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**Abstract**

The practice of monetary policy has evolved a great deal since the early 1990s. This evolution was significantly influenced by rapid developments in the theory of monetary policy. A new consensus about 'principles-based' monetary policy appears to be emerging. It marries a firm long-term anchor for nominal stability, rooted in the original ideas behind inflation targeting, with short-term flexibility, based on a more discretionary and pragmatic approach to monetary policy. The SNB's monetary policy framework – with a firm nominal anchor but with an emphasis on the need for flexibility – reflects, to a considerable degree, the emerging academic consensus about best-practice monetary policy. With its successful seven-year track record, it may serve as an interesting case study for a policy aiming at an intermediate position between full discretion and rigidly defined short-term inflation targeting.

JEL classification: E42, E52, E58
Keywords: Swiss National Bank, monetary policy, inflation targeting, rules, discretion

**Zusammenfassung**

Die Praxis der Geldpolitik hat sich seit Anfang der Neunzigerjahre stark entwickelt. Dabei hatten die raschen Veränderungen in der Theorie der Geldpolitik signifikante Auswirkungen. Es scheint sich ein neuer Konsens in Bezug auf eine prinzipienbasierte Geldpolitik herauszubilden. Dieser Konsens verbindet einen langfristigen nominalen Anker, welcher aus der ursprünglichen Idee der direkten Inflationssteuerung hervorgeht, mit kurzfristiger Flexibilität, die ihrerseits auf einem pragmatischen Ansatz mit grösserem Ermessensspielraum basiert. Das geldpolitische Konzept der SNB – welches sich zwar fest auf einen nominalen Anker abstützt, gleichzeitig aber die Notwendigkeit betont, flexibel reagieren zu können – widerspiegelt in hohem Masse den neu entstehenden akademischen Konsens über eine «best-practice» Geldpolitik. Mit seinem siebenjährigen Leistungsausweis könnte das Konzept der SNB als interessante Fallstudie für eine Politik herangezogen werden, welche zwischen vollständiger Diskretion und einer rigid ausgelegten kurzfristigen Inflationssteuerung positioniert ist.

**Résumé**

La pratique de la politique monétaire a connu une évolution considérable depuis le début des années nonante. Cette évolution a subi l'influence notable des développements rapides intervenus dans la théorie de la politique monétaire. L'idée d'une politique monétaire reposant sur des principes commence à être largement acceptée. Une telle politique monétaire associe un ancrage déterminé pour la stabilité nominale à long terme, qui découle de la théorie à l'origine du ciblage d'inflation, à la flexibilité à court terme, fondée sur une approche plus discrétionnaire et pragmatique. La politique monétaire telle qu'elle est pratiquée par la BNS – définition d'un ancrage nominal, mais aussi mise en relief du besoin de flexibilité – reflète dans une large mesure la bonne pratique dans le domaine monétaire sur laquelle s'accordent de plus en plus les milieux universitaires. Après sept années de pratique couronnée de succès, le concept de la BNS pourrait servir de cas d'étude intéressant pour toute politique visant un juste milieu entre une politique entièrement discrétionnaire et un strict ciblage d'inflation à court terme.

## Introduction

The theory and practice of monetary policy in fiat money regimes under flexible exchange rates has evolved continuously over the last few decades. Since the early 1990s, inflation targeting has established itself as a monetary policy framework dominating the academic and intellectual debate and exerting a strong influence on central bank practice. It represents a particular way of setting a nominal anchor which determines the monetary policy objectives and shapes the decision-making process. In practice, the definition of the term 'inflation targeting' remains ambiguous. At the outset, it was defined as a rather strict 'rules-based' monetary policy framework. More recently, a more flexible definition which can be characterised as a 'principles-based' monetary policy framework has become popular.[1]

Since the breakdown of the Bretton Woods system and the onset of an independent monetary policy aimed at maintaining price stability, the Swiss National Bank (SNB) has earned a solid reputation for its policy of inflation control. Together with the Bundesbank, the SNB pioneered the use of monetary targeting. It employed this approach successfully to bring down inflation and stabilise it at low levels during the 1970s and 1980s. Like the Bundesbank, it used its monetary targeting framework in a flexible manner, giving priority to its long-run objective of price stability over the monetary target when necessary. For this reason, Bernanke, Laubach, Mishkin and Posen (1999) have characterised the SNB and the Bundesbank as precursors of the inflation-targeting framework.

In the course of the 1990s, due to severe shocks and instabilities in money demand, the SNB found it increasingly difficult to rely on its strategy of monetary targets. It therefore introduced a new policy framework which became effective in December 1999. While the new framework introduced important new elements, it did not represent a complete break with the past, as the basic objective of monetary policy remained entirely unchanged. The new framework shares important similarities with the ideas and principles of inflation targeting as introduced by many central banks since the early 1990s.[2] At the same time, it differs from inflation targeting in a number of significant ways. The SNB therefore decided not to refer to its monetary framework as inflation targeting.[3]

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1 This policy approach is well described by Taylor (2005). Taylor's discussion encompasses the polarising 'rules vs. discretion' debate and puts it into perspective. Cf. also Blinder and Reis (2005). The terminology of 'constrained discretion' has also been aptly used to describe such a policy, for instance Bernanke (2003).

2 Explicit inflation targeting has been adopted by a number of central banks around the world, including those in Australia, Canada, Colombia, the Czech Republic, Finland, Iceland, Israel, New Zealand, the Republic of Korea, Spain, Sweden, and the UK.

3 Cf., for instance, Meyer (2000).

This study presents the SNB framework as an example of the practical application of a monetary policy concept which marries a firm long-term anchor for nominal stability with short-term flexibility. We believe the SNB's monetary policy framework provides relevant insights for other central banks aiming to take up an intermediate position between full discretion and rigidly defined short-term inflation targeting. In essence, the SNB's case can be seen as a 'real-life' experiment, including a successful seven-year track record in the type of policy recommended by some of the leading participants in the current discussion on 'best-practice' or 'principles-based' monetary policy. A high level of credibility and an excellent reputation are prerequisites for the success of such a policy approach.

