

Monetary Policy without Central Bank Money: A Swiss Perspective*

Georg Rich

Swiss National Bank, Zurich

Abstract

At the end of 1999, the Swiss National Bank modified its monetary policy concept and abandoned monetary targeting in favor of an approach based on an inflation forecast. Although central bank money or the monetary base, the SNB's intermediate target variable, was plagued by instabilities, the switch to a new policy framework was motivated by more fundamental problems arising from monetary targeting than the stability of money demand. While the monetary base served as an effective long-run policy anchor, it was not well suited for deciding how the SNB should respond to unexpected shocks, notably exchange rate and cyclical shocks. A policy approach based on an inflation forecast should help the SNB to deal better with such shocks. The paper contrasts the new policy framework with the SNB's experience of monetary targeting. It also discusses two other innovations introduced by the SNB: A definition of price stability, its ultimate policy objective, and an operational target band for the three-month interest rate.

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I. Introduction

In the past decade, it has become widely accepted that central banks should focus their attention on achieving and maintaining price stability. To underline their commitment to price stability, more and more central banks are adopting inflation targets. This is a far cry from the situation a quarter century ago, when the Swiss National Bank (SNB), Switzerland's central bank, searched for a new policy framework, soon after Swiss authorities had discarded the fixed-exchange-rate system early in 1973. At that time, prevailing monetary policy views prompted most central banks to pursue multiple – and frequently conflicting – objectives. The SNB ranged among a small number of central banks that opted for a clear commitment to price stability. Moreover, it chose an operational framework consistent with the ultimate objective of price stability. In principle, its operational framework rested on growth targets for the money supply. The SNB employed this framework until the end of 1999, when it abandoned monetary targeting in favor of an approach based on an inflation forecast.

The purpose of this paper is to analyze the SNB's varied experience with monetary targeting and to discuss the reasons for the modifications to its policy approach at the end of 1999. The SNB's decision to adopt monetary targeting derived from empirical research pointing to a stable relationship between Swiss money demand and economic activity. At the end of 1974, the SNB announced a target for the growth in the money stock M1 to be achieved over the following year. It continued to fix annual targets for M1 until the end of 1977. After a brief interlude of exchange rate targeting (see Section IIC), the SNB modified its policy approach. At the end of 1979, it announced a growth target for central bank money or the

monetary base. In analogy to the objective for M1, the new target defined the growth in the monetary base the SNB desired to achieve over the following year. The monetary base remained the SNB's target variable for the subsequent two decades. The SNB relied on annual growth targets for the monetary base until the end of the 1980s. In 1990, it shifted to a looser form of monetary targeting by fixing an objective for the monetary base covering a five-year period.

At the end of 1999, the SNB modified its policy approach once again and abandoned monetary targeting altogether. Instead, it is now setting monetary policy on the strength of inflation forecasts. Nonetheless, the SNB is reluctant to characterize its modified policy approach as inflation targeting. Even though inflation forecasts now play a central role in policy making, the differences between the new approach and monetary targeting are not as great as might be believed at first sight. Despite the modifications to the SNB's approach, money still plays an important role in charting the course of Swiss monetary policy.

The remainder of this paper is structured as follows: Section II evaluates the SNB's experience with monetary targeting. Section III provides a description and preliminary assessment of the new policy approach, while Section IV offers conclusions.

II. Experience with Monetary Targeting

A. Reasons for Adopting a Monetary Target

The SNB's choice of monetary targeting at the end of 1974 was strongly motivated by the then high inflation rate. In the latter part of the 1960s, inflation picked up in Switzerland in line with the world-wide surge in prices, triggered by the

expansionary monetary policy conducted by the U.S. Federal Reserve in support of the U.S. government's task of financing the war in Vietnam. In principle, Switzerland still adhered to a gold bullion standard that implied fixed exchange rates against the U.S. dollar and other currencies. The regime of fixed exchange rates undermined the SNB's ability to insulate the domestic economy from foreign inflation. Even though the SNB reacted to these developments by tightening monetary policy, it was powerless to ward off the inflationary impulses coming from abroad. Instead, the restrictive monetary policy generated surpluses in the balance of payments on current account. Because the SNB was obliged to maintain fixed exchange rates, it could not help absorbing large inflows of foreign exchange, which in turn led to an undesirable expansion in the monetary base. Thus, the SNB, against its will, was compelled to accommodate inflation imported from abroad.

At the beginning of the 1970s, the balance-of-payments disequilibria became unsustainable. Investors increasingly expected that monetary authorities in Switzerland and other European countries would be forced to revalue their currencies. As a result, Switzerland was swamped with inflows of speculative capital that caused the monetary base to explode (Figure 1). After two exchange rate realignments in 1971 (the second one in the context of the Smithsonian Agreement), the speculative fever subsided. However, stability of the foreign exchange markets was short-lived. At the beginning of 1973, renewed inflows of speculative capital once again threatened to boost the monetary base unduly. To forestall such a development, Swiss monetary authorities allowed the domestic currency to float on the foreign exchange market.

After the transfer to a floating-exchange-rate system, the SNB gained full control over monetary developments in Switzerland. It was determined to use its newly won powers to restore price stability. In the SNB's view, the main task of a central bank was to safeguard price stability. Its predilection for a stable price level derived from a long tradition of sound money in Switzerland (SNB, 1982, p. 99). Except during World War I and, to a lesser extent, World War II, Switzerland had not passed through periods of sustained inflation.¹ For this reason, the Swiss public, on the whole, was unwilling to tolerate the high inflation rates attained in the first half of the 1970s. Moreover, the prevailing domestic intellectual climate was conducive to a monetary strategy aimed at price stability as Keynesian ideas had not taken deep root in Switzerland.² These considerations led the SNB to adopt a restrictive monetary policy. Unlike many other central banks, it clung to its restrictive stance even after the first oil price shock had added a further boost to the inflation rate.³ Thanks to its restrictive monetary policy, the SNB was able to lower inflation from over 10 percent in 1973-74 to less than 2 percent in 1976, albeit at the cost of a sharp recession in the Swiss economy (Figure 1).

While there was little doubt about the need for restriction, the SNB sorely missed the monetary anchor the gold standard had provided until 1972. A new monetary anchor was clearly required. Otherwise, the SNB would run the risk of

¹ During World War I, Swiss consumer prices rose by an average of 20 percent per year. They declined again substantially from 1920 to 1923 and further during the Great Depression, without returning to their 1914 level. From 1939 to 1945, their average annual increase amounted to 7 percent (calculated from Siegenthaler and Ritzmann-Blickenstorfer, 1996, Tables H. 20 and H. 21).

² The focus on price stability was facilitated by the low level of unemployment Switzerland had enjoyed since World War II (SNB, 1982, p. 97).

³ In 1973 and the first half of 1974, the SNB did not increase the monetary base despite high inflation. In this way, it attempted to eliminate the monetary overhang created in the early 1970s (SNB, 1975, p. 6).

adopting a monetary policy framework at variance with its desire to restore and maintain price stability.

Monetary targeting, as propagated by Milton Friedman (1959) and other monetarists, offered such an anchor. Friedman's prescriptions appealed to the SNB because they seemed to supply an effective cure of the ills afflicting the Swiss economy in the early 1970s. The SNB was convinced that the main cause of inflation lay in the excessive money growth at the beginning of the 1970s, as shown in Figure 1. Therefore, the SNB would have to take pains with closely controlling the growth in the money supply in order to safeguard price stability. The experience of the early 1970s also led the SNB to concur with Friedman's conclusion that inflation reacted to changes in money growth with a long and variable time lag. In Switzerland, that lag amounted to as much as three years.

These considerations prompted the SNB to adopt a monetary policy framework based on the following principles:⁴

First, the key to achieving and maintaining price stability was close control over the money supply. The SNB was convinced that monetary targets were useful for aligning money growth with the objective of price stability.

Second, due to the long time lags in the effects of monetary policy, the SNB should refrain from fine-tuning operations designed to stabilize fluctuations in output and employment. In particular, an activist monetary policy aimed at smoothing the

⁴ This framework was developed gradually as time wore on. Since no other central bank had targeted money, the SNB at first was compelled to experiment with the new approach (SNB, 1982, p. 103).

business cycle was likely to do more harm than good. Instead, the SNB should provide for a steady expansion in the money supply, in line with its main ultimate policy objective of price stability. The SNB also emphasized that a strategy of steady expansion in the money supply would act as shock absorber, softening cyclical movements in output and employment, at least to the extent that they stemmed from disturbances to aggregate demand for goods and services. Nevertheless, the SNB was not prepared to rely exclusively on automatic stabilizers. In the presence of serious shocks jeopardizing price stability, the SNB was ready, if necessary, to adopt an activist stance. It was also willing to take account of output and employment provided this did not conflict with the main objective of price stability.

