DISCIPLINED DISCRETION: THE GERMAN AND SWISS MONETARY TARGETING FRAMEWORKS IN OPERATION

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Disciplined Discretion:

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Many observers have held up the records of monetary policy in Germany and in Switzerland as examples of the benefits of a monetary targeting regime. Both countries' independent central banks have succesfully 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 hold up these central banks' performance as evidence for a rules-based monetary policy, one which limits discretion of central bankers. These claims have been called somewhat into question in recent years by a few econometric analyses of Bundesbank policy which have shown an absence of dependable relationship between either money growth and inflation, money growth and instrument interest rates, or even solely inflation and interest rates, unless other goal variables are included (the Swiss National Bank's policies are simply assumed to be akin to the Bundesbank's in this literature). In short, good inflation performance is juxtaposed with a declared but not followed monetary targeting strategy.

In this paper, we offer an analysis of actual Bundesbank and Swiss National Bank monetary policy as it has operated which explains this gap. We confirm that according to a strict formal definition of targeting, neither country's central bank could be called a monetary targeter. We go further, however, and argue that the historical record we trace out shows another use for announced monetary targets beyond that of an actual intermediate target. The Bundesbank and the Swiss National Bank consciously used these targets as a framework for signalling their intent and explaining their policies to their constituent publics. So used, these targets actually granted the two monetary targeters *greater* flexibility in responding to monetary control problems and economic shocks than either idealized monetary targeters or actual central banks with concern for credibility problems would have received. We argue that greater transparency of the

monetary policy stance, through provision of an announced reference point, enhances flexibility.

Furthermore, the fact that neither German nor Swiss monetary policy can be captured by a simple rule does not mean that there is no pattern to either policy. The close examination of the adoption, design, and operation of their monetary frameworks reveals a surprising consistency between the two central banks in details of their management of monetary policy. It is worth pointing out that no serious English language study of Swiss monetary policy since Bretton Woods exists. One contribution of this paper is to offer such an analysis, working from the data and the original language sources. The ability to compare the operational framework of Swiss and German monetary policy in detail brings out the consistency of our interpretation across the two regimes.

The importance of the design and operation of their targeting frameworks, in the absence of adherence to any monetary rule, leads us to question the whole placement of these central banks in the highly stylized "rules vs. discretion" debate over monetary policy. The main approach to monetary policy questions in economic research since the early 1980s has been to model the challenge of inflation as emerging from games between the government and the (representative agent of the) public. The resultant emphasis on credibility tends emphasize broad institutional design of central banks, while ignoring both the greater political context in which the central bank interacts[1] and the operational framework with which policy decisions are

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[1] Afew studies which have attempted to look at social and political forces behind central bank structures and long-term behavior. These include: John S. Goodman, *Monetary Sovereignty*, Ithaca: Cornell University Press, 1990; C. Randall Henning, *Currencies and Politics in the United States, Germany, and Japan*, Washington: Institute for International Economics, 1994; and Adam S. Posen, "Declarations Are Not Enough: Financial Sector Sources of Central Bank Independence," in Ben S. Bernanke and Julio J. Rotemberg, eds., *NBER Macroeconomics Annual 1995*, Cambridge: MIT Press, 1995.

made and implemented.

What emerges from our operational analysis is a hybrid what we will term "disciplined discretion" which cannot be thought of as just a more complicated rule, but as a system of commitments to clarify policy stance and intent on an ongoing basis. On the basis of the Swiss and German experiences, binding a central banks' hands extremely tightly does not appear to be a necessary condition for sustained low inflation. Structured transparency providing accountability for central bank performance on inflation goals over the medium term, however, does appear to be crucial. In this light, 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.

The paper is organized in four sections. Section 1 discusses the circumstances surrounding and the reasons for the adoption of monetary targeting in Germany and Switzerland. Section 2 compares the design choices made by the two central banks for their targeting frameworks. Section 3 analyses the response of German monetary policy to German monetary unification. Section 4 concludes.

I. The Adoption of Monetary Targeting in Germany and in Switzerland

The decision to adopt monetary targeting in Germany and Switzerland, though prompted by the breakdown of the Bretton Woods fixed exchange rate regime, was a matter of choice by both countries. Neither was under any pressure at the time to reform either their economies in general, or their monetary regimes in particular - in fact, the breakdown of Bretton Woods was in part due to the extreme relative credibility of these central banks' commitments to price

stability, and the concomitant appreciation of their currencies. Under these circumstances, the loss of the exchange rate anchor was not the sort of credibility crisis with macroeconomic effects demanding an immediate response, as demonstrated by the slow (two to three years long) move to the new regime by both countries.

The close analysis of the historical record undertaken here argues that there were two main motivating factors for the adoption of monetary targeting in Germany and Switzerland. First was an intellectual argument for a nominal anchor for monetary policy grounded in an underlying belief that monetary policy should neither accomodate inflation nor pursue medium-term output goals[2]. Second, was a perception that medium-term inflation expectations had to be locked-in when monetary policy eased as inflation came down after the first oil shock. The generalization over time of this latter motivation - that monetary targeting provides a means of transparently and credibly communicating the relationship between current developments and medium-term goals - was the common guiding principle of the newly adopted framework's development in Germany and Switzerland.

1.a. Germany -

On December 5, 1974 the Central Bank Council of the Deutsche Bundesbank announced

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[2] While this belief may indeed be consistent with later academic arguments that there is an inflationary bias to monetary policy (e.g. due to time-inconsistency) requiring a central bank to tie its hands, it is important to note that the adoption precedes these arguments by several years. Some later observers have imposed the interpretation that the Germans were broadly distrustful of monetary discretion, but that should not be exaggerated through contemporary mindset. To most minds, that issue had already been addressesed by the granting of independence to the Bundesbank in 1957, the distrust being of the *politicization* of monetary policy - and, obviously, the Swiss had no such memories to prompt action. In fact, as will be shown in the next two sections, monetary targeting actually has conferred sizable discretion on these central banks.

that "from the present perspective it regards a growth of about 8% in the central bank money stock over the whole of 1975 as acceptable in the light of its stability goals"[3]. The Bundesbank considered this target to "provide the requisite scope... for the desired growth of the real economy", while at the same time the target 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[4] as its primary indicator of monetary developments, but never before had it announced a target for the growth of central bank money, or any other monetary aggregate. Although this was a unilateral announcement on the part of the Bundesbank, the announcement stressed 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".

After the demise of the fixed exchange rate system of Bretton Woods in March 1973 had removed the previous nominal anchor of German monetary policy, the announcement marked the end of a period of almost two years during which German monetary policy was conducted without one. It reflected the Bundesbank's response to the problems that beset monetary policy during the final years of Bretton Woods and the immediate aftermath.

The Bundesbank had always interpreted its mandate of "safeguarding the currency" under Art. 3 of the Bundesbank Act of 1957 as the requirement to give priority to the achievement of

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[3] The statement is reprinted in the Bundesbank's *Monthly Report* December 1974, p 8.

[4] The central bank money stock is defined as currency in circulation plus sight deposits, time deposits with maturity under four years, and savings deposits and savings bonds with maturity under four years, the latter three weighted at their required reserve ratios as of January 1974. The Bundesbank's rationale behind this choice of intermediate target variable will be discussed in the next section.

price stability in its conduct of monetary policy. During the final years of Bretton Woods pursuit of this priority was imperiled, as massive amounts of capital were flowing out of the US dollar, the destination being primarily the DM, the Swiss franc, and the currencies of those countries which were seen following most closely German monetary policy, namely Austria, Belgium, and the Netherlands. These inflows of funds, which were triggered at least in part by sluggish growth and high inflation in the US compared to Germany and Switzerland since 1968, repeatedly forced the Bundesbank to tolerate excessive money growth rates which were in conflict with its domestic objectives.

On May 5, 1971 the Bundesbank suspended its interventions against the US dollar, and five days later the German and Dutch governments decided to let their currencies float against the dollar. The return to fixed exchange rates in December 1971 was immediately followed by renewed waves of speculation, forcing the Bundesbank to buy large amounts of US dollars and thus to accept a considerable expansion of the central bank money stock although at that time "the obvious course as the danger to the value of money increased was to apply the monetary brakes"[5]. In June 1972 the Bundesbank again had to intervene on a large scale against sterling and the US Dollar. Over the following months the Bundesbank tightened monetary policy by raising the Discount and Lombard rates four times, by raising the minimum reserve requirements on domestic liabilities, and by reducing the banks' rediscount quotas. To prevent capital inflows in response to the interest rate increases, the reserve ratios on the growth of liabilities to non-residents subject to reserve requirements were kept at 40%.