In section 1 of the study, we review the evolution of the 'best-practice' monetary policy discussion since the 1990s and the consensus principles which emerged from it. In section 2, we present the basic elements of the SNB's monetary policy concept and outline the experiences gained with it so far. In section 3, we review important parallels between the SNB's concept and the emerging 'best-practice' consensus. We also address some of the outstanding and controversial issues. We conclude that there are remarkable similarities between the SNB's concept and the views of many of the leading participants in the present debate about 'best-practice' monetary policy.

## 1. What constitutes 'best-practice' monetary policy?

### 1.1 The rise of inflation targeting during the 1990s

First introduced by the Reserve Bank of New Zealand in 1989 and then adopted by the Bank of Canada, the Bank of England, Sweden's Riksbank and the Reserve Bank of Australia in the early 1990s, inflation targeting became widely accepted by the end of the 1990s as the declared policy framework of numerous additional central banks. Inflation targeting has also been actively promoted by international organisations such as the IMF and the OECD, as well as by many academic economists and other observers of monetary policy. In a general and broad sense, inflation targeting is defined as a framework which gives high priority to the maintenance of price stability, typically defined as a low and stable rate of consumer price inflation, and emphasises transparency and accountability in central banking.[4] Bernanke, Laubach, Mishkin and Posen (1999, 4) provide the following definition in this spirit:

"Inflation targeting is a framework for monetary policy characterized by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy's primary long-term goal. Among other important features of inflation targeting are vigorous efforts to communicate with the public about the plans and objectives of the monetary authorities, and, in many cases, mechanisms that strengthen the central bank's accountability for attaining those objectives."

Goodfriend (2005) and Faust and Henderson (2004), among others, have provided similar definitions stressing a strong commitment to a long-run inflation goal, along with an emphasis on transparency and accountability, as core characteristics of inflation targeting. In this spirit, inflation targeting can be seen as having evolved gradually from earlier practices of certain central banks, most particularly the Bundesbank and the SNB, in the latter part of the 1970s and the 1980s (Bernanke, 2003). Indeed, these two central banks have been referred to as "inflation targeters in disguise" by Bernanke, Laubach, Mishkin and Posen (1999). Using an even broader definition based exclusively on the overriding importance of a long-run price stability objective, most major central banks today could be classified – at least implicitly – as inflation targeters. For example, Goodfriend (2005) refers to the Federal Reserve's monetary policy of the last two decades as one of a gradual and implicit move to inflation-targeting practices. Arguably, such a wide definition of inflation targeting is not fruitful for a discussion about the virtues and limitations of different monetary policy concepts.

Consequently, the term should be reserved for a stricter and somewhat narrower interpretation. This includes the setting and announcement of explicit inflation targets, defined over

4 Inflation-targeting frameworks are also applied by many central banks in emerging countries, using inflation targets that are initially higher than those typically associated with price stability in developed economies. On the spread of inflation targeting in emerging-market economies, cf. Truman (2003).

a specified time frame which typically lasts one to two years, as opposed to a more general, medium to long-term commitment. At an operational level, it stresses the use and publication of inflation forecasts and an inflation report. All of the central banks that adopted inflation targeting in the early stages have applied the concept accordingly, and much of the academic literature reflects this view.[5] A definition of this kind substantially reduces the group of central banks which can be said to practice inflation targeting. For instance, the Federal Reserve, the European Central Bank (ECB), the Bank of Japan and the SNB are clearly not inflation targeters in this sense.[6] A useful discussion of monetary policy frameworks should not, however, be excessively focused on particular labels but rather concentrate on the key substantive issues. This discussion will be taken up in the next section.

### 1.2 The current discussion on 'best-practice' monetary policy

A lively debate has emerged in academic and central bank circles on the relative virtues of inflation targeting and alternative monetary policy frameworks. This debate has particular relevance for the United States in view of Chairman Bernanke's publicly stated aim of moving towards the introduction of an explicit inflation target. The debate focuses on the following issues:

- The balance between constraint and discretion in setting policy ('mechanical rules' versus 'discretion' and 'use of judgement')
- Interactions with the political system and the degree of central bank independence
- The degree and role of monetary policy transparency
- The role of objectives other than inflation ('dual' versus 'hierarchical' mandates)
- The role of money, credit and asset prices for judging inflation perspectives over longer horizons

*The balance between constraint and discretion in setting policy*

'Constrained discretion' has developed considerable appeal as a model for a successful, state-of-the-art monetary policy. The debate between the advocates of a monetary policy based on strict rules and the advocates of discretion in monetary policy making is a long-standing one. Constrained discretion represents an intermediate position between these two extremes which attempts to balance the advantages and disadvantages of both. With this approach, monetary policy is required to establish a strong commitment to price stability (i.e. low and stable inflation). Given this commitment, and as far as possible in view of the uncertainties about the structure of

5 Cf., for instance, the numerous contributions by Svensson (1997, 1999, 2004, 2005).

6 Two readers have suggested that it is wrong to distinguish between the original rather strict 'rules-based' inflation targeting and a more flexible definition which can be characterised as a 'principles-based' monetary framework. This argument is not compelling. If such a distinction can no longer be made, one risks losing sight of important differences and nuances in the real world of central banking which will, in turn, have repercussions for the theory of central banking.

the economy and external influences, the central bank can dampen cyclical output fluctuations, but only subject to the condition that inflation and inflation expectations are contained. The idea of constrained discretion – which might just as well be named 'constrained flexibility' – is to combine the advantages of credible rules-based behaviour (fostering predictability and credibility, avoiding the dangers of time-inconsistent behaviour, insulating monetary policy from political pressures) with those of discretion (flexibility in view of unforeseen shocks), while containing the risks of both (lack of stabilisation power, in the case of rules; time-inconsistent behaviour and exaggerated beliefs about the potential for monetary fine-tuning, in the case of discretion).

