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DISCIPLINED DISCRETION: MONETARY
TARGETING IN GERMANY AND SWITZERLAND

THOMAS LAUBACH

AND

ADAM S. POSEN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS
PRINCETON UNIVERSITY
PRINCETON, NEW JERSEY

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The authors of this Essay are Thomas Laubach and Adam S. Posen. Mr. Laubach is an economist at the Research Department of the Federal Reserve Bank of Kansas City. He is a coauthor (with Ben Bernanke, Frederic Mishkin, and Adam Posen) of *Inflation Targeting: Lessons from the International Experience*, forthcoming from Princeton University Press. Mr. Posen is a research associate at the Institute for International Economics in Washington, D.C., and has also served as an economist at the Federal Reserve Bank of New York. His publications on the political economy of monetary policy include “Why Central Bank Independence Does Not Cause Inflation” (1993), “Inflation Targeting: Lessons from Four Countries” (1997; with Frederic Mishkin), and the forthcoming *Inflation Targeting*.

PETER B. KENEN, *Director*
International Finance Section

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DISCIPLINED DISCRETION: MONETARY TARGETING IN GERMANY AND SWITZERLAND

Many observers have praised the records of monetary policy in Germany and Switzerland as examples of the benefits of monetary targeting. In both countries, the central banks have successfully pursued their stated goals of price stability, maintaining low levels of inflation throughout the post-Bretton Woods period. Some observers have gone so far as to view the performance of these banks as evidence for a rule-based monetary policy, one that limits the discretion of central bankers. Such claims have been recently challenged, however, by econometric analyses of Bundesbank policy that show no dependable relationship between money growth and inflation, money growth and instrument interest rates, or between inflation alone and interest rates, unless other goal variables are included.¹ In short, good inflation performance has mistakenly been attributed to an idealized monetary-targeting strategy that has not been followed by the central banks cited as exemplars of that strategy.

This essay offers an analysis of actual German and Swiss monetary policy that explains this gap between operation and performance. It shows that neither country's central bank can be called a monetary targeter, according to a strict, formal definition of targeting, and it argues that the historical record shows a different use for announced monetary targets in these countries. Both the Bundesbank and the Swiss National Bank (SNB) have consciously used monetary targets as a framework for signaling their intent and explaining their policies to their constituent publics. In consequence, the targets have actually given these so-called "monetary targeters" greater flexibility in responding to

Work on this essay was begun while Thomas Laubach was a graduate intern and Adam Posen was an economist at the Federal Reserve Bank of New York. The authors thank, without in any way implicating, Otmar Issing, Michel Peytrignet, Erich Spörndli, and Georg Rich for comments and suggestions. Responsibility for the views expressed herein and any remaining errors rest solely with the authors, and not with the Federal Reserve Bank of Kansas City, the Federal Reserve Bank of New York, the Federal Reserve System, or the Institute for International Economics.

¹ The Swiss National Bank's policies are usually unexamined but are assumed to resemble the Bundesbank's.

the problems of monetary control and economic shocks than would have been available to an idealized monetary targeter or to a central bank primarily concerned with problems of credibility. This essay argues that the use of monetary targets in Germany and Switzerland has conferred greater transparency on the monetary-policy stances of these countries, thereby enhancing flexibility without obvious cost.

Our analysis of the design and operation of the German and Swiss targeting frameworks leads us to question the conventional placement of the two central banks in the highly stylized “rules versus discretion” debate about monetary policy. The main approach to monetary policy in economic research since the early 1980s has been to model the average rate of inflation as emerging from a repeated game between the government and a representative agent of the public. The resultant emphasis on credibility tends to emphasize the broad institutional design of central banks while ignoring both the long-term political context in which the central bank functions and the short-term operational framework within which policy decisions are made and implemented.²

What emerges from our inquiry is an interpretation of German and Swiss monetary practice that we call “disciplined discretion.” The practice followed by the central banks of the two countries should not be construed simply as a more complicated rule; it should be seen, instead, as a system of commitments meant to clarify publicly and continuously the intent and stance of monetary policy. We conclude, from our examination of the German and Swiss experience, that it is not necessary to bind a central bank’s hands extremely tightly in order to sustain low inflation. It is, however, crucial that a central bank achieve transparency and provide structured accountability over the medium term.

Our findings cast new light on recent discussion about the strategic framework for the future European Central Bank (ECB). The European Monetary Institute’s report on the operational framework for the single monetary policy in Stage Three (EMI, 1997, p. 2) has stated that “the list of potential candidate strategies has been narrowed down to two, namely, monetary targeting and direct inflation targeting.” Yet, the difference between inflation targeting, as adopted in a number of countries in recent years, and monetary targeting, as practiced by its two most-cited successes, appears to be very small. We would argue, further, that the main lessons to be drawn by the ECB from German and Swiss monetary targeting are those that show the greatest overlap with

² Several studies have attempted to look at the social and political forces behind central-bank structures and long-term behavior; see Goodman (1990), Henning (1994), and Posen (1993, 1995).

inflation targeting—that practical price stability can be achieved without unnecessary anti-inflationary zeal, and that transparent public discussion of monetary policy enhances both the accountability and the performance of monetary policy, rather than sacrificing one for the other.

1 The Adoption of Monetary Targeting in Germany and in Switzerland

The decision to adopt monetary targeting in Germany and Switzerland, although prompted by the breakdown of the Bretton Woods regime of fixed exchange rates, was a matter of choice in both countries; neither country was under any pressure to reform either its economy or its monetary regime. In fact, the breakdown of Bretton Woods was partly attributable to the extreme relative credibility of German and Swiss central-bank commitments to price stability and to the concomitant appreciation of their currencies. In these circumstances, the loss of the exchange-rate anchor was not the sort of credibility crisis (with macro-economic effects) that demanded an immediate response. Indeed, the move to the new regime took two to three years.

The adoption of monetary targets by Germany and Switzerland in December 1974 was the beginning of a broader trend that the United States, Canada, and others followed during 1975. As has been noted, countries seem inclined to adopt explicit monetary targets at times when circumstances require toughness on inflation (Bernanke and Mishkin, 1992, p. 186).³ Although there were considerable differences among the regimes adopted in the operations of the targets in 1974 and 1975, all the regimes provided a quantified guidepost for the intended rate of monetary expansion.⁴ From a reading of contemporary documents, it appears that there are two principal aspects to the intellectual framework on which monetary targeting is based: the control of inflation through the control of monetary expansion, and the coordination of agents' (especially wage bargainers') expectations through the announcement of quantified policy objectives.

The emergence of inflation in the early 1970s as the predominant problem for monetary policymakers drew attention to the possible causal

³ The Germans, however, who not only adopted monetary targets, but adhered to them for two decades, seemed at least as concerned with limiting expectations once inflation began its downward trend.

⁴ For a brief contemporary survey of the adoption of monetary targets, see BIS (1976, pp. 33–39). Meek (1983) provides later, in-depth, accounts of the operation of monetary targeting in a number of countries.

role of money growth in the inflationary process. As early as October 31, 1972, before the first oil shock, the Council of Ministers of the European Community (quoted in Bundesbank, *Annual Report*, 1972, p. 24) passed a resolution that called for the member states to

progressively reduce the growth rate of the [broad] money supply . . . until it equals that of the real [gross national product], augmented by the normative price rise determined in accordance with overall economic aims and after taking account of the structural development of the relationship between money supply and national product. This target is to be reached not later than the end of 1974.

Although this resolution is silent on a number of issues, it outlines a concept of monetary targeting, based on a quantity equation, that allows for considering output as well as inflation in setting monetary policy, and it specifies a fixed date by which the target has to be achieved. This use of the quantity theory has been the basic procedure for target setting in both Germany and Switzerland since the resolution was passed. It is noteworthy that the ministers foresaw the need to build in flexibility for velocity shocks (“structural development of the relationship”) but chose to recommend a point target rather than a target range—although, as we shall discuss, the Swiss argue that a point target is more credibly flexible.

One element that is missing from the EC resolution is any discussion about public announcement of the target, or, more generally, any concern about the accountability of policy. It is important to remember that although the intellectual current of the time was running toward monetarism, and therefore in the direction of rules rather than discretion, the concern for central-bank credibility in the terms now much discussed (for example, the inflationary bias of time-consistency problems) had not yet been intellectually developed. Germany and Switzerland adopted their targeting commitments without “tying the hands,” that is, specifically intending to limit the discretion of their central banks or to impose any institutional provision of oversight and accountability. Clearly, the independence of these central banks, and the political coalitions that supported such independence in Germany and Switzerland, contributed to this decision. Some later observers have presumed that the Germans were broadly distrustful of monetary discretion, but such a modern interpretation should not be exaggerated. To most minds in 1974, the issue of monetary discretion in Germany had already been addressed by the granting of independence to the Bundesbank in 1957 in response to concerns about the possible politicization of monetary policy. The Swiss, moreover, had no such concerns to overcome. In fact,

as will be shown, monetary targeting has actually conferred considerable discretion on these central banks.

The second intellectual basis for the move to monetary targeting in Germany and Switzerland was a perception that medium-term inflation expectations had to be locked in when monetary policy eased following a drop in inflation after the first oil shock. The subsequent generalization that monetary targeting provides a means of transparently and credibly communicating to wage and price setters the relationship between current developments and medium-term goals was the common guiding principle of the newly adopted framework in these countries. It is important to recognize that, for this reason, the move to announced targets was soon accompanied by public-reporting mechanisms that the central banks voluntarily undertook in lieu of formal procedures. In addition to facilitating the coordination of expectations, the added transparency to the targeting framework served two other purposes. It raised the standard of democratic accountability to which the Bundesbank and SNB are held, and it gave these banks a mechanism for identifying which shocks would or would not be addressed by policy, when such shocks occurred. Through commitment to transparency, the central banks increased their discipline without explicitly limiting their discretion.

