99 BO CE (2003), p. 295; BO CN (2003), p. 1270.

100 Cf., for example, the motions by Leuenberger (Social Democrat/Canton of Solothurn), BO CE (2003), pp. 296–297; Strahm (Social Democrat/Canton of Berne), BO CN (2003), p. 1270.

101 BO CE (2003), p. 299.

102 Both minority motions in the Council of States were withdrawn after the debate; cf. BO CE (2003), p. 300. In the National Council, the minority motions were rejected by 96 votes to 57 and by 98 votes to 61, cf. BO CN (2003), p. 1276.

final version that became law is ‘take due account of’ (based on the wording of the French version: *tenir compte*).

As well as defining the mandate of the central bank, the legislation had to define the SNB’s tasks in detail. In this respect, the former NBA, too, had been incomplete and relatively imprecise (art. 2 para. 1 former NBA). The preliminary draft presented by the group of experts drew a distinction between core tasks that the SNB had to fulfil within the framework of its monetary policy mandate (providing the Swiss franc money market with liquidity, ensuring the supply and distribution of cash, facilitating and securing the operation of cashless payment systems, and managing the currency reserves), and secondary and special tasks (participation in international monetary cooperation, providing banking services to the Confederation).¹⁰³ In the subsequent legislative process, the SNB’s duty to contribute to the stability of the financial system was included as an additional core monetary policy task.¹⁰⁴

9.6.4 Independence and accountability

The independence of the SNB was first specified in the new Federal Constitution (art. 99 para. 2). Here, too, further detail was required. On the one hand, the independence of an institution can only relate to a specific mandate. Outlining the SNB’s mandate in art. 5 para. 1 of the NBA and listing its core, secondary and special tasks in art. 5 paras. 2–4 of the NBA paved the way for greater transparency with regard to its activities. On the other hand, the NBA had to define the substantive content of the SNB’s independence. The counterweight to the SNB’s independence is thus its accountability, the modalities of which also had to be set out in the legislation.¹⁰⁵

In keeping with the academic literature,¹⁰⁶ the group of experts distinguished four features of central bank independence: functional, institutional, financial and personal independence.¹⁰⁷ Functional independence means that the SNB can perform its tasks without being required to take instructions from the Federal Council or Federal Assembly (art. 6 NBA). However, the functional independence of the SNB refers only to its core monetary policy tasks, not to its secondary and special tasks. Institutional independence is reflected in the fact that the central bank has its own legal status, which

¹⁰³ Group of experts (2001), art. 5 paras. 2–4.

¹⁰⁴ Message (2002), art. 5 para. 2 (e).

¹⁰⁵ Concept of ‘accountable independence’, Lastra (1996), pp. 49 et seq.

¹⁰⁶ Lastra (1992), pp. 482 et seq.

¹⁰⁷ Group of experts (2001), p. 10–11; Message (2002), p. 5742.

derives directly from its organisation as a special-statute joint-stock company (cf. chapter 10.1). Its financial independence comprises two elements: firstly, a formal ban on granting direct credit to the state, and secondly, its budgetary autonomy. The ban on granting credit to the Swiss Confederation is set out in art. 11 para.2 of the NBA. By contrast, its budgetary autonomy derives directly from its status as a special-statute joint-stock company. Finally, the fourth element in the SNB's independence – personal independence – is ensured by the fact that members of its management bodies are appointed for a fixed term of office and can only be removed from office during this time on specific grounds.¹⁰⁸ This was the only aspect defined in detail in the former NBA. According to the relevant provision, the Federal Council could dismiss members of the Governing Board at any time provided it stated the reasons (art. 60 former NBA). This introduced a discretionary element, however, which meant that the SNB did not fully meet the requirements of personal independence. As in the Statute of the European Central Bank (ECB),¹⁰⁹ the new NBA therefore makes it clear that the Federal Council has the right to remove from office any member of the Bank Council and Governing Board and their deputies elected by it who “no longer fulfils the requirements for exercising the office or has committed a grave offence” (art. 41 para. 3 and art. 45 para. 1 NBA). Moreover, the Federal Council may only take action with regard to the members of the Governing Board and their deputies at the request of the Bank Council, not at its own discretion.

In the parliamentary consultation procedure, the attempt by the left-wing parties to restrict the functional independence of the SNB had no chance of being adopted. They felt that the principle of the central bank being exempt from the duty to accept instructions should not apply to the “long-term economic objectives relating to price stability and full employment” set by Parliament.¹¹⁰ By contrast, there was a long debate about the Federal Council's right to remove members of the Governing Board from office. While both the preliminary draft prepared by the group of experts and the draft put forward by the Federal Council itself gave the Federal Council this right only “at the request” of the Bank Council, the preparatory committee of the Council of States proposed that the Bank Council should merely be given a right to state its opinion in such cases.¹¹¹ Had the committee's proposals been accepted, the SNB would have lagged behind internationally accepted

108 Message (2002), p. 5657 et seq.

109 ESCB Statute (1992), art. 11.4.

110 BO CN (2003), p. 1276.

111 BO CE (2003), pp. 308–309.

standards of personal independence. In the end, both chambers therefore accepted the Federal Council's draft.

Accountability is the direct correlation to the SNB's independence. "By reporting regularly on its policies and the decisions it has taken, the central bank receives the necessary democratic right for its independence and its activities become more transparent," states the group of experts' report.¹¹² The NBA distinguishes between accountability to the Federal Council, the Federal Assembly and the general public (art. 7 paras. 1–4 NBA). This concept was never questioned, neither in the consultation phase nor during the parliamentary debate. However, the Council of States introduced a tougher line on accountability to Parliament by requiring the SNB to report formally to the Federal Assembly once a year on the fulfilment of its monetary policy tasks (art. 7 para. 2 NBA). This report supplements the regular meetings with the relevant parliamentary committees at which the Governing Board outlines the economic situation and its monetary policy.

9.6.5 *Instruments based on market transactions*

Over the years, the need to restate the legal basis of the SNB's market transaction-based instruments had also grown considerably. The former NBA contained a definitive list of the types of legal transaction that the SNB was permitted to undertake in order to fulfil its mandate. This concept, which dated back to the first NBA of 1905, was designed to prevent the SNB from competing with commercial banks.¹¹³ At the same time, it aimed to ensure that the central bank only undertook transactions that satisfied high standards of security and liquidity.¹¹⁴ However, only allowing the SNB to undertake the types of transaction set out in legislation had the drawback that a tedious and time-consuming process of amending the law was necessary every time the SNB wanted to adapt to rapidly changing financial market conditions and utilise new financial instruments. For example, permission to use forward foreign exchange transactions, which were important for monetary policy, had to be obtained through an emergency federal decree in 1971¹¹⁵ and was subsequently enshrined in the NBA in a partial revision of art. 14 section 3 in 1976.¹¹⁶ The amended version of the NBA of 15 December 1978¹¹⁷ increased

112 Group of experts (2001), pp. 12–13.

113 Group of experts (2001), p. 34, footnote 112.

114 Group of experts (2001), p. 34; Message (2002), p. 5681.

115 RO 1971 960.

116 RO 1976 1460.

117 Message (1978), p. 819.

the maximum maturity of other balances in foreign currencies (art. 14 section 3 former NBA) to twelve months and further extended the SNB's powers to undertake open market operations (art. 14 section 2^{bis} former NBA). Finally, in 1978, the purchase and sale of international payment instruments was included in the law as a new type of business transaction (art. 14 section 14 former NBA). The amendments to the NBA adopted on 20 June 1997, which were essentially designed to place investment of currency reserves on a more flexible basis in order to generate higher returns, created the legal basis for repo transactions, the lending of gold and the use of derivatives for risk management purposes.¹¹⁸ The definitive list of transactions that could be used by the SNB severely restricted its ability to respond rapidly to extraordinary circumstances. Under the former NBA, for instance, it would have been necessary to pass emergency legislation if the SNB had needed to grant emergency liquidity assistance in its function as lender of last resort in return for any type of collateral other than that set out in art. 14 of the former NBA.

The new NBA has radically altered this situation by abolishing the list of permitted instruments. Inspired in part by the ECB's statute,¹¹⁹ art. 9 of the NBA merely outlines an extensive scope of activity based on the functional tasks of the SNB.¹²⁰ It allows the SNB to keep accounts and hold assets in custody, to open accounts with other banks, and to buy and sell receivables, securities, precious metals and claims on precious metals, or to enter into lending operations therewith. It can issue its own bonds and create derivatives. Finally, it can undertake credit transactions with banks and other financial market participants. The new NBA also provides a functional description of the collateral eligible for acceptance by the central bank: all collateral deemed "sufficient" is permitted (art. 9 para. 1 (e) NBA). The SNB thus has the flexibility it needs to respond to future developments in the financial markets.¹²¹

The disadvantage of this flexible and functional description is its lack of transparency. To show how it meets this wide remit, and also to create a self-regulatory framework, the SNB issued Guidelines on Monetary Policy Instruments (25 March 2004) and Investment Policy Guidelines (27 May 2004). These are a new type of normative regulations that are not directly binding and can be amended quickly at any time. In particular, the Guidelines on Monetary Policy Instruments specify the terms under which the SNB may effect transactions and the procedures that have to be followed, as well as the collateral

118 RO 1997 2252; Message (1997), p. 867.

119 ESCB Statute (1992), arts. 17–18.

120 Group of experts (2001), p. 38; Message (2002), pp. 5683, 5746.

121 Cf. Klauser (2001), pp. 36 et seq.

accepted by the SNB for monetary policy operations. In particular, they outline the regular monetary policy instruments (main financing and liquidity-absorbing operations, fine-tuning operations, intraday facility, liquidity-shortage financing facility) and further monetary policy instruments available for use in extraordinary circumstances. This is the first official document that refers to the SNB's ability to provide emergency liquidity assistance through its function as lender of last resort. Technical details of the various facilities and the composition of the securities baskets are set out in appendices. Similarly, the Investment Policy Guidelines define the scope for the SNB's investment policy. In particular, they set out the investment policy principles, the investment instruments, and the investment and risk control process to be followed.

9.6.6 *Sovereign instruments*

Like the instruments based on market transactions, the sovereign instruments enshrined in the NBA of 1953 were hopelessly out of date. Under the former NBA, the instruments available to the SNB were minimum reserves (arts. 16a–16f former NBA), control of new issues (arts. 16g–16h former NBA) and restrictions on the inflow of funds from abroad (art. 16i former NBA). The Banking Act (BankA) contained the basis for two other sovereign instruments. Under art. 8 of the BankA, the SNB could require banks to obtain its approval for capital exports. The SNB's authority to compile statistical data on banks was also incorporated in the Banking Act and touched upon in the Investment Funds Act (IFA) and the Stock Exchange Ordinance of the Swiss Federal Banking Commission (SFBC).¹²² These sovereign instruments were divided among various laws because there was no clear constitutional basis for them until after 1978.¹²³ Before that, the SNB had had to base the use of instruments other than those enshrined in the law on gentlemen's agreements or (extra-constitutional) emergency legislation.

The group of experts conducted a detailed examination of these instruments and came to the conclusion that the only sovereign powers necessary were those relating to the compilation of statistical data, a redesigned minimum reserve obligation and new responsibilities for the oversight of systemically important payment systems. It felt that, given the complexity and integration of the financial markets, issuing restrictions were an ineffective and superfluous monetary policy instrument.¹²⁴ Similarly, it concluded that

122 Art. 7 BankA; art. 64 IFA; art. 85 IFO; art. 2 para. 2 SESTO-SFBC.

123 Group of experts (2001), p. 56.

124 Group of experts (2001), pp. 78–79; Message (2002), pp. 5707–5708.

controls on capital imports were ineffective and entailed high costs for the economy. Moreover, it could not see any economic justification for controls on capital exports.¹²⁵ There were good reasons why the SNB had not used these instruments since the early 1980s (cf. chapter 4.7.1).¹²⁶

By contrast, the SNB's power to compile statistical data is of central importance, as the availability of such data is vital for the reliable performance of its monetary policy tasks. The SNB also compiles data for oversight purposes and for international organisations. Consequently, the group of experts consolidated the legal basis for the SNB's statistical surveys in the NBA, placed them on a more systematic footing, and plugged a number of gaps (arts. 14–16 NBA). The duty to maintain minimum reserves was also retained, but completely revised (arts. 17–18 NBA). Minimum reserves are a classic instrument used by central banks for a number of purposes, for instance, to manage the banks' potential to create money, reduce the volatility of demand for money or of interest rates, and to ensure sufficient liquidity. Under the former NBA, minimum reserves could be used for direct management of the money supply, in other words, as an active monetary policy instrument (art. 16a former NBA). The group of experts came to the conclusion that this minimum reserve concept was inefficient and detrimental. However, it regarded minimum reserves as a meaningful way of creating a structured minimum demand by the banks for central bank money, and thus reducing the volatility of interest rates.¹²⁷ Until then, this function had been fulfilled by the provisions of the Banking Ordinance on cash liquidity, which evidently had to be revoked (cf. chapter 4.6.2).¹²⁸ As a third sovereign instrument, the group of experts suggested introducing a new obligation on the SNB to oversee payment systems that are of systemic importance for the financial system.

In the consultation phase, there was broad support for this complete revision of the SNB's sovereign instruments. Some additional details were added to the minimum reserve obligation to restrict the SNB's latitude. Similarly, there were no fundamental reservations about extending its statistical activities, although some banks did point to the related costs. The proposals on the oversight of payment systems were welcomed. The SFBC and the Swiss Bankers Association (SBA) suggested that this role be extended to include securities clearing and settlement systems. The National Bank and the SFBC therefore established a joint working group to revise the provisions contained in

125 Group of experts (2001), pp. 79 et seq.; Message (2002), pp. 5709–5710.

126 SNB (1982), pp. 153 et seq.

127 Group of experts (2001), pp. 72, 76 et seq.; Message (2002), pp. 5703, 5763.

128 Klauser (2001), pp. 40 et seq.

the preliminary draft on system oversight. They presented their proposals to the FDF, which were then incorporated in the draft act submitted to Parliament by the Federal Council (cf. chapter 7.5.4).¹²⁹

In the parliamentary debate on the Federal Council's draft, little interest was shown in this relatively technical matter. It was therefore somewhat surprising that the debate about including postal account balances in minimum reserves should have turned into a particularly bitter controversy. The group of experts excluded such balances from minimum reserves because inclusion was not compatible with the new concept. However, Swiss Post was afraid that this would lead to a withdrawal of funds by the banks, thus reducing its revenues. In response to a majority decision by the preparatory committee, the Council of States therefore resolved that postal account balances should be included in minimum reserves. Although the Council of States was aware that inclusion of these balances was incompatible with the new concept, it felt that the risk of a drop in revenues and the interests of this public service ranked above the formal constraints imposed by the concept.¹³⁰ By contrast, the National Council trod the path of virtue and excluded these accounts. Both the Council of States and the National Council maintained their position in two votes. The dispute was only resolved by a conciliation meeting on the date of the final vote on the act. The Council of States finally accepted the National Council's view that postal account balances should not be included in minimum reserves, as they were incompatible with the system.

The new NBA empowers the National Bank to issue its own ordinance setting out rules on the collection of statistical data, the calculation of minimum reserves and the oversight of payments and securities settlement systems (art. 15 para. 3, art. 17 para. 2, art. 18 para. 1 and art. 20 para. 3 NBA). In keeping with the functional independence of the SNB, the Governing Board is responsible for issuing such ordinances (art. 6 NBA).

9.6.7 Determination and distribution of profits

While the NBA of 1953 provided clear instructions on the distribution of the SNB's profits (art. 39 para. 4 former Cst., art. 27 former NBA), it did not contain any provisions on how to determine the profit to be distributed. This was because, under the gold exchange standard, the SNB's ability to generate profits was restricted (cf. chapter 8.1.4). When the Swiss franc came off the gold standard, currency reserves became more important as a confidence-

¹²⁹ Message (2002), arts. 19–21; cf. also Kuhn (2004), pp. 89 et seq.
¹³⁰ BO CE (2003), pp. 301 et seq.

building measure. The new Federal Constitution therefore imposed an obligation on the SNB to create sufficient monetary reserves from its earnings (art. 99 para.3 Cst.). The profit available for distribution depends on the amounts allocated to provisions from earnings to build up such currency reserves. The question of who sets the level of these reserves and the method used is therefore extremely important.

The group of experts proposed that responsibility for this should be transferred to the Governing Board.¹³¹ According to the preliminary draft, its latitude would be restricted by the fact that, in determining the currency reserves required for monetary policy, it was required to take account of the development of the Swiss economy. In the consultation phase, the cantons suggested that the SNB's decision be approved by an independent body comprising representatives of the National Bank, the Federal Council and the cantons. However, FDP/PRD, SVP/UDC and the SBA warned of the dangers of making the determination of profits a political process. In its message, the Federal Council also took the view that giving the power to approve the level of currency reserves to a political body was not desirable and would restrict the independence of the SNB in an unacceptable manner.¹³² To take account of the cantons' reservations, it proposed that the level of provisions (and thus indirectly the level of currency reserves) should be determined by the Bank Council rather than the Governing Board,¹³³ while the Governing Board should be responsible for the composition of the reserves, which could change rapidly depending on monetary policy requirements and market conditions.¹³⁴ Furthermore, the Federal Council's proposal placed a more binding obligation on the Bank Council to take into account the development of the Swiss economy when setting the level of provisions ('take into account' rather than 'consider').¹³⁵

While the Council of States accepted the Federal Council's proposal without much debate, the issue caused a great deal of controversy in the National Council. On the one hand, a minority wanted to stipulate that the SNB should consult the Federal Council periodically on the level of currency reserves.¹³⁶ It argued that the level of reserves could not be determined scientifically and should therefore follow political criteria. Another proposal was the establishment of a fund to which the profit available for distribution would be

131 Group of experts (2001), art.27 para. 1, art.43 para. 2.

132 Message (2002), p.5788.

133 Message (2002), art.42 para.2 (d).

134 Message (2002), art.46 para.2 (b).

135 Message (2002), art.30 para.1.

136 BO CN (2003), p.1281.

transferred. This fund would have been managed jointly by the Confederation and the cantons.¹³⁷ Neither proposal had any chance of being adopted; both were rejected, by 103 to 60 votes and by 91 to 55 votes respectively. The SNB thus retained the full and unrestricted right to decide on the level of currency reserves appropriate for monetary policy requirements, and thus indirectly on the level of profit to be distributed.

9.6.8 Organisation and company law provisions

The final element of the reform related to the organisation of the National Bank. The NBA of 1953 had not made any major changes to the organisational structure introduced in 1905, which comprised no fewer than seven governance bodies: the General Meeting of Shareholders, the Bank Council, the Bank Committee, the Governing Board and the Auditing Committee, plus the Local Committees and the Local Managements. This structure was cumbersome and sometimes prevented rapid decision-making. There was also a clear discrepancy between the legal basis and reality, particularly as regards the oversight functions of the Bank Council and the Bank Committee, the organisation of the Local Managements and the Local Committees and the professional requirements for members of the Auditing Committee.

The group of experts therefore proposed reducing the number of bodies to four: the General Meeting of Shareholders, the Bank Council, the Governing Board and an Audit Board.¹³⁸ At the same time, it proposed that the Bank Council should be trimmed to fifteen members so as to enable it to meet its oversight, organisational and financial responsibilities more effectively. The criteria for electing members of the Bank Council were to be tightened accordingly. Finally, the group of experts suggested that the Auditing Committee be replaced by an external Audit Board whose members would be obliged to meet special professional requirements. The Local Managements and Local Committees, which were originally created as independent bodies to ensure that the supply of liquidity met local requirements, had become superfluous over time. Overall, these proposals aimed to make the SNB leaner and more professional (cf. chapter 10.2).

The proposals were widely accepted in the consultation phase. Nevertheless, the National Bank suggested that it should go a step further and reduce the Bank Council to eleven members. “That would strengthen the responsibility of individual members of the Bank Council when taking decisions,

¹³⁷ BO CN (2003), pp. 1286–1287.

¹³⁸ Group of experts (2001), p. 31.

increase their identification with their office and raise the efficiency of the Council,” wrote the SNB in its submission. This proposal, which was incorporated in the Federal Council’s draft,¹³⁹ paved the way for the Bank Council to become an efficient and effective oversight body. Efficiency has also been increased by the establishment of specialist committees (Audit Committee, Risk Committee, Compensation Committee and Nomination Committee).

The main issue of concern in the parliamentary process was the question of who should be in charge of selecting candidates for vacancies on the Governing Board. While both the group of experts’ preliminary draft and the Federal Council’s proposal gave the Bank Council a right to propose candidates in line with previous practice, the preparatory committee of the Council of States wanted to restrict this to a right of consultation, giving the Federal Council the right to head the selection procedure. In this way, it sought to draw greater attention to the importance of the public tasks performed by the SNB’s Governing Board and to stress that when selecting candidates, the government should therefore not be constrained by the proposals submitted by the Bank Council. The Council of States accepted this proposal by 18 votes to 13.¹⁴⁰ By contrast, the National Council upheld the Federal Council’s version, which did not alter the established practice. The Council of States accepted this in the conciliation procedure.¹⁴¹

Like the market transaction-based and sovereign instruments, details of the organisation of the SNB are enumerated separately in a secondary document, in this case in the Organisation Regulations issued by the Bank Council, which have to be approved by the Federal Council (art. 42 para. 2 (a) NBA). These regulations define the organisational structure of the SNB, the procedure for the General Meeting of Shareholders and the tasks of the Bank Council, the Governing Board and the Enlarged Governing Board (art. 1 OrgR). They are supplemented by rules on the Bank Council’s four committees.

9.6.9 *Conclusion*

When the new NBA entered into force on 1 May 2004, it marked the end of an extensive process to modernise the National Bank’s legal basis. The new act meets the requirements for modern central bank legislation both in form and in fact. It gives the SNB a clear mandate, defines it as an independent organisation and provides it with contemporary instruments necessary to

139 Message (2002), p. 5797–5798.

140 BO CE (2003), pp. 308–309.

141 BO CN (2003), p. 1290–1291; BO CE (2003), p. 790.

perform its tasks. By empowering it to determine the level of currency reserves, it protects the SNB from the pecuniary interests of political groupings. It has also streamlined the organisational structure of the SNB, bringing it into line with modern principles of corporate governance.

One especially remarkable fact is that so many of the proposals made by the group of experts and Federal Council were finally accepted in the course of the reform process. The parliamentary debate in particular was dominated by attempts to extend political control over the National Bank, at least in certain respects. However, none of these attempts were successful – with the exception of formal requirements for accountability reporting. Above all, the modernisation of the NBA remained unaffected by politically inspired attempts to share out the gold reserves no longer required by the SNB. This was probably due in part to the likelihood that the monetary policy conditions prevailing at the time (low interest rates, relative stability of the Swiss franc) may have placated a number of federal parliamentarians.

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10 The National Bank as a corporate entity

10.1 The National Bank as a special-statute joint-stock company

DANIEL HÜBSCHER AND HANS KUHN

10.1.1 Introduction

Banknotes were originally issued by private banks subject to the provisions of private law. Many of the note-issuing banks established in the eighteenth and nineteenth centuries were therefore privately owned or also operated as commercial banks.¹ It was not until the second half of the nineteenth century that they began to develop into essentially public institutions whose purpose was no longer primarily to maximise profits. As a result, they increasingly avoided competing with other banks.² This transition – or at least its initial phase – was concluded in the twentieth century, when many central banks became state institutions.³

The Swiss National Bank also combines elements of a state-owned and private bank. Not only is it a special-statute joint-stock company with a significant proportion of shares held by private shareholders, but the original legislation passed in 1905 also permitted the SNB to undertake certain business transactions with the public as well as prescribing that it had to act as banker to the Swiss Confederation. The SNB's highly decentralised structure was characterised by payment transactions on behalf of the Confederation and by bills of exchange, which were the principal monetary policy instrument when the National Bank was established (cf. chapter 1.3). In view of Switzerland's federalist structure, giving the new central bank a regional presence with management and supervisory bodies spread throughout the country was more important than the clear separation of the functions performed by the various governance bodies. These features, which reflected the situation in the late nineteenth century, changed little over the decades.

They have only been called into question in the past twenty-five years. While the legal status of the National Bank as a special-statute joint-stock company was adopted unchanged in the new National Bank Act (NBA), the

1 Goodhart (1988), pp. 9 et seq.; Goodhart, Capie and Schnadt (1994), pp. 4 et seq.

2 Goodhart (1988), p. 9.

3 Goodhart, Capie and Schnadt (1994), p. 23.

competencies of the management and supervisory bodies were reviewed and streamlined in view of the debate on corporate governance (cf. chapter 10.2). Even before that, the Governing Board had started to centralise the bank's activities (cf. chapter 10.3). This involved withdrawing from business with the general public and subsequently reorganising the banking services performed for the Confederation (cf. chapter 10.4).

10.1.2 Hybrid of state-owned and private bank

In the years following 1891, when the central bank article was included in the Federal Constitution, a debate raged as to the legal form the new bank should take. This greatly delayed the establishment of the National Bank. An initial proposal by the Federal Council that the bank should be entirely state-owned was rejected in a popular referendum on 28 February 1897. A second project initiated on 24 March 1899, which provided for the establishment of a private central bank with state supervision, failed to receive parliamentary approval in the summer of 1901 because the National Council and Council of States could not agree where the future central bank should be headquartered. Finally, a third proposal, which suggested a combination of private and public-law elements, led to the adoption of the NBA on 6 October 1905 and the establishment of the SNB as a special-statute joint-stock company to be managed with the cooperation and under the supervision of the Confederation.⁴ Two-fifths of the bank's capital stock of 50 million Swiss francs was to be subscribed by the cantons in relation to their population, while one-fifth was reserved for the former note-issuing banks based on the effective volume of notes issued. The remaining two-fifths were made available for public subscription, which proved highly successful: the issue was more than three times oversubscribed.⁵ Shortly after it started operating, the SNB's shareholders therefore comprised the 23 cantons and half-cantons, 33 cantonal and note-issuing banks, and more than 10,000 private shareholders. The Confederation was not permitted to hold shares in the National Bank. Since the shares were so widely held by the public, it made sense to list them on the Swiss stock exchanges. Trading in SNB shares commenced on the stock markets in Basel, Berne, Geneva, Neuchâtel and Zurich in 1907.

The legal status of the National Bank thus combines the "dual nature of a private bank and a state-owned bank".⁶ This applies above all to the legal

4 SNB (1932), pp. 10 et seq.

5 SNB (1932), pp. 39–40.

6 Message (1904), p. 435.

rights of its shareholders, which differ fundamentally from those of shareholders in other public companies. Nevertheless, the structure of the SNB as a special-statute joint-stock company with a mix of public sector and private shareholders, and with shares listed on the stock exchange, has proven effective in the first hundred years of its history. Its structure was re-examined and confirmed as part of the total revision of the NBA, which was completed in 2003. The possibility of buying out the private shareholders was considered as part of this review, but was rejected.

10.1.3 Special legal position of the SNB's shareholders

Given the prolonged dispute regarding the structure of the National Bank, it is hardly surprising that the solution that finally became law showed many signs of political compromise.⁷ The SNB is a special-statute joint-stock company, with the NBA serving as its corporate charter, or memorandum of association, in that it defines the company's name, main offices, purpose of business and internal organisation. The provisions of the Swiss Code of Obligations (CO) relating to joint-stock companies only apply to the National Bank with regard to aspects not defined in the NBA (art. 2 NBA). The fact that it is outwardly a private sector organisation does not alter the fact that, as the country's central bank, the SNB undertakes public tasks for the Confederation. This role is reflected in its organisational structure.⁸

The combination of public and private sector elements places enormous constraints on the economic and participatory rights of the National Bank's shareholders. Their economic rights are restricted to a dividend, which is defined by law at a maximum of 6 percent of the share capital (art. 31 para. 1 NBA). There is no legal limit on shareholders' subscription rights in the event of a capital increase (art. 2 NBA and art. 652b CO), but this is a purely theoretical option as the share capital has long been immaterial to the SNB. Even in the event of liquidation of the SNB, which also had to be enshrined in the legislation (art. 32 para. 1 NBA), the shareholders would not be entitled to a share of the entire proceeds. Under the law, they would only have the right to receive the nominal value of their shares and 'reasonable interest' for the period of time after the decision to liquidate the bank became effective (art. 32 para. 2 NBA). The NBA explicitly states that the remaining assets should become the property of the new central bank and that the shareholders would not have any additional rights to the SNB's assets.

⁷ Group of experts (2001), pp. 15–16.

⁸ SNB (1957), pp. 312 et seq.

Reflecting the strong position of the Confederation, which derives from its cooperation and supervisory rights as defined in art. 99 para. 2 of the Federal Constitution, the NBA restricts the participation of the shareholders and the powers of the General Meeting of Shareholders. The voting rights of private shareholders are restricted by law (art. 26 paras. 1–2 NBA). Moreover, the General Meeting of Shareholders elects only a minority of the members of the Bank Council and the Audit Board, and while it approves the annual report and the annual accounts (art. 36 (c) NBA), it can do so only after these have first been approved by the Federal Council. Similarly, the resolution on the allocation of the net profit (art. 36 (d) NBA) is not of material significance, as the act contains clear rules on the distribution of profits (art. 31 paras. 2–3 NBA).

In view of the restrictions on the shareholders' economic and participatory rights, SNB shares are more akin in economic terms to a perpetual bond rather than an equity investment. Since the dividend does not depend on the expected business performance, but is limited by law and thus similar to the coupon paid on a bond, the price of SNB shares might be expected to mirror movements in bond prices. In other words, the share price should rise when interest rates are expected to fall, and fall when interest rates are expected to rise. Another reason why the SNB's future business trends ought not to play a major role in its long-term price performance is that its monopoly on the issuance of banknotes means that, technically, it cannot become insolvent. Nevertheless, shares rose strongly in the 1990s as a result of speculation. Having traded at between 450 and 700 Swiss francs for many years, the price surged to 2,645 francs in 1997.⁹ This was triggered by media-driven expectations that shareholders would benefit in some way from the book profits generated by the revaluation of the SNB's gold reserves – despite the clear wording in the former NBA (art. 68 para. 1 former NBA; art. 32 para. 2 NBA). When these hopes were dashed in 2000, the share price plummeted to an average of 750 Swiss francs. It subsequently rallied again, rising at times to over 1,000 francs in 2001.

Notwithstanding the anomalies inherent in its share, the National Bank's ownership structure has remained remarkably stable. Since its establishment, the cantons have held approximately 39 percent of the SNB's share capital. The number of cantonal and issuing banks holding SNB shares has declined from an initial 33 to just 24 today, and the proportion of the share capital held

9 With the revision of the NBA in 2003, the share capital was reduced to 25 million Swiss francs, so that and the non-paid-up amount was waived (art. 57 para. 1 NBA). Before entry into force of the new NBA at the beginning of May 2004, the non-paid-up amount of 250 francs had to be deducted from the share price.

by them has decreased from 16.7 percent to 14.5 percent. Other public sector institutions – mainly cities and municipalities, public sector foundations, investment funds, insurance companies and pension funds – only began to hold shares in the SNB in 1952. The number of such organisations has varied between 30 and 58; their share in the SNB's capital rose to over 6 percent in 1990, before dropping back to 1 percent. Finally, the number of private shareholders fell from over 10,000 shortly after the SNB commenced operations to just over 2,000 by the end of 2006. Although the average number of shares per private shareholder rose from 4 to 14 in this period, their share in the capital declined from 45 percent to less than 32 percent. Since the early 1990s, this group has also included foreign shareholders, who held almost 6 percent of the share capital. The remaining shares – roughly 14 percent – were those for which registration applications were pending or outstanding.

10.1.4 Review and confirmation of the SNB's legal status

When the National Bank was established, its status as a special-statute joint-stock company was derived from a combination of practical and fundamental considerations. There was, however, a clear belief that its status as a private sector institution would support the independence of its monetary policy. “Where its role comprises purely economic tasks, political influences can only be detrimental, and it is probable that these would be easier to impose at a state-owned bank,” explained the Federal Council in 1890.¹⁰ Moreover, there was a hope that if Switzerland were to be occupied, the assets of a central bank governed by private law would be protected under public international law as private property, whereas the assets of a purely state-owned bank could be confiscated.¹¹ From a practical perspective, the main argument in favour of establishing the SNB as a joint-stock company was that the cantons and former note-issuing banks could be given shares in it, which was a relatively simple way of providing compensation for the loss of their financial interests. Finally, by setting up a joint-stock company, the Confederation felt that it could exclude any risk of loss.¹²

By the end of the twentieth century, these arguments were essentially obsolete. The group of experts charged with the complete revision of the NBA thus specifically reviewed the status of the SNB as a special-statute joint-stock company. In its report dated 16 March 2001, the group of experts came to the

10 Message (1890), p. 11.

11 Message (1894), pp. 128 et seq.; Message (1890), p. 12.

12 Message (1890), p. 12.

conclusion that the structure of the central bank as a joint-stock company played a pivotal role in preserving its independence and had basically proven effective.¹³ In the consultation procedure on the new NBA, retaining the established structure was largely welcomed. Only the Swiss Federation of Trade Unions (SGB/USS) would have supported converting the SNB into a public sector institution on the grounds that its status as a joint-stock company was neither politically nor economically necessary. In its message of 26 June 2002, the Federal Council acknowledged that the functional, institutional, financial and personal independence of the National Bank could essentially be preserved in a public sector institution.¹⁴ However, the extent to which a public sector institution could really remain autonomous, i.e. retain full decision-making authority, would depend on its exact legal basis. Every public sector institution can be structured differently in this respect. It pointed out that the advantage of the SNB's position as a joint-stock company is that it basically has its own decision-making structures for issues relating to the administration and management of the bank. Every right accorded to external authorities to participate in this should be regarded as an exception to these rules, requiring specific legal regulation and justification. "The structure as a joint-stock company is effective as an embodiment of institutional independence. This is the legal status best suited to ensuring independent decisions and protecting the assets of the SNB from use by the state for tasks unrelated to those of a central bank," stated the Federal Council's message.¹⁵ In the parliamentary debate, the legal status of the SNB was only discussed by the Council of States. One councillor asked why the new act was sticking to the outdated legal structure although the SNB was to all intents and purposes a public sector institution. Federal Councillor Kaspar Villiger replied that this legal status underlined the SNB's institutional and financial independence. Moreover, enabling private individuals to hold shares was "a small contribution to anchoring the company more firmly in the population". He did add, however, that shareholders ought simply to "enjoy owning the share, as the dividend is restricted and there is certainly no possibility of attractive capital gains in the wake of a takeover".¹⁶

One suggestion made during the consultation phase was that the legal status of a special-statute joint-stock company should be retained, but that the shares should be held solely by the cantons. The Bank for International

13 Group of experts (2001), p. 16.

14 Message (2002), p. 5674.

15 Message (2002), p. 5675.

16 BO CE (2003), p. 295.

Settlements (BIS) had recently taken a similar step: in 2001, it had decided to restrict ownership of its shares to central banks and had bought out its private shareholders. Following thorough examination of this option, it was rejected on practical and fundamental grounds. The dispute over compensation for the BIS shareholders had eventually been settled by an arbitration court, providing clear evidence of the difficulty of arriving at an objective valuation of central bank shares. Moreover, the question of whether the Confederation should participate in the SNB, which would probably have arisen if the private shareholders had been squeezed out, could have tipped the delicate balance between ownership, economic, participatory and supervisory rights.

The revision of the NBA nevertheless introduced a number of changes affecting shareholders. However, they were fairly insignificant. For example, in 1907, only half of the share capital of 50 million Swiss francs was paid up. Since the share capital had long held no economic significance, the SNB decided to waive the non-paid-up amount when the NBA was revised and therefore reduced its share capital to 25 million Swiss francs. This had no impact on the shareholders' assets. Moreover, the new NBA paved the way for the transition to a new registered share model without printed share certificates. This move followed on from developments in 1988, when the original, attractively designed share certificates issued in 1907 had been replaced by non-reusable certificates. The SNB thus took a step that had long since been taken by other issuers whose shares were listed on the SWX Swiss Exchange.

10.1.5 The public listing of SNB shares

Ever since its inception, the National Bank's registered shares had been traded on the stock exchanges in Basel, Berne, Geneva, Neuchâtel and Zurich, which were combined to form the SWX, when electronic trading was introduced in the early 1990s. The Berne stock exchange continued to trade over the phone, but the SNB delisted its shares from this market in 1999. Since the SNB's shares are publicly listed, the National Bank is required to meet the obligations imposed on all issuers, especially compliance with the listing rules and other self-regulatory requirements issued by the stock exchange pursuant to art. 4 of the Swiss Stock Exchange Act (SESTA). However, the SNB's dual status and the special features of its shares mean that compliance with the listing regulations is often very rudimentary. In the past, exceptions were therefore made on various occasions by the stock exchanges, especially with regard to accounting and reporting requirements. The new NBA states clearly that the stock market authorities must take account of the special nature of the SNB when applying listing rules (art. 27 NBA).

The main difficulties relate to the application of stock exchange regulations on ad hoc publicity. Events that could influence the share price rarely occur at the SNB. On the contrary, its asset and earnings position should not affect the price of its shares, at least as long as it earns sufficient profit to pay the maximum dividend permitted by law. Similarly, the stock market rules on providing information for shareholders on corporate governance cannot be applied to the SNB on a one-to-one basis. Corporate governance at the National Bank is provided for to a large extent by public sector structures, for example, through the cooperation and supervisory rights accorded to the Federal Council and Federal Assembly. The public sector regulations on civil service salaries are also applicable by analogy to the SNB (art. 42 para. 2 (j) NBA). Finally, much of the information that must be disclosed under the corporate governance regulations laid down by the stock exchange is derived directly from the NBA.

The fact that the share is publicly listed also has far-reaching consequences for accounting and financial reporting. The former NBA did not stipulate the use of any specific accounting regulations. Accordingly, only the very brief accounting standards set out in the CO were applicable (art. 13 former NBA). Until the 1980s, the accounting methods used by the SNB were governed by much the same spirit as those used by most other Swiss public companies at the time. The principle of prudence applied to the valuation of assets led to the creation of disclosed and undisclosed reserves. Depreciation and the establishment and write-back of provisions were used to steer net profits to ensure they were in line with the targets set – in the SNB's case, the proposed profit distribution (cf. chapter 2.3.5). That changed in the 1990s, when stock exchanges started to exert increasing influence on the accounting principles used by issuers. In 1996, the SNB therefore adopted the Swiss GAAP FER accounting and reporting recommendations, except in a few areas relating to its role as a central bank. Since then, its financial assets have been valued at market prices, while depreciation of property and installations has been based on commercial criteria. The scope and quality of the annual accounts increased considerably following the change to Swiss GAAP FER standards. At the same time, the entire annual report was given a new, more modern appearance. The SNB's reporting expanded considerably over the next few years in order to keep pace with rising regulatory demands and the increasing complexity of its business. The new NBA, which entered into force in 2004, placed an obligation on the SNB to draw up its annual accounts "in accordance with the provisions of the law on joint-stock companies and the generally accepted accounting principles" (art. 29 NBA).

10.1.6 *Conclusion*

Although the reasons why the SNB was originally established as a special-statute joint-stock company were no longer relevant, there are still good reasons not to alter its status. These include, first and foremost, the fact that this status almost naturally safeguards its independence. The option of turning the SNB into a public sector institution remained merely hypothetical, as no one knew what would emerge at the end of the political process. However, this special status means that the SNB has to balance the conflicting demands made by its public sector mandate and its status as a private sector organisation.

10.2 **Corporate governance at the National Bank**

HANS KUHN

10.2.1 *Background*

Although the Swiss National Bank is a joint-stock company and thus subject to Swiss company law except where otherwise provided for in the National Bank Act (art. 2 NBA), its organisational structure differs from that of other joint-stock companies in many key respects. Firstly, when it was founded, the legislators established the basis for seven governance bodies rather than the normal three: the General Meeting of Shareholders, the Bank Council, the Bank Committee, the Auditing Committee and the Governing Board, as well as the Local Committees and the Local Managements. At the same time, the SNB's independence in matters relating to monetary policy led to a separation of management and supervisory functions not otherwise found at Swiss companies. Since its inception, the National Bank has thus had its own independent organisational structure whose basic features are closer to the German model, with its strict separation of executive and supervisory functions, than to the Swiss system, where the board of directors supervises the management and is, at the same time, the supreme executive body of a company.

The National Bank's characteristic organisational structure was attributable to a range of political and federal compromises. The forty-member Bank Council was organised primarily along party and regional policy lines and represented all major social and economic interests in the country, from the cantons through employers and employees to farmers and consumers. It was far too large for an effective supervisory body, so in-depth discussion became

rare in the later stages and attendance at meetings was often poor. By contrast, the Bank Committee was a practical size with originally seven, and later ten members.¹⁷ Acting on behalf of the Bank Council, its role according to the former NBA was to exercise “closer supervision and control of the management of the Bank” (art. 48 para. 1 former NBA). Under its rules of procedure, it was also responsible for periodic “inspections of the Governing Board’s Departments and of the branch offices” (art. 3 Bank Committee’s Rules of Procedure). Special supervisory subcommittees were set up to perform this task. However, the Bank Committee never really developed into a supervisory body that systematically kept a close eye on the business activities of the Governing Board. Besides, there were overlaps between the responsibilities of the various governance bodies and, in the end, some failed to perform their duties.¹⁸ Under the relevant legislation, the Local Managements should have been supervised by the Local Committees,¹⁹ but in fact, they were supervised solely by the Governing Board. Similarly, the Auditing Committee (art. 51 former NBA) – the counterpart to the supervisory bodies required by the legislation on joint-stock companies – did not have any general supervisory powers. It was solely responsible for examining whether accounting procedures complied with statutory requirements.²⁰ A strong Governing Board, which acted largely autonomously on monetary policy issues, was thus supervised by several bodies that had no clear sense of purpose and insufficient authority. This imbalance was compounded by the fact that shareholders’ rights were largely restricted (cf. chapter 10.1.3). Accordingly, the corporate governance structures would not have met modern supervisory requirements.

10.2.2 Restructuring corporate governance as part of the revision of the NBA

Consequently, strengthening corporate governance and modernising the various governance bodies at the SNB were central aspects in the revision of the NBA. The size of the Bank Council was reduced radically and its powers were extended. The professional qualifications required of its members, the establishment of standing committees and, last but not least, more than symbolic remuneration provided a far better basis for effective performance of its oversight functions. The Bank Committee was abolished.

17 Schürmann (1980), art. 48, note 1.

18 Message (2002), p. 5678.

19 Under art. 53 NBA 1905, this obligation was unrestricted: Message (1894), p. 153.

Later, oversight was limited to credit policy and to discount and Lombard business:

Schürmann (1980) art. 50, note 1.

20 Schürmann (1980), art. 51, note 3.

The Governing Board remains the “supreme management and executive body” (art. 46 para. 1 NBA) and bears full responsibility for monetary policy (art. 46 para. 2 (a) NBA). To support its operational management, the National Bank established an Enlarged Governing Board.

A proper Audit Board replaced the former Auditing Committee. The auditors are required to meet special professional requirements and must be independent (art. 47 para. 2 NBA). The Local Managements and Local Committees, which had become largely obsolete, were abolished and replaced either by representative offices to observe the economic situation or by local advisory councils.

10.2.3 Oversight by the Bank Council

The Bank Council’s role is to “oversee and control the conduct of business by the National Bank” (art. 42 para. 1 NBA). In particular, it is responsible for defining the basic organisational structure of the SNB (art. 42 para. 2 (a–c) NBA) and for overall personnel management (art. 42 para. 2 (h–k) NBA). It also has financial responsibility and approves the budget (art. 42 para. 2 (f) NBA, art. 10 para. 2 (e) OrgR). Finally, its tasks include overseeing both the investment of assets and risk management (art. 42 para. 2 (e) NBA).

When the NBA was revised, the Bank Council was cut from forty to eleven members, six of whom (including the President and Vice President) are elected by the Federal Council, while five are elected by the General Meeting of Shareholders. It was felt that reducing its size would make it a more efficient oversight body, by giving individual members greater decision-making authority and enhancing identification with their functions. New criteria for members, besides an impeccable reputation and Swiss citizenship, included “knowledge in the fields of banking and financial services, business administration, economic policy, or in an academic field” (art. 40 para. 1 NBA).

In conformity with the Swiss Code of Best Practice for Corporate Governance, which the SNB used as a guide in drawing up its new Organisation Regulations (OrgR), the Bank Council set up a number of committees, including three standing committees. The Compensation Committee supports the Bank Council in determining the principles of the salary and compensation policy, and submits proposals to the Bank Council for the salaries of members of the Governing Board and their deputies. The Risk Committee is responsible for assessing and overseeing the SNB’s risk policy and investment process, and for supervising the risk management unit. The Audit Committee supervises financial accounting and financial reporting. It also monitors compliance with laws and regulations, and assesses the effectiveness of the

internal control system. Finally, it oversees the activities of internal and external auditors. If there is a vacancy in the Governing Board, the non-permanent Nomination Committee prepares the Bank Council's proposal, which it then submits to the Federal Council.

The legislator has given the Bank Council all the powers it needs to ensure effective oversight of the SNB's management. The Organisation Regulations oblige the Governing Board to inform the Bank Council of given events on a regular basis, and to submit financial documents to it (art. 15 paras. 1 and 3 OrgR). In addition, the Governing Board is required, on request, to "submit to the Bank Council any further documentation the Bank Council requires for performing its tasks" (art. 15 para. 2 OrgR). Moreover, the law redefined the internal auditors as an "independent instrument for overseeing and controlling the SNB's business activity". They report directly to the President of the Bank Council (art. 6 para. 1 OrgR).

It should be noted that the Bank Council is exclusively responsible for overseeing the management of the National Bank; its remit does not include monetary policy issues. These fall entirely within the authority of the Governing Board. Although the NBA and the Organisation Regulations endeavour to draw as clear a line as possible between management and monetary policy, overlaps are not entirely avoidable. For example, decisions on the composition of the required currency reserves, including the proportion to be held in gold in compliance with the Federal Constitution, is a monetary policy issue and thus falls within the scope of the Governing Board (art. 46 para 2 (b) NBA). By contrast, the Bank Council is empowered to assess risk controlling and the principles of the investment process, and to oversee their implementation (art. 10 para. 2 (c–d) OrgR). Clearly, this is not very far removed from influencing the composition of the currency reserves. The Bank Council also decides on the level of provisions and thus indirectly on any increase in the reserves (art. 42 para. 2 (d) NBA), although defining the level of the currency reserves really requires a monetary policy assessment.

10.2.4 The Governing Board as supreme executive body

As under the former NBA, the three-member Governing Board is the National Bank's supreme management and executive body (art. 46 para. 1 NBA). In particular, it takes conceptual and operational monetary policy decisions, decides on the investment of assets, exercises its monetary policy powers (statistics, minimum reserves, oversight of payment and securities settlement systems) and performs the tasks relating to international monetary cooperation (art. 46 para. 2 (a–e) NBA), whereby the latter must be

performed in collaboration with the Federal Council (art. 5 para. 3 NBA). The Governing Board also decides on the salaries of SNB staff (art. 46 para. 2 (f) NBA). However, the principles for the salaries are laid down in regulations issued by the Bank Council (art. 42 para. 2 (k) NBA).

The Governing Board is a collegial body (art. 18 para. 1 OrgR). This means that all decisions are arrived at by a majority decision. Meetings of the Governing Board are normally held twice a month and are headed by the Chairman. However, he has neither directive-issuing powers nor a right of veto; and as a three-member board, there are no casting votes. Although quite common in the Swiss political system, this is yet another type of structure not found in other Swiss companies. Each member of the Governing Board heads one of the three departments. The competencies of these departments and the Governing Board as a collegial body are set out in the Organisation Regulations (arts. 4 and 18).

The Enlarged Governing Board was established for the operational management of the National Bank. It comprises the members of the Governing Board and their deputies (art. 21 OrgR). Its tasks are confined to internal matters only: issuing internal directives; leading the planning and budgeting process; employing, promoting and dismissing staff; and deciding on organisational matters and issues of interdepartmental significance relating to premises and information technology. The core monetary policy tasks (art. 5 NBA) and public representation of the SNB remain the sole responsibility of the Governing Board. The SNB has established this expanded management structure to reduce pressure on members of the Governing Board. This frees them to concentrate on matters of central bank policy and strategy, and to maintain external relations. The decision was also based on the desire to place internal management of the SNB on a broader basis. However, it does not relieve members of the Governing Board of their responsibility for internal management, and the Governing Board has the final say. Decisions made by the Enlarged Governing Board require the support of at least two members of the Governing Board. In the event of parity, the Chairman of the Governing Board has the casting vote (art. 22 para. 2 OrgR). The Enlarged Governing Board has delegated certain personnel issues and decisions on spending to the deputies (art. 22 para. 3 OrgR).

10.2.5 Accountability to the Federal Council and Federal Assembly

Oversight by the Bank Council is confined to the management of the National Bank's activities and does not include the establishment and implementation of monetary policy. In this regard, the Governing Board is – as in

the past – directly accountable to the Federal Council (art. 7 para. 1 NBA) and – now also – to Parliament (art. 7 para. 2 NBA). Accountability to the Federal Council comprises regular reports on the economic situation and monetary policy. Moreover, the Federal Council and the National Bank inform each other of their intentions before taking decisions of major importance for economic and monetary policy. The SNB's annual report and annual accounts have to be submitted to the Federal Council for approval before being approved by the General Meeting of Shareholders (art. 7 para. 1 NBA). Accountability to the Federal Assembly comprises reporting on the fulfilment of the SNB's monetary policy tasks (art. 5 NBA). Moreover, the Chairman of the Governing Board has to present this report to the relevant committees of the Federal Assembly (art. 7 para. 2 NBA). However, in this context, it would not be correct to refer to this as true oversight. The authority of a supervisory body would include the ability to issue instructions on the future fulfilment of tasks, which both the Federal Council and the Federal Assembly are explicitly forbidden to do (art. 6 NBA). Similarly, the Federal Council's right to approve the annual report and annual accounts has no further significance. It could possibly reject them on the grounds of formal shortcomings, but not out of disapproval of any monetary policy decisions that might have been taken by the Governing Board.

10.2.6 Auditing

Another important element used to strengthen corporate governance at the National Bank was the modernisation of its auditing. The former NBA provided for an Auditing Committee, which corresponded to the supervisory authority under old company law. This comprised three members elected by the General Meeting of Shareholders and three substitutes. Its task was to audit the annual accounts and balance sheet (art. 51 former NBA). In view of the amendment to company law of 4 October 1991,²¹ which set out special professional criteria for auditing listed companies, this set-up was no longer satisfactory. The SNB endeavoured to reflect this by informally raising the professional qualifications required by members of the Auditing Committee. However, the election of legal entities as auditors was still not permitted. Consequently, exceptions had occasionally to be sought from the regulatory authority of the SWX Swiss Exchange. The revision of the NBA enabled the SNB to catch up in this respect. Art. 47 para. 2 of the NBA specifies that the auditors must meet special professional requirements and must

21 RO 1992 733; in force since 1 July 1992/1 July 1993.

be independent of the Bank Council, Governing Board and the controlling shareholders. The auditing of the SNB thus now complies with the generally accepted principles in this field.

10.2.7 Conclusion

Modernising corporate governance at the National Bank was a central element in the 2003 revision of the NBA. Auditing is now based on generally accepted best practices. However, the corporate governance debate in the Swiss private sector cannot be applied fully to the SNB. Since monetary policy decisions are taken and implemented independently by the SNB, and the Governing Board is solely responsible for this, the role of the Bank Council is confined to overseeing the conduct of business by the Governing Board. Consequently, it cannot be compared with the board of directors in a normal, private sector joint-stock company. It is not always easy to draw – and respect – this boundary correctly.

10.3 The National Bank's regional presence

THOMAS WIEDMER

10.3.1 Basis

For many years, the structure and organisation of the Swiss National Bank were dominated by federalist considerations. From 1907, banknotes issued by the SNB gradually replaced those issued by 36 note-issuing banks, most of which were owned by the cantons. Centralising the note-issuing monopoly therefore directly affected the cantons' assets. This was offset partly by giving the cantons and cantonal banks shares in the National Bank and by the cantons' right to receive a share of the SNB's profit. At the same time, however, centralising the central bank tasks called the economic significance of some towns and regions into question. This is why the SNB's regional presence was a highly political issue for many years.

Consequently, the former National Bank Act (NBA) of 1953 already stipulated that the operations of the SNB had to be carried out at the "principal economic centres", while at least agencies needed to be established "elsewhere" (art. 4 para. 1 former NBA). The Bank Council was responsible for decisions on the establishment and closure of branch offices and agencies.²² Before

²² SNB (1932), p. 327.

establishing a branch office or agency, however, the National Bank first had to consult with the cantonal government concerned. If there was any dissent between a canton and the SNB, the Federal Council had the final decision (art. 4 para. 2 former NBA). If the SNB did not wish to operate a branch office in a canton or half-canton, the canton could request that at least an agency be established there (art. 4 para. 3 former NBA). Consequently, the SNB's network of branches and representative offices grew over the years. When it was established in 1907, it had only five offices – in Zurich, Berne, Basel, St Gallen and Geneva. It subsequently opened branch offices in Neuchâtel (1907), Lucerne and Lausanne (1908), Aarau (1922) and Lugano (1929). It also opened agencies in La Chaux-de-Fonds (1907), Winterthur (1910) and Bienne (1931).²³ In addition, there were about a dozen agencies run by third parties, mainly cantonal banks, and a large number of correspondents.

Every branch office had its own director, who was appointed by the Federal Council on the recommendation of the Bank Council (art. 54 para. 1 former NBA). The Bank Council also appointed Local Committees to participate, in an advisory capacity, in establishing credit limits, and to examine these branches' bills of exchange and Lombard business (art. 50 para. 1^{bis} former NBA). They also had a right to nominate candidates for the post of local director and for staff appointments with signatory powers at their branch. The political significance of the National Bank's regional organisation is illustrated by the fact that the Local Committees and Local Managements were regarded as governance bodies of the SNB.

10.3.2 Objective reasons for the decentralised structure

Besides federalist considerations, there were a number of objective arguments in favour of a decentralised structure with an extensive branch network when the National Bank was established. Originally, the SNB's operations focused on three different types of business – discount operations, sight deposits and the supply and distribution of cash. A decentralised structure thus offered a number of advantages.

A branch network was the ideal model for effecting discount operations and sight deposit transactions. The bills of exchange presented for discounting and monitoring of issuers' credit standing were checked locally. The branch network also meant that the SNB could perform local transfers for sight deposit customers promptly, giving the beneficiary same-day access to the funds.

²³ SNB (1932), pp. 310–311.

Over the years, however, neither the discount business nor sight deposit transactions ever managed to gain a real foothold. A gradual change in payment habits from the 1920s onwards reduced the significance of bills of exchange as an instrument for liquidity creation. By the time floating exchange rates were introduced, the National Bank was controlling the money supply and interest rates chiefly by means of the purchase and sale of foreign exchange and securities,²⁴ and counterparties were increasingly moving such transactions away from the branch offices to the SNB's head offices. Eventually, the National Bank saw the need for consolidation. For cashless payment transactions, the post office's system, based on an extensive network of branch offices and a simple method of payment (payment slip) proved to be superior to the National Bank's relatively complex form-based sight deposit transactions. Such transactions, which had ensured high capacity utilisation at the branch offices in the 1950s and 1960s, thus declined steadily and had reached negligible proportions by the 1980s. Another factor that contributed to the demise of the SNB's extremely labour-intensive transfer system – apart from the success of the post office's system – was the emergence of electronic data processing in the 1970s.

By the early 1980s, only one of the three types of business conducted at the branch offices that had originally led to the decentralised structure – the supply and distribution of cash – was still of any importance. As operational business declined, the role of the branch office directors shifted towards the provision of information. Their role was to furnish their regions with a better understanding of the SNB's monetary policy, to monitor regional economic developments and to report on these developments to the Governing Board.

10.3.3 Reorganisation of branch offices

By the early 1980s, the branch office directors were reporting a decline in capacity utilisation rates in their organisational units. The Governing Board therefore requested that they prepare a report to document the situation at the branch offices and put forward proposals on how the SNB'S tasks should be divided among the branch and head offices. In November 1983, the Governing Board discussed this report in detail.²⁵ There were two main options: concentrating more tasks at the head offices or considering how to decentralise operations to the branch offices.

²⁴ SNB, Minutes of the Governing Board (1984), 23 August, no. 379.

²⁵ SNB, Minutes of the Governing Board (1983), 17 November, no. 614.

The Governing Board opted for the first of these because it no longer saw any real reason for decentralisation, except for cash processing operations. It therefore decided that the branch offices should concentrate on the supply and distribution of cash and on compiling regional information.²⁶ It felt that the directors should expand their role as ambassadors and focus on monitoring regional economic trends and providing information.²⁷ Management of the operational side of the business, which now essentially comprised cash handling activities, was to be undertaken by the deputy directors of the branch offices.

Since cash transactions entail considerable risk, particular attention had to be paid to security during the reorganisation process. For this reason, many of the bank offices had to undergo extensive and costly renovation work. The Governing Board also used this opportunity to adapt the SNB's branch structure to prevailing market conditions and divested the agencies it still operated (Bienne, La Chaux-de-Fonds) to the cantonal banks, which took over the regional supply of cash from their own buildings, using their own security infrastructure.²⁸

10.3.4 Closure of branch offices

Fifteen years later, the third type of business carried out by the branch offices – the supply and distribution of cash – was also no longer suited to a decentralised structure.²⁹ Trends in cash transactions in the second half of the 1990s triggered a consolidation that eventually led to a complete review of the SNB's policy on cash processing (cf. chapter 5.1.4).³⁰

As a first step, in 1998, the SNB concentrated cash processing operations at its head offices in Berne and Zurich, and at its branch offices in Geneva and Lugano. Having closed the branch offices in Aarau and Neuchâtel at the end of 1998, it also shut down the cashier's offices at the branches in Basel, Lausanne, Lucerne and St Gallen at the end of 1999. Despite the necessary operational restructuring, the Governing Board wanted to retain a regional presence and confirmed the importance of decentralised coordination of information – as it had done when it reorganised in 1984.³¹ It therefore established four new representative offices at major business and political centres

26 SNB, Minutes of the Governing Board (1983), 17 November, no. 614; 1 December, no. 643.

27 SNB, Minutes of the Bank Council (1984), 27 April, pp. 53 et seq.

28 Cf. Lusser (1985).

29 SNB, McKinsey (1998).

30 SNB, Press release (1998), 16 February.

31 SNB, Minutes of the Bank Committee (1998), pp. 20 et seq.

(Basel, Lausanne, Lucerne and St Gallen) to gather information outside the areas covered by its two main locations. The bank offices and representative offices now reported directly to advisory boards rather than to the former Local Committees.

At the end of 2006, the National Bank also closed down the cash office in Lugano, as it no longer handled the volume of cash required for secure and efficient operations. The quantity of banknotes delivered to the Lugano office was too small to ensure adequate utilisation of even one sorting machine, and staff levels could not be reduced any further for security reasons (in accordance with the principle of double-checking). However, the SNB has retained a presence in Lugano through a representative office.

10.3.5 Realignment of management structures

Until 2003, reorganisation had mainly focused on the branch offices and restructuring cash processing operations. In 2003, substantial restructuring was undertaken at the head offices as part of a third reorganisation phase.³² Until then, the decentralised structures in banking business originally established had been largely retained at the head offices. However, there was no question of combining the National Bank's operations at a single location, although this would have made sense from a purely economic viewpoint. Security considerations specific to a central bank supported the argument for maintaining two locations. Moreover, when the NBA was revised, the Governing Board had not proposed to the Federal Council and Parliament that the two offices be combined. It feared that a political debate on what the SNB considered to be a relatively unimportant issue could take on a momentum of its own, thus jeopardising more important aspects of the legislative review. Furthermore, the Federal Council's message on the revision of the NBA of 26 June 2002 stated that the system of two central offices had not caused any problems, and that for reasons of national interest it made sense "to give the National Bank a legal base both in Switzerland's federal capital and in its financial centre".³³

When restructuring the SNB in 2003, the Governing Board's aims³⁴ were to provide a clearer demarcation of the tasks of the three Departments and to raise the efficiency of operations by introducing a more systematic functional and line management structure. Moreover, following the reorganisation of

³² SNB to employees (2004); SNB, note (2003).

³³ Message (2002), p. 5729.

³⁴ SNB, Organisation of the SNB 2004 (2003).

the branch offices, it also wanted to centralise the operational banking business at the two head offices. Until then, similar types of business had been undertaken by two Departments at the two locations. This led to unnecessary coordination work and reduced efficiency. The Governing Board therefore moved all asset management activities to a single unit in Department III, and assigned oversight of the stability of the financial system, which had become more important following the revision of the NBA, to Department II. It also introduced flatter management structures. Many organisational units now report directly to the Heads of Department, and the number of deputy members of the Governing Board has been reduced from five to three.

The aim of all three restructuring steps was to centralise banking operations. The SNB first withdrew banking operations from its branch offices and eventually concentrated them at a single location. In this way, the Governing Board optimised operational workflows, strengthened the business management of the National Bank and adapted it to modern requirements.

10.4 The discontinuation of non-core business

HANS-CHRISTOPH KESSELRING

10.4.1 *The SNB as the banker to banks*

The Swiss National Bank fulfils the core functions with which it has been entrusted solely in its dealings with commercial banks. It maintains no business relationships with non-banks, in other words neither with cantons and municipalities nor with private and public sector companies and private individuals. The only significant exception is the banking services it provides for the Swiss Confederation, the scale of which is subject to negotiation between the federal government and the SNB as equal partners, and for which the government recompenses the SNB appropriately.

This was not always the case. The former National Bank Act (NBA), which was in force until 2004, differed from the present-day version in three respects. The National Bank was obliged to provide the Confederation with all the banking services the government asked it to provide, and it had to do so free of charge. Furthermore, the former NBA also allowed the SNB to do business with non-banks,³⁵ albeit only to a limited extent: lending, mortgage and savings bank transactions were not included, and the National Bank was not

35 Message (1904), p. 452 in connection with Message (1894), pp. 139 et seq.

allowed to pay interest on its customers' deposits – apart from the Confederation's account. The reason for this was that the legislators wanted to minimise the business risks and prevent the SNB from entering into competition with the commercial banks.

The National Bank conducted this non-core business with the Confederation and non-banks for decades. It was later joined by bill discounting, which at the time the fledgling central bank began operations was still the principal instrument for managing liquidity (cf. chapter 1.3),³⁶ but which was already losing its importance for central bank policy by the 1920s, because other forms of credit were squeezing out the bill of exchange.³⁷ In the 1930s, it was little more than a peripheral line of business. In this context, the Governing Board granted loans to individual companies and industries, which in retrospect sometimes appear questionable from a regulatory policy perspective.

Towards the end of the 1970s, the Governing Board was expressing increasing concern over the problematic aspects, in terms of the market economy, of bills being discounted for purposes other than those for which they were intended. It began to redirect its activities in conformity with regulatory policy principles. Over time, this new approach came to permeate the SNB's image of itself. It focused its attention on the core tasks of a central bank, planning to adopt a 'wholesaling' role, in which it would interact solely with banks, and increasingly perceived its function as that of a banker to banks. This self-limitation eventually persuaded the Governing Board either to give up, as far as possible, non-core business or to subject it to market forces.

The redirection of business did not take place systematically: particularly in the beginning, the Governing Board's decisions tended to be contradictory. Nor was the new approach applied in an unambiguous manner; there were hardly any studies on the subject, nor any assessments to draw upon. Instead, the process was hesitant and erratic, and arguments initially arose more from day-to-day policy considerations than from systematic analysis. This is not surprising, considering the fact that the economic policy thinking of decision-making bodies in the 1970s was still strongly characterised by the interventionism of the post-war years (cf. chapters 2.3.4 and 2.4.3). Later on, the new approach sometimes lacked consistency. On the one hand, the Governing Board was afraid of negative publicity should the National Bank discontinue forms of support to which the beneficiaries had become accustomed. On the other hand, it wanted to avoid conflict in order not to lose political

³⁶ Ruoss (1992), p. 39.

³⁷ SNB (1957), table 1, pp. 348–349.

support for an effective fight against inflation, which it rightly regarded as being its core function. The following sections provide an account of this new approach, taking the example of the three non-core lines of business mentioned at the start of this chapter. For this purpose, it will sometimes be necessary to look further back into the past.

10.4.2 Discount policy for special interests

In the economic crisis of the 1930s – and indeed earlier (cf. chapter 1.8) – the National Bank had used its transactions with bills of exchange to selectively support industries and companies with loans on favourable terms. It continued this practice well into the post-war period, and in so doing, often supported federal government promotion measures. One example of this was the practice of providing discount credits to the wine and dairy industries, with which the beneficiaries financed the storage of their products when prices threatened to fall sharply after a bumper harvest. However, in the mid-1970s, the Governing Board began to look at these discount facilities with a more critical eye. While it had sometimes had doubts about its discounting practice in the past,³⁸ as of 1976, the question of the fundamental justification of such measures cropped up with increasing frequency,³⁹ even though this did not initially result in any changes in policy. However, in 1982, the Governing Board eventually refused to approve a request from a canton for lending facilities in favour of agriculture, claiming that it was not the SNB's job to help to support prices.⁴⁰ Despite further interventions from the Federal Office for Agriculture and later the Federal Department of Economic Affairs, it never reconsidered this decision and thereafter did not provide agriculture with any further support of this kind.⁴¹

The Governing Board occasionally also granted discount credits in order to reduce political pressure. For instance, from the mid-1970s, it resorted to this instrument when the appreciation of the Swiss franc and the recession were causing great difficulties for the watchmaking, textile, footwear and construction industries. Following various requests in both chambers of Parliament, the Governing Board granted companies in these industries credit lines outside the existing limits. It set the interest rates below the

38 Cf., for example, SNB to Federal Finance Administration (1961).

39 Cf., for example, SNB, Minutes of the Governing Board (1976), 11 March, no. 253; (1978), 19 October, no. 681/5.

40 SNB, Minutes of the Governing Board (1982), 28 October, no. 574/2.

41 SNB, Minutes of the Governing Board (1984), 22 November, no. 539/4; (1986), 3 April, no. 150/2.

official discount rate, so the credits contained elements of subsidy.⁴² The National Bank renewed the credit facilities on a number of occasions, extended the circle of beneficiaries to other industries, and supplemented the discount credits with additional forms of assistance. The sources make no mention of consideration being given to whether such measures fell within the remit of a central bank. The Governing Board discontinued this assistance in the early 1980s.

The fact that the increasing frequency of such support measures coincided with the aforementioned deliberations about discontinuing the provision of credit to the agricultural industry shows just how vague the National Bank's regulatory policy thinking had initially been. Yet, even in its commemorative publication of 1982 to mark its 75th anniversary, the SNB categorically stated in retrospect that a policy that discriminated in favour of certain industries or regions was not compatible with the SNB's national economic mandate.⁴³ This statement documents the change of direction that was taking place within the National Bank at the time. With the renaissance of monetarism, market forces had found new acceptance following the SNB's problematic experiences with direct interventions in the market (cf. chapter 2.4.3).

10.4.3 Discount business in the financing of compulsory stocks

The National Bank struggled for a further decade before it was able to withdraw from discounting bills of exchange destined to finance compulsory stocks. Compulsory stockpiles had been instituted immediately before the outbreak of the Second World War in order to safeguard the country's supply of essential goods. Financing them was a matter for those holding the stocks – stockpilers as it were. The SNB, however, had expressed its willingness to discount stockpilers' promissory notes, which were guaranteed by the Confederation, at a lower-than-usual interest rate and outside the then applicable limits, and to renew the discount credits whenever they fell due for repayment.

Strictly speaking, from the very beginning, the long-term nature of the financing of compulsory stocks ran counter to the principles of discount credit, which was supposed to be a short-term operation (cf. chapter 1.3)⁴⁴ and was later intended to cover peaks in demand for credit.⁴⁵ In view of the threat hanging over the country before the Second World War, this concession had,

42 SNB, Minutes of the Governing Board (1975), 6 March, no. 284; 1 May, no. 489.

43 SNB (1982), p. 261.

44 SNB (1932), pp. 67–68; SNB (1957), pp. 168 et seq.

45 Cf., for example, SNB to Federal Finance Administration (1961).

however, hardly given rise to misgivings,⁴⁶ especially since the Governing Board had already stepped in with longer-term discount programmes during the economic crisis of the 1930s.

Central bank policy considerations had probably eased the decision for the National Bank; at the time, the SNB would in any case have liked to revive transactions with bills of exchange, since such business “offers it an overview of internal and external payment obligations and is of the greatest value for foreign exchange policy and therefore for monetary policy”.⁴⁷ Even in the early 1980s, Department III was working on the idea of creating a liquid money market out of the 8 billion Swiss francs’ worth of compulsory stockpile bills in the hope of being able to bolster monetary policy.

However, the considerable refinancing potential of compulsory stockpile bills soon caused the Governing Board some unease, as it enabled banks to undermine monetary policy. If the SNB tried to curb money supply growth and set the discount rate – which was only periodically adjusted to market conditions – temporarily below market rates, the banks’ reaction was to lodge their compulsory stockpile bills for rediscounting, thereby increasing their available liquidity margin. The SNB had to accept the bills, since it had at the time failed to impose a limit on the amounts it would accept.

For a long time, the Governing Board did not consider these problems serious enough to warrant withdrawal from the financing of compulsory stockpiles. Instead, it took measures aimed at alleviating them. For instance, in 1982, it decided – as an immediate measure – to abolish the repurchase privilege for compulsory stockpile bills. It had granted the banks this concession in 1974 as an interim measure to prevent them from raising the cost of financing compulsory stocks. This privilege had allowed them to obtain central bank money to tide them over the end-month periods, when liquidity was often particularly tight, in return for depositing bills of exchange as collateral. However, in 1986, the Governing Board redefined this immediate solution as a long-term objective, because the federal office responsible had objected to it. In the late 1980s, the SNB’s chief economist considered the financing of compulsory stockpiles as the Achilles heel of monetary policy at that time. Nevertheless, for political reasons, the Governing Board was reluctant to draw the obvious conclusions and instead negotiated with the relevant federal office – unsuccessfully, as it transpired. The Board later had doubts about the validity of the monetary policy argument. It now saw the main

46 Minutes of the Bank Committee (1939), 22 April, p. 221.

47 SNB to Federal Councillor Schulthess (1936) in a similar case.

problem as being the payment of indirect subsidies for compulsory stockpiling, which shifted the debate to a regulatory policy level.⁴⁸

A solution eventually presented itself in 1989, when an internal legal opinion found that there was no adequate legal basis for the special discount rate and repurchase scheme. The Governing Board and the Swiss Confederation agreed on a transitional period in which a method of financing compulsory stocks would be found that was more in keeping with regulatory policy principles. When this period expired in 1992 – by which time the Cold War was over – the other partners had found a market solution that did not require the SNB's involvement. This is how the National Bank came to withdraw from the last remaining specific support measure. In 1999, it abolished the discount rate, since by then this instrument had ceased to have any monetary policy relevance whatsoever (cf. chapter 4.6.4).