The difficulty in successfully implementing a constrained discretion policy is to strike the proper balance between its two characteristic components. Thus, the attempts to stabilise fluctuations of the real economy must not undermine the commitment to price stability. The optimal way to preserve this commitment without completely abandoning attempts at dampening real economic fluctuations is for the central bank to convince the public of the seriousness of its commitment to price stability by actually delivering low inflation over an extended period of time. The institutionalisation of such a commitment can be helpful as a supportive measure. The move from a merely implicit anchor to an explicit numerical inflation target or definition of price stability can be seen as a step in this direction. It represents a shift in the discretion-constraint-balance in the direction of more constraint. As Bernanke (2003) stresses, this could be helpful on two accounts. It strengthens the commitment to long-run price stability, which in itself helps to promote high employment, low nominal interest rates and economic growth. Equally important, by strongly anchoring inflation expectations at a low level, the scope for dampening economic fluctuations is strengthened rather than weakened. The stronger the public's perception of the central bank's commitment to price stability, the more effective its stabilisation efforts become.

For these reasons, it might be worth recommending the introduction of an explicit anchor. Ultimately, the benefits depend on the degree of credibility and reputation already achieved by the central bank through its past actions and track record. Arguably, the higher the credibility and reputation, the less important an explicit anchor becomes.[7] This is a major argument of US opponents of inflation targeting, for instance Kohn (2004) or Gramlich (2005). Kohn's view is that the commitment to long-run price stability on the part of the Federal Open Market Committee is so strong and the public's perception of this so clear, that a shift in the direction of constraint is unnecessary and unwarranted, and that the benefits of such a shift are unlikely to outweigh its costs in terms of foregone flexibility. Proponents of the introduction of explicit inflation targets, on the other hand, point to possible uncertainties in the public's perception of this commitment. As Bernanke (2003) has argued, credibility is not a permanent characteristic of a central bank, but must continuously be earned.

7 For this reason, in most cases inflation targeting was originally used by central banks whose prior monetary policy record was poor, in order to signal a clear change in their behaviour.

*Interactions with the political system and the degree of central bank independence*

Many of the reservations about the introduction of explicit inflation targets stem from fears of adverse political reactions. These political economy issues include a number of delicate questions which merit serious consideration. We note two major concerns of this type:

First, the government, or even parliament, might become inappropriately involved in the politics of setting short-term inflation targets, effectively reducing the level of central bank independence. Many US discussants emphasise the point that inflation targets should be achieved over an intermediate period only, and not be interpreted as a rigid constraint to be met in the short run. Moreover, they argue that a gradual return to the target should be allowed in the event of deviations which might result from a variety of economic shocks. Bernanke (2004), Faust and Henderson (2004), and Meyer (2004) all argue that if an inflation target is to be introduced, a short-term fixed timeframe should not be set for reaching it. Rather, the inflation target should be set as an average to be met over the length of a typical business cycle. In essence, such a formulation reflects a desired level for the inflation rate in the long term. This is akin to setting the inflation objective in terms of a commitment to long-run price stability, combined with a quantitative definition of what is meant by price stability. As we point out below, this is, in effect, the solution adopted by the SNB as well as the ECB.

In this context, a risk of explicit inflation targeting is that it could invite governments, or even parliaments, to become overly involved in the setting of short to medium-term targets for inflation, and thus indirectly change the level of central bank independence. This is particularly relevant in countries or systems with central bank mandates that grant a degree of goal independence to their central bank, as is the case in Switzerland or the European Monetary Union, but also in the United States.[8]

Second, inspired by the inflation target, the political system might insist on setting other, economically inappropriate numerical targets as well, e.g. for the unemployment rate or the exchange rate, thus jeopardising the goal of long-run price stability.[9]

In some countries, most notably the US, a number of observers are sceptical about introducing explicit inflation targets because of strong fears of adverse reactions on the part of the legislative bodies, for instance, Congress in the case of the US, which could possibly threaten the commitment to price stability. Meyer (2004) and Gramlich (2005), for instance, argue that it would be difficult to explain to the public and politicians why the Fed singles out inflation as a goal by setting a numerical target for it, while not doing the same for employment or interest rates. Given that the current mandate, based on the Full Employment and Balanced Growth Act of 1978, directs the Fed to "promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates", Congress could be tempted to 'balance' the introduction

8 On the desirability of goal independence, see section 3.3 below.

9 In practice, this is especially relevant for the US.

of an explicit inflation target with explicit numerical targets for the unemployment rate and, possibly, long-term interest rates. Moreover, Meyer and Gramlich argue that it might be difficult to explain to Congress that what the Fed wants is a flexible form of inflation targeting, and not a rigid one focusing on inflation only. US proponents of inflation targeting, therefore, take great care in formulating and explaining this framework in terms which are consistent with the current central bank mandate and acceptable to the political system (e.g. Bernanke 2003, 2004).

*The degree and role of monetary policy transparency*

Benjamin Friedman (2004) has carried the argument against inflation targeting one step further by claiming that this strategy actually reduces rather than increasing monetary policy transparency. He argues that inflation targeting encourages the central bank to abstain from talking and communicating about its stabilisation goal, creating a discrepancy between actions and words. In response to Friedman's concerns, it can be pointed out that inflation targets and the discussion of their role have greatly helped to focus the public debate on what a central bank can actually do in the long run – that is, to control inflation – rather than what it cannot do – which is to permanently increase output, jobs and growth through expansionary monetary policies. The more clearly this is established in the public's perception, the easier it becomes for the central bank to pursue short-run stabilisation policies, and the easier it becomes for it to talk about them. On balance, transparency, in a meaningful sense, is therefore increased, not reduced with respect to the short-term stabilisation objective (Mishkin 2004).