The announcement of a new record trade deficit of the US in mid-January 1973 sparked

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[5] Deutsche Bundesbank, *Annual Report* 1972, p 15.

the final crisis of the fixed exchange rate system, and led to the introduction of a two-tier foreign exchange market in Italy on January 22, 1973, and the suspension of dollar interventions by the Swiss National Bank the next day. In early February, and again in early March the Bundesbank had to buy larger amounts of dollars than ever before, expanding its foreign exchange reserves by DM 24bn. On March 11, all nine members of the EEC decided to float their currencies against the dollar from March 19 onwards, while six of them, among them Germany, decided to keep the exchange rates of their currencies fixed in relation to each other within a margin of 2.25% (the so-called bloc float or "snake").

Upon release from its intervention obligation, the Bundesbank immediately started to focus on reducing the free liquid reserves of the banking system. These were defined as excess reserves plus liquid assets that can be converted into central bank money at any time, and provided a measure for 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. Short of imposing reserve requirements on the growth of banks' loans, reducing the banks' free liquid reserves close to zero was seen as the most effective means to control the expansion of bank lending. Since the Bundesbank was no longer obliged to buy foreign currency on demand (except for those currencies participating in the bloc float), banks' balances abroad had (mostly) lost their quality of being potential central bank money. The Bundesbank succeeded within a few weeks to reduce the free liquid reserves to near zero.

A second step was to deter banks from expanding their balance sheets by increasing the cost of central bank money. On May 30, the Bundesbank decided not to grant lombard credit

until further notice. The effect is clearly visible in the movement of the overnight rate in the upper right panel of Figure 1.1 (the German Economic Timeline chart). This measure was coupled with further increases in the discount rate and reductions in the rediscount quotas over the following months. From late 1973 on the Bundesbank granted special lombard credit to limit the volatility in the overnight rate, but still at punitive rates. It was at this stage that growth in central bank money became the main focus of monetary policy. In a section of the September 1973 *Monthly Report* titled "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" (p 9).

There were first signs that the restrictive policy of the Bundesbank was beginning to slow both inflation, which had peaked at almost 8% in mid-1973, and GDP growth, when in October 1973 the first oil crisis broke (see the upper left and lower right panels of Figure 1.1). The Bundesbank's efforts to bring down inflation were thus jeopardized while at the same time output growth was expected to fall drastically. In particular, the Bundesbank was concerned that the oil price increases would quickly lead to a second-round wage-price spiral. Accordingly, by its own account "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"[6]. Despite the fact that a quantitative target was missing, the Bundesbank 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"[7].

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

As it became clear that the rate of monetary expansion, as measured by the growth of central bank money, was decelerating rapidly, from April 1974 on the Bundesbank gradually eased monetary policy, first by lowering the rates at which it granted special Lombard, later by lowering minimum reserve requirements. From September it resumed granting Lombard credit on a regular basis. At this stage the Bundesbank increasingly rationalized its policy decisions by developments in central bank money growth[8].

The announcement of a quantitative target for central bank money growth in December 1974 can thus be seen as another step in a gradual process of the reorientation of monetary policy in Germany. It combined the two earlier developments, as documented above, of monetary policy through the control of the central bank money supply, and of the perceived need

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[6] Deutsche Bundesbank, *Annual Report* 1974, p 17.

[7] Deutsche Bundesbank, *Monthly Report* December 1973, p 7.

[8] See e.g. Deutsche Bundesbank, *Monthly Report* June 1974, pp 12-13.

to communicate clearly the objectives and direction of monetary policy. "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 towards the end of the year"[9].

Three elements of this quote are worth noting. First, although the Bundesbank was mostly concerned with reversing the inflationary trend of the previous five years, its new monetary policy framework still did not ignore real activity as a goal of monetary policy even in public. Second, monetary policy was portrayed as acting in a pre-emptive manner ("first signs"). Finally, monetary targets were adopted at a time when inflation as well as monetary growth were expected to slow, making it easy to meet targets, but there was fear that easing might unleash inflationary expectations. As will be seen in the countries adopting inflation targets in the 1990s, the choice of framework for public discussion of goals other than price stability, for justifying monetary policy action ahead of events, and the auspicious circumstances for installing such a framework are of great concern.

As the lower right panel of Figure 1.1 shows, Germany was entering a short, but deep recession, similar to that of 1967. Immediately following the oil crisis in October 1973, annual GDP growth had started to slow, and turned negative during the first quarter of 1975. "Given the short lag between the oil price increase and the start of the [OECD] recessions, the recessions must already have been en route"[10]. The ensuing rise in the unemployment rate was, however,

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[9] Deutsche Bundesbank, *Annual Report* 1974, p 17.

[10] Stanley Fischer, "Monetary Performance in the US, Japan, and Europe, 1973-86", in *Toward a World of Economic Stability: Optimal Monetary Framework and Policy*, Y. Suzuki and M. Okabe (eds), Tokyo: University of Tokyo Press, p.

much larger than it had been in 1967. While the continued appreciation of the DM helped to contain the inflationary impact of the oil shock, it at the same time aggravated the recession by reducing the competitiveness of German exports. Neither exporters nor the unemployed, however, managed to cause any political uproar over the course of monetary policy at the time. This partly reflected the party situation at the time (see below) with the SPD in office but under new leadership, but also reflected the ongoing support for price stability in the German polity.

The adoption of monetary targets in Germany in December 1974 was the beginning of a broader trend, with Switzerland adopting contemporaneously, and the US and Canada following during 1975. As has been noted, there seems to be a tendency for countries to adopt explicit monetary targets in times requiring toughness on inflation[11], though the Germans seemed to be at least as concerned with limiting expectations once inflation began its trend down. Although there were considerable differences amongst the regimes adopted in the operations of the targets, what they all had in common was that they provided a quantified guidepost for the intended rate of monetary expansion.[12] From reading of contemporary documents it appears that there are two principal aspects to the intellectual framework on which monetary targeting was 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

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[11] Ben Bernanke and Frederic Mishkin, "Central Bank Behavior and the Strategy of Monetary Policy: Observations from Six Industrialized Countries," in *NBER Macroeconomics Annual 1992*, O. Blanchard and S. Fischer (eds), Cambridge: MIT Press, p. 186.

[12] For a brief contemporary survey of the adoption of monetary targets see Bank for International Settlements, *46th Annual Report 1975/76*, pp 33-39. A later, in-depth account of the operation of monetary targeting in a number of countries are the contributions in *Central Bank Views on Monetary Targeting*, Paul Meek (ed), New York: Federal Reserve Bank of New York 1983.

objectives.

The emergence of inflation in the early 1970s as the predominant problem for monetary policy makers certainly had the effect to draw attention to the possible causal 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 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 [GNP], 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 it 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 specifies a fixed time horizon at 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 that time. Interestingly, the resolution 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 range - though, as we will discuss, the Swiss argue a point target is actually more credibly flexible.

One element that is missing from the EC resolution to ears trained by 1990s discussions of targeting is any discussion of public announcement of the target, or more generally any concern about transparency of policy. It is important to remember that while the intellectual current of the time was running towards monetarism, and rules rather than discretion more broadly, the concern for expectations and especially for central bank credibility as we now

recognize them (e.g. the inflationary bias of time-consistency problems) had not yet been intellectually developed. Germany, and Switzerland, adopted their targeting commitments without the motivation of "tieing the hands" of the central bank, or any institutional provision for that matter of oversight and accountability. Clearly, the independence of these central banks, and the political coalitions in these countries which supported it, contributed to this decision. The public reporting mechanisms undertaken by the Bundesbank and the Swiss National Bank in lieu of formal procedures (a la New Zealand) are examined in the following sections.

The Bundesbank, in discussing its plan to adhere to this EC resolution, 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"[13].

Apparently monetarism as the intellectual development of that time had a significant impact on policy makers 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 the school of thought. Issing states, "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.[14] This statement indicates that the Bundesbank makes a link between "technical details" and monetary policy

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[13] Deutsche Bundesbank, *Annual Report* 1972, p 24.

[14] Otmar Issing, speech at "Monetary policy in an integrated world economy," Kiel week Conference, June 22, 1995. Issing accepts the characterization of the Bundesbank's monetary policy approach as "pragmatic monetarism" in "The Relationship Between the Constancy of Monetary Policy and the Stability of the Monetary System," mimeo, Gerzensee Symposium of the Swiss National Bank, March 17, 1995.

:ccess. The visible commitment to price stability alone is not enough without the proper design . the operational framework for 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.