10.4.4 Discontinuation of business with non-banks

The NBA had never explicitly mentioned business with non-banks. It was merely implicit in the article relating to the SNB's scope of business.⁴⁹ There are no clues in the background material on the first drafts of the NBA as to why the National Bank should have been allowed to conduct this sort of business – albeit subject to restrictions. At the beginning of the twentieth century, legislators probably saw it as completely natural. In any event, in those days, the customers of other European central banks had also included the general public,⁵⁰ as had those of the Swiss note-issuing banks that had preceded the SNB.⁵¹ Legislators may also have seen a welcome source of income in this business, since the earnings of the fledgling central bank – which was obliged to hold part of its assets in the form of non-income-generating precious metals – were quite meagre in its early days. However, business with non-banks never came to assume any great importance for the SNB.⁵²

While linking the monetary policy mandate with non-bank business might therefore have still seemed perfectly natural for the founding generation, doubts grew after the Second World War (if not earlier) because of the management capacity absorbed by this non-core business. In those days, for example, the Governing Board frequently had to deal with the question of how to deal with dormant assets, especially if the clients in question were

48 SNB, Minutes of the Governing Board (1989), 30 March, no. 141/2.

49 Message (1894), pp. 139–140.

50 Goodhart, Capie and Schnadt (1994), p. 69.

51 Jöhr (1915), p. 233.

52 Jöhr (1915), pp. 371–372; SNB (1957), pp. 272–273.

non-resident. Yet a fundamental solution was not sought. Instead, the Board merely decided not to accept any further non-resident clients.⁵³

Business with non-banks required the SNB to be close to its customers and was consequently of particular importance for the branch offices. It was handled by units that were also involved in the implementation of monetary policy and, because automation was still rudimentary at the time, had to perform numerous repetitive activities. They therefore tried to vary their work by establishing banking relationships with private individuals. A directive dating from the 1960s aimed at discouraging staff from establishing new client relationships was thus not implemented by all units with the same zeal.⁵⁴

When, in the 1980s, the Governing Board saw itself forced to reorganise the branch offices because they did not have enough work, it simultaneously severed all business relationships with non-banks.⁵⁵ Evidently, the legitimacy of this decision was no longer disputed. In taking it, the SNB reduced the danger of unimportant non-core business triggering public criticism and thereby distracting it from its monetary policy mandate. The Governing Board justified the decision to the bank authorities by stating that, as “the banker to banks”, the SNB was limiting its business dealings primarily to banks.⁵⁶ This was eventually enshrined formally in art. 9 of the new NBA, which entered into force in 2004.

10.4.5 The SNB as banker to the Confederation

The founding generation had enshrined the provision of payment services for the Confederation, not in the Constitution, but nonetheless in a prominent position in the NBA – right after the two primary functions of the National Bank. According to the Federal Council’s message of 1894, it was assumed that this business would help the SNB to control the money supply.⁵⁷ No reasons why the new central bank should provide this service free of charge were given in this message or in those of 1899 and 1904. Only in the background material on the first draft of the NBA is there a hint that the founding generation might have regarded the absence of any charge as the price paid by the SNB for being awarded the note-issuing monopoly.⁵⁸

53 SNB, Minutes of the Governing Board (1946), 21 November, no. 1528.

54 SNB, Private client business (1997).

55 SNB, Minutes of the Governing Board (1984), 23 August, no. 379.

56 SNB, Minutes of the Bank Council (1984), 27 April, p. 51.

57 Message (1894), p. 139.

58 *Eingabe des Banknoteninspektors* (1878), p. 76.

It was on the basis of this legislation – governed in detail by specific agreements – that the National Bank handled the Confederation's payments (or parts thereof) for a number of decades. In more recent years, the federal government used this channel to reimburse withholding taxes and pay for purchases of goods and services. The SNB also managed the Confederation's accounts and conducted its foreign exchange transactions, issued its money market debt register claims and bonds, held its securities in safe custody and acted as its agent in obtaining bank loans. In the last twenty-five years, the SNB's banking relationship with the Confederation has been characterised by improvements in terms of professionalism and automation of banking operations, as well as by regulatory policy-based demarcation issues.

In order to boost demand for government securities in the capital market and reduce the interest burden for the Confederation, the federal government and National Bank tried to enhance the attractiveness of Swiss Confederation bonds for professional investors. Since 1992, the federal government has been gradually increasing the volume of its bonds, turning them into liquid 'jumbo' bonds. In so doing, the number of outstanding bonds has fallen by almost two-thirds, to 22, while the average amount per bond has risen from 300 million Swiss francs in 1990 to over 4 billion for 2006. The Confederation and the SNB standardised the tenders, and since 1992, have published a new issues calendar each year for the year ahead. Since 1998, the SNB has also accepted bids from banks in other countries (subject to certain conditions),⁵⁹ and since February 2001, has conducted almost fully automated tenders for Confederation bonds and money market debt register claims via a Eurex electronic trading platform. While the amount of outstanding Confederation bonds virtually stagnated in the 1980s, it has since increased by a factor of almost eight. Because of the steep increase in federal debt, it had risen to 95 billion Swiss francs by the end of 2006. At present, Confederation bonds are by far the most liquid segment of the market and the main focus of professional bond trading in the Swiss capital market.

A further step towards modernisation introduced by the new NBA was the abolition of the Federal Debt Register, which the National Bank had been managing on behalf of the Confederation since 1939. Creditors had been able to have their Confederation bond claims entered in this register. Unlike Confederation bonds themselves, debt register claims were not tradeable on the stock exchange, as the federal government had originally wanted to protect part of its debt from price fluctuations in the capital market. In return for

59 SNB, Minutes of the Governing Board (1998), 23 April, no. 200.

waiving easy negotiability, debt register creditors were compensated by not having to pay for the registration of the claims, whereas the usual bank charges would have been payable if the bonds had been held in safe custody. As far as the federal government was concerned, debt register claims also had the advantage that it was spared the cost of the administration and processing of coupons and stock arising in connection with physical bonds. Finally, debt register claims were subject to a special valuation rule that dated back to a peculiarity of the defence bond issue of 1936.⁶⁰ At the end of the twentieth century, not only did the environment and understanding of financial markets differ fundamentally from the 1930s, but the processing and settlement of securities transactions had also changed in such a way⁶¹ and the volume of outstanding claims on the register had become so insignificant that the abolition of this instrument was inevitable.⁶²

*10.4.6 Freedom of contract and remuneration for services rendered
as new principles*

The regulatory policy-based demarcation issues mentioned above related mainly to the beneficiary federal institutions and to the scope of the services that the SNB had to provide free of charge. These questions eventually resulted – as part of the revision of the NBA – in the business relationship between the Confederation and the SNB being placed on a new footing.

When the National Bank ceased doing business with non-banks in the 1980s, one of the customers affected was a company with close connections to the Confederation. It asked the SNB to reconsider and subsequently remained a – paying – customer.⁶³ When, a few years later, it asked for a reduction in the bank charges, the Governing Board commissioned a review of its service relationship with the federal government. It came to the conclusion that the law gave it some leeway in its decision-making. The Board took advantage of this leeway to determine that contractual constraint and absence of remuneration for services rendered could not apply to the whole conglomerate of federal institutions. In its view, they related only to the Confederation in the narrower sense, in other words to the federal administration and federal institutions with no legal status of their own, and to those with particularly close ties to the Confederation. The SNB increasingly came to consider that providing services to the state free of charge was questionable, and in its Charter

60 For details, cf. Boemle et al. (2002), p. 941.

61 Ibid.

62 Message (2002), pp. 5826 et seq.

63 SNB, Minutes of the Governing Board (1986), 4 September, no. 297.

of 1994 it resolved as far as possible only to provide banking services for the Confederation if this could be done without creating market distortions.⁶⁴

In 1997, the Governing Board discussed a blueprint for the SNB as banker to the Confederation after a federal institution had expressed an interest in global custody services – then a new type of banking service. The debate about new public management, outsourcing and privatisation raised the question as to what form, from an economic perspective, an optimum client relationship between the federal government and the SNB ought to take. The Board concluded that there were in fact no ‘free’ services; those being provided were effectively at the expense of the SNB’s profit, i.e. two-thirds of the cost was being borne by the cantons and one-third by the Confederation. While this aspect might have been overlooked before the resumption of profit distributions (pursuant to the agreement of 1992), the Governing Board now wanted to give it due consideration.

In the National Bank’s opinion, two regulatory policy aspects – market distortions and impairment of the profit distribution rule – thus militated in favour of limiting unremunerated services to the legal minimum. In considering possible solutions, the SNB also examined whether other providers might not be able to take its place. This course of action had already proved its worth on previous occasions, as in the early 1990s, for example, when money market debt register claim tenders of the Confederation had provided the ultimate test of the SNB’s ability to limit itself to the role of a bank’s bank. High money market rates had lured the general public into the money market in 1989. In order to avoid the charges levied by the banks, private individuals wishing to subscribe money market debt register claims turned directly to the SNB, which did not charge any fees. The SNB therefore found itself swamped by subscriptions, having previously received only a few dozen aggregate bids from banks. Its infrastructure – which was geared to wholesale business – could not cope with the onslaught, especially since the requirements for customer identification and documentation had been tightened only a short while before as part of the fight against money laundering, and were now generating higher costs. The Governing Board discussed various alternatives, such as increasing the minimum subscription amount, introducing a commission, expanding capacity, and refusing subscription requests from the general public. The fear of coming under public scrutiny over a peripheral line of business, as well as differences of opinion with the Federal Department of Finance, which welcomed the participation of the public in the hope of lower

64 SNB, Charter (1994), p. 8.

interest costs, meant that the problem persisted. A solution was eventually found whereby PostFinance would offer Confederation time deposits to the public, allowing the SNB also to withdraw in 1993 to its wholesaling role as the banker to banks in the area of new issues business.

PostFinance stepped in again in 2004, when the Swiss armed forces were seeking an up-to-date solution to their cash payment needs following abuses by military personnel. Although a provider of retail payment services, PostFinance was nonetheless able to offer customised solutions at reasonable prices. As a wholesaler, the National Bank – which had provided this service until then – was no longer able to meet modern retailing requirements at a viable cost.

With the total revision of the NBA approaching towards the end of the 1990s, the SNB subjected its role as banker to the Confederation to an in-depth review, eventually opting for the principle of freedom of contract and remuneration for services rendered. Both were enshrined in the new NBA. Accordingly, the SNB is now no longer compelled to execute banking operations on behalf of federal authorities unconditionally, but can negotiate the details with the authorities as an equal partner. However, it may not refuse to perform banking services for the Confederation solely on principle or without justification.⁶⁵ It must provide them whenever the government cannot find a viable alternative. The Confederation continues – as before – to have a free choice of service providers. If it does avail itself of the services of the National Bank, it must compensate it appropriately. In 2006, the institutions of the Confederation paid the SNB a total of around 3 million Swiss francs for the provision of banking services.

For the National Bank, earnings considerations played no part in opting for this principle. With the build-up of large interest-bearing foreign exchange reserves, its financial situation had improved enormously since 1970 and was now fundamentally different from the decades following its establishment, when the services it had provided to the Confederation had been a heavy burden.⁶⁶ The decision was due rather to the conviction – based on regulatory policy considerations and reinforced over the years – that it would be preferable if the Confederation were to obtain its banking services under competitive conditions, so that prices would curb its appetite.⁶⁷ The reasons that might once have been cited for the provision of free services were no longer pertinent. In view of the high profit distributions, the notion of the SNB

65 Message (2002), p. 5695.

66 Jöhr (1915), p. 359.

67 Message (2002), p. 5693.

providing services free of charge in exchange for its note-issuing privilege had lost its relevance. Furthermore, the infrastructure of the Swiss banking system was by then so well developed that the provision of banking services to the Confederation could no longer be regarded as a public function that the SNB should be obliged to perform.⁶⁸

10.4.7 Prohibition on lending to the state

During the revision of the NBA, the National Bank also favoured a more clearly defined provision preventing it from lending to the state. This prohibition on lending is a universally recognised principle and is intended to ensure that the central bank does not finance the state coffers by printing banknotes, thereby expanding the money supply and fuelling inflation. Under the former NBA, the prohibition was concealed by a formulation dating from the 1896 and 1899 drafts of the NBA,⁶⁹ namely that the SNB “shall make payments on behalf of the Confederation up to the amount of the credit balance of the Confederation” (art. 15 para. 1 former NBA). However, only a few years after the National Bank was founded, the Governing Board had decided to discount treasury notes issued by the Confederation, cantons and municipalities. It ensured that it was granted the requisite authorisation with retrospective effect in the 1911 NBA revision. This business played an important role in the First World War, and particularly during the economic crisis of the 1930s, with the SNB often buying the stock directly from the borrower.⁷⁰ While critical observers have always considered the purchase of government securities by the central bank as innocuous if done via the secondary market, it is now generally regarded as dubious practice for the state to issue paper for the sole purpose of being bought by the central bank. One example from the history of the SNB highlights the reasons for this; the direct purchase of Swiss treasury notes by the SNB during the First World War had swollen the money supply to such an extent that the end of the War saw an upsurge in inflation (cf. chapter 1.4).⁷¹

Even after the Second World War, the National Bank occasionally extended loans to the Confederation. In retrospect, these also appear dubious – although much less so than those granted in the First World War, both in terms of volume and intentions. They should be seen in the light of the difficult environment prevailing under the regime of fixed exchange rates. In

68 Message (2002), p. 5691.

69 Message (1904), p. 452.

70 SNB (1957), pp. 191 et seq.

71 SNB (1982), p. 28.

those days, as soon as the SNB tried to curb economic overheating with higher interest rates, liquidity flooded in from abroad and threatened to undermine the restrictive policy; there was no exchange rate risk to deter investors from engaging in international interest rate arbitrage. An additional problem was that, for political reasons, rents were already at that stage pegged to the mortgage rate, so that any rise in interest rates initially pushed up inflation, before subsequently putting a brake on economic activity and price increases.

In situations such as these, the National Bank frequently tried to delay pushing up interest rates.⁷² Because the various segments of the capital market are closely interlinked, the SNB also had to intervene in all segments – that is, in the bond market as well.⁷³ In so doing, it concentrated on Confederation bonds for two reasons. Firstly, this enabled it to exert a direct influence on the average yield on these bonds – the most important interest rate indicator in those days; and secondly, as leader of the underwriting syndicate, the SNB also felt responsible for the success of the Confederation issues. If the level of interest rates rose, the bonds could sometimes not be fully placed, since the coupon and issue price were no longer in line with market conditions. This was because, for technical reasons, the federal government had to announce the terms of any new issue a few days before the subscription date. The market was often inclined to assume a continued rise in interest rates on the basis of these failures. In order to prevent this, the SNB supported the market on various occasions by buying bonds in the stock market.

When the system of fixed exchange rates collapsed, the Swiss franc was undervalued. Because it was expected to appreciate, capital inflows from abroad continued for some time to come, as a result of which the SNB continued to intervene in the capital market after 1973. Now and again, it even bought the unsubscribed remainder of Confederation or cantonal bond issues. Thus, in 1977, for example, three-quarters of a 500 million Swiss franc Confederation bond issue found its way onto the books of the National Bank.⁷⁴ The SNB temporarily parked a portion of this with the Federal Treasury. It was afraid that the intervention policy might lose its effect if the public learned of the transactions from the regularly published balance sheet statement.⁷⁵ The minutes contain no indication that the Governing Board had regarded this bending of the rules as a problem, although the legislators of 1904 had probably interpreted the prohibition on lending more generously

72 SNB (1982), pp. 180–181.

73 SNB, Minutes of the Governing Board (1979), 15 February, no. 125/1.

74 SNB, Minutes of the Governing Board (1977), 4 August, no. 555/2.

75 SNB, Minutes of the Governing Board (1977), 30 March, no. 244/1; 9 June, no. 413/1.

than its circumspect wording might have led one to suppose. In any event, in its message to Parliament on the 1899 draft, the Federal Council stated that the SNB was not permitted to buy government bonds directly on issue.⁷⁶

Two unrelated events brought about a surprisingly rapid change, however. When, in January 1980, the National Bank switched over to issuing Confederation bonds by tender, one of the reasons for having to intervene – namely the time delay between setting the price and the allotment of the bond to subscribers – disappeared. Placement failures were no longer possible either, since under the tender procedure, no more bonds were allotted than the bidders were willing to buy at the tender price.

For the time being, however, the Governing Board allowed market interventions to continue between issue dates. Nevertheless, shortly thereafter, it also changed this practice, having decided to expand the money supply partly by way of open market purchases in the Swiss franc bond market (cf. chapter 8.1.3). In the course of the corresponding planning process, the working group charged with this task concluded that the open market operations should impair the functioning of the market as little as possible, since aggressive open market purchases might distort the structure and trend of interest rates, thus making it difficult to assess the situation for monetary policy purposes. Viewed from this perspective, the intervention purchases that had been used at that time to influence the bond market also appeared in a new light, and the working group recommended reconsidering them. Only a short while later, the Governing Board declared that such interventions were incompatible with SNB policy,⁷⁷ thus putting an end to the issue. Regarding its open market purchases, the Governing Board wanted at all costs to avoid giving the impression that they might serve to finance federal government deficits.⁷⁸ In the mid-1980s, internal guidelines therefore restricted open market purchases to the secondary market, and from 1995, instructions to dealers expressly stated that purchases aimed at easing government indebtedness were not permissible.⁷⁹

These developments were finally concluded when, as part of the total revision of the NBA, a precise definition of the prohibition on lending was adopted in the act (art. 11 para. 2 NBA). The wording is based on European law and leaves no room for any misunderstanding: “The National Bank may not grant the Confederation loans or overdraft facilities; nor shall it be permitted to buy government bonds from new issues.”

76 Message (1899), p. 355.

77 SNB, Minutes of the Governing Board (1981), 12 March, no. 152/4.

78 SNB, Minutes of the Governing Board (1981), 18 June, no. 360/3.

79 SNB, Minutes of the Governing Board (1995), 19 October, no. 427.

10.5 The National Bank and its role in the Second World War

PETER KLAUSER

10.5.1 Introduction

In the mid-1990s, Switzerland's role in the Second World War unexpectedly became the focal point of renewed discussion both at home and abroad. Along with the Swiss Confederation's policy on refugees, attention centred on Switzerland's financial relations during World War II. A number of issues in particular were aired: the size and fate of assets that had belonged to the victims of National Socialism and had been deposited in Switzerland before or during World War II (dormant assets), the gold transactions of the Swiss National Bank during the War, and the transfer of Nazi assets to Switzerland. By 1996, pressure on Switzerland – especially from the United Kingdom and the United States – was mounting. Fierce criticism of its conduct culminated in demands for the pending issues to be settled and for compensation to be paid to victims of the Nazis and to their descendants.⁸⁰

With the situation spiralling into a domestic and foreign policy crisis, the various parties involved reacted at a number of different levels: in May 1996, the Swiss Bankers Association (SBA) signed a Memorandum of Understanding with the World Jewish Restitution Organization, the World Jewish Congress and the Jewish Agency to set up an Independent Committee of Eminent Persons (ICEP). Chaired by former US Federal Reserve Chairman, Paul Volcker, this Committee – the Volcker Committee – was to supervise the search for assets at Swiss banks for which no further customer contacts existed, and to propose a procedure for assessing claims to dormant assets.⁸¹ In October 1996, the Federal Council formed a task force to safeguard Swiss interests with regard to the issue of assets of the victims of Nazism by communicating proactively with the target groups, and to coordinate the activities of the various bodies. Then, in December 1996, the Federal Assembly passed a federal decree creating the basis for the Independent Commission of Experts Switzerland – Second World War (ICE, Bergier Commission) to investigate Switzerland's economic and financial relations with the warring powers.⁸²

80 Cf., for example, Maissen (1997), p. 13.

81 Cf. Maissen (2005), pp. 214 et seq.

82 Federal decree regarding the historical and legal investigation of the fate of the assets that came into Switzerland's possession as a result of National Socialist rule: RO 1996 3487.

10.5.2 *Reassessment of the SNB's gold operations during World War II*

The Governing Board welcomed these steps and set about making its own substantial contribution to reassessing the gold transactions undertaken by the SNB during the Second World War. In the autumn of 1996, an internal working group headed by the then Vice Chairman of the Governing Board, Jean-Pierre Roth, started to draw up a systematic schedule of the SNB's gold transactions during World War II on the basis of inventory accounts. In addition, the working group carefully prepared the SNB's archives, so as to make the material accessible in readily comprehensible form to the Bergier Commission and other interested parties.

In March 1997, the National Bank presented the general public with a full set of statistics on its gold operations during the Second World War. These covered not only the gold transactions conducted by the SNB for its own account both in Switzerland and abroad, but also those relating to the gold deposits held by foreign central banks with the SNB in Berne. The SNB's net gold purchases from the Axis powers (Germany, Italy and Japan) totalled 1,355 million Swiss francs, while those from the Allies amounted to a net 1,823 million. Between 1939 and mid-1945, Switzerland's gold holdings rose by 2,122 million Swiss francs. This increase was reflected in its gold deposits in New York, London and Ottawa, which, however, were frozen. Gold holdings in Switzerland, meanwhile, declined slightly during this period. In addition, the Deutsche Reichsbank and other European central banks held deposits with the SNB in Berne at that time for the purpose of facilitating mutual payments. From 1939 to 1945, the Reichsbank transferred gold worth a total of 1,655 million Swiss francs to its account in Berne. Of this amount, the SNB bought 251.3 tonnes – an amount valued at 1,224 million francs. The remainder was used by Germany for payments to Portugal, Sweden and other countries.⁸³ The statistics presented by the SNB basically confirmed the quantitative data published by Swiss authors in the 1980s – after the embargo on Confederation archives had been lifted – regarding the SNB's transactions with the Reichsbank.⁸⁴

In May 1998, the Bergier Commission published an interim report on Switzerland's gold transactions during the Second World War. This was based on figures supplied by the National Bank that the Commission had then

83 Roth (1997), p. 1; for conversion rates, cf. ICE (2002a), p. 52.

84 Durrer (1984), p. 203; Vogler (1985), p. 70; Rings (1985), pp. 197–198. These publications are based in turn on the SNB Governing Board's report dated 16 May 1946 on "gold transactions between the Swiss National Bank and the Deutsche Reichsbank during the 1939–1945 World War".

verified. The report took a very critical stance on the gold policy pursued by the SNB during the period in question. In particular, it criticised the Governing Board of the time for maintaining the gold convertibility of the Swiss franc without taking due account of this strategy's political and moral implications. The Bergier Commission took an especially close look at the arguments put forward by the SNB at the end of the War to justify its transactions with the Deutsche Reichsbank (cf. chapter 1.7), but was not convinced by any of them – considerations of good faith, neutrality or dissuasion.⁸⁵

The Governing Board commended the interim report on gold as a sound and carefully researched study. In its public statement on the report, it echoed the Bergier Commission's view that the Governing Board during the period in question had not thought through its 'good faith' argument and had adopted an overly narrow interpretation of international law. In the SNB's opinion, however, the Commission should have considered the possibility that the Governing Board of the time had unwittingly underestimated the scope for action available to it. Moreover, the SNB felt that the interim report should have included an in-depth analysis of Switzerland's wartime economic policies.⁸⁶

The Bergier Commission's interim report also revealed that the Deutsche Reichsbank had transferred more gold from concentration camps to its account with the Swiss National Bank than had previously been assumed. A study by the US Department of State estimated that 37 kilograms of gold originating from concentration camps were transferred from the so-called 'Melmer account' into neutral countries;⁸⁷ according to the Bergier Commission, the Reichsbank's deliveries of gold to its account with the SNB included gold from concentration camps that had been smelted down and cast as bars weighing a total of 119.5 kilograms.⁸⁸ The interim report did, however, confirm that it was not possible at the time for the Governing Board to have known the origin of this gold. In the public statement which it issued on this topic on 18 June 1998, the SNB "greatly regretted that, during the turmoil of war, the National Bank could in this way have become embroiled in the terrors of the Holocaust".⁸⁹

Owing to certain shortcomings in the Bergier Commission's interim report, the Governing Board decided that it would be appropriate to delve further into the economic policy aspects. In March 1999, the SNB published a

85 ICE (1998), pp. 119 et seq.

86 Roth (1998), p. 2.

87 Eizenstat (1997), p. 168.

88 ICE (1998), p. 191; cf. also the precise figure in ICE (2002a), p. 69.

89 Roth (1998), p. 3.

study, written by two of its research staff, about the exchange rate policy background to the World War II gold transactions. The study showed that the monetary policy pursued by the National Bank during the War had three main aims: to maintain confidence in the Swiss franc, to prevent an excessive inflationary surge, and to uphold Switzerland's international solvency in order to safeguard supplies of essential goods. In the SNB's view, maintaining the gold convertibility of the Swiss franc even in wartime was vital to the pursuit of these goals. The study concluded that the National Bank had basically achieved these goals, but that this had involved purchases of gold from the Deutsche Reichsbank, the origins of which had become more and more dubious as the War progressed. The authors found that, in 1943, the SNB had sufficient room for manoeuvre in terms of monetary policy to be able to reduce its gold transactions with the Reichsbank earlier. In their view, the fact that it did not use this scope can be attributed to an erroneous assessment of the political, legal and moral aspects of these gold transactions by the SNB's management at the time.⁹⁰

The National Bank made this study available to the Bergier Commission as a contribution to its research work. The findings of the study were incorporated into the Commission's report on Switzerland and gold transactions in the Second World War, published in 2002.⁹¹ The Governing Board took this opportunity to once again express its regret that the SNB's management of the day had not become more alert to the problem of looted gold.⁹² The Bergier Commission concluded its mandate at the end of December 2001. Its final report, published in four languages in March 2002, provided another, more concise synthesis of the SNB's gold transactions during World War II.⁹³

10.5.3 The SNB's contribution to the Holocaust Fund

Around late 1996 and early 1997, foreign criticism of the Swiss banks' handling of dormant assets was mounting, and a number of authorities in the United States began considering sanctions and boycotts against Swiss companies.⁹⁴ On 5 February 1997, the big banks announced that they would be paying a total of 100 million Swiss francs into a fund for the victims of the Holocaust. On 26 February 1997, the Federal Council passed an ordinance that provided for setting up a Special Fund for Needy Victims of the

90 Crettol and Halbeisen (1999), pp. 53 et seq.

91 ICE (2002a), pp. 145, 246.

92 SNB, Press release (1999), 25 March, p. 2.

93 ICE (2002b), pp. 238–254.

94 Maissen (2005), p. 290, 295.

Holocaust/Shoa;⁹⁵ since it did not want to forestall the findings of the Bergier Commission, however, it ruled out any financial contributions from the Confederation.

The Governing Board was then faced with the question of whether the National Bank should help to finance the Holocaust Fund. The SNB's gold transactions during the Second World War had already been the subject of the Washington Agreement of 25 May 1946. Switzerland had then undertaken to provide financing for reconstruction in Europe to the tune of 250 million Swiss francs, of which the SNB was to contribute 100 million (cf. chapter 2.2.3). In return, the Allies had waived any further claims on the gold that Switzerland had received from Germany during the War. The SNB observed with some concern, how the topic of its Second World War gold transactions nevertheless increasingly became the object of public debate at the beginning of 1997. A report by the British Foreign & Commonwealth Office took a completely fresh look at the negotiations that took place between the Swiss delegation and the Allies in Washington in the spring of 1946. It gave the impression that – in view of the warnings that the Allies had been issuing since 1943 about assets looted by the Nazis – Switzerland had been treated too leniently.⁹⁶ For the Governing Board, there was no question that the Washington Agreement negotiations between Switzerland and the Allies had been conducted with knowledge of the gold operations involving the Deutsche Reichsbank and the SNB,⁹⁷ and that there was therefore no reason to bring them up again.⁹⁸ Nevertheless, the Governing Board decided to pay a contribution of 100 million Swiss francs into the Holocaust Fund. This step was motivated not only by compassion for the people who, at the end of the twentieth century, were still suffering from the after-effects of Nazi tyranny, but also by a number of dubious aspects of the SNB management's conduct in World War II. The National Bank announced this intention to the general public on 5 March 1997 in a speech given by the President of the Confederation, Arnold Koller (cf. chapter 9.3.1).

The size of the National Bank's contribution was determined by the earnings generated by the SNB's gold transactions with the Deutsche Reichsbank, which totalled 20 million Swiss francs at the time. This amount was

95 RO 1997 811.

96 Rifkind Report (1996), pp. 7 et seq. This report, however, had wrongly put German deliveries of gold to Switzerland at 2.2 billion instead of 1.2 billion Swiss francs: cf. Maissen (2005), p. 228.

97 This was subsequently confirmed by the investigations of the Bergier Commission: ICE (1998), pp. 185 et seq.

98 SNB, 90th Annual Report (1997), p. 50.

calculated on the basis of systematically researched internal sources. Since the price of gold had more than trebled in Swiss franc terms between 1940 and 1997, the SNB estimated the value of the gain at 70 million Swiss francs. Given the humanitarian nature of the Holocaust Fund, and in view of the amounts pledged by other major contributors, the Governing Board considered that a sum of 100 million Swiss francs would be appropriate.⁹⁹ The Federal Council welcomed the National Bank's contribution as an immediate measure taken by an official Swiss body to back up the private sector's efforts in supporting needy Holocaust victims.

Based on the deliberations of the SNB's legal services and on a legal opinion issued by the Federal Office of Justice, the Governing Board and the Federal Council concluded that the National Bank Act would not provide a sufficient basis for such a contribution. Moreover, the contribution – which would amount to one-sixth of the annual profit distribution at the time (cf. chapter 8.4.4) – was deemed to constitute a new public task for the SNB, geared primarily to the pursuit of foreign policy objectives. This would be in line with the treatment of the SNB's contribution towards the 250 million Swiss franc payment arising from the Washington Agreement of 1946, which had been authorised by Parliament in the form of a simple federal decree (cf. chapter 2.2.3).¹⁰⁰ In its message of 25 June 1997 to the Federal Assembly, the Federal Council then submitted a draft for a generally applicable federal decree that would provide a specific legal basis for an SNB contribution to the Holocaust Fund. The wording of the message emphasised that the justification for the National Bank's contribution should in no way be prejudicial to the findings of the Bergier Commission. It went so far as to state: "Insofar as the message contains any assessment of the currently available historical facts, this reflects the views of the SNB. The Federal Council expressly reserves the right to issue a conclusive verdict at a later point in time."¹⁰¹

At the hearings conducted by the National Council's Law Commission at the end of August 1997, Professors Leo Schürmann and Peter Nobel adopted a legal standpoint divergent from that of the Federal Council and the National Bank. In their view, the SNB's status as a special-statute joint-stock company of federal law was a basis in itself for contributing the amount envisaged; it would constitute an act undertaken by the SNB under its own authority for the purpose of safeguarding its reputation. They felt that the SNB was

99 Message (1997), p. 1215–1216.

100 FF 1946 III 967; RO 1946 1061.

101 Message (1997), p. 1207.

empowered to take this action, as the contribution – given the context of the Second World War gold transactions – would be backed up by its corporate purpose and would thus clearly be in the public interest. Moreover, the professors considered the size of the contribution to be reasonable. In the course of these hearings, Professor Daniel Thürer expressed the view that Parliament had the choice of either empowering the SNB to pay a contribution into the Holocaust Fund by way of a generally applicable federal decree or, alternatively, recognising the SNB’s entitlement to make such a contribution and foregoing a parliamentary motion.

A majority of the National Council’s Law Commission supported the professors’ views and decided not to consider the Federal Council’s bill. The plenary session of the National Council and the Council of States followed suit with their resolutions of 29 September and 7 October 1997 respectively.¹⁰² The debate in the National Council was not entirely free of polemics. The National Bank was accused, for example, of being frightened by the boldness of its own idea and of “passing the buck to Parliament”.¹⁰³ It was pointed out that, in other matters, the SNB was quick to emphasise its autonomy and independence of action. However, the Federal Assembly was clearly anxious that a referendum would be held on the proposed federal decree, and with the population increasingly resentful of the pressure being exerted on Switzerland from abroad, there was a risk that the SNB’s Holocaust Fund contribution would then be rejected. One Councillor of State aired these fears directly, remarking that “this would not exactly strengthen the people’s confidence in Parliament”.¹⁰⁴ The parliamentary debates nonetheless confirmed broad support for the SNB’s contribution.

The Governing Board was prepared for this outcome, and requested the Bank Council to authorise a payment of 100 million Swiss francs to the Holocaust Fund in its meeting of 31 October 1997. In doing so, the Board stated that the SNB had taken its original, cautious line to avoid accusations of making a politically delicate payment without democratic support. However, it felt that if Parliament now considered a legislative procedure unnecessary in this context, the SNB was justified in deciding on the contribution under its own authority.¹⁰⁵ The Bank Council consequently approved the contribution and, on 3 November 1997, the SNB transferred the agreed amount to the Holocaust Fund.

102 BO CN (1997), pp. 1792 et seq., p. 1805; BO CE (1997), pp. 913 et seq., p. 922.

103 Motion by National Councillor Grendelmeier, BO CN (1997), p. 1798.

104 Motion by Councillor of State Rhinow, BO CE (1997), p. 918.

105 SNB, Contribution of the SNB (1997).

Combined with the contributions from private industry, a total of approximately 275 million Swiss francs was paid into the Holocaust Fund. Together with accrued interest, the final total came to some 295 million Swiss francs. The Fund used this money to provide financial support to needy persons who had suffered persecution for reasons of their race, religion or political views, or had in some other way been victims of the Holocaust/Shoa, as well as their needy descendents. The main focus was on Eastern Europe. The process of distributing the money lasted four years. In 1998, the SNB also assumed the 2.5 million Swiss franc cost of having the Holocaust Fund undergo an external audit.¹⁰⁶

10.5.4 Dormant assets at the SNB

The National Bank Act of 1905 empowered the SNB to a certain extent to enter into business transactions with private individuals in Switzerland and abroad. In the initial years of its existence, the National Bank regarded this as a supplementary line of business.¹⁰⁷ By the mid-1980s, it had ceased this private client business entirely, as it had little to do with its actual remit as a central bank (cf. chapter 10.4.4).

In the spring of 1997, while conducting extensive research into its financial relations during World War II, the National Bank also encountered a number of account, safekeeping account and safe deposit box relationships that could be classified as the dormant assets then under discussion. They fell into three categories:

- Dormant assets that the SNB had reported to the Federal Department of Justice and Police in accordance with the federal decree of 20 December 1962 on the Swiss-based assets of foreign or stateless persons persecuted on racial, religious or political grounds.¹⁰⁸ There were four such cases: three accounts totalling approximately 28,000 Swiss francs plus a safekeeping account containing gold coins, the number of which could no longer be established. The items in question had been transferred at the time to a special fund for heirless assets.¹⁰⁹
- Balances of former domestic and foreign clients transferred to the SNB's own accounts. These comprised eight instances totalling approximately 15,000 Swiss francs, of which about 11,000 francs were accounted for by foreign clients.

¹⁰⁶ SNB, 91st Annual Report (1998), p.82.

¹⁰⁷ SNB (1932), p. 266.

¹⁰⁸ FF 1963 I 23–28.

¹⁰⁹ Message (1974), p.801.

- Documents still extant in 1997 regarding two safe deposit box relationships from the 1925–1945 period. The two boxes contained documents, but no assets.

The problem, in the eyes of the Governing Board, was the balances transferred to SNB accounts. Admittedly, most of these either belonged to Swiss residents or had been transferred prior to 1934, so there was no possibility of the clients concerned being linked to persecution under the Nazi regime in Germany. In addition, the transfer of such balances to the SNB's own accounts was standard banking practice at the time. Nevertheless, the Governing Board decided to inform the public of the results of its investigations. In doing so, the SNB pointed out that this would not affect the legal claims of the persons concerned or of their heirs.¹¹⁰ Moreover, it made the report on its investigations available to the Bergier Commission.

A short time later – at the end of June 1997 – the Volcker Committee, the Swiss Federal Banking Commission (SFBC) and the Swiss Bankers Association (SBA) initiated a procedure for assessing claims to dormant assets at Swiss banks since before the Second World War. A special tribunal – the Claims Resolution Tribunal (CRT) – was set up in Zurich for this purpose.¹¹¹ On the same day, the SFBC sent a circular letter to the banks instructing them to list all dormant assets deposited with them before 9 May 1945 and to report them to a specially commissioned auditing firm so that the clients' names could be published around the world.

Even though the SNB, as a central bank, was not a recipient of the SFBC circular, it decided to respond to the call and to participate in the CRT proceedings by assuming its share of the costs. Unlike the commercial banks – which had to shelter behind the 'shield' of the SFBC – the National Bank was not confronted with legal problems (infringement of banking confidentiality) arising from the requirement to publish the names of private clients. Instead, it was able to apply – *mutatis mutandis* – a federal government regulation stipulating a thirty-five year embargo on archived documents.

The SNB thus reported nine dormant client accounts. The account holders' names featured in the lists of dormant assets in Switzerland were published worldwide on 23 July 1997 and 29 October 1997. A total of thirteen claims were filed in respect of the nine accounts reported. Of these, two were accepted by the CRT, although, as expected, neither was connected with the Holocaust. In one case, the SNB was able to remit the cash amount to the

110 SNB, Press release (1997), 11 April.

111 For details, cf. Maissen (2005), pp. 457 et seq.

heir of the former depositor, while in the other case, the SNB transferred the contents of the rented safe deposit box to the entitled heir. In January 2001, the Governing Board acknowledged the end of the proceedings and its cost contribution of approximately 25,000 Swiss francs. By participating in the search and tribunal procedure, the SNB wished to indicate that it was also taking the problem of dormant assets seriously within its own organisation.

10.5.5 Class actions against the SNB

On 3 October 1996, a number of Holocaust survivors filed a class action with the US District Court in Brooklyn (New York) against the then Swiss Bank Corporation and Union Bank of Switzerland as well as against other, unnamed banking institutions, demanding 20 billion US dollars for the assets which had allegedly been deposited with Swiss banks during World War II and withheld from victims of the Holocaust (complaint of Weisshaus et al.). A further class action (Friedman et al.) for an unspecified amount was filed with the same court on 17 October 1996, naming the three leading Swiss banks of the time, as well as the SBA as a co-conspirator. A third class action, also laying claim to property looted and transferred to Switzerland, was filed before the same court against Swiss banks by the World Council of Orthodox Jewish Communities on 29 January 1997.¹¹² As the plaintiff classes were by and large the same, the class actions were then combined by the judge, Edward Korman.

The Weisshaus complaint stated the plaintiffs' intention to sue not only the big Swiss commercial banks, but also the 'public banks', 'quasi-governmental banks' and 'governmental banks'. As a result, the SNB expected that it too would sooner or later become the object of one of the US lawsuits. The Governing Board then decided to observe carefully, through a law firm in New York with which the National Bank had worked previously, the lawsuits in progress against the Swiss commercial banks and to prepare for the eventuality of a class action being filed against the SNB. The National Bank was aware that, should it become involved in such a lawsuit, its situation would differ from that of the big banks in two respects. Firstly, the SNB did not have any branch offices in the US and was therefore not legally domiciled there. Consequently, the question of a US court having jurisdiction in lawsuits filed against the SNB would have to be approached differently. Secondly, as a central bank, the SNB would, to a certain extent, be able to claim sovereign immunity. The National Bank's investigations of these and other issues were

¹¹² For details, cf. Maissen (2005), pp. 244 et seq.

motivated by the wish to protect currency reserves invested in the US from possible judicial action to freeze them.

In the spring of 1998, there were growing signs that a class action against the National Bank was being prepared in the US. American media, as well as the Swiss Embassy in Washington, were reporting that attorney Michael Hausfeld, who had already represented the Friedman class action plaintiffs in New York, was making plans along these lines. There were two reasons to assume that this was the case. Firstly, the Bergier Commission was about to publish its interim report on SNB gold transactions in the Second World War (cf. chapter 10.5.2), and the interested parties anticipated that this would contain new information incriminating the SNB. Secondly, the class action plaintiffs were entering a critical phase in their quest for a settlement with the big commercial banks; on 27 March 1998, it was announced that negotiations mediated by US Under Secretary of Commerce, Stuart Eizenstat, were to be held with the participation of the World Jewish Congress. The plaintiffs were working towards a ‘global settlement’ in which not only the big banks, but other bodies – especially the Swiss government and the National Bank – should, in their view, participate. The threat of a lawsuit was designed to bring SNB to the negotiating table. In confidential talks, representatives of the US Administration asked the Chairman of the Governing Board, Hans Meyer, quite frankly whether the SNB did not fear a class action being filed against it in the US.

In view of this situation, the National Bank decided on 3 April 1998 – following in-depth discussion of the matter in the Bank Committee – to issue the following public statement: “We are resolved to oppose any such action [...] with all the legal means at our disposal, particularly since we contest the competence of the US courts in our case. An out-of-court settlement does not enter into consideration.”¹¹³ Furthermore, the Governing Board immediately took the necessary measures to ensure that, in the event of a provisional freezing of assets (‘prejudgement attachment’), it would still have access to the greatest possible portion of its currency reserves. In this way, it ensured that the conduct of Swiss monetary policy would not be seriously impaired by a possible lawsuit in the US.

In June 1998, negotiations between the class action lawyers and the Swiss big banks threatened to collapse owing to differences over the settlement amount, and since neither the Federal Council nor the SNB was willing to contribute financially to a settlement agreement,¹¹⁴ it was then (29 June 1998)

113 SNB, Press release (1998), 3 April.

114 Maissen (2005), pp. 400 et seq., 405.

that attorneys Melvyn Weiss and Michael Hausfeld filed the previously announced, but unquantified class action (Rosenberg et al.) against the National Bank before the US District Court of Columbia (Washington, DC) on behalf of victims of the Holocaust. The complaint contained requests for information about the SNB's gold transactions with the Deutsche Reichsbank, for the return of all assets looted from the class action plaintiffs under the Nazi regime (at present-day values), for the payment of compensation, and for the return of all profits yielded by the gold transactions. At that point, however, the National Bank – together with its US lawyers – had already developed an extensive legal defence plan comprising a number of different elements: among other things, the SNB insisted that the service of process be made in accordance with the Hague Convention on the Service Abroad of Judicial and Extrajudicial Documents in Civil and Commercial Matters.¹¹⁵ Consequently, the summons had to be served via the federal authorities in Berne. These authorities then closely examined the question of whether the US application could be rejected on the basis of art. 13 of the Hague Convention on the grounds that it would constitute a violation of Swiss sovereignty. In August 1998, the Federal Office of Police officially informed the US Embassy in Switzerland of these concerns. In a parallel move that same summer, the SNB's lawyers drafted an answer to the complaint. The National Bank's motion to dismiss was based primarily on the 'sovereign immunity' thesis, namely that Switzerland's central bank – as a state body – enjoyed immunity and had never waived it, and that the complaint did not refer to any commercial activities conducted by the SNB in the US. The SNB also asserted that all actions from which the plaintiffs derived their claims had occurred outside the United States, that the plaintiffs could expect a fair and impartial trial in Switzerland, and that the US judge therefore had no reason to try the claims (*forum non conveniens*). It was the SNB's aim that the action be dismissed already on procedural grounds so that the judge need not even examine its substance.

In the end, however, the Rosenberg class action never proceeded as far as this stage; nor was any complaint validly filed. On 12 August 1998, Judge Korman in New York arranged a settlement between the lawyers of the class action plaintiffs and the Swiss big banks in which not only the pending litigations against the big banks, but all other claims against the Swiss government, the National Bank, the other Swiss banks and Swiss industry were settled.¹¹⁶

115 RS 0.277.131.

116 Maissen (2005), p. 426.

The wording of the settlement agreement – formulated in greater detail at a later stage – made it clear that the agreement also covered the class action plaintiffs’ claims against the SNB.

The big banks were now hopeful that the National Bank, the Confederation and other industries that benefited from the settlement agreement would contribute towards the 1.25 billion US dollar settlement, and accordingly submitted a request to the SNB. In a special meeting held on 21 October 1998, the Bank Council – whose responsibility for these matters had been established ever since the parliamentary debate on the SNB’s contribution to the Holocaust Fund – declined by a large majority to make any such contribution to the banks’ settlement. In a press release published on the same day, the SNB drew attention to the arrangement contained in the Washington Agreement of 1946 and to the substantial contribution it had made to the Holocaust Fund, and stressed that it had not participated in any of the settlement negotiations.¹¹⁷ The SNB’s determined stance was welcomed by the Federal Council and all political parties.¹¹⁸

The proceedings aimed at having the settlement approved by Judge Korman were long and drawn out. The Holocaust victims were able to file their claims in the summer of 1999. For some time, however, it was unclear whether the survivors represented by Moshe Sanbar, the President of the Center of Organizations of Holocaust Survivors in Israel, would opt out of the settlement and pursue separate claims. A former Governor of the Bank of Israel, Moshe Sanbar publicly stated on more than one occasion that, in his view, the SNB should pay compensation running into billions to the Holocaust victims. However, the Chairman of the SNB’s Governing Board, Hans Meyer, had already explained the National Bank’s refusal on this point in a discussion that took place between the two bankers in December 1998. In the event, only a handful of opt-outs were notified to Judge Korman. Once the associated fairness hearings had been completed, Judge Korman finally authorised the settlement on 26 July 2000. In the District Court’s Memorandum and Order, ‘Rosenberg et al. v. Swiss National Bank’ also featured among the settled lawsuits, whereby Korman cited “the intransigence of the government of Switzerland and the Swiss National Bank in refusing to contribute to the settlement fund, and in interposing obstacles to the effective prosecution of plaintiffs’ legal claims”¹¹⁹ – thus eloquently expressing the

117 SNB, Press release (1998), 21 August.

118 Maissen (2005), p. 431.

119 Holocaust victim assets litigation (2000), p. 14.

frustration of a US district judge at not being able to enforce proceedings against a foreign state or its central bank. The Rosenberg class action was formally dropped by a ruling of the US District Court of Columbia dated 30 May 2001. The SNB had incurred legal fees of some 2.6 million Swiss francs for its defence.

This was not, however, to be the last class action to confront the National Bank in the United States in connection with the legacy of the Second World War. In November 1999, a group of Serbian, Jewish and Ukrainian plaintiffs brought a suit before the US District Court, Northern District of California, in San Francisco (Alperin et al.). Initially levelled against the Vatican Bank (IOR) and the Franciscan Order, the suit was supplemented twice, and in August 2000, the SNB was cited as one of the defendants. The plaintiffs, who had been the victims of persecution by the fascist Ustasha regime in Croatia, accused the National Bank of assisting in the disposal of looted gold by accepting deposits of the metal from the Croatian central bank.

Internal investigations revealed that the SNB had indeed received 1,338 kilograms of gold from the Croatian National Bank in 1944 and placed it on deposit. Moreover, by the end of the War, this bank had an account balance of about 2.6 million Swiss francs at the SNB. All these assets were placed at the disposal of the new Yugoslavian central bank in 1945. Although these facts were favourable to the SNB's case, it nevertheless had to take the lawsuit seriously, as it could not count on being able to refer to the New York settlement of 12 August 1998, which had explicitly extended to victims of Nazi persecution who were Jews, gypsies, Jehovah's witnesses or homosexuals, or who were mentally or physically handicapped. It did not, however, cover Serbian or Ukrainian victims.

The National Bank thus had to organise its defence all over again. In so doing, its US lawyers were able to use the preparatory work undertaken on the Rosenberg case. Once again, the SNB insisted that the service of process be made in accordance with the Hague Convention. The plaintiffs consequently decided not to pursue their action against the SNB, but focused on the Vatican Bank and the Franciscan Order. Finally, on 25 June 2002, the plaintiffs withdrew the action of Alperin et al. insofar as it was directed against the National Bank. They apparently regarded their chances of success as slim. In Switzerland, as in the US, the Alperin action attracted far less publicity than the Rosenberg lawsuit had done. In both cases, however, the SNB successfully warded off settlement claims brought against it under the pressure of high-profile class actions.

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Part 3

Assessment and outlook

11 The National Bank's monetary policy: evolution of policy framework and policy performance

ERNST BALTENSPERGER

11.1 Introduction

The transition to flexible exchange rates in January 1973 after the breakdown of the Bretton Woods system marks a turning point in the history of Swiss monetary policy. It was this fundamental change in monetary regime that gave the Swiss National Bank the freedom to pursue an autonomous policy of inflation control. Prior to 1973, the commitment to maintain fixed parities vis-à-vis other currencies had made this impossible. The global surge in inflation during the 1960s and early 1970s had resulted in huge capital inflows, excessive monetary growth, and accelerating inflation in Switzerland, too. The opportunity to pursue a more independent monetary policy was used decidedly by the SNB. This was not particularly surprising, given that – much as in Germany – a broad consensus existed in favour of a policy of inflation control in Switzerland at the time.

Together with the Deutsche Bundesbank, the SNB was a pioneer in the use of money growth targeting and employed it successfully to bring down inflation to levels consistent with price level stability during the 1970s. Swiss inflation, measured by the increase in the consumer price index (CPI), fell from 9 percent in 1973 and 10 percent in 1974 to levels between 0 and 2 percent in 1976–1978.

Since 1978, the SNB's efforts have been aimed at preserving the price level stability which had been restored by that time in view of different types of external shocks, notably exchange rate shocks and financial market disturbances, supply shocks, and the effects of cyclical fluctuations. This proved to be a rather difficult task with various ups and downs.

This paper reviews the SNB's monetary policy since the early 1980s and includes a critical discussion of the National Bank's conceptual framework for policymaking and its evolution over time, as well as its actual policy decisions and performance. Over the period considered, the SNB gradually shifted its policy approach from one based on monetary targeting to one centred on inflation forecasts. Furthermore, while for the period as a whole the SNB's performance in terms of inflation control is second to none, it is marked not only by successes, but also by a number of difficulties and failures.

This paper is structured as follows: section 11.2 begins with a brief description of the major phases of Swiss monetary policy since 1980. Section 11.3 discusses the evolution of the SNB's monetary policy framework and the SNB's contribution to the intellectual debate about monetary policymaking. Section 11.4 tries to assess the National Bank's policy performance over the last twenty-five years, to identify its successes and failures, and to explain the sources of the latter. Section 11.5, finally, summarises the main conclusions of the paper.

11.2 Phases of Swiss monetary policy since 1980

11.2.1 Prelude: exchange market turbulence and temporary exchange rate target: 1978–1979

At the end of the 1970s, there was a brief interlude when the National Bank temporarily abandoned its money growth strategy and opted for a policy aimed at the exchange rate. The markets' belief in the seriousness of the SNB's commitment to price level stability, in the context of an international environment still characterised by monetary expansion and high inflation, had led to a dramatic speculative inflow of capital and an appreciation of the Swiss franc to levels which threatened to severely damage the Swiss real economy in 1978. In October 1978, after long internal discussions, the SNB announced its aim to keep the Swiss franc price of the German mark "clearly above 80".¹ An explosive increase in the monetary base was the result. However, after the exchange rate had returned to more normal levels, the SNB started to remove this excess liquidity again by the beginning of 1979. Its objective from the outset had been to return to monetary targeting once the situation had normalised.

11.2.2 Surge of inflation and return to annual money growth targets and to monetary stability: 1980–1986

By the end of 1979, the National Bank was ready to reintroduce a money growth target for the year 1980. In contrast to the years before 1979, when it had set annual targets for M_1 , it now changed to an annual target for the monetary base. From the end of 1980 onwards, the actual target variable was the monetary base adjusted for month-end fluctuations in bank reserves (MBA). For 1980 and 1981, the SNB announced a growth target of 4 percent for the monetary base. In both years, however, its policy turned out to be clearly more restrictive than initially announced; the monetary base actually fell in both

1 SNB (1982), p. 221.

years. The motivation for this was a significant surge in inflation, up to peak levels beyond 7 percent in 1981. This occurred partly as a consequence of the second oil price shock of 1979/1980, but also, to a certain extent, as a deferred effect of the expansionary monetary policy of 1978. The SNB should have eliminated excess liquidity more quickly and decisively in 1979 than it did.

The events of the years between 1978 and 1981 strongly influenced the SNB's and the public's view of the role of the exchange rate in monetary policy. Henceforth, the National Bank kept a close eye on the exchange rate in policy setting. Its pragmatic response to the exchange rate shock of 1978 established a long-lasting market opinion that the SNB would not tolerate a violation of the 80 Swiss franc limit for the price of the German mark.

For the subsequent years, 1982–1986, the SNB's money growth targets – which were set at 3 percent for 1982–1985 and at 2 percent for 1986 – were met rather closely. Overall, this was a quiet period for Swiss monetary policy. Inflation declined to the 2–3 percent range and stayed more or less at this level. The renewed decline in inflation was preceded by cyclical contraction in 1981–1983. Business conditions picked up again after 1983, however. In the United States, 1983 marked the conclusion of the disinflation policy under Paul Volcker. Although exchange rate fluctuations gave rise to occasional concerns, in comparison to the experiences of the preceding decade, they remained moderate overall.

11.2.3 Instability of reserve demand and unintended monetary expansion: 1987–1990

This wonderful new world came to a sudden end in the 1987–1990 period, however. For 1987, the SNB had again set a money growth target of 2 percent. Actually, it tolerated a monetary expansion beyond this mark, mainly in view of the Swiss franc's strong tendency to appreciate in the foreign exchange market and of weaknesses in the international economy. The Swiss domestic economy remained robust nonetheless. The stock market crash of October 1987 and the resulting widespread fears of a slump in the world economy further induced the SNB to postpone the policy tightening, which otherwise would clearly have seemed advised. For 1988, the SNB raised its money growth target to 3 percent. By mid-1988, however, it became increasingly obvious that the feared downturn in world economic conditions would not materialise. It was the clear intention of the National Bank to tighten its policy in response to these developments.

At this time, however, Swiss monetary policy was complicated by an additional problem linked to two important institutional changes in the Swiss

financial system occurring at that time, which the SNB found particularly challenging. The first was the introduction of Swiss Interbank Clearing (SIC), a new clearing system which substantially improved the clearing of payments between banks and allowed banks to economise on their holdings of excess base money reserves. The other was a change in liquidity requirement regulations for banks which further lowered banks' demand for reserves. Both changes together implied a massive reduction in banks' demand for central bank money. The SNB was well aware of this change, but found it extremely difficult to reliably estimate its extent and its realisation over the course of time. For this reason, it declared already in December 1987 that it might ultimately have to undershoot its 1988 target – although it was not fully successful in explaining its analysis and intentions to the public. In fact, the monetary base shrank by almost 4 percent in 1988. Interest rates remained very low, however, and it became increasingly clear during 1988 that the stance of monetary policy had been, and still was, too expansionary. In 1989, the SNB started effectively to tighten its policy. For both 1989 and 1990, it kept monetary growth far below the originally set targets, realising that the Swiss economy in the meantime was fully overheated and marked by a major speculative real estate boom.

However, the damage on the inflation front had already been done by this time. Inflation reached levels of 5.9 percent in 1989 and 5.3 percent in 1990, hitting a peak of 6.6 percent by the middle of 1991. This, of course, called for a new phase of monetary restriction to combat the surge in inflation caused by the policy errors of the late 1980s.

11.2.4 Restoring price stability and transition to medium-term targets for money: 1991–1993

The developments of the late 1980s led the SNB to a major modification in its policy framework. The repeated and sizeable deviations of money growth from the originally announced targets had seriously damaged the effectiveness of annual growth objectives as a credible instrument for informing the public about the National Bank's policy intentions. Nevertheless, the SNB continued to rely on a money growth objective. However, after 1991, instead of announcing annual growth targets, it relied on a medium-term objective. In December 1990, it announced its intention "to increase the monetary base to approach a medium-term expansion path".² This expansion path was defined by the evolution of the monetary base that the SNB considered to

2 SNB (1990), pp. 273–274.

be consistent with price stability and with full resource utilisation in the economy. The SNB estimated that an average growth rate of base money of 1 percent would be in line with this requirement. The length of the target period was left unclear at first, but was soon specified to be three to five years. In presenting this strategy shift, the National Bank emphasised its need for short-term flexibility in the pursuit of this target path. In its decisions on its year-to-year policy course, it was going to pay attention to a number of indicator variables, notably interest rates, the exchange rate and business cycle conditions. At a technical level, the target path now referred to a new version of the monetary base, the seasonally adjusted monetary base (MBSA). As a consequence of the changes in liquidity requirements in 1988, month-end peaks in bank reserves had ceased to play a role since 1989.

At first, in the 1991–1993 period, this medium-term growth target seemed to perform its role as a policy indicator relatively well. Actual money stayed clearly below the target path, showing that, in the medium term, once inflation and nominal interest rates had returned to normal levels and output to full capacity, money would have to grow faster again to catch up with the increase in money demand resulting from these normalisations.

In 1991/1992, in the course of German reunification, the German mark became very strong and the SNB reluctantly tightened its policy somewhat. Inflation at this stage was still running at almost 5 percent. After mid-1992, however, as the real economy remained weak and the exchange rate had stabilised, the SNB reverted to a more relaxed policy stance. By 1994, inflation had fallen to about 2 percent and economic conditions started to improve slowly. However, doubts about the economic recovery persisted. The Swiss franc was on the rise again.

11.2.5 Misjudging the business cycle and monetary overrestriction: 1994–1995

What followed remains one of the most controversial phases of Swiss monetary policy of the last twenty-five years. With the level of base money (MBSA) still well below the medium-term target path, the SNB's monetary indicator signalled a need for lower interest rates and a more expansionary policy. Nevertheless, the SNB initially continued to follow a course which left interest rates unchanged at the level reached at the end of 1993. The main motivation for this was the fear of reigniting inflation in view of an expected cyclical recovery and the introduction of a new value added tax which was expected to lead to a temporary acceleration in inflation. It turned out that the strength of the recovery was overestimated, by the SNB as well

as by others, for 1994, and then again for 1995. With hindsight, it therefore became clear that the policy course pursued by the SNB in 1994 was too restrictive.

In the spring of 1995, the SNB began to correct this error and permitted interest rates to decline decidedly. This was in part motivated by the Swiss franc gaining more and more strength and by the continued weakness in real economic activity and employment. For a number of reasons, the unemployment rate rose dramatically at this time, to levels unheard of in Switzerland in the post-war era.

The monetary base was beginning to approach its target path. The latter had been extended by the beginning of 1995 for another five-year period, but with a starting point that had been shifted downwards somewhat compared to the previous target path (to reflect a downward revision in the SNB's estimate of the economy's demand for central bank money).

In this period, the SNB was under extreme public pressure and criticism as in no other phase during the last twenty-five years.

11.2.6 Return to normality and transition to a new concept

The years after 1996 up to the end of the decade were marked by a gradual return of the Swiss economy and the SNB's monetary policy to normality. Inflation, interest rates and the exchange rate all returned to levels consistent with long-run experience and helped to move the economy out of its previous stagnation. Growth and employment remained weak for some time, however. By the end of the decade, full employment was more or less restored. The worldwide boom of the late 1990s with its technology and stock market exuberance was helpful in this, of course.

In terms of monetary policy, these years were unproblematic, with no major difficulties and crises, apart from the temporary turbulences created by the Asian and Russian crises in 1997/1998 (which, obviously, were not specific to Switzerland).

Given the difficulties of the preceding years, the use of money as the main indicator variable for monetary policy decisions was increasingly questioned, both inside and outside the SNB. While actual money had persistently stayed below the target line in the first phase of medium-term targeting (for reasons which could be explained), it was now allowed to grow far beyond this line, apparently without causing inflationary pressures or other problems (for reasons which were much more difficult to identify this time). The demand for base money had become highly unstable, and explaining and predicting its movements and its information content increasingly difficult. The medium-

term base money target line consequently proved less and less useful as a guide for monetary policy decisions. This caused the SNB to investigate alternative frameworks and procedures for its policy analysis and decisions. At the end of 1999, it decided to abandon monetary targeting and change to a new policy concept.

11.2.7 Monetary policy under a new policy framework: 2000–2005

The new approach is centred on inflation forecasts as the major indicator for monetary policymaking. It is based on three main elements. First, price stability continues to be the primary objective of monetary policy. Price stability is defined as an increase in the CPI of less than 2 percent. In this respect, the new concept represents a continuation of the old approach. For the National Bank, the monetary target had never been an end in itself, but had always been considered an instrument in the pursuit of its ultimate objective, price stability.

The second element is the construction and publication of a regular inflation forecast over a horizon of up to three years. If the forecast indicates a violation of the price stability range under current policy conditions, monetary policy needs to be reviewed. The SNB never reacts mechanically to the inflation forecast, however, but always takes into account the general economic situation in determining its policy reaction.

Third, at an operational level, the SNB implements its policy by fixing and announcing a target range for the three-month Libor in Swiss francs (the most important money market rate for Swiss franc investments). Normally, this range has a width of one percentage point. Additionally, the National Bank determines and announces in which area of this fairly wide band it wishes the Libor to remain. This generally tends to be the mid-point of the announced target range.

Experiences with the new concept so far include phases of both policy tightening and policy loosening. In 2000, increasing inflationary pressures reflected in its inflation forecast and strong signals of cyclical acceleration induced the SNB to raise the mid-point of its target range for the Libor in several steps. This policy adjustment allowed the National Bank to maintain inflation below the critical mark of 2 percent. At the same time, it enabled the SNB to demonstrate its willingness and ability to pursue an autonomous policy vis-à-vis the new European Central Bank (ECB), proving wrong the numerous commentators who had previously predicted that the SNB would gradually lose its ability to pursue an independent monetary policy in the face of the newly created European Monetary Union.

In the course of 2001, the outlook for inflation and business activity changed drastically, first as a result of the stock market decline in the spring and summer of 2001, and then even more with the terrorist attacks and political turbulences after September 2001. This caused the SNB to reverse its policy by lowering the mid-point of its interest rate target band in several steps. The deterioration in worldwide economic conditions and its dampening effect on inflation prospects, including the discussion of deflation fears in the US and elsewhere, led the National Bank to make additional interest rate cuts, resulting in a target band for the Libor of 0.0–0.75 percent, with a target value around 0.25 percent, in March 2003. This extremely loose monetary policy was maintained until mid-2004. It was not until the summer of 2004 that a process of gradual normalisation of monetary policy was initiated. The Libor target value was raised to about 0.75 percent by the autumn of 2004 and, after an extended waiting period, to 1 percent in December 2005. It was clear that without such a correction, inflation would eventually have to accelerate and move out of the price stability range.

The performance of monetary policy under the new concept has so far been remarkably good. Inflation remained low over the entire 2000–2005 period: the critical mark of 2 percent used as a benchmark for defining price stability was not violated in one single quarter. Real economic performance in Switzerland has remained weak, admittedly. However, it is well understood by economists, by the general public, and by international organisations such as the OECD and the International Monetary Fund (IMF), that this is not linked to an overly restrictive monetary policy, but rather to inadequate structural reforms in Switzerland.

11.3 The evolution of the SNB's policy framework

11.3.1 A pioneering role in the development and application of monetary targeting

The SNB, along with the Deutsche Bundesbank, played a pioneering role in the development and application of monetary targeting. Based on the advice of leading monetarists – Karl Brunner was particularly influential – it started to use monetary targeting procedures in the mid-1970s and continued to pursue this approach in one form or another throughout the 1980s and 1990s.

The framework of monetary targeting provided a structured and coherent approach to monetary policymaking. Two roles of such an approach, both equally important, can be distinguished here: its internal role for the analysis

and decision-making process of monetary policy and its external role as a communication device. As a coherent analytical framework based on established economic theory, monetary targeting provided an effective long-term policy constraint and nominal anchor which shaped internal decision mechanisms and policy outcomes in a manner consistent with the SNB's objective of long-run price stability. The focus on money growth also enabled the SNB to communicate its intention to financial markets and the general public quickly and effectively in order to create and maintain an environment of monetary stability. Based on received and accepted theory, this approach served well throughout the 1970s and 1980s as a transparent and effective communication tool. Moreover, money being an observable variable, it encouraged and furthered the application of the principles of accountability to monetary policy.

It should be emphasised that such a 'structured' approach to monetary policymaking and communication, while having become commonplace in the course of the 1990s, was unusual and progressive in the 1970s and 1980s. Many central banks at that time were rather vague and imprecise, not only about their objectives and priorities, but also about how they intended to attain those objectives.

From the very beginning, however, the SNB emphasised that it was going to follow a flexible approach in applying its monetary targeting procedures. The need for flexibility and pragmatic responses in times of difficulty was stressed. The SNB never pursued its money growth targets mechanically. A rigid application was considered unsuitable for a small open economy subject to frequent external shocks. Consequently, the targets were understood as 'state-contingent' or 'conditional' targets. In particular, unexpected and strong movements in the exchange rate were identified from the start as one major contingency. Later, instabilities in money demand and problems resulting from the difficulty in estimating output gap developments were added to the list of events that could justify deviations from previously announced targets. This was similar to the practice of the Bundesbank, whose policy was referred to by its former chief economist, Otmar Issing, as "Verstetigungsstrategie mit diskretionären Elementen" or, loosely translated, a rules-oriented policy with discretionary elements.³ In today's terminology, we would probably speak of 'constrained discretion', with the emphasis on constraint.

This need for flexibility was to be emphasised even more as time went on, as the discussion below will show. Nevertheless, the SNB was quite quickly

3 Issing (1996), p. 286.

able to establish the credibility of the long-term constraint implied by its monetary targeting approach and the underlying commitment to long-run price stability. An essential element contributing to this success was probably that the SNB stressed the medium to long-term orientation of its policy approach from the beginning, and that it repeatedly demonstrated the seriousness of its adherence to this commitment when inflation had broken away from its long-run price stability objective.

When deciding on its money growth target under its monetary targeting framework used in the 1980s, the SNB first determined, as a benchmark, the trend growth rate of money it estimated to be consistent with its objective of price stability ('low inflation') and with potential output growth. It subsequently estimated what former SNB chief economist Georg Rich calls the "activity-induced change in the demand for money"⁴ for the subsequent year. By this, he means the expected change in money demand assuming an unchanged interest rate, based on the SNB's forecasts for real output growth and inflation for the following year. As a further step, the National Bank addressed the question of whether it should fully accommodate the expected activity-induced demand change or not, taking into account expected interest rate adjustments and their feedback on money demand in setting the money growth target. In the first half of the 1980s, it set the money growth target somewhat above the benchmark rate, because it wanted to gradually reduce inflation towards its desired long-run level. In the second half of the 1980s, when price stability had more or less been restored, it set the money growth target at the benchmark level. It always reserved its right, however, to deviate from these targets in the event of unforeseen shocks. In addition, it made a conditional forecast, based on its predictions for output and inflation, of the movements in interest rates which would result from its planned and announced policy course for the following year (originally just for internal use, later publicly announced). The logic of its procedure implied, of course, that an expected adjustment in interest rates would result whenever the SNB set its money growth target away from the activity-induced money demand change.

Some of the estimates involved in these derivations were subject to considerable uncertainty. In particular, the benchmark rate of money growth was difficult to pin down due to the difficulties in estimating potential output growth and, especially, in understanding the trend development of the income velocity of money. In the early 1980s, the benchmark rate was set at 2–3 percent, based on an estimated 2 percent potential output growth, an inflation

4 Rich (2003), p. 20.

objective of 0–1 percent and an unchanged income velocity of money. Later, this rate was changed to 2.5 percent at the end of 1983 and to 2 percent by the end of 1986, as evidence of a positive growth in velocity arose. Ex post, even this turned out to be too high, as velocity increases were underestimated. With hindsight, a benchmark rate of about 1 percent would have been more appropriate. This explains why the SNB did not succeed in lowering inflation below 2 percent in the 1980s.⁵

The SNB's money growth target variable in the 1980s was the MBA. At the time, the shift from M_1 to the monetary base as the SNB's target variable was motivated mainly by the suspicion that the demand for M_1 was unstable due to the influence of exchange rate expectations. While this suspicion was not really borne out by later evidence, the SNB nevertheless continued to favour base money, mainly because of the lower interest elasticity of demand. The power of steady money growth in stabilising economic activity through interest rate adjustments was thought to be strengthened by a low interest elasticity of money demand.

Although the SNB's monetary targeting framework proved to be a highly successful instrument in bringing inflation down to levels consistent with price stability, its approach to annual money growth targets was not without weaknesses and difficulties. These became increasingly apparent over time. In the event of unforeseen shocks, particularly to the exchange rate or to money demand (velocity), but also in the event of unforeseen cyclical developments, the SNB's strategy implied that the monetary target in its capacity as a policy guide had to be reviewed, and possibly revised. This was not necessarily a flaw, as long as the resulting deviations from previously stated targets could be explained and credibly communicated. The National Bank certainly always attempted to do this. Even the fact that the SNB was only imperfectly able to protect the economy from the consequence of such shocks, leading to temporary deviations from price stability and subsequent stabilisation problems, is not inherently a flaw, as no strategy is completely error-proof.

However, shock-intensive times with frequent deviations and complex underlying decisions, paired with a great deal of uncertainty, tended to make communication extremely difficult and rendered annual monetary targets unsatisfactory as the major instrument of informing the public about the central bank's monetary policy intentions. Under such conditions, annual monetary targets necessarily failed to include all the relevant factors taken into account by the central bank in its policy decisions. This was particularly

5 Rich (2003), p. 30.

the case in the 1987–1990 period, due to the financial innovation and regulation-induced changes in base money demand occurring at that time (SIC, liquidity requirement revision). It was thus very hard to extract reliable policy signals from the development of money. This difficulty influenced the SNB's communication efforts and seriously undermined the usefulness of annual money growth targets.

11.3.2 Increasing short-term flexibility through medium-term target paths for money

The money demand shifts of 1988–1990, due to SIC and the revised liquidity requirements, greatly impaired the usefulness of annual monetary targets as an effective monetary policy tool. The frequent deviations and the complexity and difficulty of explaining these to the public entirely discredited them as a useful instrument for providing information and promoting central bank credibility. This induced the SNB to shift to a new, medium-term strategy at the beginning of the 1990s.