Germany

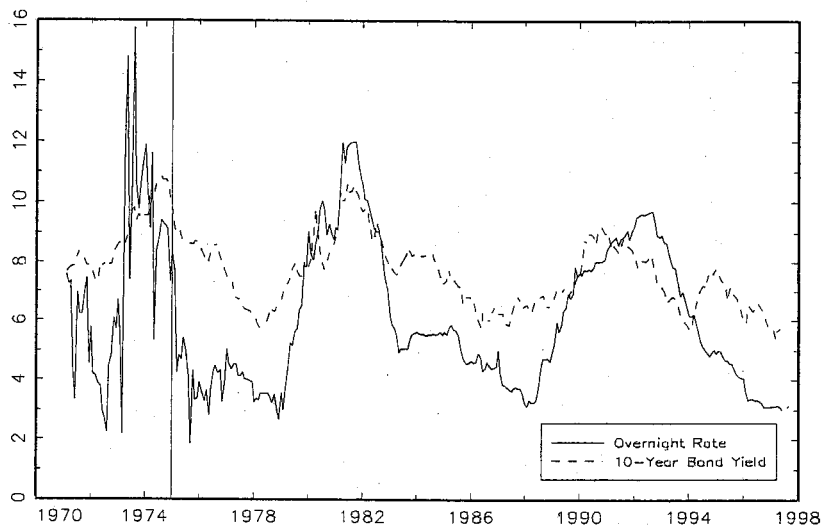
On December 5, 1974, the Central Bank Council of the Deutsche Bundesbank (*Monthly Report*, December 1974, p. 8) announced that “from the present perspective it regards a growth of about 8 percent in the central bank money stock over the whole of 1975 as acceptable in the light of its stability goals.” The Bundesbank (p. 8) judged that this target would “provide the requisite scope . . . for the desired growth of the real economy,” and that it had been chosen “in such a way that no new inflationary strains are likely to arise as a result of monetary developments.” Since 1973, the Bundesbank had used the central-bank money stock as its primary indicator of monetary developments, but it had never before announced a target for the growth of central-bank money or for any other monetary aggregate. Although this was a unilateral announcement on the part of the Bundesbank, the announcement stressed (p. 8) that “in formulating its target for the growth of the central bank money stock [the Bundesbank] found itself in full agreement with the Federal Government.”

The Bundesbank had always interpreted its mandate of “safeguarding the currency” (Article 3 of the 1957 Bundesbank Act) as the requirement that it give priority to achieving price stability in its conduct of

monetary policy. During the final years of Bretton Woods, pursuit of this priority was imperiled because massive amounts of capital were flowing out of U.S. dollars into deutsche marks, Swiss francs, and the currencies of those countries (Austria, Belgium, and the Netherlands) that were seen to be most closely following German monetary policy. These inflows of funds, which were triggered at least partly by the comparatively sluggish growth and high inflation in the United States after 1968, repeatedly forced the Bundesbank to tolerate excessive money growth rates that were in conflict with its domestic objectives.

Once released from its dollar-intervention obligation on March 19, 1973, the Bundesbank immediately began to reduce the free liquid reserves of the banking system, a measure of the extent to which the banking sector was able to expand its balance sheets without facing a shortage of central-bank money. The Bundesbank's primary concern was to reduce the rapid growth in bank lending. On May 30, the Bundesbank decided to suspend Lombard credit until further notice.⁵ The effect of that decision is clearly visible in the volatility of the overnight rate shown in Figure 1. This suspension was coupled with further increases

FIGURE 1
OVERNIGHT AND LONG-TERM INTEREST RATES IN GERMANY



SOURCE: BIS.

⁵ That is, credit given at the Lombard rate, the "penalty rate" at which the Bundesbank makes short-term credit available to commercial banks.

in the discount rate and reductions in the rediscount quotas over the following months. From late 1973, the Bundesbank granted special Lombard credit to limit the volatility in the overnight rate, but it was still at punitive rates. It was at this stage that growth in central-bank money itself, rather than in bank lending, became the main focus of monetary policy. In a section of the September 1973 *Monthly Report* (p. 9) entitled “Monetary Policy through Control of the Central Bank Money Supply,” the Bundesbank stated that it “based its policy on the consideration that the banks’ need for central bank money ultimately depends on the scale of the expansion in bank lending,” and that it was prepared to make additional central-bank money available “only in so far as such [provision] was consistent with its monetary policy target of reducing the inflation-induced excess money supply.”

The Bundesbank (*Annual Report*, 1972, p. 24), in discussing its plan to adhere to the EC’s October 1972 resolution on monetary control, had remarked that

the formulation of this objective is based on the recognition that the persistent and accelerating decline in the value of money is impossible without a corresponding expansion of the stock of money held by the public and, indeed, that the monetary sphere in its own right not infrequently promotes the inflation of prices and wages.

Monetarism, which was the intellectual development of the time, seems to have had a significant impact on policymakers inside the Bundesbank. It should be made clear, however, that although the Bundesbank chose to base the formulation of its annual monetary targets on the quantity theory, it was never dogmatic in its adherence to that school of thought. Current Bundesbank chief economist Otmar Issing (1996, p. 120) states that “one of the secrets of the success of the German policy of monetary targeting was that . . . it often did not feel bound by monetarist orthodoxy as far as its more technical details were concerned.”⁶ Issing’s statement suggests that the Bundesbank makes a link between “technical details” and the success of monetary policy. In other words, the visible commitment to price stability alone is insufficient without a properly designed operational framework for targeting, and that proper design requires a pragmatic approach to targeting.

The second intellectual basis invoked for monetary targeting, the coordination of the expectations of economic agents, was of particular importance at the time when the Bundesbank announced its first target:

⁶ Issing (1997, p. 72) accepts the characterization of the Bundesbank’s monetary-policy strategy as “pragmatic monetarism.”

From the immediately preceding period of fixed exchange rates [trade unions and enterprises] were accustomed to the Bundesbank's monetary policy measures becoming ineffective when they resulted in massive inflows of funds from abroad. As a consequence the Bundesbank initially failed to influence wage and price behavior in the way it wished. In the light of this adverse experience, the Bundesbank, together with the Federal Government and the independent Council of Economic Experts, concluded that it would be useful to explicitly define the "monetary framework" for the growth of production and prices (Schlesinger, 1983, p. 6).

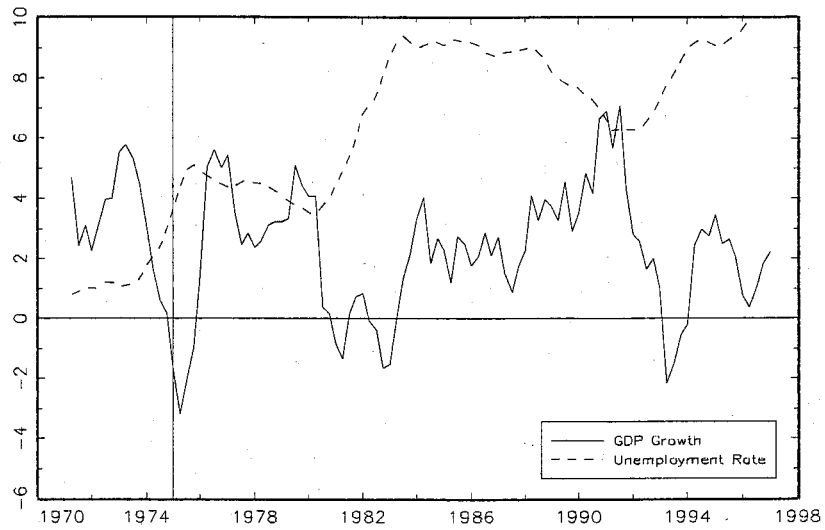
Although the Bundesbank's statements of the time do not explicitly mention public misperceptions of monetary policy, the bank's primary concern with these misperceptions appears to have been that they would cause high-inflation expectations to become entrenched.

There were starting to be signs that the restrictive policy of the Bundesbank was beginning to slow both inflation (which had peaked at almost 8 percent in mid-1973) and growth in gross domestic product (GDP) when the first oil crisis broke in October 1973 (see Figures 2 and 3). The Bundesbank's efforts to bring down inflation were thus jeopardized just when output growth was expected to fall drastically. The Bundesbank was particularly concerned that the oil-price increases would quickly lead to a second-round wage-price spiral. Accordingly, "the Bundesbank endeavored to keep monetary expansion within relatively strict limits during 1974. Although it did not expressly commit itself—as it did later for 1975—to any quantitative target, it tried to ensure that monetary expansion was not too great, but not too small either" (Bundesbank, *Annual Report*, 1974, p. 17). Despite the fact that a quantitative target was missing, the Bundesbank (*Monthly Report*, December 1973, p. 7) was determined to communicate its message of restraint as clearly as possible:

It is of the utmost importance that in the field of price and wage policy, management and labor behave in a way appropriate to the new situation. In their decisions, management and labor will have to consider the fact that if the oil shortage continues, hardly more goods will be available for distribution next year than in 1973.

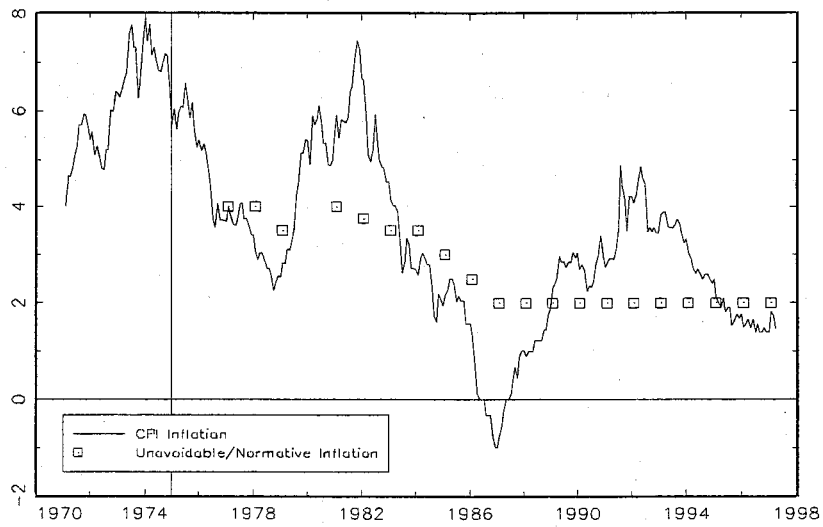
The Bundesbank was forcefully explaining to the public, without the benefit of explicit targets, that policy must be forward-looking and oriented toward inflation expectations. Its justification for a "just-right" monetary expansion reflected its ongoing concern about real-side effects that translated into gradual disinflation.

FIGURE 2
GDP GROWTH AND UNEMPLOYMENT IN GERMANY



SOURCE: BIS, OECD.

FIGURE 3
ANNUAL AND UNAVOIDABLE (LATER NORMATIVE) INFLATION IN GERMANY



SOURCE: BIS, Deutsche Bundesbank.