Third, even though the SNB, in principle, preferred to follow a steady policy course, it stressed the contingent nature of its monetary targets. Its approach was pragmatic (Rich and Schiltknecht, 1979, p. 59). Monetary targeting was not an end in itself, but a strategy aimed at safeguarding price stability. The SNB was prepared to disregard its monetary targets if this was necessary to attain its ultimate policy objectives.

Figure 1 shows that the SNB managed to meet its objectives to a large extent. Thanks to the restrictive course adopted upon the transfer to a floating exchange rate, inflation remained at low levels during much of the period after 1975. Over the quarter century 1975-1999, during which the SNB targeted money, Swiss inflation, as measured by the consumer price index (CPI), averaged 2.8 percent per year.⁵

⁵ Calculated from SNB (2000b, p. 82)

Thus, the SNB was able to achieve a better stability record than most other central banks. Nevertheless, the SNB's performance left something to be desired. Although the trend rate was low, the SNB could not prevent a temporary resurgence of inflation early in the 1980s (to over 7 percent) and early in the 1990s (to over 6 percent). However, since 1993, inflation has consistently stayed at low levels. Aside from the relatively good stability record, another feature of Figure 1 stands out. Contrary to the SNB's intention, the monetary base did not expand at a steady pace, but fluctuated considerably throughout the period of monetary targeting. Thus, the question arises whether monetary targeting was a useful policy strategy. In the following, I shall assess the SNB's record of monetary targeting in the light of two criteria, that is, I shall examine the usefulness of the monetary target as a policy anchor and an automatic stabilizer.

B. The Monetary Target as Policy Anchor

In the 1980s, monetary targets fell into disrepute in many countries because they frequently failed to serve as effective anchors for monetary policy. The anchor role of monetary targets was undermined by two difficulties. First, many central banks that had opted for monetary targeting woke up to the unpleasant fact that the demand for money was highly unstable. For this reason, money growth often proved to be an unreliable predictor of future inflation. Second, the practice of setting annual growth targets for the money supply entailed a serious risk of base drift. Central banks normally fixed a percentage growth target and determined the desired annual increase in the money supply on the basis of the level *actually* attained at the end of the preceding year. This procedure implied that central banks failed to rectify target misses. If they were prone to overshoot their targets, the

absence of corrective action could elicit movements in the money supply that were at variance with price stability in the long run. In these circumstances, central banks forced the money supply to follow a random walk, rather than a mean-reverting process about a trend consistent with price stability.

The SNB was clearly aware of the pitfalls in monetary targeting. As to the first difficulty, instability in money demand has not been a major problem in Switzerland. While high-frequency movements are often hard to explain, in the longer run, Swiss money demand, on the whole, has been stably related to the price level, output and interest rates. The broadly defined aggregates M2 and M3 have behaved in a stable manner since the early 1980s. The monetary base, the SNB's target variable, was a reasonably stable aggregate throughout much of the period after the transition to a floating exchange rate. However, in contrast to the aggregates M2 and M3, it began to display erratic behavior in 1996 (Peytrignet, 1996; Peytrignet and Stahel, 1998). Before 1996, the monetary base served as a fairly reliable guide to monetary policy. Aside from minor instabilities in base-money demand, the only major problem arose in 1988 and 1989. The introduction of an electronic interbank payments system, coupled with a massive cut in cash reserve requirements, enabled banks to curtail drastically their holdings of base money. While this shift in money demand complicated the conduct of monetary policy, it did not undermine the anchor role of the monetary base. Once the innovation had occurred, the SNB could determine the size of the demand shift and adjust the supply of base money accordingly.

To guard against the risk of base drift, the SNB early in the 1980s began to supplement its annual monetary targets by statements about the trend growth in the

monetary base that it deemed consistent with price stability in the long run. The desired annual trend growth in the monetary base, as estimated by the SNB, was designed to accommodate growth in potential output of about 2% and a "target" inflation rate of 1% per year.⁶ It amounted to 2-3 percent for the period 1980-1985 (SNB, 1983, p. 8; 1984, p. 10), 2 percent for 1986-1989 (SNB, 1985) and 1 percent for 1990-1999 (SNB, 1990, p. 274). The annual targets for 1980-1985 were placed slightly above the desired trend growth in the monetary base because the SNB wanted to emphasize its preference for a gradualist approach to fighting inflation.⁷ Thereafter, the targets announced by the SNB generally equaled the desired trend growth.⁸ In particular, the multi-year targets applicable to the period 1990-1999 were fixed at 1 percent per year, that is, at the desired trend growth in the monetary base as estimated by the SNB.⁹ The gradual reduction from 2-3 to 1 percent was prompted by an acceleration in the secular growth of the monetary-base velocity, resulting from continuous innovations in the payments system.

Thanks to the SNB's statements about the desired trend growth in the monetary base, it is possible to evaluate the effectiveness of the monetary targets as a policy anchor. The analysis is confined to the period 1980-1999, during which the SNB targeted the monetary base. In Figure 2, I compare the actual development in the seasonally adjusted level of the monetary base with several

⁶ In the 1980s, the SNB usually mentioned a "target" inflation rate of 0-1% inasmuch as it was prepared to express a view on this issue.

⁷ See SNB (1986a, p. 7). The annual targets amounted to 4 percent for 1980-1981 and 3% for 1982-1985 (Rich, 1997, p. 116).

⁸ An exception was the target of 3% fixed for 1988 in the wake of the stock market crash of October 1987 (see also Section IIC).

⁹ The SNB switched to the multi-year target at the end of 1990, but later extended the starting point of the target line to the fourth quarter of 1989 (see Rich, 1987, pp. 134-137, for a more detailed discussion). For 1990, the SNB had fixed a growth target for the monetary base of 2 percent.

lines incorporating the SNB's statements about the desired trend growth in that aggregate. The first line – which I call the hypothetical trend line – covers the period up to the end of 1987, when the massive downward shift in the banks' demand for base money set in. It is derived on the assumption that the SNB in 1980 began to expand the monetary base in line with its statements about the desired trend growth in that aggregate.¹⁰ No attempt is made to derive a hypothetical trend line for the years 1988 and 1989, characterized by the downward shift in the demand for base money. For the period from the end of 1989 to the end of 1999, the trend lines matched the five-year targets for the monetary base fixed by the SNB.¹¹

As indicated by Figure 2, from 1980 to 1987, the actual level of the monetary base, on the whole, evolved in parallel to the hypothetical trend line, but stayed below that line most of the time. However, this need not imply that the SNB tended to follow an overly restrictive policy course because the trend growth in the monetary base consistent with price stability probably declined somewhat faster

¹⁰ For 1980-1985, I set the desired trend growth in the monetary base equal to 2.5 percent per year. In deriving the desired trend line, the question arises whether the actual level of the monetary base in 1980 is a satisfactory departure point. As I shall show in Section IIC, the SNB frequently took account of the exchange rate and the state of the business cycle in setting monetary policy. For example, if 1980 had seen a recession and/or an overly high real exchange rate of the Swiss franc, the actual level of the monetary base would likely have exceeded the trend line. However, as far as the exchange rate and the cyclical state of the Swiss economy were concerned, 1980 was a normal year. Another problem arises from a minor instability in the demand for banknotes. It appears that the demand for banknotes fell unexpectedly in the first half of 1980 because the Swiss authorities lifted various restrictions on inflows of foreign capital (SNB, 1982, p. 229) that foreigners had circumvented to some extent by acquiring Swiss banknotes. By the summer of 1980, all these restrictions had been removed. Therefore, I set the September 1980 point on the desired trend line equal to the average actual level of the monetary base in the period July to November 1980.

¹¹ When the SNB fixed the starting points for the multi-year target lines, it faced the problems discussed in the preceding note. In determining the starting point of the 1989-1994 line, for example, the SNB took account of the shift in money demand in 1988 and 1989, and the cyclical state of the economy. It also allowed for the fact that it was unwilling to reduce abruptly the then high inflation rate.

than suggested by the hypothetical trend line.¹² Be that as it may, there was clear evidence of mean reversion in the actual behavior of the monetary base, both in the 1980s and 1990s. In the period 1980-1987 the monetary base expanded at a steadier pace than in the period of multi-year targeting. As I shall show in the following section, this change in the behavior pattern reflected the unusual economic situation of Switzerland in the 1990s. Moreover, the substantial overshoot of the multi-year target line in the period after 1996 was due in part to the instabilities mentioned above.¹³ All in all, the evidence suggests that the monetary target was an effective policy anchor, at least until 1996. Thanks to its anchor role, the monetary target supported the SNB's efforts to achieve and maintain price stability.