> "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"[15].

Although the Bundesbank's statements of the time do not make explicit mention, its primary concern with public misperceptions of monetary policy appears to have been that these misperceptions would entrench high inflation expectations. At the beginning of 1975 the Bundesbank faced the task of continuing its easing of monetary policy in view of the already apparent weakness in the economy without giving the impression that its resolve to bring down inflation was diminishing. Recent experience had shown that wage setting behavior in particular was mostly 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

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[15] Helmut Schlesinger, "The Setting of Monetary Objectives in Germany", in *Central Bank Views of Monetary Targeting*, Paul Meek (ed), Federal Reserve Bank of New York 1983, p 6.

effectively been agreed"[16].

The credibility issue arose, therefore, in the context of the Bundesbank wanting to stop pass-through of a one-time shock to the price level; this concern for getting the public to distinguish between first-round and second-round effects of a price shock, to avoid lock-in of inflationary expectations, characterizes the efforts of the inflation targeters as well. In particular, before economic research had caught up with events, the Bundesbank appeared 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. Again, the design of a mechanism for making such an exception and explaining its use to the public is an inherent challenge to all targeting regimes.

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. After central bank money had grown by 6% during 1974, the Bundesbank announced a target growth rate for 1975 of 8%. "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"[17]. It is worth noting, however, that this explanation and the statement cited in the previous paragraph were made *after* the targets intended to communicate were announced, not contemporaneously with the announcement.

The political situation in Germany around the turn of 1975 was stable between elections.

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[16] Deutsche Bundesbank, Monthly Report December 1974, p 6.

[17] Deutsche Bundesbank, *Annual Report* 1975, p 5.

As noted above, the public and political reaction to the shift in monetary regime, and even to the swings in inflation, was muted. While Germany did suffer from the first oil shock, it had been perceived as an economic success both domestically and abroad during the *Wirtschaftswunder*, and its currency had just been the biggest winner to emerge from Bretton Woods. In short, there was no broader impetus to economic reform at the time than the Bundesbank's own. Willy Brandt, a potential critic of tight monetary policy whose Social Democrats had regained their majority in the Bundestag in 1972 and were governing in coalition with the Free Democrats, had resigned as Chancellor earlier in 1974 over the Guillaume spy affair. Brandt was succeeded as chancellor by Finance Minister Helmut Schmidt, an economist by training and from the right wing of his party. Possibly Schmidt saw acceding to the announcement as an opportunity to portray the Social Democrats as being as much the party of sound money as the Christian Democrats or the Liberals ahead of the elections due in 1976; possibly as an unelected successor Schmidt felt too weak to speak out about monetary policy. The comparison with Schmidt's public pressure upon the Bundesbank in 1979 when he wanted German and European participation in the makeover of the "Snake" to the Exchange Rate Mechanism, or to his successor Chancellor Kohl's actions with regard to German reunification (discussed below), is striking. Even the independent Bundesbank seems to have benefitted from political quiescence at the time of its initiative.

To summarize, the Bundesbank adopted monetary targeting at a time when a nominal anchor was lacking but policy was freed from exchange rate or crisis constraints, disinflation was already under way, and the intellectual climate supported monetarism and a commitment to price stability. The monetary targets were seen as a response to circumstances which demanded effective communication of the objectives and direction of monetary policy in the face of uncertain

inflationary expectations.

1.b. Switzerland -

In many respects monetary policy in Switzerland and Germany followed the same course in the early 1970s. Both countries shared the problem of excessive monetary expansion caused by massive capital inflows during the final years of Bretton Woods, and both countries' central banks suspended their interventions in early 1973. That they shared the experience of capital inflows was certainly in no small part due to the perception that both countries' central banks enjoyed considerable political independence as well as public support for pursuing anti-inflationary policies. Finally, at the end of 1974, after a transition period of almost two years, both countries adopted monetary targets as a replacement nominal anchor instead of a fixed exchange rate.

The General Directorate of the Swiss National Bank (SNB) "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% of the money stock M1... would be appropriate"[18]. With this target the SNB intended to provide monetary conditions "that are conducive to furthering tranquility at the price front without obstructing the broader economic developments"[19]. The target was accompanied by little public fanfare or explanation, reflecting an initial lack of concern over the coordination of expectations, and the thought that the target was simply to guide policy. As in the case of Germany, 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 is made to any

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[18] Swiss National Bank, *Rapport* 1975, pp 7-8, translation by author.

[19] Swiss National Bank, *Monatsbericht* January 1975, p 3, translation by author.

involvement of the Government in the adoption decision.[20] The choice of a narrow aggregate to target, in contrast to Germany's choice of a broad one, is discussed in the next section.

For Switzerland, too, this statement marked the end of a period of almost two years during which monetary policy was conducted without a nominal anchor. The Swiss experience during the final years of Bretton Woods and the immediate aftermath was similar to that of, albeit even more extreme than, that of Germany. Being both a small economy and an important international financial center meant that the speculative capital inflows into the Swiss franc in 1971 and 1972 as a proportion of the money stock were even larger than those in Germany. In the year to December 1971 the monetary base and M1 grew by 18% and 21% respectively, although from August to December the fixed exchange rate system was temporarily suspended. Since most of the expansion was caused by inflows of funds from abroad, interest rates were impotent as a tool to slow the monetary expansion. One instrument that was heavily used in this situation was the imposition and increase of minimum reserve requirements, both on liabilities to residents and even more so to nonresidents. In view of the scale of the monetary expansion, the SNB went one step further by introducing, in July 1972, a ceiling on the growth of bank credit to persons or companies domiciled in Switzerland. If a bank exceeded the ceiling, it had to pay a certain fraction of the excess amount into a blocked account at the SNB.

Despite these, and other measures introduced in the second half of 1972 to stem the inflow of funds from abroad, renewed speculative movements of capital into the Swiss franc

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[20] In a later account, Schiltknecht 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." Kurt Schiltknecht, "Switzerland - The Pursuit of Monetary Objectives," in Paul Meek, op. cit., p 73.

following the announcement of the so far worst trade figures of the US finally forced the SNB on January 23, 1973 to suspend its interventions against the dollar. The SNB was thus freed to turn to the task of controlling the monetary expansion. During 1973, the SNB kept both the restrictive reserve requirements and the ceiling on credit growth in place. In July 1973 the ceiling on credit growth for the year ending July 1974 was fixed at 6%. While it is even more difficult than usual to gauge the stance of monetary policy in view of the multitude of instruments employed, given the orientation of all the non-interest rate measures, the contemporaneous Swiss instrument rate, if anything, understated the tightness of monetary policy at the time. This said, the movement of the overnight rate shown in the upper right panel of Figure 1.2 (Swiss Economic Timeline chart) suggests that monetary policy was kept tight until at least mid-1974.

At the same time, the interest rate movements do not seem to be very large, compared to the movements in the German overnight rate seen around the same time. One reason why the SNB continued to rely on quantitative credit restrictions in addition to its other instruments was that interest rate changes fed through very quickly into the CPI, 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 that time was 17%. "The authorities nevertheless 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"[21].

The recurring difficulties the Swiss have had with monetary control as a result of

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[21] OECD, *Economic Surveys Switzerland* 1975, p 33.

peculiarities of their banking and rental markets illustrate the reasons why some countries choose a definition of target series to be unaffected by their structural peculiarities (e.g. the United Kingdom's targeting of RPIX inflation which excludes the first-round effect of interest rates on mortgage costs). The SNB, while clearly aware of these difficulties from the start, appears to have felt that having a more clearly recognized and comprehended target series and goal (monetary base and CPI inflation), and then attributing deviations from target to these factors as they arose, was the better strategy. As we discuss below, the SNB consistently chooses to have simple rules with complicated explanations of their outcomes in its operating procedures, rather than making the rules complicated but then the evaluation of targets transparent.

As the economy began to weaken in the course of 1974, the SNB applied both the reserve requirements and the credit ceiling more flexibly. The credit ceiling in particular was considerably relaxed in January 1975, and then abolished on May 1, 1975. In a situation in which the control of the expansion of bank lending without quantitative restrictions no longer required unprecedentedly high interest rates, the SNB was able to shift towards controlling the expansion of banks' balance sheets through control of the money supply. The adoption of monetary targets was thus less of a gradual process as it had been the case in Germany, in large part due to the faster response of the Swiss financial system to monetary impulses, but still largely a response to the Swiss experience of the loss of the previous nominal anchor during the final years of Bretton Woods. And, as in the case of Germany, monetary targets were adopted at a time when there were clear indications that both inflation and monetary growth were slowing down, making the targets easier to meet and useful to indicate that loosening should not unleash inflationary

expectations[22].