As it became clear that the rate of monetary expansion, as measured by the growth of central-bank money, was decelerating rapidly, the Bundesbank gradually eased monetary policy. From April 1974 on, the bank first lowered the rates at which it granted special Lombard credit, then lowered the minimum-reserve requirements. Beginning in September, it resumed granting Lombard credit on a regular basis. At this stage, the Bundesbank increasingly rationalized its policy decisions by reference to developments in central-bank money growth (see, for example, Bundesbank, *Monthly Report*, June 1974, pp. 12–13).

This gradual process culminated in the Bundesbank's announcement (*Annual Report*, 1974, p. 17) in December 1974 of a monetary target of 8 percent growth in central-bank money for 1975: "Under the influence of the growing weakness of business activity and the first signs of progress in fighting inflation, a change was made in the last quarter of 1974; the target became a slightly faster rate of monetary growth, which was publicly announced toward the end of the year."

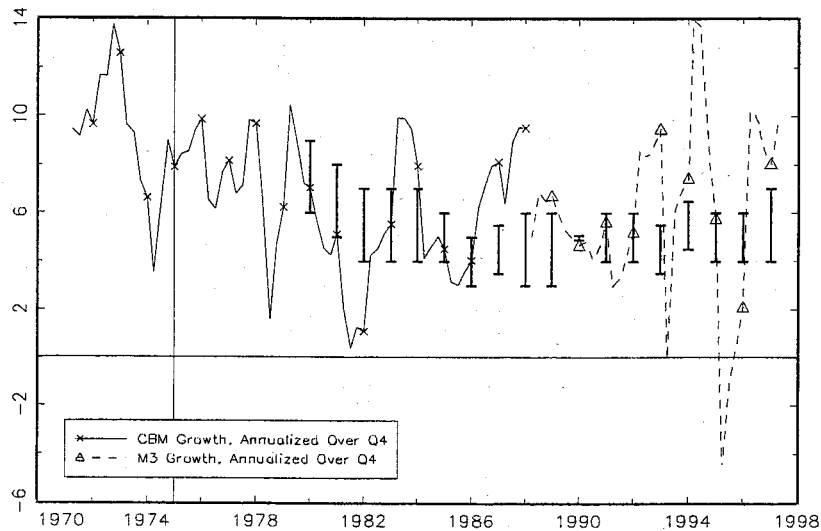
Four elements of this statement are worth noting. First, although the Bundesbank was mainly concerned with reversing the inflationary trend of the previous five years, its new monetary-policy framework publicly acknowledged real activity as a goal of monetary policy. Second, the Bundesbank did not find it necessary to reverse previous price-level increases to fulfil its mandate for price stability. Third, monetary policy was portrayed as acting in a preemptive manner ("first signs"). Fourth and finally, monetary targets were adopted at a time when both inflation and monetary growth were expected to slow (see Figures 3 and 4), making it easy to meet targets, although there was also fear that easing might unleash inflationary expectations.

There was even concern that easing might imply that the Bundesbank's resolve to bring down inflation was diminishing. Recent experience had shown that wage-setting behavior, in particular, was generally unaffected by the Bundesbank's efforts to reduce inflation:

Wage costs have gone up steadily in the last few months, partly as after-effects of [earlier] settlements . . . which were excessive (not least because management and labor obviously underestimated the prospects of success of the stabilization policy). . . . Despite the low level of business activity and subdued inflation expectations, even in very recent wage negotiations two-figure rises have effectively been agreed (Bundesbank, *Monthly Report*, December 1974, p. 6).

The credibility issue arose, therefore, in the context of the Bundesbank's wanting to stop pass-through of a one-time shock to the price level. This

FIGURE 4
 CBM AND M3 GROWTH AND MONETARY TARGETS IN GERMANY



SOURCE: BIS, Deutsche Bundesbank.

concern for getting the public to distinguish between first-round and second-round effects of a price shock, to avoid locking in inflationary expectations, characterizes the efforts of 1990s inflation targeters as well.⁷ Even before economic research had caught up with events, the Bundesbank appears to have seen the need for an exception to the pursuit of its long-term targets in the face of the first identified supply shock.

Designing a mechanism for making such an exception and explaining this flexibility to the public is an inherent challenge for all monetary frameworks. Taken from this perspective, the German monetary target seems to have been adopted, at least in part, to create a necessary means of communication about inflation uncertainty:

⁷ This was seen in the Canadian adoption of inflation targeting at the start of 1991, after several years of disinflationary policies and when a one-time rise in inflation had occurred in response to an increase in indirect taxes. This phenomenon was also apparent in the United Kingdom's adoption of inflation targeting in October 1992 following exit from the European Exchange Rate Mechanism (ERM), which arguably limited the inflationary pass-through of the one-time shock of devaluation. See Mishkin and Posen (1997) for a discussion of these events.

An acceleration of money growth was intended to stimulate demand and provide the monetary scope necessary for the desired real growth of the economy. On the other hand the target was also intended to show that no precipitate action would be taken to ease monetary conditions, in order not to jeopardize further progress towards containing the inflationary tendencies (Bundesbank, *Annual Report*, 1975, p. 5).

It is worth noting, however, that this explanation and the statement cited above from the *Monthly Report* were made *after* the announcement of the targets, not contemporaneously with the announcement.

Switzerland

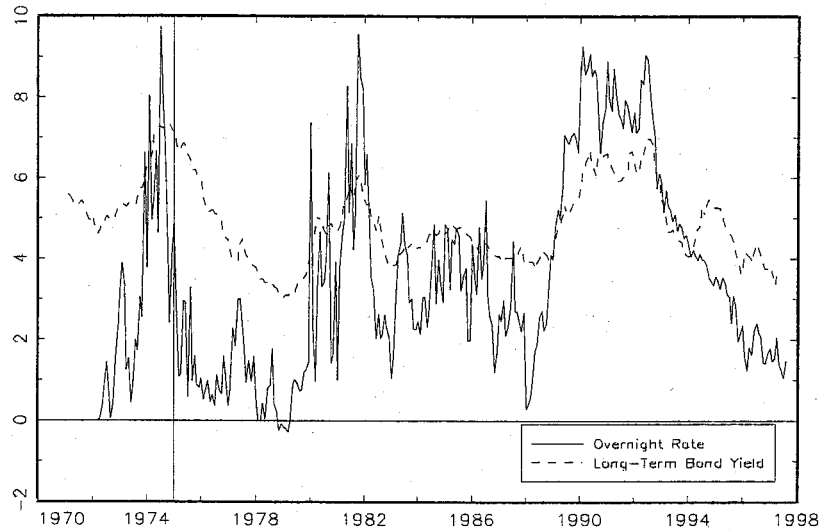
Monetary policy in Switzerland and Germany followed similar courses during the early 1970s. Both countries experienced excessive monetary expansion caused by massive capital inflows during the final years of Bretton Woods, and both countries' central banks suspended their dollar interventions in early 1973. That capital flowed into these countries was in no small part attributable to the perception that both countries' central banks enjoyed considerable political independence as well as public support for pursuing anti-inflationary policies. In addition, at the end of 1974, after a transition period of almost two years without a nominal anchor, both countries adopted monetary targets.

The general directorate of the SNB (1975b, pp. 7–8) “decided, at the beginning of the year [1975], to fix the expansion of official means of payment for 1975. . . . Under [the economic] circumstances, the General Directorate estimated that an expansion by 6 percent of the money stock M1 . . . would be appropriate” (authors' translation).⁸ With this target, the SNB (1975a, p. 3) intended to provide monetary conditions “that are conducive to furthering tranquility on the price front without obstructing the broader economic developments” (authors' translation). The first target was accompanied by little public fanfare or explanation, reflecting an initial lack of concern about the coordination of expectations and the thought that the target was simply a guide to policy. It appears that the decision to adopt monetary targets was taken unilaterally by the SNB, but with the support of the federal government, although at this point no reference was made to any government involvement in the decision.⁹

⁸ M1 includes currency in circulation and sight deposits held by nonbanks.

⁹ In a later account, Schiltknecht (1983, p. 73) states that “before the Governing Board of the Bank makes its final decision on the money-stock target, the Government is informed about the intentions of the Board. However, it must be emphasized that the responsibility for establishing a money-stock target rests solely with the Governing Board.”

FIGURE 5
OVERNIGHT AND LONG-TERM INTEREST RATES IN SWITZERLAND

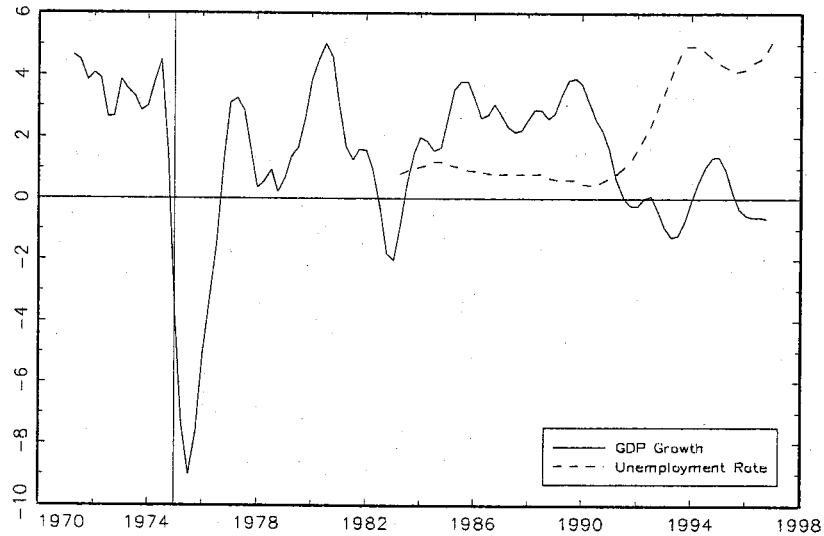


SOURCE: BIS.