*Dual versus hierarchical mandates*

One of the most often quoted concerns about introducing explicit inflation targets is that it could create a conflict between the central bank's inflation objective and other possible goals of monetary policy, and unduly constrain the central bank's flexibility in its short-run output stabilisation efforts. In the US discussion, this is often linked to the Federal Reserve's 'dual' mandate, requiring it to attend to price stability as well as to real economic stabilisation, in contrast to the so-called 'hierarchical' mandates of many other central banks, including, among others, the Bank of England, the ECB and the SNB, which give priority to the objective of price stability. An outspoken representative of this view in the United States is Laurence Meyer. He suggests that, for central banks under a hierarchical mandate, explicit inflation targeting might be a natural choice as a monetary policy framework, but that for a central bank under a dual mandate it is not. He argues, in essence, that opposition to inflation targeting reflects opposition to transition from a dual to a hierarchical mandate.[10]

To a large extent, this concern becomes obsolete if we recognise the fact that many central banks practise inflation targeting in a 'flexible' form. In other words, when they determine

10 Cf., for instance, Meyer (2004). Nevertheless, Meyer is willing to accept an explicit inflation target for the US, as long as this is linked to a reassertion of the dual mandate for the Federal Reserve.

their policy, they look at the level of actual inflation relative to target inflation, but also at deviations of some measure of real activity from its full capacity level. Of course, there may be a trade-off between these two objectives, requiring policy to assign relative weights to them. But as long as the introduction of an explicit inflation target does not change these relative weights, it is not clear why inflation targeting should represent a problem in this respect. Along these lines, Bernanke (2003) forcefully argues that inflation targeting is perfectly compatible with a dual central bank mandate.

Dual mandates notwithstanding, there is an asymmetry between inflation and output as goals for monetary policy. For inflation, the central bank can set a level (mean) and a stabilisation goal (variance). For output, at best, a stabilisation goal is feasible, as normal output is determined by the potential of the real economy. This point is firmly based on economic theory and structure. It has been explicitly clarified by Svensson.[11] To our knowledge, this point is recognised today by virtually all monetary economists and central bankers. A hierarchical mandate makes allowance for this explicitly, while a dual mandate such as the Federal Reserve's is less precise about it. Nonetheless, a dual-mandate central bank must respect this asymmetry.

*The role of money, credit and asset prices for judging inflation perspectives over longer horizons*

Central banks in the tradition of monetary targeting, such as the Bundesbank or the SNB, have long stressed the role of monetary aggregates as indicators of long-run inflation developments. The ECB has adopted this element as a major part of its two-pillar framework. This has been critically reviewed by much of the academic and central bank discussion inspired by the New Keynesian paradigm which has dominated monetary policy analysis over the last 15 years.

However, a certain reconsideration of the role of money and credit appears to be taking place,[12] particularly in the form of a discussion about the role of money and liquidity for assessing the developments in stock and real estate markets and the associated dangers for long-run inflation risks and financial stability.[13] In general, balance sheet considerations are becoming increasingly important for monetary policy, as Greenspan (2005, 6) notes, "In particular, our analysis of economic developments almost surely will need to deal in greater detail with balance sheet considerations than was the case in the earlier decades of the post-war period. The determination of global economic activity in recent years has been influenced importantly by capital gains on various types of assets, and the liabilities that finance them. Our forecasts and, hence, policy are becoming increasingly driven by asset price changes."

A majority view among central bankers and academics today appears to be, though, that central banks should carefully observe the developments of asset prices, but should not actively

11 Cf., for instance, Svensson (1997, 2004).

12 For instance, King (2002), Leeper and Roush (2003), Nelson (2003), Issing (2005).

13 Cf., for instance, Borio and White (2003).

and systematically attempt to influence and control them, as they have neither a superior knowledge of what their appropriate level should be nor the means to effectively and reliably control them. However, the development of money and credit in this context, along with considerations of the general economic situation, may be helpful in evaluating future inflation risks at horizons extending beyond that of standard inflation forecasts.

### 1.3 Some academic proposals

Two proposals attempting to merge some of the dominant views emerging from the recent discussion about inflation targeting and monetary policy strategies are those by Bernanke (2004) and by Faust and Henderson (2004). They are both characterised by an adoption of what the proponents call the 'core ideas of inflation targeting'. However, these ideas are applied in a moderate and flexible form which is quite distinct from those found in rigorous inflation targeting, as championed by much of the traditional literature on the subject and by central banks that adopted the concept in its early days, such as the Bank of England. These proposals are briefly summarised here. Interestingly, as we will stress below, they are in many respects quite similar to the monetary policy framework adopted by the SNB in December 1999.

*Bernanke's (2004) OLIR proposal*

Bernanke (2004) argued that effective central bank communication is especially important in a situation close to price stability, which has been achieved by monetary policy in the US and many other countries over the last two decades. He believed that an incremental move toward inflation targeting, in the form of the announcement of a long-run inflation objective, would be helpful in this respect and would not entail the costs feared by those who are concerned about a potential loss of flexibility. He argued that the central bank should determine what it believes to be the optimal long-run inflation rate (OLIR), defined as the long-run or steady-state inflation rate that achieves the best average economic performance over time, taking into account all monetary policy objectives. In his view, this OLIR could be greater than zero, even if correctly measured. This is especially true for a dual mandate central bank, in view of the risk of hitting the zero bound for the nominal central bank rate in the event of an adverse shock. This reflects the concept of a 'buffer zone'. According to a number of recent studies this risk appears to become negligible once the long-run average inflation rate rises towards 2%. Bernanke therefore appeared to believe that the OLIR is in the vicinity of this figure. Such a rate is not very different from the rates used by the ECB or the SNB in their current definitions of price stability.

Bernanke argued that the Federal Reserve should announce this OLIR and "guide the inflation rate toward the stated value and maintain it near that value on average over the business cycle". He then made a further provision, "However, the FOMC regards this inflation rate as a long-run objective only and sets no fixed time frame for reaching it. In particular, in deciding how quickly to move toward the long-run inflation objective, the FOMC will always take into account the implications for near-term economic and financial stability." (Bernanke 2004, 166–167).

Bernanke therefore explicitly noted that his proposal was not equivalent to inflation targeting as commonly understood. He summarised it as an attempt "to get the mean of inflation right while leaving the determination of the variance open for future discussion and debate". He strongly argued that, despite the lack of a specific time frame, such an announcement would carry weight, particularly because of the Federal Reserve's accumulated credibility and because of the fact that inflation at that time (2004) was near the OLIR. It would be valuable because it provided the best (lowest-forecast-error) answer to the question "What do you expect the average inflation rate in the United States to be over the ten-year period that begins (say) three years from now?" (Bernanke 2004, 167). It would clarify monetary policy and set a firm long-run anchor without constraining short-run monetary policy making in undue ways. Bernanke also argued that, if so explained, Congress would understand and approve the idea.