This new strategy afforded the National Bank more leeway in its short-run decisions. It may also have helped it to pursue a more forward-looking policy course. Its preoccupation with annual money growth targets may occasionally have prevented the SNB from pursuing a sufficiently pre-emptive policy course, as Rich notes.⁶ Both the inflation surges of 1980/1981 and 1988/1989 occurred during periods of business cycle expansion, which were not adequately taken into account in the money growth targets.

The SNB did essentially adhere to its monetary targeting approach, however, by continuing to use a growth objective for money. The target variable was now the MBSA. Retaining a monetary target variable was strongly motivated by the demonstrated leading-indicator quality of money. The benchmark rate of MBSA growth thought to be in line with price stability and potential output growth was lowered to 1 percent, for reasons already referred to above.

The idea behind the new approach was to fix a medium-term (five-year) target line for the development of the monetary base. This line was intended to represent the development of the monetary base consistent with price stability and the economy's growth potential. In its decisions on the course of monetary policy in individual years, however, the SNB considered not only this medium-term objective, but also a number of other indicators, including in particular the exchange rate, evidence of shifts in money demand, and the cyclical state of the economy.

⁶ Rich (2003), pp. 17, 48.

It was for this reason that the actual evolution of the monetary base during the period when this policy framework was in force deviated strongly, and for extended periods of time, from the announced target paths. During the entire first five-year period, actual base money stayed far below the stated medium-term target path. Only during the second five-year period did it catch up with the target line and start to exceed it. This had its reasons – shifts in money demand, cyclical developments of output and business activity, movements in inflation and nominal interest rates – and could thus be explained, in principle at least. It turned out to be very difficult to convey these explanations to the public, however.

One difficulty was that the SNB believed that it could not simply state its medium and long-term objectives and remain completely silent as regards its short-term policy intentions. Therefore, at the beginning of each quarter, it decided to announce a forecast of the average level of the monetary base for the subsequent three months. This practice was well-meant and intended to provide additional information to the public. However, the forecast, and its relation to the SNB's medium-term target path, was never properly understood by the public, tending to complicate matters, rather than clarifying them.

Nevertheless, the medium-term targeting approach was essentially an improvement on the annual targeting procedure of the 1980s. The idea as such was sound and its logic clear. It was able to help the SNB in its internal policy analysis and decisions, as Rich demonstrates in his detailed and careful study of the SNB's monetary targeting framework and its internal use.⁷ Maybe it would have been a useful and successful device in 'normal' times with less financial innovation and uncertainty concerning money demand shifts and higher stability in money market conditions. Times were not like this, however.

As a communication device, the new approach proved rather unsuccessful. The difficulties for monetary policy inherent in an unstable financial environment in the wake of a turbulent and less-than-successful policy period between 1987 and 1989, with a subsequent surge in inflation, made communication of the new approach extremely challenging to begin with and eventually discredited it, clearing the way for a new policy framework to be developed and adopted by the end of the decade.

In view of the large and prolonged deviations of actual money from the target path set, it became increasingly difficult to convince the public that the

7 Rich (2003), pp. 38–47.

target line was really a meaningful and effective constraint on monetary policy and carried information about the future course of monetary policy. However, the SNB did use this framework in analysing and deciding on its policy course, although it was insufficiently successful in explaining its considerations to the public. Of course, the fact that policy decisions were occasionally in contradiction to what its medium-term money growth framework would have implied, such as in 1994, was not helpful either.

Another question can be raised regarding the adequacy of this policy framework as a communication instrument. The use of a five-year target path can be interpreted as containing an element of price level targeting. It suggests that past deviations will be corrected at some stage in the future. It remains unclear, however, whether this was really intended. If not, the target path may not have been the ideal communication tool.

One major difference between the 1990s and the preceding periods that was increasingly regarded as a problem and, together with the observed instability of reserve demand, eventually paved the way for the adoption of a policy implementation via control of a short-term interest rate (rather than control of aggregate reserves) by the end of the 1990s, is that the institutional innovations of the late 1980s markedly changed the composition of the monetary base between bank reserves and notes in favour of the latter (cf. chapter 11.3.4).

One danger of the continued reliance on money as the major monetary policy indicator was probably that it prevented the SNB from focusing the necessary attention on interest rates. To some degree, the resistance to switching to a more explicit consideration of interest rates may have been motivated by the fear of increasing political interference under an interest rate regime, particularly in view of the strong link between interest rates and housing rents which had developed in Switzerland during the 1980s.

A rather ironic aspect of this period is that, at a time when the SNB's main communication problem was explaining the deviations of money from its money growth target path to the public, it was frequently criticised by many observers for being a prisoner of its allegedly purist 'monetarist' beliefs.

11.3.3 Inflation forecasts as the main policy indicator

The National Bank adopted its current monetary policy framework in December 1999. It was designed at the time after careful examination of the frameworks suggested by the inflation targeting model on the one hand, and the ECB's two-pillar system on the other. The SNB decided to follow neither of these without modification. The new framework is based on what

can be called the core ideas of inflation targeting,⁸ but it adopts these ideas in a moderate and flexible form only, and distinguishes itself in important ways from 'narrow' inflation targeting as introduced and practiced by many central banks since the early 1990s. For this reason, and also in order to stress the continuity of its policy, the SNB has consciously refrained from using the term 'inflation targeting' to characterise its new framework. This framework appears to be remarkably close to the type of policy that is favoured by leading participants in today's discussion on 'best practice' monetary policy.⁹

The main characteristics of the SNB's current policy framework can be summarised by the following principles:

- Priority for long-term price stability as a firm nominal anchor, with an explicit quantitative definition of what is meant by price stability.
- A medium-term orientation in the pursuit of this objective, giving scope for short-run flexibility and real economic stabilisation.
- A forward-looking approach in the pursuit of its objectives by using an inflation forecast as its main policy indicator.
- A flexible implementation of monetary policy by announcing a target range for the three-month Libor as an operational target.
- Transparency and accountability as central principles of a successful policy concept.

The National Bank Act that entered into force in 2004 mandates the SNB to ensure price stability. In so doing, the National Bank is to take due account of business cycle conditions. The SNB is required to resolve any short-run conflicts between the objective of price stability and real economic developments to the best of its ability, taking into consideration the interests of the country as a whole (in contrast to individual regions or industries) and giving priority to long-term price stability. The legal mandate is thus hierarchical: price stability as the overriding objective of monetary policy is prescribed by existing central bank legislation. However, it is up to the SNB itself to provide a specific interpretation of the meaning of this mandate. The National Bank has decided to do so in terms of a quantitative definition of price stability, rather than via short-term inflation targets. The importance of this distinction lies in the implied emphasis on the medium to long-term horizon. A definition of price stability, by its very nature, is valid for an extended period of time. A short-term inflation target, meanwhile, can be changed over time

8 As represented, for example, by Bernanke et al. (1999).

9 As represented, for example, by the views of Bernanke (2004) or Faust and Henderson (2004).

(and has been changed in the case of many inflation targeting countries). A quantitative definition of price stability therefore represents a more reliable commitment to monetary stability than an inflation target which can be adjusted over time in a discretionary and unpredictable manner. Consequently, it represents a central element in the National Bank's approach. The SNB is convinced that even for a central bank with a high credibility capital, such a commitment makes a valuable contribution to anchoring long-term expectations and market confidence.

The SNB defines price stability as a rise in the national CPI of less than 2 percent per annum. It is recognised that the CPI probably overstates actual inflation to some extent.¹⁰ As a result, price stability is equated with a slightly positive (measured) inflation rate. Deflation – i.e. a persistent downward trend in the price level – is clearly ruled out as inconsistent with price stability. The SNB's policy regarding inflation is based on a medium to long-term orientation. While it reacts decisively to an inflation rate that is persistently above 2 percent, there are situations in which it would permit temporary deviations from this mark. In a small open economy, exceptional situations with sharp exchange rate fluctuations can arise, causing inflation to move temporarily outside the price stability range. Abrupt price increases for imported goods, such as oil, or adjustments in certain tax rates can also result in a brief violation of the price stability definition. It is neither possible nor necessary for the central bank to prevent this.

The SNB's approach is based on clear recognition of the fact that its potential for short-term stabilisation of the real economy, included in its legal mandate as a subsidiary task, is improved by the strength of its commitment to long-run price stability. First of all, low long-term inflation and inflation expectations by themselves ensure that output and employment deviations from normal levels remain limited. Equally important, the more firmly long-term inflation expectations are anchored at a low level, the more successful the central bank can be in its contribution to preventing cyclical swings in output and employment. In addition, the SNB's approach strongly appreciates the insight that, in the long run, public perception of its policy is determined by actions, not words. A high level of credibility, based on its past policy record, is a precondition for a successful monetary policy under its current framework. Overly ambitious efforts at short-run stabilisation, therefore, could easily become counterproductive and must be avoided.

10 Brachinger, Schips and Stier (1999).

Beyond this, the SNB is of the firm belief that a clear perception of what the central bank can and cannot achieve increases the transparency of monetary policy, thereby augmenting effectiveness. Moreover, it helps improve the quality of public debate on monetary policy, including that relating to its potential for short-run stabilisation.

Finally, the well-known existence of lags in the transmission of monetary policy impulses dictates that monetary policy must be forward looking. In its quarterly reviews of its policy, the SNB publishes a forecast of future inflation over the three subsequent years. This inflation forecast plays an important role as the main indicator of the monetary policy stance in the new framework. The inflation forecast is employed, in principle, as suggested by standard inflation (forecast) targeting procedures. If the inflation forecast indicates a violation of the price stability range, monetary policy needs to be reviewed. If inflation threatens to exceed the 2 percent level, the SNB will consider tightening its monetary policy. If the forecast indicates a risk of deflation, it will consider relaxing its policy. The SNB never reacts mechanically to the inflation forecast, however; it always takes into account the general economic situation in determining its policy reaction. By publishing a medium to long-term inflation forecast, the SNB stresses the need to adopt a forward-looking approach and to react at an early stage to any inflation or deflation threats.

The inflation forecast is based on the assumption that the three-month Swiss franc Libor (the SNB's chosen reference rate) will remain constant over the forecasting period (conditional forecast) and is based on a scenario for the development of the world economy. The inflation forecast thus indicates the future course of prices under the assumption of specified economic conditions and an unchanged domestic monetary policy environment. The three-year horizon corresponds to the time normally needed for the complete transmission of monetary policy impulses.

Forecasts over such a horizon are obviously subject to formidable uncertainties. The National Bank has accumulated significant experience in the formation of inflation forecasts. The forecast is based on a variety of indicators and on the information provided by several technical forecasting models developed and run by the SNB's research staff, including a medium-sized and a small structural model of the Swiss economy, as well as different types of vector autoregression (VAR) and structural vector autoregression (SVAR) models, and combinations thereof. The SNB still values the information content of money and credit indicators, especially with regard to the medium to longer-term inflation perspectives. In its report on monetary policy, the SNB regularly issues statements on the development of the principal indicators

taken into account. In various issues of its Quarterly Bulletin, moreover, it has published details of the technical models it uses to forecast inflation. The publication of its inflation forecast helps market participants understand monetary policy decisions and form expectations. It is well understood that use of state-of-the-art technology in producing forecasts and intellectual honesty in employing them are essential instruments of transparency and accountability, and are a necessary prerequisite of a successful monetary policy.

The new framework has performed quite well so far, despite occurring in a period characterised by a variety of severe shocks and disturbances. The concept has been well received by the public and the financial community. After some brief initial reservations, it has quickly become accepted as an efficient instrument of central bank communication, allowing the SNB to explain the aim and direction of its policies effectively. Although based on a tradition of transparency and accountability already developed during the era of monetary targeting, it is generally perceived as a definite improvement on previously existing practices in these areas. This has been attested on numerous occasions by international organisations such as the IMF or the OECD.

11.3.4 Policy implementation

Another important change to the new policy framework concerns policy implementation. At the operational stage, the SNB currently implements its policy by influencing the interest rate level in the money market. Under its monetary targeting approach, it had preferred using bank reserves as its operational target variable. Under its current procedure, it fixes a target range for the three-month Libor in Swiss francs (the most important money market rate for Swiss franc investments) and publishes it regularly. Normally, this range has a width of one percentage point.

Additionally, the SNB determines and announces in which area of this fairly wide band it wishes the Libor to stay. In most cases, this is the mid-point of the announced target range. The justification for announcing a range, rather than a point target, is that this allows the SNB to react flexibly to shocks, especially foreign exchange market shocks or problems regarding liquidity distribution, without signalling a change in its basic policy perspective. The fact that for a small open economy with an important currency and financial market a certain short-run flexibility in interest rates is needed and desirable is well understood by market participants. Given the SNB's credibility accumulated over years of reliable, stability-oriented policymaking, defining policy in terms of a range is well able to firmly anchor the public's

perception of medium and long-term policy intentions. Consequently, permitting temporary fluctuations in the money market rates is possible without adversely affecting market expectations. The choice of the Libor, i.e. an offshore rate, is motivated by the depth and importance of this market, which cannot easily be manipulated by individual market participants and thus reflects true demand and supply conditions in the short-term market for Swiss franc funds. The choice of a three-month rate (rather than, say, the overnight rate) is again motivated by the desire to gain some flexibility in the very short-term rates. The SNB does not have direct control over the three-month Libor. It does control it indirectly, however, through its repo transactions with banks, which allow it to control rather closely the very short-maturity rates, especially the overnight rate. Through arbitrage and expectations, the three-month Libor is fairly closely linked to these very short-term rates. The SNB regularly reviews its target range for the three-month Libor at its quarterly policy assessments. If necessary, it may also change the target range between these regular assessments. The SNB explains the reasons for its decision on the day it is announced.

The transition to a short-term rate of interest as the operational target variable of SNB policy under the new concept was a natural step. While in the 1970s and 1980s, the SNB had used bank reserves – which were negatively related to short-term interest rates at that time – as its operational target variable, in the course of the 1990s it started to look increasingly directly at short-term rates to judge the ease or tightness of its policy. The main reasons for this were the instability of base money demand, which was increasingly perceived as a problem, and the fact that the financial innovations of the late 1980s had reduced not only the size of banks' demand for reserves, and thereby changed the composition of the monetary base, but also strongly lowered the interest rate elasticity of reserve demand. This in turn affected the link between bank reserves and contemporaneous short-term interest rates. Shifts in reserve demand under conditions of low interest elasticity of reserve demand result in a high volatility of short-term interest rates under a bank reserve target.

11.4 Policy performance: 1980–2005

11.4.1 Successes and failures

There is no question that overall, the SNB's policy approach and performance over the last twenty-five years have been highly successful. The inflation record of the SNB across this entire period is second to no other major central

bank. There were extended periods in which inflation consistently remained low, such as between 1982 and 1988 – at a time when this was not the case in many other countries in the industrialised world – and then again from 1993 to the present. The SNB has successfully managed to establish an environment of confidence and credibility. Together with the stability of the political system, this has been a major force in creating financial tranquillity and a level of nominal interest rates which has consistently stayed below that prevailing in other currency areas.

Nevertheless, the SNB's monetary policy was also marred by a number of failures, and it turned out to be quite controversial in certain phases. In particular, there were surges of inflation in 1980/1981 and then again in 1988–1990. In both cases, this made subsequent phases of monetary tightening and consolidation necessary, with the usual resulting stabilisation costs. In the early 1990s, especially, this consolidation period was marked by economic recession and sluggish growth – partly for reasons for which monetary policy cannot be held accountable – and resulted in criticism of monetary policy of a sort the SNB had not faced at any other time over the previous decades.

11.4.2 First critical episode: inflation surge of 1980–1981

As mentioned in 11.2.1 above, the SNB had temporarily abandoned its money stock policy due to an enormous real appreciation of the Swiss franc in 1978/1979, by very markedly surpassing its original money growth target for 1978 and then abstaining from setting such a target for 1979.

Many observers interpreted the subsequent surge in inflation in the years 1980/1981 as a belated, and to a certain extent, unavoidable consequence of this policy switch. As Rich points out, a belief developed, also among many SNB officials, that attempts to halt and reverse an excessive appreciation of the domestic currency through monetary expansion would inevitably lead to penalisation in the form of a subsequent acceleration in inflation.¹¹ According to Kurt Schiltknecht, Chairman Fritz Leutwiler, after his retirement from the National Bank in 1985, declared the policy change of 1978 to have been a major mistake, in retrospect.¹²

Such a judgement is wholly unjustified; the decision for monetary accommodation was appropriate at the time. The appreciation of the Swiss franc which took place then was so enormous that it could hardly be explained by

¹¹ Rich (2003), p. 27.

¹² Schiltknecht (1989), p. 253.

anything but a strong increase in the demand for Swiss currency. A non-accommodating policy, under these circumstances, would have caused very serious damage to the real economy.

The SNB was well aware of the fact that the liquidity expansion created in 1978/1979 would have to be eliminated again if inflationary consequences were to be avoided. In principle, it endeavoured to achieve just that, yet the surge in inflation of 1980/1981 still happened. What went wrong?

As Schiltknecht has argued, the SNB was too reluctant in 1979 and 1980 to reduce this monetary overhang. The author of this article came to the same conclusion in his early review of Swiss monetary policy of that period.¹³ Peter Kugler and Georg Rich maintain that the SNB adopted an insufficiently pre-emptive policy stance when the economy embarked on a cyclical expansion in 1979.¹⁴ Had it been able to rely on the inflation forecast procedures available today, rather than on the monetary targeting strategy it employed at the time, it would have pursued a more restrictive policy course in 1979 and 1980 than it actually did, and thus might have prevented the inflation acceleration experienced in 1980/1981. Of course, the SNB did not have these instruments at its disposal at the time. Had it paid more attention to the business cycle in determining its money growth targets, however, it might have achieved better results.¹⁵ In a way, this episode merely illustrates the difficulties of an independent monetary policy in an environment of unstable monetary conditions and a high degree of uncertainty.¹⁶

11.4.3 Second critical episode: monetary overexpansion of 1987–1990

The single major policy error the SNB made over the last twenty-five years was in the 1987–1989 period. Various factors combined to induce the SNB to pursue a policy course which, in retrospect, turned out to have been far too expansionary. All of these factors were difficult to judge at the time. It is easy to criticise the National Bank from today's vantage point. It is less clear whether another approach based on information available at the time would have been more successful in avoiding this mistake. Nevertheless, it is probably fair to say that a stronger reliance on interest rate signals would have been appropriate during that period.

This policy error caused the 1989/1990 surge in inflation. It led to a major speculative bubble in real estate in particular and to an overheated economy

13 Baltensperger (1985).

14 Kugler and Rich (2002).

15 Rich (2003), p. 27.

16 Baltensperger and Böhm (1984).

in general which, when the bubble burst and the boom came to an end after the necessary monetary policy correction in the early 1990s, represented a huge burden of adjustment for the Swiss financial sector and the country's real economy. These adjustment problems were not the only reason (another one being the slow course of major structural economic policy reforms), but they did contribute significantly to the sluggish course of the Swiss economy right through the first half of the 1990s. It is ironic – although not totally surprising – that public criticism of the SNB centred much more on the monetary restrictions of the early 1990s, which necessarily had to follow the monetary overexpansion of the late 1980s, rather than on the overexpansion itself.

What were the difficulties facing the SNB between 1987 and 1990? Characteristic of 1987 initially were a strong real appreciation of the Swiss franc and a slowdown in the real economy in Switzerland. This induced the National Bank to allow its monetary target to be exceeded. The stock market crash of October 1987 further induced the SNB, like other central banks all over the world, to inject additional liquidity into the economy.

The major difficulties for Swiss monetary policy during this period, however, were specific to Switzerland. They were caused by financial innovations, such as the introduction of SIC and the change in the liquidity requirements regulating banks' management of their liquidity positions. Both of these changes contributed to a large decline in the banking system's demand for base money reserves. That such a decline was to be expected was clear. Just how large it was going to be and how long the period would be for the banking system to adjust its behaviour to the new institutional environment were subject to a great deal of uncertainty, however. This made the SNB's task highly demanding and risky.

In December 1987, the National Bank worked with an estimation of the innovation-induced decline in base money demand of 3 percent for 1988. The fact that it did not adequately explain in its public announcement that it expected such a decline helped to create the perception that the SNB had not grasped the implications of these institutional changes for base money demand and monetary policymaking.

In any case, it turned out that bank reserve demand fell much more strongly and also more quickly than the SNB had assumed. Thus, in 1988, the SNB ended up undershooting its monetary target by about 7 percent. In spite of this, short-term interest rates fell sharply to very low levels, emitting signs that monetary policy was still very expansionary. The National Bank justified its slow response by its desire to ease the banks' adjustment to the new

institutional conditions. In retrospect, it can be concluded that it attempted to respond too gradually on this occasion.

Furthermore, in the course of 1988, it became clear that the economy, both in Switzerland and worldwide, was growing more strongly than had been anticipated. In Switzerland, in particular, it was approaching a state of overheating. Due to the SNB's slow response to the drop in base money demand, short-term interest rates continued to stay low, further fuelling the economic expansion and inflation pressures. Consequently, the course of monetary policy throughout 1988 remained highly expansionary, far more so than the SNB had originally intended.

In its December 1988 forecast for 1989, the SNB once again underestimated the expansion of the Swiss economy and again announced a course that would eventually turn out to be too easy. Only in 1989 did it start to tighten its policy by letting short-term interest rates rise to almost 9 percent by the end of the year (as compared to 5 percent at the beginning of the year). It had become clear by then that monetary policy over the preceding two to three years had been far too expansionary.

For 1990, the SNB correctly predicted a decline in output growth, but strongly underestimated the course of inflation, which accelerated to a rate exceeding 6 percent by mid-1990. As a result, it had to tighten its policy once more (after a temporary relaxation in the summer of 1990 because of the first signs of a cyclical slowdown). Again, it permitted less money growth than it had originally announced. The target deviation in 1990, in contrast to the preceding years, no longer reflected a downward shift in base money demand, but rather highlighted the necessity of pursuing a tighter monetary policy than originally anticipated in view of the dynamics of inflation.

The SNB's task in the late 1980s was complicated, in comparison to the situation in earlier times, by the development of a number of indexing mechanisms over the 1980s which helped to reinforce inflationary impulses, most notably one linking housing rents to mortgage interest rates. Since housing rents are an important influence on the Swiss CPI, inflation tends to increase in the short-run when monetary policy is tightened. This is one reason why the strength of the inflation increase in 1990/1991 was considerably underestimated by the SNB. Thus, while the policy course of 1987–1989 represents a clear policy mistake, it is difficult to say whether other approaches to policymaking would have helped the SNB to choose a better response. Again, the one conclusion which can be made is that it should have paid more attention to interest rate signals in this period.

11.4.4 Third critical episode: currency appreciation and monetary overrestriction of 1994–1995

By 1994, economic conditions in Switzerland had improved considerably. Inflation had declined to almost 2 percent and an economic recovery seemed to be around the corner. However, the situation was characterised by considerable uncertainty, both with respect to cyclical conditions and to inflation. Doubts as to the reliability of the economic recovery were still widespread. So too were fears of a possible reignition of inflation, not least in connection with the introduction of a new value added tax, which was to become effective at the beginning of 1995 and was expected to lead to a temporary jump in inflation.

The Swiss franc appreciated in real terms, creating challenging conditions for the Swiss export sector. The monetary base ceased to increase in the summer of 1994 and even began to decline again. Despite this signal of its monetary indicator, the SNB decided to adhere to a relatively restrictive policy which amounted to leaving interest rates unchanged at the level reached at the end of 1993. The main motivation for this was the concern about the potential inflationary effects of the expected cyclical upturn, together with the expected effects of the new value added tax. Ex post, it turned out, however, that the SNB, along with other forecasters, had overestimated the strength of the cyclical recovery.

Towards the end of 1994, the National Bank allowed short-term interest rates to decline somewhat. However, for 1995, the SNB (and many other forecasters) again overestimated output growth. Consequently, it could not yet convince itself to switch clearly to an easier policy. Actually, the monetary base grew less than it should have according to the SNB's intentions. The economic recovery remained weak, particularly because of a massive real appreciation of the Swiss franc. Finally, in the spring of 1995, the SNB began to reverse its course and to lower interest rates decisively. This helped to reverse the upward trend of the Swiss currency. The Swiss economy continued to stagnate, however, partly for external reasons (a slowdown in the German economy, in particular), causing the SNB to lower interest rates further in December 1995. This notwithstanding, the slump in the Swiss economy continued throughout 1996.

Several remarks are in order concerning this episode of Swiss monetary policy:

The SNB was very strongly criticised for its policy in 1994 and 1995, both at the time and ex post. While this criticism is justified for 1994 – its policy was clearly too restrictive in retrospect – inspection of the facts shows that

for 1995 it is not. The SNB first began to relax its policy at the end of 1994, and continued to loosen it decidedly after the spring of 1995. Of course, results would have been better had it already changed its course in the summer of 1994.

Many critics of the National Bank blamed this error on the monetary targeting framework it still adhered to at the time. The SNB was admonished for being a slave to its 'monetarist' convictions and tradition. This is not justified, however. In fact, the signals provided by its money indicator (being far below its target value) at the time pointed in the right direction, but were overruled in the SNB's decision process by other indicators supporting a different course.

One main reason for this policy error was a misjudgement of the cyclical development of the economy: business cycle expectations were too optimistic – not just those of the SNB, but also those of most other forecasters. An error remains an error, however. That said, realism and honesty suggest that this is a type of error which, in principle, can occur at any time under any policy strategy. No policymaker and no central bank strategy can be totally immune to misjudgements of this sort. Another reason for this misjudgement was the fear of reigniting inflation. This again was not totally unjustified at the time. The influence of the new value added tax has been mentioned. In addition, the recollection of the experience of 1980/1981, where the SNB had been too tardy in switching to a restrictive stance, thereby sparking an acceleration of inflation, probably weighed heavily on the minds of many SNB officials (and other observers).

Finally, it should be reiterated that the 'original' and major policy error at the outset of this entire process had occurred with the monetary overexpansion of 1987–1989. In a way, the problems of 1994/1995 represented a 'derived' problem in the aftermath of the inflation surge of the early 1990s and the need for monetary corrections made necessary by it.

11.4.5 Was the SNB's policy too monetarist and not flexible enough?

Some of the more extreme critics of SNB policy claim that Swiss monetary policy throughout the last twenty-five years was too strongly 'money stock-oriented' and not flexible enough. A representative example of such a view is found in Franz Ettlín and Serge Gaillard.¹⁷ These authors argue that Swiss monetary policy, until mid-1996, was characterised by a complete lack of willingness to use its instruments flexibly in the pursuit of economic stabilisation.

¹⁷ Ettlín and Gaillard (2001).

Throughout the entire 1989–1996 period in particular, it was far too restrictive and represented the main reason for the stagnation of the Swiss economy during this phase, in their opinion. A more expansionary policy, aimed at preventing exchange rate appreciations, would have allowed a much more favourable macroeconomic performance.

As the above discussion has shown, SNB policy over this period was not without its weaknesses. In this general form, however, the criticism is entirely untenable. SNB policy after Bretton Woods was characterised by a large amount of short-term flexibility from the beginning. The SNB demonstrated its readiness to deviate from announced money growth targets when this was deemed necessary as early as 1977/1978, in its response to the massive real exchange rate appreciation of those years. It did this in order to prevent damage to the real sector of the Swiss economy, in spite of the risks such a policy represented for its price stability objective. The SNB has proven on numerous other occasions that it was willing to take into account considerations and indicators other than money stock objectives in its policy decisions. Its record in terms of flexibility is thus much more favourable than is alleged by Ettlín and Gaillard. However, the SNB has always – correctly – kept its long-run commitment to price stability, and the money stock targets that were designed to serve this commitment, foremost in its mind. In those instances where inflation, for whatever reason, broke out of its price stability range, the SNB moved decisively to restore price stability. This was not a flaw, but rather the source of its overall success.

Ettlín and Gaillard argue that the National Bank should have conducted a much more expansionary monetary policy aimed at lowering interest rates and avoiding exchange rate appreciation for the Swiss currency between 1991 and 1996. Implicitly, they assume that such a policy course would have had no adverse effects on inflation, inflation expectations and long-run market rates of interest. In fact, this is an issue hardly touched upon by them. They merely see the beneficial effects their suggested policy would have had on aggregate demand.

However, this is an extremely unlikely course of events. Inflation expectations were not yet stabilised at low levels in 1991–1994. Fears of a reacceleration of inflation were still widespread. Such a policy would probably have been highly unstable and led to much greater problems in the years to come. The fact that after 1995, when inflation and inflation expectations were once again finally broken and stabilised at a low level, low interest rates were compatible with price stability and a revitalised economy is no evidence of the unlimited powers of an activist and expansionary monetary policy, as Ettlín

and Gaillard seem to believe. Rather, it confirms that economic stability and growth are enhanced, and low nominal interest rates caused, by a credible commitment to monetary stability.

It should also be mentioned that Ettlin and Gaillard claim that the SNB only changed its monetary policy stance after mid-1996, and they locate a break in SNB policy at this time. This allegation – which has been taken up by others – is not supported by facts. The National Bank's switch to an expansionary policy took place at the end of 1994 and, particularly, in the first half of 1995.

11.4.6 Should the SNB's policy have been more exchange rate-oriented?

The adoption of a strategy with a more explicit orientation towards the exchange rate was often suggested by various observers of SNB policy, especially during the 1990s.¹⁸ According to Rich, the National Bank did consider various possible schemes for combining monetary targeting and price level objectives with target zones for the exchange rate, especially the Swiss franc/German mark rate.¹⁹ However, based on the difficulties of such schemes as revealed in their international discussion, the SNB came to the conclusion – and rightly so – that their risks exceeded their benefits. If a narrow zone had been adopted, this would have been close to a return to a fixed exchange rate, with all its disadvantages – loss of monetary autonomy, disappearance of the Swiss interest rate bonus. Furthermore, it is not clear that an exchange rate peg, even against a currency characterised by price stability, such as the German mark, would have been consistent with a trend of stable prices in Switzerland, given the trend of real appreciation of the Swiss franc against the mark and other currencies observed over the last twenty-five years.

Under a fixed nominal exchange rate, such a trend, had it persisted, would have revealed itself in the form of a higher inflation in Switzerland.²⁰ Furthermore, given the strong commitment of the SNB to price stability in the past, an exchange rate orientation of Swiss monetary policy might have faced a severe credibility problem and speculative tests.²¹

The adoption of a wide exchange rate target zone, meanwhile, would not really have changed much. A general awareness in the public that the SNB was considering the exchange rate in its policy setting existed in any case. The choice of a specific target zone might even have been counterproductive, by

18 Cf., for example, Brunetti and Hefeker (1998); Weizsäcker (1998).

19 Rich (2003), p. 31.

20 Genberg and Kohli (1997).

21 Baltensperger, Fischer and Jordan (1999).

inducing speculative behaviour designed to test the seriousness of the SNB's commitment to defend this zone, or to reveal its boundaries in the case of an informal and not publicly announced range.

11.5 Conclusion

The National Bank has come a long way in its policy concept and policy execution over the last twenty-five years. As the review above shows, it has made a significant contribution to the intellectual debate on monetary policy concepts and their evolution over this period. The SNB played a pioneering role in the application of monetary targeting in the 1970s and 1980s. It attempted to transform this approach into a more explicitly flexible and medium-term oriented procedure in the 1990s. While well meant, this attempt met with mixed success. Finally, by defining its new concept, to become effective in December 1999, the SNB appears to have contributed to a new framework, which looks very modern in view of today's international discussion among leading monetary policy experts with regard to best practice monetary policy.

However, this essay ought to end on a humble note. While policy concepts are important and do matter, one should nevertheless always keep in mind that no framework or 'system' is fully error-proof, and no central banker is completely infallible. Thus, monetary policy, in all likelihood, will always remain an art. The SNB's experience with the application of its concepts in practical policy execution provides numerous illustrations of both the possible successes and the possible pitfalls in the performance of this art.

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12 Inflation targeting: true progress or repackaging of an old idea?¹

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12.1 Introduction

In 1990, a new monetary strategy was born: inflation targeting. Inflation targeting embodies five key elements:

1. Public announcement of medium-term numerical targets for inflation.
2. An institutional commitment to price stability as the primary, long-run goal of monetary policy and a commitment to achieve the inflation goal.
3. An information-inclusive strategy in which many variables and not just monetary aggregates are used in making decisions about monetary policy.
4. Increased transparency of the monetary policy strategy through communication with the public and the markets about the plans and objectives of monetary policymakers.
5. Increased accountability of the central bank for attaining its inflation objectives.

Since the initial adoption of inflation targeting in early 1990 by New Zealand, inflation targeting has grown in popularity: over twenty countries have adopted this monetary strategy, and once adopted, no country has abandoned inflation targeting unless it opted to give up monetary policy independence altogether by joining the European Monetary Union (such as Finland and Spain).

How new an idea is inflation targeting? After all, many central banks had made price stability a goal long before the advent of inflation targeting. Is inflation targeting really a major step forward in central bank practice, or is it nothing more than just old wine in a new bottle?

This paper examines these questions by providing a history of the economic ideas and central bank practices over the last forty-five years that led to the development of inflation targeting. It will argue that there has been an evolution of ideas and central bank practices that have led to current thinking on what constitutes best practice in central banking, and that inflation targeting is the culmination of this process. Inflation targeting is indeed something new and can be regarded as true progress given its many advantages

1 Any views expressed in this paper are those of the author only and not those of Columbia University or the National Bureau of Economic Research. I would like to thank Ulrich Kohli for his comments.

over earlier monetary policy strategies. It is not revolutionary, however: rather it is a refinement of what has gone before. In fact, inflation targeting continues to evolve as we speak and will continue to be improved in the future.

12.2 Central banking in the 1960s

The 1960s began with a relatively benign inflation environment, particularly in the United States, where inflation was running at an annual rate of a little over 1 percent. (Inflation rates were higher in countries such as the United Kingdom, Germany, France and Japan, but were still below 4 percent in 1960.) The strategy at the Federal Reserve and many other central banks was one in which the central banks focused on ‘money market conditions’, in other words on variables such as nominal interest rates, bank borrowings from the central bank and free reserves (excess reserves minus borrowings).² In addition, economists armed with Keynesian macroeconomic models argued that they could fine-tune the economy to produce maximum employment with only slight inflation consequences. Particularly influential at the time was a famous paper by Paul Samuelson and Robert Solow³ which argued that work by Alban Phillips,⁴ which became known as the Phillips curve, suggested that there was a long-run trade-off between unemployment and inflation and that this trade-off should be exploited. Indeed, Samuelson and Solow even mentioned that a non-perfectionist’s goal of a 3 percent unemployment rate could be attained at what they considered to be a low cost of inflation of 4 to 5 percent per year. This thinking by the then dominant Keynesian economists led to increased monetary and fiscal policy activism to get the economy to full employment. However, the subsequent economic record was not a happy one. Inflation accelerated, with the inflation rate in the US and other industrialised countries eventually climbing to above 10 percent in the 1970s, leading to what has been dubbed the Great Inflation, while the unemployment rate deteriorated from the performance in the 1950s.

The counterattack to policy activism initially came from the monetarists led by Milton Friedman. Friedman, in a series of famous publications in 1963, established that fluctuations in the growth rate of the money supply were far more capable of explaining economic fluctuations and inflation than nominal interest rates.⁵ Karl Brunner and Alan Meltzer in a Congressional

2 For a description of economic thinking and monetary policy practice in the 1960s, cf. Mayer (1998); Romer and Romer (2002).

3 Samuelson and Solow (1960).

4 Phillips (1958).

5 Friedman and Schwartz (1963a, 1963b); Friedman and Meiselman (1963).

testimony criticised the use of money market conditions to guide monetary policy and suggested that targeting monetary aggregates would produce better policy outcomes.⁶ In his famous 1967 presidential address to the American Economic Association (published in 1968), Friedman⁷ along with Edmund Phelps argued that there was no long-term trade-off between unemployment and inflation, but rather the economy would gravitate to a natural rate of unemployment in the long run no matter what the rate of inflation.⁸ In other words, the long-run Phillips curve would be vertical, and attempts to lower unemployment below the natural rate would only result in higher inflation. The monetarist counterattack implied that monetary policy should be focused on control of inflation and that the best way to do this would be to pursue steady growth in the money supply.

12.3 Central banking in the 1970s: the advent of monetary targeting

The monetarist counterattack was not successful at first in getting central banks to increase their focus on controlling inflation and money supply growth. In the early 1970s, estimates of the parameters of the Phillips curve did not yet suggest that the long-run Phillips curve was vertical. Furthermore, economists and policymakers were not fully aware of the importance of expectations to the effect of monetary policy on the economy, which would have led them to accept the Friedman-Phelps natural rate hypothesis more quickly. Also, estimates of the natural rate of unemployment were far too low, thus suggesting that increases in inflation, which were occurring at then prevalent unemployment rates, were the result of special factors and not an overly expansionary monetary policy.⁹

Starting in the early 1970s, Robert Lucas launched the rational expectations revolution in a series of papers.¹⁰ The theory of rational expectations made it immediately clear why there could be no long-run trade-off between unemployment and inflation, so that attempting to lower unemployment below the natural rate would only lead to higher inflation, and no improvement in performance in output or employment. Indeed, one implication of rational expectations in a world of flexible wages and prices was the policy ineffectiveness

6 Brunner and Meltzer (1964a, 1964b, 1964c).

7 Friedman (1968).

8 Phelps (1967).

9 Mayer (1998); Romer and Romer (2002).

10 Lucas (1972, 1973, 1976). The paper of 1976 was already very influential in 1973, when it was initially presented at the first Carnegie-Rochester Conference. Note that, although Muth (1960, 1961) introduced the idea of rational expectations over ten years earlier, his work went largely unnoticed until resurrected by Lucas.

proposition which suggested that a constant money growth rate rule along the lines suggested by Friedman does as well as any other deterministic policy rule with feedback.¹¹ All that policy activism advocated by Keynesian economists would produce would be higher and more variable rates of inflation.

The rational expectations revolution also made clearer the need for the use of a nominal anchor, a nominal variable such as the inflation rate or the money supply, which ties down the price level to achieve price stability. Adherence to a nominal anchor that keeps the nominal variable within a narrow range promotes price stability by directly promoting low and stable inflation expectations.

Events on the ground were also leading to a rejection of policy activism. Inflation began a steady rise in the 1960s and, in the aftermath of the 1973 oil price shock, it climbed to double-digit levels in many countries. Economists,¹² but also the public and politicians, began to discuss the high costs of inflation. The ideas espoused by monetarists that central banks needed to control the growth rate of monetary aggregates came to the fore.

In the mid-1970s, a number of industrialised countries began to engage in monetary targeting, which involved three elements. Firstly, reliance on information conveyed by a monetary aggregate to conduct monetary policy, secondly, the announcement of medium-term targets for monetary aggregates, and finally, some accountability mechanism to preclude large and systematic deviations from the monetary targets.¹³ The Federal Reserve started to follow weekly tracking paths for M_1 and indicated its preferred behaviour for M_2 . Then, in 1975, in response to a Congressional resolution, the Federal Reserve began to announce publicly its targets for money growth. The UK commenced informal targeting of a broad monetary aggregate, sterling M_3 , in late 1973, and began formal publication of targets in 1976. The Bank of Canada instituted monetary targeting in 1975, under a programme of 'monetary gradualism', in which M_1 growth was to be controlled with a gradually falling target range. In late 1974, both the Deutsche Bundesbank and the Swiss National Bank began to announce money stock targets, with the Bundesbank choosing to target central bank money, a narrow aggregate that was the sum of currency in circulation and bank deposits weighted by the 1974 required reserve ratios, and the SNB targeting M_1 . In 1978, the Bank of Japan announced 'forecasts' of growth rates of M_2 (and after 1979, $M_2 + \text{CDs}$, certificates of deposit).

11 Sargent and Wallace (1975).

12 Cf., for example, the surveys in Fischer (1993); Anderson and Gruen (1995).

13 Cf. Bernanke and Mishkin (1992).

12.4 Central banking in the late 1970s and 1980s: the failure of monetary targeting?

Monetary targeting had several potential advantages over previous approaches to the conduct of monetary policy. Announced figures for monetary aggregates are typically reported periodically with very short time lags, within a couple of weeks, allowing monetary targets to send signals almost immediately to both the public and markets about the stance of monetary policy and the intentions of policymakers to keep inflation in check. These signals can help to modify inflation expectations and produce less inflation. Monetary targets also have the advantage of being able to promote almost immediate accountability of monetary policy to keep inflation low.

These advantages of monetary aggregate targeting depend on one key assumption: there must be a strong and reliable relationship between the goal variable (inflation or nominal income) and the targeted aggregate. If there is velocity instability, so that the relationship between the monetary aggregate and the goal variable is weak, then monetary aggregate targeting will not work. The weak relationship implies that hitting the target will not produce the desired outcome on the goal variable and thus the monetary aggregate will no longer provide an adequate signal about the monetary policy stance. The breakdown of the relationship between monetary aggregates and goal variables, such as inflation and nominal income, was common, not only in the United States,¹⁴ but also in Germany.¹⁵ A similar problem of instability in the money-inflation relationship has been found in emerging market countries, such as those in Latin America.¹⁶

Monetary targeting in the US, Canada and the UK did not prove to be successful in controlling inflation. There are two interpretations for why this was the case. One is that monetary targeting was not pursued seriously, so it never had a chance to be successful. The Federal Reserve, the Bank of Canada and the Bank of England, in particular, engaged in substantial game-playing in which they targeted multiple aggregates, allowed base drift, did not announce targets on a regular schedule, used artificial means to bring down the growth of a targeted aggregate (the corset in the UK), regularly overshot their targets without reversing the overshoot later and often obscured why deviations from the monetary targets occurred.¹⁷

The second reason for monetary targeting's lack of success was the increasing

14 Stock and Watson (1989); Friedman and Kuttner (1993).

15 Estrella and Mishkin (1997).

16 Mishkin and Savastano (2001).

17 Cf. Bernanke and Mishkin (1992).

instability of the relationship between monetary aggregates and goal variables, such as inflation (or nominal income), meant that this strategy was doomed to failure and indeed was not pursued seriously, because to do so would have been a mistake. By the early 1980s, it was becoming very clear that the relationship between monetary aggregates and inflation and nominal income had broken down and all three countries formally abandoned monetary targeting. Or as Gerald Bouey, a former governor of the Bank of Canada, put it: “We didn’t abandon monetary aggregates, they abandoned us.”

The problems that an unstable relationship between money and inflation creates for monetary targeting are further illustrated by the experience of Switzerland between 1989 and 1992, which was not a happy one for the Swiss National Bank because it failed to maintain price stability after it had successfully reduced inflation.¹⁸ The substantial overshoot of inflation from 1989 to 1992, reaching levels above 5 percent, was due to two factors. The first was that the strength of the Swiss franc from 1985 to 1987 caused the SNB to allow the monetary base to grow at a rate greater than the 2 percent target in 1987 and then caused it to raise the money growth target to 3 percent for 1988. The second arose from the introduction of a new interbank payment system, Swiss Interbank Clearing (SIC), and a wide-ranging revision of the commercial banks’ liquidity requirements in 1988. The result of the shocks to the exchange rate and the shift in the demand for monetary base arising from the institutional changes mentioned above created a serious problem for the SNB’s targeted aggregate. As 1988 unfolded, it became clear that the National Bank had miscalculated the effects of these shocks, so that monetary policy was too easy even though the monetary target had been undershot. The result was a subsequent rise in inflation to above the 5 percent level. As a result of this experience, the National Bank moved away from monetary targeting; first, by not specifying a horizon for its target when announcing it at the end of 1990, and then, by moving to a horizon of five years for the target, until it abandoned monetary targeting altogether in 1999.

The German (and the initial Swiss) experience with monetary targeting was in general successful, and understanding why will help to explain how monetary policy practice evolved towards inflation targeting. As argued by Jürgen von Hagen,¹⁹ the adoption of monetary targeting by the Bundesbank in late 1974 arose from the decision-making and strategic problems that it faced at the time. Under the Bretton Woods regime, the Bundesbank had lost

18 Cf., for example, Rich (1997).

19 Hagen (1999).

the ability to control monetary policy. Focusing on a monetary aggregate was a way for it to regain control over the conduct of monetary policy. German inflation was also very high (at least by German standards), reaching 7 percent in 1974, and yet the economy was weakening. The Bundesbank adopted a monetary target in an effort to resist political pressure and signal to the public that it would keep a close eye on monetary expansion. It was also concerned that pursuing price stability and aiming at full employment and high output growth would lead to policy activism, which in turn would lead to inflationary monetary policy. Monetary targeting also had the advantage of indicating that the Bundesbank was responsible for controlling inflation in the longer term, but should not try to fight temporary bursts of inflation, particularly if they came from non-monetary sources.

The circumstances of the adoption of monetary targeting regimes in Germany (and also Switzerland) led to several important design features. These monetary targeting regimes were not bound by monetarist orthodoxy and were very far from a Friedman-type monetary targeting rule, in which a monetary aggregate is kept on a constant growth rate path and is the primary focus of monetary policy.²⁰ The Bundesbank allowed growth outside its target ranges for periods of two to three years, with the result that its target overshoots were reversed. Monetary targeting in Germany and Switzerland was primarily a method of communicating the monetary policy strategy that focused on long-run considerations and the control of inflation.

The calculation of monetary target ranges put a great deal of emphasis on making policy transparent (clear, simple and understandable) and on regular communication with the public. Firstly, a numerical inflation goal was prominently featured in the setting of target ranges which was a very public exercise. The Bundesbank's setting of targets used a quantity theory equation to derive the monetary target growth rate using the numerical inflation goal, estimated potential output growth and expected velocity trends. The use of estimated potential output growth, rather than a desired path of actual output growth, in setting the monetary targets was an important feature of the strategy, as it signalled that the Bundesbank would not be focusing on short-run output objectives. Secondly, monetary targeting, far from being a rigid policy rule, was quite flexible in practice. The target ranges for money growth were missed approximately 50 percent of the time in Germany, often because the Bundesbank also focused on other objectives, including output and

20 Issing (1996).

exchange rates.²¹ Furthermore, the Bundesbank demonstrated its flexibility by allowing its inflation goal to vary over time and to converge quite gradually with the long-run inflation goal.

When the Bundesbank first set its monetary targets at the end of 1974, it announced a medium-term inflation goal of 4 percent, well above what it considered to be an appropriate long-run goal for inflation. It clarified that this medium-term inflation goal differed from the long-run goal by labelling it the ‘unavoidable rate of price increase’. Its gradualist approach to reducing inflation led to a period of nine years before the medium-term inflation goal was considered consistent with price stability. When this occurred at the end of 1984, the medium-term inflation goal was renamed the ‘normative rate of price increases’ and was set at 2 percent and continued at this level until 1997, when it was changed to 1.5–2 percent. The Bundesbank also responded to negative supply shocks and restrictions in the supply of energy or raw materials that pushed up the price level by raising its medium-term inflation goal. One specific case occurred in the wake of the second oil price shock in 1980, when it raised the ‘unavoidable rate of price increase’ from 3.5–4 percent.

The monetary targeting regimes in Germany and Switzerland demonstrated a strong commitment to the communication of the strategy to the general public. The money growth targets were continually used as a framework in explaining the monetary policy strategy, and both the Bundesbank and the SNB devoted tremendous effort – in their publications and frequent speeches alike – to communicate to the public what the central bank was trying to achieve. Indeed, given that both central banks frequently missed their money growth targets by significant amounts, their monetary targeting frameworks are best viewed as a mechanism for transparently communicating how monetary policy was being directed to achieve their inflation goals and as a means of increasing the accountability of the central bank.

Germany’s monetary targeting regime was successful in producing low inflation, and its success was envied by many other countries, which also explains why it was chosen as the anchor country for the Exchange Rate Mechanism. One clear indication of Germany’s success was in the aftermath of German reunification in 1990. Despite a temporary surge in inflation stemming from the terms of reunification, high wage demands and fiscal expansion, the Bundesbank was able to keep these temporary effects from becom-

21 Cf. Hagen (1995); Neumann and Hagen (1993); Clarida and Gertler (1997); Mishkin and Posen (1997); Bernanke and Mihov (1997).

ing embedded in the inflation process, and by 1995, inflation fell back down below the Bundesbank's normative inflation goal of 2 percent.

The experience of Germany and Switzerland illustrates that much of the success of their monetary policy regimes resulted from their active use of the monetary targeting strategy to communicate clearly a long-run strategy of inflation control. Both central banks used monetary targeting to state the objectives of monetary policy in a clear manner and to explain that policy actions remained focused on long-run price stability when targets were missed. The active communication with the public by the Bundesbank and the SNB increased their transparency and accountability. In contrast, the game-playing which was a feature of monetary targeting in the United States, the United Kingdom and Canada hindered the communication process so that the transparency and accountability of the central banks in these countries were not enhanced.

The German and Swiss experiences also show that the two central banks were quite flexible in their monetary targeting approach and did not come even close to following a rigid rule. Despite a flexible approach to monetary targeting, which included tolerating target misses and gradual disinflation, Germany and Switzerland demonstrated that flexibility is consistent with successful inflation control. Their key to success was seriousness in pursuing the long-run goal of price stability and actively engaging public support for this task.

The weak relationship between money and nominal income, however, implies that hitting a monetary target does not produce the desired outcome for a goal variable such as inflation. Furthermore, the monetary aggregate no longer provides an adequate signal about the stance of monetary policy. Thus, except under very unusual circumstances, monetary targeting does not provide a good nominal anchor or help to modify inflation expectations. In addition, an unreliable relationship between monetary aggregates and goal variables makes it more difficult for monetary targeting to serve as a communications device that increases the transparency of monetary policy and makes the central bank accountable to the public.

12.5 The search for a better nominal anchor: the birth of inflation targeting in the 1990s

The rational expectations revolution also provided a more subtle reason explaining the importance of a nominal anchor in the papers by Finn Kydland and Edward Prescott, Guillermo Calvo, as well as Robert Barro and David Gordon on the time-inconsistency problem, in which monetary policy

conducted on a discretionary, day-to-day basis leads to poor outcomes in the long term.²² Optimal monetary policy should not try to exploit the short-run trade-off between unemployment and inflation by pursuing overly expansionary policy, because decisions concerning wages and prices reflect workers' and firms' expectations about policy; when they see a central bank pursuing an expansionary policy, workers and firms raise their expectations about inflation, and push wages and prices up. The rise in wages and prices leads to higher inflation, but does not result in higher output on average. Monetary policymakers, however, are tempted to pursue a discretionary monetary policy that is more expansionary than firms or people expect, because such a policy would boost economic output (or lower unemployment) in the short-run. In other words, the monetary policymakers find themselves unable to follow an optimal plan consistently over time; the optimal plan is time-inconsistent and is soon abandoned.

One undesirable feature of the time-inconsistency literature first raised by Bennett McCallum and elaborated on by Frederic Mishkin is that the time-inconsistency problem by itself does not imply that a central bank will pursue expansionary monetary policy which leads to inflation.²³ Simply by recognising the problem that forward-looking expectations in the wage and price setting process create for a strategy of pursuing expansionary monetary policy, monetary policymakers can decide to 'just not do it', that is, not pursue expansionary policy, and avoid the time-inconsistency problem altogether. Although central bankers are fully aware of the time-inconsistency problem, it still remains a problem because politicians are able to put pressure on central banks to pursue an overly expansionary monetary policy.²⁴

Putting in place a strong nominal anchor can help to prevent the time-inconsistency problem in monetary policy by providing an expected constraint on discretionary policy. A strong nominal anchor can help to ensure that the central bank will focus on the long term and resist the temptation or political pressures to pursue short-run expansionary policies that are inconsistent with the long-run price stability goal. However, as we have seen, a monetary target will have trouble serving as a strong nominal anchor if the relationship between money and inflation is unstable. The disappointments with monetary targeting led to a search for a better nominal anchor and resulted in the development of inflation targeting in the 1990s.

22 Kydland and Prescott (1977); Calvo (1978); Barro and Gordon (1983).

23 McCallum (1995); Mishkin (2000a).

24 For an example of how the time-inconsistency problem can be modelled as resulting from political pressure, cf. Mishkin and Westelius (2006).

Inflation targeting evolved from monetary targeting by adopting its most successful elements: an institutional commitment to price stability as the primary long-run goal of monetary policy and to the achievement of the inflation goal; increased transparency through communication with the public about the objectives of monetary policy and the plans for policy actions to achieve these objectives; and increased accountability of the central bank to achieve its inflation objectives. Inflation targeting, however, differs from monetary targeting in two key dimensions. Rather than announce a monetary aggregate target, the central bank publicly announces a medium-term numerical target for inflation and makes use of an information-inclusive strategy, with a reduced role for intermediate targets such as money growth.

The first country to adopt inflation targeting was New Zealand. After bringing inflation down from almost 17 percent in 1985 to the vicinity of 5 percent by 1989, the New Zealand parliament passed a new Reserve Bank of New Zealand Act in 1989, which entered into effect on 1 February 1990. Besides increasing the independence of the central bank, moving it from being one of the least independent to one of the most independent among the industrialised countries, the new act also committed the Reserve Bank to the sole objective of price stability. It stipulated that the Minister of Finance and the Governor of the Reserve Bank should negotiate and make public a Policy Targets Agreement that sets out the targets by which monetary policy performance would be evaluated. These agreements have specified numerical target ranges for inflation and the dates by which they were to be reached. The first one, signed by the Minister of Finance and the Governor of the Reserve Bank on 2 March 1990, directed the Reserve Bank to achieve an annual inflation rate of 3–5 percent by the end of 1990 with a gradual reduction in subsequent years to a 0–2 percent range by 1992 (changed to 1993), which was kept until the end of 1996, when the range was changed to 0–3 percent and then to 1–3 percent in 2002.

New Zealand was followed by Canada, which announced inflation targets in February 1991, by Israel in January 1992, by the United Kingdom in October 1992, by Sweden in January 1993 and by Finland in February 1993. (Chile adopted a softer form of inflation targeting in January 1991.)²⁵ Since its inception, more than twenty countries have adopted inflation targeting, including

25 The dating of adoption of inflation targeting is not always clear-cut. The dates used here are from Mishkin and Schmidt-Hebbel (2002).

Switzerland in January 2000,²⁶ and new ones join the inflation targeting club every year.

Inflation targeting superseded monetary targeting because of its several advantages. First, inflation targeting does not rely on a stable money-inflation relationship, so that large velocity shocks which distort this relationship are largely irrelevant to monetary policy performance.²⁷ Second, the use of more information, and not primarily one variable, to determine the best settings for policy, has the potential to produce better policy settings. Third, an inflation target is readily understood by the public because changes in prices are of immediate and direct concern, while monetary aggregates are farther removed from peoples' experience. Inflation targets are therefore better at enhancing the transparency of monetary policy, as they make the objectives of the monetary authorities clearer. This does not mean that monetary targets could not serve as a useful communication device and increase accountability to control inflation as they did in Germany and Switzerland. However, once the relationship between monetary aggregates and inflation breaks down, as it has repeatedly (particularly in Switzerland), monetary targets lose a substantial degree of transparency, because the central bank then has to provide complicated explanations as to why it is appropriate to deviate from the monetary target. Finally, inflation targets increase central bank accountability, as the central bank's performance can now be measured against a clearly defined target. Given the unstable money-inflation relationship, monetary targets work less well in this regard, which makes it harder to impose accountability on the central bank, because the central bank will necessarily miss its monetary targets frequently, as in the case of the Bundesbank, which missed its target ranges over half of the time.

26 Switzerland does not like to refer to its regime as inflation targeting, although it meets all of the criteria for inflation targeting outlined above. The Swiss regime does differ in some elements from inflation targeting regimes in countries like the United Kingdom and New Zealand in that the central bank – rather than the government – determines the numerical inflation goal, and the time horizon for the achievement of the inflation goal is not announced. The Swiss monetary policy regime is therefore more flexible than some other inflation targeting. Nonetheless, there are differing degrees of flexibility in the way inflation targeting is practised and the Swiss regime fits the definition of inflation targeting used in Bernanke et al. (1999) and in much of the literature. Officials at the SNB, when asked why they do not like to use the term inflation targeting, explain that they see their regime as highly flexible and the use of the word target might be misconstrued by the public.

27 An unstable relationship between money and inflation could make inflation targeting more difficult, since there is less information in the monetary aggregates to help forecast inflation. However, successful inflation targeting is not dependent on having a stable money-inflation relationship as long as other information enables the monetary authorities to forecast future inflation and the impact of the current monetary policy stance on the economy.

A key feature of all inflation targeting regimes is that they put enormous emphasis on transparency and communication. Inflation targeting central banks communicate frequently with the government – some of their exchanges are mandated by law and some are in response to informal inquiries – and their officials take every opportunity to hold public speeches on their monetary policy strategy. Communication of this type is prominent among central banks that have not adopted inflation targeting, including monetary targeters such as the Bundesbank and the SNB, and non-targeters, such as the Federal Reserve. However, inflation targeting central banks have taken public outreach a number of steps further: not only have they engaged in extended public information campaigns, including the distribution of glossy brochures, but they have also begun to publish inflation report type documents (originated by the Bank of England).

The publication of inflation reports is particularly noteworthy, because these documents depart from the usual, dull-looking, formal reports of central banks and take on the best elements of textbook writing (fancy graphs, use of boxes) in order to better communicate with the public. Inflation reports are far more user friendly than previous central bank documents and explain the goals and limitations of monetary policy, including the rationale for inflation targets, the numerical values of the inflation targets and how they were determined, how the inflation targets are to be achieved, given current economic conditions, and reasons for any deviations from targets. Almost all such reports provide inflation forecasts, while the majority provide output forecasts, and some provide a projection of the policy path for interest rates.²⁸ These communication efforts have improved private sector planning by reducing uncertainty about monetary policy, interest rates and inflation; they have promoted public debate of monetary policy, in part by educating the public about what a central bank can and cannot achieve; and they have helped to clarify the responsibilities of the central bank and of politicians in the conduct of monetary policy.

Because an explicit numerical inflation target increases the accountability of a central bank with respect to controlling inflation, inflation targeting also has the potential to reduce the likelihood that a central bank will suffer from the time-inconsistency problem in which it reneges on the optimal plan and instead tries to expand output and employment by pursuing an overly expansionary monetary policy. However, since time-inconsistency is more likely to stem from political pressures on the central bank to engage in an overly

28 Cf. table 1 in Mishkin (2004).

expansionary monetary policy, a key advantage of inflation targeting is that it is better able to focus the political debate on what a central bank can do in the long term – that is, control inflation – rather than what it cannot do – permanently raise economic growth and the number of jobs through expansionary monetary policy.²⁹ Inflation targeting thus appears to reduce political pressures on the central bank to pursue inflationary monetary policy and thereby reduces the likelihood of time-inconsistent policymaking.

Although inflation targeting has the ability to limit the time-inconsistency problem, it does not do so by adopting a rigid rule, and thus has much in common with the flexibility of earlier monetary targeting regimes. Inflation targeting has ‘rule-like’ features in that it involves forward-looking behaviour that limits policymakers from systematically engaging in policies with undesirable long-run consequences. Rather than using a rigid rule, it employs what Ben Bernanke and Frederic Mishkin have dubbed “constrained discretion”.³⁰ Inflation targeting allows for some flexibility, but constrains policymakers from pursuing an overly expansionary (or contractionary) monetary policy.

Inflation targeting does not ignore traditional output stabilisation, but puts it into a longer-term context. Inflation-targeting regimes allow flexibility to deal with supply shocks and have allowed the target to be reduced gradually to the long-run inflation goal when inflation is initially far from this goal (also a feature of monetary targeters, such as Germany). As Lars Svensson has shown, a gradual movement of the inflation target towards the long-run price stability goal indicates that output fluctuations are a concern (in the objective function) of monetary policy.³¹ In addition, inflation targeters have emphasised that the floor of the range should be as binding a commitment as the ceiling, indicating that they are just as concerned about output fluctuations as they are about inflation. Inflation targeting is therefore better described as ‘flexible inflation targeting’.

The above discussion suggests that, although inflation targeting has indeed evolved from earlier monetary policy strategies, it does represent true progress. But how has inflation targeting fared? Has it actually led to better economic performance?

29 A remarkable example of this occurred in Canada in 1996, when a public debate ensued over a speech by the president of the Canadian Economic Association criticising the Bank of Canada. Cf. Mishkin and Posen (1997); Bernanke et al. (1999).

30 Bernanke and Mishkin (1997).

31 Svensson (1997).

The simple answer to this question is essentially yes, albeit with some qualifications.³² This conclusion is derived from the following four results:³³

- Inflation levels (and volatility), as well as interest rates, declined after countries adopted inflation targeting.
- Output volatility did not worsen, if anything it improved, after adoption of inflation targeting.
- Exchange rate pass-through seems to be attenuated by adoption of inflation targeting.³⁴
- The fall in inflation levels and volatility, interest rates and output volatility was part of a worldwide trend in the 1990s, and inflation targeters did no better in terms of these variables or in terms of exchange rate pass-through than non-inflation-targeting industrialised countries, such as the United States or Germany.^{35 36}

32 This is the conclusion in a recent paper presented to the Executive Board of the IMF; cf. Roger and Stone (2005).

33 There is also some mildly favourable evidence on the impact of inflation targeting on sacrifice ratios. Bernanke et al. (1999) did not find that sacrifice ratios in industrialised countries fell with the adoption of inflation targeting, while Corbo, Landerretche and Schmidt-Hebbel (2002) – with a larger sample of inflation targeters – concluded that inflation targets did lead to an improvement in sacrifice ratios. However, defining sacrifice ratios is extremely tricky, so less weight should be put on this evidence. Sabban, Rozada and Powell (2003) also find that inflation targeting leads to nominal exchange rate movements that are more responsive to real shocks, rather than nominal shocks. This might indicate that inflation targeting can help the nominal exchange rate to act as a shock absorber for the real economy.

34 Lower exchange rate pass-through might be seen as a drawback because it weakens this channel of the monetary policy transmission mechanism. As long as other channels of monetary policy transmission are still strong, however, the monetary authorities still have the ability to keep inflation under control.

35 For evidence supporting the first three results, cf., for example, Bernanke et al. (1999); Corbo, Landerretche and Schmidt-Hebbel (2002); Neumann and Hagen (2002); Hu (2003); Truman (2003); Ball and Sheridan (2005).

36 Ball and Sheridan (2005) is one of the few empirical papers that is critical of inflation targeting: it argues that the apparent success of inflation targeting countries is just a reflection of regression towards the mean: that is, countries that start with higher inflation are more likely to find that inflation will fall faster than countries that start with an initially low inflation rate. Since countries that adopted inflation targeting generally had higher initial inflation rates, their larger decline in inflation merely reflects a general tendency of all countries, both targeters and non-targeters, to achieve better inflation and output performance in the 1990s, when inflation targeting was adopted. This paper has been criticised on several grounds and its conclusion that inflation targeting had nothing to do with improved economic performance is unwarranted: cf. Hyvonen (2004); Gertler (2005); Mishkin and Schmidt-Hebbel (2005). However, Ball and Sheridan's paper does raise a serious question because inflation targeting is clearly an endogenous choice, and so finding that better performance is associated with inflation targeting may not imply that inflation targeting causes this better performance. Mishkin and Schmidt-Hebbel (2005) do attempt to deal explicitly with the potential endogeneity of adoption of inflation targeting through the use of instrumental variables and continues to find favourable results on inflation targeting performance.

The fourth result – that inflation and output performance of inflation-targeting countries improves, but is no better than that of countries like the US and Germany – also suggests that what is really important to successful monetary policy is the establishment of a strong nominal anchor. As pointed out in a number of papers, Germany was able to create a strong nominal anchor with its monetary targeting procedure.³⁷ In the US, the strong nominal anchor was Alan Greenspan and is now his successor Ben Bernanke.³⁸ Although inflation targeting is one way to establish a strong nominal anchor, it is not the only way. It is not at all clear that inflation targeting would have improved performance in the US during the Greenspan era, although it might well do so after Greenspan or his successor Ben Bernanke is gone.³⁹ Furthermore, as has already been emphasised, an inflation target by itself is not capable of establishing a strong nominal anchor if the government pursues irresponsible fiscal policy or inadequate prudential supervision of the financial system, which might then be prone to financial blow-ups.⁴⁰

There is, however, empirical evidence on inflation expectations that is more telling about the possible benefits of inflation targeting. Recent research has found the following additional results:

- Evidence that the adoption of inflation targeting leads to an immediate fall in inflation expectations is not strong.⁴¹
- Inflation persistence, however, is lower for countries that have adopted inflation targeting than for countries that have not.
- Inflation expectations appear to be more anchored for inflation targeters than for non-targeters, i.e. inflation expectations react less to shocks to actual inflation for targeters than for non-targeters, particularly at longer horizons.⁴²

These results suggest that once inflation targeting has been in place for a while, it does make a difference, because it better anchors inflation expectations and thus strengthens the nominal anchor. Since, as argued earlier,

37 Bernanke and Mishkin (1992); Mishkin and Posen (1997); Bernanke et al. (1999); Neumann and Hagen (2002).

38 Cf., for example, Mishkin (2000a).

39 Mishkin (2005).

40 Calvo and Mishkin (2003); Sims (2005).

41 For example, Bernanke et al. (1999) and Levin, Natalucci and Piger (2004) do not find that inflation targeting leads to an immediate fall in expected inflation, but Johnson (2002, 2003) does find some evidence that expected inflation falls after announcement of inflation targets.

42 Levin, Natalucci and Piger (2004); Castelnuovo, Nicoletti-Altimari and Palenzuela (2003).

establishing a strong nominal anchor is a crucial element in successful monetary policy,⁴³ the evidence on the inflation expectations provides a stronger case that inflation targeting has represented real progress.

12.6 Where is inflation targeting heading?

Just as inflation targeting evolved from earlier monetary policy strategies, inflation targeting will continue to evolve over time. There are three major issues that are being actively debated on where inflation targeting should be headed in the future.

Currently, all inflation targeting countries target an inflation rate rather than the price level. The traditional view, forcefully articulated by Stanley Fischer,⁴⁴ argues that a price-level target might produce more output variability than an inflation target, because unanticipated shocks to the price level are not treated as by-gones and must be offset. Specifically, a price-level target requires that a target overshoot be reversed, and this might call for a quite contractionary monetary policy which, with sticky prices, could lead to a sharp downturn in the real economy in the short run. Indeed, if the overshoot is large enough, returning to the target might require a deflation, which could promote financial instability and be quite harmful.

On the other hand, in theoretical models with a high degree of forward-looking behaviour, a price-level target produces less output variance than an inflation target.⁴⁵ Empirical evidence, however, does not clearly support forward-looking expectations formation,⁴⁶ and models with forward-looking behaviour have counter-intuitive properties that seem to be inconsistent with inflation dynamics.⁴⁷ Thus, the jury is still out on whether the monetary policy regime should move from inflation targeting to price-level targeting. Indeed, in the future, central banks might experiment with hybrid policies, which combine features of an inflation and a price-level target by announcing a commitment to some error correction in which target misses will be

43 The importance of a strong nominal anchor to successful monetary policy is also a key feature of recent theory on optimal monetary policy, referred to as the new neoclassical synthesis, cf. Woodford (2003); Goodfriend and King (1997).

44 Fischer (1994).

45 Cf., for example, Clarida, Gali and Gertler (1999); Dittmar, Gavin and Kydland (1999); Dittmar and Gavin (2000); Eggertsson and Woodford (2003); Svensson (1999); Svensson and Woodford (2003); Vestin (2000); Woodford (1999, 2003). A price-level target was used in the 1930s in Sweden. Cf. Berg and Jonung (1999).

46 Cf., for example, Fuhrer (1997).

47 Estrella and Fuhrer (1998).

offset to some extent in the future.⁴⁸ Evaluating these hybrid policies should be a major focus of future research.

Inflation targeting central banks have been gradually moving towards ever greater transparency. More inflation targeting central banks have been publishing their forecasts and several central banks have recently started to announce projections of their policy path for interest rates in the future (New Zealand, Colombia, and most recently, Norway).

Publication of forecasts and policy projections can help the public and the markets to understand central bank actions, thus reducing uncertainty and making it easier for the public and markets to assess whether the central bank is serious about achieving its inflation goal.

Svensson argues that not only should central banks announce their projections of the future policy path, but also announce their objective function (the relative weights they put on output versus inflation fluctuations in their loss function).⁴⁹ It has been argued elsewhere that central bank transparency can go too far if it complicates communication with the public.⁵⁰ Announcing a policy path may confuse the public if the message does not sufficiently convey that the path is conditional on events in the economy. The public may then regard a deviation from this path as a central bank failure, and the central bank would then be vulnerable to attacks that it is flip-flopping, which could undermine the support for its independence and focus on price stability. This objection does not mean that providing information about the future policy path in some form would not have value. It does mean, however, that there are nuances as to how this should be done. Providing information about the future policy path in more general terms or in terms of fan charts that emphasise the uncertainty about the future policy path might achieve most of the benefits of increased disclosure and still be able to make clear how conditional the policy path is on future events.⁵¹ Inflation targeting central banks are likely to experi-

48 Research at the Bank of Canada and the Bank of England suggests that an inflation target with a small amount of error correction can substantially reduce the uncertainty about the price level in the long run, but still generate very few episodes of deflation. Cf. Black, Macklem and Rose (1997); Battini and Yates (2003); King (1999).

49 Svensson (2002).

50 Mishkin (2004).

51 However, announcing a specific policy path as has recently occurred in the United States, when it announced that it would remove accommodation at a measured pace and then had thirteen straight Federal Open Market Committee meetings (as of this writing) in which it raised the policy rate by 25 basis points each time did not sufficiently convey the degree of uncertainty about the future path.

ment further with different approaches to providing more information about future policy.⁵²

A final issue confronting inflation targeting central banks is how they should respond to movements in asset prices. It is generally agreed that inflation targeters should react to asset prices when changes in these prices provide useful information about future inflation and the path of the economy. The tougher issue is whether central banks should react to asset prices over and above their effects on future inflation. When they burst, bubbles in asset prices can lead to financial instability. Some researchers have argued that, given this, monetary policy should serve to limit asset price bubbles to preserve financial stability.⁵³ To do so successfully, monetary authorities need to know when a bubble exists. However, it is unlikely that government officials, or central bankers for that matter, know better than private markets what appropriate asset prices are.⁵⁴ Ben Bernanke and Mark Gertler find that an inflation targeting approach that does not focus on asset prices above and beyond their effect on the economy, but does make use of an information-inclusive strategy in setting policy instruments, has the ability to make asset price bubbles less likely, thereby promoting financial stability.⁵⁵ With the recent sharp run-up of housing prices in many countries and the possibility of bubbles, central banks' concerns about asset price movements and what to do about them are unlikely to abate.