Although Switzerland, like Germany, went through a two-year interregnum between fixed exchange rates and monetary targeting, it followed a different course. The worst U.S. trade-balance figures of the period forced the SNB to suspend its interventions against the dollar on January 23, 1973, thus freeing the SNB to turn to the task of controlling the monetary expansion. The Swiss emphasis on credit restrictions as policy instruments, however, prevented large movements in interest rates, compared to the movements in the German overnight rate seen at about the same time (see Figure 5). One reason why the SNB continued to rely on quantitative credit restrictions along with its other instruments is that interest-rate changes fed through very quickly into the consumer-price index (CPI). This occurred because rent increases were, and still are, tied to increases in mortgage rates (through a legal-appeals process available to tenants), and the share of rents in the CPI at the time was 17 percent. Still, "the authorities . . . did supervise the movements of bank liquidity in order to . . . prevent liquidity from contracting too much and causing a sharp rise in interest rates, such a development being considered undesirable mainly because of the effect of rising long-term rates on the trend of prices" (OECD, 1975, p. 33).

The recurring difficulties the Swiss have had with monetary control as a result of their banking and rental-market peculiarities illustrate the

FIGURE 6
GDP GROWTH AND UNEMPLOYMENT IN SWITZERLAND



SOURCE: OECD.

reasons why some countries choose a target-series definition that will remain unaffected by such structural oddities (for example, the United Kingdom's targeting of RPIX inflation—that is, inflation measured by the retail price index, but which excludes the first-round effect of interest rates on mortgage costs). The SNB directorate, although clearly aware of these difficulties from the start, appears to have felt that the better strategy was to have a more clearly recognized and comprehended target series and goal (M1 and, later, the monetary base, both derived from a CPI inflation goal) and then to attribute deviations from target to these factors as they arose. As we discuss below, the SNB consistently chooses to combine simple rules with complicated explanations of their outcomes in its operating procedures, rather than to make the rules complicated but the evaluation of the targets' performance mechanical.

As the Swiss economy began to weaken during 1974 (see Figure 6), the SNB applied both the reserve requirements and the credit ceiling more flexibly. The credit ceiling, in particular, was considerably relaxed during January 1975, and on May 1, it was abolished. Once it was no longer necessary to use unprecedentedly high interest rates to control the expansion of unrestricted bank lending, the SNB was able to shift toward controlling expansion of the banks' balance sheets by managing the money supply. The adoption of monetary targets was thus less

gradual than it had been in Germany, in large part because the Swiss financial system responded more quickly to monetary impulses.

In Switzerland, as in Germany, monetary targets were adopted at a time when both inflation and monetary growth were clearly slowing down (see Figures 7 and 8), a trend that made targets easier to meet. The achievement of the targets in turn suggested that loosening should not unleash inflationary expectations. There is no direct reference, either contemporaneously or in the reminiscences of participants, to intellectual exchange between Swiss and German policymakers on these issues. Whether the conditions surrounding adoption of monetary targeting in these countries led to one optimal conclusion, or whether there was an explicit communing of Swiss and German minds is open to conjecture. The similarities in the processes through which they adopted targeting regimes, however, are not fully matched by the procedures through which their respective regimes operated.

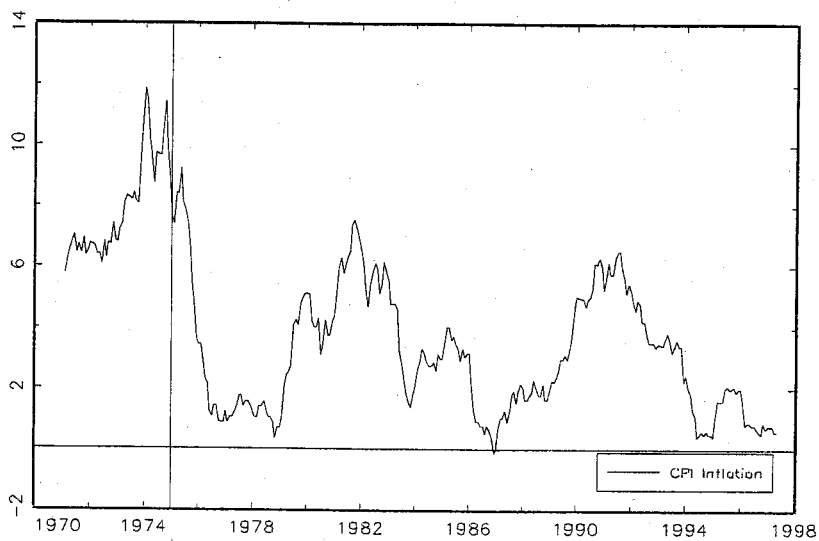
2 The Operational Framework of Monetary Targeting in Germany and Switzerland

Since adopting monetary targeting in 1975, both the Bundesbank and the SNB have adhered to the strategy of publicly announcing numerical monetary and underlying inflation targets. During the first five years, their respective procedures underwent a number of changes, but since 1980, the operational frameworks of their monetary targets have displayed a remarkable degree of continuity. Most impressively, both countries have managed the overshooting of targets in recent years, as well as changes in the monetary aggregates targeted after large velocity shocks, without incurring a persistent rise in inflation or inflation expectations. As we shall see, although the results of monetary targeting in Germany and Switzerland would lead to a positive judgment of their respective frameworks, neither country strongly resembles the idealized picture of a monetary targeter.

Our historical-institutional analysis independently confirms the impression of recent econometric observers that neither Germany's nor Switzerland's central bank behaves in accordance with a reduced-form reaction function, as though price stability were its sole (short- to medium-term) policy goal or as though the correlation between monetary growth and inflation were strong enough to justify strictly following the targets and ignoring wider information.¹⁰ In fact, we are able to show

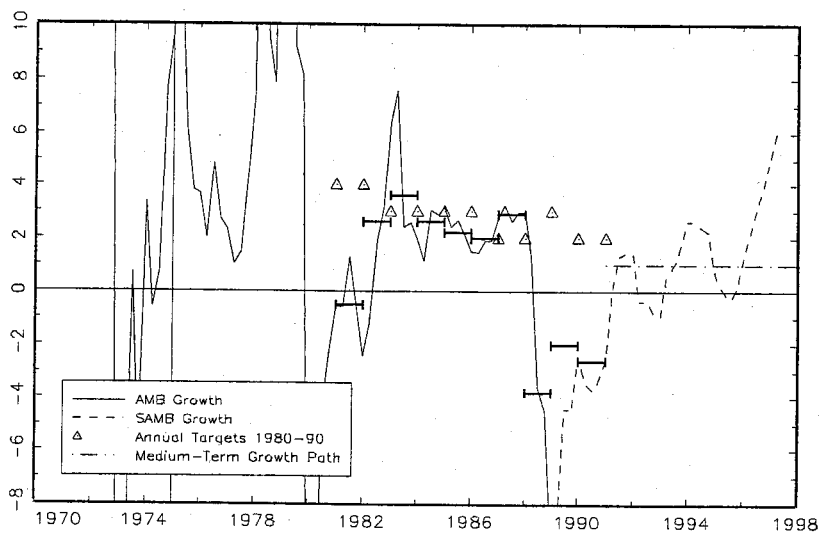
¹⁰ Neumann (1996) and Clarida and Gertler (1996) argue that the Bundesbank has multiple goals and that it does not strictly target money. Von Hagen (1995) and Bernanke

FIGURE 7
ANNUAL INFLATION IN SWITZERLAND



SOURCE: BIS.

FIGURE 8
AMB AND SAMB GROWTH AND MONETARY TARGETS IN SWITZERLAND



SOURCE: BIS, SNB.

that monetary targets provide a framework through which the central bank can convey its long-term commitment to price stability irrespective of the strictness of its adherence to the target itself.

Germany

From 1975 through 1987, the Bundesbank announced targets for the growth of the central-bank money stock (CBM).¹¹ Since 1988, the Bundesbank has used growth in M3 as its intermediate target. Apart from not including savings deposits with longer maturities and savings bonds, the major difference between M3 and CBM is that the latter is a weighted sum aggregate, whereas the former is a simple sum. The only sources for large divergences between the growth of the two aggregates are significant fluctuations in the holdings of currency as compared to deposits. This potential divergence became critical in 1986–87 in the face of shifting financial incentives, and again in 1990–91 after German monetary unification.

The Bundesbank has always set its monetary targets for the next year at the end of the current year. It derives the monetary targets from a quantity equation, which states that the amount of nominal transactions in an economy within a given period of time is identically equal to the amount of the means of payment times the velocity at which the means of payment changes hands. In rate-of-change form, the quantity equation states that the sum of real-output growth and the inflation rate is equal to the sum of money growth and the change in (the appropriately defined) velocity. The Bundesbank derives the target growth rate of the chosen monetary aggregate (CBM or M3) by estimating the growth of the long-term production potential over the coming year, adding the rate of price change it considers unavoidable, and subtracting the estimated change in trend velocity over the year.¹²

Two elements of this procedure deserve emphasis. First, the Bundesbank employs, in its target derivation, estimates of the growth in production potential, rather than forecasts of real output growth for the

and Mihov (1997) focus on the latter point. Friedman (1995) discusses why the Bundesbank might not want to look at M3 (that is, M1 plus time deposits with maturity of less than four years and savings deposits at three months' notice).

¹¹ The CBM is defined as currency in circulation plus sight deposits, time deposits with maturity of less than four years, and savings deposits and savings bonds with maturity of less than four years, the latter three components weighted by their respective required reserve ratios as of January 1974.

¹² The resemblance between this approach and the one called for in the EC's October 1972 statement (quoted above) is almost perfect.

coming year (see Bundesbank, 1981). This “potential-oriented approach” is based on the Bundesbank’s conviction that it should not engage in policies aimed at short-term stimulation. Not only does this allow the Bundesbank to claim that it is not making any choice about the business cycle when it sets policy, but it allows it to deemphasize any public discussion of its forecasting efforts, even when they might involve reestimating or admitting ignorance of the nonaccelerating inflation rate of unemployment (NAIRU), further distancing monetary policy from the course of unemployment. The transparency of the quantity approach therefore removes certain items from the monetary-policy agenda (or at least moves in that direction) by specifying what the responsibilities are of the central bank.

The second element is the concept of “unavoidable price increases,” measured by the all-items CPI. These goals for inflation are set *prior* to the monetary target each year and specify the intended path for inflation:

In view of the unfavorable underlying situation, the Bundesbank felt obliged until 1984 to include an “unavoidable” rate of price rises in its calculation. By so doing, it took due account of the fact that price increases which have already entered into the decisions of economic agents cannot be eliminated immediately, but only step by step. On the other hand, this tolerated rise in prices was invariably below the current inflation rate, or the rate forecast for the year ahead. The Bundesbank thereby made it plain that, by adopting an unduly “gradualist” approach to fighting inflation, it did not wish to contribute to strengthening inflation expectations. Once price stability was virtually achieved at the end of 1984, the Bundesbank abandoned the concept of “unavoidable” price increases. Instead, it has since then included . . . a medium-term price assumption of 2% (Bundesbank, 1995, pp. 80–81).