C. Response to unexpected shocks

Soon after the SNB had introduced monetary targeting, it came to realize that a policy of steadily expanding the money supply did not necessarily create an environment of stable prices and steady real economic growth. As indicated by Figure 3, the real exchange rate of the Swiss franc began to increase strongly in 1977 and the first half of 1978, due to massive portfolio shifts into the Swiss currency. By the summer of 1978, the real exchange rate of the Swiss franc had climbed to a level that seriously undermined the competitive position of domestic

¹² Since the actual level of the monetary base fell short of the hypothetical trend line most of the time, the SNB should have been able to reduce inflation to or even below the "target" rate of 1%. However, in 1987 and 1988, inflation hovered about 1.5-2 percent (SNB, 2000b, p. 82). This lends support to the argument that for the latter part of the period 1980-87, the hypothetical line overstates somewhat the true trend values consistent with price stability.

¹³ For unknown reasons, the circulation of large-denomination banknotes increased much more strongly than the SNB had expected.

industry. While the strength of the Swiss franc contributed to a rapid decline in the inflation rate, it ran counter to the SNB's desire to achieve price stability gradually. Strict monetary targeting, coupled with a strong real Swiss-franc appreciation, rendered monetary policy unnecessarily restrictive and opened up the unpleasant prospect of a massive slump in output and employment.

To avoid serious disruptions in the Swiss economy, the SNB in the autumn of 1978 decided temporarily to abandon the monetary target and replace it by a target for the Swiss franc/Deutsche mark exchange rate.¹⁴ As a result, the real exchange rate of the Swiss franc fell dramatically (Figure 3). However, the exchange rate misalignment could be corrected only at the expense of an equally dramatic increase in the monetary base (Figure 1). Not surprisingly, the monetary target for 1978 was missed by a wide margin.

The events of 1978 testified to the need for a flexible approach to monetary targeting. A policy of steady expansion in the money supply was not an optimum strategy in all circumstances as it prevented the SNB from reacting to major unexpected shocks to the economy. However, reacting appropriately to such shocks was a tricky matter. As may be seen from Figure 1, the strong expansion in the monetary base in the autumn of 1978 – though only temporary – caused inflation to pick up again in due course. Thus, the question arises whether the SNB reacted appropriately to the portfolio shock of 1978.

¹⁴ The target was framed as a floor substantially above 80 for the Swiss-franc price of the Deutsche mark (SNB, 1979, p. 9).

The SNB was confronted with the same question again a decade later. The stock market crash of 1987, combined with a relatively high real exchange rate of the Swiss franc, raised the specter of a slump in economic activity. Along with other central banks, the SNB relaxed monetary policy toward the end of 1987. In the summer of 1988, it became clear that forecasters had been mistaken in predicting a recession. On the contrary, world economic activity rebounded strongly, prompting the SNB and other central banks to return to a restrictive policy stance. Nevertheless, the SNB was unable to avert another temporary surge in the inflation rate (Figure 1).

A strategy of steady expansion in the monetary base also turned out to be inadequate in stabilizing cyclical fluctuations in economic activity and the inflation rate. In principle, such a strategy triggered stabilizing procyclical movements in interest rates. In practice, these procyclical movements were not strong enough to act as an effective stabilizing force because of a high interest-rate elasticity of the demand for base money.¹⁵ Therefore, during cyclical expansions, the SNB was forced to push the monetary base significantly below the desired trend line (as in 1981) and to take analogous action in the opposite direction during the subsequent contractions (as in 1983) in order to enhance the stabilizing power of monetary policy (Figure 2).

¹⁵ During the expansion phase of the business cycle, base-money demand tends to rise more strongly than supply, pushing up interest rates. However, the size of the increase in interest rates is inversely related to the size of the interest-rate elasticity of the demand for base money. In Switzerland there exists a statistically significant negative relationship between the demand for banknotes and the rate on savings deposits (Ettlin, 1989; Peytrignet, 1996). See Peytrignet (1996, pp. 252-255) and Rich (1999) for a more detailed discussion of this issue.

These considerations led the SNB to shift to multi-year targeting at the beginning of the 1990s. In this way, it could react flexibly to major shocks, without having to forgo the anchor role of money. As shown by Figure 2, the SNB certainly exploited the flexibility accorded by the multi-year targets. In 1989 and early 1990, the SNB successively tightened its already restrictive monetary policy in the face of inflationary pressures fueled by a booming economy and an overly weak real exchange rate of the Swiss franc (Figure 3). As a result, the monetary base fell substantially below the multi-year target line. The SNB was able to restore price stability only at the expense of a painful recession that was prolonged by a sharp real appreciation of the Swiss franc in the period 1993-1995 and by other adverse developments. The upsurge in the real exchange rate was generally attributed to portfolio shifts into Swiss francs, caused by doubts about the stability of the future common European currency. Since the SNB had managed to restore price stability by 1994 (Figure 1), it reacted to these developments by shifting to a strongly expansionary monetary policy designed to push the monetary base above the target line.

In consequence of the policy shift, the Swiss economy started to pick up again in 1997, hesitantly at first because of the Asian crisis. However, in the second half of 1999, growth in Swiss real GDP accelerated to over 3%, prompting the SNB to tighten its monetary reins again. In contrast to comparable earlier episodes, the SNB's response to the real appreciation of the Swiss franc did not disturb price stability. The difference is likely to reside in the fact that in the mid-1990s, Swiss franc strength coincided with a recession, whereas at the end of the 1970s and 1980s it occurred during the expansion phase of the business cycle.

Although multi-year targeting accorded the SNB the required flexibility, it did not solve all the problems arising from the earlier approach. Three problems remained:

First, the SNB could not rule out the possibility of instabilities in the demand for base money. Therefore, it was an open question whether the SNB was well-advised to precommit itself to a target line covering a period as long as five years.

Second, as indicated earlier on, Swiss money demand tends to be more stable in the long run than in the short run. For this reason, the deviations in the monetary base from the multi-year target line did not necessarily serve as a reliable barometer of the SNB's policy stance. Since high-frequency movements in the monetary base were often hard to explain, they could emit misleading signals about the monetary ease or tightness flowing from the SNB's policy course.¹⁶

Third, even in the absence of signaling problems, the SNB's procedures for determining deviations from the multi-year target line were not sufficiently consistent and transparent. The SNB (1990, p. 274) did mention the exchange rate and the cyclical state of the economy as the two main indicators it would follow in order to assess the need for deviations in the monetary base from the multi-year target line. However, it could have made greater efforts to explain to the public its often complex policy analysis and the decisions based on this analysis.

¹⁶ The SNB (1990, p. 273) was aware of this problem when it announced the multi-year targeting strategy: "Although this aggregate [the monetary base] often leaves much to be desired as a short-term indicator, it fulfils a useful function as a leading indicator, i.e., it anticipates the development of inflation over the following two to three years."

These difficulties, along with the instabilities in base-money demand that had surfaced in 1996, prompted the SNB to reconsider its approach to monetary policy upon the completion of the targeting period 1995-1999. At the end of 1999, it announced various modifications to its policy concept.

III. Monetary Policy Based on Inflation Forecasts

A. Modifications to the SNB's Policy Approach

The SNB (1999; 2000a, pp. 33-42) modified its policy approach in three respects. First, it decided to abolish monetary targeting, without renouncing the role of money as an important policy indicator however. Instead, it placed inflation forecasts at the center of its internal monetary policy debate. For this reason, the SNB, at the end of 1999, published a forecast of inflation developments over the subsequent three years. It will continue to publish such forecasts every six months, that is, in June and December. The three-year forecasting horizon is designed to take account of the long lag in the effects of Swiss monetary policy. Second, the SNB sets its inflation forecast against its main objective of maintaining price stability. Should the inflation forecast hint at a sustained threat to price stability, the SNB will adjust its policy course accordingly. Third, the policy conclusions derived from the inflation forecast are framed in terms of an operational target, expressed as a band for the three-month Libor rate of interest for Swiss francs, with the difference between the ceiling and floor of the band amounting to one percentage point.