Fluctuations in exchange rates, another important asset price, are also a major concern for inflation targeting central banks, particularly in emerging market countries, as sharp depreciations can trigger a financial crisis.⁵⁶ Because these countries have much of their debt denominated in foreign currency, currency depreciations lead to a deterioration of firms' balance sheets. This deterioration then results in adverse selection and moral hazard problems that interfere with the efficient functioning of the financial system, thereby triggering a sharp decline in investment and economic activity. Inflation targeting central banks can therefore not afford to pursue a policy of benign neglect towards exchange rates, as is emphasised by Frederic Mishkin

52 For reasons outlined in Mishkin (2004), it may be far less likely that central banks will increase transparency in terms of announce their objective function.

53 Cf., for example, Cecchetti et al. (2000); Borio and Lowe (2002).

54 Bernanke and Gertler (2001) point out that Cecchetti et al. (2000) only find that asset prices should be included in the central bank's policy rule because they assume that the central bank knows with certainty that the asset price rise is a bubble and knows exactly when the bubble will burst.

55 Bernanke and Gertler (1999, 2001).

56 Mishkin (1996, 1999).

and Miguel Savastano.⁵⁷ They may have to smooth ‘excessive’ exchange rate fluctuations, but how they should do this is still an open question. Indeed, there is a danger that focusing on exchange rate movements might transform the exchange rate into a nominal anchor that interferes with achievement of the inflation target.⁵⁸ In addition, whenever inflation targeters have focused on exchange rate movements, they have often made serious errors (for instance New Zealand and Chile in 1997 and 1998).⁵⁹ Dealing with exchange rate fluctuations is one of the most serious challenges for inflation targeting regimes in emerging market countries.

12.7 Conclusion

The practice of central banking has made tremendous strides in recent years. We are currently in a highly desirable environment that few would have predicted fifteen years ago. Not only is inflation low, but its variability and the volatility of output fluctuations are also low. For many countries, inflation targeting has been a key element in their success. Inflation targeting is not a radical new invention, but has instead built on what has been learned over the years both from economic research and experience as to what is best practice in the conduct of monetary policy. Progress in our understanding of monetary policy will continue, and hopefully inflation targeting will continue to evolve in a direction that continues to improve monetary policy performance.

57 Mishkin (2000b); Mishkin and Savastano (2001).

58 This indeed happened in Israel (Bernanke et al., 1999) and Hungary (Jonas and Mishkin, 2005).

59 Mishkin (2001).

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13 The optimal rate of inflation¹

MARVIN GOODFRIEND

13.1 Introduction

A century ago, much of the world was on a gold standard and the question of the optimal rate of inflation rarely came up. When the international gold standard was suspended during World War I, John M. Keynes argued in his *Tract on Monetary Reform* that an inconvertible paper money should be managed to sustain zero inflation.² The gold standard was restored and the optimal rate of inflation question remained moot for another forty years.

In the intervening years, countries found ways to loosen the link between money and gold. For instance, the Federal Reserve was established in 1913 with the power to create currency and bank reserves somewhat independently of the nation's monetary gold, while maintaining a fixed dollar price of gold. The Federal Reserve provided an elastic supply of money to smooth short-term interest rates against the kind of liquidity disturbances that destabilised the banking system in the nineteenth century. The idea was to loosen the link to gold in the short run, but to adhere to gold in the long run. The long run never came, however. Discretionary departures from the gold standard were allowed to cumulate. By the early 1960s, the gold standard became a gold-price stabilisation programme whereby the Federal Reserve stabilised the price of 35 US dollars per ounce of gold with purchases and sales from its gold reserves. Gold operations were sterilised so as to have little effect on the money supply and monetary policy.³ In the early 1970s, the United States freed the dollar price of gold completely and the Bretton Woods fixed exchange rate system collapsed.

Two decades earlier, monetary economists began to consider the determination and implementation of the optimal stock of inconvertible paper money. Economists at the University of Chicago led by Milton Friedman addressed the question with the methodology of welfare economics. In 1957, George Tolley showed that the socially efficient real money stock would be

1 Conversations with Gauti Eggertsson, Ulrich Kohli, Bennett McCallum, Allan Meltzer and Alexander Wolman are much appreciated. As always, the views expressed are the author's alone.

2 Keynes (1923).

3 Friedman (1961); Goodfriend (1988).

produced by a competitive market rate of interest paid on money.⁴ In 1969, Friedman observed that in lieu of the payment of interest on money, optimality could be achieved by a steady deflation that brought the nominal interest rate down to zero.⁵ Friedman argued that a steady rate of deflation would make the greatest long-run monetary contribution to welfare by inducing the public to hold what he called the ‘optimum quantity of money’.

The famous Chicago Rule recommending deflation to achieve the optimum quantity of money seemed irrelevant during the 1960s and 1970s, when inflation was high and rising. However, in 1956, Martin Bailey had shown how to quantify the welfare cost of any rate of inflation by employing welfare economics in conjunction with the theory and empirical estimates of money demand.⁶ Bailey and his followers showed that the public’s economisation on the use of money due to inflation reflected a quantitatively significant social cost. When the natural rate hypothesis gained wide acceptance in the 1970s and it became clear that inflation had no social benefit, the welfare cost of inflation measured by Bailey and his followers became decisive in the case for a low rate of inflation.

In addition to the above-mentioned considerations, four developments are relevant when thinking about the optimal rate of inflation today:

1. The fall in nominal interest rates brought about by the near elimination of inflation and inflation expectations raises concerns that the proximity of average nominal interest rates to the zero lower bound could inefficiently constrain countercyclical stabilisation policy.⁷
2. Modern ‘new neoclassical synthesis’ (‘new Keynesian’) models of monetary policy identify staggered price setting by monopolistically competitive firms as another consideration, one that calls for zero inflation.⁸ Zero inflation is optimal from this perspective because it minimises relative price distortions associated with staggered price adjustment.
3. The deregulation of interest rates and advances in computing, information and communication technology make it possible to pay interest on money. Debit cards provide immediate remote access to bank deposits that pay interest. Stored value cards provide an electronic substitute for currency that can be made to pay interest.

4 Tolley (1957).

5 Friedman (1969).

6 Bailey (1956).

7 Summers (1991).

8 Goodfriend and King (1997); Woodford (2003).

4. The willingness of central banks to acknowledge the pursuit of interest rate policy makes possible the adoption of operating procedures to pay full market interest on bank reserves that could be passed through to currency card accounts at commercial banks.⁹

This paper is organised as follows: section 13.2 surveys implications of the optimum quantity of money literature for the optimal trend rate of inflation in the context of a flexible-price macromodel. Section 13.3 explores the optimal rate of inflation in new neoclassical synthesis (new Keynesian) models with costly staggered price setting. Section 13.4 addresses the consequences of the zero bound on nominal interest rates for the optimal rate of inflation. Section 13.5 explains how bank reserves and currency card accounts could be made to pay a full market rate of interest, so that the optimum quantity of money could be achieved at any rate of inflation. Section 13.6 concludes with an overall recommendation for the optimal rate of inflation and suggestions for future work.

13.2 The optimum quantity of money

To achieve the optimum quantity of money, the private opportunity cost of holding money must be made to equal the social cost of maintaining the outstanding money stock. The application of this optimality condition usually proceeds on the assumption that money pays no interest, so that the private opportunity cost of holding money is the nominal interest rate on short-term securities. Moreover, the social cost of maintaining the outstanding money stock is presumed small enough to be ignored. Under these assumptions, the nominal interest rate must be brought down to zero to induce the public to hold the optimum quantity of real money balances. To implement a zero nominal interest rate, the government must withdraw money from the economy in order to deflate the price level at a rate equal to the ex ante real rate of interest.¹⁰ Thus the Chicago Rule to achieve the optimum quantity of money becomes a prescription for deflation.

9 Goodfriend (2002). It was not until 1994 that the Federal Reserve began to announce its intended federal funds rate immediately after each monetary policy meeting. Cf. Meltzer (2003); Goodfriend (2003).

10 The nominal interest rate is the sum of an ex ante real interest rate component plus an expected inflation component. To produce a zero nominal interest rate, it is necessary to create negative inflation expectations (expected deflation) equal in magnitude to the ex ante real interest rate.

13.2.1 *Modern restatement*

A large literature explores the robustness of the Chicago Rule. Bennett McCallum provides a modern restatement in an explicit, general equilibrium model in which private agents are depicted as solving dynamic optimisation problems.¹¹ He studies steady-state equilibria that emerge as special cases of more general dynamic equilibria. This methodology is important to “lessen the danger that agents’ optimization problems are posed in a restrictive manner”.¹²

As is common in the literature, McCallum’s analysis presumes a world populated by a large number of infinitely-lived representative households, so that distributional matters are neglected. The analysis also neglects the effect of uncertainty. The framework is a discrete-time, perfect-foresight version of the well-known model of Miguel Sidrauski with some modifications.¹³ For instance, there is no depreciation or population growth. Each household has access to a standard production function in two inputs, capital and labour, and McCallum allows the household to supply labour elastically.

In Sidrauski’s model, real money balances appear in the utility function. McCallum points out that this simplification can be interpreted as reflecting the presence of a ‘transactions technology’ in which real money balances facilitate a household’s transactions. One can assume that households derive utility only from consumption and leisure, but that the acquisition of consumption goods requires ‘shopping time’ which reduces the time available for leisure or employment. In a monetary economy, the amount of shopping time required for a given amount of consumption depends negatively (up to a satiation point) on the quantity of real money balances held by the household. Shopping time can be functionally related to consumption and real balances by a ‘transactions constraint’. Substitution into the utility function yields an indirect utility function in which shopping time and real money balances appear.

With regard to the government, McCallum assumes lump-sum taxes and transfers to finance a given share of real government spending relative to output and a given rate of money growth. Importantly, as is the convention in this literature, the entire money stock is government currency, which pays zero interest. Finally, McCallum assumes that goods prices are perfectly and costlessly flexible.

11 McCallum (1990). Cf. also Woodford (1990).

12 McCallum (1990), p. 967.

13 Sidrauski (1967).

With no technical progress or population growth, every real variable is constant in the steady state. McCallum thus investigates the properties of equilibria in which taxes net of transfers, government spending, capital stock, consumption, work effort and real money balances are constant.

To investigate the optimal steady-state rate of inflation, McCallum considers the ‘social planning’ problem of choosing time paths of variables to maximise the utility of the representative household. Specifically, the social planner must choose values of consumption, work effort, capital and real balances that maximise utility, subject to the economy’s overall resource constraint (equality of sources and uses of produced goods), and a set of ‘implementation conditions’, reflecting the first-order conditions for optimal private household choices where households take taxes net of transfers and the inflation rate as given. There are also initial conditions on the capital stock and the stock of real money balances. The set-up assigns no productive role to government spending, which is accordingly zero at the social optimum.

The key question is this: Do socially optimal values for consumption, capital, work effort and real money balances coincide with the values determined by the competitive equilibrium? McCallum finds that the answer is yes, if and only if currency is withdrawn at a rate to produce a steady deflation equal to the real rate of interest.¹⁴ McCallum thus restates in modern terms the case for the Chicago Rule developed by Friedman. The rationale for this finding is that households should be given an incentive to satiate themselves with real money balances if money is costless to produce, yet yields positive transaction services. Deflating at the real rate of interest provides this incentive by equating the real return on currency to the real rate of return available in the capital market, or equivalently, by making the nominal interest rate equal to zero.

The modern explicit, general equilibrium restatement of the social planner problem paved the way for more detailed analysis of the conditions underlying the Chicago prescription for optimal deflation. One question is whether the social optimum exists at finite real balances. Private decision-makers hold real money balances up to the point where the net diminishing marginal services yield equals the opportunity cost of holding currency. The

14 The real rate of interest in McCallum’s model is the rate of time preference. The real rate of interest would be higher than that along a balanced growth path with positive technical progress, and the required rate of deflation would be greater as well. The economy supports balanced growth if either technical progress is labour-augmenting or the production function is Cobb-Douglas.

shopping time perspective suggests that the social optimum exists at finite real balances, since there is surely a resource cost of holding money at the margin, however small. The marginal resource cost makes the net marginal money services function become negative at some point.¹⁵

Another issue that has received attention is whether the Chicago Rule holds under the usual conditions in overlapping generations models. McCallum reviews this question and concludes that it does, as long as the transactions facilitating services of money are treated in overlapping generation models as they are treated in the Sidrauski infinitely-lived agent model.¹⁶

13.2.2 *Distortionary taxation*

In the presence of distortionary taxation, Edmund Phelps emphasised that the optimal rate of inflation must be determined by the condition that all sources of tax revenue have the same deadweight cost at the margin.¹⁷ Phelps's logic suggests that the Chicago Rule cannot be socially optimal, because the withdrawal of currency to implement a deflation must be financed by distortionary taxes. The argument is as follows. The marginal monetary deadweight benefit of deflation is driven to zero at the Chicago Rule. Hence it would appear that the sum of marginal monetary and fiscal deadweight costs could be reduced by some departure from the Chicago Rule. A smaller deflation would reduce the burden on the tax system of withdrawing cash, and it would generate additional revenue by taxing money with a positive nominal interest rate.¹⁸ However, the argument is incomplete. A tax on money deters both the use of money and the purchases of goods that money buys. Thus, direct taxation of goods purchases is less distortionary than taxing money, and it is not necessarily socially efficient to substitute much, if any, of a tax on money for a direct tax on sales.

In any case, Phelps's argument cannot rationalise much of a departure from the Chicago prescription for deflation. Using methods for determining optimal tax rates pioneered by Frank Ramsey and extended to a general equilibrium context by Robert Lucas and Nancy Stockey, Varadarajan Chari and Patrick Kehoe find that the Chicago Rule holds approximately in the presence

15 McCallum (2000), pp. 874–875.

16 McCallum (1990).

17 Phelps (1973).

18 The central bank 'collects' the tax on money by purchasing securities with base money (bank reserves and currency) that it provides to the economy. The tax rate on money is the nominal interest rate, and the tax take is the nominal interest income earned on the portfolio of securities so acquired. The central bank usually transfers net interest income in excess of operating expenses to the government.

of distortionary taxation.¹⁹ In a model with elastic labour supply, a positive amount of government consumption, and the need for a flat rate labour income tax, Lucas finds that some, but not much, departure from the Chicago Rule is optimal.²⁰ As Lucas puts it, “the optimality of the [Chicago] Rule can be studied in a very wide variety of second-best frameworks, with a wide variety of different qualitative conclusions [...] the [Chicago] Rule needs qualification, but the magnitude of the needed amendment is trivially small. The fact is that real balances are a very minor ‘good’ in the US economy, so the fiscal consequences of even sizeable changes in the rate at which this good is taxed, the inflation rate, are just not likely to be large.”²¹

13.2.3 Empirical controversies

An important empirical issue is the welfare cost of pursuing zero inflation, rather than deflation, as recommended by the Chicago Rule. Lucas argues that estimates using conventional semi-log money demand functions significantly understate the welfare cost of doing so. He shows that a log-log money demand function fits US time series at low interest rates better than a conventional semi-log demand function.²² He also shows that the log-log demand function can be derived from a specialisation of the shopping time technology proposed by Bennett McCallum and Marvin Goodfriend.²³ Lucas then shows that the welfare cost rises with the square root of the nominal interest rate in the log-log case, rather than with the square of the nominal interest rate in the semi-log case, indicating that the welfare cost of small departures from the Chicago Rule is considerably greater than commonly believed.

Alexander Wolman reports estimates of money demand that nest the log-log function preferred by Lucas in a model with a satiation level of money balances.²⁴ As discussed above, satiation undoubtedly occurs at some point, because there is certainly a small marginal cost of holding money. The question is whether satiation occurs at low enough real balances to overturn Lucas’s findings. Wolman reports estimates of a satiation level for real balances small enough that the welfare gain attained by reducing inflation from zero to the Chicago Rule is small.

19 Ramsey (1927); Lucas and Stokey (1983); Chari and Kehoe (1999).

20 Lucas (2000).

21 Lucas (2000), p. 262.

22 Lucas (2000).

23 McCallum and Goodfriend (1987).

24 Wolman (1997).

From an entirely different perspective, Casey Mulligan and Xavier Sala-i-Martin argue that the relevant monetary decision for most households is not the fraction of assets to hold in interest-bearing form, but whether to hold any such assets at all, what they call the ‘decision to adopt’ the financial technology.²⁵ According to their model, as the nominal interest rate goes to zero, fewer and fewer households wish to economise on cash because of the fixed cost of dealing in securities. In their model, the elasticity of money demand is very small at low interest rates, so there is little welfare gain in taking the nominal interest rate from 1 or 2 percent to zero. They argue that ignoring the extensive margin may lead to an empirically important overestimation of the cost of pursuing zero inflation, rather than deflation as prescribed by the Chicago Rule.

13.3 The new neoclassical synthesis

The modern new neoclassical synthesis, or new Keynesian, model of monetary policy introduces a new determining factor for the optimal rate of inflation in addition to the welfare cost of departures from the optimum quantity of money – costly staggered price adjustment by monopolistically competitive firms.²⁶ With regard to this new factor, the optimal inflation rate is the one that best neutralises distortions due to staggered price setting, where the distortions are measured against outcomes that would occur if firms adjusted their prices continuously to maintain an equality between their actual mark-up and the flexible-price, profit-maximising mark-up.²⁷

The discussion below motivates the formal model of stochastic, staggered price adjustment widely used in new synthesis models. It then proceeds to explore the implications of staggered price setting for the optimal rate of inflation, assuming initially that firms keep their nominal prices fixed between discretionary adjustments, and later, that firms index their prices to the inflation rate between discretionary adjustments.

25 Mulligan and Sala-i-Martin (2000).

26 Cf., for example, Goodfriend and King (1997); Woodford (2003). The benchmark new synthesis model presumes that the labour market behaves as if wages are perfectly flexible. Goodfriend and King (2001), pp. 88–91, provide a theoretical rationale for this presumption. Empirical support is found in Cecchetti and Groshen (2001), who discuss implications of wage rigidity as well as price rigidity for the optimal rate of inflation. They report that there is little evidence of macroeconomic consequences of downward wage rigidity in the United States in normal conditions, in part because productivity growth has been relatively strong. Cf. also Groshen and Schweitzer (1999).

27 Firms are assumed to face constant elastic product demand so that the flexible-price, profit-maximising mark-up is constant and invariant to shifts in demand or in the cost of production.

13.3.1 Models of staggered price setting

A monopolistically competitive firm that produces a differentiated product incurs decision costs to determine the relative price that maximises its profits. Information must be processed in an integrated way by management. Pressing problems compete for scarce management time. Customer relations, production problems, accounting problems, legal problems, personnel problems all require management oversight. Management must prioritise its concerns. A particular concern gets management's attention on a stochastic basis depending on its perceived urgency relative to other concerns.²⁸

The stochastic element involved in actual price setting is captured formally in two types of price setting models. The most widely used model due to Guillermo Calvo assumes that a firm gets exogenous stochastic opportunities to change its price.²⁹ Calvo's 'time-dependent' model of price adjustment has much in common with the 'state-dependent' model,³⁰ in which rational management chooses when to undertake pricing decisions. In both cases, discretionary price adjustments are relatively infrequent, undertaken on a stochastic basis and staggered stochastically across firms.

Michael Dotsey, Robert King and Alexander Wolman show that, at low rates of inflation, their state-dependent pricing model is well-approximated by Calvo's time-dependent pricing model.³¹ Moreover, Peter Klenow and Oleksiy Kryvtsov report that a time-dependent model of price adjustment can account empirically for the behaviour of inflation in the US since 1988.³² Pricing can thus be thought of as either time or state-dependent for the purpose of judging the implications of staggered price setting for the optimal rate of inflation.

Either way, new synthesis models put the mark-up at the core of the pricing decision.³³ A firm will make a discretionary change in its product price only when demand or cost conditions are expected to move its actual mark-up significantly and persistently away from its profit-maximising mark-up. For instance, if higher nominal wages or lower productivity were expected to compress the mark-up significantly and persistently, then a firm would raise its product price to restore the profit-maximising mark-up. Otherwise, a firm would not change its price.

28 Sims (2003).

29 Calvo (1983).

30 Cf., for example, Dotsey, King and Wolman (1999).

31 Dotsey, King and Wolman (1999). For alternative models of state-dependent pricing, cf. also Gertler and Leahy (2006); Golosov and Lucas (2003).

32 Klenow and Kryvtsov (2005).

33 Goodfriend (2004).

Two principles summarise the discretionary price adjustment process. First, a firm tries over time to keep its actual mark-up as close to its flexible-price, profit-maximising mark-up as it can, subject to the decision costs of discretionary nominal price adjustments. Second, a firm must choose a degree of indexation – an automatic rule for changing its nominal price between discretionary adjustments. For instance, a firm can choose to maintain a fixed nominal price between discretionary adjustments, or it can choose to fully or partially move its nominal price with an index of inflation between discretionary adjustments.

13.3.2 Optimal trend inflation without indexation

Consider a steady state in which firms choose not to index, that is, firms choose to maintain a fixed nominal price between discretionary adjustments. Zero trend inflation is optimal in this case because it avoids relative-price and mark-up distortions that firms between discretionary adjustments would otherwise incur. In the presence of ongoing inflation, the relative product price of non-indexed, non-adjusting firms falls between discretionary adjustments, and their mark-ups get compressed due to the inflationary rise in wages. Relative price and mark-up distortions are welfare-reducing because they induce inefficient production and sales of the differentiated goods relative to the flexible-price optimum. Zero inflation neutralises as much as possible the distortions associated with staggered price setting and makes the new synthesis model behave as much as possible like a flexible-price economy. Note that departures from zero inflation in either direction are welfare-reducing because they engender relative price and mark-up distortions.³⁴

An important related argument for zero trend inflation involves the non-indexation of the tax system. The biggest problem in this regard results because taxes are assessed on nominal interest earnings and nominal capital gains, that is, on investment returns in money units. Since nominal returns are taxed as income, inflation reduces the after-tax return to saving and investment and thereby tends to inhibit capital accumulation and economic growth.³⁵

Another important argument for zero trend inflation is the increased unpredictability of relative prices due to stochastic, staggered price setting when

34 Cf. Goodfriend and King (1997), pp. 264–265; Khan, King and Wolman (2003), p. 842; Woodford (2003), pp. 396–407.

35 Feldstein (1998).

there is inflation or deflation. Such noise reduces the informational efficiency of the price system and causes households to devote shopping time to keeping their knowledge of relative prices current.

13.3.3 Optimal cyclical inflation without indexation

Zero inflation is also optimal in response to cyclical shocks. The reason is this: A monetary policy that stabilises inflation over the business cycle does so implicitly by stabilising actual mark-ups at flexible-price, profit-maximising mark-ups; otherwise firms would not choose to keep their prices constant. Hence, maintaining zero inflation over the business cycle makes the economy perform as if prices were perfectly flexible, eliminating relative price distortions that would otherwise occur due to staggered price setting.³⁶

Recent work by Tac Yun in the benchmark new synthesis model with Calvo staggered price adjustment supports this point.³⁷ Yun confirms that zero trend and cyclical inflation are optimal with one qualification. In the presence of initial price distortions, Yun shows that optimal monetary policy requires deflation during a transition to price stability in order to reduce relative price distortions at a faster rate than under zero inflation.

13.3.4 Optimal inflation with a flexible-price sector

The discussion above proceeded as if all goods were produced by monopolistically competitive firms whose prices are sticky. In fact, important products such as oil and food are produced and traded in highly competitive markets where shocks impact inflation directly. In practice, therefore, a central bank must choose whether to stabilise an overall inflation index that includes sticky and flexible prices, or a core inflation index that only includes sticky prices of monopolistically competitive firms. In order to stabilise overall inflation against a shock in the flexible-price sector, monetary policy would have to depress aggregate demand enough in the sticky-price sector to weaken labour markets, depress wages and raise mark-ups to get monopolistically competitive firms to cut their prices. That would be inefficient. Instead, the goal should be to make the economy operate most like a flexible-price economy, and this can be achieved by stabilising core inflation. Stabilising core

36 Goodfriend and King (2001) explore the relationship between tax smoothing and mark-up smoothing using formal principles of public finance in a simple monetary model and derive conditions under which mark-up constancy is optimal monetary policy. The paper finds specifications of the model that call for optimal departures from mark-up constancy and price stability, but argues that these are likely to be minor quantitatively.

37 Yun (2005).

inflation allows flexible prices to adjust relative to sticky prices and prevents relative price and mark-up distortions that would otherwise occur in the sticky-price sector.³⁸

The above logic reproduces the optimality of zero inflation for both trend and cycle, except that in an economy with both a flexible and a sticky-price sector, zero core inflation is optimal. Flexible prices should be allowed to adjust freely relative to stabilised core prices, so that distortions due to staggered price setting are minimised and the economy performs as much like a flexible-price economy as possible.

13.3.5 Optimal trend deflation with relative price, monetary and mark-up distortions

Aubhik Khan, Robert King and Alexander Wolman study the optimal rate of inflation in a quantitative new synthesis model with non-indexed costly staggered price setting by monopolistically competitive firms and costly transactions facilitated by non-interest-bearing money.³⁹ In their model, the first factor alone calls for zero inflation to minimise relative price distortions due to staggered price setting, while the second factor calls for the deflationary Chicago Rule. They employ calibrated estimates of their model parameters to determine the rate of deflation that equates the marginal social cost of the relative price and monetary distortions. They report that the distortions associated with money are relatively small at zero inflation, so that an optimal trend rate of deflation of 0.76 percentage points, given their estimated real interest rate of 2.93 percent, yields a nominal interest rate of about 2.17 percent.

Goodfriend showed that the welfare cost of a departure from the deflationary Chicago Rule is increasing in the size of the mark-up.⁴⁰ The reason is that a mark-up moves the real wage below the marginal product of labour, and thereby moves the private opportunity cost of transactions time below the social opportunity cost, which causes an additional socially inefficient substitution of time for money in transactions. Ricardo Lagos and Randall Wright present a quantitative search theoretic model of monetary exchange in which a mark-up distortion elevates the welfare cost of inflation significantly.⁴¹

38 Goodfriend and King (1997), p.276; Aoki (2001).

39 Khan, King and Wolman (2003).

40 Goodfriend (1997).

41 Craig and Rocheteau (2005) provide an accessible discussion of Lagos and Wright (2005).

13.3.6 Optimal inflation with indexation

It is common in staggered pricing models to assume without theoretical justification that prices remain fixed in nominal terms between discretionary adjustments. In part, this assumption is made because firms generally appear to hold their nominal prices fixed between discretionary adjustments, especially at trend rates of inflation near zero. Nevertheless, it is worth pointing out that the degree of indexation has important consequences for the optimal rate of inflation.

Full indexation to the inflation rate of a firm's nominal price would neutralise the effect of inflation on its relative price between discretionary adjustments. Furthermore, indexation would offset the mark-up compression that otherwise occurs between discretionary adjustments due to inflationary wage increases. Full indexation thus makes the new synthesis model behave like an economy in which prices are perfectly flexible, regardless of the actual rate of inflation.⁴²

What degree of indexation is it reasonable to assume when assessing the consequences of staggered pricing for the optimal rate of inflation? When considering the optimal trend rate of inflation in the conventional perfect-foresight, steady-state setting, it would seem unreasonable to attribute anything other than perfect foresight to price setters. In that sense, one might argue that staggered pricing contributes nothing to the conventional analysis of optimal trend inflation. However, the fact that firms do not index their prices to low trend inflation in practice suggests that one should take distortions due to non-indexed staggered pricing into account when assessing the welfare cost of small departures from zero inflation.⁴³

13.4 The zero bound on nominal interest rates

Irving Fisher pointed out that if a commodity could be stored costlessly over time, then the rate of interest in units of that commodity could never fall below zero.⁴⁴ The zero bound on nominal interest rates is a special case of Fisher's reasoning: no one will loan money at negative nominal interest if currency is costless to carry over time.⁴⁵ The power of a central bank to lower short-term nominal interest to fight recession or deflation is therefore limited

42 Yun (1996). Cf. discussion in Woodford (2003), p. 213.

43 Woodford (2003) discusses indexation, pp. 213–218. Christiano, Eichenbaum and Evans (2005); Smets and Wouters (2003); and Giannoni and Woodford (2005) assume partial or full indexation to lagged inflation in order to improve the fit of their models.

44 Fisher (1930), pp. 186–194.

45 Oddly enough, Fisher did not apply his reasoning to monetary policy.

when nominal interest rates are already low on average, as they are when the market expects little or no inflation.

The zero bound on nominal interest rates prevents the expected real interest rate from falling below the negative of the expected inflation rate. If expected inflation is zero, then the expected real rate cannot fall below zero. More generally, the expected real interest rate is bounded above zero by the expected rate of deflation. The problem is that negative expected short-term real interest rates may be needed on occasion to offset adverse shocks to aggregate demand, especially those resulting from extreme asset price movements and financial market distress.⁴⁶ Moreover, intensified disinflationary, or deflationary, expectations in severe downturns may complicate the stabilisation problem by raising the lower bound on expected short-term real interest rates, even as circumstances call for a lower, or negative, real interest rate.

Wolman shows that monetary policy can overcome these problems in a new synthesis model with John Taylor's staggered price setting.⁴⁷ The reason being that Taylor's staggered pricing exhibits no 'structural inflation inertia', which means that there is no inherent reason why firms that have raised their prices in the recent past must continue to do so. Whether or not inflation persists in the new synthesis model with such pricing depends entirely on monetary policy. Hence, Wolman is able to show that a monetary policy rule can manage inflation and inflation expectations flexibly to produce whatever fluctuations in the expected short-term real interest rate are needed to stabilise employment, even when the nominal interest rate is zero.

However, overcoming the zero bound in this fashion would not be costless. Firstly, induced fluctuations in inflation and expected inflation to manage expected real interest rates would cause welfare-reducing relative price distortions. Secondly, the public would be satiated with money at the zero bound, so that conventional open market operations in short-term securities would not be effective. Monetary policy could be implemented effectively with unconventional open market operations in assets such as long-term bonds or foreign exchange.⁴⁸ Nevertheless, surmounting the zero bound would be costly in terms of analytical, operational, governance and communication problems that a central bank would have to overcome in order to pursue unconventional open market operations effectively. There would be

46 Cf. Bordo and Filardo (2005).

47 Wolman (1998).

48 Cf., for example, Goodfriend (2000); McCallum (2000); Svensson (2003).

great potential for policy mistakes; and a central bank would find it difficult to acquire credibility for its policy rule sufficient to manage inflation and inflation expectations flexibly as needed.

A slightly higher trend rate of inflation and a correspondingly higher average nominal interest rate would allow the same range of real interest rate variation with a lower frequency of encounters with the zero bound, and less variability of inflation around trend. There would be fewer occasions upon which to rely on unconventional monetary policy. Higher trend inflation would reduce occasions of much higher relative price distortion in exchange for slightly higher permanent relative price distortion. On balance, it seems that a slightly positive trend rate of inflation would raise welfare when one takes into account the zero bound on nominal interest rates.

The magnitude of the optimal positive rate of inflation would depend on the frequency and range of negative real interest rates needed to stabilise the economy, on the extent to which firms choose to index their prices between discretionary adjustments, and on the possibility that firms might be more likely to index to the higher inflation trend than to fluctuations around zero inflation. Taking related considerations into account in a quantitative theoretical model estimated on US macroeconomic data, David Reifschneider and John Williams suggest that a trend rate of inflation between 1 and 2 percent would be optimal.⁴⁹ Some economists argue that unconventional open market operations could stimulate aggregate demand adequately at the zero bound, while maintaining zero inflation and zero expected inflation.⁵⁰ If that were the case, then the zero bound on nominal interest rates would call for little, if any, positive trend inflation.

13.5 Full market interest on bank reserves and currency card accounts

Recent advances in payment technology and in the practice of monetary policy make possible the payment of a full market rate of interest on bank reserves that could be passed through to currency card accounts at commercial banks.⁵¹ Full market interest on reserves and currency card accounts, in turn, would induce the public to hold the optimum quantity of money at any inflation rate. The optimal rate of inflation could then be chosen on the basis of the relative strength of welfare considerations involving staggered price adjustment that call for zero inflation, and welfare considerations involving

49 Reifschneider and Williams (2000).

50 Cf., for example, Goodfriend (2000) and references contained therein.

51 Lacker (1996).

the zero bound on nominal interest rates that call for a slightly positive rate of inflation. This section outlines the steps that could implement the optimum quantity of money by paying a full market rate of interest on money.

13.5.1 The provision of currency card accounts

A currency card could be issued on a corresponding numbered currency card account. The card would be a bearer instrument in the sense that it could be used to buy goods like a gift card is used today. The currency card could be set up to debit whatever funds are in the corresponding account. Point-of-sale technology is already widely available and equipped to read electronic cards and make direct transfers.

Currency card accounts could offer most of the payment services that paper currency provides: portability, divisibility, anonymity, generalised purchasing power, a store of value, etc., but because currency cards could access funds on deposit at a financial institution, funds accessible by the card could pay interest on a daily basis. To assure that currency cards are as secure as currency, currency accounts should be restricted to hold 100 percent reserves at the central bank. Interest paid on reserves could then be passed through to interest on currency accounts. A fee could be charged to service the currency accounts. Importantly, the central bank could continue to meet the demand for paper currency exactly as it does today.

Currency card accounts that pay full market interest would be an attractive alternative to paper currency for much of the public and especially beneficial for low-income households that currently utilise non-interest-bearing paper currency extensively.⁵² It is reasonable to suppose that commercial banks in the US, for instance, would offer currency card accounts on attractive terms if Congress granted the Federal Reserve the authority to pay market interest on bank reserves, allowed banks to offer currency card accounts fully backed by reserves, and allowed banks to pass interest on reserves through to currency card accounts.

13.5.2 Payment of full market interest on reserves

With a relatively small modification in operating procedures, a central bank could pay a market rate of interest on reserves and enable full market interest to be paid on the currency accounts.⁵³ The modification involves util-

52 Debit card accounts are of limited popularity today because they generally pay a small fraction of the market rate of interest and because they do not allow holders to accumulate 'float' as credit cards do.

53 What follows draws on Goodfriend (2002).

ising and varying the payment of interest on reserves as the instrument of monetary policy.⁵⁴ To implement an interest-on-reserves regime the central bank would purchase enough securities to satiate the market for bank reserves and then pay interest on reserves at the currently desired interbank interest rate target.

In such a policy regime, a commercial bank would not lend reserves in the interbank market at interest below the rate it could obtain on reserve balances at the central bank. Moreover, as long as the central bank satiates the reserves market, banks would not lend reserves at rates above interest on reserves either.

The interest-on-reserves regime would enable a central bank to exercise control of the interbank interest rate exactly as it does today. The main difference is that a monetary policy committee would manage interest rate policy by varying the rate of interest paid on reserves rather than by varying its purchases of securities in the open market. Open market purchases would merely assure satiation.

An interest-on-reserves regime would achieve three important objectives:

1. It would eliminate the opportunity cost of reserves and any incentive for banks to economise inefficiently on reserves,
2. It would enable commercial banks to offer currency card accounts paying a full market rate of interest derived from 100 percent reserve backing so that the public would not economise inefficiently on the use of money.
3. Having achieved the optimum quantity of money, it would free monetary policy to vary market interest rates to sustain whatever rate of inflation is deemed optimal based on welfare considerations involving staggered price setting and the zero bound on nominal interest rates.

A few points are worth making with regard to the fiscal consequences of the interest-on-reserves regime with currency card accounts. Interest on reserves is a transfer from the public sector to the private sector that involves a social cost only to the extent that interest payments on reserves must be financed by distortionary taxation. Reasoning developed in section 13.2 suggests that distortionary taxation considerations do not call for much, if any, of a departure from policies to implement the optimum quantity of money, whether or not the optimum is achieved by deflation or by the payment of full market interest on reserves and currency card accounts. In any case, interest

54 A number of central banks already pay and vary interest on reserves as part of a 'channel' within which they manage their interbank interest rate policy instrument. The rate paid on reserves, called the deposit rate, is the lower bound of the channel. The central bank lending rate is the upper bound. Woodford (2001).

on reserves is likely to be self-financing, because there is a positive spread between the rate of interest on reserves and the rate of interest on securities that a central bank could acquire by increasing the stock of reserves. Finally, the government could continue to earn seignorage from the central bank's provision of non-interest-bearing paper currency, as it does today.

13.6 Conclusion

Central banks should modify interest rate policy procedures to pay a full market rate of interest on bank reserves and enable commercial banks to offer a full market rate of interest on currency card accounts. Doing so would induce banks and the public to hold the optimum quantity of money at any rate of inflation. Then, the optimal rate of inflation would be determined by weighting the welfare cost of relative price distortions due to staggered price setting against the costs of operating monetary policy near the zero bound on nominal interest rates. In that case, a positive rate of inflation below 2 percent, or so, would be optimal. Progress in determining the optimal rate of inflation within that range requires a better understanding of the channels by which monetary policy can manage aggregate demand at the zero bound, and a better understanding of indexation by price-setting firms.

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14 Is price stability enough?¹

WILLIAM R. WHITE

14.1 Introduction

What should be the principal objective of monetary policy and under what conditions might the pursuit of that objective be constrained by other considerations? In the aftermath of the Great Inflation, experienced by most industrialised countries in the 1970s, the answer to this question was obvious. Central banks should pursue single-mindedly the objective of reducing domestic inflation to a low level. This was seen, at the time, as the key contribution central banks could make to maximising output growth and, hence, to human welfare over time. They should then take steps to prevent inflation from rising again over the one to two-year (near-term) policy horizon implied by perceptions about the length of the lags in the monetary transmission mechanism.

More recently, in the light of sporadic episodes of deflation and threatened deflation in some countries, this same objective of keeping inflation at a low positive level has been restated in a rather more symmetrical way. Prices should neither be allowed to rise nor fall to any significant degree. The extent to which this consensus prevails is also reflected in the growing number of countries that have announced explicit inflation targets, often with the strong support of the international financial institutions. Closely related, there has been a clear trend towards giving central banks instrument independence to facilitate the achievement of this objective and holding them accountable for doing so. In sum, it is now the conventional wisdom that the principal objective of central banks should be to pursue price stability vigorously.

It will be argued in this paper that price stability is indeed desirable for a whole host of reasons. At the same time, it will also be contended that achieving near-term price stability might sometimes not be sufficient to avoid

1 The views stated herein are those of the author and are not necessarily the views of either the Bank for International Settlements or those that have commented on the paper already. Nevertheless, my thanks to Stefan Gerlach, Már Gudmundsson, Ulrich Kohli and Øyvind Eitrheim for helpful comments, and to Claudio Borio both for comments and for ongoing stimulus about these and related issues over the course of many years. Cf. in particular Borio and White (2004).

serious macroeconomic downturns in the medium term. Moreover, recognising that all deflations are not alike, the active use of monetary policy to avoid the threat of deflation could even have longer-term costs that might be higher than the presumed benefits. The core of the problem is that persistently easy monetary conditions can lead to the cumulative build-up over time of significant deviations from historical norms – whether in terms of debt levels, saving ratios, asset prices or other indicators of imbalances. The historical record indicates that mean reversion is a common outcome, with associated and negative implications for future aggregate demand.

In a recent paper, Christina Romer and David Romer² argued that macroeconomic policymakers in the United States were basically using the right empirical model to conduct monetary policy in the 1950s. That is, policymakers at that time recognised the high cost of inflation, and were rightly convinced by Keynesian arguments that active monetary and fiscal policy could be used effectively to lean against it. They argued further that these insights were somehow lost in the 1960s and 1970s, allowing inflation to become well entrenched, but then (and fortunately) the eternal verities were rediscovered and inflation was resisted once more. Romer and Romer thus conclude that we are essentially back where we were in terms of our understanding of economic and, above all, inflationary processes.

In contrast, it will be contended here that any historical exegesis needs to be extended in time, and thus in scope, to encompass the debate which took place before the occurrence of the Keynesian revolution. The literature produced by the Austrian school of economics in the interwar period concluded that the Keynesian focus on aggregate measures in the economy, like the overall measure of inflation, provided an inadequate bellwether for identifying emerging macroeconomic problems. Rather, the Austrians focused on the impact of changes in relative prices leading to resource misallocations and subsequent economic crises. Moreover, this literature treated economic developments as part of dynamic processes in which past events had an influence on the future. The long run was not just a series of short runs. In our modern world, where journalists, politicians and other non-academic commentators constantly use such terms as ‘excessive’, ‘unbalanced’, and ‘unsustainable’, these pre-Keynesian insights might still have a capacity to enlighten. In the more formal models used by academics, these concepts are rarely

2 Romer and Romer (2002).

present, perhaps because they are so difficult to model quantitatively in the first place.³

A starting point for the analysis in this paper is the explicit recognition of an increasingly obvious fact. Under the joint influences of deregulation and technology, the global economic and financial system has undergone massive change in recent years. The liberalisation of the real economy, in particular the re-entry into the global trading system of such giants as China and India and developments in the global financial system over the last twenty years, have profoundly changed how economic processes work. We are increasingly distant from the highly regulated period following the Great Depression and the Second World War, when our current policy frameworks were developed. Indeed, the structural landscape looks more and more like that seen in the 1920s and the decades prior to World War I. It would not seem implausible, in the light of all this underlying change, that our policy frameworks might also need revision.

Sections 14.2 and 14.3 below are positive rather than normative. They attempt to document that the costs of not having near-term price stability, as well as the benefits, may have been overestimated. Taken together, they make a *prima facie* case for re-evaluating the current, conventional monetary framework. In section 14.4, such an evaluation is carried out, with arguments for maintaining the status quo being confronted with the arguments against. In section 14.5, an outline is presented of what an adapted and improved monetary framework might look like.

To summarise the policy implications, it is concluded that the longer-run implications of monetary policy actions should be given greater weight than they have been. The challenge will be to combine the pursuit of longer-term price stability with a more flexible and nuanced use of the policy instruments directed to that objective. Meeting that challenge will involve changes in how central banks act, in particular the indicators they look at when setting monetary policy, as well as changes in how they communicate what they do to the public.

3 In his Nobel prize lecture, reprinted in Hayek (1975), Hayek warns about putting excessive reliance on empirical 'proofs' in economics at the expense of a coherent theoretical explanation. He argues that economic processes are inherently so complex and constantly changing that the appearance of structural stability is almost always misleading. Interestingly, Keynes shared this view as described in Leijonhufvud (1968). For some more recent scepticism, cf. Summers (1991).

14.2 Deviating from price stability: have the costs been overestimated?

Before evaluating the costs of not having ‘price stability’, it would be best to define what central bankers currently mean by the term. For most central banks, the ‘price’ component is defined as some aggregate measure of the prices of currently produced goods and services.⁴ Depending on taste, this could be either the consumer price index (CPI) or some national income account (NIA) deflator, with or without some sectoral exemptions to purge the series of undesired volatility. Over the longer run, these series tend to move quite closely together, so that the distinctions between them are less important. However, over shorter time periods, like the one or two-year horizons conventionally targeted by central bankers, definitional differences can be significant. For example, the upward trend in energy prices in recent years has driven a wedge between measures which include such prices and those that do not. As for the definition of ‘stable’, the conventional approach would be to define it as some low level of inflation, say between 0.5 percent (to account for upward measurement bias) and 2 to 3 percent per annum. Implicit in this definition is also the view that any measure of deflation (where prices actually fall in aggregate) is not consistent with price stability.

The benefits of achieving any public policy objective are not absolute, but must be assessed against the costs of doing so. Today, the costs of achieving low inflation would be assessed as significantly lower than they were thought to be in the 1960s and 1970s. At that time, many believed there was a long-run trade-off between inflation and unemployment, implying that low inflation meant permanently higher unemployment. Even as that belief began to fade, reflecting the insights of Milton Friedman⁵ and Edmund Phelps⁶ into how shifting expectations would render vertical the long-run Phillips curve, there was still resistance to trying to reduce inflation through market processes. In part, this was because of the perception that even the short-run costs could be substantial. One strand of thought was that the short-run trade-off was very flat, implying that a large unemployment gap would be required to move

4 It is worth noting that in the pre-war literature, two things stand out. First, there was generally no precise definition of what was meant by inflation. This is perhaps not surprising given the rather primitive state of data collection at the time. Second, the discussion was always premised on the idea that credit creation was at the heart of the inflation process. That the evident shortcomings of the ‘monetarist’ experiment in the 1970s should have led to a wholesale rejection of this centuries-long association warrants a study on its own.

5 Friedman (1968).

6 Phelps (1968).

inflation materially. A related strand of thought was that inflationary expectations were very sticky and disinflation would thus not receive much support from a ratcheting-down of the Phillips curve in inflation-unemployment space. This kind of thinking led to a preference for wage-price controls and other non-market processes, along with a belief that 'gradualism' in reducing inflation would do so at the lowest cost over time. What is interesting, now that inflation has been reduced to low levels, is that similar views currently prevail about both sticky expectations and shallow trade-offs. The implications of this are examined below.

While the assessed costs of achieving price stability tended to fall over time, the assessed benefits rose in tandem with central bankers' actual experience of living with high inflation. It was not a pleasant experience. Perhaps the first observation was the disquieting tendency for unleashed inflation to move ever higher when not firmly resisted by macroeconomic policies. In many countries, particularly when exacerbated by the negative supply-side shocks of the 1970s, the battle for factor shares led to a spiralling of wage and price pressures that moved steadily upwards. This eventually led to the conclusion that merely stabilising inflation, once it had reached a level high enough to significantly affect economic decision-making,⁷ was simply not a viable option. The memories of hyperinflation in post-war central Europe, arguably the defining macroeconomic event of the century for Germany, provided further support for this view. Indeed, this historical experience had already led to the Deutsche Bundesbank and the Swiss National Bank being given much more independence than was typical at the time.

The costs of high inflation were increasingly recognised as having micro and macro as well as social dimensions. By way of summary, inflation posed a threat to high, sustained economic growth and social stability. At the micro level, the principal concern was that large aggregate price movements were clouding movements in relative prices and interfering with the information content of the price system. The interaction of large price movements and the tax system, which had never been designed with this in mind, provided another source of concern about economic efficiency and long-term growth potential. At the macro level, increased uncertainty about prospective price movements and the clear potential for an eventual policy response and resulting recession, which indeed often materialised, added a costly risk premium

7 While the tolerable level of inflation is generally considered to be below 2–3 percent, most careful studies of the 'costs' of inflation have difficulty identifying such costs below a threshold of around 10 percent. This discrepancy perhaps reflects the belief that inflation above the lower limit would quickly accelerate to breach the upper one.

to financing costs. Together with people's desire to hedge themselves against inflation, this led to an unwelcome shift of real resources away from productive investments into property, both residential and non-residential. Since much of the financing came through banks, this in turn raised concerns about potential instability in the financial system should property prices begin to fall.

Finally, at the social level, it became increasingly evident that a further effect of inflation was to redistribute wealth in an unfair way. This threatened belief in the integrity of both the economic and the political system. Perhaps recognising the truth of John M. Keynes' much earlier observation – "Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency."⁸ – the political establishment and the citizenry of the industrialised countries eventually became convinced that inflation had to be brought down and kept down. As noted above, this rightly continues to be the conventional wisdom today.

That said, another aspect of today's conventional wisdom concerning inflation should also be noted, particularly since it has some bearing on the subsequent discussion of deflation. That is, one-time upward shifts in the price level should be tolerated to the extent that they do not threaten to generate increases in inflationary expectations and second-round effects on prices. Such temporary increases in measured inflation, arising, say, from a negative supply shock to production capacity, can facilitate the relative price adjustment which is needed to respond to the supply shock. The alternative possibility – resisting an aggregate price increase – would demand that other prices fall to ensure the relative price shift. Since this is generally thought to involve greater economic costs, it has not generally been thought of as the preferred alternative.⁹

An objective assessment of the costs of deflation (in contrast to inflation) is rendered more difficult by the comparative rarity of such events in recent decades and, partly as a result, by the prominence typically given to the appalling experience of the US during the Great Depression of the 1930s. Clearly, this was their defining macroeconomic event of the last century. Yet it must also be recognised that, in historical terms, the association between price de-

8 Keynes (1920), p. 220.

9 A recent major study of pricing behaviour by European firms casts some doubt on this. Downward price movements for individual products are as common as increases. Moreover, downward price movements seem more responsive to demand conditions than do price increases, in part because customers see price increases in response to demand pressures as 'gouging'. This implies a concave short-term Phillips curve, which is not the conventional wisdom. Cf. Dhyne et al. (2005).

clines and massive output and job losses was almost a unique event. Looking back over a much longer historical period,¹⁰ a number of studies indicate that many periods of mild deflation prior to World War I were associated with continuing strong increases in output, some with only mild recessions, and just one or two with sharp falls in output. Moreover, looking at some more recent periods of deflation, or near deflation, the overall economic performance of the affected countries was not seriously compromised. In Japan, mild deflation did not lead to a cumulative downward spiral in consumer spending, premised on prices being expected to be still lower in the future, even though the after-effects of the corporate excesses of the 1980s were severe. In China, mild deflation had no discernable effect on growth rates, which were maintained at extremely high levels.

Categorising deflations in terms of “The Good, the Bad and the Ugly”, terms made famous by a well-known film,¹¹ has considerable merit in that it underlines that not all deflations are the same. This leads to the need to analyse why the costs of deflation differ and, in turn, the issue of how costly a deflationary period in the global economy might be today. This understanding would be relevant for determining what price should be paid for an insurance premium against such an event happening.

‘Benign’ (perhaps a more accurate term than ‘good’) deflations in which output growth remained strong have historically generally been associated with positive supply shocks. In particular, in the period prior to World War I, technological innovation, rapidly rising productivity and globally mobile factors of production often led to both falling aggregate prices and sustained business activity. Lower prices contributed to higher real wages, while higher productivity allowed the share of profits in factor incomes to be maintained or even increased. In this environment, asset prices also remained strong and monetary and credit aggregates tended to rise as well.

‘Bad’ deflations have been those in which deflation was accompanied by recessions of normal size. Such circumstances were often produced by slackening demand, in a situation where inflation was already at a low level. Broadly put, the costs of such mild deflations would not seem likely to be much different than those of mild inflations. At the micro level, there would be concerns about the weakened content of price signals, interactions with the tax system and arbitrary wealth transfers. At the macro level, a preference for cash over risky investments might further slow growth potential over time.

¹⁰ Cf. chapter IV in BIS (1999, 2003). Also Borio and Filardo (2004); Bordo and Filardo (2005).

¹¹ Suggested for use in this context by Borio and Filardo (2004).

That said, it could not be ruled out that a bad deflation might turn into an ugly one. Friedrich Hayek referred to this as a ‘secondary depression’ and accepted that it should be resisted by monetary policy.¹²

An ‘ugly’ deflation, like that of the 1930s, has its roots in three nominal rigidities. The first rigidity is that of nominal wages. If prices begin to fall, while wages do not, then real wages rise and profits are squeezed. This then feeds back on lower employment and lower investment, with the associated reductions in demand further supporting price declines. The second rigidity is the zero lower bound for nominal interest rates. If prices move down, and are anticipated to move even lower, the *ex ante* real rate of interest rises and cannot be offset by further nominal declines. This has further negative implications for investment, but also for debt service requirements more broadly. Debts denominated in nominal terms are the third rigidity, and they can affect both the consumer and corporate sectors. Evidently, the severity of the effect on debt service requirements will depend not only on the rate of deflation, but also on the level of nominal debt outstanding.¹³ Finally, the historical evidence indicates that related weaknesses in the financial system can also seriously exacerbate a downturn.

Considering the structural characteristics of today’s global economy indicates that it may have more traits in common with the world prior to World War I than that of the Great Depression. To this extent, current concerns about avoiding deflation might be overstated. In particular, a pattern of ongoing economic liberalisation, occurring both domestically and internationally, has contributed to an ongoing series of positive supply shocks that have pushed down the prices of internationally traded goods and services.¹⁴ Moreover, the same forces in association with new communication technologies have sharply increased the proportion of output that is internationally traded. In many countries, the US especially, but also many emerging market economies, productivity growth has also increased measurably. In spite of this downward pressure on prices, profit shares have widened significantly in recent years. Clearly, productivity growth has contributed to a lower rate of growth for unit labour costs, but nominal wages have also been remarkably subdued in many countries. The recent growth in the global labour supply can serve as an explanation. Moreover, as was the case prior to World War I,

12 Hayek (1974), p. 5.

13 In the background stands a further asymmetry. The fact that debtors can go bankrupt has evident effects on their spending capacities, but also on creditors.

14 All the changes noted in this paragraph are well documented in Galati and Melick (2006) and the more than thirty empirical papers to which they refer.

both labour and (especially) capital are now highly mobile. Increases in labour compensation in the industrialised countries are thus currently restrained by the use of foreign workers to remove bottlenecks and by the credible threat that whole factories could be moved to lower-cost jurisdictions.

The same conclusion can be reached by considering the extent to which nominal rigidities might (or might not) play a role today in transforming a benign deflation into a bad or even ugly one. The first rigidity – that of real wages – would seem from the historical comparison above not to be an obvious problem. However, the second rigidity – the potential for policy rates to hit the zero nominal bound and for real rates to rise uncontrollably – must be a source of greater concern given how low policy rates currently are in most industrialised countries. It is also worth noting, however, that the ratcheting-up of *ex ante* real rates also depends on falling prices (*ex post*) being extrapolated into the future. Put otherwise, it depends on their perceived persistence in the inflation process. Fortunately, the empirical evidence referred to above indicates that inflation persistence has fallen sharply in recent years, as indeed was the case prior to World War I.¹⁵ The fact that falling prices in Japan, over the last eight years, do not seem to have led to consumers ‘postponing’ purchases in anticipation of further falls must also be judged a positive sign. Indeed, household savings rates fell more in Japan over the last decade than they did in the US, albeit to a higher level.

There is also the third issue of debt contracts being defined in nominal terms. There can be little doubt that current debt levels in some countries are very high. This applies particularly to government debt in Japan, corporate debt in Europe and household debt in the US and a number of other English-speaking countries. Falling prices and nominal revenues could then have the potential to seriously undermine the capacity to service debt, and could lead to disruptive bankruptcies. At this juncture, such concerns might seem to provide clear support for the view that insurance against deflation is worth having. However, such a conclusion must be qualified to the degree that (as will be argued below) high debt levels may themselves have been encouraged by easy financing conditions in the past.

15 The absence of ‘persistence’ prior to World War I, that is, the rejection of the unit root condition in the inflation process, owed much to the operation of the gold standard. Thus, when prices went down, they were normally expected to go back up. Today, we have something similar, assuming the credibility of monetary regimes having the objective of keeping inflation at a low positive level. Mean reversion in the expected price level might be even further encouraged by committing to a price level, rather than an inflation target. Whether this credibility would prove as robust as the operations of the gold standard remains to be seen.

Finally, most current indicators show that the financial institutions in most of the industrialised countries are very healthy,¹⁶ although certain fragilities can be identified looking forward. In particular, the opacity and complexity of the financial system today shroud in secrecy who finally bears the risks, and increase the likelihood of operational problems. More broadly, the reliance of banks in many countries on revenues from dealings with the household sector, already heavily indebted, could in the future prove a source of financial vulnerability. Yet as just noted above, these exposures might also have increased over time in response to successive episodes of monetary easing and associated credit expansion.

14.3 Maintaining price stability: have the benefits been overestimated?

This section begins with an analysis of some of the other objectives that have traditionally constrained central banks from pursuing price stability single-mindedly. While the importance of these may have been downgraded, as the objective of price stability has been upgraded, there are good reasons why their influence persists. Also note that, while many central banks have been given a formal mandate to pursue price stability as their primary objective, many have not. In part, this may reflect the belief that objectives other than price stability, even if only over relatively short periods, might also bring benefits.

After considering these traditional constraints, attention is then directed to a set of problems that have again gained prominence in recent years. In particular, attention is drawn to financial and other forms of economic disruptions associated with booms and busts in credit growth, asset prices and significant deviations in spending patterns from earlier norms. Historically, there have been repeated episodes of this sort, despite the general maintenance of price stability in the periods preceding them. After some reflection on how earlier economic theorists explained this phenomenon, an attempt is made to indicate why these historical allusions might have some relevance today.

16 It is clear that the severity of the depression in the 1930s was exacerbated by the weakness of banking systems, at a time when they had unprecedented dominance over the financial system as whole. This was not the case prior to World War I, nor is it the case today in most of the larger industrialised countries.

14.3.1 *Traditional constraints: output growth and exchange rates*

If one accepts that there is no long-run trade-off between output and inflation, then concerns about maintaining output growth cannot be viewed as being in fundamental opposition to the pursuit of price stability. If, as is normally the case, the price objective (initially under control) is under threat from excessive or deficient demand, the pursuit of the former automatically implies a monetary policy which runs countercyclical to the business cycle. Tightening, for example, resists both excessive demand and the inflationary pressures it generates. Yet, less fundamentally, there are circumstances where concerns about output growth do have an independent influence on policy decisions. In the formal literature, it is commonly assumed that the loss function that the monetary authority is trying to minimise includes deviations of output from potential, as well as inflation from its targeted level. More practically, attempts to move forecast inflation back to target too quickly can cause more severe cumulative output losses than a slower and steadier process. A convex, short-term Phillips curve has properties sufficient to lead to this kind of behaviour on the part of the monetary authorities.

Confronted with supply-side shocks, however, there can be a more fundamental conflict between price stability and output growth. For example, an oil embargo raises prices and reduces aggregate supply. In countries that are net oil importers, this is equivalent to a tax increase, which also reduces aggregate demand. When this happened for the first time in 1974, macroeconomic policy tried to lean against the output costs, with devastating effects, as both inflation and inflationary expectations rose sharply. Learning from this mistake, the decision was taken in 1979 to lean against the price effects. Today, as noted above, the conventional wisdom would be to accept the direct, first-round price effects, but not any subsequent pass-through effects.

A second traditional constraint, that of the exchange rate and the possibility of associated external imbalances, has been a recurrent concern of the SNB and many other central banks. The pursuit of domestic price stability in a world of highly mobile capital flows implies that the exchange rate must be allowed to float.¹⁷ Monetary tightening in the interests of reducing inflationary pressures could, in some cases, lead to a degree of nominal and real exchange rate appreciation that would significantly worsen the current account balance. This could increase the likelihood of a future exchange rate crisis, and might in any event demand a degree of domestic resource reallocation

¹⁷ Simultaneously having an independent domestic monetary policy, a fixed exchange rate and highly mobile capital flows is referred to in the modern literature as the 'impossible trinity'.

that could prove discomfiting if forced to occur very quickly. Similarly, monetary easing might lead to a run on the currency with similar effects of opposite sign. Whether driven predominantly by concerns about the level of the exchange rate and its effect on real variables, or its rate of change and the effects on financial variables, the monetary authority might either wish to, or feel forced to, factor such considerations into its decisions.

Normally, extended resistance to pressure for the nominal exchange rate to appreciate would lead to domestic inflation that would ensure a real appreciation of the currency in any event. Confronted with such inflationary tendencies, monetary policy would be tightened and the nominal exchange rate allowed to rise. However, in Asia in recent years, in the absence of any overt signs of domestic inflation, it has been possible to continue to resist currency appreciation through a combination of massive, sterilised intervention and easy domestic monetary policies. In fact, real interest rates in Asia have been close to zero for some years. To date, these policies have not been manifestly bad for Asian countries. Real growth has been rapid, and large exchange reserves have been accumulated as 'insurance' against any possible repeat of the Asian crisis of the late 1990s. However, looking forward, problems concerning either domestic inflation or imbalances of various sorts could eventually arise in Asia. The parallel between Asia today and Japan in the late 1980s is not wholly fanciful.

If this is only a potential problem, arising in the context of stable Asian prices, another problem is already evident, and on a more global scale. The region as a whole has built up a large trade surplus, which is the counterpart to a significant part of the US trade deficit. This outcome reflects not only undervalued Asian currencies, but perhaps also lower long rates in the US, as accumulated foreign exchange reserves have been reinvested in bonds largely denominated in US dollars. While, to date, price stability has been maintained in both the creditor and debtor countries, the global financial system has nevertheless become increasingly exposed to unprecedented external imbalances.¹⁸ Moreover, the conviction of foreign exporters to the US that domestic prices in dollars cannot be raised, even should the US dollar fall relative to their own currencies, has significantly reduced the exchange rate pass-through. While there must be limitations to this process, the failure of relative prices to adjust stands as a significant impediment to increased US competitiveness and an orderly current account adjustment.

18 Cf. White (2005b).

14.3.2 *New constraints: fixed capital, debt and financial stability*

Lessons from economic history

The historical record provides stark evidence that a preceding period of price stability is not sufficient to avoid serious macroeconomic downturns. Perhaps the most telling example is that of the Great Depression in the United States in the 1930s. The period was characterised by massive and continuing losses in terms of both employment and output, accompanied by a cumulative deflation process and associated financial distress in response to accumulated debt. Indeed, almost one-third of US banks failed over the course of the 1930s.¹⁹ The crucial point is that this downturn was not preceded by any noticeable inflation. Indeed, prices were essentially stable for most of the 1920s and were actually showing signs of measured deflation before the decade drew to a close. Rather, the period was characterised by rapid technological innovation, rising productivity, rapid increases in the prices of equity and real estate, and strong fixed investment. Behind these developments were ongoing technical innovations in the financial sector, not least the much greater availability of consumer credit.²⁰

Turning to more recent history, Japan has been in a protracted period of sub-par growth for well over a decade, with the gross domestic product (GDP) deflator falling almost 10 percent on a cumulative basis. With growth averaging only around 1 percent annually between 1992 and 2004, the unemployment rate rose from a low of 2 percent in 1989 to a high of 5.5 percent in 2001. At the same time, the banking system showed increasing signs of stress, and a number of bankruptcies were recorded in spite of strong and continuous state intervention. As with the earlier US experience, this very poor performance was preceded by a sharp increase in credit, asset prices and fixed investment. Notably, however, there was again no prior acceleration in overt inflationary pressures. As for the Japanese financial sector in the 1980s, it was both subject to the ongoing influence of technological innovation and, more importantly, in the process of financial deregulation.

Still more recently, attention could be drawn first to the financial crisis in Southeast Asia in the late 1990s. For some countries, the costs could be measured as double digits of GDP, with associated increases in unemployment. The banking systems were also significantly affected. In a number of

19 In this regard, the tightening of monetary policy in 1931 within the framework of the gold standard was distinctly unhelpful.

20 Cf. Eichengreen and Mitchener (2003).

cases, deflation threatened to, or actually did, emerge. Similar to the US and Japanese cases, these difficulties were not preceded by any marked inflationary excesses, but rather by sharp increases in credit, asset prices and fixed investment. On the financial side, an important influence was exerted by large-scale capital inflows, which subsequently and suddenly reversed as the crisis worsened.

Finally, the same general point could be made about the rather different stresses imposed on the real and financial system by the Russian debt crisis in 1998 and the subsequent failure of the LTCM fund, and the collapse of global stock markets in 2001. These disruptive incidents also took place in an environment of effective price stability. As with the episodes above, each was preceded by significant evidence of financial overreach (accelerating credit growth, rising leverage, rising asset prices). Furthermore, in both the US and Europe, there was a sharp increase in business investment during the second episode directed largely to the technology, telecommunications and media sectors believed to epitomise the 'New Era' then thought to be emerging.

These facts are as easy to describe as their implications are hard to deny: price stability was not enough to ensure high, sustained growth. What is harder to do is to present an analytical explanation for these costly events, given the absence of the expected catalyst of rising inflation. In the following parts of this section, two relevant points are made. First, recourse is made to some of the central tenets of pre-war Austrian theory and how that model contrasts with the Keynesian analytical approach still used by most central bankers. Second, an attempt is made to show how structural changes in the economy, both real and financial, might have rendered these theoretical insights of more practical relevance today than they were during the 1950s, 1960s, 1970s, and perhaps even the 1980s. In short, history might still matter.

Lessons from the history of economic thought

A useful starting point might be the Keynes-Hayek debate of the early 1930s. This was conducted in the early days of the Great Depression against the backdrop of a previous half century or more of substantial business cycle variations.²¹ While John Hicks²² contends that the debate captured the imagination of the economists of the time, it has since been generally forgotten. Both Keynes and Hayek began by accepting some common insights. The first is that a monetary economy is fundamentally different from a barter econ-

²¹ This debate has been well chronicled in Cochran and Glahe (1999).

²² Hicks (1967).

omy. The second is that both built upon the Wicksellian framework which emphasised the problems associated, in a monetary economy, with the financial rate of interest deviating from the so-called natural rate of interest.²³ These similarities noted, their thinking subsequently led them in quite different directions.

David Laidler²⁴ notes that the IS/LM model, still the workhorse in the stable of most central bankers,²⁵ is essentially a one-period model in which the short run and the long run are effectively indistinguishable. Its central message is that deviations between the financial and natural rate will create either deficient or excessive aggregate demand leading to unemployment and (in a fuller model) inflation respectively. Both are undesirable in themselves. In contrast, the passage of time is a central feature of Austrian theory and, short of the long run, credit creation need not lead to overt inflation. Rather, relative prices are the key to future outcomes. Deviations between the financial and natural rates lead the financial system to create credit which encourages investments that, in the end, fail to prove profitable. The underlying reason for this is that the investments tend to be directed to the production of goods and services for which the level of demand anticipated never in fact materialises. While many have rightly criticised the specifics of Austrian capital theory, the concept of erroneous investment processes driven by credit creation is still noteworthy. Moreover, while most Keynesian models assume a relatively smooth adjustment from one equilibrium to another, the Austrians stressed growing imbalances (cumulative deviations away from equilibrium) and an eventual crisis whose magnitude would reflect the size of the real imbalances that preceded it. The underlying reason for this last observation is that the capital goods produced in the upswing are not fungible, but they are durable. Mistakes then take a long time to correct.

As is now well known, the Austrian approach dropped from sight in most parts of the world, in part because it offered no hope in the face of the crisis of the 1930s. Moreover, the Keynesian approach subsequently offered highly satisfactory performance in the post-war period, barring the 1970s as discussed above. Indeed, since the early 1980s, the conventional approach to

23 The financial rate of interest is the rate at which commercial banks stand ready to lend. The natural rate is rather determined by real factors, in particular those having to do with saving and investment.

24 Laidler (1999).

25 Cf. Blinder (1988, 1999). Blinder implicitly associates the Keynesian model with the IS/LM apparatus developed by Hicks. As Leijonhufvud (1968) made clear, this association loses much of the richness of Keynes' thought, particularly about capital markets and the role of immeasurable expectations.

macro policy has produced truly stellar macroeconomic outcomes. Growth in most industrialised countries (excluding Japan) has been both higher and less volatile, while inflation has been sharply lower, but also less volatile. Against this historical background of success, it might seem strange to suggest that the pursuit of low, positive inflation by central banks should be complemented by concerns about financial excesses and imbalances that are more in the Austrian spirit. It is argued immediately below that there are plausible reasons to warrant such a re-evaluation. As a complement, it will be further argued in section 14.4 that there is a reasonable chance that the good performance seen to date might not be sustainable.

Why history might still matter

One reason to warrant a reappraisal of the current conventional approach to monetary policy is that the structure of the global economy has changed remarkably in recent decades. In particular, financial liberalisation has increased the likelihood of boom-bust cycles of the Austrian sort. Moreover, the integration of big countries into the world economy and the liberalisation and globalisation of the real economy, as discussed above, appears to have had material effects on the inflation process and the transmission mechanism of monetary policy. Consider each development in turn.

The structural changes in the financial sector in recent decades have been profound. Some combination of technological change and deregulation has led to a quickening process of disintermediation from banks, growing reliance on market processes, globalisation and institutional consolidation.²⁶ In short, we now have a liberalised financial system which seems much more likely to show boom-bust characteristics than the previously repressed one. Michael Bordo and Barry Eichengreen convincingly document the decline of such incidents internationally, in response to the imposition of financial controls in the 1930s and 1940s, and their subsequent rise as these controls were gradually removed.²⁷

The dynamics of the process can be described as follows: buoyed by justified optimism about some particular development, credit is extended, which then drives up related asset prices. This both encourages fixed investment (as per Tobin's q), and increases collateral values, which supports still more credit expansion. With time, and underpinned by an associated increase in output growth, this process leads to increasing willingness to take on risks

²⁶ Cf. White (2004a).

²⁷ Bordo and Eichengreen (2000).

(‘irrational exuberance’), which gives further impetus to the credit cycle. Claudio Borio et al. provide evidence that credit spreads, asset prices, internal bank risk ratings, ratings from agencies and loan loss provisions all demonstrate this tendency to procyclicality.²⁸ Subsequently, as exaggerated expectations concerning both risk and return are eventually disappointed, the whole process goes into reverse. As undershoot replaces overshoot, the dampening effect on the real economy of high debt levels and weak investment becomes particularly notable. Frequently, but not necessarily, the financial system is itself weakened and exerts a further dampening effect on the real economy.

This analysis of events does not seem at odds with the descriptions presented above of the many economic and financial disruptions seen over the last decade or two. While generally not preceded by overt inflation, they were all characterised by rapidly rising credit, asset prices and fixed investment. Indeed, it also seems consistent with the subsequent and extended weakness of fixed investment in post-unification Germany, Japan, Southeast Asia and the US after earlier periods of strong investment growth. In sum, there are stronger grounds today than in earlier decades for looking at financial sector developments, and their potential to threaten rapid and sustainable output growth, as new indicators which ought to help guide the conduct of monetary policy.

By the same token, structural change in the real economy might also imply that there are grounds for questioning the use of traditional indicators in the conduct of monetary policy. While reserving normative prescriptions for section 14.4, there is clear empirical evidence that the inflation process has changed markedly in recent years.²⁹ The pass-through of exchange rate changes and other costs to domestic prices is much reduced. The influence of domestic output gaps on inflation seems on the wane. Indeed, recent work by Claudio Borio and Andrew Filardo suggests that, for many countries, global measures of capacity utilisation are already exerting a significant degree of influence over domestic measures of inflation.³⁰ Estimates of the short-run slope of the Phillips curve have fallen in many countries, and the persistence of inflation (after shocks) has fallen significantly in many countries.

Far from having a common understanding of what is going on here, as suggested by Romer and Romer, a number of competing hypotheses can be

28 Borio et al. (2001).

29 As noted above, cf. Galati and Melick (2006).

30 Borio and Filardo (2006).

suggested.³¹ Both real (increased international and domestic competition and productivity) and nominal (increased central bank credibility) forces might be in play. Unfortunately, this lack of clarity as to root causes also implies some considerable uncertainty with respect to the appropriate conduct of monetary policy. Taken together with the identified changes in financial structure, there seems then to be a *prima facie* case for re-evaluating the current framework for conducting monetary policy.