*Faust and Henderson's (2004) 'constructive suggestions'*

Faust and Henderson also related their discussion to the effectiveness of central bank communication. Their review of the issue prompted them to formulate a number of 'constructive suggestions' regarding best-practice monetary policy, "whether inside or outside the inflation targeting framework". These suggestions are (Faust and Henderson 2004, 135–136):

- "Central banks should state a clear long-run inflation goal. No range or fixed horizon should be given. If no numeric target is given, clear countervailing interests should be stated, and effort should be made to reduce uncertainty regarding the long-run goal. The value of this goal in meeting all long-run goals of policy should be stressed."
- "Central banks should communicate in a balanced way about the objectives driving short-run policy. If these objectives are seen as conflicting due to the structure of the economy, this viewpoint should be made clear. To the extent that other goals are more difficult to quantify than the inflation stability goal, the need for clear reporting is heightened and banks should strive to find ways to communicate about these goals effectively."
- "If best-practice policy is complicated, the totality of central bank communication should reflect that complexity."
- "Central banks should strive to communicate clearly the likely course of policy. If forecasts are part of this process, the relationship between the forecasts and the future course of policy should be explained."

## 2. The SNB's monetary policy concept

The SNB adopted its current monetary policy framework in December 1999. The new framework was designed after careful examination of the frameworks suggested by the inflation targeting model, on the one hand, and the two-pillar system created by the ECB, on the other. The SNB decided to follow neither of these without modification. With regard to the current debate about 'best-practice' monetary policy, the most interesting aspect of the SNB's policy framework is that it is, in many respects, remarkably close to the views and principles expressed today by leading exponents of the international debate, as reflected in the proposals summarised above. Although some important elements in the new framework are similar to the ideas and principles of inflation targeting, these ideas and principles have been adopted in a moderate and flexible form. To distinguish its concept from the 'narrow' inflation targeting approach and to stress the continuity of its policy, the SNB has consciously refrained from using the term 'inflation targeting' to characterise its new framework.[14]

### 2.1 Monetary policy guided by basic principles

The main features of the SNB's framework can be summarised in the following principles:

- Priority given to 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 to dampen real economic fluctuations.
- A forward-looking approach in the pursuit of its objectives, through the use of an inflation forecast as its main indicator.
- Flexible implementation of monetary policy, through the announcement of a target range for the three-month CHF Libor as an operational target.
- Transparency and accountability as central principles of a successful policy concept.

The approach is based on the SNB's mandate, as set out in the Federal Constitution and further specified in the National Bank Act. Under the provisions of the National Bank Act, the SNB is required to ensure price stability. In doing so, it must take due account of business cycle conditions. The SNB is required to resolve any short-run conflicts between the objective of price stability and developments in the real economy as well as it can, taking into consideration the interests of the country as a whole and giving priority to long-run price stability. The legal mandate is therefore hierarchical: price stability as the overriding objective of monetary policy is prescribed by the National Bank Act. The specific interpretation of the meaning of price stability is left to the SNB.

The SNB has decided to render its mandate operational by employing a quantitative definition of price stability, as opposed to a short-term inflation target. The importance of this distinc-

14 The new approach was presented and explained in the December 1999 issue of the SNB's *Quarterly Bulletin.* Cf. also Jordan and Peytrignet (2007).

tion lies in the implied emphasis on a 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, on the other hand, can be changed over time. Indeed, targets have been changed in a number of inflation targeting countries.[15] A quantitative definition of price stability thus represents a more reliable and therefore a more credible commitment to monetary stability than an inflation target which can be adjusted over time in potentially discretionary and unpredictable ways. Hence, the quantitative definition of price stability is a central component of the SNB's monetary policy framework. It reflects the SNB's conviction that, even for a credible central bank, the additional commitment to monetary stability reflected in a quantitative definition of price stability provides a valuable contribution to anchoring long-term inflation expectations and strengthening market confidence.

The SNB defines price stability as a rise in the national consumer price index (CPI) of less than 2% per annum. It is recognised that the CPI probably overstates actual inflation to some extent.[16] Consequently, price stability is equated with a slightly positive measured inflation rate. Deflation, that is a persistent downward trend in the price level, is clearly stated to be inconsistent with price stability. The SNB's policy on inflation is based on a medium to long-term orientation. Its approach is based on the recognition that economic fluctuations are dampened by an unequivocal commitment to long-run price stability. First of all, low inflation and firmly anchored inflation expectations in themselves ensure that deviations in output and employment from normal levels remain limited.[17] Second, 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. Third, the SNB's approach accords strong recognition to the insight that, in the long run, public perception of its policy is determined by deeds, not words. A high level of credibility based on its past policy record is a prerequisite for a successful monetary policy within its current framework. Therefore, overly ambitious efforts at short-run stabilisation of the real economy could easily become counterproductive and must be avoided.

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15 A prominent example of this is the UK where the original inflation target in 1992 of "1 to 4%" was subsequently changed to "2.5% or less" and in 1997 to a symmetrical 2.5% target (with a permitted deviation of 1 percentage point in the form of a letter-writing threshold). In Mexico, after an inflation of 52% in 1995, the newly introduced inflation target has been progressively lowered from 20.5% in 1996 to a symmetrical 3% target in 2005 (with a permitted deviation of 1%), which was attained in November 2005. In Chile, the inflation target was lowered from a 15-to-20% range in 1991 to a current range of 2 to 4%. Merely technical changes of inflation targets include the change of the underlying price index in the UK at the end of 2003 from 2.5% on the RPIX (RPI ex mortgage payments) to 2% on the CPI (HICP), as well as the index change in New Zealand from CPIX (CPI ex interest rates) to CPI for the inflation target of 0 to 3%.

16 For a Swiss version of the Boskin report in the US, see Brachinger, Schips, and Stier (1999).

17 For a discussion of the global decline in inflation and the corresponding decline in output volatility, cf., for instance, Rogoff (2003).