At the beginning of 1975 Switzerland was about to enter the worst recession in its post-war history. As in the case of Germany, the oil shock certainly aggravated a downturn that must have been already under way. Also, as in the case of Germany, the strong Swiss franc helped contain the inflationary impact of the oil shock, but posed a serious threat to the Swiss export sector, the share of which in GNP was around 1/3 at the time. During 1975 merchandise exports fell by 8% in real terms. More generally, while subdued growth in real wages supported the SNB's fight against inflation, at the same time it led to a large fall in real consumption, which was worsened by a significant outflow of foreign workers. The monetary targeting initiative did nothing to ease the unprecedented cost of Switzerland's disinflation at this time - nor did the SNB offer any particular brief for the idea that the targets would provide a coordinating function for wage- and price-setters which would lower this cost. Target adoption was intended to cap inflation expectations by indicating a policy commitment, absent an exchange anchor, nothing more.

II. The Operational Framework of Monetary Targeting in Germany and Switzerland

Since adoption in 1975, both the Bundesbank and the SNB have adhered to the strategy of setting and publicly announcing monetary targets. During the first five years their respective

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[22] There is no direct reference at the time or in the reminiscences of participants to intellectual exchange between Swiss and German policymakers on these issues. Whether the conditions surrounding adoption led to roughly one optimal conclusion, or whether there was an explicit communing of the minds is open to the reader's guess. The similarities of these countries' adoption of targeting regimes, however, are not seen in the respective regimes' operating procedures to any real degree, as discussed below.

procedures underwent a number of changes, reflecting the central banks' experiences with their targets. Since 1980, however, the operational framework of these countries' monetary targets have displayed a remarkable degree of continuity. Most impressively, overshootings of targets in both countries in recent years, as well as changes in the monetary aggregates targeted after large velocity shocks, were managed without a persistent rise in inflation or inflation expectations (the 1990s experiences are discussed in the next section). Below, for each of the two countries the key features of the operational framework for its monetary target is reviewed. This is followed by an analysis of the rationale behind the choice of the intermediate target variable - narrow in Switzerland, broad in Germany - as well as the connection between the choice of monetary framework and the means of dealing with deviations from announced targets.

The literature on the conditions under which an economic variable constitutes a good intermediate target for monetary policy is too voluminous to be fully summarized here[23]; for purposes of our discussion, and eventual comparison with inflation targeting, it is more important that we examine how regime design influences target performance in practice rather than that we assess each target for optimality. To make this examination, we list the following four basic criteria[24] for an intermediate monetary target: (I) The variable is highly correlated with the goal(s) of monetary policy; (ii) the variable is easier to control by the central bank than the goal(s); (iii) it is easier to observe by both the central bank and the public than the goal(s);

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[23] An authoritative survey on the subject is Benjamin Friedman, "Targets and Instruments of Monetary Policy", Chapter 22 in *Handbook of Monetary Economics*, Benjamin Friedman and Frank Hahn (eds), Amsterdam: North Holland 1990.

[24] The of the fourth criterion is suggestion by Lars Svensson, "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets", mimeo, June 1996, p 14.

and (iv) it is transparent so that central bank communication with the public and public understanding and prediction of monetary policy is facilitated. This fourth criterion is one added to the standard literature after the recent academic discussions of credibility and commitment in monetary policy. As we will see, although the results of monetary targeting in Germany and Switzerland would lead to a positive judgment for their respective frameworks, neither strongly resembles either the other's details or the idealized picture of a monetary targeter.

In particular, our historical-institutional analysis in this and in the following section (discussing the 1990s) independently confirms the dual impression of German and Swiss monetary policymaking raised in Bernanke and Mishkin (1992), and argued by later econometric observers[25]: that neither country's central bank behaves according to a reduced form reaction function as though price stability were its sole (short- to medium-term) policy goal, or as though the monetary growth-goal correlation were strong enough to justify strictly following the targets ignoring wider information. In fact, we are able to bring out the operational reality and implications that monetary targets provide a framework for the central bank to convey its long-term commitment to price stability[26].

2.a. Germany

From 1975 until 1987 the Bundesbank announced targets for the growth of the central bank money stock (CBM). CBM is defined as currency in circulation plus sight deposits, time deposits with maturity under four years, and savings deposits and savings bonds with maturity of

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[25] Neumann (1996) and Clarida and Gertler (1996) argue both points, that the Bundesbank has multiple goals and that it doesn't strictly target money. Von Hagen (1995) and Bernanke and Mihov (1996) focuss on the latter point, while Estrella and Mishkin (1996) and Friedman (1995) discuss why the Bundesbank might not want to look at M3.

[26] Von Hagen (1989) and Bernanke and Mishkin (1992) make some suggestions of this.

less than four years, the latter three components weighted by their respective required reserve ratios as of January 1974. CBM is different from the monetary base in that it excludes banks' excess balances, and that the weights of deposits subject to reserve requirements are historical ratios, not current ones.

Since 1988, the Bundesbank has used growth in M3 as its intermediate target. M3 is defined as the sum of currency in circulation, sight deposits, time deposits with maturity under four years, and savings deposits at three months' notice. 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 while the former is a simple sum. By definition, therefore, CBM moves very closely with M3. Since the weights on the three types of deposits are fairly small[27], the only source 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 1988 in the face of shifting financial incentives, and again in 1990-91 after German monetary unification.

The Bundesbank has always set its monetary targets at the end of a calendar year for the next 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

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[27] 16.6%, 12.4%, and 8.2% respectively.

aggregate (CBM or M3) by estimating the growth of the long-run 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[28].

Two elements of this procedure deserve emphasizing. First, the Bundesbank does not employ forecasts of real output growth over the coming year in its target derivation, but instead estimates of the growth in production potential.[29] 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 let the Bundesbank claim that it is not making any choice about the business cycle when it sets policy, but it also allows the Bundesbank to de-emphasize any public discussion of its forecasting efforts, even when they might involve reestimating or admitting ignorance of the NAIRU, further distancing monetary policy from the course of unemployment. The transparency of the quantity approach therefore gets certain items off of the monetary policy agenda (or at least moves in that direction) by specifying what the central bank is responsible for.

The second element is the concept of "unavoidable price increases", where prices are 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 which motivates monetary policy.

> 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

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[28]The resemblence between this approach and the one called for in the EC Council of Ministers' statement of October 1972 quoted in the previous section is almost perfect.

[29] See e.g. Deutsche Bundesbank, "Recalculation of the production potential of the Federal Republic of Germany", *Monthly Report* October 1981.

> 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%.[30]

The 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, since the costs of moving to the long-run 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. Since this target definition was susceptible to short-term fluctuations in money growth around the year 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 changes to the target formulation were made. First, with the exception of 1989, all targets have been formulated in terms of a target range of plus-or-minus 1 or 1.5% 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

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[30] Deutsche Bundesbank, *The monetary policy of the Bundesbank*, Frankfurt, October 1995, pp 80-81.

> 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"[31].

In moving to a target range rather than a point target, the Bundesbank believed that by giving itself room for response to changing developments it could hit the target range; in fact, the tone of its explanation is that it was conferring some discretion upon itself rather than buying room for error in a difficult control problem. This could reflect actual stability of monetary demand and transmission mechanisms in Germany, or the absence of fears there at the time about central bank error.

Second, the targets were formulated as growth rates of the average money stock in the fourth quarter over its counterpart in the previous year, in order to indicate "the direction in which monetary policy is aiming more accurately than an average target does"[32]. The lower left panel of Figure 1.1 depicts quarterly growth rates of CBM (until 1987) and M3 (thereafter) over the Q4 level of the previous year, and the targets since 1979 (the earlier targets are omitted as they were not formulated in terms of year-on-year rates).

From the beginning of monetary targeting the Bundesbank considered narrow monetary aggregates not to be suitable intermediate target variables, because of their susceptibility to interest-induced shifts between sight deposits, time deposits, and savings deposits, and this assessment has not changed since[33]. "In formulating a monetary growth target only a broad

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[31] Helmut Schlesinger, op. cit., p 10.

[32] Deutsche Bundesbank, *Monthly Report* January 1979, p.

[33] See Deutsche Bundesbank, *Annual Report* 1975, p 11, and Deutsche Bundesbank, *The monetary policy of the Bundesbank*, pp 72-73.

money stock definition such as M3..., which very largely eliminates interest-induced shifts in deposits, or central bank money, which greatly reduces them, could be used"[34].