This setting of the annual “unavoidable price increase” thus embodies four normative judgments by the Bundesbank: first, that a medium-term goal for inflation motivates policy decisions; second, that convergence of the medium-term goal to the long-term goal should be gradual, because the costs of moving to the long-term goal cannot be ignored; third, that the long-term goal of price stability is operationally defined as a measured inflation rate greater than zero; and fourth, that if inflation expectations remain contained, there is no need to reverse prior price-level rises.

The target for 1975 was a point target for CBM growth from December 1974 to December 1975. Because this target definition was susceptible to short-term fluctuations in money growth near the year’s end, the targets for the years 1976 to 1978 were formulated as point targets for the average growth of CBM over the previous year. In 1979, two lasting

changes were made to target formulation. First, except for 1989, all targets since 1979 have been formulated in terms of a target range of plus or minus 1 or 1.5 percent around the monetary target derived from the quantity equation:

In view of the oil price hikes in 1974 and 1979/80, the erratic movements in “real” exchange rates and the weakening of traditional cyclical patterns, it appeared advisable to grant monetary policy from the outset limited room for discretionary maneuver in the form of such target ranges. To ensure that economic agents are adequately informed . . . the central bank must be prepared to define from the start as definitely as possible the overall economic conditions under which it will aim at the top or bottom end of the range (Schlesinger, 1983, p. 10).

In moving from a point target to a target range, the Bundesbank believed that by giving itself room for response to changing developments, it could hit the selected target range. The tone of its explanation, however, is that it was giving itself some measure of discretion, rather than buying room for error with respect to a difficult control problem. The Bundesbank’s action could reflect the stability of monetary demand and transmission mechanisms in Germany at the time or the absence of fears there about central-bank error.

A second change was that in order to indicate “the direction in which monetary policy is aiming more accurately than an average target does,” the targets were formulated as growth rates of the average money stock in the fourth quarter over its counterpart in the previous year (Bundesbank, *Monthly Report*, January 1979, p. 8; see Figure 4).

To drive home the obvious, the Bundesbank (1995, p. 23) “has never left any doubt that it not only wholeheartedly accepts the special responsibility for combating inflation which the legislature has assigned to it but also regards this as an economically meaningful role for an up-to-date central bank to play.” The strictness of this view is supported by the fact that the Bundesbank has repeatedly assessed the suitability of its intermediate target variables in terms of their correlation to price movements and has set the monetary-policy agenda by working from the quantity equation, as discussed above (see, for example, Bundesbank, 1992).

At the same time, however, the Bundesbank has repeatedly stressed that situations may arise in which it will consciously allow deviations from the announced target path to occur in support of other economic objectives. These allowances are in addition to those implicit in the setting of a target range and of a gradual path for movements in unavoidable inflation. A case in point is the year 1977, when signs of

weakness in economic activity combined with a strong appreciation of the deutsche mark prompted the Bundesbank to allow the target to be overshot. As the Bundesbank (*Annual Report*, 1977, p. 22) stated at the time:

The fact that the Bundesbank deliberately accepted the risk of a major divergence from its quantitative monetary target does not imply that it abandoned the more medium-term orientation which has marked its policies since 1975 . . . there may be periods in which the pursuit of an “intermediate target variable,” as reflected in the announced growth rate of the central bank money stock, cannot be given priority.

This condition is inherent to the German targeting framework and cannot be removed by redefining the target aggregate.

The main reason why CBM was initially chosen as the target aggregate was the Bundesbank’s perception of its advantages in terms of transparency and communication with the public. The Bundesbank (*Annual Report*, 1975, p. 12) explained its choice, stating that the

[CBM] brings out the central bank’s responsibility for monetary expansion especially clearly. The money creation of the banking system as a whole and the money creation of the central bank are closely linked through currency in circulation and the banks’ obligation to maintain a certain portion of their deposits with the central bank. Central bank money, which comprises these two components, can therefore readily serve as an indicator of both. A rise by a certain rate in central bank money shows not only the size of the money creation of the banking system but also the extent to which the central bank has provided funds for the banks’ money creation.

Although the minimum-reserve requirements mean that, from the Bundesbank’s point of view, the central-bank money stock is a given quantity at any specific time, that stock nevertheless also reflects the monetary-policy stance of the recent past. It is worth noting that this tracking of monetary stance is consistent with the Bundesbank’s fixation on minimum-reserve requirements (as seen in its support for such requirements for the unified European currency). The information being conveyed, however, is meant not so much to avoid either the public’s or the central bank’s making a large mistake about the unclear stance of monetary policy (a major concern in framework design of later inflation targeters, such as Canada), as to give rapid feedback about the state of monetary conditions in general. The mindset is that monetary policy can contribute to economic stability if proper regard is given to the control problem, not that discretionary monetary policy is in and of itself a source of uncertainty (as the original monetarists asserted).

In 1986 and 1987, a strong deutsche mark combined with historically low short-term interest rates led to above-target CBM growth of 7.7 percent and 8 percent, respectively; M3, by comparison, grew at 7 percent and 6 percent during these years. This development prompted the Bundesbank (1988, p. 19) to announce a switch after 1987 to monetary targets for the aggregate M3:

The expansion of currency in circulation is in itself of course a significant development which the central bank plainly has to heed. This is, after all, the most liquid form of money . . . and not least the kind of money which the central bank issues itself and which highlights its responsibility for the value of money. On the other hand, especially at times when the growth rates of currency in circulation and deposit money are diverging strongly, there is no reason to stress the weight of currency in circulation unduly.

The fact that the Bundesbank changed the target variable when the CBM grew too quickly, but did not do so when it grew too slowly (as it did in 1981 and early 1982), is an indication of the importance that the Bundesbank attaches to the communicative function of its monetary targets. Allowing the target variable to overshoot the target repeatedly because of special factors to which the Bundesbank did not want to react might have led to public misperception that the Bundesbank's attitude toward monetary control and inflation had changed.¹³

The Bundesbank's confidence that it can explain target deviations and redefinitions to the public is reflected in the design of its reporting mechanisms. There is no legal requirement in the Bundesbank Act or in later legislation that the Bundesbank give a formal account of its policy to any public body. The independence of the central bank in Germany limits government oversight to a commitment that "the Deutsche Bundesbank shall advise the Federal Cabinet on monetary policy issues of major importance, and shall furnish it with information upon request" (Bundesbank Act, Section 13). The only publications that the Bundesbank is required to produce are announcements in the *Federal Gazette* of the setting of interest rates, discount rates, and the like (Bundesbank Act, Section 33). According to Section 18 of the Bundesbank Act, the Bundesbank *may*, at its discretion, publish the monetary and banking statistics that it collects. Any accountability, and therefore legitimacy, that the Bundesbank retains for the exercise of its independence rests on the use the Bundesbank makes of such voluntary communications.

¹³ Econometric evidence that the Bundesbank has displayed an asymmetry in reacting to target misses is offered by Clarida and Gertler (1996).

The Bundesbank chooses to make heavy use of this opportunity. Although the inside front cover of its *Monthly Report* states that the *Report* is a response to Section 18 of the Act, the publication does much more than just print statistics. Every month, after a “Short Commentary” on monetary developments, securities markets, public finance, economic conditions, and the balance of payments, the *Report* includes two to four articles on a combination of specific topics, and every quarter and year, it publishes ongoing reports on “The Profitability of German Credit Institutions” and “The Economic Scene in Germany.” The monetary target and its justification are printed each year in January (in December, from 1989 to 1992).

In addition to the *Monthly Report*, the Bundesbank issues an *Annual Report*. This annual publication gives an exceptionally detailed retrospective of the economic as well as monetary developments in Germany for the year, lists all monetary-policy changes, and offers commentary on the fiscal policy of the federal government and of the *Länder* (states).¹⁴ Between these two publications and regularly updated “special publications” such as *The Monetary Policy of the Bundesbank*, no Bundesbank policy decision is left unexplained.

The Bundesbank’s commitment to transparency does not come without self-imposed limits to individual accountability. Two limitations, in particular, provide a strong contrast to the inflation-report documents prepared by Canadian, U.K., and other central banks in recent years. First, no article in the *Monthly Report* is signed, either individually or collectively, and only a brief foreword in the *Annual Report* is signed (by the Bundesbank president), although the council members are listed on the preceding pages. Speeches by the president or other council members, moreover, are never reprinted in either series. This depersonalization of policy is to some extent balanced by the enormously active speaking and publishing schedule followed by all bank council members and some senior staffers, but it still creates a distance between the bank’s main policy statements and responsible bank officials.

The second limitation on accountability is that the *Reports* deal only with the current situation or with past performance¹⁵—no forecasts of

¹⁴ The vast variety and depth of information provided by the Bundesbank in its *Reports* suggests that a wide range of information variables, far beyond M3, velocity, and potential GDP, plays a role in Bundesbank decisionmaking (the work involved in producing the data and analysis makes it unlikely that it is merely a smokescreen or a public service). Nevertheless, monetary-policy moves are always justified with reference to M3, to inflation developments, or to both, not with reference to these other kinds of data.

¹⁵ The *Annual Report* describes itself on the inside front cover as “a detailed presen-

any economic variable are made public by the Bundesbank, and private-sector forecasts or even expectations are not discussed. The Bundesbank makes itself accountable on the basis of its explanations for past performance, but it does not leave itself open for evaluation as a forecaster. In fact, its *ex post* explanations combined with its use of potential GDP and normative inflation as bases for the monetary targets enable the Bundesbank to shift responsibility for short-term economic performance onto other factors. Nevertheless, the Bundesbank sees its monetary targets as its main source of accountability and transparency, because they commit the Bundesbank to having to explain on a regular basis its policy with respect to a benchmark. This holds true for Switzerland as well.