However, while it would react decisively to an inflation rate persistently above 2%, there are situations in which the SNB will permit temporary deviations from this mark. In a small open economy, exceptional situations with sharp exchange rate fluctuations can arise, causing inflation to temporarily move outside the price stability range. Abrupt price increases for imported goods such as oil, or adjustments to certain tax rates, may also result in inflation rates that temporarily exceed the definition of price stability. It is neither possible nor necessary for the central bank to prevent this.

Beyond this, the SNB is convinced that a clear communication of what the central bank can and cannot achieve increases the transparency of monetary policy and thereby augments its effectiveness.[18] Moreover, it enhances the quality of public debates about monetary policy, including those relating to the 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 quarterly reviews of its policy, the SNB publishes a forecast of inflation for the three following years. This inflation forecast plays an important role as the main indicator when making monetary policy decisions. If the inflation forecast indicates a move outside the price stability range, monetary policy needs to be reviewed. If inflation threatens to exceed the 2% level, the SNB will consider tightening its monetary policy. If the forecast indicates a danger of deflation, it will consider relaxing it. The SNB, however, will never react in a mechanical way to the inflation forecast, but will always take 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 view and to react to any inflation or deflation threats at an early stage.

The published inflation forecast is based on the assumption that the SNB's chosen reference interest rate, the three-month Swiss franc Libor, will remain constant over the forecasting period. The forecast is also based on an outlook scenario for the world economy. The inflation forecast is therefore conditional. It indicates the future course of prices under the assumption of specific economic conditions and an unchanged domestic monetary policy environment. For internal purposes, however, unconditional forecasts based on endogenous short-term interest rates are also investigated by the SNB. The three-year horizon corresponds to the time usually estimated to be necessary for a complete transmission of monetary policy impulses in Switzerland.

Forecasts over such a horizon are obviously subject to great uncertainties. The SNB has accumulated significant expertise in the formation of inflation forecasts. Its forecasts are based on a variety of indicators and the information provided by several technical forecasting models developed and run by the SNB's research staff, including a medium-size and a small simultaneous equation model of the Swiss economy, different types of VAR and SVAR models as well as

18 Cf. Blinder, Goodhart, Hildebrand, Lipton and Wyplosz (2001).

a Dynamic Stochastic General Equilibrium (DSGE) model.[19] The publication of its inflation forecast helps market participants understand monetary policy decisions and form expectations.

The SNB still values the information content of money and credit indicators, especially with regard to the medium to longer-term inflation perspectives. Credit and money aggregates are important variables in the forecasting models which are employed to assess the price dynamic around the tail end of the inflation forecast horizon. In addition, as technical inflation forecasts beyond a three-year horizon are likely to be insufficiently reliable for practical use, the SNB continues its tradition of carefully monitoring the development of money and credit aggregates, as well as asset prices, and investigates their quality as potential indicators of inflation risks in the longer run. A continued emphasis on the role of money and credit in evaluating inflation perspectives has been a distinguishing mark of the new policy concept from the beginning. Contrary to the ECB, however, the SNB has refrained from making its monetary analysis a separate pillar in its concept, and from defining a reference value for the growth rate of a monetary aggregate.

### 2.2 Technical assumptions underlying the SNB inflation forecasts

As noted above, the SNB publishes inflation forecasts conditional on a constant interest rate set at the most recent monetary policy assessment. The strength of a forecast based on the fixed-interest-rate assumption lies in the simplicity and ease of interpretation for the market and the public. Moreover, it does not necessitate an agreement within the Governing Board on the path of the expected future interest rate. The conditionality of the inflation forecast on the current reference interest rate gives an insight into future interest rate changes necessary to maintain price stability. At the same time, however, a fixed-rate assumption appears plainly unrealistic in most situations and may, in some models, lead to inconsistencies. This renders the aggregation of information from different models more difficult.

Recently, the practice of basing inflation forecasts on current interest rates has been challenged. Two alternative approaches have been suggested in the literature and implemented by some central banks. The first recommends publishing inflation forecasts conditioned on the interest rate path that reflects the policymaker's opinion about future policy decisions. The second approach conditions inflation forecasts on market expectations of interest rates.[20]

There are undeniable benefits associated with inflation forecasts based on policymakers' views on future interest rates. For instance, they are arguably more realistic. This approach, however, suffers from a series of drawbacks. First, it may divert public focus from the central

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19 Details of the technical inflation forecasting models have been published in various issues of the *Quarterly Bulletin.* Cf., in particular, Jordan and Peytrignet (2001), Stalder (2001), Jordan, Kugler, Lenz and Savioz (2002), and Jordan and Savioz (2003).

20 The central banks of New Zealand, Norway and Sweden base their inflation forecast on the policymaker's opinion about future policy decisions. The ECB and the Bank of England base their forecasts on market expectations.

bank's ultimate goal of price stability by concentrating the discussion too much on the trajectory of short-term interest rates. Second, a forward-looking statement about interest rates merely reflects central bank knowledge at the moment of the publication of the forecast. Agents, however, may misinterpret such a statement as representing a firm commitment on the part of the central bank. Finally, reaching an agreement on the trajectory for the policy rate over the next two to three years is rather difficult.

Conditioning the forecast on the path of expected interest rates implied by the term structure of forward interest rates appears to be an attractive alternative. Assuming rational expectations and market efficiency, the resulting forecasts ought to be credible without committing the central bank to any specific interest rate path. However, this solution only makes sense as long as market expectations about future interest rates are superior to a constant-rate assumption. Meanwhile, Goodhart (2005) has noted that conditioning on the market view merely adds noise to the medium-term inflation forecasts.[21]

Considering the advantages and the disadvantages of the different possibilities, the SNB believes that, for its communication purposes, the fixed-rate assumption still serves best. Providing the markets with a guideline on how to interpret the forecasts is usually sufficient to circumvent the problems arising from the fixed-rate assumption.[22]

### 2.3 Implementation of monetary policy

At the operational stage, the SNB implements its policy by influencing the interest rate level in the money market. It fixes a target range for the three-month Libor in Swiss francs and publishes it regularly. Normally, this range is 100 basis points wide. Additionally, the SNB determines and announces a level within this fairly wide band. This is the level it wishes the Libor to remain close to. Typically, it is the midpoint of the target range it has determined. By announcing a range for a three-month interest rate, rather than a point target for the overnight rate, the SNB has more leeway to react flexibly to exchange rate shocks or sudden changes in liquidity distribution without signalling an immediate change in its basic policy orientation.