14.4 Evaluating the conventional policy framework

In the preceding sections, support has been provided for two propositions. First, serious macroeconomic downturns can occur in fiat money economies, even if they are not preceded by overt inflationary pressures. Put otherwise, the many benefits of stable prices do not extend to excluding such extreme events. Second, just as there is a willingness to tolerate the first-round effects of negative supply shocks on inflation, there should perhaps be a similar willingness to tolerate deflation arising from positive supply shocks. The costs of benign deflations are difficult to evaluate, and would, in any event, have to be balanced against the costs of avoiding them. In this last section of the paper, the implications of these joint insights in choosing a framework for the conduct of monetary policy are assessed.

The section is divided into four parts. First, the salient characteristics of the current ‘orthodox’ framework are presented. These cover not only the objective(s) of monetary policy, but also the way in which the instruments of monetary policy are used in the pursuit of the objectives. This is followed, second, by arguments for maintaining the status quo, and third, by the arguments against. Fundamentally, the issue comes down to the merits of a more static analysis (‘so far so good’) versus a more dynamic approach focused on where the current path might be leading.

14.4.1 *The conventional policy framework*

It must be recognised that monetary policy is conducted with significant differences in emphasis across currency areas. Thus, any single description of how monetary policy is conducted risks becoming a caricature.³² Moreover,

31 Romer and Romer (2002).

32 This risk is perhaps greatest in the case of the SNB and the European Central Bank, whose policy frameworks have rather more in common with the ‘adapted framework’ advocated below. Cf. Issing (2004) and European Central Bank (2005) for overviews of the approach of the European Central Bank. For an overview of the policy framework of the SNB, cf. chapters 4.3, 4.4 and 11 of this volume.

the conduct of monetary policy is constantly evolving in practice. Central bankers react to shortfalls in their own performance, to unexpected side effects of what they do, and to new intellectual insights.³³ Nevertheless, looking back over recent years, the orthodox framework for conducting monetary policy would seem to comprise the following five propositions.

First, the primary objective of monetary policy should be to maintain inflation at a low positive level. Given the presumed lags in the effects of monetary policy, this implies targeting a forecast of inflation for two years ahead. In some jurisdictions, this objective is publicly declared (as in inflation targeting), whereas in others, it is implicit in what the authorities both say and do.

Second, the principal instrument for achieving the objective is use of the short-term policy rate under the direct influence of the central bank. In most jurisdictions, this influence is exercised through some combination of announcements of rate corridors and market operations affecting the provision of reserves to the banking system. In recent years, in Japan, where the policy rate has effectively been at the zero nominal bound, the authorities have relied upon 'quantitative easing'. This has been conducted through announcing and implementing targets for the aggregate level of excess reserve holdings in the banking system.

Third, the forecast of future inflation, whose evolution guides the setting of the policy instrument, relies primarily on the influence of gaps in the product and labour markets. Estimates of capacity utilisation and the natural rate of unemployment thus play a central role. The use of other indicators of future inflation, such as the rate of growth of monetary and credit aggregates, are sometimes referred to (especially in continental Europe), but still essentially play a secondary role.

Fourth, asset prices are important only to the extent they exert pressure on gaps and subsequent inflation. In any event, asset price 'misalignments' are difficult to identify and cannot be effectively resisted, since this would require interest rate increases that would be destructive elsewhere in the economy. Conversely, any slowdown in economic activity associated with an asset price bust can be effectively resisted through an easing of monetary policy. This could impart a degree of asymmetry to the conduct of domestic monetary policy in the face of such disturbances.

Finally, conduct of monetary policy in the light of the four principles above implies a significant degree of willingness to allow the foreign exchange

33 White (2002).

value of the domestic currency to float. To the degree that countries wish to resist this, another important asymmetry must be highlighted. Countries can resist depreciation through sterilised foreign currency intervention only to the extent their foreign currency reserves (or capacity to borrow) allow. There is no such limit to resisting appreciation. The domestic central bank can create as much domestic currency as it wishes, to purchase foreign currency, provided that it is prepared to live with the side effects of such policies.

14.4.2 Arguments for the status quo

While there might indeed be a *prima facie* case for re-evaluating the current monetary policy framework, a compelling argument for retaining the status quo, after such a re-evaluation, has already been referred to. It has delivered the goods in terms of the ‘Great Moderation’. In other words, output fluctuations have been much attenuated in recent decades, and both the level and the volatility of inflation have been remarkably reduced. In effect, central bankers learned from experience the harm that inflation could do and resolved to reduce it. They have been very successful, and we are now reaping the rewards in terms of much better macroeconomic performance. In particular, with inflation low and stable, there has been no need for periodic episodes of sharp tightening of monetary policy with the associated risk of inadvertent recession.

As for the evidence of growing disturbances in the financial sector, those wishing to maintain the current framework would argue that these are due in large part to learning problems in an increasingly deregulated sector, and also to deficiencies (in certain countries) of the infrastructure supporting the financial system. The central point is that, in both cases, these problems should prove temporary. A corollary of this view is that liberalised financial systems are not inherently procyclical and are certainly not prone to recurring crises. On the contrary, more complete financial markets will prove in the end to be both efficient and highly resistant to shocks. Not only do they allow the transfer of risk to those most capable of bearing it, but they also facilitate intertemporal income smoothing, which allows demand to be maintained even under stress. Indeed, when one considers the number of serious shocks to which the global economy and financial system have been subjected in recent years, that inherent resilience is already increasingly apparent.

Finally, it would have to be noted that the current monetary framework has allowed monetary policy to play an appropriately countercyclical role whenever events seemed to threaten the prospects for sustained global growth. On the one hand, higher policy rates were used in the late 1980s, in

1994 and also near the end of the 1990s to respond to perceptions of rising inflationary pressures. On the other hand, policy rates worldwide were lowered sharply after the stock market crash of 1987. Rates were also lowered aggressively at the end of the 1980s, in the face of the collapse of property prices in many countries and the perceived weaknesses of many banking systems. In 1997, in response to the possible future implications of the Asian crisis, rates were left on hold even though traditional measures of inflationary pressures were signalling the need to tighten. The Russian crisis and associated collapse of LTCM led to an overt easing of policy, as did the subsequent decline in global equity prices. Indeed, this latter event eventually led to nominal policy rates of only 2 percent in continental Europe, 1 percent in the US and, of course, the maintenance of the policy rate at zero in Japan, supplemented by quantitative easing.

Given how successful the combination of these policies proved to be in stabilising output growth, the case for a change in the framework for conducting monetary policy would not seem obvious. Yet, going beyond what might seem obvious, other considerations must also be taken into account.

14.4.3 Arguments for change

For analytical purposes, four separate problems are identified below, although, in reality, they interact to put the economy on an unwelcome dynamic path. Firstly, with a monetary policy focused solely on price stability, the endemic procyclical characteristics of the financial system will meet with resistance during the upswing only to the extent they trigger inflationary pressures. Secondly, responding to the subsequent downturn through asymmetrically easier monetary policies, unless reversed promptly, can set the stage for a new set of imbalances. Thirdly, if positive supply-side shocks are also met by easier credit conditions, then policy might actually enhance those procyclical tendencies in the financial system. Finally, the pursuit of similar policies in successive financial cycles might, for an extended time, maintain output growth and price stability, but could also compound the underlying exposures. The case for change to the current system having been made, section 14.5 asks what an altered system might look like.

Limited monetary resistance as confidence mounts

The historical capacity of the financial system to generate credit and asset price excesses along with spending misalignments has been documented in section 14.3.2. This evidence must, however, be set against the contention that such problems are transitional rather than endemic. In fact, problems of

this nature have been observed for centuries under all kinds of monetary regimes. Most importantly, they were commonplace in systems that were not subject to changing regulation or to advancing financial technology. This is not to deny, of course, that such considerations can materially worsen a natural tendency towards irrational exuberance.³⁴ In sum, there is an endemic problem of occasional booms, followed by costly busts, which seems unlikely to go away.

Nevertheless, to date, there has been a marked unwillingness to tighten monetary policy in response, except to the degree seemingly warranted by the estimated direct effects on overt inflation. As noted above, the arguments commonly used are that bubbles in asset prices are hard to identify, and that 'pricking' the bubble would demand interest rates so high as to damage other, unaffected parts of the economy. Yet a convincing counterargument is that the indicators considered by policymakers should extend well beyond asset prices. Rather, it is the combination of rapid credit growth, rising asset prices and unusual (unsustainable) patterns in the composition of aggregate demand that should elicit a monetary response. The former two series point to the probability of a subsequent problem or crisis, while the latter two give some idea of the prospective associated costs should the problem materialise.³⁵ For example, an abnormally low rate of household saving (due say to inter-temporal optimising facilitated by modern financial markets) implies the need for future retrenchment, which could materially slow spending. Similarly, an abnormally high rate of corporate investment could imply unprofitable outcomes, with subsequent negative effects on the demand for both capital and labour.

A tightening of monetary policy in the face of a combination of these indicators would, at the very least, moderate the intensity of the upturn and, in turn, the subsequent damage. Moreover, the recognition that the monetary authority was likely to react in this way might also lead to changed behaviour on the part of economic agents. This could reduce the degree of inherent procyclicality in the system. While this might seem far-fetched, such a response would be very similar to that which followed the decision of central banks to pursue the objective of price stability. Expectations of inflation became much better anchored as a consequence, and the need for sharp policy responses much attenuated.

34 Cf. Andersen and White (1996).

35 Behind this interpretation is the concept of expected loss, which is the product of the probability of an event and the loss given such an event.

Asymmetric easing in the downturn

Reliance on aggressive monetary easing to reduce the costs of the bust phase also has a number of drawbacks. The first is that it might not work. Both Keynes and Hayek were aware of the limitations of monetary easing in the face of headwinds associated with the earlier period of misplaced confidence. Keynes' reflections on the 'liquidity trap', and the difficulties of 'pushing on a string', are well known. Hayek put his emphasis on what he saw as a paradox. If the underlying problem was a misallocation of real resources, due to the excessive creation of money and credit, it hardly seemed obvious that the preferred solution was still more credit and, potentially, still more imbalances. It is worth reflecting in this regard on the recent history of both Japan and the US. In the former case, unprecedented monetary easing did not suffice to reverse a fifteen-year long slowdown in growth. In the US, a similarly unprecedented easing of monetary (and fiscal) policy after 2001 succeeded in restoring growth, but the pace of economic recovery was still the slowest recorded in the post-war period.³⁶

The second potential drawback of aggressive monetary easing has to do with the effects on the composition and ownership of the capital stock. After a period of excessive investment, unprofitable capital should be shut down to allow a reasonable rate of return to competitors. However, as the Japanese experience clearly indicates, so-called 'zombie' companies can more easily receive evergreen finance from related banks, given low nominal interest rates, which can significantly impede this needed process. The end result might be that the time required for balance sheet adjustment (in particular, debt reduction) would be extended accordingly. Moreover, the opportunity provided for companies to borrow cheaply elsewhere, and amass large cash reserves, also implies a capacity to avoid bankruptcy, even if the underlying fundamentals might point strongly in that direction. Further, cheap financing facilitates mergers and acquisitions, even though the historical record implies that these are more likely to reduce value than to create it. Finally, sharply lower interest rates imply a transfer from creditors to debtors, which,

36 This experience of the influence of 'headwinds', arising from the earlier period of exuberance in the United States in the late 1990s, could also lead to a re-evaluation of the causes of the Great Depression in the 1930s. Perhaps, after all, it was not a simple case of policy misjudgment by the Federal Reserve, but the inevitable outcome of the earlier imbalances. Cf. Eichengreen and Mitchener (2003). The Southeast Asian crisis in the late 1990s provides another example of the limitations of easier monetary policies. Lower interest rates to stimulate the economy threatened to undermine the exchange rate and, in turn, led to higher long rates. Moreover, given the currency mismatch problem faced by many countries, currency depreciation was actually contractionary rather than expansionary.

over time, could result in a reduction in saving propensities and in the prospects for longer-term growth. In sum, if low interest rates are maintained for an extended period, they may or may not have the desired effect on aggregate demand, but they clearly have negative longer-term effects with respect to aggregate supply.

The third potential drawback concerns potential distortions in financial markets. First, the Japanese experience over the last five years shows how, given an extended period of very low interest rates, the interbank market can collapse, leaving the central bank exposed as the market-maker of last resort. Second, as seen more broadly in Asia in recent years, the ample availability of low-cost credit from dominant banks impedes the development of other forms of market financing. Over time, with financial markets seriously incomplete, this can reduce both financial efficiency and stability. Third, and pertaining more to well-developed financial markets, lower interest rates can enhance the 'search for yield'. This is particularly the case for financial institutions (such as insurance companies and defined benefit pension funds) that must hit predetermined hurdle rates. This both induces investors to purchase increasingly risky assets and to use increased leverage to raise rates of return on equity. Such behaviour becomes manifest in reductions in risk premiums on lower-rated paper and sovereigns and in the increased availability of low-cost finance to support venture capital investments and to purchase asset-backed securities. While this encourages aggregate spending and investment as desired, it could set the scene for another burst of credit-fuelled misallocations further down the line should certain sectors of the economy be particularly favourably affected (consider the technology, telecommunications and media sectors in the late 1990s and housing markets more recently).

A final drawback of the use of aggressively easy monetary policies in the aftermath of a boom is the eventual need to devise an 'exit' policy. On the one hand, this will be made more difficult to the degree the shortcomings just noted are in evidence. If valuations in asset markets look stretched, and if debt levels remain high, higher policy rates could have larger, and potentially more non-linear, effects than might otherwise be expected. Concerns of this nature presumably lay behind the 'measured tightening' carried out by the US Federal Reserve beginning in June 2004. On the other hand, the Japanese reliance on quantitative easing, in addition to very low interest rates, highlights a further complication as monetary authorities begin to tighten. Economic agents will more generally be aware of the extent to which banks have reserves well in excess of normal requirements, and could become increasingly concerned about their inflationary potential. This implies a deli-

cate balancing act for the monetary authorities, in which tightening must be slow enough to avoid destabilising financial markets, but fast enough not to destabilise inflationary expectations.

Positive supply-side shocks

One implication of positive supply-side shocks is that they call into question whether monetary policy should continue (in such circumstances) to pursue the near-term target of a low positive inflation rate. As discussed above, a benign deflation arising from positive supply-side shocks has different implications for the economy than a deflation with its roots in demand-side deficiencies. Analogous to the conventional wisdom that the first-round effect of negative price shocks should not elicit a monetary response, the same could be said for positive supply shocks. Moreover, recognising in the context of ongoing globalisation that these negative price shocks could go on for years, the effect on measured inflation might extend over a longer period than just a year or so. In the limit, this might even suggest that the target level itself should be adjusted downwards.³⁷ Note, in this regard, the sharp contrast with the suggestion normally made by those who voice concerns about deflation. Presumably reflecting the assumption of a possible ugly deflation, their recommendation has more commonly been that the target level for inflation should be raised to lower the likelihood that deflation might emerge inadvertently.

Failure to adjust the target downwards (whether explicitly or implicitly) in the face of positive supply shocks would result in lower policy rates than would otherwise be the case. This would bring with it the risk of aggravating the concerns about the effects of low interest rates noted just above. Paradoxically, taking out insurance against a benign deflation might over an extended period increase the probability of the process eventually culminating in a bad or even an ugly one. This likelihood would increase with the length of the period affected by positive supply shocks, and also with the number of successive times that policy leaned asymmetrically against the aftermath of the bursting of a bubble.

³⁷ In fact, there was an ongoing debate prior to World War II as to how best to ensure that increases in the marginal productivity of labour led to higher real wages. One view was that nominal wages should rise, while prices stayed constant. Others, however, argued that wages should stay constant, while prices should fall at the same rate as productivity was growing. Cf. Selgin (1997).

Cumulative effects given the conventional framework

Perhaps the strongest argument made above for maintaining the currently conventional way of conducting monetary policy is that it has been remarkably effective in many countries in producing sustained real growth along with low inflation. In the United States, for example, the expansion which started at the beginning of the 1980s was interrupted only briefly at the beginning of the 1990s, and then still more briefly around the turn of the century. Given the successive financial shocks to which the global economy has been subjected, there can be little doubt that the adroit use of monetary policy contributed materially to this outcome. The commensurate growth in the credibility of central bankers has also helped materially in anchoring inflationary expectations. However, it should be noted that positive supply shocks also played a role in keeping down inflation. This helped to avoid the normal post-war pattern in which monetary policy had to lean against rising inflation, often with the result that a recession followed. Moreover, with prices subdued, monetary policy could be used to good effect to resist successive threats to growth arising from financial disturbances.

This success admitted, whether growth will prove sustainable remains an open question. One possibility is that the cumulative monetary stimulation seen to date will eventually culminate in overt inflation. Recent sharp increases in energy and commodity prices could provide a foretaste of such an outcome. With the short-run Phillips curve now seemingly flatter than before, reversing any shift upwards in inflationary expectations might be costly and necessitate a more significant tightening of monetary policy than is currently expected.

Another effect of this cumulative stimulation has been an upward trend in household debt ratios in the US and in many other countries, accompanied by a downward trend in national savings rates, both to new historical records most recently. In China, by contrast, domestic investment has been drifting up and now stands at a record high proportion of GDP. Moreover, in global asset markets, many risk premiums have also descended to record lows even as house prices have risen to record highs. Global current account imbalances are also at unprecedented levels, with those countries having the largest external deficits generally exhibiting the largest internal imbalances as well. Should any or all of these series revert to their historical means, the sustainability of future global growth would also be open to question, perhaps leading to a deflationary rather than an inflationary outcome. To combine the two possibilities, the worst-case scenario would be inflationary pressures, leading to a sharp tightening of policy, which in turn

could precipitate a process of mean reversion in a number of markets simultaneously.

A further problem arising from the conventional approach is that, as imbalances accumulate over time, the capacity of monetary policy to deal with them could also become progressively reduced. A combination of raising rates less in booms than they are lowered in successive busts could eventually drive policy rates close to zero. Once at the zero lower bound, the Japanese experience indicates that the power of monetary policy to stimulate the economy is much reduced. Should the economy then turn down, with inflation initially at a very low level, the possibility then arises that a more disruptive form of deflation might emerge. Were that to happen, it has been suggested that an even more ‘unconventional’ monetary policy stance than that applied in Japan would be called for, with all its associated uncertainties.³⁸ That this was the end point to which the conventional way of conducting policy almost led us would in itself seem a powerful argument for further refining the basic framework.

14.5 What might an adapted policy framework look like?

The greater emphasis put by central banks in recent decades on achieving price stability has already implied a significant lengthening of the policy horizon. Whereas policies of fine-tuning had previously focused on the immediate effects of monetary policy on output and employment, attention then shifted to the subsequent effects on inflation over the following one or two years. In view of the arguments presented in this paper, this fundamental shift in orientation to longer-term effects would not be called into question. Indeed, they lead to the conclusion that the policy horizon should be longer still, sufficient to see the full effects on prices of financial imbalances accumulated over many years.

Perhaps the greatest change required in a new framework would be to ensure that it rested firmly on ‘minimaxing’ rather than maximising principles. Recognising the costs of cumulating financial imbalances, constraints would have to be put on policies designed solely to deal with today’s problems, given that they risked creating significantly larger problems in the future. Clearly it would not be easy to convince those affected by higher interest rates that tightening was required, not to resist inflation over the traditional horizon, but to avoid an undesirable disinflation over a still longer period. Given this likelihood, it would be all the more important to have an institutional

38 Cf. Bernanke (2002).

framework to encourage an appropriate policy response to the growth of perceived imbalances.³⁹

Ensuring such a response would require both the robust identification of serious imbalances and the provision of institutional incentives to encourage monetary policymakers to respond. Neither of these would be easily provided. As regards the first, research work currently underway on financial stability indicators needs to be extended. Moreover, it ought to be more widely appreciated that potential damage to the proper functioning of the financial system need not be the only source of concern. Over-extended corporate and household balance sheets can also be the source of significant headwinds, reducing economic growth to levels well below potential. Concerning the second, providing incentives to policymakers, they should publicly express their intention to respond to emerging financial imbalances, even if this occasionally leads to an undershooting of near-term inflation targets. Indeed, there could be merit in understandings which shifted the burden of proof, so that policymakers had to explain publicly why they chose not to respond to what others might see as a dangerous build-up of such imbalances. To gain both government and broad public support for such an altered approach, an educational effort would clearly be required to convince people of the merits of the arguments for change set out above.

Following on these arguments, an altered framework for conducting monetary policy would demonstrate more symmetry over the credit cycle. There would be greater resistance to upswings. This in turn would obviate the need for asymmetric easing in the subsequent downturn and the problems arising from holding policy rates at very low levels for sustained periods. One important effect of more symmetric policies is that they would also serve to prevent financial imbalances from cumulating over time. This would then free the authorities' hands to respond appropriately to the upward phase of any given credit cycle, since there would be less fear of precipitating a crisis. In this way, a virtuous rather than a vicious circle might be more firmly established.

39 Cf. White (2005a). This too has a pre-war flavour. Lucas (1977, p. 8), notes: "The effort to 'explain business cycles' had been directed at identifying institutional sources of instability, with the hope that, once understood, these sources could be removed or their influence mitigated by appropriate institutional changes [...]. The abandonment of the effort to explain business cycles accompanied a belief that policy could effect immediate, or very short-term, movement of the economy from an undesirable current state, however arrived at, to a better state."

Turning broad statements of principle into practice constitutes another challenge with many facets. It is easy to identify impediments to change, but not so easy to see how they might be removed. That said, there are a number of suggestions that have already been made as to how policymakers might move forward.⁴⁰ Whether such actions will be taken will depend very much on the depth of the conviction that there is a problem that needs fixing. One hopes that it will not require a disorderly unwinding of current excesses to prove convincingly that we have indeed been on a dangerous path.

40 For a more focused and detailed consideration of these very practical issues, cf. Borio (2003); White (2004b, 2005a).

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15 Monetary policy under flexible exchange rates: an assessment¹

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15.1 Introduction

Since the advent of floating in the early 1970s, we have learned that there is no ideal exchange rate system. The system of fixed rates does not deliver what its name promises if the economic policies of the home country or of major trading partners lack steadiness and consequently require larger adjustments of the exchange rate parity at infrequent intervals. Moreover, if the policy aims of the key currency country differ too much from its own, the home country's monetary policy may easily come under strain for having to adjust to either too expansionary a monetary policy, as under the late Bretton Woods system (1944–1973), or too austere a policy course as in the European Monetary System (EMS) (1979–1998).

The collapse of the Bretton Woods system provided the central banks of industrialised countries with an additional degree of freedom by no longer having to target closely the nominal exchange rate vis-à-vis the US dollar. The extra degree of freedom a free float offers to the home country is the potency of controlling domestic money creation. This is the dominant characteristic that made and continues to make flexible exchange rates attractive to central bankers. However, along with this potency goes the burden of responsibility for securing domestic price stability. As a consequence, monetary policy needs to be anchored credibly under floating by some kind of targeting of either money growth or inflation.

The short-run volatility of real exchange rates is higher under floating, and monetary policy is a contributing factor. A long-standing issue in this respect is whether exchange rates react excessively to policy shocks, overshooting the long-run equilibrium. Besides the typical characteristic of short-run volatility, real exchange rates have also shown larger swings over the medium term, tempting governments and central banks to try to manipulate exchange rates by direct intervention in foreign exchange markets. The high times of intervention were the late 1970s and the 1980s, when not only European countries and Japan took recourse to intervention, but even the United States

1 I would like to thank Ulrich Kohli and the participants of a workshop in Gerzensee for useful comments on an earlier draft.

became active and negotiated a pact of cooperation, the Plaza-Louvre accords. A general conclusion from those experiences is that floating has proven to be a preferable exchange rate arrangement for large countries in which monetary policy is primarily focused on maintaining price level stability, rather than on steadying the business cycle. As regards the long-term prospects of international exchange rate systems, finally, floating is likely to remain the dominant arrangement among the major industrialised countries. Small currencies, belonging to regional clubs, will tend to merge with neighbouring currencies, while the resulting joint currencies will float. A worldwide system of fixed exchange rates à la Bretton Woods is unlikely to be repeated, because it would require hegemonic leadership. Neither the United States nor Europe, not to mention China, would be able to secure that position.

15.2 The promises of floating

From a macroeconomic point of view, the principal promise of floating is that monetary policy can be used autonomously to stabilise the path of the price level as well as the economy. From a microeconomic point of view, a principal disadvantage is a higher short-run exchange rate risk, hence higher transaction costs.

In his famous ‘Case for flexible exchange rates’, Milton Friedman argued that flexible rates work as shock absorbers.² A negative foreign demand shock, for example, will hit domestic output with reduced force due to the partial price adjustment generated by an induced fall of the domestic currency’s exchange rate. The flexibility of the exchange rate substitutes for missing short-run flexibility of the price level. The higher the degree of short-run price or wage stickiness in an economy, the more valuable the exchange rate flexibility. In the alternative case of a fixed rate, the negative output and employment effect of an adverse foreign demand shock is larger and stays longer, resulting from an insufficient price adjustment plus an enforced deflationary move of the central bank, induced by the obligation of pegging the exchange rate. It is not only that monetary policy is not available for stabilisation, but that it may become procyclical. With fixed exchange rates, the burden of macroeconomic stabilisation is thus to be carried by fiscal policy. Unfortunately, due to legal and political constraints, fiscal policy is not well suited to fulfil this function, because it is a rather slow working instrument. Consequently, with respect to business cycle stabilisation, all depends on the working of the automatic fiscal stabilisers and on the gradual adjustment of wages and the

2 Friedman (1953).

price level. If external shocks were large or occurred in runs, the readjustment of the economy back to equilibrium may become a rather long, drawn-out process. As Bennett McCallum notes, flexible rates, by contrast, provide monetary policy with the ability of responding in a stabilising fashion.³ This is of value with respect to all shocks except for money demand shocks, which are accommodated automatically when the exchange rate is fixed. Note, however, that the availability of monetary policy for the purpose of short-run stabilisation is an advantage *in principle* that may not be of high value *in practice* given the limits to an adequate, timely observation of the shocks at work.

The stabilising properties and policy options of flexible exchange rates are restated by Maurice Obstfeld and Kenneth Rogoff, who analyse the optimal monetary policy response to productivity shocks within a micro-founded general equilibrium model of the open economy.⁴ One crucial characteristic is the degree of pass-through of exchange rate fluctuations into prices.⁵ The smaller it is, the less the economy is cushioned against external shocks and, consequently, the greater the potential for welfare gains from international policy cooperation. Note that the case for flexible exchange rates as shock absorbers becomes weaker if sector-specific shocks come into play. When firms producing the same type of goods – automobiles for example – are located in different countries and a shock moves the exchange rate, inefficiency arises because the exchange rate response changes the relative price between competing brands.⁶

The most important aspect of the autonomy of monetary policy provided by flexible exchange rates is the freedom to choose the expansion path for money, and hence ultimately for the price level and inflation. To most central bankers who aim at price stability, this is the decisive advantage of flexible over fixed rates. They take it for granted that price stability can be achieved if they enjoy a status of independence from government and faithfully do their job. Quite a few academic economists, however, are quick to give the price stability award to the regime of fixed rates, arguing that fixing the exchange rate “provides a credible nominal anchor for monetary policy”.⁷ Certainly, this is not a generally valid argument. A fixed rate forces the central bank to align its monetary expansion path to that of the key currency country and, in so doing, import that country’s inflation rate by and large. This means that

3 McCallum (1995).

4 Obstfeld and Rogoff (2000).

5 Corsetti and Pesenti (2001).

6 Tille (2002).

7 Frankel (1999).

domestic monetary policy is anchored by foreign monetary policy. However, such an arrangement will not guarantee price stability if the key currency country does not or cannot credibly commit to that objective. Put differently, if the key currency country is able to make a credible commitment, then any other country should essentially be able to do the same, although it may require changing domestic institutions and may take some time until credibility is achieved. There is thus no fundamental need to fix the exchange rate in order to anchor monetary policy credibly. Now, one might argue that a weak political constitution may hinder the authorities of a country in committing credibly to price stability, thereby making pegging to a stable key currency an attractive quick fix for the problem. Why should an exchange rate peg – that can be changed any day – be more credible?

The regime of floating is superior to exchange rate fixing, provided monetary policy is credibly anchored by the adoption of some variant of monetary or inflation targeting. An advantage of targeting money growth or inflation is that once the strategy is credibly established, it provides leeway for the short-run stabilisation of the business cycle. Nevertheless, depending on historical circumstances, it might be of advantage to a small country to anchor inflation expectations by pegging to a proven stable key currency instead of introducing a framework for inflation or money targeting of its own. A famous example was Austria's 'hard currency policy' of pegging the shilling to the German mark from 1980 to 1999 within an extremely small margin.

15.3 The switch to flexible rates in 1973

When many industrialised countries switched from fixing the exchange rate against the US dollar to floating in the early 1970s, this was not a voluntary decision derived from a comparative evaluation of alternative exchange rate systems. It was rather 'an act in self-defence' aimed at regaining the power of controlling the pace of money creation and, consequently, of the domestic price level.⁸

By early 1973 at the latest, European central bankers had come to the conclusion that the collapse of the fixed rates system of Bretton Woods could no longer be avoided. The system had been founded on the principle of gold convertibility for the dollar. By the mid-1960s, however, the total net liabilities of the United States vis-à-vis central banks had exceeded the value of its gold reserves, valued at the official price of 35 US dollars per ounce. The dollar became overvalued and needed to be devalued by an increase in the official

8 Emminger (1986).

gold price. Moreover, for various reasons – probably the most important one being the need to finance the Vietnam War – the fiscal and monetary stance of the United States became even more expansionary during the second half of the 1960s, accelerating the pace of international reserve creation by the US. As a result, speculative capital flows from the dollar into the currencies of Japan and Germany as well as other European currencies became virulent, creating intense pressure to appreciate vis-à-vis the dollar. Although, at the time, the US held “an extreme version” of its principle of “benign neglect”,⁹ it finally agreed that measures – such as the suspension of the dollar’s gold convertibility and the official devaluation of the dollar as part of the Smithsonian Agreement of December 1971 – had to be taken to avoid a long-lasting international crisis of confidence in the dollar. With hindsight, the main source of the dollar problem, i.e. the overly expansionary stance of US domestic policies, was not tackled. As a result, the final collapse of the Bretton Woods system could not be avoided. When this happened early in 1973 – the Swiss National Bank ceased intervention in support of the dollar as a temporary measure on 23 January, the Deutsche Bundesbank and other European central banks followed on 2 March – the switch to floating was accepted with mixed feelings by most central bankers. One of the few exceptions was Otmar Emminger who, in the late 1960s, had come to the conclusion that floating would eventually become unavoidable.

Floating had to be a managed one, of course; a clean float was good for textbooks. This became the accepted doctrine among central bankers. Which currencies floated the most? Table 15.1 provides information on the volatility of exchange rates for six major currencies of industrialised countries.¹⁰ Applying the methodology of Guillermo Calvo and Carmen Reinhart,¹¹ the unconditional probabilities that the monthly exchange rate changes exceed a given threshold are computed. The greater the probability of the monthly variation in the exchange rate (irrespective of its sign) exceeding 1 percent, the higher the degree of a currency’s floating.

Table 15.1 indicates that the four leading currencies – dollar, mark/euro, yen and sterling – floated independently, although not unmanaged; the computed probabilities are markedly below unity. Interestingly, no major change in the probabilities of larger exchange rate changes occurred between the

9 James (1996).

10 All data used in this study are taken from IMF (various years), with the exception of the data on central bank intervention, which were provided by the Federal Reserve and the Deutsche Bundesbank.

11 Calvo and Reinhart (2000).

Table 15.1
Exchange rate volatility

	Vis-à-vis			
	US dollar		German mark/euro	
	1973–1983	1984–2004	1973–1983	1984–2004
US dollar			0.71	0.75
German mark/euro	0.71	0.75		
Yen	0.66	0.68	0.69	0.73
Sterling	0.67	0.70	0.83	0.85
Canadian dollar	0.29	0.38	0.73	0.74
Swiss franc	0.71	0.75	0.51	0.30

Source: Footnote 10.

early period of high inflation (1973–1983) and the more recent period of low inflation (1984–2004). Table 15.1 also reveals that the Canadian dollar has mostly shadowed the US dollar; the probability of larger exchange rate changes vis-à-vis the dollar is less than half than vis-à-vis the mark/euro. Similarly and not unexpectedly, the Swiss franc appears to have floated with the mark/euro, all the more so since the mid-1980s.

15.4 Anchoring inflation expectations

15.4.1 *The nature of the problem*

In the absence of a binding exchange rate constraint, the monetary authorities are essentially free to choose any monetary expansion path, provided they are ready for the consequences with respect to inflation. Since private agents understand the problem that monetary policy lacks a nominal anchor under floating, excessive inflation expectations may build up if the authorities fail to provide credible guidance for expectations as regards their intentions and implementation procedures.

The need for a credible commitment of monetary policy to price stability is an issue beyond exchange rate management. Its essence is to anchor the inflation expectations of market participants at the preferred inflation level by credible policy behaviour. Monetary authorities that promise a monetary policy course aimed at maintaining price stability, but that take the liberty of deviating time and again from the announced path by letting money grow faster than is consistent with the official objective, cannot gain credibility. Rational market participants will monitor the policy implementation as

closely as possible in order to learn about the underlying true objective function and to exploit that knowledge in forming expectations about the future policy course. As a result, inflation expectations will not settle at the desired official level, but go beyond it, and this in turn will force rational authorities to validate the excessive expectations by a sufficiently high average level of money growth in order to avoid a recession being generated. The unfortunate equilibrium outcome of this rational policy game would be persistently higher inflation than desired.¹²

The principal solutions to this famous problem of time inconsistency are as follows:

1. Put the focus of monetary policy on the objective of maintaining price stability.
2. Do without an ambitious output or employment goal beyond the natural rate level.
3. Behave as announced.
4. Deviate only for the purpose of business stabilisation, preferably only in the rare cases where market participants would approve, i. e. in the case of a marked recession or a strong boom.
5. Be as transparent as possible with respect to aims, expectations and actions.

More specifically, where a long-standing policy record of persistently low inflation is missing, the adoption of an easy-to-monitor targeting rule may help to anchor inflation expectations and gain credibility. The essential condition is that the targeting rule be consistent with the authorities' true objective function.

15.4.2 Historical solutions

A look at selected historical examples of solving the nominal anchor problem after the advent of floating is instructive. In the mid-1970s, many central bankers understood that maintaining price stability required binding monetary policy by some rule. Apart from Milton Friedman's *k*-percent money rule, however, there was no easy-to-copy operational model available. Friedman's rule of constant money growth was politically too demanding, as it did not allow for any contingencies. Yet it served as an intellectual guide to the Bundesbank and the SNB.¹³ German and Swiss central bankers were convinced that curbing inflation required controlling money growth in an

¹² Barro and Gordon (1983).

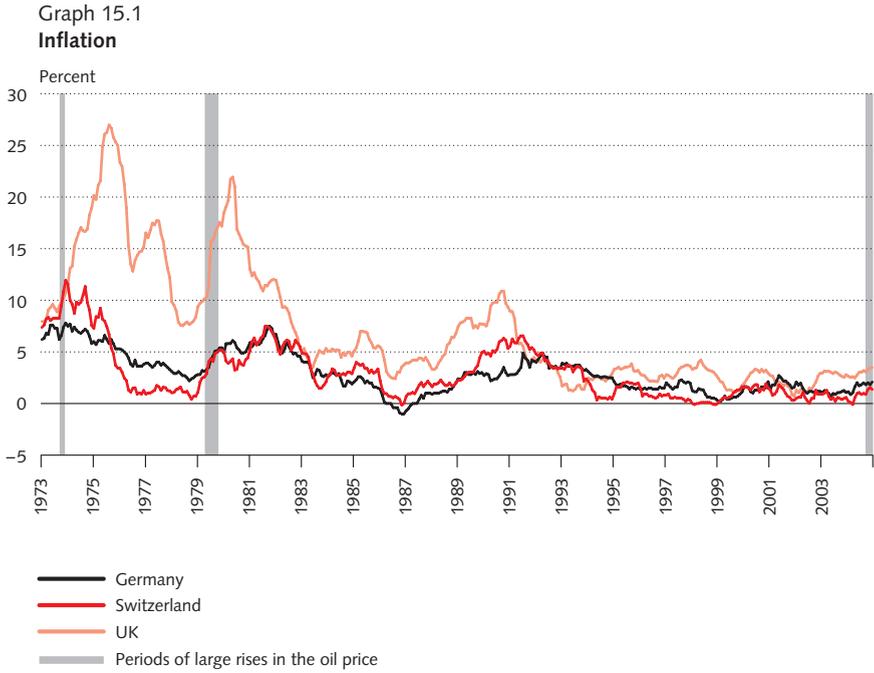
¹³ By mid-1970, the Bundesbank's Central Bank Council had already held a confidential debate on the desirability of Friedman's rule. Cf. Neumann (1999), p.300.

efficient and transparent fashion, and that this had become possible after the collapse of the tight exchange rate constraints of Bretton Woods. Consequently, both central banks settled for similar variants of public targeting of money growth and announced the first annual targets at the end of 1974. Unlike other central banks, such as the Bank of England, they were in a position to do so, because both banks had long enjoyed a status of independence from government. Nevertheless, both banks saw to it that their governments backed their approach to monetary targeting.

In the United Kingdom, by contrast, monetary policy was run by the government. All decisions were taken by the Treasury, while the Bank of England implemented them. Moreover, the monetary explanation of inflation was a minority view at the time. Predominant was the Keynesian notion that inflation was caused by cost-push factors, foremost by wage push.¹⁴ Consequently, during the second half of the 1970s, the British government relied predominantly on income policies, notably on wage-price controls, albeit without much success. Inflation rose steeply to about 20 percent in 1980, hence much higher than in the US. During the 1980s, several attempts were made to contain inflation with targets for public sector borrowing and money growth. However, these targets did not become yardsticks, let alone binding constraints, for actual policies; on the contrary, they were repeatedly downplayed. Hence, the financial markets did not pay much attention to them when forming inflation expectations. It took the shock of having to abandon the membership of the sterling in the European Exchange Rate Mechanism (ERM) in late 1992, after less than two years' participation, for the UK to fundamentally reform its monetary policymaking. The British government decided to solve the problem of a missing nominal anchor by adopting the approach of direct inflation targeting. Although the Bank of England remained a government-dependent institution until very recently, the approach has proven successful.

In comparison to Germany and Switzerland, the UK came almost two decades late in fixing the nominal anchor problem. The price it had to pay for that was a much higher and more volatile domestic inflation (cf. graph 15.1). British inflation averaged 9.9 percent over the 1973–1992 period, compared to 3.5 percent for Germany and 3.8 for Switzerland.

14 Nelson (2004); Nelson and Nikolov (2004). The UK establishment “seemed to believe that inflation was always and everywhere a real phenomenon”. Cf. King (2000).



Source: Footnote 10.

Monetary targeting at the Deutsche Bundesbank

When the Bundesbank announced a first annual target of 8 percent for the growth of the central bank money stock in late 1974, it declared that it intended to finance the growth of the economy in 1975 at a “declining rate of inflation” and that success would depend on whether its projection would be taken into consideration in wage and price decisions. The money target was intended “to act as a signpost”¹⁵ that would induce cost and price discipline.

From the beginning, the Bundesbank considered monetary targeting an experiment and, consequently, changed the details of the concept several times. For example, it started with a point target, then switched to an annual average target and settled finally with a target range for the average year-over-year growth rate in the fourth quarter of each year. As a rule, the target range was set at 3 percentage points, occasionally at 2 percentage points. Moreover, the target range was not considered absolutely binding; for example, serious overshooting happened in 1978 (by 3 percentage points) and 1992 (by 4

15 Schlesinger (1979).

percentage points). However, the Bundesbank was always careful to bring money growth back into the target range. It thus documented that it did not consider money targeting a game of empty numbers, but that it took it seriously. This added to its credibility.

Precisely because of its aim of providing guidance to inflation expectations, the Bundesbank explained to the public at the end of each year from which assumptions it derived the annual money target for the following year and used the quantity equation of money for that purpose. Over the first ten years of practice, each annual target was computed as the sum of the rate of 'unavoidable' price rises plus the expected growth of normal output and the expected change in capacity utilisation minus the expected change of velocity. The concept of an unavoidable price rise served to signal that the Bundesbank did not long for an overly ambitious low level of inflation for the short run; at the same time, this normative value was always set below the most recently observed actual inflation rate. This way, the intention was signalled to disinflate the economy gradually. When this had been achieved by the mid-1980s, the concept of unavoidable price rises was replaced by the medium-run inflation objective of 2 percent. This normative value was never changed thereafter and monetary targeting became medium-term oriented.

Summing up, the Bundesbank's approach to targeting money growth was intended to provide close guidance to inflation expectations from the start. This was achieved by explaining on an annual basis how the aim of maintaining price stability translated into an annual target for money growth; by giving hints as regards on what contingencies, such as larger exchange rate movements or unexpected changes of aggregate demand, the Bundesbank would steer money growth closer to the upper or the lower level of the target range; and, finally, by reviewing its success or failure as regards meeting the most recent annual target and providing reasoning on why that happened.

Monetary targeting at the Swiss National Bank

In parallel to the Bundesbank, the SNB announced its first money growth target of 6 percent for the M_1 money stock for 1975. During the first three years of targeting, the National Bank did not explain much about the derivation of the target value. Over time, the SNB became more open to the task of guiding inflation expectations by explaining in greater detail the derivation of its targets. However, it abstained from announcing target bands on the argument that a band would lead the public to expect that the SNB was able

to control money growth within a narrow margin.¹⁶ With hindsight, a decisive factor as regards being more transparent might have been the National Bank's unfortunate experience of 1978/1979, when monetary policy was subordinated to fighting a steep appreciation of the Swiss franc. In 1978, the SNB purchased dollars for more than 8 billion Swiss francs and sterilised no more than about 30 percent. As a result, the money target was overshoot by 11 percentage points. The dominance of exchange rate over monetary policy was officially underlined by an announced ceasing of monetary targeting for 1979 in favour of an exchange rate target vis-à-vis the German mark. This remained an episode, however.

The SNB resumed monetary targeting in 1980, replaced the target aggregate M_1 by the monetary base and, similar to the Bundesbank, experimented in various ways with its money targets during the following decades. There is no need to review the overall successful practice in detail here. Insightful historical accounts are provided by Georg Rich¹⁷ and Ernst Baltensperger (cf. chapter 11). Suffice it to say that the SNB switched from annual to medium-term targets of three to five years in the 1990s. The idea was to provide orientation as to which money growth trend rate appeared to be in line with the objective of keeping trend inflation at a level close to 1 percent and nevertheless securing the freedom for sufficient discretion in case of unexpected adverse movements of the exchange rate or the business cycle.

Summing up, the Swiss approach of providing a nominal anchor by means of monetary targeting has served its purpose quite well. This is all the more remarkable as the National Bank appears initially to have bothered somewhat less than the Bundesbank about precisely communicating, if not teaching, targets and the underlying assumptions to the public. The fact that the SNB has nevertheless been able to achieve an impressive stability record with respect to inflation over the past three decades can be taken as evidence that a willingness to take a firm monetary stance when necessary probably adds more to the credibility of a central bank than communicating everything in minute detail.

Inflation forecast targeting at the Bank of England

After the spectacular exit of the sterling from the ERM in the autumn of 1992, the British authorities decided that a framework for monetary policy was required; one that would serve as a nominal anchor and provide credibility

¹⁶ Schiltknecht (1983).

¹⁷ Rich (2003).

as regards the government's intention of keeping the objective of price stability the overriding objective. Following the example of other Anglo-Saxon countries, targeting was directed at the ultimate objective itself rather than money growth or some other intermediate variable. The essence of inflation targeting is as follows:

1. Choose a target range for the future rate of inflation.
2. Forecast inflation over the relevant period of monetary policy transmission.
3. Choose the current policy stance such that the forecasted rate of inflation does not stay outside the target range.

As a rule, inflation targeting is directed at a time horizon beyond one year; in the British case, two years. Technically speaking, solid forecasting of inflation is indispensable to successful policy making. Securing credibility, however, also involves convincing the public by means of extensive reporting that the current actions are appropriate to ensuring that future inflation will remain within the target range.

In contrast to practice in the euro area, the British inflation target, as well as the target range, is determined by the Treasury. The Bank of England is instrument-independent, rather than goal-independent. The mid-range target was initially set at 2.5 percent, applied to a retail price index. More recently, it was lowered to 2 percent based on a harmonised consumer price index. Also, there has been some experimenting with the target range. In the early 1990s, the range was set at 1–4 percent; then the range was abolished for several years, but in 2005, it was set at 1–3 percent.

Conclusion

The different monetary frameworks chosen by Germany, Switzerland and the United Kingdom to anchor inflation expectations under the conditions of floating have served their main purpose well. Trend inflation declined to the low normative levels desired and has been kept there in the three countries for more than a decade. From a short-run point of view, the details of targeting procedures make a difference, from a medium to long-term view they appear to matter a lot less once credibility has been secured. Like the Deutsche Bundesbank, the SNB had already enjoyed the reputation of taking the objective of price stability seriously before the 1973 switch to floating, and has been able to maintain that reputation by means of its strategy of targeting money, and more recently by paying more attention to a forecasted deviation of medium to long-run inflation from the inflation objective of 2 percent. For lack of a credible nominal anchor, the Bank of England had no such reputa-

tion when floating started, nor did it build one due to its government dependence. It had to wait until the British government was ready for it.

15.5 On the impact of monetary policy on exchange rates

Economists have developed various theories of how monetary policy is transmitted to the exchange rate, such as the purchasing power parity theory, the asset market theory, the portfolio balance theory or the full-blown Obstfeld macroeconomic model of a small open economy. Unfortunately, none of these theories lend themselves easily to a sufficiently precise empirical modelling that would allow reliable exchange rate forecasts and the corresponding impact of monetary policy to be derived. On the contrary, if the focus is put on policy-relevant time horizons of up to about nine months, no economic model is able to outperform the naïve random walk model, which implies that today's exchange rate is the best forecast for tomorrow. This disappointing early result by Richard Meese and Kenneth Rogoff has served as a challenge to develop small empirical models that are broadly in line with the theory of international macroeconomics, but without explicitly modelling all of its characteristics.¹⁸

A stylised fact of floating is that real exchange rates exhibit a markedly higher short-run volatility than under Bretton Woods, which is not just the reflection of a higher volatility of macroeconomic fundamentals, such as money supplies, gross domestic products or outstanding government debts. The question is whether this 'excess' volatility reflects an overshooting of the exchange rate in the short term over its long-run equilibrium. The notion of overshooting has become an established one since Rudiger Dornbusch proposed a compact theoretical model that combines the long-run assumption of purchasing power parity with the arbitrage theorem of uncovered interest parity, in other words the equivalence of the expected short-run change of the exchange rate with the short-term interest differential, home versus foreign rate.¹⁹ The model implies that an unpredicted move by the domestic central bank to a more restrictive stance of monetary policy, if expected to persist, would strongly appreciate the currency on the spot, and by more than is required in long-run equilibrium by purchasing power parity. As a result, the central bank would generate the expectation of a depreciation when it surprises the exchange market with a restrictive policy shock.

Dornbusch's theorem of overshooting requires that the adjustment of goods prices be hampered in the short run by some rigidity. This is a realistic

¹⁸ Meese and Rogoff (1983).

¹⁹ Dornbusch (1976).

assumption. As Jeffrey Frankel has shown with a more elaborate model, the phenomenon of overshooting implies a positive correlation between the real exchange rate and the real interest differential.²⁰ Using data from the 1970s for the dollar/mark rate, his estimates imply that overshooting is sizeable, amounting to approximately 20 percent of the long-run adjustment. Note, however, that the correlation between the real exchange rate and the real interest differential is not a strong one and varies quite significantly over time and currencies.²¹ This challenges the notion that overshooting is an important phenomenon.

Moreover, from the central banker's point of view, a temporary overshoot should be less of a problem if there were reason to assume that the total response of the exchange rate to a monetary policy shock were completed within a few weeks or at best months. Surprisingly, a series of empirical studies suggests that the response may stretch over years rather than months. For example, studying the post Bretton Woods period of 1973–1992 with a seven-variable structural vector autoregression (VAR) model, Martin Eichenbaum and Charles Evans find that the peak response to a US monetary policy shock shows up after two years in the dollar/mark rate and after almost three years in the dollar/sterling rate, while the total response takes five to six years.²² Similar results were reported in earlier studies.²³ By contrast, Richard Clarida and Jordi Gali find a less delayed exchange rate adjustment from a VAR model with three variables (relative inflation, relative output growth and the real exchange rate change).²⁴ Their estimates of the dollar/mark rate and the dollar/yen rate suggest that it takes three to four quarters until the nominal exchange rate peaks in response to a monetary policy shock, while the total response still stretches over three to four years. Similarly, Soyoung Kim and Nouriel Roubini find from estimates of a seven-variable VAR model that the peak response occurs after two to three quarters, while the total response runs up to four years.²⁵

On what grounds may it be plausible that the overshooting of the exchange rate does not show up as an immediate jump on impact, as the Dornbusch model implies, but takes time to rise to peak over several quarters? The latter outcome of empirical studies is difficult to accept, because by logical neces-

20 Frankel (1979).

21 Rogoff (2002).

22 Eichenbaum and Evans (1995).

23 Grilli and Roubini (1996).

24 Clarida and Gali (1994).

25 Kim and Roubini (2000).

sity, the overshoot of the exchange rate must be largest when the prices in the goods markets have not yet responded to a money or other shock, and this is possible in the shortest run only. Once the goods prices begin moving, the initial pressure on the exchange rate starts to decline. So far, nobody has come up with a convincing theoretical explanation of what the empirical literature reports.

Given that the empirical observations of long delays are extracted from the data by employing a specific methodology, it cannot be ruled out that they are artefacts. A crucial aspect of structural VAR models is the assumptions made as regards the recursive ordering of the empirical variables and the identification of the exogenous shocks, notably the monetary policy shocks. For example, in a study of six exchange rates over the sample period of 1974–1992, Kim and Roubini focus on a data vector which, in addition to four domestic variables (a short-term interest rate, a money stock, the consumer price index and industrial production), includes the world oil price, the Federal Reserve's federal funds rate and the dollar's exchange rate.²⁶ The authors assume a reaction function for money that precludes the central banks from responding to contemporaneous observations on production, prices and the federal funds rate. While an information delay of one month is the statistical norm with respect to production and prices, it is counterfactual to assume that central banks receive information about changes in the Federal Reserve's policy variable with any noticeable delay. As the authors themselves note, this assumption is unwarranted given the high speed of information dissemination about policy actions and financial sector events.

Generally speaking, it seems more appropriate to allow for some simultaneity in the estimation among the short-term interest rates, domestic and foreign, and the bilateral exchange rate. On the other hand, a loosening of the recursive ordering assumption comes at the cost of reduced identifiability. It is no longer possible to uniquely identify the innovations in the policy variable, hence the discretionary moves of monetary policy. Instead, one receives a range of empirical solutions that may then be searched by some method of inference. Jon Faust and John Rogers²⁷ have tried this, relying on an approach to inference developed by Faust.²⁸ They re-estimate the seven-variable VAR of Eichenbaum and Evans for the dollar/mark and the dollar/sterling exchange rates and allow for limited simultaneity among the financial variables.²⁹

26 Kim and Roubini (2000).

27 Faust and Rogers (2003).

28 Faust (1998).

29 Eichenbaum and Evans (1995).

Searching over the resulting wider range of admissible identifications, they find that, for both exchange rate variables, the Dornbusch hypothesis of an immediate jump-to-peak response cannot be rejected. This is an interesting, while certainly not strong, result given that the estimated admissible time horizons run up to three years.

Summing up, the empirical investigation of the contribution of monetary policy shocks to the short-run variability of nominal and real exchange rates has led to considerable differences in results, depending on the currencies and periods investigated. It seems that much less than half of the short-run volatility of exchange rates is attributable to monetary policies. In line with this, the overshooting of exchange rates does not appear to be a dominant phenomenon.

15.6 The temptation and burden of intervention

Although the breakdown of the Bretton Woods system was technically completed by discontinuing intervention in support of the dollar, this did not mean that the authorities of any major country were longing for a clean float. A number of countries of the European Community decided in 1973 to keep their bilateral exchange rates within narrow margins, but to float as a block against the dollar. The currency block became known as the 'mini snake' and formed the early nucleus of the EMS that started operations in 1979. As regards exchange rate relations vis-à-vis the dollar, the prevailing view was that floating would enable market forces to dissolve major misalignments and prevent the build-up of new ones. Infrequent intervention would nevertheless play a useful role as a convenient tool both in achieving 'orderly' market conditions, in other words less short-run fluctuation of exchange rates around medium-run trends, and in smoothing out 'excessive swings' of exchange rates over the medium term.

While it was generally acknowledged by central bankers, less so by politicians, that the more ambitious attempt at influencing long-run exchange market trends by non-sterilised intervention carried the danger of losing control over the money expansion trend, the temptation to try manipulating exchange rates vis-à-vis the dollar endured. Intervention thus remained on the agenda of the major central banks during the second half of the 1970s and cropped up time and again during the 1980s. Even the US authorities did not abstain completely, but contributed on several occasions to coordinated intervention, albeit mostly on a rather modest scale.

15.6.1 *Is intervention effective?*

Since the aim of intervening in foreign exchange markets is to achieve a predictable and lasting effect on the exchange rate, the effectiveness of intervention has been studied by many authors for major currencies, such as the German mark, the yen, the sterling or the Swiss franc. Key questions of the literature have been:

1. Does intervention have lasting effects even when it is sterilised by a domestic open market operation?
2. Are the effects to be attributed to an intervention-induced change in the relative international stock supply of bonds or rather to a signalling effect on the markets' expectations as regards future policy behaviour?
3. Does the size of the effect on the exchange rate depend on whether intervention is coordinated between central banks?

A cursory look at the collected evidence may be useful.

All forms of intervention change the central bank's stock of foreign assets, hence too the domestic stock supply of base money. This impacts on the exchange rate, the relative price of domestic versus foreign money. However, if the central bank immediately sterilises the purchase of foreign reserves by selling domestic bonds in equal amount in the open market, the stock of base money remains unchanged. In that case it requires a non-monetary channel to nevertheless achieve an impact on the exchange rate. Portfolio balance theory provides such a channel: given that the sterilised purchase of foreign currency raises the stock supply of domestic currency bonds as well as the stock demand for foreign currency bonds, the expected excess return on domestic currency assets will have to rise in order to establish a new portfolio equilibrium, and this comes about by a depreciation of the domestic currency. The portfolio balance effect of sterilised intervention on exchange rates has been studied extensively with data for different currencies, but the literature has been "summarily unsuccessful" in establishing a significant link between relative international bond supplies and a measure of exchange rate risk.³⁰

However, sterilised intervention may impact on the exchange rate via an information effect. The observation that a central bank intervenes might be taken by the forward-looking agents as a signal about the future course of monetary policy.³¹ Based on the innocuous assumption that central banks have inside information about their future policy course, they may use the actual intervention operations to signal that information to the market. The

³⁰ Lewis (1995).

³¹ Mussa (1981).

resulting adjustment of exchange rate expectations would immediately enforce a corresponding change in the exchange rate.

The signalling hypothesis has been tested in various studies, mostly with weekly, daily or even intraday data on intervention in the mark/dollar, yen/dollar or Swiss franc/dollar markets. Hali Edison provides an overview of the early literature.³² For example, Kathryn Dominguez reports that intervention conducted by the Federal Reserve during the time interval between the first monthly announcement about the level of the money stock and the revised final announcement helps to predict money supply surprises, albeit only for periods where the credibility of the Federal Reserve is high.³³ She and Jeffrey Frankel estimate a portfolio balance equation supplemented by a non-rational exchange rate expectations equation.³⁴ They find that intervention affects the exchange rate; more importantly, they appear to come up with evidence in support of the signalling hypothesis. Using survey data as expectations proxy, they show that information about intervention operations improves exchange rate predictions. However, they also find that official announcements that are not backed by intervention appear to have at least as strong an effect. Moreover, as Karen Lewis notes, the survey measures are non-rational; hence it remains an open question whether interventions actually serve as signals about future monetary policy.³⁵ Other studies of the signalling hypothesis have investigated whether the effect of intervention on the exchange rate lasts over time, which is the case if the time unit studied is hours or days, rather than months. For example, Richard Payne and Paolo Vitale study sterilised intraday intervention operations by the SNB and find that the exchange rate effect is persistent over a few hours.³⁶ Similarly, Rasmus Fatum and Michael Hutchinson observe for the Bank of Japan that intervention is effective over an interval of two to five days.³⁷ While interesting, these studies do not provide a test of a signalling of future policy changes by means of intervention. A more straightforward approach to testing the signalling hypothesis is to check whether intervention is followed by corresponding changes in monetary policy. For example, Michael Klein and Eric Rosengren study the Federal Reserve's discount rate policy and conclude that intervention operations did not precede changes in the discount rate.³⁸

32 Edison (1993).

33 Dominguez (1992).

34 Dominguez and Frankel (1993).

35 Lewis (1995).

36 Payne and Vitale (2002).

37 Fatum and Hutchinson (2006).

38 Klein and Rosengren (1991).

In sum, the evidence in support of the signalling hypothesis is inconclusive at best. Recall that the hypothesis had been invented in order to rationalise why sterilised intervention might be effective.³⁹ But what is so special about sterilised intervention in foreign exchange markets that makes such operations unique carriers of information about intended future changes of monetary policy? In principle, a sterilisation of loans to the banking sector by open market sales of domestic bonds should serve that purpose equally well.⁴⁰ More importantly, most central banks kept their intervention operations strictly confidential throughout the 1970s and 1980s, the SNB being an exception.⁴¹ Had those central banks intended signalling future monetary policy by intervening in the foreign exchange markets, they would have intervened openly. However, in the early 1980s, most central bankers believed that secrecy as regards the timing and the size of intervention operations was indispensable. The main arguments were:

1. Intervention would achieve larger and longer-lasting effects on the exchange rate if market participants got the impression that a desired move of the exchange rate had been brought about by market forces, rather than by central bank action.
2. Publishing the data with little lag could encourage the build-up of adverse expectations as regards the viability of the declared monetary policy course.

In conclusion, the signalling hypothesis is a misleading interpretation of reality. In fact, there is no need for it because, as a rule, intervention is neither immediately nor completely sterilised if abstracted from the sterilisation routine of the Federal Reserve. For most central banks, intervention starts non-sterilised. Some time elapses between intervention and consecutive sterilisation, from minutes to hours and days to months, and the realised degree of sterilisation neither equals 100 percent nor any other fixed percentage, but is likely to vary over time, depending on the specifics of the actual state of the policy path. True, several empirical studies of the 1980s concluded that central banks do indeed sterilise intervention to a high degree.⁴² However, for lack of intervention data, most studies were based on the observed monthly changes in the central banks' international reserves as a proxy for intervention.

39 Bordo and Schwartz (1991).

40 Obstfeld (1990).

41 For example, when receiving the Bundesbank's intervention data to investigate the Bundesbank's reaction function (Neumann, 1984), the author had to assure that he would not publish them. This has changed.

42 Edison (1993).

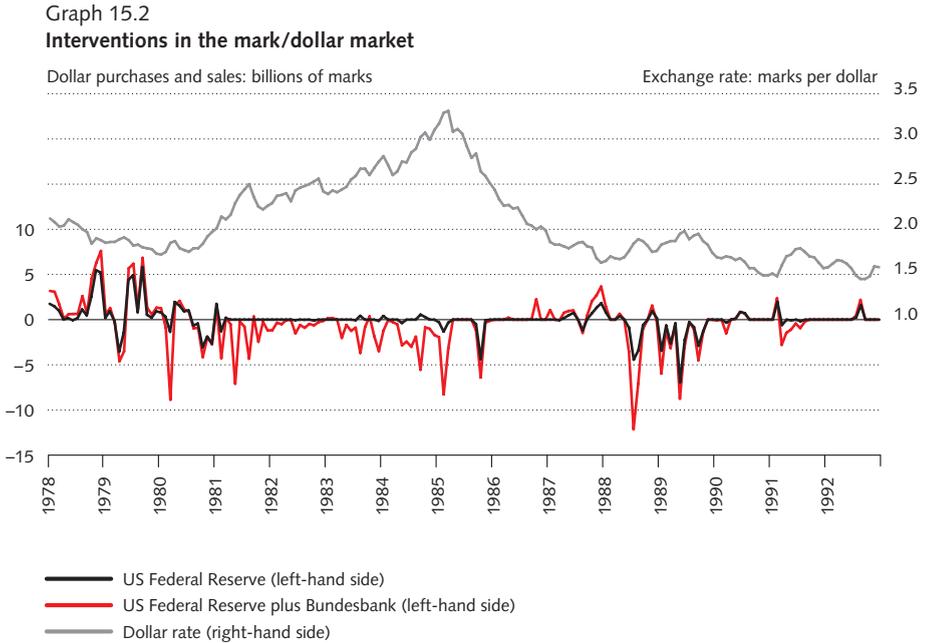
Unfortunately, international reserves are a bad proxy, because they change for several other reasons, too, such as interest accrual, commercial transactions for the government and valuation effects from marking to the market. Also, the monthly time unit is too long if intervention is carried during the first few days, while counter operations in the domestic market follow two weeks later. Thus the results of those studies cannot shed decisive light on the actual degree of simultaneous sterilisation.

It seems fair to conclude that the accumulated evidence on the effectiveness of sterilised intervention as regards the impact on exchange rates is not conclusive. While it cannot flatly be denied that intervention impacts on the exchange rate, the effects appear to be very small and rather short-lived.

15.6.2 Two major episodes

Under a regime of floating, central bankers are tempted to cap larger exchange rate swings by intervention, notably real appreciation, if only to pacify domestic export industries. Two aspects are noteworthy here. First, since the exchange rate is the relative price of two currencies, to ‘lean against the wind’ of domestic appreciation is to lean against the wind of foreign depreciation. Consequently, the repeated attempt at manipulating the exchange rate by intervention, rather than by changing the speed of domestic money creation can hardly be conducted without the principal consent of foreign authorities if political tensions are to be avoided. This may explain the heated international debate about exchange rates, interest rates, public debt and inflation that took place during the first two decades of floating. Second, in order to be able to control domestic money creation, central banks must make provisions for a sufficiently large sterilisation capacity in their balance sheets, since the attempt to smooth the exchange rate might lead to intervention flows that are too large in comparison to the desired level of money growth. For that reason, the Bundesbank raised the share of its total domestic assets from 39 percent in 1970 to 56 percent by 1980; similarly, although on a lower scale, the SNB raised the share of its domestic assets from 4 percent in 1970 to 11 percent by 1980, and 30 percent in 2005 (cf. chapters 8.1.3 and 4.6.5).

The high times of relatively frequent and large intervention were the 1970s and 1980s. Since then, most industrialised countries have abstained from larger operations. Exceptions have been the Bank of Japan, struggling to avoid deflation, and the member central banks of the EMS in the run up to monetary union. The dominant markets for intervention in support of or against the dollar were the mark/dollar and yen/dollar markets. The focus here will



Source: Footnote 10.

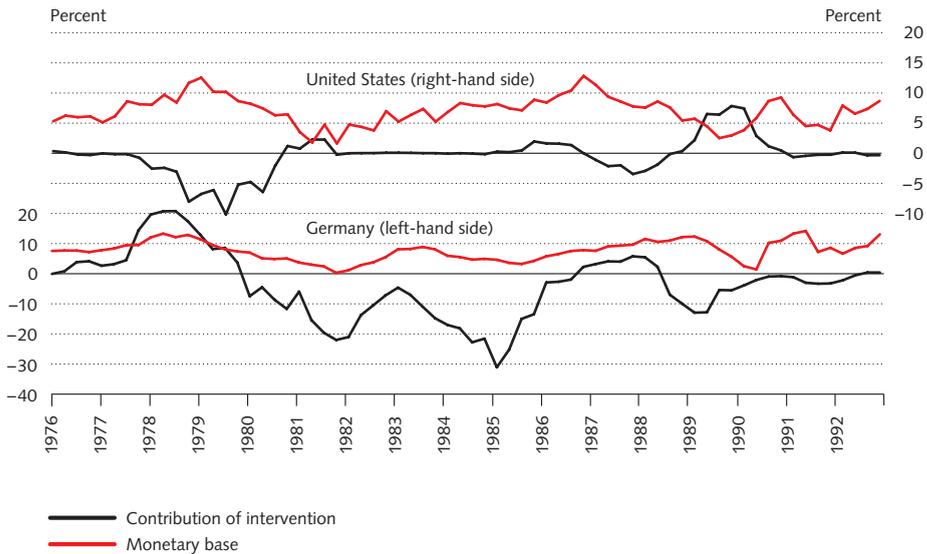
be on the mark/dollar market, using the intervention data provided by the Federal Reserve and the Bundesbank. Graph 15.2 shows the movement of the dollar from 1978 through 1992 and the concurrent intervention purchases or sales by the Bundesbank and the Federal Reserve/Treasury.⁴³ The dollar exhibits a huge swing, up from 1.72 German marks in early 1980 to 3.31 marks in March 1984 and down again to 1.45 in the autumn of 1992. Intervention took place quite frequently during those fifteen years, albeit on a modest scale for much of the time. There are two major episodes: 1977–1979 and 1985–1989.

15.6.3 The big US inflation: 1977–1979

After the oil-price-induced world recession of 1974/1975, the US government had not reduced its expansionary fiscal stance, but continued to run high budget deficits, accommodated by the Federal Reserve. The monetary base growth rose from 4 percent in 1975 to 12 percent in late 1978. In addition, the oil price more than doubled in 1979/1980. As a result, the US rate of

43 Note that similar to Japan, the authority as regards intervention lies with the US Treasury, while the Federal Reserve is responsible for the implementation.

Graph 15.3
Contribution of intervention to monetary base growth



Source: Footnote 10.

inflation that had declined to 5 percent by the end of 1976 started to rise again steeply, to 6.8 percent one year later, to 9 percent two years later and, finally, to the peak of 14.6 percent in March 1980, the highest rate since World War II. This huge wave of inflation generated a dramatic loss of confidence in the dollar, starting in 1977. Within just a few quarters, the effective exchange rate of the dollar fell by 20 percent, and this was reflected by a similarly strong appreciation of the mark and the yen, while the Swiss franc was pushed up by more than 30 percent. All major central banks, including the Federal Reserve, reacted by intervening heavily in support of the dollar. Their joint interventions totalled 26 billion dollars in 1977 and 50 billion in 1978. Eventually, the US authorities backed the attempt at slowing the fall of the dollar by setting up a stabilisation programme in late 1978, and the Federal Reserve changed to a pronounced restrictive monetary policy course, driving up the federal funds rate from 10 percent at the turn of the year 1978/1979 to a peak of 17.6 percent in April 1980.

How strongly the Federal Reserve intervened can be seen in graph 15.3. The black line indicates the percentage contribution of total intervention to base money creation. Buying dollars contributes negatively to the Federal Reserve's base money growth. By mid-1979, this restrictive contribution amounted to 10 percent of the monetary base, but was swamped by an even

stronger expansion of the Federal Reserve's purchase of government bonds. Hence the monetary base grew at a rate of 10 to 12 percent. The Federal Reserve's monetary policy was thus not aligned to the US Treasury's exchange rate policy – as though the exchange rate had nothing to do with the evolution of the fundamental factor base money.

Note that the US authorities responded rather late to the demands for energetic stabilisation measures by European countries and Japan. In concertation with other central banks, the Bundesbank had already begun to drive up its scale of intervention in support of the dollar in late 1977. The contribution of German intervention to base money growth rose to 21 percent during 1978, exceeding base money growth by 8 percentage points (cf. graph 15.3). Although sterilisation was achieved on a larger scale, there is no doubt that the Bundesbank and other European central banks would have followed a much less expansionary course in the absence of the attempt to stem dollar devaluation. The large overshooting of the monetary targets for 1978 – Bundesbank by 3.5 percent, SNB by 11 percent – is evidence that monetary policy in Europe was subordinate to exchange rate policy. Eventually, in early 1979, the European central banks adopted a more restrictive stance. This came too late, however, with respect to the central banks' overriding objective of maintaining price stability. Another wave of inflation had been fuelled for too long by money expansion, driving inflation from a low of 0.4 percent in Switzerland and 2.2 percent in Germany in the autumn of 1978 to a peak of 7.5 percent two years later in both countries.

15.6.4 The Plaza-Louvre experience: 1985–1989

The lesson of the late 1970s was that the decline of the dollar could not be halted, even though the central banks of industrialised countries intervened on a massive scale. Thus when the dollar turned around towards steep appreciation in late 1980, a common scepticism among academics and to some extent among central bankers was that intervention is an ineffective tool in the sense that it cannot be used to change the market trend.⁴⁴ There were differences in attitude among policymakers, however. The US authorities blatantly adopted a position of benign neglect: if the Europeans felt that the dollar was becoming too strong and intervention could be used to fight its appreciation, it was up to them to take action. The German position, by contrast, was that the large non-accommodated budget deficits, created by the first Reagan administration, were the heart of the problem, driving up US

44 Dominguez and Frankel (1993).

interest rates and the dollar. According to this view, a fiscal correction would have been required in the US. Intervention against the dollar, meanwhile, was believed to achieve nothing in terms of undoing the dollar's overvaluation; at best it could mitigate the path of dollar appreciation. In fact, the frequent dollar sales by the Bundesbank during 1984, totalling 22 billion German marks, appeared to have no sizeable effect on the exchange rate.