If the public is to comprehend the reasoning underlying the SNB's policy decisions, it is not sufficient regularly to announce inflation forecasts. The SNB must also clarify what it means by price stability. To this end, the SNB announced a

definition of price stability, but it did not go as far as to set an inflation target. Thus, before examining in greater detail the SNB's inflation forecast and operational target, I shall discuss its definition of price stability.

B. Definition of Price Stability

After much deliberation, the SNB decided to adopt the same definition of price stability as the European Central Bank (ECB, 1999, pp. 45-46). It now equates price stability with an inflation rate, measured by the headline CPI, of less than two percent per year. The SNB couches its definition in terms of a range, rather than a single figure, because of the difficulties in measuring the inflation rate precisely. In particular, it is impossible to purge the CPI entirely of the distortions stemming from quality changes in existing goods and services, as well as from the introduction of new ones. It is generally assumed that the available CPIs tend to overstate to some extent true inflation.¹⁷ For this reason, the SNB aims at stabilizing the CPI inflation rate at a level slightly exceeding zero. Although the SNB does not specify precisely the floor of the range defining price stability, it has made it abundantly clear that, in principle, it is unwilling to tolerate deflation, that is, a decrease in the CPI. I should emphasize that the center of the price stability range defined by the SNB roughly matches the inflation objective that used to underlie its monetary target.

The SNB does not treat its definition of price stability as an inflation target. In a small open economy such as Switzerland, the central bank cannot precommit

¹⁷ In the case of the U.S., a commission chaired by Michael Boskin attempted determine the various sources of bias and to measure the distortion inherent in the CPI. An analogous study for Switzerland came to the conclusion that the CPI overstates true inflation by 0.5-0.6 percentage points. Various improvements in the CPI will reduce this bias to about 0.2 percentage points on average from June 2000 onwards. However, some distortions arising from quality change still remain.

itself to keeping the inflation rate within a narrow range at all times. Swiss inflation, though largely determined by the SNB's monetary policy in the long run, is often subject to short-run fluctuations caused by changes in real exchange rates, energy prices, indexing arrangements,¹⁸ indirect taxes and other factors mostly beyond the control of the Swiss central bank. Of course, the SNB could endeavor to quell short-run movements in the inflation rate by adjusting monetary policy, if necessary, drastically. However, if it were to use heavy artillery for keeping the inflation rate within a narrow range, it would likely do more harm than good because such actions would exacerbate unnecessarily fluctuations in real output and employment. For this reason, the SNB has always stressed that central banks should react only to *sustained* deviations in the inflation rate from the range corresponding to price stability. Temporary deviations, by contrast, are not a serious matter and normally do not call for central-bank action.¹⁹

Although the SNB announces a definition of price stability, rather than an inflation target, the SNB follows similar procedures for designing and implementing monetary policy as most of the central banks pursuing inflation targets. These central banks do not treat their inflation targets as iron-clad objectives to which they will stick even if all hell is let loose. Like the SNB, they are willing to tolerate temporary deviations in the inflation rate from their targets. For this reason, they

¹⁸ In the Swiss labor market, indexing arrangements have largely disappeared, but they remain important in the market for rented housing. Due to the Swiss system of tenants' protection, apartment rents are normally raised when the SNB tightens monetary policy by increasing interest rates. Thus, tightening monetary policy may aggravate inflation in the short run. This phenomenon matters because a majority of Swiss residents live in rented housing.

¹⁹ The probability of central banks responding to temporary movements in the inflation rate is reduced if price stability is defined in terms of a measure of core inflation.

always attach various "caveats" to their inflation objectives (Freedman, 1996, p. 259).

To the Swiss public, objectives with caveats have a familiar ring since the SNB's contingent monetary targets fell into this category too. Critics of the SNB, not least the proponents of inflation targeting, frequently blamed the Swiss central bank for failing to meet its monetary objectives. Of course, it is in the nature of contingent targets that they will not be attained in all circumstances. Nevertheless, the critics of monetary targeting have a point. It is hard to explain to the public the complexities of a contingent monetary target. But does this objection to monetary targeting not apply to inflation targeting as well? The SNB certainly takes this question seriously. It no longer uses the term "target" for objectives that it is only willing to attain conditionally. Had the SNB sold its modified approach to the public under the label of inflation targeting, it might have provoked accusations of misleading advertising. Since many of its critics did not regard its contingent monetary targets as targets in the true sense of that word, the SNB was concerned that it would confuse the public by announcing yet another "target" riddled with a host of caveats. The SNB felt to be more honest if it contented itself with clarifying the meaning of price stability.

I should also emphasize that the SNB did not suffer from a credibility problem when it announced the modifications to its policy approach. The public understood and largely supported the SNB's commitment to price stability.²⁰

However, while the SNB monitors core inflation, it would find it undesirable even to keep its measures of core inflation within a narrow range.

²⁰ Therefore, the SNB would not have provided meaningful additional information about its ultimate policy objectives had it announced a target band for the inflation rate wide enough to be attained in most circumstances. Freedman (1996, p. 260) proposes a wide band as a (second-best) alternative to a narrow target with caveats. The Swiss

Clarifying the meaning of price stability was required to enable the public to comprehend the reasoning underlying its policy decisions. Thus, the SNB's definition of price stability serves to enhance the transparency of Swiss monetary policy. However, it is not needed to strengthen the SNB's credibility. Virtually all the central banks now targeting inflation opted for this approach because of credibility problems. From their point of view, it makes sense to explain their policy approach in terms of an inflation target. Using the term "target", they are able to underline their determination to achieve and to maintain price stability. To sum up, the differences between the SNB's new approach and inflation targeting involve mainly questions of semantics. But as Machlup (1991 [1963]) showed many years ago, semantics sometimes plays an important role in the economic policy debate.

C. Central Role of Inflation Forecast

Figure 4 presents the most recent inflation forecast, published by the SNB in June 2000. As I pointed out above, the forecast extends three years into the future. The SNB provides in graphic form quarterly forecasts of the inflation rate, with the annual averages of the quarterly forecasts also indicated on the chart. Unlike the Bank of England and the Swedish Riksbank, the SNB only supplies information on the mean values, but not on the variance and skewness of its forecasts. If necessary, the SNB will discuss qualitatively the plausibility of its forecasts.

The SNB conducts a formal forecasting exercise every six months. Since Swiss statistics, notably for the real sectors of the economy, leave much to be desired, a quarterly frequency would add little additional information. The prediction

public would have interpreted a wide band as a sign of the SNB turning soft on price stability.

is based on a variety of econometric models, including large and small structural macromodels, vector-autoregressive models, and models of money demand. The model-based forecast is in turn supplemented by judgmental factors, in particular, information drawn from the SNB's intensive contacts with business, not least through its two branches and six regional agents.

The inflation forecast takes account of any adjustment in the three-month Libor rate of interest that may accompany the SNB's announcement of its new forecast. For example, the June 2000 inflation forecast incorporated the increase in the target band for Libor of 50 basis points, announced simultaneously with this projection. However, the forecast ignores possible future changes in the Libor rate. It rests on the assumption that after the new forecast and any attendant policy change have been made known to the public, the Libor rate will remain unchanged over the following three years.²¹ In principle, the forecast should, therefore, never show anything beyond temporary deviations from the range of price stability (note that Figure 4 shows such a deviation) unless the SNB explicitly chooses to follow a course at variance with its main policy objective.

Since the forecast embodies any policy measures required to preserve price stability, it does not allow the public to identify the SNB's reaction function in the event of incipient departures from the main policy objective. To shed light on its reaction function, the SNB also forecasts inflation on the assumption that the Libor target band remained unchanged at the level at which it was set half a year earlier

²¹ The SNB does not announce a future path of interest rates because such a path would be highly conditional on future shocks to the economy (see Bank for International Settlements, 2000, p. 74, and Goodhart, 2000, for discussions of this issue).

when the then forecast was announced, and will continue to stay at that level in the future. In this way, the public gets an idea about the size of the change in the Libor rate that is likely to be triggered by a deviation in the inflation rate from the range of price stability. For example, Figure 5 shows how inflation would have evolved if the SNB had not tightened monetary policy further after January 2000. According to the SNB, inflation would have risen above the threshold of 2% and stayed there until the end of the forecast period if the Libor target band had remained at the January 2000 level, at which it was set in line with the inflation forecast and policy announcement of December 1999. Clearly, at the end of 1999, the SNB underestimated the strength of the inflationary pressures. This forecast error was attributable to the fact that in the first half of 2000, Swiss real growth accelerated much more vigorously than had generally been expected at the end of 1999. Therefore, the SNB was forced to lift the Libor target band from gradually 1.25-2.25 percent in January to 3-4 percent in June 2000 (Figure 6).