Market participants have understood the desirability of a certain amount of short-run flexibility in steering interest rates in a small open economy with an important currency and a large financial sector. Given the SNB's credibility accumulated over years of reliable, stability-oriented policy making, defining policy implementation in terms of a range has in no way weakened the firm anchoring of the public's perception of medium and long-term policy intentions. Permitting temporary fluctuations in the money market rates is therefore possible without adversely affecting market expectations.

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21 Hildebrand (2006) points to potential pitfalls of central banks relying excessively on market expectations in formulating policy.

22 For a detailed discussion of the implications for central bank communication of the different assumptions behind the inflation forecasts, cf. Jordan and Rossi (2007).

The SNB does not have direct control over the three-month Libor. It does control it indirectly, however, through its repo transactions with banks. The SNB regularly reviews the 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 decisions on the day the decision is published and enforced.

### 2.4 Experiences with the new concept

So far, the new concept has performed very well, notwithstanding the fact that the period since its inception has been characterised by a variety of severe shocks and disturbances. It has been well received by the public and the financial community. In spite of certain initial reservations, it has quickly become accepted as an efficient instrument of central bank communication, allowing the SNB to effectively explain the aim and direction of its policies. While based on a tradition of transparency and accountability already developed during the era of monetary targeting, the concept is generally perceived as an improvement on previous practices. This has been attested on numerous occasions by international organisations such as the IMF and the OECD.[23]

Experiences so far include phases of both policy tightening and policy relaxation. In summary, the introduction of the new concept has effectively contributed to creating confidence in the maintenance of monetary stability. The inflation record of the SNB under the new system has been excellent. Average inflation between 2000 and 2006 was close to 1%. The critical mark of 2% used as a benchmark for defining price stability was not overstepped in any single quarter. Admittedly, real economic performance in Switzerland was weak in some of these years. It is, however, well understood by economists, the general public, and international organisations such as the OECD and the IMF that this was related to a need for more structural reform and not to an overly restrictive monetary policy.

The new concept has also enabled the SNB to adequately and flexibly respond to a series of negative and positive shocks in the world economy, as well as preventing an unwelcome development in the Swiss franc, without departing from its price stability commitment. At the same time, it has enabled the SNB to demonstrate its willingness and ability to pursue an autonomous policy with respect to the ECB. The commentators who had 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 were thereby proved to have been wrong.[24]

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23 Cf., for instance, OECD (2003) and IMF (2006).

24 Jordan and Peytrignet (2007) provide a summary of the SNB's experience with its new concept.

## 3. The SNB's concept in the light of the current discussion

In section 1, we described the emerging consensus arising out of the current discussion about inflation targeting and optimal monetary policy procedures. In section 2, we presented the new monetary policy concept of the SNB, noting that it reflects this emerging consensus to a remarkable extent. The SNB's monetary policy framework may therefore be seen as a seven-year 'real-life' experiment which allows us to evaluate some of the analytical claims advanced in the current debate about best-practice monetary policy. This section identifies the parallels between the emerging consensus and the SNB concept and reviews some outstanding issues and controversies by drawing comparisons between the Federal Reserve and the ECB.

### 3.1 Parallels between the SNB concept and the consensus proposals

To a very considerable extent, the SNB's monetary policy concept fits the emerging consensus on best-practice monetary policy, as can be seen in the points outlined below:

- The SNB concept – and the legal mandate upon which it is based – clearly reflects a strong commitment to maintaining price stability. Assigning a high priority to long-run price stability as an objective of monetary policy is unambiguously accepted and recommended by all knowledgeable experts on monetary theory and policy today.
- At the same time, the SNB stresses the need for short-term flexibility in pursuing its long-run price stability objective. This is reflected in an explicit medium to long-term focus on inflation control. The SNB does not rely on short-term inflation targets, but rather on a quantitative definition of price stability which, by its very nature, is valid for an extended period of time and is highly resistant to any risk of being voluntarily changed over time. It therefore provides an optimal anchor for long-term nominal values and expectations. This, in turn, provides scope for short-term dampening of economic fluctuations and corresponds well to the propositions advanced by authors such as Bernanke as well as Faust and Henderson, which are summarised in section 1.3 above. The SNB believes that, even where a central bank is endowed with a high reputation based on its past policy record, market participants can gain valuable information when the central bank strengthens its commitment to long-run nominal stability through a formal definition of how it interprets this commitment.
- The SNB is conscious of the dangers of an overly active output stabilisation policy. It is acutely aware of the fact that its output stabilisation potential is highly dependent on the credibility of its long-term commitment to price stability. It considers this credibility, and the reputation derived from it, to be its most important capital – a capital that it is loathe to put at risk. This again corresponds to a point strongly stressed by major participants in the international discussion (for instance, Bernanke 2003 and Mishkin 2004).
- The SNB is convinced of the need for monetary policy to be forward-looking, as recommended by practically all leading experts in the field. Consequently, it relies explicitly

on the use of inflation forecasts. The SNB has developed significant expertise in developing inflation forecasts since changing to its new framework. However, its actual monetary policy decisions are not mechanistically and exclusively based on these inflation forecasts. Rather, judgement plays an important role in the decision-making process. This procedure is in line with the views of a majority of experts, as revealed by our survey in section 1 above.

- The SNB believes that explicit discussion and recognition of the possibilities, but also of the limitations, of monetary policy, in both the short and the long run, is conducive to policy transparency. Therefore, the SNB explains to the public why it gives priority to long-run price stability as the main monetary policy objective.

### 3.2 Reasons for the emphasis on short-run flexibility: a comparison with the US

A central feature of the SNB's approach is its emphasis on short-term flexibility in determining policy. This emphasis on short-term flexibility – not to be confused with a policy of ambitious 'fine-tuning' – is strongly echoed in the current debate about the virtues and drawbacks of inflation targeting in the United States. It is interesting to explore this common focus on flexibility in two countries with vastly different economies.