Switzerland

From 1975 to 1978, the SNB announced targets for the growth of the narrow monetary aggregate M1. In the fall of 1978, after a trade-weighted nominal appreciation of the Swiss franc of 40 percent and a real appreciation of 30 percent over the previous twelve months, the SNB shifted from a monetary to an exchange-rate target (it can be said that the SNB was exercising an implicit escape clause in its targeting commitment). In the spring of 1979, the SNB returned to monetary targeting, “although this change was not publicly announced” (Schiltknecht, 1983, p. 74). From 1980 on, it again announced a monetary target. In contrast to the earlier period, however, the SNB chose the seasonally adjusted monetary base (SAMB) as its new target variable.¹⁶ Since 1990, currency in circulation has constituted roughly 90 percent of the SAMB, and bank deposits at the SNB have composed the remaining 10 percent, making SAMB even narrower than M1. Given the proportionately greater depth and innovation of the Swiss financial system as compared to the German, the benefit of choosing an aggregate as narrow as SAMB may be its greater immunity to portfolio shifts (because its demand is largely determined by payments technology). In addition, the smaller size and greater relative openness of the Swiss economy may have made control of the broader aggregates an even more daunting proposition.

tation of economic trends, including the most recent developments, together with comments on current monetary and general economic problems.”

¹⁶ To be precise, from 1980 until 1988, the targets were formulated for the adjusted monetary base (AMB), defined as the monetary base adjusted for the SNB’s end-of-month accommodation of banks’ liquidity needs. Since 1989, the targets have been formulated for the SAMB.

Until 1990, the SNB announced monetary targets for the coming year at the end of the current calendar year. At the end of 1990, the SNB (1990, p. 273) announced that it would aim “to increase the monetary base to approach a medium-term expansion path,” without specifying either the horizon or the starting point of the path. The SNB “preferred to straighten out the loose ends of the new strategy before committing itself to a precise definition of the medium-term target” (Rich, 1997).¹⁷ In early 1991, the SNB announced that the target referred to a period of three to five years. At the end of 1992, the SNB (1992, p. 312) announced that it had chosen the average stock of SAMB in the fourth quarter of 1989 as the basis for the expansion path. Finally, at the end of 1994, the SNB (1994, p. 272) announced a new medium-term growth path for SAMB for the 1995–99 period, thus retroactively confirming that the horizon of the first path had been five years as well (see Figure 8).

The Swiss derivation of the monetary targets has followed a path similar to that practiced in Germany. Although the target aggregate was M1, the SNB aimed at lowering the growth of M1 to “an average rate of 3 percent over the next [business] cycle,” for the reason “that there had been a fairly close relationship between M1 and the consumer price index and that growth rates of M1 had fluctuated around 3 percent during periods of stable prices” (Schiltknecht, 1983, p. 72). The target “was based on the expected and desired economic growth for the year to come and on the assumption about next year’s income velocity” (Schiltknecht, 1983, p. 73). After the change to SAMB as the target variable, the SNB considered an annual growth rate of 2 percent

to be sufficient for stabilizing the price level in the medium term. The rate of 2 percent rests on the assumption that (a) the SNB equates an annual inflation rate of 0 to 1 percent with price stability and (b) the potential growth of the Swiss real GDP is unlikely to be higher than 2 percent. The nominal potential growth resulting from these assumptions of 2 to 3 percent is thought to increase the demand for base money by 2 percent a year (Rich, 1989, p. 350; authors’ translation).

The SNB explains the upward bias in measured inflation by the failure to take account of quality improvements.

¹⁷ This lag between announcement that a new target would be adopted and onset of the specified target is a pattern that Canada and Sweden would later follow when they adopted inflation targets. It may be that small open economies wish to be sure their surroundings are stable before making a formal commitment—although it was clearly less of an adjustment for Switzerland to move from one target horizon to another after fifteen years than for Canada or Sweden to adopt a new nominal anchor.

Although the SNB does not mention, as the Bundesbank does, a concept of “unavoidable price increases,” the fact that the monetary targets were always fixed at numbers higher than 2 percent until 1985 (and higher than 3 percent from 1975 to 1978) indicates that the SNB does make an allowance for past inflation when setting its targets. As in Germany, the monetary target is derived from a normative target for inflation on the way to the goal of price stability, which is defined operationally as a rate of inflation greater than zero. This procedure allows gradual pursuit of the goal (because of the costs of achieving it) and does not mandate reversals of price-level rises. A second similarity between the SNB’s and the Bundesbank’s methods of target derivation is that both are based on estimates of potential growth of GDP, and not on forecasts of actual GDP growth, thus downplaying the link between monetary policy and cyclical conditions.

The SNB has always announced point targets. Its “decision to abstain from a target band was based on the belief that, from a psychological point of view, missing a target band is worse than missing a point target. A target band suggests that a central bank is able not only to establish a reasonable target but also to control the monetary aggregates within a narrow margin. The [SNB] never intended to give such an impression to the public” (Schiltknecht, 1983, p. 73).

Until 1988, the Swiss formulated their targets in terms of average growth of SAMB over the previous year; in 1989 and 1990, they framed them in terms of the growth rate during the fourth quarter of the previous year. Although the SNB thus admits more explicitly to the possibility of control problems than the Bundesbank does in its discussion of target choice, the result is that the SNB engages in extensive explanations of deviations from the point target that are analogous to the explanations given by the Bundesbank. The benefit for the SNB appears to be in avoiding the potential credibility disaster of missing a range; the cost appears to be in having less room for maneuver without having to explain. Similarly, despite the indexation of Swiss housing-sector rents (which can play a greater than 10 percent role in the makeup of the Swiss CPI), the SNB centers its discussions, not on a narrowly defined price index, but on growth in headline CPI, and then explains when that broad inflation measure misrepresents underlying inflation. The simplicity of the target definition complicates explanations and denies hidden flexibility, but it also makes missing the target potentially less damaging.¹⁸

¹⁸ A contrasting strategy is pursued by the Reserve Bank of New Zealand, which follows a narrower and less reproducibly defined target series, thereby gaining greater flexibility

The SNB has repeatedly emphasized that the primary goal of its monetary policy is the maintenance of price stability. The SNB “intended, by means of a gradual reduction of monetary growth, to lower inflation, as measured by the CPI, from more than 10 percent in 1973 to zero. The SNB’s opinion that price-level stability constitutes the main goal of monetary policy was also largely undisputed in public” (Rich, 1985, p. 60; authors’ translation). Despite the absence of any recent hyperinflationary episodes or currency reforms (as are often cited to explain public sentiment for price stability in Germany), the Swiss public has never questioned either the independence of the central bank or its commitment to price stability.¹⁹ Unlike the Bundesbank’s mandate, the SNB’s charter does not limit the SNB’s goals to price stability. The bank’s commitment to the primacy of price stability in monetary policymaking is conveyed, not by law, but by the SNB’s activities and cumulative credibility—price stability is operationally defined as low or zero inflation, not as a constant price level, which would require reversals of past price increases.

Exchange-rate crises are granted escape-clause status by precedent and common sense, but without an explicit statement to that effect. In this regard, the advantage of the monetary base as a target seems to lie in Switzerland’s nature as a small open economy and the Swiss franc’s importance as a safe-haven currency. In theory, the SNB has perfect control over the monetary base. In practice, however, the SNB has found itself repeatedly forced to counteract large and sustained exchange-rate movements, usually appreciations of the Swiss franc, which has implied accepting large, undesired expansions of the monetary base. This was the case in 1978, when the SNB temporarily abandoned monetary targeting, and again in 1987. In such circumstances, announcing a target for the monetary base may serve to communicate clearly that monetary expansions necessitated by excessive exchange-rate fluctuations are transitory and will be reversed in due course.

The clarity of the SNB’s regular targets serves as a periodic public opportunity to send signals. This is true despite the lack of a specific

to forego responding to every inflation movement. When, despite this flexibility, the Reserve Bank’s inflation target ceiling was breached twice in 1996, the political and expectations cost was considerable. Mishkin and Posen (1997) give an extended discussion of this design tradeoff between flexibility and transparency.¹⁹ Posen (1995) argues that German and Swiss support for central-bank independence and the pursuit of price stability reflects a larger pattern showing that countries with politically effective financial sectors display a greater opposition to inflation.

timetable for the reversal of target deviations, or even of a commitment to meet an average target over a less-than-five-year horizon. In fact, because the SNB is forthright in its point-target explanations and its announced deviations to counter expansions in the monetary base, it is clear that signaling is the primary short-term purpose of its monetary target. This is in contrast to the idealized vision of the intermediate-variable targeting regime in which meeting the target is itself worth the effort because it moves the central bank (as well or better than any other means) toward its goal.

Like the Bundesbank, the SNB is not only independent, but free of formal governmental oversight or a legislative requirement to give testimony about its performance. Like the Bundesbank, therefore, the SNB sees the understanding and support it can elicit directly from the public as a source of legitimacy for the pursuit of its monetary policy. The main forum for this appeal for public support is the bank's quarterly publication *Geld, Wahrung und Konjunktur* (Money, Currency, and the Business Cycle), each issue of which contains a lengthy, data-intensive, "Summary of Monetary and Economic Developments," two to four topical articles, and a one-page "Chronicle of Monetary and Exchange Rate Policy." The December issue, moreover, always begins with a one-to-three-page statement about Swiss monetary policy for the coming year. This statement contains an evaluation of the previous year's performance vis-à-vis the medium-term target, as well as a summary of the intended course of the monetary aggregate for the coming year.

There are a number of differences, however, between the SNB's and Bundesbank's approaches to reporting on monetary policy. As the title of the SNB publication suggests, the Swiss bank commits itself to discussing international and real-side developments in detail. Not only does this reflect an apparent use of many information variables in monetary-policy decisionmaking (akin to the Bundesbank's), it also emphasizes the limitations of the SNB's control over outcomes for the Swiss economy; almost as much space is given to discussion of the "Economic Developments in the Most Important Industrialized Countries" as to the domestic Swiss situation, and the international background is analyzed first. Moreover, throughout the discussion of economic developments at home and abroad, and also in the annual statement about the coming year's monetary policy, forecasts are made about any number of economic variables and are occasionally contrasted with private-sector forecasts. It should not be assumed, however, that the SNB (or the Bundesbank) explicitly discusses private-sector inflation expectations, as many later inflation targeters do. It does not.

The SNB clearly wishes to draw the line on accountability in a different place than the Bundesbank does. Although the SNB makes clear that, in a small, open, financially innovative, economy, the central bank cannot be held responsible for the numerous events and conditions beyond its control, it very strongly takes responsibility for what it can manage. Not only does the bank always identify the authors of its journal articles, and often reprint policy speeches by senior bank officials, but it also publishes forecasts. The bank does not, moreover, tie publication of its journal to any legal statute. It wishes, instead, to give the impression that it voluntarily, through the decisions of known responsible individuals, is putting itself in harm's way, but it reminds the public at all times just how harmful that way can be.