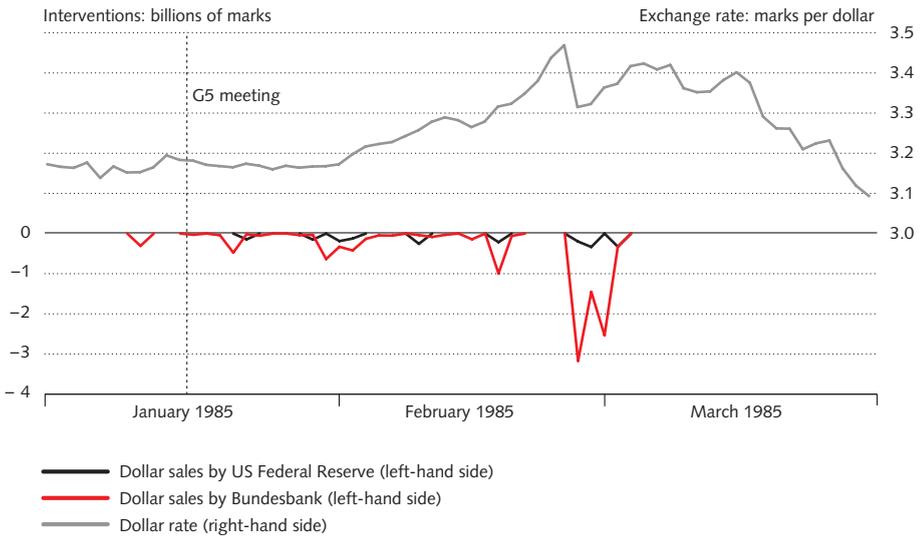
After several years of international political debate about the adequacy of the US macroeconomic policy course and the country's rising current account deficit, the US authorities changed position in late 1984 and decided to try international policy coordination, first and foremost intervention in exchange markets. At a meeting of the Group of Five (G5) in January 1985, it agreed "to undertake coordinated intervention in the markets as necessary".⁴⁵ The Bundesbank started to sell dollars, totalling 1.64 billion marks in January, with occasional symbolic support from the Federal Reserve. Initially, there was no visible response; the daily exchange rate moved narrowly between 3.16 and 3.18 marks per dollar (cf. graph 15.4). In February, the dollar began to rise again, climbing to 3.28 by mid-month and finally jumping in a few steps to the peak of 3.4690 on 26 February, the highest rate since 1971. The next day, the Bundesbank threw dollars worth 3.17 billion marks onto the market, the largest daily sale ever, and the Federal Reserve added 0.2 billion. The dollar fell immediately and sizeably by 0.155 marks to 3.32. Intervention continued for another three days, with the Bundesbank selling dollars equal to 1.44 billion per day and the Federal Reserve, 0.23 billion. Nevertheless, the dollar began to rise again, and after intervention ended on 4 March, the dollar jumped to 3.42 marks. This did not last, however. A few days later, the dollar began to fall steeply, arriving at 3.09 marks by the end of the month.

It required the famous G5 meeting of 22 September 1985 in New York's Plaza Hotel to achieve a serious commitment from the US as regards intervention on a larger scale.⁴⁶ At that time, the dollar was already down to 2.88 marks, hence by almost 20 percent. By then, however, the German commitment to intervention had begun to fade. The roles were thus reversed: the US and Japanese authorities sold dollars heavily for about a month, while the

45 Funabashi (1988).

46 In the conclusions of the meeting it was said: "The ministers of Finance and Central Bank Governors agreed that exchange rates should play a role in adjusting external imbalances. [...] They believe [...] that in view of the present and the prospective changes in fundamentals, some further orderly appreciation of the main non-dollar currencies against the dollar is desirable. They stand ready to cooperate more closely to encourage this when to do so would be helpful." Cf. Funabashi (1988), p. 263.

Graph 15.4
Intervention before Plaza Agreement

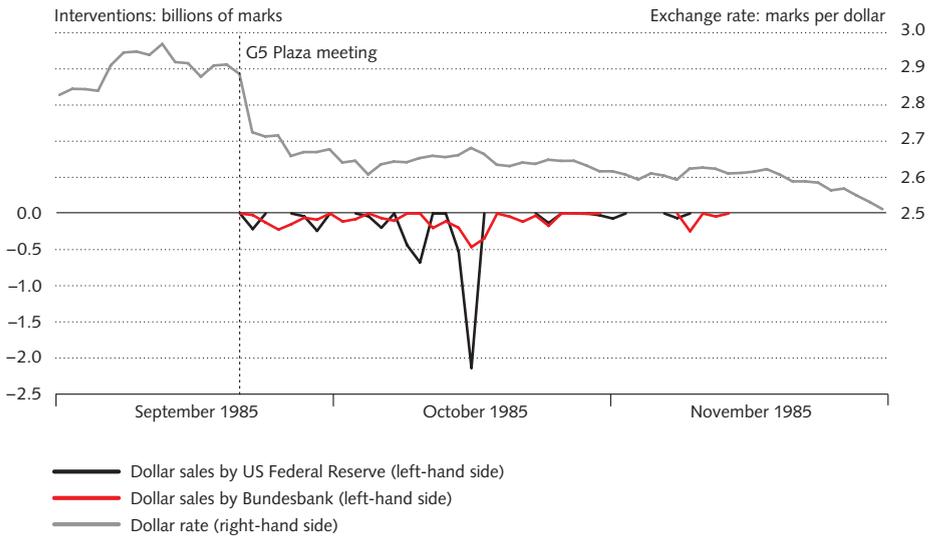


Source: Footnote 10.

Bundesbank operated on a very modest scale (cf. graph 15.5). Nevertheless, the mood among German and Japanese policymakers changed quickly, when the decline of the dollar continued through 1986. Concerns regarding competitiveness were raised, and it was argued that the dollar devaluation had become too large. Intervention was thus turned around, from selling to buying dollars (cf. graph 15.2). The dollar continued to slide, however, falling to 2.0 marks by year-end. This led the governments to make another attempt at negotiating macroeconomic cooperation among the G5. The result was the Louvre Accord of February 1987.

The Louvre Accord called for more balanced global growth, meaning again less fiscal expansion in the US, but more in Europe and Japan, as well as for a stabilisation of the exchange rates at the levels reached. A three-year interval of international exchange rate management began. To keep the dollar from sliding further, the Federal Reserve initiated a gradual tightening of its monetary stance and the central banks began buying dollars on a larger scale. Initially, the dollar moved sideways – until mid-1987 – but declined again by summer, reaching the historical low of 1.63 marks after the stock market crash of October 1987. In response to the crash, monetary policy was turned more expansionary everywhere, by means of lower interest rates until year-end. After the turn of the year 1987/1988, however, the Federal Reserve started

Graph 15.5
Intervention after Plaza Agreement



Source: Footnote 10.

driving up the federal funds rate from 6.6 to 8.8 percent a year later, with the aim of dampening the booming economy. The short-term interest differential in favour of the US rose from 3.6 to 4 percent. As a result, the dollar turned around to steep appreciation. In line with the Louvre Accord, the central banks followed suit, reverting interventions from buying to selling dollars. This was continued on a diminishing scale until early 1990. Thereafter, interest in coordinated intervention as a means of ‘managing’ the external value of the dollar waned in the US as well as in Europe, because the experience gained in the 1987–1989 period was not particularly encouraging.

Summing up, the Plaza-Louvre experience became famous among central bankers and academics as an attempt at achieving closer fiscal and monetary policy coordination between the US, Europe and Japan. With hindsight, coordination of intervention activity was the most important aspect, presumably because it is easier to agree to limited actions than to change the macroeconomic stance. On the whole, the governments’ repeated promises to adjust fiscal policies were only partially met. Monetary policies moved somewhat closer together in Europe, although less so across the Atlantic. Yet it should be noted that, unlike the dramatic experience of 1977–1979, the intervention operations conducted under the Plaza-Louvre regime did not seriously endanger the course of monetary policy in any country.

A different question is whether the secular decline of the dollar was actually engineered by these operations. According to Craig Hakkio, the G5 agreements had zero impact, given that the speed of the dollar's decline was about the same before and after the Plaza Agreement.⁴⁷ Note, however, that Hakkio neglects the fact mentioned above that the dollar rate had turned around to a steep decline in March 1985; hence, after the first G5 announcement of coordinated intervention and the start of large-scale operations.

15.7 On the long-run prospects of flexible exchange rates

Since the turn of the century, the number of currencies in the world has been reduced by the introduction of the euro, which replaced the German mark and eleven other European currencies that had been linked to the mark through the EMS since the late 1970s. Due to the recent enlargement of the European Union (EU), another thirteen European currencies that already peg more or less closely to the euro are likely to join over the course of the next two decades. Nor will this be the end of the story, given that another four countries are currently negotiating EU membership. At the same time, on the other side of the Atlantic, several Latin American countries appear to be considering the option of dollarisation; an attractive alternative to the traditional form of pegging to the US dollar. Thus it may be tempting to speculate about a long-run trend of currency mergers that could one day even lead to a unified worldwide regime, where the world is left with only a single currency. This grand vision has been put forward by Robert Mundell, presumably as an intellectual provocation.⁴⁸ He envisages a stable 'international dollar', managed by a G3 open market committee designated by the Board of Governors of the International Monetary Fund, that would generate a considerable increase in trade, productivity and financial integration, and would hence contribute to worldwide economic growth and the well-being of each country. Whether Mundell's 'ideal solution' to the exchange rate problem will ever become reality need not concern us from today's point of view. More relevant is the assessment of whether long-run trends may emerge that invite smaller countries to link their currencies more closely to each other as an initial step on the long road towards creating regional currency unions. It is useful to start by discussing the relations between the three largest currency areas, the G3.

From a political perspective, a major advantage of flexible exchange rates is that no government needs to tie its hands as regards the conduct of monetary

47 Hakkio (1992).

48 Mundell (2003).

and fiscal policies by explicit international agreement on rules of conduct for macroeconomic cooperation. In fact, if the problem of a reliable internal commitment to permanently low inflation is solved by a suitable institutional solution, such as money or inflation targeting, not much more can be gained from linking one currency to another. On the contrary, if productivity trends differ or change substantially, the economic repercussions, including wage and price level effects, could be buffered much more easily by the automatic exchange rate adjustment in markets than by a renegotiation of official exchange rate parities and agreed policy rules. While international policy cooperation can, in principle, lead to better macroeconomic outcomes for the countries involved, due to the consideration of international spillover effects,⁴⁹ the gains from such cooperation are likely to be small. If countries rely on rule-based monetary policy at home, as increasingly seems to be the case, and international asset markets become deeper and more refined, the difference between the outcomes of cooperative and Nash monetary rule setting will shrink and probably become negligible in comparison to the gains from a purely inward-looking policy. This has been demonstrated by Obstfeld and Rogoff in simulations of the new open economy macroeconomics model.⁵⁰

Given the large structural differences between the United States, Europe and Japan, it seems unlikely that these big countries will wish to consider closer policy coordination in the foreseeable future, not to mention an institutionalised solution.⁵¹ Certainly, another Bretton Woods is most unlikely to happen, given that none of the G3 countries would be accepted by the other two as the hegemonic country that is permitted to produce the key currency. While the United States is still the largest economy and the dollar remains the dominant transaction currency, Europe and Japan have learned the lesson that the key currency country might be tempted to finance its fiscal expansion by money creation and, in so doing, generate inflationary pressure in all currency areas that are linked by exchange rate parities or targets. This happened in a dramatic fashion in the late 1960s and early 1970s on a large and increasing scale, and brought about the demise of the Bretton Woods exchange rate system. Interestingly, contrary to the famous dictum that history never repeats itself, the United States runs a current account deficit of about 6 percent of the gross domestic product (GDP) and this is again largely financed

49 Persson and Tabellini (1995).

50 Obstfeld and Rogoff (2000).

51 Crockett (2003).

by central banks (2005). The recent strong rise in the dollar reserves held by Asian central banks that peg to the dollar appears dangerous. Nouriel Roubini and Brad Setser estimate that the Asian central banks contribute about 80 percent to the US deficit finance.⁵² Like the first one, this 'Bretton Woods 2' is in danger of collapse, because the Asian central banks, notably China's, will not be able to suppress the inflationary consequences forever.

While it is unlikely that the G3 will try a fixed rate system again, it cannot be completely ruled out that another attempt at short-lived coordinated intervention will be taken up at some future date, should a larger exchange rate misalignment develop. Given the unencouraging Plaza-Louvre experience of 1985–1987, however, this is not very likely. In any case, the proposal to establish clearly defined target zones for the major exchange rates,⁵³ as once hotly debated among academics, is unlikely to become an attractive arrangement for central bankers or politicians. The proposal is far too demanding. From an economic perspective, the main issue is to differentiate reliably with real-time data between the justified moves of the long-run equilibrium exchange rates and clouding short-run volatility that one would like to avoid. Nor is it obvious that the creation of a target zone would not give rise to destabilising speculation. From the politicians' point of view, the most important drawback of an institutionalised target zone is the requirement to commit to rules of diagnosis and burden sharing. The unsuccessful series of world economic summits that had been started in the mid-1970s can be taken as broad evidence that the governments of the largest industrialised countries will continue to shy away from having to accept a diagnosed distribution of necessary macroeconomic adjustment among partners and types of policies.

In sum, it seems that there is no case for an institutionalised move away from today's independent floating of the large currencies – the dollar, euro or yen. This does not mean, of course, that the United States, the European Union or Japan can be expected to go for an independent float at all times. Occasional non-lasting attempts at intervention cannot be ruled out. However, they are likely to remain rare events, given that the degree of openness is relatively low for all three economies. While it is high for individual member countries of the European Union (30–50 percent), it has come down to 14 percent for the euro area as a whole, due to the adoption of the common currency. This matches the degree of openness of the United States (13 percent) quite closely, although not Japan's (10 percent).

52 Roubini and Setser (2005).

53 Williamson and Miller (1987).

Today's largest currencies are likely to remain the largest for many years to come. It is to be acknowledged, however, that China's currency, the renminbi or yuan, has become more important in Southeast Asia since the mid-1990s and is likely to make considerable headway over the next ten to twenty years in catching up with the G3. While China's strength, as measured by GDP, is way behind that of Japan and even Germany, it is a fast-growing economy at a rate of about 10 percent. Moreover, China has developed over recent years into the largest export market for much of East and Southeast Asia, absorbing about 40 percent of the region's exports. Although China still relies on import and capital controls, it has taken up negotiations with the Association of Southeast Asian Nations (ASEAN) on a free trade zone to be started by 2010. China is thus well on its way to becoming a strong competitor to Japan as the dominant economic power in the Asian region. In the long run, this may invite the smaller Asian countries to switch the pegging of their currencies from the dollar to the renminbi, although this is only likely to happen when China's financial infrastructure and the economy at large are developed and liberalised enough to permit China to adopt a floating regime for its currency. How far away that is, is difficult to judge. At present, the renminbi is just a major Asian currency whose dollar value is still fully controlled by the authorities for fear of floating, notably at a level that secures a comfortable degree of undervaluation. Although China's central bank is accumulating foreign reserves on a large scale, its dollar reserves amounted to 40 percent of GDP in 2004, for the short to medium run at best, a one-time re-evaluation of the renminbi is conceivable.

As regards the likely evolution of exchange rate arrangements among the many other smaller countries, no clear signs of a definitive major change are yet visible, except that a tendency to form loose regional clubs is observable. The popular notion of a 'disappearing middle' maintains that an increasing number of countries replace the intermediate soft peg regime by a corner solution, a hard peg or a free independent float. However, given that these polar cases are rare,⁵⁴ the notion is only descriptive provided the alternative corner solutions are not sharply defined. For example, Stanley Fischer defines the group of floaters to include countries whose exchange rate system is officially labelled a managed float, and defines countries as hard pegs if they either run a currency board or share a currency with other countries.⁵⁵ Based on these definitions, he finds that the middle does indeed disappear for a

54 Calvo and Reinhart (2000).

55 Fischer (2001).

sample of 160 countries: the share of soft pegs has halved over the 1990s, falling from 62 to 34 percent. The share of floaters, in contrast, has doubled, up from 23 to 42 percent. The number of hard pegs has increased, too, albeit by much less. The evidence is thus in line with the notion of a disappearing middle. Note, however, that the conjecture becomes uninformative if the focus is put on the 22 largest developed market economies. True, nine of them that were qualified as soft pegs for a long time switched to the hard peg regime by joining the euro in 1999, while the rest of the group – nine managed floats and one hard peg (Hong Kong) – has not changed since the 1980s. Nevertheless, the European move from a national to a common currency does not simply reflect the economic reasoning underlying the ‘fear of floating’, but a more embracing political will to promote an increasingly rising economic and political integration over the medium to long run.

In contrast to European integration, regional clubs in other parts of the world – such as ASEAN (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam), Mercosur (Argentina, Brazil, Paraguay, Uruguay, Venezuela) or the Andean Community (Bolivia, Colombia, Ecuador, Peru) – have not settled on the long road from a customs to a currency union. In fact, the dominant political interest in those regional clubs is still focused on the creation of a common trade area by removing tariffs and other regional trade barriers, rather than on paving the way towards deep economic integration or macroeconomic coordination, let alone currency union. At present, no firm prediction can be made for any of the regional groups mentioned that the process adopted will eventually lead to a treaty-based currency union. At the same time, loose *de facto* currency unions exist in the broad sense that quite a number of small currencies are firmly pegged to the dollar and a few to the euro. Nevertheless, it seems that, over time, the globalisation process, the worldwide liberalisation of trade and capital flows, will gradually change the focus of most countries towards striving for deeper integration with neighbouring countries. This means, for the long run, that the number of currencies is likely to shrink, giving way to a small number of regional currency unions. Floating will then become the dominant exchange rate system, because floating provides the regional clubs with the freedom to keep differences with respect to political and economic preferences.

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16 Foreign exchange reserves – what for?

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16.1 Introduction

Central banks hold reserves to safeguard the stability of the domestic currency. Few would dispute this simple statement. Nevertheless, its meaning has changed over time, and there are disagreements about it even now.

Under the nineteenth-century gold standard, stability was defined as a fixed gold value for a country's currency, although that fixed gold value also implied a fixed value of the currency in terms of foreign currencies that were likewise tied to gold. Furthermore, the misbehaviour of the country's own government was seen as the primary threat to the stability of the currency, and a firm link to gold was seen as a safeguard against such misbehaviour. When a country's currency was tied to gold, its government could not readily engage in profligate spending financed by printing paper money.

This view survives today. There are those who would like to abolish central banks and replace them with currency boards. They would thereby limit the stock of high-powered money – the sum of hand-to-hand currency and commercial bank reserves – to an amount that cannot exceed the stock of foreign exchange reserves held by the currency board. Most of the rest of us, however, adhere to a different notion of stability.

In most of the main industrialised countries and many developing countries, too, central banks seek to maintain price stability at the highest sustainable level of output. Hence, threats to stability defined that way can arise domestically, on account of real or monetary shocks, and they can also arise externally, because of shifts in trade flows or international capital movements. The role of reserves has therefore changed. They are available for use in limiting exchange rate changes that would otherwise occur due to foreign and domestic shocks and would themselves impair price stability or the level of economic activity.

The same point can be made by comparing the old and current roles of interest rate changes. Under the gold standard, central banks, especially the Bank of England, altered short-term interest rates to stabilise the gold stock. They raised them to stem gold losses, which might otherwise impair confidence in the fixed gold prices of their countries' currencies. Today, by contrast, changes in short-term interest rates are the main instrument of monetary policy used

to maintain price stability, and intervention in the foreign exchange market is the main instrument used to stabilise or influence the exchange rate.¹

When seeking to measure the adequacy of international reserves under arrangements prevailing today, it is therefore necessary to answer three questions:

1. How large are the domestic and foreign shocks that would, by themselves, affect the exchange rate?
2. What are the real economic costs of using other policies to limit the impact of those shocks?
3. How high are the pecuniary costs of holding reserves in order to limit exchange rate changes?

The answers to these questions have changed appreciably during the last half-century due to changes in the economic environment, including the dismantling of capital controls, which has led to a very large increase in the volume and volatility of international capital flows. There is, however, also a fourth question: What are the economic and political costs of adjusting the stock of reserves?

Much of the analytical literature reviewed later in this paper assumes implicitly that central banks and governments can optimise their reserve holdings. Yet the size of the stock of reserves held by a country is the by-product of its exchange rate policy, past and present, and it may be impossible to alter deliberately the stock of reserves without also altering exchange rate policy. To raise reserves deliberately, a country may have to reduce temporarily the foreign currency value of its country's currency; to reduce reserves deliberately, it may have to raise the value of its currency. A reduction in the external value of a country's currency can threaten price stability by raising the domestic prices of traded goods. An increase in the value of a country's currency can reduce output and profitability in the domestic industries producing traded goods.

It is worth noting, however, that econometric work on the demand for reserves has shown that countries do indeed adjust their actual reserves in the

1 The two instruments, however, are not wholly independent. When intervention is sterilised, it will affect interest rates directly; when it is unsterilised, it will alter the money supply and thus affect interest rates indirectly. Conversely, a change in interest rates will affect the exchange rate. Although the two instruments can still be viewed as being assigned to the two policy targets, they cannot be adjusted without due regard for the interdependence of their effects. It should also be noted that some central banks have used intervention in the foreign exchange market in lieu of open market operations in the money market. That was once true in the case of Switzerland, and it is still true in the case of Singapore. I am grateful to Ulrich Kohli for drawing my attention to the Swiss case; on the Singaporean case, cf., for example, Khor, Robinson and Lee (2004).

right direction; they tend to raise their actual reserves whenever they are below the ‘equilibrium’ amounts, and reduce them whenever they are above the ‘equilibrium’ amounts. Furthermore, they make these changes faster than one might expect if they were severely constrained by the economic costs of raising or reducing their actual reserves.²

16.2 The role played by changes in the monetary system

There are no immutable answers to the questions posed above, valid for all countries and all times. It is especially important to take account of the very large changes in the form and functioning of the international monetary system since the Second World War. The history of the system can be divided usefully into three sub-periods.

The first period began with the end of the War itself and lasted until 1971, when the existing system started to unravel – described below as the Bretton Woods era. The second period began with final collapse of the post-war system in 1973, when the major industrialised countries moved to floating exchange rates, and it can therefore be called the floating rate era. Although that second segment has not ended, it was followed by a third, which began with the Mexican balance of payments crisis of 1995, and can be referred to as the emerging market era. The first two eras differed hugely from one another in terms of the importance attached to exchange rate stability. The third differed from the second with regard to the importance of the role played by capital flows to the developing countries, because the volatility of these flows was the proximate cause of the balance of payments crises that were the chief feature of the third period.

16.2.1 *The Bretton Woods era*

Under the Bretton Woods Agreement of 1944, creating the International Monetary Fund (IMF), members of the Fund were required to maintain pegged exchange rates. A government could not alter its exchange rate unless, in the judgement of the Fund, it faced a ‘fundamental disequilibrium’ in its balance of payments. There were exchange rate changes, but they were fairly rare, and only one developed country, Canada, had a floating exchange rate for part of the twenty-five year period before the collapse of the Bretton Woods system. Furthermore, many countries, including some major industrialised nations, maintained capital controls, most notably restrictions on capital exports by their countries’ residents. Trade-related shocks were therefore the

2 Cf. Lizondo and Mathieson (1987), table 6.

focal point of research on the optimality of reserves. Although capital flows were not negligible, especially when countries ran large current account deficits, they were seen as aggravating balance of payments problems that resulted mainly from current account shocks.

A second feature of the Bretton Woods system deserves attention. It was asymmetric. One member of the IMF, the United States, remained on a limited form of the old gold standard. Its citizens could not buy gold from the US Treasury, but foreign official institutions were still free to do so. Furthermore, the United States ran balance of payments deficits through most of the Bretton Woods era. Although it had current account surpluses in the 1950s and early 1960s, they were smaller than the sum of its foreign aid and its growing exports of long-term capital. There was therefore a gradual deterioration in its net reserve position. Its reserve liabilities grew steadily, as many foreign countries accumulated dollars, while its own gold holdings fell, as foreign countries used some of their newly acquired dollars to buy US gold.

Some economists saw quite soon that this payment pattern was unsustainable; eventually, US reserve liabilities would exceed the US gold stock, provoking a run on the rest of its gold stock.³ Yet it ended sooner than the pessimists expected when, in the late 1960s, the costs of the Vietnam War and the failure of the Johnson administration to confront the economic consequences of these costs led to a sharp deterioration in the US current account balance and a large capital outflow. On 15 August 1971, President Nixon closed the gold window and imposed an import surcharge in a contentious but successful effort to engineer a devaluation of the US dollar. That was not the chief result, however. It was instead the end of the Bretton Woods era.

There was no longer a fixed link between the two main reserve assets – gold and the US dollar. Furthermore, the devaluation of the dollar was too small to eliminate the US payments deficit and thus led to another attempt. Early in 1973, the US Treasury tried to engineer a second devaluation of the dollar, but succeeded instead in producing a rapid move to floating rates – a result that many economists applauded, but was not what the US Treasury had intended to achieve.

16.2.2 The floating rate era

For most of the rest of the 1970s, the currencies of the major industrialised countries floated fairly freely. There was a short-lived effort by some European countries to stabilise their currencies, so as to float jointly vis-à-vis the

3 Cf. Triffin (1960); also Kenen (1960).

dollar, but that regime could not survive the economic turmoil that followed the sharp increase in oil prices in late 1973. Many developing countries, however, continued to peg their exchange rates, although some of them had to devalue their currencies to offset high inflation rates. It was therefore widely expected that the major industrialised countries would no longer want to accumulate reserves and might even start to shed them, but that did not happen. A thorough quantitative study of developed countries' demand function for reserves found that the results obtained for the first decade of the floating rate era (1973–1979) did not differ from the ones obtained for the final decade of the Bretton Woods era (1964–1972).⁴

A further change in the monetary system occurred in 1979, with the founding of the European Monetary System (EMS). This regime resembled the Bretton Woods system in that the participants' national currencies were tied together tightly, although they continued to float together against the currencies of non-members, most notably the US dollar. The EMS was meant to be more symmetrical than the Bretton Woods system, in that the obligation to maintain pegged exchange rates was shared between the country having the weak currency and the country having the strong currency. Yet it was far less symmetrical in practice than in principle. Whereas the US dollar had been chronically weak in the 1960s, allowing other countries to accumulate reserves, the German mark was chronically strong in the 1980s. As its strength reflected the Deutsche Bundesbank's commitment to price stability, the other members of the EMS were obliged to mimic German monetary policy so as to defend their own countries' currencies. Nevertheless, the German mark did not displace the US dollar as the principal reserve currency, although it did acquire a limited reserve currency role within the EMS itself.

There were exchange rate realignments in the EMS, and there was a major exchange rate crisis in 1992, which forced Italy and the United Kingdom to drop out of the EMS. The regime survived, however, by widening the bands in which its members' currencies were allowed to fluctuate. In fact, the survival and subsequent stability of the EMS helped to facilitate the transition to the European Monetary Union that came into being in 1999 and may itself presage a further change in the international monetary system – the emergence of the euro as a reserve currency that may compete increasingly with the US dollar.

4 Cf. Lizondo and Mathieson (1987), table 4, updating work by Frenkel (1983); and table 5, updating work by Bilson and Frenkel (1979). Cf. also the early paper by Suss (1976); she had expected to find that the shift to floating rates had caused the expected fall in the demand for reserves, but could find no discernable fall in demand.

Lest we forget, the 1980s were turbulent times for the developing countries. The Mexican debt crisis of 1982 spread quickly to other Latin American countries, and was not resolved until the end of the 1980s, when the crisis-stricken countries reduced their debts to foreign banks by issuing the so-called Brady bonds to buy back their debts at deep discounts.

16.2.3 The emerging market era

The end of the debt crisis of the 1980s was quickly followed by a new surge in lending to emerging market countries, but it took a different form – with the issuance of foreign currency bonds by those countries' governments, rather than new lending by foreign commercial banks. There was, of course, bank lending, too, especially to local banks in Thailand and Korea. These banks' debts to foreign banks played a major role in the currency crises of the late 1990s, when the foreign banks ceased to roll over their loans. As in 1982, Mexico was again the first emerging market country to run into trouble.

Capital flows to Mexico started to grow rapidly in the early 1990s, accounting for roughly one-fifth of the total net capital flow to the developing countries. As the capital inflow continued, however, it was offset increasingly by the growth of Mexico's current account deficit, and the country's problems were compounded by political shocks: a rebellion in the southern province of Chiapas and the assassination of the leading party's presidential candidate. Hence, Mexico finally had to be bailed out in early 1995 by a 50 billion US dollar package from the US Treasury and the IMF.

Two years later, in mid-1997, Thailand succumbed to a currency crisis. The end of a real estate boom led to the collapse of a large financial institution and triggered the withdrawal of the short-term loans to local banks that had been made by foreign banks. The crisis then spread rapidly, first to Thailand's neighbours in Southeast Asia, most notably Indonesia, and then northward to Korea. Crises followed elsewhere in other major countries – Brazil, Russia, Turkey and Argentina – as foreign investors reassessed those countries' prospects and the sustainability of their external debts.

This story has a sequel of particular importance to the main subject of this paper. Deeply dissatisfied with their treatment by the IMF and the nature and large number of policy conditions it attached to its assistance, the East Asian countries started to build up very large reserves so as to self-insure themselves against any future need to seek IMF financing. At the end of 1996, before the Asian crisis, Indonesia's foreign exchange reserves totalled 17.8 billion US dollars; by the end of 2003, they had doubled to 34.7 billion. Over the same period, Korea built up its reserves from 33.2 billion US dollars to 155.3 billion,

a fivefold increase. By taking full advantage – perhaps too much advantage – of their ready access to new forms of financing, the East Asian countries had exposed themselves to the volatility of investor sentiment, and had thus acquired a precautionary motive for holding very large reserves.

Yet something else was happening in Asia. China was not caught up in the Asian crisis, but also built up its reserves. Its holdings quadrupled between 1996 and 2003, rising from 105.0 billion US dollars to 403.2 billion, and they doubled again in the next two years. Part of this huge increase may have been precautionary, but part was surely the by-product of an exchange rate policy aimed at transforming the Chinese economy by fostering export-led growth. The very success of such a policy may strongly constrain any future attempt to run down reserves widely deemed to be excessive. The large appreciation of the renminbi sought by the US Treasury was strongly resisted, ostensibly because China's firms and financial institutions had first to learn to live with flexible exchange rates. However, the Chinese authorities also seemed to be worried about the impact of a large appreciation on the profitability of China's export industries and thus their future contribution to the further transformation of the Chinese economy.

16.3 A brief history of research on optimal reserves

Interest in the optimal level of reserves goes back to the early 1960s, although much of the early literature was concerned primarily with the sufficiency of global reserves and the viability of the gold-dollar standard, not with individual countries' holdings.⁵ Research on the latter, moreover, has focused on a handful of explanatory variables and has not taken much account of a possibility raised above – that a country's reserve holdings may be the by-product of policy objectives not fully represented by the rather small set of economic variables used in estimating the demand for reserves.⁶ Furthermore, an attempt to estimate a cross-country demand function must assume implicitly that the cross-country average of actual reserves is not very different from the cross-country average of optimal reserves. This assumption is not wholly implausible; there is some evidence, already cited, that countries having actual reserves appreciably different from the estimated level of their optimal reserves do indeed reduce that difference.

5 Cf. citations in Heller (1966), p. 296.

6 Analogous issues arise in the theoretical and empirical literature on the specification and estimation of the demand for money. Cf. survey by Goldfeld and Sichel (1990).

16.3.1 *The demand for reserves in the Bretton Woods era*

The first two studies of this sort appeared in the mid-1960s, during the Bretton Woods era. The first one used actual reserve data to calculate the mean, variance and persistence of the balance of payments shocks that each country had experienced.⁷ It then used those estimates to explain the cross-country distribution of actual reserves and wound up by extracting from that distribution a measure of each country's optimal reserves. It paid too little attention, however, to cross-country differences in the pecuniary costs of holding reserves, and it also ignored the real economic costs of dealing with balance of payments deficits by tightening domestic policies, rather than financing them by drawing down reserves.

The other study did not use econometric methods, but built a simple theoretical model to derive a formula defining the optimal stock of reserves for a particular country.⁸ That stock was deemed to depend on the probability distribution of the country's future surpluses and deficits, given its previous history, the pecuniary cost of holding reserves, and the real economic cost of ending a balance of payments deficit by resorting to output-reducing policies. The optimal level of reserves was thus defined as one that would balance the pecuniary cost of holding that stock of reserves against the real economic cost of ending a balance of payments deficit abruptly, once a run of deficits had depleted that stock of reserves. The model, however, rested on rather strong assumptions about the distribution of surpluses and deficits.

Subsequent quantitative studies were technically far better and more informative. Focusing on the results rather than methodological matters, there were two studies that dealt with the Bretton Woods era, but looked at different country groups. The first study distinguished between developed and developing countries, and it found appreciable differences between their demand functions.⁹ The functions did not differ greatly in the weights they attached to economic openness, measured by the ratio of imports to gross domestic product (GDP),¹⁰ but the developing countries' demand for reserves was found

7 Kenen and Yudin (1965).

8 Heller (1966).

9 Frenkel (1974), table 3.

10 In this and other early studies, the ratio of imports to GDP was used as a proxy for the marginal propensity to import, and it was therefore expected that a high ratio would reduce a country's demand for reserves, because a high marginal propensity to import would allow it to reduce its imports at low cost in lost output. In most studies, however, the ratio took on a positive regression coefficient. Therefore, the ratio of imports to GDP is now commonly viewed as a proxy for economic openness, not for the real economic cost of ending a balance of payments deficit.

to be less sensitive to the variability of the balance of payments – a finding that may reflect the fact that many developing countries were not yet committed to current account convertibility and could therefore impose import restrictions to deal with balance of payments problems. The second study looked only at developing countries, but distinguished between those that maintained fixed exchange rates and those that had more flexible rates.¹¹ It found that the latter held smaller reserves, as one might expect, and adjusted more rapidly to shocks. It also found that those with fixed exchange rates had demand functions for reserves resembling those of the developed countries, which likewise maintained fixed exchange rates during the Bretton Woods era.

16.3.2 The demand for reserves in the floating rate era

The advent of floating exchange rates in 1973 led some economists to predict that the demand for reserves would fall. Yet one of the first papers on the floating rate era contradicted that prediction.¹² Pooling data for 22 countries – mostly developed countries – its authors estimated a demand function for all of those countries together, in which the demand for reserves depended on the variability of each country's own balance of payments and on the pecuniary cost of holding reserves (represented by the interest rates on their countries' long-term bonds). They also allowed the constant term of the demand function to vary across time and found that it was higher in the first five years of the floating rate era than in the final decade of the Bretton Woods era. They therefore concluded, without extensive explanation, that the shift to floating rates had actually raised the demand for reserves, rather than reducing it.¹³

Another study, however, contradicted that conclusion.¹⁴ It estimated a demand equation combining data for the last part of the Bretton Woods era with data for the first part of the floating rate era, then compared predicted with actual reserves. In 1975 and 1976, the last years covered by the study, the

11 Edwards (1983); although published long after the Bretton Woods era, it dealt only with the latter half of that era.

12 Frenkel and Jovanovic (1981).

13 Flood and Marion (2002) re-estimated variants of the Frenkel-Jovanovic model with an important modification; instead of allowing the constant term of the demand equation to differ across countries, they used country fixed effects and found that these account for much of the cross-country variance explained by their equations. This was most striking when they used a different way to measure the volatility of the balance of payments, based not on the variability of reserves, but rather on the variability of interest rate differentials.

14 Heller and Khan (1978).

actual reserves of the industrialised countries, taken together, were far lower than predicted. In other words, the study found that the shift to floating rates had indeed reduced the demand for reserves,

There are two ways to reconcile these results. One can criticise both studies for using a single demand function to explain the demand for reserves under pegged and floating rates (or, more precisely, in the case of the first study, allowing the change in regime to influence only the constant term of the demand function). Alternatively, one can conclude that it takes a long time for central banks and governments to adapt to a major regime change, especially when this change reduces the need for reserves. Recall a point made at the beginning of this paper, which will come up again: there may be economic and political constraints on the ability of a central bank or government to run down redundant reserves.

16.3.3 The demand for reserves in the emerging market era

How did the events of the 1990s – the sudden revival of capital flows to emerging market countries and the subsequent currency crises – affect the demand for reserves by that group of countries? Did they ‘bank’ some of their capital inflows by building up reserves? Did the subsequent crises raise their demand for reserves as they sought to self-insure themselves against future crises? Or are there other reasons for the remarkable growth of reserves held by East Asian countries?

Early studies of the demand for reserves paid some attention to what is now commonly called the precautionary motive. These studies used the size of a country’s money supply or the size of its liabilities to foreigners as proxies for that motive. The size of the money supply was meant to allow for the risk of a run on the currency by the country’s own residents; the size of the country’s liabilities to foreigners was meant to allow for the risk of a run by its foreign creditors. The addition of these variables, however, did not greatly improve the explanatory power of the demand equations, and it sometimes tended to reduce the explanatory power of the other variables used in those equations.

Some recent papers, however, have been more successful in dealing with these matters. They have focused primarily on the developing countries that have the strongest reasons to hold large reserves for precautionary purposes – those that have experienced large capital inflows and thus have reason to regard some or all of their reserves as being borrowed, rather than being owned outright, and those that have suffered currency crises when capital inflows have ceased abruptly or been followed by capital outflows. Some such studies

have looked closely at the behaviour of a single country.¹⁵ Others have made cross-country comparisons. In both sorts of studies, the demand for reserves has been made to depend on the usual variables – those featured in earlier studies – but made also to depend on the risk or cost of default resulting from a ‘sudden stop’ or outright reversal of a large capital inflow.

One such study by the staff of the IMF used data for 1980–1996, before the Asian crisis, and included two measures of capital account vulnerability: financial openness and the ratio of broad money to GDP. While these were positively correlated with the countries’ reserve holdings, they did not have very much explanatory power. The staff therefore used a conventional demand function, one that made no explicit allowance for capital account vulnerability, to predict the future reserve holdings of the East Asian countries. The study then found that those countries’ actual reserves grew far faster than their predicted reserves after 2001, following the Asian crisis, irrespective of the countries’ exchange rate regimes. It also found that four-fifths of the increase in reserves in 2001 and 2002 reflected the East Asian countries’ current account surpluses, with only one-fifth being due to net capital inflows.¹⁶

Other recent studies have likewise looked at the behaviour of East Asian reserves, including a study that sought to discriminate between two hypotheses: that the growth of those countries’ reserves was in the main for precautionary purposes, a safeguard against future crises, or, alternatively, that it reflected a mercantilist motive of the sort described above – the attempt to promote economic growth by promoting exports. The point made by the IMF, that four-fifths of the increase in Asian reserves in 2001–2002 was due arithmetically to the Asian countries’ current account surpluses, does not resolve that issue. A country can decide to accumulate reserves for precautionary reasons, but can still choose to do that by running a current account surplus. Yet those who have tried analytically to discriminate between the two explanations for the build-up of reserves have not found compelling reasons for favouring the mercantilist explanation.¹⁷

There is another promising way to ask whether the advent of high capital mobility and the associated risk of capital account crises have raised the demand for reserves by emerging market countries. It is to exploit the results of research aimed at measuring the probability that a particular country will

15 Cf. Ben-Bassat and Gottlieb (1992) on Israel; and Aizenman, Lee and Rhee (2004) on Korea.

16 IMF (2003), chapter II.

17 Cf. Aizenman and Marion (2003) and Aizenman and Lee (2005); but García and Soto (2004) have found that China’s reserves are far larger than required for precautionary purposes.

face a capital account crisis,¹⁸ as well as the actual costs of default and the costs of income-smoothing under costly tax collection.¹⁹ However, much more empirical work is needed before the explanatory power of these recent efforts can be assessed.

16.4 Small similarities and large anomalies

This paper does not aim to offer new econometric work on cross-country differences in the demand for reserves. It is worth pausing briefly, however, to note some striking differences, including differences among the major industrialised countries.

16.4.1 Four simple correlations

Table 16.1 contains four sets of correlations obtained from reserve data for 2003. They cover the 79 countries that held more than 1.5 billion US dollars of foreign exchange reserves, including 21 industrialised countries and 58 developing countries, which in turn are divided between middle-income countries and low-income countries.²⁰ They shed light on four questions:

1. Do high-income countries hold larger reserves? There is a positive correlation between reserves per capita and GDP per capita, yet it is rather weak, especially when one allows for the built-in positive correlation due to using population to define both variables. Furthermore, it is only half as high for the whole set of countries as for the two main subsets, and, somewhat surprisingly, less than half as high for the middle-income developing countries as for the low-income countries. (Note, however, that the middle-income countries include Hong Kong and Singapore, which hold reserves per capita far larger than any industrialised country, let alone any developing country.)
2. Does economic openness make for larger reserve holdings? There is a fairly strong correlation between reserves per capita and the ratio of imports to GDP, the most commonly used measure of economic openness. Once again, however, there is an odd exception to this regularity – the low but negative correlation for the industrialised countries. This result, however, reflects the influence of three anomalies: Belgium and the Netherlands have very open economies, but fairly small reserves, while Japan has the

18 On this body of research, cf., for example, Berg et al. (1999); Goldstein, Kaminsky and Reinhart (2000).

19 For recent examples, cf. Aizenman and Marion (2003, 2004), and the country studies cited in footnote 15 above.

20 The countries and data are listed in table 16.3.

Table 16.1
Reserve correlations, 2003

Correlation	All countries	Industrialised countries	Developing countries	Middle income ¹	Low income ¹
Reserves per capita with GDP per capita	0.3845	0.7025	0.6896	0.2465	0.6337
Reserves per capita with ratio of imports to GDP	0.6538	-0.2147	0.7791	0.6992	0.4179
Ratio of reserves to imports with GDP per capita	-0.2653	0.5178	-0.1866	-0.1417	-0.1246
Ratio of reserves to banks' foreign liabilities with GDP per capita	-0.2402	0.2458	-0.2159	-0.2656	-0.2708

1 Upper and lower halves of developing countries ranked by income per capita.

Source: Table 16.3.

smallest ratio of imports to GDP, but one of the highest levels of reserves per capita.

3. Does income per capita influence the ratio of reserves to imports? One would expect that to be true if it were also true that developing countries have large unexploited investment opportunities, as that would raise the opportunity cost of holding more reserves in order to buy protection against balance of payments crises. The developing countries, however, show no such relationship. The industrialised countries do display a positive correlation between the two variables, but it is not very high.
4. Is there any evidence that countries with large liabilities to foreigners hold more reserves than other countries, so as to insure themselves against the potential volatility of those liabilities? Unfortunately, there is no comprehensive data set on the foreign liabilities of the 71 countries under study here, and the proxy used in table 16.1, the foreign liabilities of a country's banks, is not appropriate for the low-income developing countries. However, there is no significant correlation whatsoever on the last line of the table, not for any country group.

The four sets of correlations in table 16.1 raise more questions than they answer. One might want to ask, for instance, if countries with different exchange rate regimes have different holdings of reserves relative to imports or GDP, but one would also have to ask for how long each country had adhered to a particular exchange rate regime. One might also want to look at the

countries' recent histories – which ones have suffered balance of payments crises – and at more comprehensive measures of these countries' external debts (including their debts to the IMF, which should perhaps be deducted from their gross reserves).

There is another way, however, to answer these same questions. That is to look at some characteristics of the countries that held very large reserves in 2003.

16.4.2 The Swiss case as a benchmark

Switzerland held 45.6 billion US dollars of foreign exchange reserves at the end of 2003, more than any other industrialised country apart from Japan, and there were only eight other countries that held larger quantities (China, Korea, Hong Kong, Singapore, India, Russia, Mexico and Brazil). The list grows longer, however, if it includes how many countries had larger reserves relative to population, GDP or imports, even when the list is limited to the developed countries and the middle-income developing countries having populations larger than two million persons. Table 16.2 lists three developed countries and fifteen other countries that had larger reserves than Switzerland in 2003 when measured with reference to population, GDP or imports.

Two developed countries (Denmark and Norway) and two other countries (Hong Kong and Singapore) had larger reserves than Switzerland relative to all three country characteristics. One more developed country (Japan) had larger reserves than Switzerland relative to GDP and imports, along with ten of the fifteen other countries.

Two of the four countries that had larger reserves than Switzerland relative to population, GDP and imports are rather special cases. Norway is a major oil exporter, and Hong Kong has a currency board that has to hold foreign currency reserves no smaller than its monetary liabilities. Denmark, meanwhile, does not differ hugely from Switzerland in terms of the three criteria used in table 16.2. Unlike Switzerland, however, it is not a major financial centre.

What about the other countries in the table? Japan was the world's largest reserve holder in 2003, before China overtook it. Korea and Malaysia built up their reserves rapidly after the Asian crisis. Kuwait and Russia are large oil exporters; Argentina and Turkey had large liabilities to the IMF, reducing their net reserves far below their gross reserves; and Israel has geopolitical reasons for holding large reserves. The rest of the countries have little in common, apart from the fact that Croatia, the Czech Republic, Slovakia, Hungary and Poland are members of the European Union.

Table 16.2
Countries with larger reserves than Switzerland, 2003¹

Measure	Industrialised countries	Middle-income developing countries ²
Reserves per capita	<i>Norway, Denmark</i>	<i>Hong Kong, Singapore</i>
Ratio of reserves to GDP	<i>Denmark, Norway, Japan</i>	<i>Singapore, Hong Kong, Malaysia, Slovakia, Czech Republic, Croatia, Korea, Israel, Chile, Russia, Kuwait, Poland, Hungary</i>
Ratio of reserves to imports	<i>Norway, Japan, Denmark</i>	<i>Argentina, Russia, Korea, Chile, Singapore, Israel, Kuwait, Croatia, Malaysia, Czech Republic, Turkey, Hong Kong</i>

1 Italicised countries are those that appear in all three rows.

2 Out of eighteen middle-income countries with populations larger than two million persons.

Source: Table 16.3.

It should be noted that the countries listed in table 16.2 had a wide variety of exchange rate arrangements. Some, such as Switzerland, had full flexibility with infrequent intervention; others, such as Japan, Korea and Singapore, had flexibility, but were more prone to intervention, and some, such as Denmark, Hong Kong and Malaysia, had pegged or fixed exchange rates.

16.4.3 A closer look at the Swiss case

The Swiss case is noteworthy for two reasons: the Swiss National Bank's decision of to sell off half of its gold holdings, and the large size of the foreign assets of the SNB compared to its home currency liabilities.

In 1999, the National Bank concluded that half of its gold holdings were no longer needed for monetary purposes. Hence, it undertook a series of gold sales within the framework of the so-called Washington Agreement governing gold sales by the SNB, the European Central Bank, and thirteen other European central banks. Its gold sales totalled 1,300 tonnes at an average price of approximately 351 US dollars per troy ounce, and it realised about 21 billion Swiss francs. There was a long debate about the disposition of the proceeds,²¹ which were in the end removed from the SNB's own balance sheet and distributed in the same way as its ordinary profits (one-third of the proceeds were transferred to the Swiss Confederation, and two-thirds were shared

21 Cf. Hildebrand (2005).

out among the 26 Swiss cantons). Nevertheless, the SNB still holds a large amount of gold, along with a large stock of foreign currency reserves. These were the main items in its balance sheet at the end of 2005 (in billions of Swiss francs):²²

External monetary assets (gold, foreign currency investments, reserve position in the IMF, and other)	76.1
Domestic monetary assets (claims from repo transactions and Swiss franc securities)	31.9
Other assets	1.0
Domestic monetary liabilities (banknotes in circulation and sight deposits of domestic banks)	47.2
Other liabilities	4.1
Capital, provisions and reserves	57.7

Thus the total monetary assets of the SNB were more than twice as large as its domestic monetary liabilities, while its external monetary assets were not far from twice as large. In other words, the National Bank could readily convert itself into a full-fledged currency board without making any change to the composition of its present balance sheet.

This is not a recommendation. Far from it. Nevertheless, the analogy suggests that Swiss reserves are far larger than required to safeguard the stability of the Swiss franc. They are surely larger than required to sustain the public's confidence in the intrinsic quality of the currency, and they are likewise larger than required to deal with unwanted fluctuations in the country's exchange rate.

16.5 Reviewing the reasons for holding reserves

What does this survey say about the main reasons for holding reserves? They can be assessed under four main headings:²³

1. Stabilising the domestic purchasing power of the domestic currency.
2. Stabilising the external purchasing power of that currency.
3. Safeguarding the economy and financial system against large shifts in capital flows and other shocks.
4. Safeguarding the economy against long-term adversity.

What can be said about each one?

²² SNB, Monthly Statistical Bulletin (2006), February.

²³ This list is not exhaustive. A large stock of reserves, for example, safeguards the option of returning one day to a fixed exchange rate. It may also bolster confidence in the domestic financial system.

16.5.1 Stabilising the domestic value of the currency

This was, of course, the rationale for the old gold standard, and it remains the favoured rationale of those who would limit the discretion of the monetary authorities by making them obey the strict constraints imposed by a currency board regime. In most industrialised countries, however, and in a growing number of developing countries, the same objective is achieved by granting operational independence to the central bank, but making price stability its primary objective. It is not always told how to define price stability, but there is not a large difference between the behaviour of central banks that are formally charged to pursue a fixed numerical target and those that are left to decide for themselves how to define price stability. At one time, democratisation was viewed as a threat to monetary orthodoxy; today, parliamentary accountability is viewed as a safeguard against imprudent behaviour by the central bank. One wonders, moreover, whether the general public, even its well-informed members, know or care about the composition of the central bank's balance sheet. There may be a residual attachment to gold in some countries, but the Swiss experience casts doubt on its influence. When the National Bank concluded that it could reduce by half the size of its gold holdings, there was a long debate about the best use of the proceeds, but no strong opposition to the sale itself.

16.5.2 Stabilising the external value of the currency

There are two fundamental reasons for questioning the wisdom of fixing the exchange rate for a country's currency and thus holding large reserves to defend that rate.

The first is the so-called 'impossible trinity'. It warns that a country cannot pursue an independent monetary policy when it has an open capital market and a firmly fixed exchange rate. If, for example, the central bank buys government securities with the aim of lowering the domestic interest rate, it will induce a capital outflow and will have to draw down its reserves to finance that outflow. Otherwise, its currency will depreciate. In the limiting case of 'perfect' capital mobility, the central bank can do no more than change the composition of its balance sheet. It will raise its holdings of government securities, but reduce by the same amount its foreign exchange reserves.

The second is the problem of distinguishing clearly between a transitory shock to the current or capital account and a long-lasting shock – one to which a country must adjust eventually. There may be reasons for resisting the exchange rate effects of a transitory shock; otherwise, the economy will have to pay the real costs of moving domestic resources around – shifting them

temporarily between the production of traded goods and the production of non-traded goods. Even in the case of a permanent shock, there may be cause to limit the size of the exchange rate change in order to limit the pass-through to domestic prices. This was indeed Ronald McKinnon's reason for urging very small open economies to maintain fixed exchange rates, and he still holds that view.²⁴ Prolonged intervention, however, risks delaying the response to a long-lasting shock, and the adjustment, when it comes, may then be more costly.

16.5.3 The precautionary motive

Most countries have sought to hold reserves larger than those that they would need to offset transitory shocks. The lower the level of reserves, the greater the risk of a run on the remaining stock once reserves begin to fall. This was most certainly true in the Bretton Woods era, when governments maintained pegged exchange rates, and the habit did not die with the move to floating rates. It was reinforced, however, in the 1990s, by the frequency and cost of the currency crises that beset so many emerging market countries. The response of the East Asian countries, discussed above, was perhaps extreme, reflecting their belief that they had been mistreated by the IMF, but several other emerging market countries also built up their reserves, including some that did not suffer crises, such as India, Singapore and South Africa.

Holding huge reserves, however, is a second-best response to the risks that face those countries. It would be wiser to address the fundamental reasons for their vulnerability, most notably the weaknesses of their financial systems and of the institutions changed with prudential supervision. Holding reserves to buy protection against future crises can be very costly when it is deemed to diminish the need for dealing with the underlying causes of those crises. There is, to be sure, the need for protection against contagion, but that need can best be met by differentiation, by making one's country a safer place for domestic and foreign investors alike.

Mutual insurance may be helpful, and the East Asian countries have started to provide it by way of the so-called Chiang Mai Initiative. It does not yet amount to full-fledged reserve pooling, but the reforms approved in 2005 represent important steps in that direction.²⁵ The thirteen participating countries agreed in principle that drawings on their network of bilateral swap

²⁴ Cf. McKinnon (1963, 2005).

²⁵ On the Chiang Mai Initiative, cf. Henning (2002); on the 1995 agreement, cf. Joint Ministerial Statement (2005). The thirteen participants are the ten members of the Association of Southeast Asian Nations (ASEAN), plus China, Japan, and Korea.

agreements, under which they can acquire short-term reserve credit from their partners, should be liberalised in three ways. Firstly, by adopting a collective decision-making mechanism as a step towards full multilateralisation; secondly, by enlarging the swap lines themselves; and finally, by doubling the amount that a country can draw under its various swap lines without having an IMF programme in place.

In the longer run, the East Asian countries could move to outright reserve pooling, reducing the need for each of them to hold huge reserves for precautionary purposes. At that point, even earlier, they might also contemplate another option – using some of their reserves to create an Asian Investment Corporation, which would buy, hold and trade a wide range of financial assets and thus earn more than they can earn on conventional reserve assets.²⁶

16.5.4 Guarding against adversity

Highly developed countries with strong financial sectors need not fear the onset of capital account shocks like those that have faced so many emerging market countries in recent years. Yet even the wealthiest countries are not immune to adversity – to unforeseen calamities or the eventual depletion of the natural resources that are the principal source of their export earnings. There is therefore another dimension to the precautionary motive, namely the need to hold a large stock of external assets to offset the effects of economic adversity.

Some of the oil-producing countries have done just that. Norway has sought to insure against the depletion of its oil and gas reserves, not only by acquiring the large reserves held by its central bank, but also by amassing a huge fund financed from the government's own share of Norway's revenues from oil and gas exports. The fund holds foreign assets, including equities, and its assets exceeded 180 billion US dollars in mid-2005. It is meant to deal with two possibilities – a large fall in the price of oil, and the eventual depletion of Norway's oil and gas fields, in which case the return on the invested capital will be used for the benefit of future generations. The fund is managed by the central bank, but segregated from the bank's own assets. (In Singapore, by contrast, some of the central bank's reserves are managed by the Government Investment Corporation, which also manages the government's own funds, including the huge Central Provident Fund. The Government Investment Corporation holds a very wide range of assets, including investments in venture capital and private equity funds.)

Other oil-exporting countries, especially the small Gulf States, have

²⁶ For more on this option, cf. Genberg et al. (2005).

followed a different strategy, but with the same objective as the Norwegian government. Instead of investing in financial assets, they aim at diversification; they seek to become regional financial centres, much like Singapore, and to attract tourism with flamboyant projects.

Switzerland and other industrialised countries do not confront the problems faced by the oil-producing countries, but they may also face grave risks, including the risks of a virulent pandemic, a nuclear accident, and severe climate changes caused by global warming.

Two questions arise at this juncture: How should funds held for this broad precautionary purpose be invested? How should the funds be managed – by the central bank or by a special-purpose entity? Several central banks, including the SNB and European Central Bank, have lengthened the list of assets in which they invest their reserves. They hold long-term bonds, including corporate bonds, and some of them hold equities.²⁷ When the assets are held by central banks, however, and are commingled with the banks' other reserve asset holdings, they may not be invested aggressively enough to furnish insurance against major calamities. Furthermore, most central banks cannot reinvest all of their net income; they must turn much of it over to their countries' governments.²⁸ It may therefore be better to transfer the reserves that are not needed for more ordinary purposes to a special-purpose entity.

No such decision should be taken unless the central bank has itself concluded that its reserve holdings are larger than required to fulfil its obligations, much as the SNB decided that it could safely dispense with half of its gold holdings. Furthermore, the new entity created to hold the 'excess' assets must have a well-defined mandate. What constitutes a true calamity, and how should the entity use its assets to cope with the economic effects? The decision cannot be left to the managers of the assets or to the discretion of the government. It may therefore be best to create two decision-making bodies – one to manage the assets themselves and another to decide when and how to use them or, at least, to make a recommendation subject to parliamentary approval.

When the National Bank decided to sell half its gold holdings, it opposed a proposal that the proceeds be vested in a special-purpose entity. It did so because "the resulting pressure to generate as high a profit distribution as

27 Financial Times (2005), 19–20 March, p. 3; (2005), 27 April, p. 2. The Swiss National Bank began to hold equities in 2005.

28 The SNB is allowed by law to retain a portion of its earnings for it to build up its reserves at a rate roughly equal to the growth rate of the national economy; this has enabled it to build up its foreign exchange reserves; this helps to explain why its reserves have grown during the last decade, when it has not intervened in the foreign exchange market with the aim of influencing the exchange rate.

possible could hinder it in its task of pursuing an independent monetary policy”.²⁹ It may have had reason to fear such pressure, but the pressure would perhaps be lessened if the decision at issue were not concerned with the conduct of gold sales, but rather with the one-off transfer of assets that the central bank itself had decided to relinquish. When the actual use of those assets was needed, however, and had to be converted into the country’s own currency, it would surely be necessary to consult the central bank regarding the timing and speed of the conversion.

There is, of course, an alternative to this strategy. A country with excess reserves could run them down deliberately, much as Switzerland ran down its gold holdings. The Swiss gold sales, however, took place within the framework of a multilateral agreement.³⁰ It would be hard to forge a comparable agreement regarding large outright sales of a reserve currency; it would no doubt require the explicit acquiescence of the country issuing the currency involved. In the absence of an agreement of this sort, uncertainty about the size and duration of the sales might lead to expectations of continuing sales, cause the country’s currency to appreciate against the currencies that were being sold, and might then generate objections from key export and import-competing industries adversely affected by the appreciation of the domestic currency.

In the case of developing countries, reserves deemed to be excessive should be spent, not set aside. They could and should be used for infrastructural investment, especially for projects with substantial import content. A proposal of this sort was made by India’s Planning Commission, was modified thereafter, but was not fully implemented.³¹ Although the developing countries face the possibility of major calamities, more acutely perhaps than most developed countries, they can less readily afford to hold very large reserves, let alone invest excess reserves in the manner just proposed.

16.6 Conclusion

There is no simple answer to the question posed by the title of this paper. The large analytical literature on the demand for reserves is not especially helpful, because it assumes implicitly that what the ‘typical’ country actually

29 SNB, 97th Annual Report (2004), p. 73.

30 The decision by the National Bank to sell half its gold holdings was taken before this agreement was reached, and the large size of its share in the total gold sales authorised by the agreement reflected that prior decision. The agreement thus had the effect of assuring the market that other major central banks would not embark on unrestrained gold sales in the wake of the Swiss sales; it did not truly limit the size of the Swiss gold sales.

31 Financial Times (2004), 16–17 October, p. 2; and the author’s correspondence with Montek Singh Ahluwalia, Head of the Planning Commission.

holds is what it really needs to hold. The amount it needs to hold, moreover, should presumably depend on the country's exchange rate regime, yet some of the countries that rarely intervene to stabilise their exchange rates hold far larger reserves than some other countries that intervene more frequently and on a larger scale. Compound interest also plays a role. Countries with large reserves will earn even more reserves unless they sell off the interest income on their reserve assets. History goes a long way to explaining the cross-country variation in reserve holdings, as does development strategy. It is equally obvious, however, that a fair number of countries hold more reserves than they will need and should perhaps invest them more aggressively, some in real assets to promote development, others in less liquid sorts of financial assets, with the aim of maximising their long-term value to guard against contingencies they can now anticipate or against calamities they cannot now foresee.

Table 16.3
Foreign exchange reserves and related data for all countries, 2003

Country	Reserves in billions of US dollars	Reserves per capita (thousands of US dollars)	GDP per capita (thousands of US dollars)	Reserves as percentage of imports	Reserves as percentage of GDP	Reserves as percentage of banks' foreign liabilities	Imports as percentage of GDP
Industrialised countries							
Australia	29.97	1.52	25.93	33.66	5.86	18.59	17.40
Austria ¹	7.14	0.88	31.15	8.10	2.82	10.15	34.85
Belgium ¹	7.65	0.74	29.20	3.27	2.54	3.24	77.74
Canada	31.54	1.00	27.51	13.22	3.64	27.20	27.53
Denmark	36.00	6.72	39.60	64.16	16.96	32.62	26.44
Finland ¹	9.54	1.83	31.07	22.99	5.90	37.78	25.64
France ¹	23.12	0.38	29.27	6.25	1.31	4.23	21.01
Germany ¹	41.10	0.50	29.14	6.84	1.71	5.71	24.98
Greece ¹	3.84	0.35	15.73	8.66	2.23	13.86	25.70
Ireland ¹	3.43	0.86	38.49	6.43	2.25	1.01	34.95
Italy ¹	26.05	0.45	25.57	8.78	1.77	12.93	20.22
Japan	652.79	5.11	33.64	170.76	15.20	119.43	8.90
Netherlands ¹	7.18	0.44	31.75	3.09	1.40	2.19	45.35
New Zealand	4.24	1.09	20.62	22.88	5.29	10.14	23.14
Norway	35.89	7.92	48.70	193.87	16.27	51.67	17.88
Portugal ¹	5.25	0.52	14.64	12.86	3.56	6.22	27.71
Spain ¹	17.51	0.43	20.42	8.43	2.09	7.56	24.78
Sweden	18.01	2.03	33.96	21.83	5.97	7.77	27.37
Switzerland	45.56	6.35	44.88	49.57	14.16	8.33	28.56
United Kingdom	35.15	0.59	30.34	9.23	1.96	1.10	21.17
United States	39.72	0.14	37.42	3.05	0.36	4.88	11.84

1 Reserves exclude those held by the European Central Bank; banks' foreign liabilities exclude those to euro area residents.

Country	Reserves in billions of US dollars	Reserves per capita (thousands of US dollars)	GDP per capita (thousands of US dollars)	Reserves as percentage of imports	Reserves as percentage of GDP	Reserves as percentage of banks' foreign liabilities	Imports as percentage of GDP
Developing countries							
Algeria	32.94	1.04	2.08	270.96	49.76	6,171.44	18.36
Argentina	13.14	0.34	3.38	95.02	10.13	139.41	10.67
Bahrain	1.67	2.32	13.34	32.70	17.42	85.84	53.26
Bangladesh	2.57	0.02	0.35	27.05	4.98	588.85	18.41
Bosnia & Herzegovina	1.79	0.43	1.69	37.77	25.52	113.91	67.57
Botswana	5.25	2.93	4.14	319.40	70.72	5,535.16	22.14
Brazil	49.11	0.28	2.83	96.85	9.71	160.58	10.03
Bulgaria	6.17	0.78	2.52	56.91	30.97	645.08	54.41
Chile	15.21	0.96	4.64	78.48	20.73	314.20	26.42
China	403.25	0.31	1.08	97.62	28.55	757.68	29.25
Colombia	10.19	0.23	1.81	73.33	12.74	1,497.22	17.37
Costa Rica	1.81	0.43	4.19	23.58	10.33	200.44	43.82
Croatia	8.19	1.85	6.50	57.64	28.44	100.37	49.34
Cyprus	3.15	3.94	16.46	70.74	23.96	30.54	33.87
Czech Republic	26.29	2.57	8.83	51.48	29.08	260.49	56.48
Egypt	13.40	0.19	0.97	123.75	19.29	377.13	15.59
El Salvador	1.91	0.29	2.29	43.51	12.76	121.16	29.33
Guatemala	2.82	0.23	2.01	43.54	11.40	385.85	26.19
Hong Kong	118.36	16.79	22.22	51.04	75.55	44.33	148.02
Hungary	12.02	1.22	8.38	25.28	14.51	241.03	57.42
India	97.62	0.09	0.56	137.26	16.40	N/A	11.95
Indonesia	34.74	0.16	0.95	82.24	16.68	934.87	20.28
Israel	25.78	4.01	17.14	71.05	23.39	118.27	32.92
Ivory Coast	2.23	0.13	0.84	67.14	15.87	1,059.13	23.64
Jordan	5.19	0.95	1.82	90.43	52.18	118.60	57.71
Kazakhstan	4.24	0.27	1.94	50.36	14.11	107.15	28.02
Kuwait	6.64	2.64	16.57	60.44	15.91	101.67	26.32
Lithuania	3.37	0.98	5.34	35.06	18.37	185.60	52.40
Malaysia	43.47	1.78	4.25	53.04	41.90	464.00	79.00
Mauritius	1.52	1.24	4.63	64.26	26.87	674.06	41.82
Mexico	57.74	0.56	6.17	33.87	9.04	53.78	26.69

Country	Reserves in billions of US dollars	Reserves per capita (thousands of US dollars)	GDP per capita (thousands of US dollars)	Reserves as percentage of imports	Reserves as percentage of GDP	Reserves as percentage of banks' foreign liabilities	Imports as percentage of GDP
Morocco	13.63	0.45	1.43	103.94	31.18	3,311.01	30.00
Nigeria	7.13	0.06	0.45	65.68	12.81	4,615.53	19.50
Oman	3.47	1.22	7.61	52.75	15.98	294.77	30.29
Pakistan	10.69	0.07	0.54	82.03	12.81	2,238.57	15.61
Peru	9.78	0.36	2.23	118.58	16.14	1,071.02	13.61
Philippines	13.52	0.17	0.99	34.23	17.05	178.38	49.80
Poland	31.73	0.82	5.43	46.54	15.14	251.02	32.54
Qatar	2.76	4.52	33.49	56.32	13.50	262.46	23.98
Romania	8.04	0.36	2.57	33.49	14.02	363.13	41.87
Russia	73.17	0.51	3.00	89.61	17.01	315.96	18.98
Saudi Arabia	17.66	0.73	8.79	47.78	8.30	165.12	17.36
Singapore	94.97	22.35	21.49	74.26	103.98	158.71	140.01
Slovak Republic	11.68	2.16	6.05	49.41	35.75	371.78	72.34
Slovenia	8.34	4.21	14.01	60.23	30.07	181.94	49.93
South Africa	6.16	0.14	3.67	15.16	3.73	61.14	24.58
South Korea	154.51	3.24	12.75	86.40	25.41	353.65	29.41
Sri Lanka	2.19	0.12	0.96	32.89	12.03	254.06	36.57
Tanzania	2.02	0.05	0.28	139.60	19.64	31,265.56	14.07
Thailand	40.97	0.65	2.28	54.16	28.66	482.12	52.91
Trinidad & Tobago	2.26	1.74	8.27	57.99	20.99	234.42	36.20
Tunisia	2.91	0.30	2.54	26.73	11.65	171.33	43.59
Turkey	33.79	0.47	3.36	51.48	14.10	247.71	27.38
Ukraine	6.71	0.14	1.02	29.14	13.58	390.35	46.61
Uruguay	2.08	0.61	3.27	94.91	18.58	94.79	19.57
Venezuela	15.55	0.60	2.68	168.40	22.55	16,526.65	13.39
Vietnam	6.22	0.08	0.49	388.12	15.73	908.50	4.05
Yemen	4.98	0.25	0.57	140.06	43.91	23,009.69	31.35

Source: IMF, International Financial Statements (2004).

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17 Switzerland and Euroland: European Monetary Union, monetary stability and financial stability

MARTIN HELLOWIG

17.1 Introduction: where did we come from?

17.1.1 *Early expectations of instability from European Monetary Union*

Sometime in the mid-1990s, when I was still teaching at the University of Basel, a friend there remarked that, if the European Monetary Union (EMU) was really going to come, Swiss monetary policy was going to be in for some difficult times. Market participants would interpret the coming of EMU as an end of the commitment to monetary stability in Frankfurt.¹ They would try to move into harder currencies, like the Swiss franc, as they had done in past episodes of turbulence in foreign exchange markets. The Swiss National Bank would again be faced with the difficult choice of whether to accommodate the demand for Swiss francs or to let the Swiss franc appreciate. The first alternative would endanger price stability, the second would endanger the competitiveness of Swiss industry in international markets. The dilemma would be all the more serious because, by contrast to the crises of the 1970s, the German mark would no longer be there to take some of the brunt of the speculation.

This prediction has not come to pass. The European Monetary Union did not bring with it a new era of monetary instability. The European Central Bank's (ECB) commitment to monetary stability seems as firm as that of the Bundesbank ever was. The markets have not shown any signs that they consider the euro to be less hard than the German mark, certainly not in relation to the Swiss franc. In the years 1997–1999, when the European Monetary Union was put into place, the Swiss franc was actually weaker than before. There has been nothing like a recurrence of the turbulences of the 1970s, or of 1992, in foreign exchange markets, at least not in Europe or the United States. By comparison to the preceding two decades, monetary stability in Europe, both internal and external, has been remarkable.

1 Such an interpretation would certainly have been consistent with the predictions of German scholars opposed to EMU. Cf., for instance, the manifesto 'Die Europäische Währungsunion führt zur Zerreißprobe' by 62 academic economists in the *Frankfurter Allgemeine Zeitung* of 11 June 1992.

17.1.2 *Experience of monetary instability in the 1970s*

However, at the time when the prediction was made, it reflected the experience of the preceding two decades. These decades had been marked by monetary instability and by disputes on the proper role of monetary policy in a world of flexible exchange rates. The demise of the Bretton Woods system of fixed exchange rates had eliminated the need to subordinate national monetary policies to the maintenance of exchange rates. In many countries, this freedom was used to greatly expand the money supply, partly in order to smooth over the effects of ‘shocks’ like the 1974 oil price increase, and partly in order to accommodate public sector financing needs.² These policies greatly undermined monetary stability and caused double-digit inflation for quite some time in several OECD countries. Given the differences in monetary growth and inflation across countries, they also generated strong pressures for exchange rate adjustments.

During this period, we came to appreciate the importance of expectations – inflation expectations as a determinant of long-term nominal interest rates, exchange rate expectations as a determinant of portfolio adjustments in international exchanges, and, perhaps most importantly, expectations about the viability of a country’s policy stance as a determinant of inflation and exchange rate expectations. Some of the turbulences in foreign exchanges can probably be explained by the way in which market participants came to appreciate the systemic nature of the relation between the various parts of economic policy, inflation and exchange rate movements, and were trying to figure out how these systems were evolving in the different countries. Given that the policies and policy rules themselves were in flux, so too must the market participants’ perceptions of them have been. As changing perceptions translated into portfolio adjustments, expectations themselves became a major determinant of market movements, giving rise to runs and to overshooting phenomena.³

2 There is no need to disentangle the different motives – any policy of keeping interest rates from rising ‘too much’ will effectively promote all of them. Any such policy will also promote the interests of important parties in the private sector, for instance, financial institutions whose financing costs are sensitive to interest rate changes, or the financial press whose advertising and subscription business depend on financial sector activity.

3 A striking example of the autonomous role of expectations is provided by the increase in US long-term interest rates in January 1981, two months after the election and before the inauguration. This increase seems to have been caused by an appreciation that President Reagan would get his tax cut proposal through Congress and that this held promises for a significant debt burden in the future. Cf. Branson (1987).