Since the forecast takes account of any policy change required to preserve price stability, it is an official forecast sanctioned by the SNB's governing board.²² To underline its official nature, the governing board of the SNB announces its forecast, together with any adjustment in the Libor target band, at its regular press conferences held in June and December. Of course, the SNB may find itself compelled to change the Libor rate more frequently than every six months. Since the governing board, except during holidays, meets regularly on Thursdays, it could, in principle, change the Libor rate weekly. Moreover, the governing board reviews monetary policy formally every quarter. The June and December reviews

feature the formal forecasting exercise, whereas in March and September the forecasts are re-examined informally. After each quarterly review, regardless of whether it yields a policy adjustment, the SNB publishes a report on the Swiss economy and a policy statement. In the case of the June and December reviews, the policy statements contain the comments of the governing board at its regular press conferences.²³

Although the SNB prefers to adjust the Libor target band in the context of its quarterly policy reviews, it may be forced to act in between its formal review sessions. As a matter of fact, in February 2000, the SNB lifted the Libor target band outside a quarterly review session because – as indicated earlier – the Swiss economy had picked up much more quickly than anticipated (Figure 6).²⁴ Policy changes outside the quarterly review sessions are announced through short press releases. Thus, the question arises how the SNB should justify policy adjustments that are not supported by a new formal inflation forecast.

The SNB's answer is to identify key leading indicators of future price movements entering its inflation forecasts. The SNB distinguishes between two sets of leading indicators, that is, indicators of long-run and short-run inflation developments. Over a horizon of one and a half years or more, Swiss inflation is determined largely by the growth in the money supply, notably by the aggregate

²² Thanks to its small size of only three members, the SNB's governing board is able to agree on a common forecast and the reasoning behind it.

²³ The quarterly reports and policy statements are published in *Quartalsheft/Bulletin trimestriel* (Quarterly Bulletin of the SNB). This material is also available on the SNB's web site (www.snb.ch). The quarterly reports are published only in German and French, while the policy statements also appear in English. The dates of the quarterly reviews are announced to the public in advance.

²⁴ In January, the SNB had already allowed Libor to rise toward the ceiling of the target band.

M3. As may be seen from Figure 7, major changes in M3 growth tend to be followed by major changes in the inflation rate.²⁵ The importance of M3 as a determinant of inflation in the longer run also shows up in the SNB's forecasting models. The forecasting abilities of both structural models and VARs improve substantially if the aggregate M3 is taken into account.²⁶

In the short run, the inflation rate is determined mainly by the cyclical state of the economy and the real exchange rate, as well as by special factors such as energy prices and other variables. Therefore, the SNB also carefully monitors various cyclical indicators, including estimates of the output gap, and supply and demand conditions on the labor market. In addition, the SNB regularly estimates interest rate series derived from several versions of the Taylor Rule. While the Taylor Rule serves as a useful base line for the SNB, it fails adequately to capture the Swiss central bank's reaction function. Ideally, the SNB should do better than the Taylor Rule.²⁷ Thus, if the SNB adjusts the Libor rate without announcing a new formal forecast, it is able to justify its policy move by referring to appropriate leading indicators of inflation.

²⁵ However, extracting signals from the broadly-defined aggregates such as M3 raises even greater problems than in the case of the monetary base because demand for M3 is highly sensitive to changes in interest rates. The acceleration of M3 growth in 1982-83 and 1993-96 did not fuel inflation because it occurred during recessions. By contrast, the acceleration of M3 growth in 1986-87, which coincided with a business-cycle expansion, was followed by a rise in inflation.

²⁶ For example, applying an open-economy version of a popular model without money (Rudebush and Svensson, 1999, pp. 205-208) to Swiss data does not yield very satisfactory forecasts. The quality of the inflation forecast increases substantially if M3 is added as an explanatory variable (the RMSE of dynamic simulations of the inflation rate falls by as much as 50 percent). The SNB will eventually publish its research on forecasting models.

²⁷ The Taylor (1993; 1999) Rule relates the interest rate, the central bank's policy instrument, to the output gap and the deviation in the actual inflation rate from the central bank's objective. The Taylor Rule describes the actual behavior of monetary authorities in Switzerland and other countries fairly well (Rich, 1999). However, as indicated above, the SNB's performance in the early 1980s and early 1990s was unsatisfactory.

Although in Switzerland money remains the single most important determinant of inflation in the long run, the SNB did not follow the example of the ECB (1999, pp. 47-50) of adopting a two-pillar strategy of monetary policy. To chart its policy course, the ECB relies both on inflation forecasts and a reference value for the growth in the money stock M3. The SNB decided against a two-pillar strategy because it was concerned that the public would be confused by such an approach and would be at a loss to understand which pillar determined monetary policy in practice. For this reason, the SNB made it clear that the inflation forecast would act as its main policy compass, while the money stock M3 would serve as an important input into that forecast. Moreover, the SNB would attempt to explain in its policy statements how the aggregate M3 and other indicators impinged on its inflation forecast.

The necessity of publishing the inflation forecast was uncontested within the SNB. The inflation forecast cannot play the central role in setting monetary policy unless it is disclosed to the public. Otherwise, the public is not capable of monitoring the SNB's performance. Of course, the SNB is conscious of the difficulties of forecasting inflation three years ahead. Forecast errors have already occurred and will no doubt occur again in the future. However, the purpose of publishing forecasts is not to demonstrate to the public the SNB's superior prophetic powers. Rather, by publishing forecasts, the SNB attempts to explain to the public how it deals with the uncertainties surrounding monetary policy decisions that will make their full imprint on the inflation rate only several years hence.

D. Target Band for the Libor Rate

The purpose of fixing a target band for the three-month Libor rate of interest is to improve the transparency of the SNB's money market operations. Until the end of 1999, the SNB set an operational target for bank reserves, defined as a monthly average of daily data. Bank reserves could fluctuate substantially from day to day because the SNB attempted to smooth fluctuations in short-term interest rates. However, it was prepared to tolerate substantial volatility in short-term interest rates. Since the SNB did not disclose its objectives for bank reserves, market participants were frequently in the dark about the SNB's operational intentions, notably in view of the substantial volatility in short-term interest rates.

To meet the market participants' legitimate demand for greater transparency, the SNB sought to develop an operational framework designed to provide reliable signals about its operational intentions, without eliminating entirely the volatility of short-term interest rates. The SNB has always preferred operational procedures under which both the central bank and market participants can trigger changes in short-term interest rates. Such procedures possess two advantages. First, the money market may absorb, at least to some extent, shocks emanating from the exchange rate. A portfolio shift into Swiss francs, for example, not only causes the exchange rate of the Swiss currency to rise, but frequently leads to a fall in domestic short-term interest rates too. This tends to mitigate the appreciation of the Swiss franc. Second, the SNB obtains information about the market's views concerning future movements in interest rates. Since market participants conduct the same analysis as the SNB, they often induce adjustments in short-term interest

rates that pre-empt to some extent the Swiss central bank's monetary policy decisions.

The target band for the three-month Libor rate is designed to signal to the public the SNB's operational intentions. At the same time, it provides some scope for market participants to influence short-term interest rates. Thus, the SNB does not directly control the three-month Libor rate, but it can manage that rate, if necessary, indirectly through changes in the overnight repo rate, the Swiss central bank's principal policy instrument. Market participants have learned that they must watch the three-month Libor, rather than the overnight repo rate, in order to extract signals about the SNB's operational intentions.²⁸

E. The SNB's New Approach: A Preliminary Assessment

It is still too early for a comprehensive assessment of the SNB's experience with its new policy approach. Therefore, I will confine myself to two comments. The first one concerns the question of transparency, the second one the extent of precommitment inherent in the new approach.

On the whole, the public reacted favorably to the modifications of the SNB's policy approach. Most commentators regard the new approach as more transparent than multi-year monetary targeting. In particular, they welcome the idea of organizing the monetary policy debate around an inflation forecast. In this way, the discussion is focused directly on the SNB's main policy objective, rather than on an intermediate target variable with a possibly complex link to the inflation rate. The

²⁸ The SNB chose the Libor rate as an operational target variable because this rate is the most representative indicator of supply and demand conditions in the money market for Swiss francs.

target band for the Libor rate is also considered to be a useful innovation enhancing the transparency of the SNB's operational procedures.