To consider the relative performance of CBM and M3 with respect to the first criterion for an intermediate target variable, the correlation between the target and the goal, presupposes knowledge of the goal(s) of monetary policy. To drive home the obvious, the Bundesbank "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."[35] 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 with price movements,[36] as well as setting the monetary policy agenda by working from the quantity equation as discussed above.

At the same time, however, the Bundesbank has repeatedly stressed that situations may arise in which it would consciously allow deviations from the announced target path to occur for supporting other economic objectives. These allowances remember are beyond and 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 DM prompted the Bundesbank to tolerate the target to be overshot. As said at the time, "However, the fact that the Bundesbank deliberately accepted the risk of a major divergence from its quantitative monetary target does not imply that

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[34] Deutsche Bundesbank, *Annual Report*, p 11.

[35] Deutsche Bundesbank, *The monetary policy of the Bundesbank*, p 23.

[36] See, e.g., Deutsche Bundesbank, "The correlation between monetary growth and price movements in the Federal Republic of Germany", *Monthly Report* January 1992, pp 20-28.

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"[37].

Most commonly, the correlation of either CBM or M3 with the goal is assessed by estimating money demand functions and testing for their stability over time. As these are often estimated in nominal terms, they strictly speaking only offer evidence about the correlation between the respective aggregate and nominal GNP. In theory, the weights of the M3 components in CBM reflect their liquidity, making CBM a better indicator of future expenditure. In practice, the relationship between nominal GNP and either of the aggregates was very similar[38]. "According to investigations by the Bundesbank, the central bank money stock also compares very favorably with other monetary aggregates in the usual econometric 'stability tests'"[39].

The Bundesbank stressed from the beginning the endogenous nature of CBM. In the view of the Bundesbank, the central bank money stock "is a weighted monetary aggregate in the *intermediate* sphere; its development is the result of a money creation process"[40]. CBM is therefore not a trivial intermediate target variable in the sense that the Bundesbank does not control CBM growth perfectly. In the presence of minimum reserve requirements (which

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[37] Deutsche Bundesbank, *Annual Report* 1977, p 22.

[38] Bharat Trehan, "The Practice of Monetary Targeting: A Case Study of the West German Experience", *Federal Reserve Bank of San Francisco Economic Review*, Spring 1988, pp 30-44, presents empirical evidence that the demand for CBM and M3 behaved very similarly over the period 1975-86.

[39] Helmut Schlesinger, op. cit., p 7.

[40] Schlesinger, op. cit., p 8.

Germany has stringently maintained for its universal banks, and thus its entire financial system), the demand for central bank money in the short run is mostly predetermined. "In the very short run the Bundesbank has to provide the required central bank money even if this results in a major departure from its quantitative monetary target"[41]. This means that in terms of control of the target by the Bundesbank, the CBM and M3 are again fairly similar broad aggregates[42].

The main reason why CBM was initially chosen as target aggregate was the Bundesbank's perception of its advantages in terms of transparency and communication with the public. The Bundesbank explained its choice of CBM in the following words:

> [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[43].

Although at any point in time the central bank money stock is a given quantity from the Bundesbank's point of view due to the minimum reserve requirements, it nevertheless also reflects the monetary policy stance in 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 their advocacy for such for the unified European currency). The information being conveyed here, however, is not so much to avoid either the public or the central bank making a

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[41] Deutsche Bundesbank, *Annual Report* 1975, p 13.

[42] In terms of observability, CBM and M3 are identical, as both are calculated from the banks' weekly reports of their liabilities for the purpose of minimum reserve requirements. Provisional figures are available during the last ten days of the current month.

[43] Deutsche Bundesbank, *Annual Report* 1975, p 12.

large mistake about the unclear stance of monetary policy (a major concern in framework design of later inflation targeters, such as Canada), but to give rapid feedback about the state of monetary conditions in general. The mindset is that monetary control gives a position of informational strength to policy, rather than seeing policy as a source of uncertainty.

From the beginning of CBM targeting in 1975 the Bundesbank was aware of the risk that "... central bank money is prone to distortions caused by special movements in currency in circulation"[44]. In 1981 and early 1982, CBM grew much more slowly than M3, due to weakness in the DM leading to large scale repatriation of DM notes, and an inverted yield curve which caused portfolio shifts out of currency into high-yielding short-term assets. Accordingly, the monetary target for 1981 of 4-7% was undershot (see the lower left panel of Figure 1.1). In 1986 and 1987 the reverse situation, a strong DM combined with historically low short-term interest rates, led to CBM growth of 7.7% and 8% respectively, while M3 grew at 7% and 6% during those two years.

The latter development prompted the Bundesbank to announce a switch from 1988 on 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"[45].

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[44] Deutsche Bundesbank, *Annual Report* 1975, p 11.

[45] Deutsche Bundesbank, "Methodological Notes on the Monetary Target Variable 'M3'", *Monthly Report* March 1988, pp 18-21.

The fact that the Bundesbank changed the target variable when CBM grew too fast, but did not do so when it grew too slow, can be interpreted as an indication of the importance that the Bundesbank attaches to the communicative function of its monetary targets; allowing the target variable to repeatedly overshoot the target because of special factors to which the Bundesbank did not want to react might have led to the misperception on the part of the public that the Bundesbank's attitude towards monetary control and inflation had changed.[46] An econometric argument that the Bundesbank has displayed an asymmetry in reacting to target misses is made by Clarida and Gertler (1996).

Over the past five years or so, however, M3 has proved to be a problematic intermediate target as well. The Bundesbank's own explanations for the sizable fluctuations in annualized M3 growth since 1992 (discussed in the next section) suggest that M3 demand behaves more and more like that for a financial asset, rather than like the demand for the medium of exchange. These financial effects far dwarfed the one-time shift in money demand and supply caused by German monetary reunification (which the Bundesbank has anyways strongly argued left the monetary aggregates' relationship with inflation and output stable). The Bundesbank has described itself repeatedly as "fortunate" that financial relationships in Germany have been more stable than in other major economies which tried monetary aggregate targeting, and has attributed

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[46] Two more technical aspects also suggested the switch from CBM to M3 targets. The first was that minimum reserve requirements had changed substantially since 1974, and that therefore CBM, computed as it is on the basis of 1974 ratios, corresponded less and less to the monetary base and thus to "the extent to which the central bank has provided funds for the banks' money creation." The second aspect, which will be discussed in more depth in the subsequent subsection, was that there was increasingly need to include new components, such as Euro-deposits held by domestic non-banks, into the broadly defined money stock for control purposes. Since these had never been subject to minimum reserve requirements, it was not clear with which weight they should enter into CBM, a problem that does not exist for M3.

this successful experience to the self-described earlier deregulation of financial markets in Germany and the lack of inflationary or regulatory inducement for financial firms to pursue innovations[47].

The general question is, whether swings in the target aggregate can be prevented in future by an appropriate redefinition of M3, as seems inevitable with the pressures of financial competition for German capital now emerging, without loosening the correlation in public understanding between the target and the goal. In other words, when adapting the target aggregate, the Bundesbank must set the definition subject to the requirement not only of controllability, but also that of transparency. The Bundesbank has so far reacted to the emergence of close substitutes to M3 by including short-term bank debt securities, domestic non-banks' Euro-deposits, and recently also money market funds, into the "extended money stock M3", which it closely monitors, and on developments in which it regularly reports in its surveys of monetary developments. The Bundesbank decided not to include money market funds into M3 since "a very broadly-defined money stock with a high representation of components with market-related interest rates cannot be managed with sufficient reliability", and an inclusion of money market funds would "... represent a move away from the strategy of monetary targeting based on bank balance sheets and towards a strategy of liquidity targeting"[48]. This indicates that the Bundesbank itself does not consider a different definition of its target aggregate as the solution to

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[47] Two recent examples of this repeated argument are O. Issing, "The Relationship Between the Constancy of Monetary Policy and the Stability of the Monetary System," mimeo, Swiss National Bank conference, March 17, 1995 and P. Schmid, "Monetary Policy: Targets and Instruments," *Central Banking*, 1996, pp. 42-43.

[48] Deutsche Bundesbank, *Monthly Report* July 1995, p 28.

the problems that have beset M3 in recent years.

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 for the Bundesbank to give a formal account of its policy to any public body. Independence of the central bank in Germany limits government oversight to (Act Section 13) 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." The only publications which the Bundesbank is required to produce are (Act Section 33) announcements in the Federal Gazette of the setting of interest rates, discount rates, and the like. According to Act Section 18, the Bundesbank *may* at its discretion publish the monetary and banking statistics which it collects. Any accountability, and therefore legitimacy, which the Bundesbank retains for the exercise of its independence rests upon what use the Bundesbank makes of its voluntary communications.