In the 1970s, the problem of exchange rate adjustment was usually seen in terms of a need to revalue the German mark and, even more so, the Swiss franc relative to most other currencies, most importantly the US dollar, the pound sterling, the French franc and the Italian lira. For some of the other countries, it looked as if the problem was due to the restrictiveness of German and Swiss monetary policy after 1974, rather than to their own monetary ease. In countries with downward pressures on exchange rates, this caused a certain amount of resentment. For Germany and Switzerland, the ongoing revaluation pressures posed the problem, mentioned above, of how to avoid the contractionary impact of 'excessive' currency appreciation without abandoning monetary stability?

17.1.3 The ERM experiment

The initiative of Valéry Giscard d'Estaing and Helmut Schmidt that led to the creation of the European Exchange Rate Mechanism (ERM) and the European Currency Unit (ECU) in 1979 can be seen as a response to these perceived difficulties. For France, the ERM held the promise of reducing the Bundesbank's ability to pursue monetary stability without regard for the effects of its policies on France. For the German Chancellor, the ERM, with its bundling of 'hard' and 'soft' currencies, provided the prospect of reducing exchange rate pressures on the German mark; in the wake of the 1980 election, he may also have been attracted by the idea of reducing the Bundesbank's ability to implement a restrictive monetary policy.⁴

Somewhat ironically, the problem of pessimism vis-à-vis the dollar and the pound disappeared around 1980, just after the ERM was created. For the dollar, the proximate causes of the change in market perceptions seem to have been the 1979 turnaround in monetary policy and the outcome of the 1980 election; for the pound, the income from North Sea oil and the outcome of the 1979 election. Throughout the 1980s (and 1990s), the ERM had more to do with relations between currencies within the European Community (EC) than with their relations to outside currencies.

Within the ERM, there was an asymmetry in adjustment rules which put most of the burden of adjustment on central banks with currencies that were subject to devaluation pressures. Central banks with currencies subject to revaluation pressures were under much less of an obligation to change their policies. Whatever the intentions of the initiators may have been, the

4 This is the view of Vaubel (1987, 2001). For a less critical view of the ERM initiative, cf. Neumann (1999), pp. 297 et seq.; Bernholz (1999), pp. 754 et seq.

Bundesbank retained its ability to pursue the monetary policy of its choice.⁵ The central banks of other participating countries were forced to adjust, at least if they wanted to avoid an exchange rate realignment. In the governments of these countries, resentment of the Bundesbank's strength and 'unreasonableness' grew apace. As for the central bankers, e.g. in Paris or Rome, they were perhaps not so unhappy to be able to tell their ministers that, much as they would like to accommodate their demands, doing so would endanger the position of the currency in the ERM and, surely, the minister would not want to induce the public perception of failure that goes with a devaluation.

17.1.4 From ERM to EMU

Against this background, in the late 1980s and early 1990s, the creation of the European Monetary Union could be seen, and may indeed have been intended, as yet another attempt to eliminate the independence and to reduce the power of the Bundesbank and to move to a regime that would provide for a more accommodating monetary policy.⁶ The predictions from the early and mid-1990s that I cited above were based on precisely this interpretation. However, as in the case of the ERM, the development of EMU has taken a different turn. The ECB today seems even further removed from the political fray, perhaps even more independent, than the Bundesbank ever was. It certainly does not give the impression of putting any less weight on monetary stability.

From the perspective of Switzerland, it must be reassuring that the coming of EMU did not bring a return to the monetary instability of the 1970s. However, one may wonder how robust the present arrangement is. One may also wonder about the challenges that the position of an island in Euroland is posing. In the following, I will first review developments in the European Monetary Union, with a focus on the sources of the commitment to monetary stability and on the robustness of this commitment. Thereafter, I will consider the challenges that arise for Switzerland and for Swiss monetary policy from its position as a small open economy in the middle of Euroland. Finally,

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- 5 Hagen (1999), pp. 431 et seq., suggests that the ERM actually reinforced the Bundesbank's commitment to monetary targeting. In an institutional setting where exchange rate commitments could undermine the autonomy of monetary policy, it was all the more important for the Bundesbank to extol the objective of price stability, using monetary targeting as a transparent means to communicate its intentions to the markets and to its partners in the ERM. Cf. also Baltensperger (1999).
- 6 For this interpretation, cf. Vaubel (2001), pp. 152 et seq.

I will consider some challenges that arise from Switzerland's position as an international financial centre, home to two of the world's largest financial institutions.

17.2 How firm is the commitment to monetary stability in Euroland?

17.2.1 A surprise for Oskar Lafontaine: central bank independence after Maastricht

Following the change of government in Germany in 1998, Oskar Lafontaine, the new social democratic Minister of Finance, indicated that he was fed up with the restrictive monetary policy of the Bundesbank and would see to it that this was changed. If people at the Bundesbank were not going to comply voluntarily, he might push for a change in the Bundesbank Law in order to reduce or eliminate the Bundesbank's independence. Threats of this sort had already been heard in the final months of the previous social democratic government in 1982. By contrast to 1982, however, in 1998, the Bundesbank's status was protected by the Maastricht Treaty and by the German Constitution. Moreover, the responsibility for monetary policy was about to shift to the ECB, whose independence from government interference was also protected by the Maastricht Treaty. Lafontaine's threat against the Bundesbank thus proved to be an anachronism.

In the process of creating the European Monetary Union, the position of central banks relative to governments and legislatures was significantly strengthened. In countries where central banks had been subordinated to governments before 1992, central bank independence was introduced as a prerequisite for EMU participation. In Germany, where the Bundesbank had been independent since 1948, central bank independence, together with an obligation to promote price stability, was raised from the status of an ordinary law to the level of a constitutional provision. Given the view, which was prominent among German economists before 1998, that EMU was a device to conquer the Bundesbank, there is a certain irony in observing that EMU itself ended up protecting the Bundesbank against the ambitions of Mr Lafontaine – and against the impact of generation change, from those who had personally experienced the hyperinflations of the 1920s and 1940s to those who had grown up on post-1968 visions of democratic engineering.

As the new institutions developed, central bankers all over Euroland became stakeholders in them. Enjoying the independence with which the Maastricht Treaty provided them, they came to see the creation and maintenance of monetary stability as their task. Whereas in the 1980s and early

1990s, the ERM was often discussed in terms of the Bundesbank imposing its will on everybody else, the policies of the ECB today are not identified with any one country. When Jean-Claude Trichet followed Wim Duisenberg as President of the ECB, there was no intimation that this would mean a change in policy stance.

The change in institutions was made possible by a change in attitudes towards monetary policy and towards the role of the central bank. After almost two decades of instability, people were upset about high and variable inflation rates, and there was some appreciation that stability might also have its advantages. As institutional safeguards translated into greater credibility, lower inflation expectations and lower nominal interest rates, even governments came to appreciate that such safeguards might have intrinsic merits, although they cut into their own power; after all, the reductions in nominal interest rates greatly reduced their debt service obligations and made the deficit criteria of the Maastricht Treaty much easier to reach.⁷

One may be sceptical as to how long such insights will remain fresh. The evolution of the large Member States' attitudes towards public deficits and public debt over the past few years suggests that at least this lesson of the 1980s was unlearned right after the euro was introduced. However, at this point, this is just a matter of fiscal policy. It undermines the Stability and Growth Pact, but not, at least not yet, the institutional framework for the determination of monetary policy. Even as the discussions about the German, French, etc. violations of the deficit criterion of the Stability and Growth Pact and about the need and scope for reforming the Pact have proceeded, there has not been much public political discussion of the ECB's monetary policy.

17.2.2 Depoliticisation of monetary policy

Public discussion of monetary policy has been strangely depoliticised. We have seen journalists reporting about exchange rate movements as if they were writing about sports events, treating the euro's decline in 2000 relative to the US dollar as if the euro was falling behind in some kind of race. We have also seen technical discussions on the appropriate level of transparency, on the two-pillar approach, and on the assessment of unanticipated growth in

7 For a summary of these developments, cf. Sapir et al. (2004), pp.60 et seq. Similar changes in attitudes and institutions also occurred in countries outside Euroland. However, the Maastricht process was unique in that it provided the Member States of the European Union with well-defined targets, to be reached within a predefined time span. Monitoring by the European Commission, the implicit threat of non-acceptance of treaty implementation by pre-1998 Germany, and the public visibility and prominence of the entire process provided strong incentives to try and reach the targets.

monetary aggregates at low inflation rates and low nominal interest rates. However, we have *not*, as yet, seen anything that might be compared to the massive attacks that Lafontaine and other German politicians raised against the Bundesbank in a previous era.

One reason for this depoliticisation lies in the supranational nature of the ECB as opposed to the national character of politics. The finance minister or head of government of Germany, France or Italy may be unhappy about the ECB's policy. However, he will find it difficult to make this dissatisfaction the subject of effective political discourse. Within official channels of communication, he is constrained by the statutes that guarantee the ECB's independence. Outside official channels of communication, in public discussion, he is constrained by the fragmentation of political audiences. A Dutch or Finnish audience will hardly listen to the French President or the German Chancellor complaining about the ECB. Indeed, in any such discussion, these national office holders would be told that monetary policy must consider the needs of Euroland as a whole, the Netherlands and Finland, as well as Germany, France and Italy. The smaller countries, in particular, have emerged as strong supporters of the ECB's independence and commitment to monetary stability.⁸

Euroland as a whole is simply too large and too heterogeneous for any one Member State government to be in a position to challenge the ECB seriously. Even the large Member States are reduced to introducing their substantive concerns through their personnel decisions, i.e. when they nominate members of the Executive Board or presidents of their own national central banks. However, the scope for doing so is very limited. Any one Member State influences only a small number of personnel decisions; moreover, socialisation among central bankers affects people's thinking, even if, initially, they come with other ideas.

17.2.3 *Is independence threatened by the European Commission?*

At this point, effective threats to the independence of the ECB are more likely to come from the European Commission than from the Member States. Being a supranational institution itself, the Commission can claim to be speaking for the European Union as a whole. Moreover, the Commission has

8 In this context, it is of interest to recall that, already in the mid-1970s, the left-of-centre governments of Austria and the Netherlands deliberately chose to align their currencies with the German mark. Appreciating their own smallness, they felt that the benefits for the governance of national economic policy far exceeded the costs of losing the opportunity to carry out their own monetary policies.

a long history of using its monopoly on policy proposals to expand its own executive powers at the expense of other institutions. In the past, it has mostly done so at the expense of national institutions.⁹ However, an expansion of competences at the expense of the ECB would also lie in the logic of the Commission's power aspirations.

In this context, it is of interest to note that, in the discussion about the Constitution for the European Union, in November 2003, Jean-Claude Trichet, the President of the ECB, found it necessary to protest publicly to the President of the Council of Ministers of the European Union against a proposal, which he understood to have been made by the Commission, that would have simplified the procedure for changing articles 10–12 of the Statute of the European System of Central Banks and the European Central Bank.¹⁰ These articles deal with the Governing Council and the Executive Board of the ECB and with their responsibilities. Under existing rules, they can only be changed by a procedure that involves parliamentary ratification in all Member States. The contested proposal would have provided for the possibility of changing them by a unanimous vote of the Council of Ministers, acting upon a proposal by the Commission, after consultation of the European Parliament and the ECB. Such matters as the Executive Board members' term of office, limitation to one term, conditions of employment and procedures for dismissal, all of them central to personal independence, would have become material for new legislation by the Commission and the Council of Ministers, without any effective control by any parliament whatsoever.

President Trichet's protest was successful. The contested proposal did not make it into the Constitution. Indeed, to the outsider, its status in the deliberations is unclear. It does not seem to have appeared in any official public document other than President Trichet's letter to the President of the Council of Ministers. The Commission's official comments on the draft constitution only mention that the rules for appointing members of the Executive Board of the ECB are one of the "clear-cut cases where qualified majority voting should be introduced". The Commission also remarked that "the modus operandi of the Governing Council of the ECB and the operational decision-making framework for monetary policy should be reviewed to ensure that decisions remain effective in a euro zone that is set to expand".¹¹

9 A paradigmatic example is the elimination of national competences in the area of antitrust policy under the 'modernisation' provided by Council Regulation (2003).

10 European Central Bank (2003c).

11 European Commission (2003), pp. 7, 9.

The contested proposal is in line with these suggestions. The fact that it seems to have appeared outside, rather than inside, the official consultation process on the Constitution¹² is itself perhaps a testimony to the political stature of the ECB as a guarantor of monetary stability in the European Union.

17.2.4 How robust is the ECB's position?

The importance assigned to monetary stability and the stature of the ECB are also apparent in the fact that, like the EC Treaty, the final version of the Constitution names price stability among the Objectives of the European Union. The Constitutional Convention had dropped this objective, but following the ECB's intervention, it was reinstated.¹³

Nevertheless, one must ask how robust the present constellation is. The consolidation of the ECB's stature that we have seen has been favoured by luck. By comparison to the 1970s and 1980s, inflation rates, as well as nominal interest rates, were low and have remained so; therefore, the choices that the ECB faced were less difficult – and less likely to raise political controversy – than the choices faced by the Bundesbank and the Swiss National Bank in 1974 or 1982, or by the Federal Reserve in 1979 and 1989. The ECB has also been lucky in that there has not been a major financial crisis in Europe. Whereas the economic downturn of the early 1990s was accompanied in many countries by bank failures and banking crises, the burst of the stock market bubble and the economic downturn after 2000 did not cause a financial crisis that would have required an intervention by the lender of last resort and that might have put the unclear relation of national banking supervision and supranational central banking to the test. It remains to be seen what happens if events put the ECB in a position where it must take difficult and controversial choices.

The ECB has also been lucky in that political attention in the past few years has been directed elsewhere. Economic policy debates in European countries have focused on the implications of demographic change, on structural reforms and economic growth, on labour market reforms and social policy, i.e. on the real side of the economy. In part, this development reflects the withdrawal of monetary policy from the national policy domain. In part,

12 President Trichet's letter pointedly noted that, under existing rules, it would be necessary to formally submit such a proposal to the ECB for consultation before determining the amendment to the Treaty that was to be made.

13 Points where the ECB was less successful involved matters of detail, emphasis, or legal clarity, hardly material for a clear-cut discussion about central bank independence and the commitment to price stability, cf. European Central Bank (2003b).

it also reflects the urgency of these 'real' problems and the recognition that they cannot be solved merely by easy money.

At some point in the medium term, however, we are likely to see a resurgence of the proposition that low growth in Europe is at least partly due to the strictness of monetary policy and that Europe needs a more growth-oriented monetary policy. I shouldn't be surprised if, sometime over the next few years, such a criticism of the ECB was going to be raised by the European Commission, as well as the governments of the larger Member States. It would certainly provide the European Commission with an argument for more of a role for itself, alone or in combination with the Council of Ministers.

Even without any change in the Statute of the European System of Central Banks and the European Central Bank, a possible initiative might concern the competence for setting an inflation bound or inflation target. The Commission and Council might want to reserve this competence for themselves, along the lines of the UK model. After all, the Maastricht Treaty, which was written before the UK model was invented, is silent on the question of who is to define what 'price stability' means. There is no clause saying that central bank independence covers the competence to define 'price stability', as well as the competence to monetary policy to attain price stability. Given the silence of the Treaty on this point, there is room for putting this question on the agenda without being perceived as openly calling for a change of regime. The outcome of the ensuing discussion is more likely to be a matter of political convenience than of legal interpretation of the Treaty.

However, even if the competence to define price stability were to be transferred to the Council, acting upon a proposal of the Commission, I would not expect this to have any dramatic effect. The inflation bound might be changed into an inflation target, its numerical value might be raised from 2 percent to 3 percent, but this is hardly dramatic. A more dramatic change, e.g. a move to an inflation target of 5 percent or more, seems unlikely. Such a move would be hard to justify and hard to communicate in a framework in which 'price stability' is the central objective of monetary policy. After all, the reasons why some governments are tempted by the prospects of an easy monetary policy have a lot to do with the discretionary nature and the intransparency of the inflation tax and the difficulties of holding the government accountable for this tax. If an inflation target has to be openly announced, this temptation is much reduced. One may even speculate that such an arrangement might give the finance ministers a greater political stake in the pursuit of price stability and might reduce their tendency to criticise the central bank when interest rates are raised.

17.2.5 The problem of fiscal instability

In the immediate future, however, the greatest question marks concern fiscal policy. From the conclusion of the Maastricht Treaty to the creation of the European Monetary Union, we have seen an enormous amount of fiscal consolidation. Since then, the trend has been reversed. The large Member States, in particular, have been running large deficits and have been building up debt again. The disciplining force of the prospect of Monetary Union is missing. The Stability and Growth Pact has not provided an effective substitute. Because the original rules of the Pact were rather crude, many economists feel that the greater flexibility under the new rules is to be welcomed. However, beyond all questions of rules and rule interpretations, the key development has been the realisation that the Pact itself is a dead letter if one of the large Member States chooses not to abide by it.

The failure of the Stability and Growth Pact would not matter if the insulation of monetary policy from fiscal concerns were so well established that it could safely be predicted to persist even if a large Member State went into default on its euro-denominated debts. In such a regime, fiscal policy and public indebtedness would be purely national concerns. Default on 'domestic' sovereign debt would be a possibility, just like default on foreign sovereign debt. Fiscal discipline would be a matter of relations between the individual states and the financial system, i.e. the people and institutions that put up the money to finance the public deficits. A lack of fiscal discipline would induce the financial system to first impose a premium on the interest rates at which funds are provided and to eventually cease lending altogether. The workings of such a system are illustrated by the experiences of individual states in the US or of individual cantons in Switzerland.

The system works differently if there is some prospect that sovereign debts might be monetised. Monetisation avoids default in a legal sense, but imposes a loss of value on the owners of securities that are denominated in that particular currency. If markets anticipate this possibility, they will again impose a premium on the interest rates at which they provide funds. Thus, in the 1970s and 1980s, governments with insufficient fiscal discipline had to cope with high nominal interest rates as markets were anticipating monetisation of the debt and subsequent inflation. Foreign exchange markets also took notice and signalled their views by putting pressure on the exchange rate. Both of these market reactions provide some incentives for fiscal discipline even when monetisation of debt is possible.

However, in a monetary union, these mechanisms are weakened. If monetisation of national debts is a possibility, a country with insufficient fiscal

discipline exerts an externality on the other members of the system. To the extent that markets anticipate the monetisation of national debts, they raise nominal interest rates for *all* nominal securities. Foreign exchange market reactions concern the monetary union as a whole, and *not* simply the Member State that is responsible. At least initially, therefore, a national government may find it more attractive than before to avoid hard choices by running into debt. The penalties for such a policy are at least partly borne by the other members of the monetary union.

Underlying these concerns is a fundamental contradiction between the notion of supranational sovereignty over monetary policy and the notion of national sovereignty over fiscal policy when there is no hard and fast provision for what happens when the fiscal policy is not viable and monetisation – or some other form of ‘supranationalisation’ of debt – is the only alternative to outright default. This contradiction is even deeper than the well-known traditional problems of sovereign borrowing in foreign currencies. Any sovereign borrowing raises the question of what enforcement mechanisms might be effective, but sovereign borrowing by the member of a monetary union raises the additional question of what the roles of the union institutions and the other union members are when the member state in question is unable to meet its obligations.

To be sure, in the context of the European Monetary Union, the Maastricht Treaty provides for a clear insulation of the ECB from pressures generated by the Member States’ fiscal policies. However, in thinking about the issue, one must go beyond the existing legal texts and ask how the Union’s political and legal institutions will react to a crisis when it arises. After all, this is not the first contradiction that arises in the context of European integration from a lack of clarity in the division of responsibilities between national and supranational institutions. If it becomes virulent, it will be dealt with like others have been dealt with before, by a mixture of muddling through under existing rules and of rule adjustment. The benefits of being part of the venture altogether have always been felt to be so large that nobody was willing to break the system. I would therefore expect that, in a clutch, there will be some give-and-take involving the provision of some assistance to Member States that are in trouble in return for the installation of a more effective supranational control mechanism for fiscal discipline.

In the course of such dealings, the ECB and its role are likely to be part of the negotiating mass. At that point, the institutional safeguards provided by the Maastricht Treaty can be less than airtight. As part of a larger package, negotiated between the Commission and the Member States, a revision of the

basic constitutional rules of the European Monetary Union may not be impossible, especially if the revision goes along with the prospect of substantial improvements in the governance of fiscal policy. For such a package, which national parliaments have to approve wholesale or not at all, the requirement of parliamentary ratification in all Member States is rather less of a hurdle, because most national parliaments will be afraid of blocking a package that will surely be announced as yet another major step in European integration.

Even if the Treaty is not changed, there may be a legal issue: Could it be that a court of justice asserts that, first, in the name of higher principles of civil law, any state is legally obliged to fulfil its obligations on its domestic debts even if this requires upending the central bank's independence, and, second, in the name of solidarity within the European Union, the ECB is obliged to assist a Member State in avoiding default on its domestic, i.e. euro-denominated, debts? Given the treatment of such questions by the Constitutional Court in Germany, I believe that this possibility cannot be altogether ruled out.

Up to now, financial markets have hardly differentiated between the Member States of the European Monetary Union. Despite significant differences in debts and deficits, there are hardly any differences in the interest rates that different Member States have to pay.¹⁴ This might be due to market participants anticipating that, in the event of a crisis, some kind of 'supra-nationalisation' of debts will occur as a matter of course. They might also consider that the fiscal consolidation of the 1990s is still providing so much of a buffer that the prospect of such a crisis is still quite remote. At this point, therefore, the question of what incentives for fiscal discipline the system provides to Member State governments is very much up in the air.

17.2.6 The role of the central bank in a large, heterogeneous currency area

Assuming that the current institutional set-up will be maintained for some time, what are the implications for monetary policy? In the first place, the depoliticisation that has taken place is likely to have its effects on the spirit in which monetary policy itself is being carried out. The Bundesbank had always been part of the German political system, posing as a paragon of stability and exhorting the other major players in Germany – the trade unions and the government – to show more discipline. It played this role most emphatically in the final inflationary phases of a boom turning into a recession

¹⁴ For an empirical analysis of risk premia in European government bond markets, before and after EMU, cf. Bernoth et al. (2004).

in 1974, 1982 and 1992. Given its own contributions to the preceding expansions and given the strictness of the ensuing monetary tightening, it thus strengthened the procyclical elements in the overall macroeconomic policy regime and contributed to the sharpness of the recessions.¹⁵ By contrast, the ECB has no direct political counterparts. There is perhaps therefore less scope for such a demonstrative pursuit of stability. The ECB may be able to avoid some of the procyclical features that the Bundesbank's monetary policy exhibited.

At the same time, the ECB may become less resistant to the notion that monetary policy activism is not incompatible with monetary stability. As the US experience has shown,¹⁶ once a central banker feels that the political battle over the basic objectives of monetary policy and the importance of monetary stability has been won, he may himself be tempted towards an activist role in countering 'adverse' developments. Under the chairmanship of Alan Greenspan, the Federal Reserve was far removed from traditional Keynesian interventionism. However, from the liquidity injection after the stock market crash of 1987 to the 'correction' of inflationary pressures by monetary restraint in 1989, further on to the turnaround of 1990, which allowed commercial banks to re-establish their capital by playing the yield curve, to the interest rate 'shock' of 1994 and beyond, the Federal Reserve seems to have been driven by a belief in the fine-tuning of policy interventions to solve problems as they were coming up. The notion that each fine-tuning policy intervention might be the source of the next problem does not seem to have played much of a role.¹⁷

17.2.7 Reduced importance of exchange rates

A major change concerns the relative weights given to different variables to which the central bank pays attention. I expect the ECB to pay ever less attention to exchange rate movements. In principle, of course, the ECB, has always focused on inflation rates and monetary aggregates, just like the Bundesbank before it. In practice, however, in an environment in which the

15 For an account of the different players' roles in the earlier cycles, cf. Hellwig and Neumann (1987).

16 Or, for that matter, the Swiss experience, as documented in the other contributions to this volume.

17 Yet one can argue that the inflationary pressures of 1988/1989 were caused by the excessive liquidity injection after the crash, the solvency problems of US commercial banks in 1990 were caused by the interest rate shock of 1989, etc. For a general discussion of this issue, cf. chapter 14.

exchange rate is perceived to matter a great deal, the central bank is hardly able to avoid paying at least some attention to it. For all their insistence on monetary targeting, even the Bundesbank and the Swiss National Bank have always had an eye on the exchange rate.

Perceptions that the exchange rate is important may come from firms and industry associations that see the effects of exchange rate movements on competitive positions in their output markets. They may also come from the media trying to capture the public's attention as they portray exchange rate movements as evidence of good or bad performance by the government or the central bank, or as they tell people about the implications of exchange rate movements for their purchasing power. When such discussions take place, politicians and governments will join in and try to get the central bank to take account of the concerns that are being voiced. The discussions in Switzerland that led to the temporary replacement of monetary targeting by exchange rate targeting in 1979 provide a paradigmatic example, as does the initiative of Giscard d'Estaing and Schmidt to create the ERM.

In Euroland, the perception that exchange rates matter seems to have, by and large, disappeared. Given that most 'foreign' trade of firms in Euroland rests within Euroland, monetary union has dramatically reduced the dependence of firms' competitive positions on exchange rates. It has also reduced the immediate impact of exchange rate movements on consumers' purchasing power. Finally, it has eliminated the identification of the currency and its market valuation with any one country and with the performance of that country's government. In terms of public political discussion, therefore, the exchange rate has become a non-issue. This is bound to give the ECB more leeway to treat the foreign sector and the exchange rate with benign neglect, as the Federal Reserve has done for decades.

17.2.8 Euroland prices and inflation – statistical artefacts or matters of real-life experience?

An open question concerns the treatment of prices and inflation. As yet, one can hardly say that we have an integrated European economy in which deviations from the law of one price for any one commodity are the exception rather than the rule. Transaction costs, regulations and other barriers impede the kind of arbitrage that would make for Europe-wide markets. Price adjustment is mostly a matter of national markets. Moreover, it is fraught with frictions. Thus there have been and continue to be significant differences in the inflation rates of the different Member States. The Euroland inflation rate on which the ECB focuses corresponds to a weighted average of inflation

rates in the different Member States. The relevance of this average for the real-life experiences of people in these Member States is unclear. In 2000, for instance, at respective inflation rates of 5.3 percent and 1.4 percent, people in Ireland worried about inflation, people in Germany about the possibility of deflation.

To be sure, this is not just a problem of the European Monetary Union. Any statistical measure of inflation is an average, across regions as well as goods. However, in a homogeneous environment in which markets are more closely interrelated, differences in price movements are likely to be less pronounced, and an average measure of inflation is likely to be closer to people's actual experiences. Thus for thirteen German *Länder*, the growth of consumer prices from January 2005 to January 2006 ranged between 1.4 percent in Hessen and 2.5 percent in Brandenburg, with a mean of 2.0 percent and a cross-section standard deviation below 0.4 percent.¹⁸ By contrast, for the same period, consumer price inflation in Euroland ranged from 1.5 percent in Austria to 4.2 percent in Spain, with a mean of 2.3 percent and a cross-section standard deviation above 0.7 percent.¹⁹ There is no longer an outlier, like Ireland was in 2000, but even so: what meaning does a Euroland inflation rate of 2.3 percent have for people in Austria or in Spain?

Ironically, this might be less of an issue if European central banks had been less successful in fighting inflation in the past. If inflation is high, everybody shares the impression that prices are going up and that nominal values are not to be trusted. The common experience that the value of money is rapidly going down will dwarf the disparities across countries and regions, even if the disparities themselves are sizeable. By contrast, at low average levels of inflation, there is less of a shared perception that inflation is a problem.

The problem is a natural consequence of monetary unification with insufficient economic integration. With time, it may go away because the increasing interdependence of monetary systems and markets leads to a homogenisation of inflation across Euroland.²⁰ If the disparity of inflation rates and

18 Inflation data for the different *Länder*, except Bremen, Hamburg and Schleswig-Holstein, are available at http://www.statistik-portal.de/Statistik-Portal/de_inhalt21.asp. Averages here are calculated with weights assigned to the different *Länder* on the basis of 2003 consumption.

19 Inflation data and member state weights are available at http://epp.eurostat.cec.eu.int/portal/page?_pageid=0,1136173,0_45570701&_dad=portal&_schema=PORTAL.

20 At 0.7 percent the standard deviation of consumer price inflation across the members of Euroland in 2005 was somewhat less than it had been in 2000 (0.8 percent) when average inflation was actually lower (1.9 percent). However, it is too early to tell whether this corresponds to a longer-term trend or merely to the fact that there is no longer an outlier, like Ireland was in 2000.

inflation experiences in different countries persists, it may end up undermining the legitimacy of the ECB's policy with the public, or, more precisely, with the different publics in the various Member States. Grassroots support of the central bank as a guarantor of price stability is likely to be weaker if the policy concerns of the central bank do not resonate with people's experiences. For the Bundesbank, such grassroots support had been a reliable source of strength, providing a measure of protection against political attempts to subvert its institutional structure.

17.2.9 Summary

To sum up, at this point the European Monetary Union's commitment to monetary stability seems to be quite robust. Institutional arrangements, as well as the constellation of political interests, provide fairly strong support. The problem of effective governance for fiscal discipline has not been solved. Some further institutional change is to be expected if and when this problem becomes acute. However, I would not expect such change to concern the basic principles of central bank independence and monetary stability.

In consequence, I also expect monetary policy to be as stable as anything that can be expected from an institution that is run by people. As people change, as people's perceptions of the problems and techniques of monetary policy change, there are bound to be changes in policy rules and in policies, with implications for market expectations and market prices. However, it seems unlikely that any of this should come close to the kind of subservience of monetary policy to fiscal needs that was at issue in OECD countries in the 1970s and 1980s and that is still an issue in parts of the world today.

17.3 Switzerland as an island in Euroland

17.3.1 Euro-isation of the Swiss monetary system?

What are the implications of European Monetary Union for Switzerland as an island in Euroland? From the time when the prospect of European Monetary Union was beginning to loom on the horizon, I remember hearing questions as to whether Switzerland would be able to retain its own currency at all. Wouldn't the ECU be so much the dominant currency that everybody would expect to be dealing in ECUs, leaving no room for transactions in Swiss francs? What else could one conclude if only one took a look at a map showing continental Europe occupied entirely by the European Union, with only a small white spot in the centre?

I have always wondered why such questions were to be taken seriously.

To be sure, a map with a small white spot in the centre of a large homogeneous land mass makes for a suggestive picture,²¹ but this is no substitute for an argument. Analogies with Panama or Israel seemed beside the point. In both these countries, the dollarisation of large transactions had more to do with institutions, policies and inflation, rather than the relative smallness of these countries. The same is true of countries, e.g. in Latin America, that have dollarised their currencies without actually abandoning them. Institutions and policies in Switzerland seemed far from inducing anything similar.

To be sure, the tourist or businessman coming to Switzerland might be so used to paying in euros that he couldn't even conceive of foreign currency any more, at least not on the European continent. However, the willingness and the desire to accommodate such a person's needs would not automatically be grounds for a euro-isation of transactions in Switzerland. Having the internal payments system run on Swiss francs and accommodating the careless foreigner's needs in euros would actually seem like a wonderful mechanism for price discrimination.²² Why should anyone want to give this up?

17.3.2 Dependence of the economy on the foreign sector

Nevertheless, the question of what the implications of the euro are for Swiss monetary policy is of substantial interest. For Switzerland as a small country, the 'foreign sector', i.e. cross-border economic activities in trade and capital accounts, is very important. To convey an idea of orders of magnitude: in 2004, exports and imports of goods each exceeded 30 percent of gross domestic product (GDP), exports and imports of tourism services and exports of banking services each were in the order of 3 percent of GDP; net capital income from abroad amounted to roughly 11 percent of GDP, net capital exports to roughly 17 percent of GDP. By comparison to other countries, all these numbers are quite large. The foreign sector is significantly more important for Switzerland than for any one of the larger Member States of the European Union, let alone the European Union or Euroland as a whole.

Moreover, the foreign sector exhibits strong links to the euro area. In their study 'Optimal currency areas', Alberto Alesina, Robert Barro and Silvana Tenreiro suggest that Switzerland would actually be a natural candidate for

21 The suggestiveness of the picture is reinforced by the fact that, for Europe in 1940, one might have drawn a similar map. The same is, however, true of Europe in 1640, when the Swiss Confederation was the only state not involved in the Thirty Years' War. The map looks the same, but the underlying structure is different.

22 At the time of writing, machines selling tickets for local public transportation in the area of Berne did take euros – at a rate that is some 5 percent below its value in organised exchanges.

membership in the European Monetary Union, more so than some of the actual members of EMU.²³ Their suggestion is based on the observation that the share of Switzerland's trade with the euro area is very high and that, already in the 1960–1997 period, price and output movements were strongly correlated with price and output movements in Euroland, indeed significantly more strongly than with the United States or Japan. According to Alesina et al., the high trade share indicates that there is significant potential for gains from further specialisation under monetary union; the high price and output correlations indicate that there would not be much of a loss if the competence for macroeconomic stabilisation policies were shifted from the national to the European supranational level. Given that Switzerland has not shown much of a taste for Keynesian stabilisation policies, the latter concern is probably less relevant for Swiss policymakers than the notion that independence in monetary policy provides some protection against unwelcome changes in the overall monetary policy stance of Euroland. However, the numbers presented by Alesina et al. do highlight that the Swiss economy is extraordinarily inter-related with the economies of the euro area. The question as to how the Swiss foreign sector might be affected by European Monetary Union is therefore of major importance.

In discussing this question, one must distinguish between the effects of European Monetary Union and the effects of Switzerland being a small country with a great sensitivity to the 'foreign sector'. The latter played a role long before the European Monetary Union came into being and would still play a role if the European Monetary Union did not exist. For example, in Switzerland, there is significant public awareness of the exchange rate as a key price variable. This awareness is due to the fact that so much economic activity is seen as being affected by the exchange rate. The interest rate also plays a central role, but then, as Swiss interest rates – both real and nominal – are usually lower than interest rates elsewhere, the interest rate is usually not perceived as being offensive.²⁴ Wage rates, which play a central role in Germany, are not perceived as macroeconomic variables, because wage setting is quite decentralised.

In Switzerland, the exchange rate is the price variable that is most distinctly perceived as having a macroeconomic dimension and that gives rise to complaints about monetary policy. The virulence of such complaints does not

23 Alesina, Barro and Teneyro (2002).

24 The period around 1990, when short-term rates were unusually high, was the major exception and was very much experienced as such.

depend on the existence of the European Monetary Union. Long before EMU, in the 1971–1984 period, the Swiss franc was the currency that exhibited the highest rate of appreciation and the third highest volatility in the world, the latter behind the US dollar and the pound sterling.²⁵ Complaints about the exchange rate were such that, for a short while, in 1979–1981, the SNB felt compelled to target the exchange rate, rather than the money supply. In the twenty-five years since then, both the rate of appreciation and the volatility of the exchange rate have been lower.²⁶ However, the exchange rate has always played a central role in public discussion and in the thinking of the SNB.²⁷

17.3.3 Does EMU affect the exchange rate exposure of Switzerland?

How does the European Monetary Union affect the interplay between exchange rates, the Swiss economy and Swiss monetary policy? This question comes in three parts: first, in what sense are exchange rate movements affected by the European Monetary Union? Second, what does this imply for the Swiss economy? Third, what are the consequences for Swiss monetary policy, in normative as well as political-economy terms?

In addressing the first subquestion, it is important to appreciate that exchange rate movements involve a significant element of randomness. Even without any remarkable turbulences in currency markets, the past ten years have seen significant changes in market assessments and sizeable exchange rate fluctuations that defy theoretical explanation, roughly 5 to 10 percent up or down from one year to the next. In the post-Bretton Woods era, such exchange rate fluctuations have not been limited to short-run, day-to-day or month-to-month fluctuations, but have sometimes persisted over several years.²⁸ The appreciation of the dollar in the first half of the 1980s is one example, its depreciation in the mid-1990s and appreciation around 2000 are others.

The literature on excess volatility phenomena in asset markets suggests that such apparent randomness is a normal feature of any asset price; for exchange rates, this randomness may be reinforced by the fact that there is nothing like the calculation of discounted present values of asset returns which might serve as an anchor for expectations. Expectations are therefore more easily affected by the ‘story’ of the day. The same people who revel in the marvels of US capitalism or the growth potential of the US economy on one

25 Cf. Danthine and Lambelet (1987), p. 155.

26 Still, the Swiss franc was the currency that appreciated most over this period.

27 For contemporary contributions, cf. Capitelli and Buomberger (1990); Rich (1990); Schiltknecht (1990). A later account of this period is provided by Rich (2003).

28 For a recent survey, cf. Rogoff (2001).

day will fret about twin deficits the day thereafter – without ever doing the full analysis for either story.²⁹

Does the euro affect the vagaries of exchange rates? Three considerations seem relevant: first, the unification of currencies eliminates the diversification of nominal exchange rate risks that is naturally present when one is dealing with multiple currencies. As long as price movements differ across Member States, there is still significant diversity in *real* exchange rate movements. However, to the extent that price movements in Euroland will become more synchronised, this diversification of real exchange rate risks will disappear. There is some prospect, therefore, that over the medium run, the currency unification provided by EMU will provide Switzerland with a less highly diversified environment, for real, as well as nominal exchange rate risks.

Second, improvements in the governance of monetary policy and the commitment to monetary stability in Euroland have eliminated the prospect of turbulences of the sort that we have seen in past currency crises. This should perhaps not be attributed to European Monetary Union as such, but to the changes in attitude to monetary stability that I discussed above. However, it is difficult to separate these matters. Given that the European Monetary Union has improved the institutional infrastructure, one may as well treat this as an effect of the European Monetary Union.

Third, as discussed above, it seems likely that the ECB will simply pay less attention to the exchange rate and to other cross-border concerns than national central banks have done in the past. The term ‘benign neglect’ may come to describe the ECB’s attitude to the foreign implications of its policies and operations, just as it has described the attitude of the US Federal Reserve for a long time. Changes in the monetary policy stance taken in Frankfurt and the changes in interest rates and exchange rates that they induce may come to be more of a disturbing factor than they were at a time when the Swiss National Bank and the Bundesbank had parallel interests, at least *vis-à-vis* the US dollar.

17.3.4 Implications for the Swiss economy

Given these considerations, I expect that we shall see more of the sort of 5 to 10 percent swings from one year to the next in nominal exchange rates that we have seen over the past fifteen years, induced sometimes by ‘noise’ or

29 Either way, the ‘story’ of the day provides material for infotainment in the media that treat the daily advances and retreats of asset prices in currency exchanges or stock markets as if they were writing about football or baseball games and their impact on the annual league competition or pennant race.

by changes in ‘stories’ and expectations, sometimes by changes in the stance of monetary policy for one currency and by inflation differentials, and sometimes by changes in economic activities. These swings are not nearly as dramatic as the currency crises of the 1970s. However, their impact on the Swiss economy will be enhanced when price movements in Euroland become more synchronised and the reduction of diversification concerns real as well as nominal exchange rates.

A certain element of diversification will still be provided by the lack of synchronisation between developments in the United States and developments in Euroland. This is important because the foreign sector of the Swiss economy has a lot to do with the US dollar. The suggestion to the contrary in Alesina, Barro and Tenreyro is at least partly based on their looking only at the trade side of the foreign sector.³⁰ For the capital account, the US dollar is more important than the euro, with some variation from year to year, but no discernible downward trend.³¹ Switzerland’s activities as a financial centre, as an exporter of capital, and as a recipient of a substantial amount of capital income from abroad have more to do with the US dollar than with the euro.

Altogether, I do not see the European Monetary Union as having a major impact on the Swiss economy. Exposure to shocks coming from abroad should be roughly comparable to what it has been over the past fifteen years. The reduced diversification and the difference in monetary policy institutions can have some effects on the details of the patterns of the shocks, but the differences are likely to be small. After the creation of EMU, as before, Swiss firms have to live with the fact that every now and then, unforeseen events abroad have a substantial – adverse or favourable – effect on the conditions in which they are doing business. The SNB has to live with the fact that, when such events occur, the economic sectors that are adversely affected will complain, because in their view it is the National Bank’s task to manage the exchange rate and to insulate them from such shocks.

17.3.5 Implications for Swiss monetary policy

Should the National Bank take notice? On the surface, this question concerns the details of what variable should serve as short-run and intermediate targets of monetary policy, what instruments are available and how the in-

30 Alesina, Barro and Tenreyro (2002).

31 Thus, for 2004, the Swiss National Bank reports portfolio investments and bank loans of 51.4 billion Swiss francs in US dollars as opposed to 28.9 billion francs in euros; as for direct investments, in 2004, 13.5 billion francs went to Euroland and 11.7 billion francs to the Western hemisphere.

struments relate to the targets. According to an old prescription, the choice of intermediate target should depend on whether shocks to the economy are mainly nominal or real. With a prevalence of nominal shocks, in particular shocks to money demand, it is preferable to have a price variable as an intermediate target; with a prevalence of real shocks, it is preferable to have a quantity measure of 'the money stock' as an intermediate target. If we think of shocks coming from the foreign sector as being largely nominal, caused for instance by shifting expectations in exchange markets, this prescription would call for a price variable as the appropriate intermediate target. In other words, the central bank should take notice of shocks coming from abroad. The only question then would be, what is the appropriate price variable or the appropriate mix of price variables to be concerned about?

However, how do we know when shocks are purely nominal? Even if we have good reasons to believe that we have identified a shock as being nominal, could it not be correlated with a real shock that also needs to be taken into account? Recall the dilemma of Swiss monetary policy in 1990 and 1991. The high-interest-rate policies pursued by the United States, the United Kingdom and Germany put pressure on money markets and currency markets throughout the world, including the Swiss franc. Was this a nominal shock, to be balanced by an apparently restrictive monetary policy attuned to the reduction in the rest of the world's demand for Swiss francs? Or was this a real shock, as the concomitant recession in the United States and the United Kingdom reduced – and the German unification boom increased – foreign demand for Swiss exports? I suspect that, at the time, the SNB did not address the problem in these terms, preoccupied as it was with the domestic inflationary pressures that had resulted from its excessive liquidity creation in late 1987 and 1988.³² However, even if one gave top priority to the need to restrain inflation, the question of how much restraint was already being imported from abroad should have been highly relevant.

By now, traditional notions of interest rates or exchange rates as appropriate price variables to be concerned about when there are nominal shocks have been replaced by the notion of inflation targeting or inflation forecasting as being closer to the ultimate concerns of a policy devoted to monetary stability. Conceptually, this is again a price variable, albeit one that is not identified

32 According to Capitelli and Buomberger (1990), this excess liquidity creation itself was the result of a domestic nominal shock and might have been avoided if the SNB had paid more attention to exchange rates and interest rates. The contrary view is maintained by Rich (1990). Cf. also Rich's (2003, pp. 43–44) reference to monetary policy tightening as a way of countering "the attack on the Swiss franc" in 1992.

with any one market. The basic problem of how to assess the implications of a given exchange rate shock and how to determine whether the central bank should react is as relevant under inflation targeting as under any other regime, and is just as difficult to deal with.

*17.3.6 Competitiveness rhetoric and the political economy
of structural change*

In any case, one should beware of thinking about the problem solely in terms of the nature of shocks and the best technique for a stability-oriented central bank to be dealing with them. At a deeper level, the problem goes beyond these technical questions and concerns the overall governance of the Swiss economy, in particular, the mode of structural change.

For a long time now, one of the most vociferous complainers has been the Swiss tourism industry. Too high a value of the Swiss franc, they say, ruins the industry's ability to compete with tourism industries elsewhere, particularly Austria. However, as is often the case when an industry complains about the lagging competitiveness of 'the national economy' and refers primarily to itself, at least part of the story is a matter of shifting comparative advantage. The tourism industry had initially owed some of its prosperity and growth to the availability of cheap labour in overpopulated mountain valleys. By now, this labour is no longer cheap. A combination of increased mobility and economic progress in other sectors has provided labour with better opportunities elsewhere. The industry's need for adjustment is a natural consequence of this change, a result of competition with the Swiss banking, pharmaceutical and engineering sectors. The point is that an industry's 'competitiveness' is a matter of input as well as output markets. The success of the Swiss tourism industry depends not just on how it does relative to the Austrian tourism industry in competition for customers, but also on how it does in competition with other sectors of the Swiss economy in competition for labour. Its overall viability depends on the relation between pricing conditions in output markets and input markets. Exchange rate movements that worsen this relationship for the tourism industry can be a consequence of shifting comparative advantage, induced by an increasing competitiveness of firms in other sectors of the Swiss economy.

In this context, there is some danger in treating the exchange rate as a political price. An exchange rate that is seen as being set by policy, rather than by the market, will be the subject of politics. Firms whose competitive positions are strongly affected will complain about it without caring about such niceties as whether their experience reflects a nominal shock or a change in

comparative advantage. If the complaints are effective, structural change can be impeded, at least in the short run; in the medium and long run, the adjustment will probably occur anyway as the more successful domestic industries bid input prices further up. The complainers' margins are then squeezed by wage increases, rather than the appreciation of the nominal exchange rate. When comparative advantage shifts from one sector to another, domestic inflation and the change in the real exchange rate that it induces can be as merciless a force for structural change as an appreciation of the nominal exchange rate. However, in the process, the economy suffers from the inflation.

Even more importantly, the economy would suffer from the development and possible entrenchment of attitudes assigning the responsibility for the economic successes and failures of individual firms and industries to the institutions of monetary policy or, more generally, to the government, rather than to the parties in question. Such attitudes would undermine the notion of self-reliance as one of the mainsprings of economic prosperity.

17.3.7 Does Switzerland's role as a rentier affect the political economy of structural change?

By comparison to other countries, for Switzerland, the political economy of structural change in response to shifts in comparative advantage is complicated by the fact that, to some extent, the shift is due to returns on capital. Institutions and individuals from Switzerland are major investors in the rest of the world. The returns that they earn on their investments are a major item in the Swiss current account. At 11 percent of GDP in 2004, net capital income from abroad was exceptionally high – and is likely to rise even more.³³ At 17 percent of GDP, capital exports were higher still. However, unless Switzerland wants to make a free gift of goods and services to the rest of the world, there will have to be a time when capital exports fall short of net capital income from abroad. At that time, net capital income from abroad will be at least partly matched by a deficit in the trade balance, i.e. exports of goods and of labour-based services must fall short of imports. After all, capital exports and the net outflow of goods and services that they require represent just one side of an intertemporal exchange; the other side is represented by subsequent net capital income

33 The long-term significance of this factor has already been pointed out by Danthine and Lambelet (1987), p. 155. It is tempting to speculate that the long-term real appreciation of the Swiss franc that we have seen, which seems to be in conflict with any theories of purchasing power parity or of (uncovered) interest parity, might be a reflection of this development.

from abroad and by the net inflow of goods and services for which this income provides.³⁴

When the other side of the intertemporal exchange involved in capital exports comes home to roost, some firms and industries in Switzerland will find that, at least in relative terms,³⁵ they are losing ground to foreign competitors. If they identify the exchange rate as a proximate cause of their difficulties, we can again expect them to complain. However, this is an instance of structural change induced by intertemporal exchange, with a shift in comparative advantage towards the earning of returns on capital, rather than any other active production. Political discussion about this change is likely to be quite different from previous instances. The 'rentiers' who receive the net income from abroad may be just as hostile as any firm to seeing the currency appreciate. After all, an appreciation of the Swiss franc relative to other currencies devalues their holdings abroad, which, for the most part, are not denominated in Swiss francs. Even though these rentiers are more dispersed and presumably less well organised than an industrial lobby, they should not be underestimated as a potential political force. Given the immediate relevance of the exchange rate for their real incomes, they may well contribute to a public perception that the exchange rate is, or ought to be, a political price.

17.4 Financial stability and the lender of last resort: does EMU make a difference?

A discussion of the implications of the European Monetary Union would not be complete without a consideration of the role of the central bank as a lender of last resort. Under the home-country principle, banking regulation and banking supervision are purely national concerns. The potential lender of last resort, however, is a supranational institution. One may wonder how these things go together.

34 Cf. Bulow and Rogoff (1989). Under the assumption that expected present values of net capital exports and of net capital income from abroad over all future periods are finite, their argument implies that, if a country begins by exporting capital, there has to come a time when the expected present value of net capital exports over all future periods must be less than the expected present value of net capital income from abroad over all future periods. As shown by Hellwig and Lorenzoni (2003), the assumption that expected present values are finite is restrictive, but even if this condition breaks down, intertemporal exchange involves a quid pro quo under which periods of net resource flows in one direction are followed by net resource flows in the reverse direction.

35 In absolute terms, there need not be a decline. The high level of wealth that generates the desire to consume some of the net capital income from abroad could also support a high level of domestic demand. The argument is akin to Ohlin's critique of Keynes on the transfer problem.

From the Swiss perspective, this question is important because the financial sector in Switzerland is large and transcends national borders. Switzerland is home to two of the world's largest financial institutions (they used to be three!); the country also hosts affiliates of practically every financial institution that aspires to play an international role. Financial services are a major export industry. Financial institutions in Switzerland are very much interrelated with financial institutions elsewhere, in particular with financial institutions in Euroland. Financial stability in Switzerland is thus closely tied to financial stability in Euroland.

17.4.1 Problems in banking as a potential problem for the economy

Given the size of the Swiss banking sector, problems in this sector are problems for the whole economy, even more so than in other countries. Switzerland had a taste of such problems in the early 1990s, when high interest rates and an inverted yield curve combined with poor loan performance and a downturn in real estate markets to put the banking sector in a difficult situation, including a full-fledged crisis of regional and cantonal banks with poorly diversified activities. The stagnation of the Swiss economy in these years, with GDP declining 1 percent from 1990 to 1991 and then remaining constant for the next three years, must be at least partly ascribed to the fact that banks were not in a position to lend as freely as they had done in better years. Financial sector employment shrank by more than 10,000 people, some 5 percent of the overall decline in employment.

Yet the banking crisis and the recession of the early 1990s in Switzerland were comparatively mild. Open bankruptcies of banks could for the most part be avoided by having the failing banks taken over by one of the big banks.³⁶ The big banks were in a better position than the regional and cantonal banks because they were better diversified. High interest rates, poor loan performance and depressed real estate markets caused problems for them as well, but they could compensate their losses in traditional banking activities in Switzerland by profits from their securities and trading activities internationally, in particular in derivatives. These profits provided a buffer not just for the big banks, but for the banking system as a whole, which the big banks were able to support in a time of stress.

To get an idea for what a full-fledged banking crisis can mean for a small, highly developed economy, one must look at the experience of the Scandinavian countries in the early 1990s. The recession of the late 1980s/early

36 The exception was Spar- und Leihkasse Thun in 1990. Cf. chapter 7.3.3.

1990s, which hit most OECD countries, was particularly pronounced in the Scandinavian countries, where it was accompanied by banking crises. Thus in Sweden, unemployment went from 1.4 percent in 1990 to 9.4 percent in 1994. Real GDP declined by 5 percent from 1991 to 1993.³⁷ Although, to some extent, this downturn can be attributed to the Riksbank's defending the currency by a policy involving exorbitant interest rates (with call money rates at 500 percent p.a.), there is a consensus that the banking crisis played a major role as two out of five large banking institutions, as well as many finance companies, became insolvent and company lending was drastically reduced. Between 1990 and 1993, bank lending in Sweden declined by 21 percent, and private investment by 35 percent.

From the Swiss perspective, it is instructive to look at orders of magnitude. Including provisions for future losses on loans that were still performing, total loan losses of Swedish banks amounted to 75 billion Swedish kronor, roughly 5 percent of GDP, in 1992. Cumulatively, over the 1990–1993 period, they amounted to 17 percent of total bank lending, or 165 billion Swedish kronor.³⁸ During this period, bank profits excluding loan losses were roughly constant at 25 to 30 billion Swedish kronor per year. When the Swedish government stepped in to save the banks (though not the banks' owners), it had to put up some 65 billion Swedish kronor, or 4 percent of GDP, in additional funds; as a result, its overall deficit rose to 12 percent of GDP in 1993. A significant part of this aid was later recovered through asset sales, dividends and privatisations,³⁹ but in the short run, the support of the banks crippled the Swedish government's finances, eliminating any scope for active fiscal policy in what turned out to be the sharpest recession since the Great Depression.

Turning from Sweden to Switzerland, I note that, in 2004, GDP was 446 billion Swiss francs; total government spending, 53 billion Swiss francs. In that year, UBS listed total assets of 1,737 billion Swiss francs, and Credit Suisse total assets of 1,089 billion Swiss francs, i.e. these two institutions alone had total assets that were more than 500 percent of GDP. As these institutions have pursued their diversification and internationalisation strategies, the role of bank lending has been reduced, but even so, their total lending in 2004 amounted to 416 billion Swiss francs. In relation to the Swiss economy and the Swiss government budgets, both of these institutions are much larger than the largest Swedish banks were in the 1990s.

37 The following account is based on Englund (1999).

38 According to Englund (1999), bank lending was at 354 billion Swedish kronor in 1985 and grew 174 percent from 1985 to 1990.

39 Even so, the final cost to the taxpayer is estimated at 35 billion Swedish kronor.

If ever these institutions were to go through an experience like that of the Swedish banks in the early 1990s, the government would find it that much more difficult and burdensome to try and save the country from the fallout of the crisis. Indeed, it is doubtful whether a performance like that of the Swedish government would even be feasible. While to date, we are used to thinking of some banks as being ‘too big to fail’, because the government is unwilling to face the consequences of letting them go under, the Swiss banks may in fact be ‘*too big to be rescued*’ in the sense that, even as it tries to rescue them, the government would be crippled by the task.

If one thinks of bank failures and banking crises as resulting from the reckless behaviour of bank managers, encouraged by explicit or implicit state guarantees, the discrepancy between the size of financial institutions in Switzerland and the size of the overall economy contains a reassuring element. The managers in charge of the major financial institutions are unlikely to have any illusions about the ability of their country to rescue these institutions in a crisis. Indeed, this awareness may have contributed to their being among the most advanced institutions in applying modern techniques of risk management and risk control.

17.4.2 Systemic aspects of risk in banking and finance

However, a bank’s exposure to risks is not always due to recklessness motivated by a reliance on a too-big-to-fail policy of the government. Sometimes recklessness is motivated by individual incentives of a person in an organisation, sometimes the risks in question are underestimated, and sometimes it is not even possible to have a reliable estimate of what the risks might be. Underestimations of risks seem to have been important as a reason for excessive lending to sovereign states in the late 1970s and to small firms and real estate in the late 1980s. The underestimations were probably reinforced by herding effects and their implications for the incentives of individuals. At the time, even people who had misgivings may have refrained from speaking up for fear of being branded as outsiders who were not really ‘with it’. Personal incentives play an even greater role when individual career prospects depend on delivering profits – and risk-taking provides the prospect of earning large profits with some probability.⁴⁰

40 An example is provided by the old Union Bank of Switzerland, where Mathis Cabiallavetta rose to the top at least partly on the strength of profits from derivatives trading. In charge of risk control as well as trading, he had insufficient incentives to look closely enough at what his derivatives traders were doing; in the Asian crisis of 1997, the bank suffered the consequences when profits turned into losses amounting to more than 600 million Swiss francs. Cf. Schütz (1998).

Sometimes, however, even diligent risk managers will be unable to assess the risks to which their institutions are exposed. A major difficulty is posed by risk correlations, which can be hard to measure because they can vary by the day or the week. Thus a major question for any risk-shifting contract is to what extent the counterparty credit risk is correlated with the underlying risk that the contract is ostensibly shifting to the counterparty. A bank that makes a fixed-interest loan and that uses an interest rate swap to hedge the interest rate risk is still exposed to the counterparty credit risk that its partner might be unable to perform if short-term rates go up and the counterparty should be paying a lot. In the Thai crisis of 1997, international banks that had made dollar loans to Thai banks that made dollar loans to Thai firms found that the risk of a devaluation of the baht against the US dollar was not effectively hedged: When the baht was devalued, the firms whose customers in Thailand were paying in baht found themselves unable to service their debts and went under – as did the Thai banks whose loan clients had become insolvent.⁴¹

Correlations between counterparty credit risks and other risks are practically impossible to assess with any satisfactory degree of reliability. As illustrated by the Thai example, the position of one's own counterparty in turn depends on the counterparty's counterparties and so on, i.e. on the whole network of contracts. Examples like Baring Brothers or Orange County in the mid-1990s show that any one of these counterparties' positions can change in a matter of days or weeks. Even for the parties that are involved, it hardly seems possible to assess these changes in a timely manner as they occur.

The problem is further complicated by the interrelation of institutions with asset markets. In the LTCM affair of 1998, the Federal Reserve intervened mainly because it was afraid of domino effects that might occur if LTCM were forced to liquidate its assets; bond prices would drop, and the drop in bond prices would affect the solvency of other institutions.⁴² From an *ex ante* perspective, the challenge for risk management would be to assess the risks of changes in market prices that might be caused by failing institutions, perhaps also to assess the counterparty credit risks that might arise because the parties with whom one is contracting might be exposed to such risks of changes in market prices that might be caused by failing institutions, and so on.

Given this level of complexity of counterparty credit risks in the financial system, one is bound to have some sympathy for the practitioner who claims

41 For an account of this problem that predates the Asian crisis, cf. Hellwig (1995).

42 For an account of an instance where such domino effects through markets did occur, cf. Schnabel and Shin (2004).

that risks from systemic interdependence cannot be handled by risk management at the level of the individual institution, but must be left to be handled by the central bank as the lender of last resort.⁴³

17.4.3 Prerequisites of timely, effective and sustainable policy intervention

However, we should not think of the central bank as a *deus ex machina*, whose mere appearance on the scene is sufficient to put things right and avert a systemic crisis. To be successful, the central bank's intervention must be timely, effective and sustainable. None of these properties can be taken for granted.

To be *timely*, central bank intervention must occur *before* a bank failure, or even the rumour of an impending failure, has put markets into a state of panic. However, the central bank must also beware of intervening prematurely, at a time when private solutions to existing problems are still available; otherwise, it risks raising the moral hazard that is associated with any too-big-to-fail doctrine. To be *effective*, central bank intervention must be attuned to the problem at hand. In some instances, it may be appropriate to intervene by trading in the open market, as was the case in the United States in 1990, when the turnaround in monetary policy lowered interest rates and enabled commercial banks to rebuild their equity by playing the yield curve. On other occasions, it may be necessary to target the intervention to a particular institution, as was the case for Continental Illinois in 1984 or LTCM in 1998.⁴⁴ To be *sustainable*, the intervention must be within the central bank's means and must be perceived as such. In Germany in 1931, the Reichsbank's policy of providing rediscounting to the Danat Bank even when it was insolvent was not sustainable because, in the event of the run on the Reichsmark, the Reichsbank ran up against the legally mandated coverage requirements for its currency issue.⁴⁵ In the Swedish crisis of the early 1990s, the government's intervention to rescue the banks would not have been possible if Sweden had been subject to the Stability and Growth Pact, and if the Pact had been strictly enforced.

Timeliness, effectiveness and sustainability of an intervention to avert a systemic crisis require a significant amount of cooperation and coordination

43 Wuffli (1995).

44 Whether the LTCM intervention should be treated as a central bank intervention at all is a matter of dispute. After all, the Federal Reserve's role was merely to get private institutions to provide a rescue package for LTCM. However, it is hard to imagine the Fed's having taken this role without at least an implicit commitment as to what it would do if systemic developments were to go against the parties whose cooperation it was mobilising.

45 Cf. Schnabel (2004).

among the different institutions that are involved. In the first instance, the central bank as lender of last resort must be well informed about the situation. It must have a clear idea about the reality behind the numbers in the banks' books. It must also have some appreciation of the potential externalities of a bank's failure on other institutions and on markets. In most countries, this information tends to lie with the bank supervisors and is available to the central bank only to the extent that the two institutions cooperate.

For effectiveness and sustainability, there must also be no question about the central bank's competence to intervene and about the allocation of the cost of intervention. This requires some agreement with the government, more precisely, the minister of finance. If the central bank wants to avoid losing control over its monetary policy, there must be some understanding that the monetary effects of the intervention will be sterilised and that the cost will be assumed by the government, as an explicit burden on the taxpayer, rather than an implicit one, through the inflation tax. If there is any disagreement – or even delay in agreement – on this point, the appropriate opportunity for intervention may be lost. Subsequent attempts to repair the damage may be less effective and more expensive.

For financial institutions that operate internationally, the problem of ensuring the timeliness, effectiveness and sustainability of public intervention to avert a systemic risk concerns multiple central banks, multiple banking supervision authorities and multiple ministers of finance. Their cooperation is needed to establish the requisite transparency as to the actual state of the different financial institutions and of the financial system as a whole. Their cooperation is also needed to allocate responsibilities and to provide support to the institutions of any one country, lest there be any doubt in the market as to whether the country is able to handle its part of the crisis.

17.4.4 Banking supervision and financial crisis management in Euroland

In Euroland, the problem of ensuring the timeliness, effectiveness and sustainability of public intervention to avert a systemic risk is compounded by the fact that banking supervision and central banking have different geographic domains. Whereas central banking has become supranational, banking supervision remains in the domain of the Member States. Each financial institution is supervised by the supervisory authorities of its own 'home country'. Supervision takes place under national laws and regulations.

National laws and regulations must conform to the relevant European directives, which provide for some harmonisation of rules, as well as a general principle of mutual recognition of 'home country' regulation and super-

vision. European directives are proposed by the European Commission and approved by the Council. Once a directive has been approved, each Member State is legally bound to implement it. Within each Member State, responsibility rests with the minister of finance.

The actual organisation of supervision differs across Member States; in some Member States, banking supervision is performed by the central bank, in others, it is performed by a special bank supervisor, in others still, it is performed by an integrated financial services supervisor. As a rule, bank supervisors are not independent and must take orders from their finance ministers, even in countries where banking supervision is done within the central bank.⁴⁶ The practical implications of this rule differ across countries, depending on the extent to which the country's political culture involves a tradition of respect for professionalism in specialised authorities.

Given the fragmentation of financial supervision in the European Union, the question of how to ensure the degree of coordination and cooperation among authorities that is needed for the Single European Market in banking and finance to work has been a matter of major concern. In two reports, one on financial stability and one on financial crisis management, the Economic and Financial Committee⁴⁷ has investigated this question and issued a number of recommendations. These reports were endorsed by the Council and formed the basis of two Memoranda of Understanding concerning cooperation in crisis situations, a first one concluded in 2003, which involved the different bank supervisors and central banks,⁴⁸ and a second one concluded in 2005, which brought in the finance ministers as well.⁴⁹

The Economic and Financial Committee's Report on Financial Crisis Management stressed the importance of having timely and sufficient information for identifying and handling financial crises, defined as situations in which one or more financial institutions are unable to meet their obligations, with possible repercussions for the rest of the financial system.⁵⁰ The report also stresses the need to identify beforehand which authority is responsible

46 The independence that national central banks are given by the Maastricht Treaty covers only the functions they have in the European System of Central Banks.

47 Created by the Maastricht Treaty, the Economic and Financial Committee has the task of reviewing the economic and financial situation of the Member States and reporting regularly to the Council and the Commission (Art. 114). It consists of representatives of the Member States, of the Commission and of the ECB. Cf. Economic and Financial Committee (2000, 2001).

48 European Central Bank (2003a).

49 Council of the European Union (2005).

50 Economic and Financial Committee (2001), p.9.

for effective coordination and for decision-making, arguing that, in the case of banks, securities firms or insurance companies, it is natural to assign this role to the “supervisor who exercises consolidated supervision”, and calling for an agreement on who is to fill this role in the case of a financial conglomerate.⁵¹ Whereas private sector solutions are to be given precedence, the report recognises that, sometimes, public sector intervention may be necessary. In some cases, this may take the form of emergency liquidity assistance from the central bank. According to the report, emergency liquidity assistance in Euroland “is primarily a national responsibility and national arrangements continue to apply” and “[...] mechanisms are in place to ensure that any potential liquidity impact [...] can be managed in a way consistent with the maintenance of the appropriate monetary policy stance”.⁵² The report further recognises that, in exceptional circumstances, more drastic support measures may be needed, from the support of deposit insurance funds to outright government intervention in restructuring and recapitalising ailing institutions.⁵³ Winding down the troubled institution is of course also a relevant alternative; in this case, authorities are faced with the problem of minimising the fallout on the rest of the financial system.⁵⁴

According to the public announcements that were made,⁵⁵ the Memoranda of Understanding provide principles and procedures for cooperation between the participating institutions. In particular, they serve to identify the authorities responsible for crisis management and provide the basis for sharing information between authorities, specifying the required flows of information and the practical conditions for cross-border information flows, and setting up the logistical infrastructure to support this cross-border cooperation.

17.4.5 Concerns about the viability of arrangements in Euroland

The assignment of tasks between national supervisors, national central banks and the ECB that is sketched in the preceding account reflects the different institutions’ interests. As financial crises are identified with the difficulties of individual institutions and responsibilities are assigned to national supervisors, national central banks and national governments, the ECB is moved to the background, if not kept out of the picture altogether. This

51 Economic and Financial Committee (2001), p. 17.

52 Economic and Financial Committee (2001), p. 23.

53 Ibid.

54 Economic and Financial Committee (2001), p. 24.

55 The Memoranda themselves are not public information.

arrangement preserves national prerogatives over banking supervision. It also has the potential to protect the ECB from the adverse incentive effects of private institutions taking support from the lender of last resort for granted, as well as the danger of having monetary policy corrupted by the need to deal with developments in the financial sector where the ECB has no say.

However, I have serious doubts about the viability of the arrangement. The Report on Financial Crisis Management is silent on some issues that might mar the tidiness of the picture. Yet these very issues are at the centre of potential conflicts that may be the cause of frictions in the management of a crisis by the public sector authorities that are involved.

First, the Report on Financial Crisis Management is silent on what is to happen if emergency liquidity assistance to a troubled institution transcends the capacity of a national central bank for independent action within the Eurosystem. The question of whether emergency liquidity assistance might or should be a task for the ECB is thus avoided. However, if the financial institution in question is sufficiently large, or if the institution's difficulties can spill over onto other institutions, this is bound to become an issue. On assistance measures that go beyond the provision of support by a single central bank, the report contains only the somewhat cryptic sentence: "In addition, in case of a general liquidity crisis, the instruments and procedures identified for the single monetary policy and payment systems will be available to the Eurosystem to cope with the situation."

This begs the question of whether the crisis of a large institution that transcends the means of that institution's national central bank is deemed to be a 'general liquidity crisis'. If the issue ever arises, the ECB will find it difficult to resist a call for assistance. Could it be that the report avoids this issue because an acknowledgement of the need to rely eventually on assistance from the ECB, as well as the national central bank, might generate demand for greater involvement and more say at a prior stage? If so, is there not a danger that the inherent conflict between national and supranational competence, which had not been resolved beforehand, might end up delaying the requisite supportive actions in a crisis? Having an unresolved issue and an unresolved conflict seems like a poor basis for ensuring that central bank intervention will be timely, as well as effective.

One might argue that some ambiguity about the prospects of central bank intervention in a crisis is healthy because it induces participants to be more careful. This argument confuses the ambiguity that exists in the minds of market participants with the ambiguity that exists in reality, because important issues surrounding the intervention have not been settled beforehand.

Undoubtedly, there is some benefit in having market participants harbour some doubt as to whether the central bank will really bail them out in a crisis. However, the doubts should concern the central bank's strategy, rather than the central bank's capability. The central bank should have the capability to intervene in a timely, effective and sustainable manner if it finds that the crisis is really dangerous. Impeding such an intervention by having an unresolved conflict seems like a poor way to induce healthy ambiguity, especially if one considers that, as explained above, at least some systemic risks transcend the risk management capabilities of individual institutions.

A second issue concerns the distinction between illiquid and insolvent banks. This distinction is crucial for the distinction, which is stressed in the report,⁵⁶ between emergency liquidity assistance and the provision of new risk capital. However, experience tells us that, in practice, it is often not possible to distinguish between an institution that is merely illiquid and an institution that is insolvent. For one thing, the value of the institution's assets can depend on whether they have liquidated or not. For another, the values at which, e.g. loans are carried in a bank's books, may not have been fully adjusted to recent adverse developments. The information that is required to assess whether an institution is solvent may not exist, and even if it does exist, it may not be available. In practice, therefore, it will not be easy to properly draw the boundary between the provision of liquidity assistance by the central bank and the provision of new capital from public funds.

This question, too, stands at the centre of a potential political conflict. If a finance minister has an interest in reducing the budgetary burden of public intervention, he may want to hold on to the notion of a liquidity crisis for as long as possible, asking the system of central banks to provide liquidity assistance. This temptation is also present in a single country that has its own currency. In Euroland, however, it is enhanced by the fact that the costs of central bank intervention in terms of increased inflation, or merely a changed monetary stance, are likely to be borne at least partly by the rest of Euroland. Moreover, the Stability and Growth Pact may strengthen the desire to avoid a fiscal crunch if at all possible.

Given the temptation to delay an acknowledgement of solvency problems, the finance minister, or political authorities more generally, may want to delay downward corrections of asset values in the portfolios of troubled institutions. A finance minister may even use his authority over bank supervisors for this purpose. If this happens, the information that is being shared between

⁵⁶ Economic and Financial Committee (2001), p. 22.

institutions may not be what is needed to deal properly with the situation. Lest it be thought that this is groundless speculation, it is worth recalling that unrealistic valuations of assets in the portfolios of troubled institutions were a hallmark of political dealings with the savings and loans sector in the United States in the early 1980s, of the Japanese approach to their banking crisis in the entire 1990s, of *Crédit Lyonnais*, and, more recently, in 2003, of the German finance minister's intervention exempting life insurers from the need to apply strict mark-to-market accounting to common stocks whose prices had drastically fallen. In this context, it is particularly disquieting to note that the public announcement of the 2005 Memorandum of Understanding, which brings in the finance ministries, is quite explicit about the fact that this is a non-legally binding document.

17.4.6 Implications for Switzerland

From the perspective of Switzerland, the international financial centre with close ties to financial institutions all over Euroland, these considerations are anything but reassuring. The manifold linkages of financial institutions in Switzerland with financial markets and financial institutions in other countries imply that any crisis of systemic dimensions in another country can have systemic repercussions for Switzerland. Switzerland thus has a natural interest in the viability of crisis prevention and crisis management elsewhere, in particular, in Euroland, its neighbour on all sides. If existing arrangements for financial crisis management leave doubts on this account, this must be a cause for worry.

Beyond the general concern that any weakness of financial crisis management in Euroland has negative externalities for other countries, there must also be practical concerns about coordination. Any financial crisis that affects financial institutions in Switzerland gives rise to a need for information exchange, coordination and cooperation between the Swiss authorities, i.e. the Banking Commission and the SNB, and their counterparts across the border. If an intervention by the Swiss authorities is called for, the timeliness, effectiveness and sustainability of the intervention are likely to depend on this.