What is common to the reporting of the two central banks is that they use the monetary targets as a framework for explaining policy publicly, at length, and in relation to the whole economy. This is an explanatory impulse beyond the deceptively uninformative question of whether or not a specific target has been met at the prescribed time.

3 Transparency and the Response of German Monetary Policy to Reunification

The greatest challenge to German monetary policy since the adoption of monetary targeting followed the fall of the Berlin Wall in 1989. The Bundesbank's response to the shock of reunification illustrates the exercise of the concept of "disciplined discretion" discussed in this essay. The economic situation in the Federal Republic during the two years prior to economic and monetary union with the former German Democratic Republic (GDR) on July 1, 1990 was characterized by GDP growth of about 4 percent and the first significant fall in unemployment since the late 1970s (see Figure 2). After a prolonged period of falling inflation and historically low interest rates during the mid-1980s, inflation had increased from -1 percent at the end of 1986 to slightly over 3 percent by the end of 1989. The Bundesbank had begun tightening monetary policy in mid-1988, raising the repo rate in steps from 3.25 percent in June 1988 to 7.75 percent in early 1990.²⁰ After the first M3 target of 3 to 6 percent for 1988 had been overshot by 1 percent, the target for M3 growth of about 5 percent in 1989 was almost exactly achieved, with M3 growing at 4.7 percent. In view of the prevailing rate of economic growth, M3 growth was certainly not high.

²⁰ The repo, or repurchase, rate is the difference between the rate at which the Bundesbank buys bonds or paper from the commercial banks and the agreed upon rate at which the banks buy them back from the Bundesbank.

In response to the uncertainties resulting from the prospect of German monetary union, long-term interest rates had increased sharply from late 1989 through March 1990, with ten-year bond yields rising from about 7 percent to about 9 percent in less than half a year. Combined with a strong deutsche mark, this prompted the Bundesbank to keep official rates unchanged during the months immediately preceding monetary union. In the immediate aftermath of unification, it did so as well, despite the fact that the effects of the massively expansionary fiscal policy accompanying unification were beginning to propel GDP growth to record levels.

To some extent, the Bundesbank's decision to keep interest rates unchanged for the first months following monetary union was attributable to the difficulty of assessing the inflationary potential caused by the conditions under which ostmarks had been converted into deutsche marks. The Bundesbank had been opposed to the conversion rate agreed to in the treaty on monetary union, (overall, about 1 to 1.8) and had been publicly overruled on this point by the federal government.²¹ The money stock M3 had increased by almost 15 percent as a result of German monetary union. This increase in M3 turned out to be almost exactly right, for although GDP in the former GDR was surprisingly estimated to be only about 7 percent of that in the Federal Republic *ex post*, with the government's transfers to the east, all of the money was absorbed (König and Willeke, 1995). During the first few months following monetary union, the Bundesbank was also preoccupied with assessing the portfolio shifts in east Germany in response to the introduction not only of a new currency, but also of a new financial system and a broad range of assets that had not existed in the former GDR.

Because the east German banks were adjusting to their new institutional structure, and velocity was destabilized by the portfolio shifts of 15 million new capitalists, monetary data including east Germany were hard to interpret. The Bundesbank therefore continued during the second half of 1990 to calculate monetary aggregates separately for east and west Germany, basing its numbers on the returns of the banks domiciled in the respective parts. Although M3 growth in west Germany accelerated in late 1990, in comparison to moderate growth rates during the first half of the year, the 5.6 percent growth of west German M3 during 1990 was well within the target of 4 to 6 percent.

²¹ "While officially the question of the correct exchange rate was still under discussion, the German Chancellor announced his decision on the exchange rate without informing Bundesbank President Karl-Otto Pöhl, although they had met only a few hours before" (Hefeker, 1994, p. 383). See Marsh (1992) for a longer historical account.

During the fall of 1990, the repo rate had approached the Lombard rate, which meant that banks were increasingly using the Lombard facility for their regular liquidity needs, and not as the emergency facility that the Bundesbank had intended it to be. On November 2, 1990, the Bundesbank raised the Lombard rate from 8 to 8.5 percent and the discount rate from 6 to 6.5 percent. Within the next few weeks, however, as a result of the commercial banks' demand for liquidity, the repo rate rose above the Lombard rate, prompting the Bundesbank to raise the Lombard rate to 9 percent on February 1, 1991. With these measures, the Bundesbank was reacting to both the tempestuous GDP growth rates and to the faster M3 growth in the last part of 1990. Inflation had so far remained relatively unchanged, but it seems likely that the Bundesbank was expecting inflationary pressures to develop in the near future, given the fiscal expansion, the overstretched capacities in west Germany, and the terms of monetary union.

At the end of 1990, the Bundesbank announced a target for M3 growth of 4 to 6 percent for the year 1991, applying a monetary target for the first time to the entire currency area. The target was based on the average all-German M3 stock during the last quarter of 1990. Because this stock was likely to be affected by ongoing portfolio shifts in east Germany, the target was subject to unusually high uncertainty. It is worth noting that there was no change in either "normative inflation" or the potential growth rate of the German economy, the two basic inputs into the quantity equation by which the Bundesbank generates its money-growth targets:

Following German unification, the monetary targets set by the Bundesbank were decidedly ambitious as they left normative inflation, on which these targets are based, unchanged at 2 percent during this period, even though it was obvious from the outset that this rate could not be achieved in the target periods concerned (Issing, 1996, p. 123).

Maintaining the inflation target was a statement of policy by the Bundesbank that the reunification shock did not fundamentally alter the basic structures of the German economy. This policy, moreover, was a communication to the public at large that any price shifts resulting from this shock should be treated as a one-time event and should not be passed on into inflationary expectations.

The success of the Bundesbank's message depended on the public's comprehension of, and the bank's ability to explain credibly, the special nature of the period. It is important to contrast the Bundesbank's adherence to the 2 percent medium-term inflation goal in 1990 with the

bank's response to the 1979 oil shock, when unavoidable inflation was ratcheted up to 4 percent and brought down only slowly. Two, not mutually exclusive, explanations of the difference in the 1990–93 period are (1) that the shock was a demand rather than a supply shock, and so the Bundesbank was correct not to accommodate it, and (2) that after living through monetary targeting for several years, including the oil shocks, the Bundesbank's transparent explanations of monetary policy had trained the public to discern the difference between one-time events and persistent inflationary pressures. In either case, the Bundesbank clearly was shading its short-term monetary policy in pursuit of the longer-term goal.

Following the Bundesbank's target announcement in 1991, in which it stressed its continued adherence to monetary targeting after unification, and the increase in the Lombard rate on February 1, long-term interest rates started falling for the first time since 1988. With hindsight, it is apparent that this was the beginning of the downward trend that would continue until the bond-market slump in early 1994. Although the highest inflation rates were still to come, financial markets were apparently convinced at this point that the Bundesbank would succeed in containing, if not reducing, inflation in the long run. By making it clear that it would not accommodate additional price rises in the medium term, the Bundesbank bought itself flexibility for short-term easing without such easing being misinterpreted. This link between transparency and flexibility depends on the credibility of a central bank's commitment to price stability, but it emphasizes that even a credible central bank may benefit by an institutional design to increase transparency.

Until mid-August 1991, the Bundesbank left the discount and Lombard rates unchanged, although the repo rate steadily edged up toward the Lombard rate of 9 percent. Consumer-price inflation in west Germany remained at about 3 percent during the first half of 1991, and GDP growth in west Germany continued to be vigorous. Growth in M3, however, fell relative to its upward trend during late 1990, a drop caused to some extent by faster-than-expected portfolio shifts into longer-term assets in east Germany. These portfolio shifts, as well as the sharper-than-expected fall in east German production potential, led the Bundesbank for the first time ever to change its monetary target on the occasion of its mid-year review. The target range for 1991 was lowered by 1 percent to 3 to 5 percent. The rarity of resetting the monetary target is critical to such adjustments being accepted without being seen by the public as a dodge wherein the central bank resets goals to match results. In this instance, the Bundesbank was able to invoke the implicit

escape clause of the semiannual review, and, through that formalized process, which demanded a clear explanation, to justify its adjustment publicly. The discipline of the monetary-targeting framework displayed its disadvantage as well, that is, the difficulty, if not impossibility, that money demand would remain stable, or at least that the necessary changes in its relation to goal variables would be seen *ex ante*.

Despite the fact that GDP growth started to slacken during the second half of 1991, M3 growth accelerated. To some extent, the faster growth of M3 was a result of the by then inverted yield curve, which led to strong growth of time deposits and prompted banks to counter the outflow from savings deposits by offering special savings schemes with attractive terms. This was the first time that the yield curve had become inverted since the early 1980s and the first time since the Bundesbank had been targeting M3. In this situation, the conflict for the Bundesbank was that interest-rate rises were likely to foster M3 growth. This problem was all the more acute because bank lending to the private sector was growing unabated despite the high interest rates, probably in large part because of loan programs subsidized by the federal government in connection with the restructuring of the east German economy and housing sector.

This conundrum, that the Bundesbank's instrument tended to work in the "wrong" direction, brought to the fore the underlying conflict of monetary targeting. The target must be constantly reevaluated in relation to the ultimate goal variable(s), yet if it is constantly cast aside in response to changes in that relationship, or to special circumstances indicating a role for other intermediate variables, it remains only an indicator, rather than a target:

Strictly defined, the use of a money growth target means that the central bank not only treats all unexpected fluctuations in money as informative in just this sense, but also, as a quantitative matter, changes its instrument variable in such a way as to restore money growth to the originally designated path (Friedman and Kuttner, 1996, p. 94).

The acceleration in late 1991 notwithstanding, M3 grew by 5.2 percent during 1991, close to the midpoint of the original target and just slightly above the revised target.

On December 20, 1991, the Bundesbank raised the Lombard and discount rates by another 0.5 percent, to 9.75 percent and 8 percent respectively, their highest levels since World War II (if one disregards the special Lombard rates from the early 1970s):

In the light of the sharp monetary expansion, it was essential to prevent permanently higher inflation expectations from arising on account of the adopted wage and fiscal policy stance and the faster pace of inflation—expectations which would have become ever more difficult and costly to restrain (Bundesbank, *Annual Report*, 1991, p. 43).