The Bundesbank chooses to make heavy use of this opportunity. The *Monthly Report* is claimed inside the front cover to be a response to Section 18 of the Act, but does much more than report statistics. Every month, after a "Short Commentary" on monetary developments, securities markets, public finance, economic conditions, and the balance of payments, two to four articles on a combination of one-time topics ("The state of external adjustment after German reunification") and recurring reports ("The profitability of German credit institutions" annually, "The economic scene in Germany in <quarter>") are published. Each year in January the monetary target and its justification is printed (in December from 1989 to 1992). The *Annual Report* gives an extremely detailed retrospective of the economic, not just monetary,

developments in Germany for the year, as well as listing all monetary policy moves and offering commentary on the fiscal policy of the Federal Government and of the *Länder*[49]. Between these two publications, and regularly updated "special publications" such as *The Monetary Policy of the Bundesbank* (an explanatory booklet), no Bundesbank policy decision is left unexplained both specifically and against the immediate and long-term context.

The Bundesbank's commitment to transparency does not come without self-imposed limits to its accountability. Two limitations in particular provide a strong contrast to the inflation report documents prepared by Canada, the United Kingdom and others in recent years. First, no articles in the *Monthly Report* are signed either individually or collectively by authors, and the *Annual Report* has only a brief forward signed by the Bundesbank president (although all Council members are listed on the pages preceding it); speeches by the President or other Council members are never reprinted in either document. This depersonalization of policy is to some extent made up for by the enormously active speaking and publishing schedule which all Council members (not just the President and Chief Economist) and some senior staffers engage in, but it still distances the link between the main policy statements and responsible individuals.

The second limitation on accountability is that the *Reports* always deal with the current situation or assess past performance[50] - no forecasts of any economic variable are made public by

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[49] The vast variety and depth of information provided by the Bundesbank in its *Reports* would appear to be evidence that a wide range of information variables, far beyond M3, velocity, and potential GDP, plays a role in Bundesbank decision-making (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 and/or inflation developments, not these other types of data.

[50] The *Annual Report* is described as "a detailed presentation of economic trends, including the most recent developments, together with comments on current monetary and general

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 does not leave itself open to be evaluated as a forecaster. In fact, its *ex post* explanations combined with its potential GDP and normative inflation basis for the monetary targets enable the Bundesbank to always shift responsibility for short-term economic performance onto other factors. Nevertheless, those same monetary targets are seen by the Bundesbank as the main source of accountability and transparency because they commit the Bundesbank to having to explain policy with respect to a benchmark on a regular basis. As we will see below, this is one basic attribute of a publicly announced target which holds true for Switzerland as well.

2.b. Switzerland -

From 1975 until 1978 the SNB announced targets for the growth of the narrow monetary aggregate M1. In the fall of 1978, after a trade-weighted appreciation of the Swiss franc of 40% in nominal and 30% in real terms over the previous 12 months, the SNB decided to shift from a monetary to an exchange rate target; it could 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"[51]. From 1980 on it again announced its monetary targets. By contrast to the earlier period, the SNB chose the seasonally adjusted monetary base (SAMB) as its new target variable. Currency in circulation constitutes roughly 90% of the SAMB, and banks' deposits at the SNB the remaining 10%, making SAMB narrower still than M1. Given the proportionally greater depth and innovation of the Swiss

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economic problems."

[51] Schiltknecht, op. cit., p 74.

financial system as opposed to the German, it may be somewhat surprising that the Swiss chose such narrow aggregates presumably vulnerable to portfolio shifts as targets. The smaller size and greater relative openness of the Swiss economy, however, may have made control of the broader aggregates an even more daunting proposition.

Until 1990 the SNB announced monetary targets at the end of a calendar year for the next year. At the end of 1990, the SNB announced that it would aim "to increase the monetary base to approach a medium-term expansion path"[52], 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"[53]. This lag between announcement that a new target would be adopted, and onset of the specified target is a pattern which Canada and Sweden would later follow when they adopted inflation targets; perhaps small open economies wish to make sure that their surroundings are stable before making a formal commitment (clearly, though, it was less of an adjustment for Switzerland to move from one target aggregate to another after 15 years than for Canada or Sweden to adopt a new nominal anchor.). Shortly thereafter the SNB announced that the target referred to a period of 3 to 5 years. At the end of 1992, the SNB announced that it had chosen the average stock of SAMB in the fourth quarter of 1989 as the basis for the expansion path[54]. Finally, at the end of 1994 the SNB announced a new medium-term growth path for SAMB for the period 1995 to

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[52] Schweizerische Nationalbank, "Monetary policy in 1990 and 1991", *Geld, Währung und Konjunktur* 4/1990, p 273.

[53] Georg Rich, "Monetary Targets as a Policy Rule: Lessons from Swiss Experience", mimeo, Swiss National Bank June 1995.

[54] Schweizerische Nationalbank, "Swiss monetary policy in 1993", *Geld, Währung und Konjunktur* 4/1992, p 312.

1999, and thus retroactively confirmed that the horizon of the first path had been five years as well[55]. The lower left panel of Figure 1.2 shows from 1981 on SAMB growth over the corresponding month of the previous year (solid line) and over the last quarter of the previous year (annualized, dashed line), the annual targets (triangles) and the first medium-term growth path (bold dashed line) as well as the target outcomes (horizontal bars) during the period of annual targets.

The Swiss derivation of the monetary targets has followed similar lines to that practiced in Germany. While the target aggregate was M1, the SNB aimed at lowering the growth of M1 to " an average rate of 3% 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% during periods of stable prices"[56]. 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"[57]. After the change to SAMB as the target variable, the SNB considered an annual growth rate of 2% "to be sufficient for stabilizing the price level in the medium-term. The number of 2% rests on the assumption that (a) the SNB equates an annual inflation rate of 0-1% with price stability and (b) the potential growth of the Swiss real GDP is unlikely to be higher than 2%. The nominal potential growth resulting from these assumptions of 2-3% is

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[55] Schweizerische Nationalbank, "Swiss monetary policy in 1995", *Geld, Währung und Konjunktur* 4/1994, p 272.

[56] Schiltknecht, op. cit., p 72.

[57] Schiltknecht, op. cit., p 73.

thought to increase the demand for base money by 2% per year"[58].

Although the SNB does not mention a concept of "unavoidable price increases" as does the Bundesbank, the fact that until 1985 the monetary targets were always fixed at numbers higher than 2% (and higher than 3% during the years 1975-78) indicates that the SNB does make an allowance for past inflation when setting its targets. As in Germany, underlying the monetary target is a normative view of price stability which defines it operationally as inflation greater than zero, makes pursuit of it gradual due to 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 method of target derivation is that both are based on estimates of potential growth of GDP, and not on forecasts of actual GDP growth for the target horizon, downplaying the link between monetary policy and cyclical conditions.

The SNB has always announced point targets. "The 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"[59]. Until 1988, the targets were formulated in terms of average growth of SAMB over the previous year, while in 1989 and 1990 the SNB chose to formulate the targets in terms of the growth rate over the fourth quarter of the previous year. While the SNB therefore is admitting more explicitly to the possibility of control problems than the Bundesbank does in its discussion of the choice of target, in reality the

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[58] Georg Rich, "Geldmengenziele und schweizerische Geldpolitik: eine Standortbestimmung", *Geld, Währung und Konjunktur* 4/1989, p 350, translation by author.

[59] Schiltknecht, op. cit., p 73.

result is that it engages in extensive explanations of deviations from the point target analogous to the Bundesbank's; the benefit appears to be avoiding the potential credibility disaster of missing a range, while the cost appears to be less room for maneuver without having to explain. Similarly, despite the indexation of Swiss housing sector rents (as discussed above), the SNB targets growth in headline CPI and then explains when that inflation misrepresents underlying inflation rather than targeting a specially defined aggregate - the rule is kept simple which complicates explanations and denies hidden flexibility, but which also makes missing the target less potentially damaging.

The SNB has repeatedly emphasized that maintaining price stability is the primary goal of its monetary policy. The SNB "intended, by means of a gradual reduction of monetary growth, to lower inflation, as measured by the CPI, from more than 10% in the year of 1973 to zero. The SNB's opinion that price level stability constitutes the main goal of monetary policy was also largely undisputed in the public"[60]. Despite the absence of any recent hyperinflationary episodes or currency reforms (as 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[61]; unlike the Bundesbank, the SNB's charter, however, while granting independence does not limit the SNB's mandated goals to price stability. The commitment to the primacy of price stability in monetary policy making is conveyed by SNB's activities and cumulating credibility, not by law.