Despite the generally positive reaction to the SNB's new policy approach, most commentators do not view the conceptual modifications as a radical break with the past. Even before 1999, the SNB was not a secretive and intransparent institution. On the contrary, precommitment to a monetary target acted as a powerful incentive to establish efficient channels of communication to the public. The SNB expended great efforts to explain to the public the importance of price stability, the monetary causes of inflation, the need to act in a forward-looking manner, and the limits to managing the exchange rate and output. Moreover, the governing board's regular press conferences and monetary policy statements are old-established institutions predating the 1999 modifications to the SNB's policy approach.²⁹ At the end of 1987, the SNB also began to publish forecasts of real growth and inflation in the following year.³⁰ Thus, the key innovation at the end of 1999 was not the inflation forecast as such, but the extension of the forecasting horizon to three years.

Nevertheless, the new policy approach forces the SNB to beef up its forecasting capabilities and to improve further its communication skills. The inflation and monetary policy reports published by the central banks targeting inflation are

²⁹ The SNB's communication efforts are documented in Bernanke et. al. (1999, Ch. 4) and Laubach and Posen (1997).

³⁰ These forecasts were an integral part of monetary targeting. Due to the long policy lags, the SNB assumed that it could not significantly influence real growth and inflation in the following year. It then estimated the incipient increase in base-money demand arising from the rise in output and the price level forecasted for the following year. A gap between the incipient rise in demand and the expansion in the supply of base money

exemplary in this regard. The SNB will certainly be able to benefit from the experiences accumulated by these central banks in explaining their policies to the public.

Besides many positive comments, the SNB's new approach also elicited a number of skeptical remarks. Some commentators doubted that a mere commitment to price stability was sufficiently strong to prevent the SNB from adopting irresponsible monetary policies. Considering the long policy lags, the SNB would have plenty of scope for pursuing other objectives even if it professed to be committed to price stability. These skeptical comments give rise to the question of whether the SNB should not be obliged to follow an operational rule, analogous to a monetary target, in addition to being committed to price stability.

According to Svensson (1997), under inflation targeting, the inflation forecast should serve as an intermediate target variable. Although Svensson's logic is impeccable, his proposal runs up against a practical obstacle. If the central bank is to be obliged to follow a rule, the intermediate target should not refer to a variable such as an inflation forecast that reflects the central bank's subjective views about the future. Instead, the central bank should be compelled to target or react to a magnitude that can be measured objectively.³¹ Thus, an inflation forecast target is unlikely to reassure commentators who are afraid that the commitment to price stability alone will not suffice to constrain the SNB's discretion.

desired by the SNB signaled a need for a change in interest rates. See, for example, the policy statement of the SNB (1986b) for 1987.

³¹ The Taylor Rule is also marred in this respect because of the difficulties of measuring the output gap.

The SNB could consider other possible rules,³² but it is unclear whether they would help to improve the Swiss central bank's performance. For these reasons, I doubt that it is realistic to commit the SNB to an operational policy rule. However, the SNB should make at least a small step in the direction of rule-like behavior and commit itself to an explicit framework for analyzing monetary policy. Within such a framework, it could not only regularly publish its inflation forecast, but also develop set procedures for monitoring important leading indicators of inflation, including the monetary aggregates. Clearly, the new policy approach still leaves room for further improvement.

IV. Concluding Remarks

At the end of 1999, the SNB abandoned its long-standing strategy of targeting central bank money or the monetary base. Instead, it decided to set policy on the strength of an inflation forecast extending three years into the future. Although the proximate reason for the shift to a new policy approach lay in instabilities in the demand for base money that had surfaced in 1996, stability of money demand has not been a major issue in Switzerland. Other aggregates, notably the money stock M3, continue to display reasonably stable behavior. Nevertheless, the SNB decided against adopting the aggregate M3 as its intermediate target variable. Considering its policy record since the shift to a floating exchange rate in 1973, the SNB came to the conclusion that monetary targeting raised other – more fundamental – questions. While in Switzerland money growth remains the single most important determinant of inflation in the long run, short-run price developments are mainly

³² For example, the rules developed by Meltzer (1987, pp. 12-13) and McCallum (1989, Ch. 16).

determined by other factors such as the cyclical state of the economy and the exchange rate. Of course, even before 1999, the SNB took account of the fact that inflation was caused by a variety of shocks. However, due to the complex nature of the link between money growth and inflation, the monetary target was not an ideal vehicle for communicating the SNB's policy decisions to the public. By publishing an inflation forecast, the SNB is able to focus the policy debate directly on the key issue, that is, the need to preserve price stability. Although the inflation forecast now takes the center of the monetary policy stage, the SNB does not subsume its new approach under the label of "inflation targeting." Price stability clearly serves as the main objective of Swiss monetary policy. But the SNB is reluctant to use the term "target" for an objective that in practice – as even central banks targeting inflation tend to stress – must be equipped with a lot of caveats.

This paper does not address a general question transcending the narrow technical debate as to the choice of an optimum monetary policy strategy for achieving and maintaining price stability. Switzerland is a small country surrounded by neighbors that adopted a common currency at the beginning of 1999. The birth of the euro leads some commentators to question the usefulness of an autonomous Swiss monetary policy strategy. In their view, Swiss authorities should peg their currency to the euro. Abandoning monetary autonomy would not matter much because, in practice, the SNB already shadows the ECB. However, the situation is not as simple as these commentators like to believe. Admittedly, the SNB has often pursued similar monetary policies as the ECB or its predecessor – the German Bundesbank. This is not surprising because both the SNB and the ECB aim at the same policy objectives and operate in a similar policy environment. Nevertheless,

the SNB does not shadow the ECB. Switzerland benefits from an autonomous approach to setting monetary policy for two reasons.

First, even though Swiss and European monetary policies are often similar, specific economic conditions in Switzerland may prompt the SNB to deviate from the course pursued by the ECB (or from the Bundesbank's course before 1999). For example, from 1995 to the middle of 1999, the SNB followed a more expansionary monetary policy – measured in terms of short-term interest rates – than either the Bundesbank or the ECB. In this way, the SNB took account of the fact that Switzerland, unlike Germany and other EU countries, faced a threat of deflation. The deflationary pressures not only emanated from the exchange rate turbulences of 1993-95. They also reflected the far-reaching structural shifts in the Swiss economy that started earlier and with greater force than in most other Continental European countries.

Second, the SNB's autonomous monetary policy and its determination to safeguard price stability explain to a large extent why investors regard the Swiss franc as a useful means of diversifying the currency composition of their portfolios. Because of strong demand for Swiss francs by foreign investors, Swiss interest rates have tended to be lower than in all the other European countries. Low interest rates convey a competitive advantage to domestic industry and provide benefits to domestic consumers. The Swiss are reluctant to forgo the benefits of low interest rates by pegging their currency to the euro.

Needless to say, if Switzerland decided to join the EU, it would likely have to adopt the euro and give up its monetary autonomy. However, in this case, the

decision would be based on a broad assessment of the merits of joining the EU. The costs and benefits of abandoning monetary autonomy would constitute one among other elements in this assessment.