The rhetoric invoked here by the Bundesbank is important to appreciate. Both government policies and union wage demands could be (and were) cited with regard to their inflationary effects, that is, their pursuit of transfers beyond available resources. The Bundesbank may not have been able to override Chancellor Kohl's desired exchange rate of ostmarks for deutsche marks, or his "solidarity" transfers, but the bank directorate readily made it clear that Kohl's government, and not they, should be held accountable for the resulting inflationary pressures; the directorate did accept responsibility for limiting the second-round pass-through effects of these pressures. The Bundesbank also clearly expressed some concern about the persistence of inflationary expectations and the cost of (if necessary) disinflating them, thereby making clear some assumptions about the realities of monetary transmission. Finally, the Bundesbank's emphasis on the ultimate goal—medium-term price stability and inflation expectations—did not lead bank officials to cite directly measures of private-sector expectations, something that many inflation targeters began doing at this time.

The December 20 rise in the Lombard rate proved to be the last increase. During the first half of 1992, the repo rate slowly approached the Lombard rate. It peaked in August at 9.7 percent before starting to fall late that month, as the Bundesbank started easing monetary policy in response to the appreciation of the deutsche mark and the emerging turbulence in the European Monetary System. This move also coincided with the rapid slowdown in German GDP growth. The monetary targets for 1992 and 1993 would not be met, but the challenge to German monetary policy was over:

Thus in 1992, for example, when the money stock overshot the target by a large margin, the Bundesbank made it clear by the interest rate policy measures it adopted, that it took this sharp monetary expansion seriously. The fact that, for a number of reasons, it still failed in the end to meet the target . . . has therefore ultimately had little impact on the Bundesbank's credibility and its strategy (Issing, 1996, p. 121).

Monetary-policy transparency was explicitly linked to flexibility during reunification, at least according to the Bundesbank's chief economist, and that flexibility was exercised to minimize the real-economic and political effects of maintaining long-term price stability.

4 Lessons from the German and Swiss Monetary Frameworks

It is commonplace in current discussions of the future ECB to hear not only that the ECB has been modeled on the Bundesbank institutionally, but that the monetary-targeting strategy that the Bundesbank has pursued is a viable model for the ECB. Current EMI president Wim Duisenberg has said that he has “a certain preference for monetary targeting. The success of the Bundesbank shows that this strategy underpins the competence of the central bank, thus offering an optimum safeguard for its independence” (Duisenberg, 1997, p. 4). Although the success of the Bundesbank’s targeting strategy, and of the similar strategy pursued by the SNB since the collapse of the Bretton Woods regime, is indeed impressive, the lessons to be learned from it are not those that are commonly held.

The primary benefits gained from announced monetary targets in Germany and Switzerland derive from the transparency that these frameworks confer on the exercise of discretionary policy. Strict adherence to monetary aggregate growth as a formal intermediate target, and the rule-like constraint on policy this would imply, has not played a role in their success. It is, accordingly, mistaken to suggest that the future ECB will need to pursue price stability blindly in order to maintain its credibility, or that an inherent conflict exists between the ECB’s independence and efforts to close the “democratic deficit” of the ECB’s accountability.

As discussed above, the monetary targets announced in Germany and Switzerland have never been slavishly followed, in the sense of being actual intermediate-target variables. Annual target ranges were missed about 50 percent of the time in Germany in the 1980s and 1990s, and the Swiss targets, too, have been met only sporadically. Far more significantly, the central banks of both countries have, by their own admission and as seen in the historical record, taken into account a range of information variables that is much broader than money alone when setting policy and have pursued in the short run a number of goals beyond minimizing inflation. In addition, the Bundesbank and the SNB have differed widely in the designs of their specific monetary targets. The Bundesbank has selected a target range for percentage growth instead of the SNB’s point target; has calculated its target over a one-year period instead of the SNB’s five-year period, and has defined the target by a broad aggregate instead of the SNB’s narrow aggregate. These differences suggest that the advantages of monetary targeting lie elsewhere than in their measurably meeting some specific definition of the target itself.

The primary gains from announced monetary targets have been through their use as a framework for publicly indicating a monetary-policy stance and for explaining policy intentions with reference to an underlying but public numerical inflation target. The ability to have a standard and a goal for forward-looking policy to point to amidst the chaos of present-day decisions seems to anchor public expectations. Not only does this give wage and price setters a better awareness of the monetary-policy stance at any given time, it allows the central bank to make a distinction for the public between one-time price-level shifts and other shocks that would require a response irrespective of pass-through. This link between flexibility and transparency was used by the Bundesbank during German reunification and by the SNB in the face of several exchange-rate swings.

The success of this combination of flexibility and transparency explains why the German and Swiss monetary frameworks, for all their differences in target design, both include institutionalized structures for regularly providing explicit, comprehensive explanations of policy; neither central bank found that the announcement alone of monetary-target and interest-rate numbers, or even of inflation-goal levels, was sufficient. In the frameworks they have developed, changes in target levels, and even target misses, have proved not only to have limited fallout but to have served an educational function. Thus, when the Bundesbank moved its “unavoidable inflation” to 4 percent in 1979, it informed the public that supply shocks require a different response than demand shocks require, and that there is room for gradualism in disinflation. When the Bundesbank renamed its 2 percent inflation target the “normative rate of price increase” in 1986, it indicated both what the level of inflation was that could function as an operational definition of price stability (and why that was not zero) as well as the likely future stance of monetary policy. There appears to be a positive synergy between having occasionally to pause in the short run, or to put into perspective the long-term commitment to price stability, and public support for and understanding of such a commitment.

Seen in this light, the practical distinction between inflation targeting and monetary targeting is even smaller than the difference acknowledged in the EMI’s 1997 report: “While pure forms of monetary and direct inflation targeting can clearly be distinguished at a theoretical level, their application in different countries has shown that several variants integrating elements of both strategies exist” (EMI, 1997, p. 2). Inflation targeting in Canada, New Zealand, the United Kingdom, and other countries shares with monetary targeting in Germany and Switzer-

land several basic components: a publicly announced goal for the medium-term of a greater-than-zero measured inflation rate; the use of a wide range of information variables rather than reliance on a single specific indicator in the setting of monetary policy in pursuit of that goal; flexibility for the central bank to respond to other economic needs in the short term; and a commitment to transparent discussion of progress toward the inflation goal and explanations of short-term deviations from it in pursuit of other goals.

The EMI has stated that transparency is one of the six criteria to be used in evaluating any proposed monetary strategy for the ECB.²² Nonetheless, the ability of properly designed transparency to discipline discretionary monetary policy without locking it into an inappropriate rule has been underappreciated. Although the Bundesbank and the SNB have been subject to little formal accountability to the electorate or to elected officials in the explicit manner of the U.S. Federal Reserve (let alone the Reserve Bank of New Zealand), they have issued a constant stream of statements delineating their decisions, their reasoning, their responsibilities, and their performance. Such accounting may not be enough to close fully the perceived democratic deficit of the ECB, but it suggests that even where explicit oversight does not exist, central banks can and will respond to the underlying threat of institutional change and will build political support.²³ The key lesson is that such efforts at public outreach and explanation not only increase legitimacy but also aid rather than compromise monetary-policy performance. They should therefore be given priority in the design of the ECB's strategic framework.

The record of policies and performance of the Bundesbank and the SNB demonstrates also that the achievement of practical price stability does not require obsessive pursuit of anti-inflationary policies. Both Germany and Switzerland have shown that they need not drive inflation all the way down to zero-measured change in the CPI in order to avoid inflationary pressures. When inflationary shocks have occurred, the

²² The six "guiding principles" enumerated are "effectiveness, accountability, transparency, medium-term orientation, continuity, and consistency with the ESCB's independence" (EMI, 1997, p. 2).

²³ Kenen (1995, pp. 191–193) discusses whether or not such accounting will provide sufficient accountability for the ECB and advocates additional measures. Posen (1993, 1995) argues that central-bank independence over the long run is impossible without political support and that even independent central banks will act in accord with this reality.

central banks of both countries have disinflated gradually out of consideration for the effects of their policies on real economic performance. As seen in the aftermath of the 1979 oil shock, such gradualism has proved to be no impediment to the containment of German or Swiss inflationary expectations. Given these results, neither Germany nor Switzerland has ever found it necessary or in any way advantageous to reverse past inflations to return prices to their preshock levels.

In fact, although neither country has an explicit, legally enforceable, numerical “escape clause” (as does New Zealand) to allow flexibility in the face of severe financial or supply shocks, both countries have exercised flexibility as though such a clause exists. They take full advantage, moreover, of the flexibilities built into their targets—the Germans, by having a target range for monetary growth; the Swiss, by having a multiyear target. The SNB expects its public to take literally the statement included each year in the announcement of the next year’s target, that “this target will be altered as circumstances change.”²⁴ Such flexibility should not come as a surprise to careful observers of these two central banks. It is worth reemphasizing, however, when so many seem to fear that the ECB will need to be inflexible in order to fulfil its mandate for price stability, that even the supposedly tight monetary-targeting frameworks of the Bundesbank and the SNB allow for considerable responsiveness.²⁵ Severely limiting a central bank’s discretion, the so-called “binding of hands,” does not seem to be a necessary condition for sustained low inflation. When disciplined by transparency, discretion succeeds.

The future ECB and other central banks interested in emulating the performance of the Bundesbank and the SNB—in terms both of sustained low inflation and of consistent public support for the central banks’ policies—might therefore best turn their attention to the manner in which the policies are operationally implemented and conveyed to the public, rather than to more abstract concerns about “credibility.” In fact, with the spread of inflation targeting as a monetary-policy framework,

²⁴ We are grateful to Georg Rich for discussion of this point.

²⁵ The importance of written charter mandates for central banks has generally been exaggerated. Analysis of the component data from the literature on central-bank independence shows no negative correlation between a central bank’s legal mandate and the country’s average inflation level. Even within the scope of this essay, it should be remembered that, in contrast to the Bundesbank’s mandate, the SNB’s written mandate is for many goals, not just for price stability.

there seems to be an emerging operational best practice along these lines. The role of communication in what we have termed “disciplined discretion” is not to put a rule-like coat of rationalizations on *ad hoc* policies, but to create the proper balance between flexibility and transparency in the operation of monetary policy.

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