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[60] Georg Rich, "Die Inflationsbekämpfung als Aufgabe der schweizerischen Geldpolitik", *Geld, Währung und Konjunktur* 1/1985, p 60, translation by the author.

[61] Posen (1995) argues that German and Swiss support for central bank independence and pursuit of price stability reflects a larger pattern of countries with politically effective financial sectors having greater opposition to inflation.

Accordingly, the SNB's original choice of M1, as mentioned earlier, was based on the observation of a "fairly close relationship" between M1 growth and inflation. As noted above, however, price stability is operationally defined as low or zero inflation, not as price level stability. And exchange rate crises, as in 1978, are granted escape clause status by precedent and common sense, but without an explicit statement to that effect.

During the period 1975 to 1978 the SNB used the monetary base as its instrument to control the growth of M1. This practice relied on the SNB's ability to reliably predict the money multiplier. When the SNB returned to monetary targeting after the 1978-79 interlude, it concluded that the quality of its multiplier forecasts had deteriorated. In particular, demand for M1 was apparently reacting strongly to changes in exchange rate expectations. The SNB therefore decided to target the monetary base, because "[i]t considered the monetary base to be more stable than the aggregate M1. With hindsight, it is doubtful that this claim was true. But targeting the monetary base turned out to be attractive in another respect: The demand for base money is less sensitive to changes in interest rates and therefore less volatile than the demand for M1"[62]. This change in target variable therefore reflected the SNB's concern about its ability to control M1. In terms of the correlation with future inflation both aggregates still had similar properties, leading inflation by two to three years[63].

Concerning the controllability of the target variable, another question is whether the

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[62] Georg Rich, "Monetary Targets as a Policy Rule...", p 8. The issue of the susceptibility of M1 demand to changes in exchange rate expectations is analyzed in Georg Rich, "Die Inflationsbekämpfung als Aufgabe der schweizerischen Geldpolitik", pp 60-69.

[63] Georg Rich, "Geldmengenziele und schweizerische Geldpolitik: eine Standortbestimmung", pp 350, 354/5.

monetary base can be meaningfully considered as an intermediate target. Put differently, is it trivial to announce a target for a variable that the central bank controls as closely as it does the monetary base? The challenge here is not only whether control of the target has sufficient effect on the economy, but whether meeting that target credibly conveys the efficacy and commitment of the central bank. The advantage of the monetary base 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 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. Announcing a target for the monetary base may serve in this situation 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 signal device, or an opportunity for sending signals, much as in Germany, holds despite the lack of a specific timetable for the reversal of target deviations, or even a commitment to some meeting of an average target over less than a five-year horizon. In fact, since the SNB is very forthright in its point target explanations and announced deviations to counter monetary base expansions, it is clear that the primary purpose of the monetary target in the short-term is signalling. This is in contrast to the idealized vision of the intermediate variable targeting regime where meeting the target itself is worth the effort because it moves the central bank (as well or better than by any other means) to its goal.

The issue is the location is the location of this monetary base variable in the transmission

mechanism of monetary policy. A variable which is relatively close to the instruments of monetary policy, in the sense that it reacts very quickly and reliably to monetary policy actions, is on the other hand usually relatively far from the goal(s) of monetary policy, and therefore the relationship between the candidate target variable and the ultimate goal is likely to be very indirect. As argued above, the SAMB is, if not an instrument in itself, then at least very close to directly reflecting monetary policy. It would therefore come as a surprise if the monetary base would perform well on the second criterion for a good intermediate target, that it should be highly correlated with the goal of price stability.

If the importance of monetary base targeting in Switzerland, however, is as more than as a signalling device, or as an information variable, the operational question is whether there is a stable relationship between the monetary base and either inflation or nominal GDP, and if so, at which horizon this relationship holds. As mentioned earlier, the traditional way to assess this question empirically has been to estimate a money demand function and test for its stability. Figure 1.3 gives some insight into recent developments affecting the stability of SAMB demand. The panel on the left shows (the log of) SAMB from 1980 until June 1996. The dominating event is clearly the massive downward shift in SAMB during 1988-89. The major factor behind this shift was the introduction of the Swiss Interbank Clearing (SIC), which became fully operational in January 1988 and reduced the banking sector's demand for balances at the SNB. A second factor was the change in banks' liquidity requirements effective January 1, 1988. The decline in banks' sight deposits at the SNB resulting from these two changes amounted to an annual average of more than 30% in 1988. The question of stability is therefore twofold: Had SAMB demand been stable before 1988, and has a new stable demand function emerged since 1990, possibly just

a downward shifted version of the old demand function?

In an article in the SNB's quarterly publication[64], Rich quotes several studies providing empirical evidence for a stable SAMB demand function based on data prior to 1988, and suggests that even the introduction of the SIC and the change in liquidity requirements did not change the demand function materially. However, the econometric studies employed data from the 1960s until 1987. A study by Belongia[65] published two years earlier finds evidence for instability in SAMB demand after 1981. In particular, the estimated income elasticity of money demand was much higher when a dummy was included in the regressions for the period 1982-87. In contrast to the Bundesbank's study of M3 demand cited earlier, the SNB has not published a study on the stability of SAMB demand including data from 1990 on. In fact, there is a real contrast with the public lengths the Bundesbank has gone to to explicitly argue for the stability of German money demand post-reunification, with the SNB implicitly admitting a looser tie with the move to longer-horizoned targets. If observations over a longer horizon would vindicate the result that velocity has remained stable while the short-run relationship between SAMB and nominal income has become more variable, this would provide a strong argument in favor of the SNB's current strategy of pursuing growth targets for the monetary base over a five-year horizon. In the Appendix to this chapter, we provide evidence supportive of this interpretation.

The reduced informational content of short-term movements in SAMB, and the overall design of the Swiss targeting framework to emphasize explanations of inevitable deviations from

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[64] Georg Rich, "Geldmengenziele und schweizerische Geldpolitik: eine Standortbestimmung", pp 351-53.

[65] Michael Belongia, "Stability of Swiss Money Demand: Evidence for 1982-87", *Geld, Währung und Konjunktur* 1/1988, pp 68-74.

the point target, is underlined in the SNB's reporting framework. 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 as its source of legitimacy for the pursuit of its monetary policy the understanding and support it can elicit from the public directly. The main forum for this appeal is the quarterly publication *Geld, Währung, und Konjunktur* (literal translation, "Money, Currency, and Business Cycle"), every 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" at the close. The December issue, in addition, always begins with a very brief (one to three page) statement of "Swiss Monetary Policy in <the coming year>," which contains some evaluation of the previous year's performance vis-a-vis the medium-term target as well as the intended course of the monetary aggregate in the coming year[66].

There are a number of differences, however, between the Swiss National Bank's and the Bundesbank's approaches to reporting on monetary policy. As the title of the publication indicates, the SNB 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 decision making akin to the Bundesbank's, it underlines 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,

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[66] The Swiss National Bank also publishes a *Monthly Report* which consists entirely of data tables (mostly having to do with the financial system), and an annual report on the state of Switzerland's banks. As neither of these serve the purpose of reporting on monetary policy, we do not discuss them further here.

and the international background is analyzed first. Moreover, throughout the discussion of economic developments at home and abroad, and even more so in the annual statement about the coming year's monetary policy, forecasts are made about any number of economic variables and occasionally contrasted with private sector forecasts[67].

The SNB clearly wishes to draw the line on accountability in a different place than the Bundesbank. While the SNB makes clear that, understandably, 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 are all topical articles signed by the authors, and policy speeches given by the senior officials often reprinted, but the Bank puts itself on the line with forecasts and does not tie publication of its report to any legal statute. The SNB wishes to give the impression that it is voluntarily, through the decisions of known responsible individuals, putting itself in harm's way, although reminding the public at all times just how harmful that way can be.

What is common to the two monetary targeting central banks' reporting approaches is that they use the monetary targets as a framework for explaining policy at length, and with respect to the whole economy (not just monetary developments), to the public. This is an explanatory impulse beyond the deceptively untransparent question of whether or not a target was met at the prescribed time.

III. The Experience of German Reunification

[67] There should be no confusion here that the SNB (or the Bundesbank) explicitly discuss private sector inflation expectations as many later inflation targeters do extensively. They do not.