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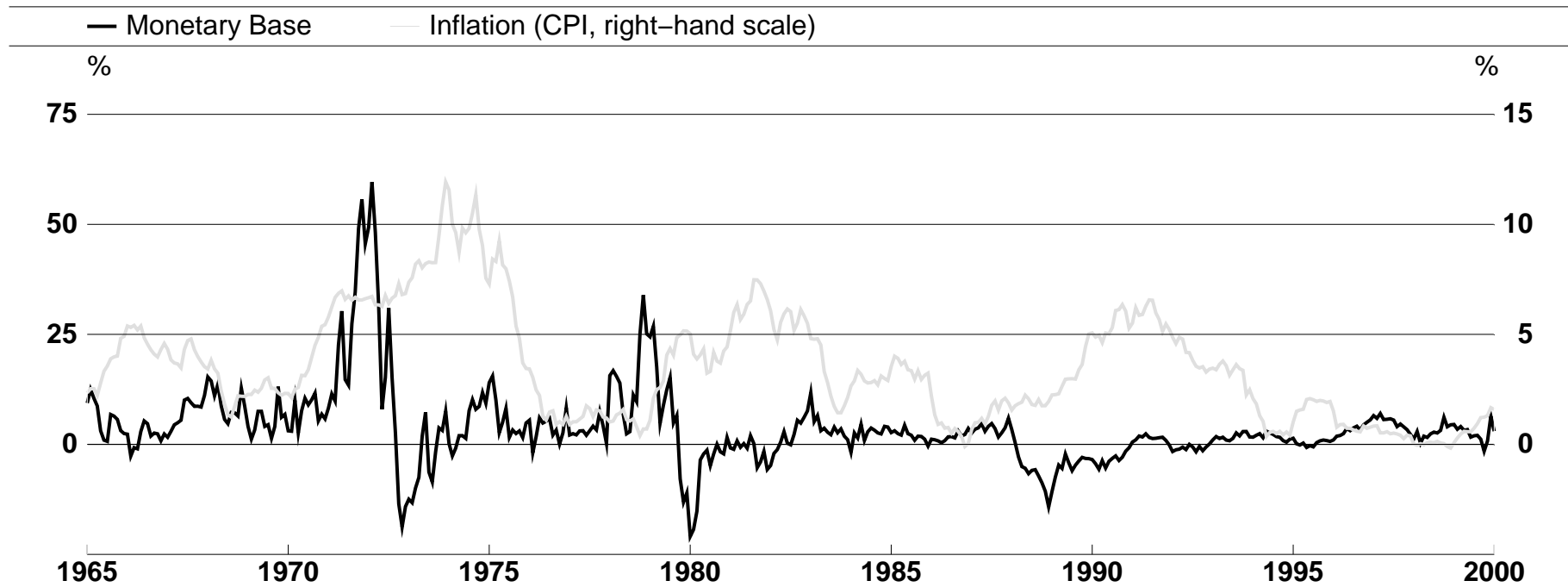
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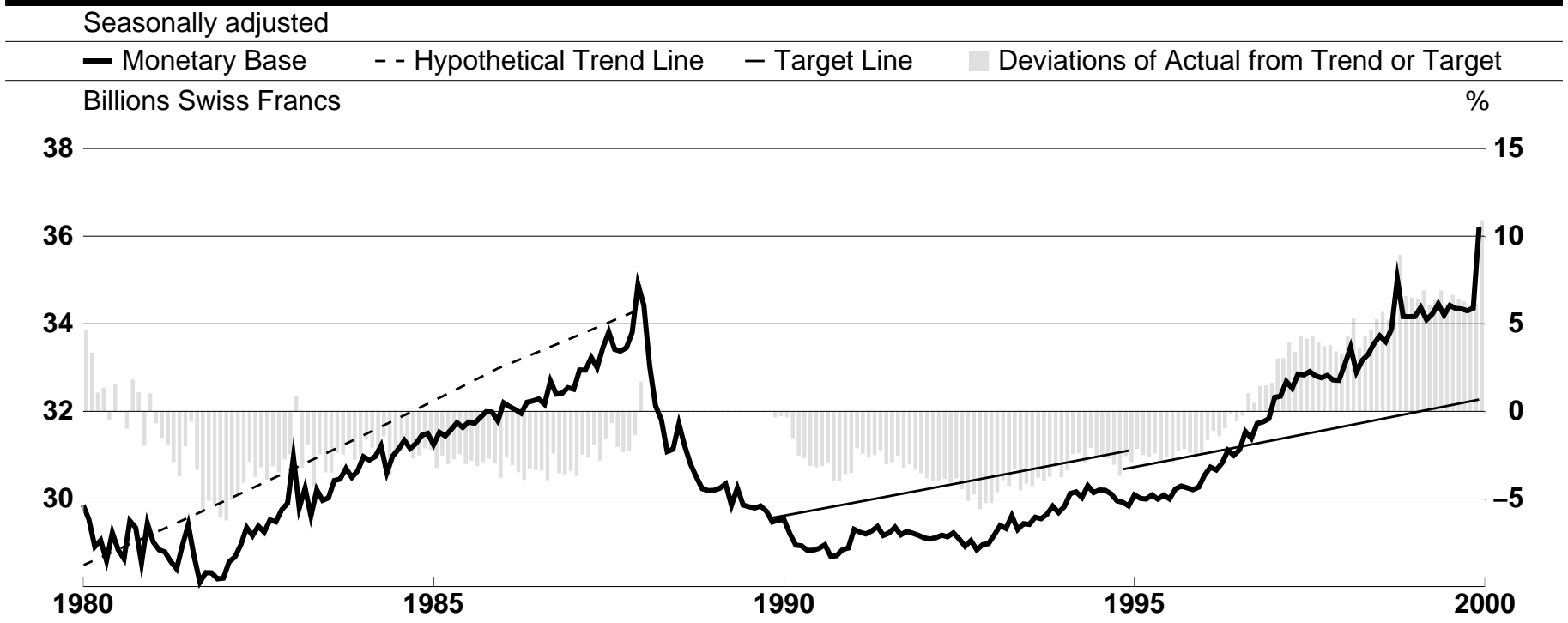
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Growth in Monetary Base and Inflation (1965–2000)