In Switzerland, the main argument traditionally used by the SNB to justify its emphasis on flexibility makes reference to the importance of being able to react flexibly to a variety of external shocks. The Swiss economy is regularly subjected to the negative effects of exchange rate shocks, other financial market disturbances as well as oil and energy price shocks. The ability to respond adequately to such disturbances is regarded as essential, in order to protect the economy from unwelcome cyclical fluctuations and maintain the stability of the financial system. Short-run flexibility in the face of external shocks, incidentally, has been a hallmark of Swiss monetary policy throughout the post-Bretton-Woods era, in other words, it was being practiced long before the adoption of the current policy framework. This characteristic is also reflected in the Swiss approach to the implementation of monetary policy at the operational stage, as described in section 2.3 above. Thus, the openness and complexity of the economy have created a situation where a flexible monetary policy is necessary.

In the United States, however, most authors stress the need to be able to attend to other objectives besides inflation, in light of the Federal Reserve's 'dual mandate'. A strategy which does not permit sufficient short-run flexibility, regardless of whether or not it is referred to as inflation targeting, is deemed to be in contradiction to the Fed's legal mandate and, consequently, politically unacceptable.

Fundamentally, these different motivations for preserving flexibility are not radically different. Clearly, they stem from the same basic source. In Switzerland, the concern about external shocks reflects the objective of stabilising financial markets and, ultimately, stabilising real economic conditions. In the United States, it is clear to virtually all major experts that real economic objectives can be pursued by the central bank only as stabilisation goals, the Fed's 'dual mandate' notwithstanding.

Thus, despite some obvious differences between Switzerland and the US, concerns about the real economy as well as concerns about financial market conditions are at the root of the call for flexibility in monetary policy.

One common aspect which has been stressed above as a prerequisite for a successful policy of constrained discretion is a high degree of credibility based on a successful past policy record. Both the Federal Reserve and the SNB have prolonged records of low inflation. Consequently, they enjoy a high reputation and credibility in financial markets. This is in marked difference to most of the early inflation targeters, which typically had an urgent need to signal a regime change from 'uncontrolled' discretion and inflation to more constraint and price stability. The fact that most of them have, over the past decade or so, successfully transformed themselves into strongly stability-oriented central banks with a corresponding credibility and market reputation may, in turn, make it possible for them to reconsider their mix of constraint and discretion.[25]

### 3.3 Goal independence and inflation targets: parallels with the ECB and the Fed

There remain some other special features of the Swiss approach worth emphasising. One of these features relates to the degree of central bank independence, and the role inflation targets could play in this regard. As is the case for the ECB or, to a considerable extent, the Federal Reserve, the SNB enjoys a comparatively high degree of 'goal independence', allowing it to define autonomously the meaning of 'price stability' as well as the horizon for returning to price stability after a shock, rather than having such definitions prescribed by the central government or any other body. Sometimes, goal independence for central banks – in contrast to mere 'instrument independence' – is said to contradict democratic principles.[26] In our view, this is a misunderstanding. This critique would be correct for a central bank enjoying full goal independence under a completely unspecified mandate as to what the goals of monetary policy should be. However, central banks such as the SNB operate within the realm of a well-defined mandate. The distinction is that this mandate provides an arrangement which leaves the central bank more flexibility to react to shocks, since the trade-off between output stabilisation and inflation is not dictated to them through a narrowly defined target set by someone else. The enhanced flexibility allowed by goal independence permits a more adequate response to macroeconomic shocks, with the legal mandate providing a firm and credible commitment to the long-run objective of price stability at the same time (cf. Baltensperger, Fischer, and Jordan 2007, who differentiate between different degrees of goal independence in this context). Obviously,

25 The Bank of England's repeated emphasis on the need for flexibility in inflation targeting (for instance, King 2005) may be seen as indicative of such a development.

26 Democratic principles allegedly require policy goals to be set by the government, cf., for instance, Debelle and Fischer (1994).

a high degree of credibility and reliability for central bank policy is a prerequisite for success under such a regime.[27]

For central banks with a poor inflation record, who need to build up their reputation, a weak form (or absence) of goal independence may be appropriate. For central banks with a high degree of credibility and a successful policy record, however, monetary policy will benefit from the flexibility granted by a higher degree of goal independence. In such an environment, the introduction of explicit short-term inflation targets may be seen as a step towards less goal independence and an invitation to the government to become involved in the determination of short-term monetary policy decisions. There is a consensus in the literature that government involvement in monetary policy is not likely to be successful. This is another reason for giving preference to a reliable definition of price stability rather than the declaration of short-term inflation targets.

27 Ferguson (2003), in a charter lecture at the University of Georgia, made an interesting comparison between central bank charters and University charters. Charters, he stressed, define the fundamental objectives of an institution and describe in general terms how these are to be achieved. They do not, however, prescribe the detailed procedures for attaining these objectives. To decide on these is the task of the executive units, both at a University and in monetary policy. Central bankers, like educators, require flexibility in applying their tools in order to respond appropriately to changing circumstances over time.

## 4. Conclusions

The practice of monetary policy has evolved a great deal since the early 1990s. This evolution was significantly influenced by rapid developments in the theory of monetary policy. Inflation targeting has established itself as the dominant framework for monetary policy decisions. With its growing academic popularity, and with an increasing number of central banks opting for inflation targeting frameworks, the definition of what constitutes an inflation-targeting regime has become more flexible and perhaps, to some extent, blurred. At the same time, a new academic consensus about 'best-practice' and 'principles-based' monetary policy emerged. It marries a firm long-term anchor for nominal stability, rooted in the original ideas behind inflation targeting, with short-term flexibility, based on more discretionary and pragmatic approaches to monetary policy. Arguably, the SNB's monetary policy framework represents a 'real-life' example with a successful seven-year track record of a monetary policy framework encompassing a firm nominal anchor, but which also emphasises the need for flexibility to respond adequately to real and financial shocks. It thus reflects, to a considerable degree, the emerging academic consensus on 'best-practice' monetary policy and may serve as an interesting case study of a policy aiming at an intermediate position between full discretion and rigidly defined short-term inflation targeting.

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