Such cooperation is subject to frictions even when the partner across the border is a single country with national authority over central banking, as well as banking supervision. In the case of Euroland, however, there could be additional frictions: first, as explained above, national authorities may have an incentive to delay the acknowledgement of solvency problems. This impairs the reliability of information exchange, not just with EMU partners, but also with other countries. Second, in cases where the provision of liquidity

assistance transcends the capacity of a Member State's central bank, the role of a lender of last resort is up in the air. This raises the question of who the proper partner would be for coordinating central bank interventions in such a crisis. If the crisis transcends the capacity of a single Member State, the ECB would seem to be the only institution that could serve as a lender of last resort. As yet, however, it is politically incorrect to think of the ECB in these terms. This makes me wonder about the viability of the coordination of the central banks' interventions in such a crisis, as well as the timeliness and effectiveness of the intervention itself.

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18 International monetary and financial architecture in an integrating world economy¹

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18.1 Introduction

The expression ‘international financial architecture’ and the need to strengthen it came into vogue in the wake of the Mexican and Asian crises of the 1990s.² The ‘financial architecture exercise’, as Peter Kenen characterised it,³ was very much concerned with the prevention and resolution of these and similar potential future crises. This paper takes a different approach, examining the broader issue of the evolution, present state and prospects of the architecture of the international monetary as well as financial system. It thus harks back to what used to be called the reform of the international monetary system, before ‘architecture’ became the new buzz word. This, indeed, is too vast a topic to be treated exhaustively in a single paper – or book for that matter. Our survey will thus of necessity be selective.

To set the stage, this paper begins with a brief reminder of the functions of the international monetary and financial system (IMFS) and of the way in which these functions have been discharged since the return to current account convertibility by the major industrialised countries in 1958/1959. It then asks, in section 18.2, how today differs from yesterday and how tomorrow is likely to differ from today. Increasing economic integration on all fronts is perhaps the most striking evolution in this context. The implications for a number of issues ranging from appropriate exchange rate regimes to international policy coordination and the role of the International Monetary Fund (IMF) and its governance are taken up in section 18.3. A last section concludes.

- 1 The author would like to thank, without implicating, Hans Genberg, Ulrich Kohli and Umberto Schwarz for their comments and suggestions. The final version of the paper was completed while the author was a Houblon-Norman-George Fellow at the Bank of England.
- 2 Kenen (2001) attributes the expression ‘strengthening the architecture of the international financial system’ to the title of a speech delivered by Robert Rubin in 1998.
- 3 Kenen (2001).

18.2 Functions and evolution of the IMFS

18.2.1 *Functions of the IMFS*

Put simply, the role of the international monetary and financial system is, or should be, to facilitate the exchange of goods and services according to comparative advantage at a point in time, and of assets over time (to enable capital to flow from where it is abundant to where it is scarce); and to do this without generating instabilities of its own – and in a manner that is broadly, acceptable to the actors in the system, if only so that they do not opt out of it. These are the familiar requirements of ensuring efficiency, stability and equity. Money and finance should thus be the servants of trade and efficiency, and not their master. This precept is reflected both in the classical prescription that, in a well-functioning environment, money should be neutral (act as a veil) and in the first of the Articles of Agreement of the IMF, which emphasises current account convertibility as a primary goal and function of the institution.

The structure of the international monetary and financial system reflects a host of factors, historical, political and technological as well as economic. It is made up of various sets of conventions, explicit and customary rules and regulations, and institutions. These in turn are a function of existing tastes, endowments and technologies – to use the jargon of international trade theory. Combined, they determine a number of key and interrelated economic and political features of the system: the trade regime, the capital flow regime, the exchange rate regime together with the currency power structure, and the governance structure of these regimes. The resulting system is thus the outcome of a complex set of factors, rather than the result of the deliberate design most often associated with the idea of architecture.

18.2.2 *The Bretton Woods system*

The closest the international monetary and financial system has come to being the result of planning, rather than of a process of historical evolution and accident, is probably the Bretton Woods system as it was envisaged by its architects in 1944. Even in that case, the outcome owed much to the past and to events that occurred between the beginning of the IMF's operations in 1947 and the return to current account convertibility of the currencies of the major industrialised countries at the end of 1958. The basic shape of that design is well known. Efficiency of trade in goods and services was to be served by eliminating exchange restrictions on current account transactions and by liberalising trade barriers under the aegis of the General Agreement

on Tariffs and Trade. In contrast, controls on capital flows were allowed, to avoid short-term swings, which were perceived as speculative and disruptive on the basis of interwar experience. The longer-term need for capital flows for development and especially for the post-war reconstruction of Europe was to be satisfied through the operations of the International Bank for Reconstruction and Development, now known as the World Bank. Stability was to be provided by the fixed but adjustable exchange rate regime enshrined in the IMF Articles of Agreement: maintaining the market value of currencies within (plus or minus) 1 percent of their par value, stated in terms of the US dollar or gold, with changes in parity requiring approval by the IMF, to be granted only in the case of a 'fundamental disequilibrium' of the member's balance of payments. To avoid multiple currency practices, the United States undertook to stabilise the value of its currency in terms of gold, while other countries maintained the value of their currencies in terms of the US dollar. These pegging arrangements were designed to avoid the competitive devaluations deemed to have been an important source of instability during the interwar period; they also solved the $n-1$ problem – in a world of n currencies and countries, there are only $n-1$ independent exchange rates to be fixed among them. To avoid the adjustment of the balance of payments deficit of a member country being too harsh on that country or being detrimental to the economies of other members, the IMF would make its resources available on a temporary basis (lend) to that member.

There were, however, a number of issues on which the original design was silent or incomplete. It had little to say on the distribution of the burden of adjustment among deficit and surplus countries. True, the scarce currency clause allowed discrimination against a country with a surplus so large that the Fund would run out of its currency to lend; but, like a nuclear weapon, this clause could hardly be used, especially not against the US, without bringing the system down. That left the overall supply of international liquidity, or more specifically of international reserve assets, as the regulator of the ease and speed of adjustment for deficit countries. The Articles of Agreement, however, did not provide a clear guide either to the overall provision of international reserves or to their composition. The 'official' supply of international liquidity could, under the Articles, be increased either through a general increase in the quotas of the members or through an increase in the price of gold. The latter was never agreed to, for both economic and political reasons; the former was too unwieldy an instrument. The composition of international reserves as between net positions at the IMF, gold and official foreign exchange (mainly US dollar) holdings was left to be determined by the residual

supply of the precious metal, once private demand had been satisfied at the set price of 35 US dollars per ounce of fine gold and by the United States' balance of payments deficit or surplus.

In the event, the period from 1947 to 1958 was dominated by the gradual resolution of the so-called dollar shortage through Marshall Plan aid, and the progressive move from bilateral to multilateral clearing under the aegis of the European Payments Union (EPU) and the OEEC (the predecessor of the OECD). The IMF played a relatively minor operational role during that period, however important the vision embodied in its Articles of Agreement might have been and however important its role as a forum for discussion and settlement of international monetary issues. The return to current account convertibility of the currencies of the major industrialised countries was the defining event that ushered in the 'heyday' of the Bretton Woods system. The way in which the system operated, however, increasingly came to resemble a dollar standard, with official holdings of dollar balances and the concomitant US balance of payments deficits the major source of growth in international reserves, especially after US monetary policy became looser, notably as a result of the failure to finance Great Society and Vietnam War expenditures through taxation. The system became a *de facto* dollar standard with the creation of the double-tier gold market in 1968, which basically froze official gold holdings.

Three features of the Bretton Woods system, as it functioned in the 1960s, are germane here. First, it retained some of the features of a gold-dollar exchange standard as a consequence of the fixing of the dollar price of gold, notably the potential for a confidence crisis to set in if the ability or willingness of the United States to maintain that price came into question. The link between that confidence problem and the overall provision of international liquidity is of course the basis of the Triffin dilemma. In addition, with the effective demonetisation of gold following the 1968 introduction of the two-tier gold market, the possibility of disciplining US monetary policy through the purchase of gold for official dollar balances disappeared (however dangerous or ineffective such purchases might have been, given the possibility that the US would abandon the gold peg, as it eventually did in 1971). Thereafter, the only possibility left for countries that strongly objected to the stance of US monetary policy, and the importation of US inflation, when that stance was (or was considered to be) too loose, was to abandon the system (as Germany did when it started floating in 1973).

Second, the system operated in such a way as to rob the rest of the world's monetary policy of much of its effectiveness, since the United States was free

to set its monetary policy without regard to the ensuing consequences for its balance of payments, leaving it to other countries to adjust their monetary policies to maintain their parity with the US dollar. By the same token, the practice of settling US deficits or surpluses by the accumulation or decumulation of official dollar holdings, mainly in the form of US Treasury bills, meant that US monetary policy had a strong and dominant influence on world monetary aggregates and on the macroeconomic tone of the world economy.

Third, the period was marked by increasing capital mobility, at least of a short-run nature and among industrialised countries, notably with the development of the euro currency market. The extent of this mobility is illustrated by the very large private capital outflow from the US, and the resulting explosion of foreign official dollar holdings that occurred in 1970 and the first half of 1971. The trilemma of inconsistency between fixed exchange rates, independent monetary policy (in countries other than the United States) and high capital mobility was thus already valid in the 1960s. It does contribute to explain the timing of the 'final' breakdown of the Bretton Woods system on 15 August 1971, when President Nixon declared the inconvertibility of the dollar in terms of gold. The explosion of foreign official dollar holdings was in good part the result of using monetary policy to target internal rather than external balance, both in the US, where monetary policy was aimed at increasing output and employment in spite of an official reserve transactions deficit, and in the rest of the world, where monetary policy on average was being tightened to fight inflation in spite of a corresponding surplus.⁴

As Michael Bordo has shown, the 'convertible period' of the Bretton Woods system in the 1960s exhibits, for major industrialised countries, superior average growth than earlier and later periods; more generally, it exhibits macroeconomic performance and stability that was matched only by the gold standard period.⁵ The convertible period of the 1960s also allowed for a large increase in the volume of international trade, perhaps not surprisingly in view of the low levels that had prevailed at the end of the Second World War. How much of this was due to the architecture of the IMFS of the time is, however, another matter. Still, one may conjecture that relative stability of nominal and real exchange rates, stable monetary policy on the part of the country in the centre of the system until the mid-1960s, moderate though increasing capital mobility and, last but not least, relative political cohesion among the

4 For further discussion and empirical support for these arguments, cf. Genberg and Swoboda (1993).

5 Bordo (1993).

Western countries, provided a framework that made this macroeconomic performance possible. However, the system contained the seeds of its demise; essentially, an unwillingness to devote monetary policy to the maintenance of the fixed exchange rate system, coupled with increasing divergences between the United States and the surplus countries as to the appropriate course of US macroeconomic policy.

After the brief period of floating of the major currencies that followed the US measures on 15 August, the Smithsonian Agreement of December 1971 reinstated a system of fixed but adjustable parities, but not dollar-gold convertibility at a fixed price. With a new parity grid and widened intervention margins, the world was now on a *de jure* dollar standard. However, it took less than two years for that system to break down, as major currencies began floating in the spring of 1973. In many ways, that breakdown ushered in today's IMFS.

18.2.3 After Bretton Woods

Before taking stock of where we are today and of likely or desirable changes in the IMFS in the medium-term future, a brief account of the major events that have shaped the evolution of the system since the breakdown of the Bretton Woods system is offered below. Somewhat arbitrarily, this account considers in turn the 1970s, 1980s and 1990s.

The first oil price shock occurred shortly after the major currencies had started floating. It hit at a moment when inflation was still rising in most industrialised countries, partly as a legacy of the monetary expansion of the late 1960s and early 1970s, whose inflationary consequences had spread internationally through the then prevalent system of fixed exchange rates. With floating exchange rates, the response of macroeconomic policy to the inflation inertia and to the stagflationary impact of the oil price increase could, and did, differ across countries. Some, with Germany and Switzerland in the forefront, gave priority to disinflation; others focused on trying to avoid the employment and output consequences of the oil price shock. This gave rise to fears of a vicious circle of 'excessive' depreciation, inflation and current account deficits in the latter countries, which would then be forced into the stop phase of the stop-go cycle, with severe consequences for output, employment and financial stability. Furthermore, the initially virtuous cycle in non-accommodating countries could result in excessive appreciation and a worsening of the inflation-unemployment trade-off. A case could thus be made for international macroeconomic policy coordination. This gave rise to the much disputed 'locomotive' theory of coordination (the strong current account

countries should take the lead in expanding and pull the other countries along) and later to the ‘convoy’ theory (all countries should expand together at a measured pace, the stronger ones escorting the weaker ones). These theories were discussed at the OECD rather than at the IMF, since it was mainly the major industrialised countries that were concerned. The resulting policy packages turned out to be too little, too late. Indirectly, failure to resolve global imbalances at the global level helped spur the movement towards the creation of the European Monetary System (EMS) and Exchange Rate Mechanism (ERM) in 1978. The oil shock had other consequences, not least among them a flow of capital from oil producers to international financial markets, at the time mainly the euro currency markets. This stimulated their expansion and the recycling of those funds to what – with low interest rates and recession in the industrialised countries – was the more attractive outlet of developing economies, whose growth had proved more resilient to the oil shock than that of the industrialised countries. Moreover, at the low real interest rates that prevailed in the mid-1970s, developing countries had a strong incentive to borrow, even if in foreign currencies. As for governance of the IMFS, this was a difficult period for the IMF. It had lost its role as the guardian of the system of fixed exchange rates, efforts to reinstate some form of exchange rate fixity failed, alternative forums for the discussion of international monetary and financial issues emerged, and lending to its members fell. It did regain some influence by being given surveillance responsibilities over members’ exchange rate policies in the second amendment to its Articles of Agreement, but that amendment also gave member countries a free choice of exchange rate regime with the exception of pegging to gold.

The 1980s brought a sharp reversal of both capital flows to middle-income developing countries (which had mainly taken the form of syndicated bank loans) and of the low real rates of interest at which they had borrowed in the 1970s. Interest rates rose sharply in the United States as a result of monetary tightening by the Federal Reserve combined with a rising US budget deficit. This entailed rising debt-servicing costs for developing country borrowers and was one of the factors that contributed to the debt crisis of the 1980s, which erupted in August 1982, when Mexico failed to meet its repayment obligations. The crisis not only lent renewed importance to IMF lending, but also gave the organisation a new role as a crisis manager, coordinating efforts to restructure and roll over the debt of the developing country borrowers, thus helping to avoid a spread of defaults which would have threatened the solvency of major US banks heavily involved in Latin America and of major European banks engaged in loans to Central and Eastern Europe.

Two additional features of the 1980s are worth mentioning here. The widening twin fiscal and current account deficits of the United States, accompanied by the sharp nominal and real appreciation of the dollar between 1980 and 1985, and followed by its equally sharp depreciation in the next two years, gave rise to concerns about exchange rate misalignments as well as about the sustainability and resolution of current account disequilibria. There was increasing advocacy of target zones and exchange rate-based international policy coordination, as well as much bashing of the surplus countries (Japan notably) by the US, which called for appreciation of their currencies (notably of the yen) lest protectionism break out. Global imbalances had become the focus of policy talk, though not of policy action. Second, monetary cooperation within the European Union came into its own in the 1980s, as exchange rates within the ERM stabilised in the second half of the period, paving the way for the drafting of the monetary union provisions of the Maastricht Treaty, which was signed at the beginning of 1992. At the same time, adoption of the single market initiative led to the removal of remaining barriers to capital flows and to the liberalisation of financial regulation. Finally, the end of the decade was marked by the fall of the Berlin Wall and the ensuing collapse of the Soviet Union, an event which has fundamentally altered the post-war political and economic landscape.

It took until the beginning of the 1990s for the debt overhang that had resulted from the Latin American crisis of the early 1980s to abate, and for that continent's 'lost decade' to come to an end. A new surge in capital flows towards what became known as the emerging market economies was ready to begin. The resumption of capital flows to those economies, however, took new forms: growing equity and direct investment flows, bond finance to and from the private sector, to the detriment of syndicated bank loans to sovereign borrowers. However, just as the boom in the second half of the 1970s was followed by the bust of lending in the wake of the Latin American debt crisis, this surge in capital flows gave way to a sudden halt in lending in the aftermath of the Asian crisis. The nature and frequency of crises in the 1990s, however, differed from those (some would say that) of the 1980s. The inter-connection between banking and exchange rate crises seemed to become tighter and contagion potentially more global, with crises occurring ever closer to each other. Leaving aside the ERM crisis of 1992/1993, the Mexican crisis at the end of 1994 and beginning of 1995 ('the first crisis of the twenty-first century' as it has been called) was followed two years later by the Thai crisis, which spread rapidly to most of the rest of Southeast Asia, then by the Russian crisis in August 1998, and two months or so later, by the débâcle of

the LTCM fund. The crisis soon spread to Brazil and from there to Argentina, not to mention Turkey, Ecuador and the Ukraine, among others. This series of crises thrust the IMF to the forefront of the international community's effort to contain, manage and resolve them. It also gave rise to sharp criticism of the Fund's programmes, conditionality and lending policies, and more generally to calls for a thorough re-examination of the international financial architecture and the means to strengthen it. The reforms that were adopted were incremental rather than radical. Taken together, however, they have made an important contribution to the stability of the international financial system. The first task was to encourage national authorities to adopt better macroeconomic, financial, supervisory and regulatory policies. To this end, a first step was to promote greater transparency through various data dissemination standards, the adoption of which makes it easier to monitor policies and economic developments by national and international authorities as well as by market participants, a second to promulgate a number of standards and codes in a variety of fields important for macroeconomic and financial stability. A number of IMF policies were modified and new ones adopted: conditionality was streamlined, as were the terms and conditions of IMF lending; the transparency of the Fund's operations was greatly increased. Several measures to improve and harmonise regulatory and supervisory practices were adopted by various bodies, such as international associations of supervisors, sometimes under the aegis of the Bank for International Settlements (BIS), sometimes within the newly created Financial Stability Forum (FSF), often with the help of IMF coordination. The more ambitious schemes that were advocated in this context, such as the creation of a Sovereign Debt Restructuring Mechanism (SDRM) or making the IMF an international lender of last resort, will be briefly discussed later in this chapter.

It is, of course, not only the Asian and succeeding crises that are relevant to the evolution of the international monetary and financial system since the beginning of the 1990s. The successful creation and introduction of the euro in 1999, despite the ERM crisis in the wake of the asymmetric shock of German unification, constitutes a fundamental change in the international monetary architecture; as does the rise of the Asian economies, first and foremost China. The remainder of this paper turns to some of the issues that these developments raise.

18.3 Taking stock

18.3.1 A changed IMFS

The post-war evolution of the IMFS and how it differs from that envisioned at Bretton Woods can perhaps best be described by summarising in turn developments with respect to the exchange rate regime, the key currency regime, financial market integration, the nature and magnitude of capital flows, the integration of developing countries into the globalising world economy, and changes in economic and political governance.

The exchange rate regime

The major change here is the move from an almost universal fixed rate regime to one where major currencies are floating, but a variety of exchange rate arrangements have been adopted by other countries, ranging from lightly managed floating to very hard fixes (of the currency board variety for instance), and to the abandonment of a national currency as under dollarisation, or the creation of a common currency in the case of the euro.

The key currency regime

Though the US dollar is still the dominant currency, both in official use (as a reserve currency) and in private use (as a vehicle currency), the euro is playing an increasing role in both functions. The euro represents the first credible challenge to the dollar and its creation may foreshadow the move towards a bipolar key currency regime.

Financial market integration

The common wisdom is that it is only in the last five or ten years that financial and capital markets have again become as closely integrated as they were at the height of the gold standard.⁶ The driver of that integration has been the revolution in telecommunication and information technology that has resulted in a dramatic decrease in transactions costs. That, in turn, has spurred financial innovation and put pressure on controls and regulation of both internal and international financial transactions, and led to liberalisation of those controls. Liberalisation, in turn, leads to further financial innovation, and so on. It should also be noted here that the increasing interconnectedness of the balance sheets of financial and non-financial firms (partly a

6 Cf., for example, Obstfeld (2002).

reflection of the increasing role of multinationals) is one way in which today's financial integration goes further than in the past.

Capital flows

The increase in the magnitude of capital flows since the 1960s has been substantial not only in terms of net flows, but also, and most particularly, in terms of gross flows. Moreover, their nature has changed in several important respects. First, whereas official flows were dominant in the reconstruction period after World War II, private flows constitute the overwhelming part today. Second, capital flows to developing countries have come into their own, increasing rapidly in the second half of the 1970s, stopping in the wake of the Latin American debt crisis of the early 1980s, rising again substantially in the run-up to the Asian crisis of the late 1990s, and resuming their growth today. The composition of these flows has also changed: from official flows to sovereign borrowers in the 1960s, to syndicated bank lending to sovereigns in the late 1970s, and to direct investment and portfolio bond lending to and from the private sector today. Finally, in the last four or five years, capital has begun to flow uphill, from Asian emerging market economies to the United States.

Integration of developing countries

The growing integration of a number of developing economies into the international trading and financial system has been a striking feature of the globalisation of the past twenty years or so. This evolution has been both the cause and consequence of the removal of restrictions on current account transactions, and for many countries, the lifting of some barriers on capital account transactions. It has resulted in greater openness in terms of the share of traded goods in these countries' output and consumption, in an increasing share of manufactured products in their exports, in heightened capital mobility and flows, as well as in high volatility of these capital flows.

Governance

In the immediate aftermath of World War II, governance of the international economic system (at least of the West) was essentially assured by the United States, and regionally by the EPU with the support of the US. The multilaterals, the IMF and the World Bank, did play a role, but it was a subsidiary one. The return to current account convertibility gave a central role to the IMF, though still under the umbrella of the US. It also saw the creation of the General Arrangements to Borrow and of the Group of Ten (G10), a cooperative

forum of industrialised countries that concerned itself with ensuring the stability of the exchange rates of its member countries in the face of short-term capital flows. The G10 also began playing an important role in setting the agenda of the IMF. From the 1970s onwards, a number of other groupings began playing important economic and political leadership roles, from the G5, then the G7, the various OECD working parties and committees concerned with international macroeconomic policy coordination, to the G20 created in 1999. Regional cooperation came into its own with the creation of the EMS and the ERM in 1979. As economic and financial integration proceeded apace, new international groupings and organisations sprang up to deal with the many and complex issues and spillovers that this integration created. In the financial field, where stability issues had mainly been the purview of national authorities, the 1974 Herstatt Bank collapse and the Continental Illinois débâcle led to increased cooperation among regulators and supervisors and to the Basel Accord, and brought international financial market stability issues to the fore of the international cooperation agenda. Furthermore, in the wake of the Asian crisis, a large number of organisations – private and public – became active in the setting and monitoring of international standards, partly under the supervision of the IMF and in cooperation with the FSF. In sum, the rapid development and integration of the world economy, accompanied by an accelerating pace of innovation in information technology and financial engineering, posed new challenges to the regulation of the IMFS and resulted in the increased complexity of its governance mechanisms. Plan began to give way to market, institutions incorporating regional arrangements multiplied, and regulatory mechanisms became more diffuse.

Political factors

Shifts in the geopolitical balance have also significantly influenced the evolution of the IMFS. With the dismantlement of the Soviet Union, the Western political cohesion forged by the Cold War has become frayed at the edges. The rising economic strength of Europe has given it a greater voice in shaping the IMFS, and China has become a force to reckon with. In spite of these challenges, the US remains, for now, the dominant economic and political force in the world economy.

18.3.2 A flat world?

The preceding section described some of the trends that have shaped the architecture of today's IMFS. Its dominant features are, to repeat, increasing trade and financial integration, the drawing in of the developing world into

this integration process, the increasing role of the private sector, diminished political cohesion, and increased complexity and interconnectedness, both of economic intercourse and of the regulatory mechanisms of the IMFS. In the words of Stijn Claessens and Geoffrey Underhill, we live “in a world of fragmented governance, multiple institutions, accelerated financial integration and increased private sector roles”.⁷ The main tension is between an integrating economic world and fragmented policy and decision-making. The main message of Richard Cooper’s *The Economics of Interdependence: Economic Policy in the Atlantic Community*, that increasing economic interdependence entails external effects of national policies which make international policy coordination or cooperation indispensable, is more relevant than ever and now extends well beyond the Atlantic Community.⁸

On the economic front, then, the world is getting flatter. It is not flat yet, the title of Thomas Friedman’s recent book notwithstanding.⁹ Domestic segments of financial and capital markets are still not fully integrated with international markets, though increasing linkages between the two have been one of the driving forces of financial market globalisation since the international segment took off with the euro currency markets in the 1960s. Home bias still characterises both trade and financial markets, which implies, as Jeffrey Frankel has argued, that integration still has a long way to go if it is to be judged by the criterion of perfect integration, rather than by that of the heyday of the gold standard.¹⁰ Trade in goods and services, however much it has increased in the past sixty years, is still subject to both natural (transport cost) barriers and man-made controls and obstacles. True, the increasing scope for outsourcing important parts of the supply chain abroad through trade in services has contributed to increased mobility of human capital (or rather of its services) and to evening out the competitive playing field, i.e. the flattening of the world according to Friedman. Still, the existence of different currencies, the persistence of differences in national macroeconomic and structural policies as well as limits to the mobility of factors of production (the characteristic that traditionally distinguishes international from inter-regional economic analysis) cannot help but have an impact on the extent of economic integration.

In examining the implications of the tensions between economic integration and fragmented policymaking for the international monetary and financial

7 Claessens and Underhill (2005).

8 Cooper (1968).

9 Friedman (2005).

10 Frankel (1999).

system, however, it is useful to have as a frame of reference a ‘one world’ model with integrated goods, services and financial markets, rather than a model of international intercourse, where the only link between countries is trade in goods and services. Put another way, the methodological alternatives are disaggregating from an economically unified world model to national variables vs. aggregating from national models to world variables. For several issues, policy coordination in particular, the first approach yields more appropriate lessons than the second.

With this perspective in mind, three issues for the IMFS, both current and prospective, are taken up in the next section: the likely future evolution of exchange rate and key currency regimes; the implications of financial integration for international policy coordination; its implications for reform of the IMF as the guardian of international monetary and financial stability.

18.4 Issues

18.4.1 The exchange rate and key currency regimes

Two questions arise with respect to the evolution of the exchange rate regime in the medium-term future: how will the exchange rate regime among industrialised countries evolve, and is a further hollowing out of the middle of the exchange rate regime spectrum likely?¹¹

With regard to the exchange rate regime governing the behaviour of the currencies of major industrialised countries, there is little reason, for better or for worse, to expect a major departure from relatively clean floating. True, the exchange rates of the dollar, euro and yen have been highly volatile vis-à-vis each other and vis-à-vis other important currencies such as sterling, the Swiss franc, or the Canadian dollar, to mention but a few. They have also exhibited medium-term swings, sometimes identified as misalignments of their foreign exchange market value. The reasons for this volatility of the major currencies – notably the fact that these are the currencies of large and therefore relatively closed economic areas – would lead one to expect such volatility and swings to continue to prevail in the future, in the absence of any major policy initiatives to moderate their fluctuation. Such initiatives, however, are unlikely to be adopted for several reasons, however damaging the volatility of major currencies may be for third countries. These reasons include the focus

11 The IMF study Mussa et al. (2000), of which the present writer was a co-author, takes up these questions. The next two paragraphs in the text partly follow and summarise the views expressed there.

of monetary policy on internal goals, notably the overriding priority given to price stability in the mandate of the European Central Bank, which by and large rules out systematic foreign exchange market intervention and the co-ordination of monetary policies that is essential for the maintenance of stable exchange rates in the presence of shocks. In addition, the incentives for major economies to stabilise the foreign exchange value of their currencies are weaker than for smaller economies, as the impact of exchange rate fluctuations on large and relatively closed economies is less damaging than on smaller ones. It may still be in the interests of both major and third countries, especially developing ones, to moderate 'excessive' exchange rate swings. The question is how this might best be achieved. Stable fundamentals and macro-economic policies that pay some attention to the correction of large external imbalances may still be the best way. This is a topic to which the next section, on international macroeconomic policy coordination, will return. For the reasons given by Michael Mussa et al.,¹² target zones are not a viable alternative,¹³ although a case could be made for the inclusion, for instance in IMF surveillance, of estimates of large departures of exchange rates from long-run equilibrium levels, as a signal that some policy response would be desirable. That policy response, however, would be conditioned on the reasons for the departure, and would only rarely call for sustained foreign exchange market intervention.

The move of the industrialised countries to (by and large) free floating, with only occasional intervention, is one of the ways in which the middle of the exchange rate spectrum has been hollowed out. The reason for this move towards, but not necessarily all the way to, the extremes is, of course, that integration of financial markets makes it very difficult, if not impossible, to maintain a soft peg or a peg with narrow bands, unless one is willing to devote monetary policy entirely to the defence of the peg. This is equivalent to devoting monetary policy to maintaining equilibrium in the official settlements measure of the balance of payments at the given parity. Unless markets believe that the monetary authorities are willing to undertake the measures necessary to defend the peg, it becomes impossible to actually do so. In turn, to convince the markets, the authorities may well have to tie their hands behind their backs by moving all the way to a very hard peg (for instance of

12 Mussa et al. (2000).

13 Defects of target zones include, among others: the difficulty of agreeing on 'normal' underlying capital flows, the dependence of 'fundamental equilibrium exchange rates' on the specific mix of policies used to achieve internal balance, the endogeneity of real exchange rates, inadequate specification and assignment of policy instruments.

the currency board variety), by dollarising, or by joining a currency union. With the increasing integration of a number of developing countries, the so-called emerging market economies, into world financial markets and the partial relaxation of their controls on capital movements, the maintenance of fixed exchange rates has become difficult for them, too. The fact that most of the countries hit by the Asian crisis had maintained fairly rigid pegs was seen by many as a major factor contributing to the crisis and led to a call for them to move to floating exchange rates. Though the importance of the peg in and of itself should not be exaggerated, the combination of the peg with macroeconomic policies that were incompatible with its maintenance certainly contributed to the crisis. Be that as it may, it seems most probable that medium-sized emerging market countries will increasingly move to greater exchange rate flexibility, though few of them are likely to refrain entirely from some degree of exchange rate management; benign neglect of fluctuations in what is for them a key price is not a likely option. Does this mean that pegged exchange rates are dead in our flattening world? Probably not, as a substantial number of smaller economies with moderate involvement in world financial markets may find it possible and advantageous to maintain a pegged exchange rate with their main trade and financial partner without needing to go as far as maintaining a completely rigid peg. Moreover, large developing countries which have retained substantial controls over capital movements, and which are growing rapidly and have accumulated sufficient reserves, are still able to escape the rush to the extremes. India and especially China are, of course, the prime examples. In the course of time (shorter than Chinese time), however, it will undoubtedly become advantageous for them to move to some form of greater exchange rate flexibility, however limited at first.

Turning to the key currency regime, the next ten to twenty years will probably see a gradual decline in the dominant position of the US dollar and a rise in the role of the euro, both as a reserve and a vehicle currency. The more controversial question is whether a third key (vehicle and reserve) currency will emerge together with a move towards a tripolar, rather than a bipolar currency regime. That is unlikely, except over a horizon that extends further than ten to fifteen years. For a currency to become a key currency requires that it be issued by one of the dominant countries in economic terms, and one that is expected to be politically stable. Assets denominated in that currency must be liquid; the market for them must be 'deep, broad and resilient' as the saying used to go. And one must be able to trade it freely, with no actual or expected controls, or as few as possible. It also helps, at least at the outset, if that currency is not subject to wide fluctuations in the foreign exchange

market. The non-fulfilment of these conditions helps explain why the yen did not become a dominant currency in the 1980s, contrary to widespread predictions, and why it has little chance of becoming one in the future. It also explains why the renminbi is not likely to become a major world currency in addition to the dollar or euro over the horizon that concerns us here. However, it may well come to play a dominant role in East Asia and, eventually, and over a longer horizon, become one of the world's key currencies.

18.4.2 International macroeconomic policy coordination

The Bretton Woods system as it functioned in the 1960s acted as a coordinating mechanism for industrialised countries' macroeconomic and particularly monetary policies around the monetary policy of the United States. A previous section has argued that this coordinating mechanism broke down partly because of dissatisfaction with the macroeconomic policies of the anchor country and more generally with the extraordinary power it conferred to US monetary policy. One of the virtues claimed for floating exchange rates, as they were adopted in 1973, was that they would obviate the need for coordination of the goals and instruments of economic policy.¹⁴ However, volatility and medium-term swings in both nominal and real exchange rates, persistent current account disequilibria, various spillover mechanisms through capital markets and the differential impact of the 1973 oil shock led to renewed interest in and attempts at international macroeconomic policy coordination (IPC). Although, as noted above, coordination of macroeconomic policies has been scant and not always successful in practice, it has a clear rationale in theory: the macroeconomic policy of any but the smallest of countries has spillover effects on other countries, and the closer the links between economies (the more interdependent they are), the stronger and more complex these spillovers are likely to be. The increasing integration of the world economy, notably of financial and capital markets, would thus seem to make the case for international macroeconomic policy coordination more relevant than ever. 'Would seem' because the complexity of the links also makes the process of IPC more difficult. Be that as it may, the basic rationale for IPC – developed in the game theoretic literature, however complex its theoretical elaboration may be – is simple. In the presence of international policy spillovers, the outcomes of policies that do not take such spillovers into account

14 Indeed, this argument was already at the root of the case for flexible exchange rates made by Friedman (1953), chapter 'The case for flexible exchange rates', pp. 157–203.

are dominated by those that do.¹⁵ However, although cooperative outcomes dominate Nash equilibria, they are difficult to achieve unless the players can credibly commit not to renege on the cooperative strategy. In addition, if the players do not know with certainty the exact nature of the structure of economies and their interlinkages, or if they operate on the basis of different models of the economy, the cooperative outcome may turn out to be worse than the uncoordinated one.

A simpler approach to issues of policy coordination than game theoretic models is the targets and instruments approach pioneered by Jan Tinbergen, applied to issues of internal vs. external balance by James Meade, and then extensively by Robert Mundell, who supplemented it with his 'principle of effective market classification'. The latter emphasises the dynamics of convergence to targets through a system of decentralised policy responses to divergences between actual and desired values of target variables in a world of imperfect knowledge. This approach has been used by Hans Genberg and Alexander Swoboda to provide a framework for the analysis of the policy and coordination issues raised by the US current account deficit and the German and Japanese surpluses of the mid-1980s.¹⁶

In the targets-instruments approach to economic policymaking, the first task is to ensure that there are as many independent instruments of policy as there are targets of policy. If there are, all targets can in principle be reached simultaneously (this is different from the game theory approach in which there is typically a shortage of instruments which gives rise to a trade-off among the achievement of targets, the cooperative solution aiming at achieving an efficient trade-off). The second task, if there is uncertainty as to the specific parameters of the economy and its dynamic behaviour, is to assign instruments to targets in such a way that policymaking leads to convergence on the targets. According to Mundell's principle of effective market classification this can be achieved in a system of decentralised policy response by assigning each policy instrument to the target which it has a comparative advantage in influencing, relative to other instruments.

Two points should be noted here. First, no solution can be found if there is disagreement about the value of variables that are 'shared' among countries. For instance, it is impossible for every country in the world simultaneously to achieve a current account surplus, since the sum of such surpluses, if accur-

15 For a recent survey of that literature, of actual coordination efforts and of the current state of play in the field, cf. Meyer et al. (2002).

16 Genberg and Swoboda (1989, 1991).

ately and consistently measured, is of necessity equal to zero. Second, why should the current account balance be an objective of economic policy? As long as there are no distortions or externalities, and solvency constraints are respected, current account imbalances will reflect the undistorted intertemporal choices of agents and result in an optimal allocation of capital, which will flow from where it is abundant to where it is scarce. These are good imbalances which are to be welcomed and not worried about. Bad imbalances, in contrast, reflect distortions somewhere else in the economy and are to be worried about, if only because their tardy resolution may bring about an unnecessarily costly and disorderly correction.

To illustrate the kind of policies and coordination required to sustain a smooth reduction in global imbalances, consider a simple model in which countries are linked through trade and integrated financial markets. In such a world, the same interest rate will prevail everywhere. Assume that each country has at its disposal two instruments of macroeconomic policy, monetary and fiscal policy. Assume, in addition, that Ricardian equivalence does not hold, at least fully, as otherwise budget deficits may not have effects on current accounts or interest rates. In such a framework, it is the sum of the fiscal stances of individual countries or regions that determines the world real rate of interest, while a country's current account balance is most directly influenced by its fiscal stance relative to the sum of those in the rest of the world. This is true whether fixed or flexible exchange rates prevail. The exchange rate regime, however, is crucial for the use of monetary policy. Under fixed exchange rates, non-sterilised pegging interventions¹⁷ redistribute the total supply of money in the world (the sum of the national money supplies) à la Hume to ensure official settlements balance of payments equilibrium. Put another way, it is relative national money supplies that ensure payments equilibrium under fixed exchange rates. In contrast, it is the sum of national money supplies that determines the total world money supply and eventually the course of the level of prices in the world economy. Institutional arrangements, whether of the gold, gold exchange or dollar standard type, play a crucial role here in determining the world money supply through the interaction of domestic monetary policies. Under floating exchange rates, national monetary policies are freed to be used for internal purposes and eventually determine national price levels.

17 One country or region can sterilise; this was the case of the United States as the 'nth' country during the convertible Bretton Woods period.

The implications of this simple view of the integrated world economy for how national policies should be adjusted (coordinated) to reduce current account imbalances, which are generally agreed to be too large, is straightforward: first, let the fiscal stance of deficit countries become more restrictive relative to that of surplus countries; that is, use the instrument that most directly affects the current account; second make sure that the sum of individual fiscal stances be made more expansionary if there are recessionary tendencies in the world economy, more restrictive if the world economy is overheating. Note that in a world of less-than-perfect knowledge, what is important is not so much the exact magnitude of these fiscal adjustments, than that they be made in the right direction. To illustrate, consider the contemporary imbalances among the United States, East Asia and Europe. If the US current account deficit is the main concern, it behoves that country to reduce its budget deficit and more generally to adopt structural fiscal or other measures to raise national saving relative to national investment. If Asian current account surpluses are also a concern, Asia (read China) should increase its expenditure relative to output, hence the recommendation that consumption be expanded in that region. If, at the same time, there is a concern that world spending falls or rises too much, the two measures should be taken simultaneously. As for Europe, it should do what is best for it, namely make the supply of output more responsive to aggregate demand through labour market and other structural reforms. Note that these recommendations are independent of the exchange rate regime. What one would expect in this context is for the euro to continue floating against the dollar, keeping monetary policy free in both regions to deal with internal balance. As for China, it seems clear that, given present restrictions on capital outflows, the pressure for a real appreciation of the renminbi will not abate. What the renminbi's exchange rate regime will determine is whether real appreciation occurs through a rise in domestic prices and wages, as under fixed rates, or through a nominal appreciation of the Chinese currency. Eventually, once some order has been established in its banking system, it is likely that the Chinese authorities will opt for the second alternative, not to reduce the US current account deficit, which it will hardly affect, but for the Chinese economy's own sake. This would have the added advantage of allowing China to stop accumulating 'excess' international reserves at a high opportunity cost. China, however, is likely to want to move slowly, as an abrupt appreciation of the renminbi would squeeze the agricultural sector, accelerate the exodus towards the cities and the industrial sector, and potentially create severe social and political problems.

The intriguing aspect of this set of policy recommendations is why it is so difficult to put into practice, even though it reflects a fairly broad consensus among economists (except for the renminbi question) and, more importantly, suggests policies that would be in the best national interests of the countries or areas concerned? A first, and important, reason is that the recommended package requires countries to change the course of their fiscal and structural policies, which they are unwilling or unable to do for political reasons. A second reason is doubt about the effectiveness of the proposed measures. For instance, some models find that fiscal consolidation in the US has but a minor effect on that country's current account; the budget and current account deficits, in that view, are not twins after all. That view, however, is not confirmed by more recent estimates, which indicate a substantial current account effect for fiscal policy. A third element in the explanation is the first mover – or collective action – problem: in order to achieve the desired current account rebalancing, while maintaining output and employment, all players must move simultaneously. This last problem is exacerbated by uncertainty about how much policy adjustment to the international policy package is required of each party. As argued above, however, what matters is that each of the parties concerned be seen to move in the right direction, rather than exactly by how much. An international coordinating mechanism may be useful in overcoming these problems. Whether the IMF can help provide such a mechanism is one of the questions to which the next section turns.

18.4.3 The institutional mix and the role of the IMF

The governance of the IMFS has become much more diffuse with the proliferation of organisations and institutions that deal with the complex set of issues that confront it. One may hark back to the simpler past, where one institution dealt with one problem area only, in analogy with the targets and instruments paradigm: the IMF dealt with the stability of the international monetary system and balance of payments problems, the World Bank with long-term capital flows and real resource transfers, the World Trade Organization with trade, and national governments with national policies and the regulation and supervision of financial markets. The multiplication of issues to be dealt with in a closely integrated world economy, however, has resulted both in a multiplication of institutions and in the blurring of the demarcation lines of their competences, perhaps as a reflection of the greater interconnections among issues that integration reveals, perhaps less charitably as a result of bureaucratic turf battles and mission creep. One important issue for the medium-term future is to achieve a better delineation of competences among

organisations on the basis of an examination of what they can best do and what they cannot or should not attempt to do. This is particularly true for the IMF, for which this critical process has already been initiated both within the organisation and by outside critics and experts.¹⁸ This section begins with an examination of reform of the IMF and then turns to some more general issues of the institutional mix.

Proposals for IMF reform have ranged from its abolition to turning it into a world central bank. Without going to such extremes, various proposals have been made, relating among others, to its role in lending, surveillance, supervision and regulation, in crisis management and resolution, as well as to its governance and organisational structure. How various commentators see the place of the IMF in the international monetary and financial architecture depends, of course, on their views of the current state of the IMFS and of the issues that will confront it in the future. Thus, to different observers, different roles and functions seem appropriate for the IMF. It should be emphasised at the outset that the assessment of the appropriateness of actual or potential functions of the IMF below reflects only one such point of view and may diverge from the prevailing consensus – to the extent that this exists.

There are a number of traditional roles of the IMF that, although not very glamorous, are important, relatively uncontroversial, and should be maintained and developed. Among these, the first area to be considered is technical assistance. Fund staff have developed well-nigh unmatched expertise in a number of areas: balance of payments, monetary and financial ‘programming’, the design of fiscal programmes, or more generally, advice on banking, exchange rate and macroeconomic issues. Their advice to developing and emerging market economies in these fields can help provide a macroeconomic environment conducive to growth and financial stability. One issue, however, concerns the terms and conditions under which technical assistance and advice are provided. The Policy Support Instrument, dear to John Taylor’s heart, is one way in which such advice can be provided and monitored outside a regular IMF programme.¹⁹

A second useful and related area to which the IMF has recently made a major contribution is the promulgation and monitoring of standards and codes of conduct, or best practice, in various dimensions of macroeconomic and financial policy. The incentive for countries to adhere to such codes is clear: it enables them to build up credibility and, on the strength of this in-

¹⁸ Truman (2006a) is an excellent example of the latter.

¹⁹ Cf. Taylor’s contribution to Truman (2006a).

crease in credibility, to lower their borrowing costs. The stick is the market reaction to non-adherence to such codes, thus delegating to markets part of the task of surveillance over national policies. The advantage is once more a gain in financial stability for the system as a whole. Of course, care must be taken to ensure that the IMF does not overreach in this activity. It should only take on the design and monitoring of standards and codes in its area of expertise, which is basically various aspects of macroeconomic, financial, exchange rate and central banking policy. In other areas, for instance accounting, securities market organisation, insurance or commercial banking, it can only play the role of a coordinator or forum, and help to integrate the appropriate codes and standards into a coherent international framework. One issue that arises in this respect is how to design the codes and standards in a manner that makes their adoption not too onerous, in particular for those countries that do not yet possess the sophistication or institutions of the advanced countries. Here, the provision of technical assistance and advice by the Fund (and other standard-setting agencies) is of the essence.

Surveillance is a third area in which it is generally recognised that the IMF can and should play a useful and important role. The second amendment to the Articles of Agreement (Article IV section 3) specifies that “the Fund shall oversee the international monetary system in order to ensure its effective operation, and shall oversee the compliance of each member with its obligations under Section 1 of this Article” and that, in order to discharge this function, “the Fund shall exercise firm surveillance over the exchange rate policies of members”. The exercise of surveillance of individual members’ policies in the context of Article IV consultations is relatively straightforward and uncontroversial. Even there, however, problems arise: what exactly is exchange rate policy and how can it be distinguished from the adoption of an exchange rate regime which is left to the choice of individual members of the IMF; what exactly does a member’s obligation to “avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members” mean? And what incentives are there for non-programme countries to abide by the recommendations of the surveillant? These issues are discussed further below in the context of the lively current debate surrounding the extension of surveillance to a multilateral context.

Turning to IMF lending, its purpose, terms and conditions are the subject of much controversy. Several commentators seem to consider that such lending has become obsolete, since private capital flows dwarf the resources available to the Fund, at least for the more important emerging market and

advanced countries, since these emerging market countries have built up very large foreign exchange reserves and since such lending may create moral hazard. Others argue, however, that the Fund should confine its lending activity to lending in last resort and only in crises that are, or threaten to be, of a systemic nature – and, in such an event, that very large resources be made available to the Fund. It is possible to argue that neither of these views is correct. Leaving aside the lender of last resort issue for a moment, contrary to the first view, a strong case can be made for Fund lending, within normal access limits and at recently streamlined terms and conditions, for the purpose originally envisaged in the first of the IMF's Articles of Agreement, namely "to give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with an opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity." It is true that financial markets are currently calm, that a number of countries have self-insured by building up large international reserves, that there is little demand for the Fund's resources and that the latter would be insufficient to cope with a systemic crisis involving a number of large countries. It is also true, however, that times are unlikely to always be so good, that crises are likely to occur again and that countries will occasionally experience balance of payments difficulties, the resolution of which would be eased by an IMF credit and programme. As for the moral hazard danger, the issue is not that there should be none, but that it be limited and contained. Conditionality is one means of doing so; for this to work, however, the Fund must insist that the programme's conditions be strictly respected (policies rather than outcomes) and it must stop releasing further credit tranches should this not be the case. This implies that the IMF should avoid the excessive forbearance it showed in the Argentine case. The proper role of the Fund remains that of a lender of 'final' (and not of last) resort, as Mussa put it.²⁰ Mussa is also right in arguing that in exceptional circumstances, the Fund may engage in large loans in excess of normal access limits. Arguably, however, such loans should only be granted in truly exceptional circumstances, with the agreement of a large majority of the Fund's members, and with strict enforcement of the terms of the conditionality to be applied.

That said, there are several reasons why the Fund could not or should not play the role of a lender of last resort. The analogy to the role of a lender of last resort à la Bagehot in a national context – to lend freely, at a penalty rate,

20 Mussa (2006).

against good collateral – is misleading. A national central bank can create money and inject large amounts of liquidity almost at will into the banking system at large, can secure collateral the quality of which it can judge, and can do this very rapidly. In contrast, the Fund does not have unlimited resources and does not lend to markets, but to countries (the analogy here is lending by the central bank to an individual bank in difficulty, which is lending of final, and not of last, resort, in Mussa's terminology). It cannot secure marketable collateral even if its privileged creditor status and the exercise of conditionality can protect it from debtors defaulting on its loans. In opposition to this point of view, the majority of the influential Meltzer Commission,²¹ argued that the role of the Fund could and should essentially be confined to that of a lender (or quasi-lender) of last resort in the event of a systemic crisis. The Meltzer Commission claimed that its scheme would not create moral hazard, since the lending facility would only be available, for very short maturities (120 days, renewable once), to countries that had pre-qualified for its support, on the basis of severe financial soundness criteria, including the holding of large foreign exchange reserves. The proposal appears either naïve or disingenuous. The short maturity of the loans would most likely lead to speculation as to whether the crisis would actually be over after four months; if not, a run on the currency would ensue. Although some of the criteria for pre-qualification make eminent sense from the point of view of financial soundness, countries that would qualify on the basis of these criteria would not need such assistance, whereas those that really did need assistance would be disqualified. In a way, this proposal shares some of the defects of the Fund's defunct Contingent Credit Line facility, among them the difficulty of disqualifying a country once it has qualified. Although the notion of pre-qualification is very attractive, it is extremely difficult to implement in practice in an international – as opposed to a national – context.²² In the latter, pre-qualification takes the form of regulation and supervision of banks, and more broadly of financial institutions, which ensures that they are and remain in 'good standing'. Moreover, the risk of having to socialise the losses, if any, of a lender of last resort operation is more acceptable to taxpayers in a national than an international context.

This does not mean that the IMF cannot play a role as a (systemic) crisis manager.²³ It has done so in the past by getting major banks to agree to

21 International Financial Institution Advisory Commission (2000).

22 For a (perhaps overly) negative appraisal of pre-qualification, cf. Mussa (2006).

23 In a well-known article, Fischer (1999) argued that the IMF could play a lender of last resort role. The role he describes, however, seems to correspond more to that of crisis manager than to that of lender of last resort.

restructure and maintain syndicated credits in the Latin American crisis of the 1980s or, in the Asian crisis, by coordinating large multilateral lending packages. The issue, however, is whether the Fund should go further in crisis prevention and resolution, and whether it is equipped to deal with what many see as the problems of the future, namely exchange rate regimes and policies, and multilateral surveillance (and resolution) of global imbalances. Surveillance (about which more later), appropriate programmes and conditionality, technical assistance and the promulgation of standards and codes is probably as much as the Fund can do in the realm of crisis prevention. With respect to crisis resolution, the desirability of having a mechanism at the international level, akin to a national bankruptcy court and procedures, which would ensure a more orderly process of debt restructuring, has been recognised for some time. Although it has been shelved for now, such a mechanism, in the form of an SDRM, was proposed by Anne Krueger, the First Deputy Managing Director of the IMF, in the wake of the crises in the second half of the 1990s. The proposal, however attractive intellectually, is fraught with difficulties in practice. At a national level, reorganisation of an insolvent firm under the protection of the court (the Chapter 11 procedure in the United States) makes an orderly restructuring of the firm's balance sheet possible and can avoid its liquidation if the value of the firm as a going concern exceeds the immediate liquidation value of its assets. It also offers protection to the creditors by allowing a change in management, by preventing a stripping of the firm's remaining assets and by ensuring equal treatment of creditors, all under the supervision of the court. None of this is easily achieved in an international context and when the 'firm' is a sovereign. In any event, an SDRM would require a stay on payments by the sovereign debtor, sanctioned by an international organism ('the court'). One reason the IMF cannot be that organism is that it would be both judge and party, since it is itself a creditor to the sovereign, and will be involved in further lending, act as its advisor in the negotiation of a programme and as a 'regulator' when it enforces conditionality. At most, it could be one (albeit important and expert) source of advice to the court on the appropriateness, length and modalities of a stay. Although the creation of an international bankruptcy court is not for tomorrow, and although the IMF is not the organism through which it should be implemented, the increasing integration of the world economy suggests that some such restructuring mechanism is likely to see the light of day in the medium run.

For the moment, however, as there have been no major emerging market crises in the last four years, nor consequently much demand for IMF resources (on the contrary, major borrowers such as Argentina and Brazil have pre-

reimbursed their loans), and as private capital flows have provided abundant finance at historically low spreads to those emerging market countries that are borrowing, crisis lending no longer seems to be as central to the role of the Fund as guardian of international monetary and financial stability as it was only a decade ago. In this context, it is perhaps not surprising that there have recently been renewed calls for IMF reform and a rethinking of its purpose, means and structure. There can be little disagreement that its purpose should remain to ensure the stability of the international monetary and financial system. To do so, however, it must be ready to address the core issues that international financial integration has brought to the fore, notably the orderly unwinding of global imbalances and the promotion of appropriate exchange rate policies and stable exchange rate regimes – in addition to the prevention and resolution of possible future international debt, currency and banking crises. As Mervyn King has emphasised, the crises of the 1990s, global current account imbalances and the stability and appropriateness of specific exchange rate regimes and policies are all intimately tied to international, and particularly financial, integration.²⁴ Without a high degree of capital mobility, US current account deficits in the order of 6 to 7 percent of gross domestic product could neither have been financed nor sustained for as long as they have. Furthermore, the unprecedented increase in gross capital flows has resulted in an intricately intertwined structure of national balance sheets, notably in terms of maturity and currency composition. That interconnection of balance sheets across countries has, in turn, made financial markets increasingly sensitive to current and expected future shocks, witness the sudden stops characteristic of emerging market crises, financial contagion, the volatility of exchange rates, or the risk of a hard landing as global imbalances unwind.

The question is whether, how and by what means the IMF can fulfil its role in ensuring the stability of the IMFS in this changed world, both today and tomorrow. Specifically and first of all, what should and can the Fund contribute to the unwinding of global current account imbalances? Whatever power it has in this respect at present is vested in the provisions of Article IV concerning its responsibilities for surveillance of international monetary and financial stability. Where multilateral surveillance is concerned, the IMF has discharged this responsibility by publishing its analysis and some policy recommendations, or alternative policy options, in its *World Economic Outlook* and, more recently, in its *Global Financial Stability Reports*. The difficulty, if

24 King (2006).

the analysis of section 18.2 above is correct, is that resolving global imbalances requires policy action by the world's major economies and, in an integrated world economy, coordinated policy action. Two factors compound that difficulty. The first is some disagreement about the precise mix and extent of the required policies, although there would be broad – but far from unanimous – agreement about the general pattern and direction of the policy adjustments that are required. These are a reduction of the US budget deficit and a compensating expansion in the rest of the world, if our previous analysis is to be believed. This points to the second source of difficulty, namely, that changes in national fiscal and structural policies are essential elements of this policy package and of coping with current account imbalances. The Fund has little leverage beyond moral suasion to influence such policies in major countries. The suggestions made in Governor Mervyn King's cogent analysis may be the best that can be achieved at present.²⁵ The IMF should be the main source of independent, sound and frank analysis of threats to international monetary and financial stability, and of recommendations to cope with them, whether or not they please individual countries – however powerful. To lend weight to this analysis and these recommendations requires backing by the Fund's governing bodies. This, in turn, requires giving the latter more independence and political weight, an issue taken up in the brief discussion of IMF governance provided below.

Promoting sound exchange rate policies and adequate exchange rate regimes constitutes a particular challenge for IMF surveillance, whether over the policies of individual countries or multilaterally. Under the Articles of Agreement, members are free to choose their exchange rate regime, while the IMF should ensure that they pursue proper exchange rate policies, in particular, and (to reiterate) that they avoid “manipulating exchange rates to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members”. The choice of a regime, however, dictates what their exchange rate policy, *stricto sensu*, has to be: to keep the nominal exchange rate fixed in a fixed rate regime, to let it float in a floating rate regime, and to intervene appropriately in order to guide it in accordance with the declared intermediate regime. This would seem to leave little room for questioning a country's exchange rate policy, except to argue that, if not left free to float, the level at which the rate is set is inappropriate and that this constitutes unfair ‘manipulation’ of the exchange rate or of the system. Recent

25 The communiqué of the April 2006 IMFC meeting goes in the direction of some of these suggestions.

utterances by US officials, members of Congress or policy analysts, principally, but not exclusively, in the context of China's exchange rate policy, seem to go further and argue that flexible exchange rates are the only proper policy or regime for countries, with the possible exception of very hard pegs for a limited number of small and dependent economies. Rather than focusing on the level of the exchange rate or elevating freely floating rates to the status of the only appropriate regime (or panacea), it would be far better to focus surveillance on the consistency of countries' macroeconomic and financial policies with (or including) the exchange rate regime. What may be good macroeconomic policy under one regime may be bad policy under another. Such an approach, which in essence is what has been advocated by the Fund in the past, has several advantages.²⁶ It avoids focusing on 'manipulation', a highly loaded and politically unhelpful expression. It avoids having to specify a 'correct' (or 'just?') level of the exchange rate, irrespective of a country's actual or prospective macroeconomic policies, which is a well-nigh impossible task with little scientific legitimacy, since the real exchange rate is an endogenous variable in the long run. This does not mean that the IMF should not provide estimates of carefully defined concepts of equilibrium exchange rates, nor that it should not analyse discrepancies between such estimates and actual rates, or that those discrepancies may not signal the need for changes in policy. Instead, it avoids misplaced emphasis on the exchange rate as the linchpin of international policy coordination, distracting attention from those policies, such as fiscal policies, that are actually most relevant and whose coordination and modification is the real issue.

Turning to the governance of the Fund, several issues have to be solved if it is to discharge its functions effectively. Although there is always tension between effectiveness and legitimacy, the latter is a necessary condition for the former in a multilateral organisation. The title of a paper by Ted Truman, 'Rearranging IMF chairs and shares: the sine qua non of IMF reform',²⁷ reflects a growing consensus that for the Fund to gain legitimacy and ownership by all its members requires an increase in both the emerging markets' voting power, which depends on quota shares, and of their effective voice, which depends on their representation in the constituencies (the chairs) on the Executive Board. Such reshuffling is politically extraordinarily difficult and will require, in the eyes of most observers, a consolidation of the representation of European Union countries on the Board into one or two

26 Mussa et al. (2000).

27 Truman (2006b).

constituencies.²⁸ Be that as it may, rearranging chairs and shares will not solve a fundamental problem in the governance of the IMF – how to make its Board more effective – which requires making it more independent, while maintaining its accountability. It has been suggested that the governance structure of independent central banks is one direction in which Fund governance could move. An IMF managing board would be established and composed of individuals elected, though not necessarily nominated, by the Board of Governors. They would represent the interests of the membership at large, rather than those of a particular country or group of countries. They would, in turn, be accountable to a new version of the International Monetary and Financial Committee (IMFC), which would meet more frequently to review, approve, and – once approved – support the strategic decisions or propositions of the managing board. In addition, the nomination and election process of the IMF's Managing Director and Deputy Managing Directors would be a much more open one. Such fundamental reforms in the governance of the Fund are, of course, politically very difficult and, to make matters even more complicated, are interrelated with the issue of shares and chairs. They are not for tomorrow, but the increasingly open debate about them suggests that they may be for the day after tomorrow.

In the meantime, there is one question on which progress can and should be made rapidly. Some of the issues that arise with respect to the stability of the IMFS, such as global imbalances or exchange rate policies with significant international spillovers, while within the responsibility of the Fund, are of immediate concern and require action by only a limited part of the Fund's membership, even if their resolution is of crucial interest to the international community as a whole. Partly as a consequence, such issues tend to be discussed outside the IMF by various G-Xis, where Xi is any number from 1 to 30 (though 3, 7, 8 and 20 are particularly important ones). It would seem important to bring these discussions back into the Fund's forum along the lines proposed by King.²⁹ This would not only require that the membership recognise that all members need not participate in all discussions, but would also allow Fund staff to lend its expertise, and Fund management to be involved in discussions that are central to the stability of the IMFS.

These are all issues that will have to be tackled if the IMF is to be an effec-

28 Daniel Kaeser's account of the negotiations leading to Switzerland's accession to the IMF Board provides fascinating insights into the complexity and difficulty of reshuffling quota shares and Board representation; cf. Kaeser (2004). Truman's paper provides an excellent account of the current situation as well as some concrete proposals for change.

29 King (2006).

tive guardian of international monetary and financial stability. It is encouraging that the IMF's International Monetary and Financial Committee, at its April 2004 meeting and following the *Managing Director's Report on Implementing the Fund's Medium-Term Strategy*, endorsed a number of proposals that go in this direction. The emphasis on multilateral surveillance and global imbalances, the creation of a multilateral consultation procedure with systemically important members or entities, and the initiation of a procedure to rebalance voting power through an ad hoc increase in quotas are all to be welcomed. The difficult questions of making the governance of the IMF more effective, of putting teeth into the multilateral surveillance process and of delimiting the areas of competence of the various actors in the IMFS, however, remain to be resolved.

While the IMF should play a central role in the international monetary and financial architecture, it should focus on a limited number of tasks: technical assistance and advice; the promulgation and monitoring of standards and codes within its area of competence; balance of payments and crisis lending in final, though not in last, resort; surveillance over macroeconomic, policies of individual members, including exchange rate policies; and surveillance over the resolution of global imbalances. In turn, it should leave to others tasks that would distract from its main mission. One of these tasks is concessional lending of the PRGF variety (Poverty Reduction and Growth Facility), which is best left to the World Bank – although this does not mean that the Fund should not continue to provide macroeconomic advice and technical assistance to the poorest of its members. Another task is direct financial regulation, where national authorities, international associations of regulators and supervisors, or international organisations such as the BIS have a clear comparative advantage (e.g. in the promulgation of the Basel Core Principles for Effective Banking Supervision). Finally, the potentially positive role of private financial and capital markets in the institutional mix of the IMFS should not be underrated. They can contribute significantly, not only to the efficient transfer of resources from lenders to borrowers, but also to monitoring and disciplining the policies of even the most powerful economies.

18.5 Conclusion

It typically takes crises to spur reform, in the international monetary and financial system as elsewhere. The Asian and succeeding crises did stimulate significant reforms in the IMFS. The increasing concern over global imbalances, with its emphasis on enhanced IMF surveillance and governance

reform, is to be welcomed as an incentive to rethink or reinvent the Bretton Woods system and institutions, although the prevention and management of emerging market crises should remain high on the international community's agenda, even if they do not seem currently to loom large on the horizon.

These changes in the architecture of the IMFS will help to prevent or moderate the types of crises they were designed to deal with. That said, crises – like financial markets – tend to be innovative; by nature, their characteristics and/or timing are unexpected. The next crisis may thus not occur in emerging markets, where firewalls have been built and will hopefully be maintained, but at the core of world financial markets, where such walls are much harder to erect. But then it might spur the next round of strengthening the architecture of the international monetary and financial system.

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Annex

List of abbreviations

AHV/AVS	Alters- und Hinterlassenenversicherung/Assurance-vieillesse et survivants (Old Age and Survivors' Insurance Fund)
ASEAN	Association of Southeast Asian Nations
ATF	Arrêts du Tribunal fédéral suisse (Decisions of the Swiss Federal Supreme Court)
BankA	Federal Act of 8 November 1934 on Banks and Savings Banks (Banking Act), RS 952.0
BAR	Schweizerisches Bundesarchiv (Swiss Federal Archives)
BBA	British Bankers' Association
BCCI	Bank of Credit and Commerce International
BEA	Bank of England Archives
BIS	Bank for International Settlements
BISA	Bank for International Settlements Archives
BIZ	Bank für Internationalen Zahlungsausgleich (BIS)
BNS	Banque nationale suisse (SNB)
BO	Bulletin officiel de l'Assemblée fédérale (Official Bulletin of the Federal Assembly)
BoE	Bank of England
BS	Bereinigte Sammlung der Bundesgesetze und Verordnungen 1848–1947 (Revised Compilation of Federal Acts and Ordinances for the years 1848–1947)
BV	Bundesverfassung (Cst.)
BWIs	Bretton Woods Institutions
CC	Swiss Civil Code of 10 December 1907, RS 210
CD	Certificate of deposit
CE	Conseil des Etats (Council of States)
CEAT	Committee for Economic Affairs and Taxation
CLS	Continuous Linked Settlement
CN	Conseil national (National Council)
CO	Federal Act of 30 March 1911 on the Amendment of the Swiss Civil Code (Part Five: Code of Obligations) (Swiss Code of Obligations), RS 220
COSA	Comité pour la sécurité AVS (Cosa)
CPI	Consumer price index
CPIA	Federal Act of 22 December 1999 on Currency and Payment Instruments, RS 941.10
CPSS	Committee on Payment and Settlement Systems
CRT	Claims Resolution Tribunal
Cst.	Federal Constitution of the Swiss Confederation of 18 April 1999, RS 101
CVP/PDC	Christlichdemokratische Volkspartei/Parti démocrate-chrétien (Christian Democratic People's Party)
DSGE	Dynamic stochastic general equilibrium
DTA	Datenträgeraustausch (Data carrier exchange)
EC	European Community
ECB	European Central Bank
ECU	European Currency Unit
EEA	European Economic Area
EEC	European Economic Community
EFD	Eidgenössisches Finanzdepartement (FDF)
EFTA	European Free Trade Association
EFTPOS	Electronic funds transfer at point of sale
EMA	European Monetary Agreement

EMS	European Monetary System
EMU	(European) Economic and Monetary Union
EPD	Eidgenössisches Politisches Departement (Federal Department of Political Affairs)
EPU	European Payments Union
ERM	Exchange Rate Mechanism
ESAF	Enhanced Structural Adjustment Facility
ESCB	European System of Central Banks
ETH	Eidgenössische Technische Hochschule (Swiss Federal Institute of Technology)
EU	European Union
EU15	European Union with 15 member states (before EU expansion in 2004)
euroSIC	Swiss Interbank Clearing for euro payments
EVP/PEV	Evangelische Volkspartei/Parti Evangélique (Evangelical People's Party)
FDF	Federal Department of Finance
FDJP	Federal Department of Justice and Police
FDP/PRD	Freisinnig-Demokratische Partei/Parti radical-démocratique (Radical Free Democratic Party)
FF	Feuille fédérale
FFA	Federal Finance Administration
FIFO	First-in first-out
FMI	Fonds monétaire international (IMF)
(Former) Cst.	(Former) Federal Constitution of the Swiss Confederation of 29 May 1874, BS 1, 3
(Former) NBA	(Former) Federal Act of 23 December 1953 on the Swiss National Bank; from revised version dated 15 December 1978 (Former National Bank Act), RO 1954 599; 1979 983; 1997 2252
FSAP	Financial Sector Assessment Program
FSF	Financial Stability Forum
FT	Financial Times
G3	Group of Three
G5	Group of Five
G7	Group of Seven
G10	Group of Ten
G20	Group of Twenty
G24	Group of Twenty-Four
GAAP	Generally Accepted Accounting Principles
GAAP FER	Swiss Accounting and Reporting Recommendations
GAB	General Arrangements to Borrow
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GNP	Gross national product
HIPC	Heavily Indebted Poor Countries
HP	Hodrick-Prescott
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
ICE	Independent Commission of Experts Switzerland – Second World War
ICEP	Independent Committee of Eminent Persons
ICT	Information and communication technologies
IFA	Federal Act of 18 March 1994 on Investment Funds (Investment Funds Act), RS 951.31
IFO	Ordinance of 19 October 1994 on Investment Funds (Investment Funds Ordinance), RS 951.311
IMF	International Monetary Fund
IMFC	International Monetary and Financial Committee

IMFS	International monetary and financial system
IOR	Istituto per le Opere di Religione (Vatican Bank)
IOSCO	International Organization of Securities Commissions
IPC	International macroeconomic policy coordination
IPO	Initial public offering
LdU/AdI	Landesring der Unabhängigen/Alliance des Indépendants (Alliance of Independents)
Libor	London Interbank Offered Rate
LIC	Low-income country
LMU	Latin Monetary Union
LTCM	Long Term Capital Management
MAA	Federal Act of 19 March 2004 on International Monetary Assistance (Monetary Assistance Act), RS 941.13
MB	Monetary base
MBA	Adjusted monetary base
MBSA	Seasonally adjusted monetary base
MIT	Massachusetts Institute of Technology
NAB	New Arrangements to Borrow
NBA	Federal Act of 3 October 2003 on the Swiss National Bank (National Bank Act), RS 951.11
NBER	National Bureau of Economic Research
NBO	Implementing Ordinance of 18 March 2004 on the Federal Act on the Swiss National Bank (National Bank Ordinance), RS 951.131
NGO	Non-governmental organisation
NIA	National income accounts
NZZ	Neue Zürcher Zeitung
OECD	Organisation for Economic Co-operation and Development
OEEC	Organisation for European Economic Co-operation
OF	Orell Füssli
OLS	Ordinary Least Squares
OPEC	Organization of the Petroleum Exporting Countries
OrgR	Regulations on the Organisation of the Swiss National Bank of 14 May 2004 (Organisation Regulations), RS 951.153
PBB	Pfandbriefbank (Mortgage bond bank of the Swiss mortgage institutions)
PC	Swiss Penal Code of 21 December 1937, RS 311.9
PRGF	Poverty Reduction and Growth Facility
PTT	Post, Telegraph, Telefon (Swiss postal and telecommunications operator)
Repo	Repurchase agreement
RO	Recueil officiel du droit fédéral (Official Compilation of Federal Laws and Decrees)
RS	Recueil systématique du droit fédéral (Classified Compilation of the Federal Law)
RTGS	Real-time gross settlement
RTGSplus	Real-time gross settlement at the Deutsche Bundesbank
SAF	Structural Adjustment Facility
SBA	Swiss Bankers Association
SBB/CFE	Schweizerische Bundesbahnen/Chemins de fer fédéraux suisses (Swiss Federal Railways)
SDR	Special Drawing Rights
SDRM	Sovereign Debt Restructuring Mechanism
SECB	Swiss Euro Clearing Bank
SECO	Secrétariat d'Etat à l'économie (State Secretariat for Economic Affairs)
SECOM	Settlement Communication System operated by SIS SegInterSettle AG
SEGA	Schweizerische Effekten-Giro AG (Swiss corporation for securities clearing)

SESTA	Federal Act of 24 March 1995 on Stock Exchanges and Securities Trading (Stock Exchange Act), RS 954.1
SESTO-SFBC	Ordinance of the SFBC of 25 June 1997 on Stock Exchanges and Securities Trading (SFBC Stock Exchange Ordinance), RS 954.193
SFBC	Swiss Federal Banking Commission
SFSO	Swiss Federal Statistical Office
SGB/USS	Schweizerischen Gewerkschaftsbund/Union syndicale suisse (Swiss Federation of Trade Unions)
SIC	Swiss Interbank Clearing
SIS	SegaInterSettle AG
SMI	Swiss Market Index
SNB	Swiss National Bank
SNBA	SNB Archives
SP/PS	Sozialdemokratische Partei/Parti socialiste (Social Democratic Party)
STF	Systemic Transformation Facility
SVAR	Structural vector autoregression
SVP/UDC	Schweizerische Volkspartei/Union démocratique du centre (Swiss People's Party)
SWX	SWX Swiss Exchange
Target	Trans-European Automated Real-time Gross Settlement Express Transfer
UEM	Union économique et monétaire (EMU)
UK	United Kingdom
UN	United Nations
US	United States
USSR	Union of Soviet Socialist Republics
VAR	Vector autoregression
VAT	Value added tax
VOSTA	Volkswirtschaftliche und Statistische Abteilung (Economics and Statistics Department)
WTO	World Trade Organization

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