Figure 1





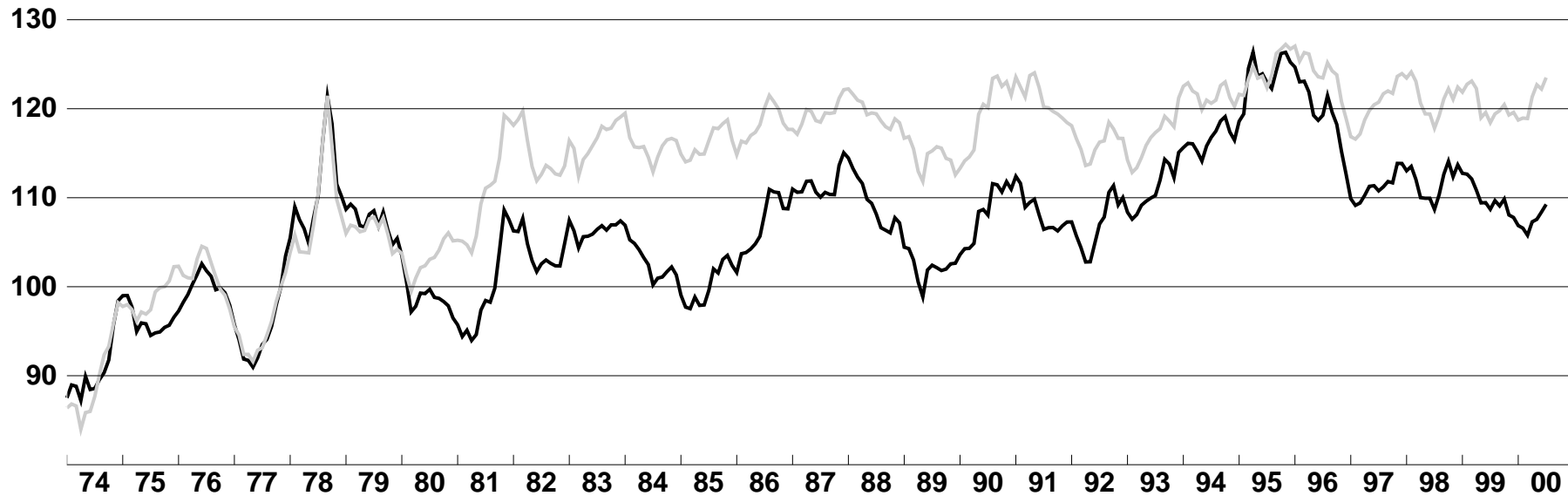
Real Exchange Rate of Swiss Franc

Figure 3

Nov. 1977 = 100

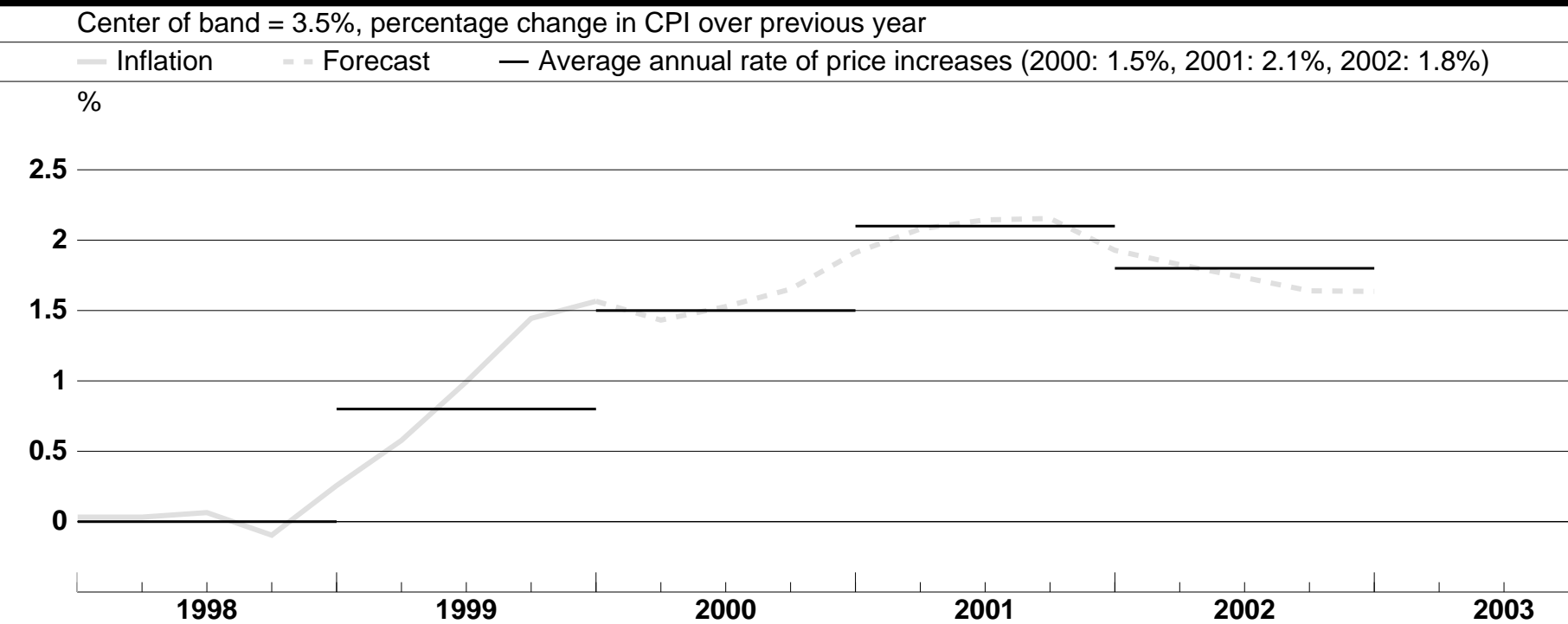
— Trade-weighted

— Deutsche Mark/Euro

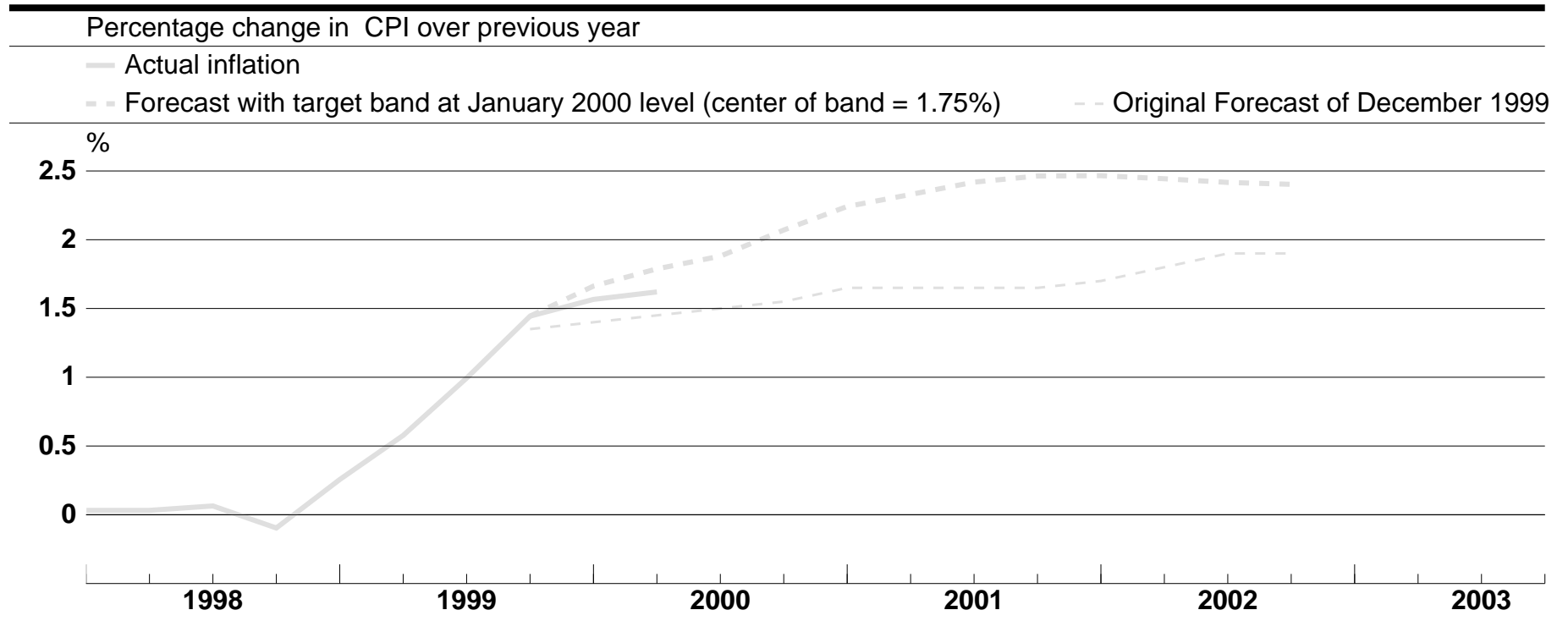


SNB Inflation Forecast of June 2000, with Libor Target Band at June 2000 Level

Figure 4

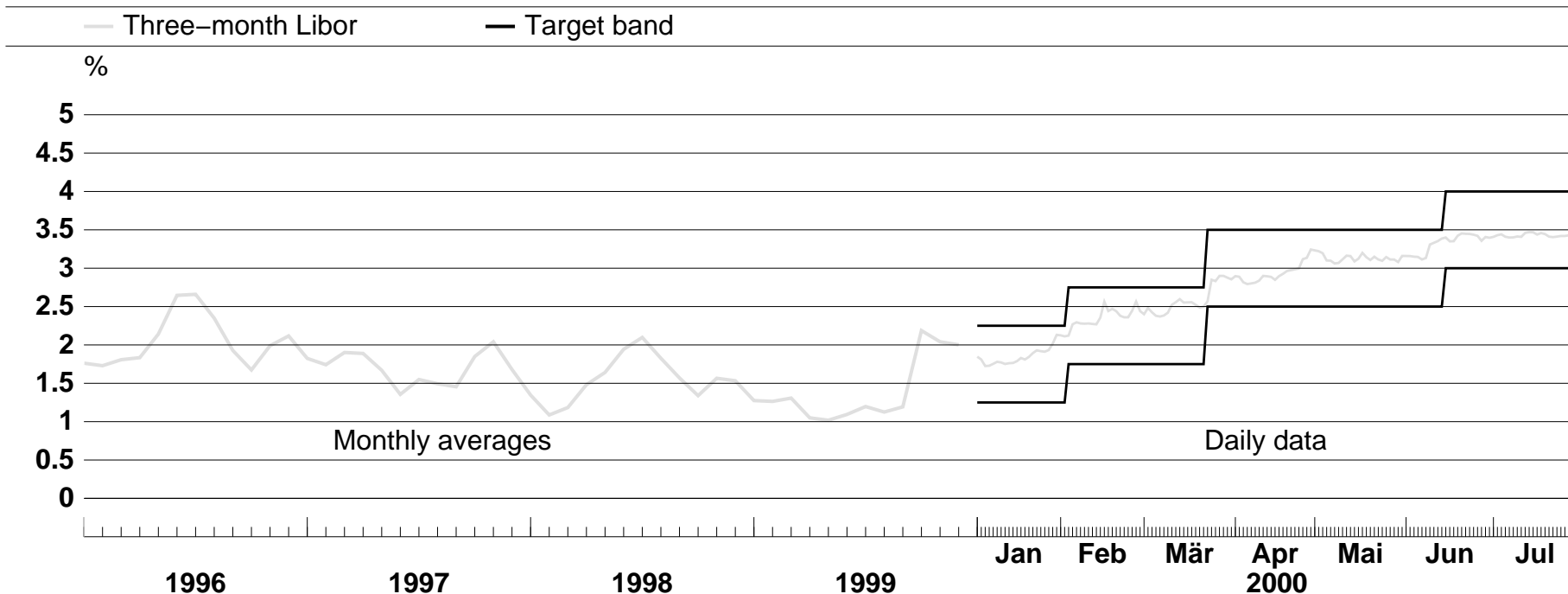


SNB Inflation Forecast of June 2000, with Libor Target Band Unchanged at Jan. 2000 Level Figure 5



Three-Month Interest Rate (Libor) and Target Band

Figure 6



Growth in Money Stock M3 and Inflation

Figure 7