The economic situation in the Federal Republic during the two years prior to economic and monetary union with the former GDR on July 1, 1990 (henceforth "monetary union") was characterized by GDP growth of around 4% and the first significant fall in unemployment since the late 70s (as shown in the lower right panel of Figure 1.1). After a prolonged period of falling inflation and historically low interest rates during the mid-80s, inflation had increased from -1% at the end of 1986 to slightly over 3% by the end of 1989. The Bundesbank had begun tightening monetary policy in mid-1988, raising the repo rate in steps from 3.25% in June 1988 to 7.75% in early 1990. After the first M3 target, for 1988, of 3-6% had been overshot by 1%, the target for M3 growth of around 5% in 1989 was almost exactly achieved, with M3 growing at 4.7%. M3 growth was certainly not high in view of the prevailing rate of economic growth.

In response to the uncertainties resulting from the prospect of German re-unification, long-term interest rates had increased sharply from late 1989 until March 1990, with 10-year bond yields rising from around 7% to around 9% in less than half a year. Combined with a strong DM this prompted the Bundesbank to keep official rates unchanged during the months immediately preceding monetary union. In the immediate aftermath 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 due to the fact that the inflationary potential resulting from the conditions under which the GDR mark had been converted into DM was very difficult to assess. The Bundesbank had been opposed to the conversion rate agreed to in the treaty on monetary union, (overall about 1:1.8) and had been publicly overruled on this point by the Federal

Government[68]. The money stock M3 had increased due to monetary union by almost 15%. This number turned out to be almost exactly right, for while GDP in the former GDR was surprisingly estimated to be around 7% of the Federal Republic's *ex post*, with the government's transfers to the east, all of the money was absorbed[69]. During the first few months following monetary union the Bundesbank was preoccupied as well 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 which had not existed in the former GDR.

As the east german banks were adjusting to their new institutional structure, and velocity was destabilized by portfolio shifts in east Germany, 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, based on the returns of the banks domiciled in the respective parts. Although M3 growth in west Germany accelerated in late 1990, as a result of the moderate growth rates during the first half of the year, growth of west German M3 during 1990 of 5.6% was well within the target of 4-6%.

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 as which the Bundesbank intended lombard loans to be used. On November 2,

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[68] "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." Carsten Hefeker, "German Monetary Union, the Bundesbank, and the EMS Collapse," *Banca National del Lavoro Quarterly Review*, December 1994, p. 383. See Marsh (1992) for longer historical description..

[69] See Reiner König and Caroline Willeke, "German Monetary Reunification," *Central Banking*, 1996: 29-39.

1990 the Bundesbank raised the lombard rate from 8 to 8.5%, as well as the discount rate from 6 to 6.5%. Within the next few weeks, however, the way that banks were bidding the interest rate ("Mengentender"), the repo rate rose above the lombard rate, prompting the Bundesbank to raise the lombard rate to 9% as of February 1, 1991. With these measures the Bundesbank was reacting to both the tempestuous GDP growth rates as well as the faster M3 growth in the last part of 1990. Inflation had so far remained fairly unchanged, but it seems likely that the Bundesbank was at that point 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 4-6% for the year 1991, applying a monetary target for the first time to the whole currency area. The target was based on the average all-German M3 stock during the last quarter of 1990. As this stock was likely to be still affected by ongoing portfolio shifts in east Germany, the target was subject to unusually high uncertainty. It is worth noting that neither of the basic inputs into the Bundesbank's quantity equation which generates its money growth targets , " normative inflation" nor the potential growth rate of the German economy, were changed[70].

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% during this period, even though it was obvious from the outset that this rate could not be achieved

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[70] Since the mid-1980s achievement of effective price stability in Germany, the Bundesbank has spoken of "normative price increases" rather than "unavoidable inflation" in response to the high inflation of the 1970s and early-1980s (we are grateful to Otmar Issing for emphasizing to us this shift). What is interesting is that this change in language could been interpreted as an encouragement to the public of a sense of greater confidence in the Bundesbank's powers, that the central bank can pursue what it deems best rather do as well as possible in difficult conditions.

in the target periods concerned.[71]

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

This required faith in the public's comprehension of, and the Bundesbank's ability to credibly explain, the special nature of the period. It is important to contrast this standing by the two percent medium-term inflation goal with the Bundesbank's response to the 1979 oil shock, when, as already noted, unavoidable inflation was ratcheted up to 8 percent, and brought down only slowly. Two not mutually exclusive explanations of this difference in the 1990-93 period are that the shock was a demand rather than a supply shock, and so the Bundesbank was correct not to accomodate it, and 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 differences between one-time and persistent inflationary pressures. In any event, the Bundesbank clearly was nuancing its short-term monetary policy in pursuit of the longer-term goal.

Following the Bundesbank's target announcement, in which it stressed its continued adherence to monetary targeting after unification, and the lombard rate increase on February 1, long-term interest rates started falling for the first time since 1988. With hindsight, it becomes apparent that this was the beginning of a downward trend continuing until the bond market slump

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[71] Otmar Issing, "Monetary Policy in an Integrated World Economy," Mimeo, University of Kiel, June 1995.

in early 1994. Although the highest inflation rates were still to come, apparently at this point financial markets were convinced that the Bundesbank would succeed in containing, if not reducing, inflation in the long run. Through its transparency of making it clear that it would not accomodate further price rises in the medium-term, the Bundesbank bought itself flexibility for short-term easing without it being misinterpreted. This link of transparency enhancing flexibility of course depends upon the central bank's commitment to price stability being credible, but it emphasizes how even a credible central bank may gain through institutional design to increase transparency.

Until mid-August of 1991 the Bundesbank left the discount and lombard rates unchanged, while the repo rate steadily edged up towards the lombard rate of 9%. CPI inflation in west Germany had still remained around 3% during the first half of 1991, while GDP growth in west Germany remained vigorous. M3 growth, by contrast, was falling as compared to its upward trend during late 1990, 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 for 1991 was lowered by 1% to 3-5%. The rarity of resetting the monetary target is critical to its being accepted without being seen as a dodge by the central bank; in this instance, the Bundesbank was able to invoke its implicit escape clause of the semi-annual review, and, through that formalized process demanding a clear explanation, justify their adjustment. The discipline of the monetary targeting framework displayed its disadvantage as well, i.e., the difficulty if not impossibility of money demand being stable, or at least the necessary changes in its relationship to goal variables being seen *ex ante*.

As the repo rate approached the lombard rate again, on August 16, 1991 the Bundesbank raised the lombard rate from 9 to 9.25% and the discount rate from 6.5 to 7.5%, the latter to reduce the subsidy character of banks' rediscount facilities, which the Bundesbank had tolerated as long as the east German banks relied mostly on rediscount credit for their liquidity provision.

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 turned inverted since the early 80s, and the first time since the Bundesbank had been targeting M3. In this situation, the conflict arose for the Bundesbank that interest rate rises were likely to foster M3 growth. This problem was all the more acute since banks' lending to the private sector was growing unabated despite the high interest rates, probably to a large extent due to loan programs subsidized by the Federal Government in connection with the restructuring of the east German economy and housing sector.

This conundrum of the Bundesbank's instrument tending to work in the "wrong" direction, brought the underlying conflict of monetary targeting to the fore - the target must be constantly critically evaluated for its relationship to the ultimate goal variable(s), yet if it is constantly cast aside with reference to changes in that relationship, or special circumstances indicating a role for other intermediate variables, it ceases to be a target rather than an indicator.

> 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.[72]

The acceleration in late 1991 notwithstanding, M3 grew by 5.2% during 1991, close to the mid-point 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%, to 9.75% and 8% respectively, their highest level since the Second World War (if the special lombard rates from the early 70s are disregarded).

> 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[73].

The rhetoric invoked here by the Bundesbank is important to appreciate. Both government policies and union wage demands could be (and were) cited for 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 Deutschemarks, or of his "solidarity" transfers, but the Bundesbank Direktorium was comfortable making it clear that his government and not they should be held accountable for the inflationary pressures; they also took accountability for limiting the second-round effects of these pressures. In addition to this division of accountability, the Bundesbank also clearly expressed some concern for 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 - does not

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[72] Friedman and Kuttner (1996).

[73] Deutsche Bundesbank, *Annual Report* 1991, p 43.

lead them to directly cite measures of private-sector expectations, something which we will see many inflation targeters began doing at this time.

The December 20 increase in the lombard rate proved to be the last one. During the first half of 1992 the repo rate slowly approached the lombard rate and peaked in August at 9.7% before starting to fall from late August onwards, as the Bundesbank started to ease monetary policy in response to appreciation of the Deutsche Mark, and the emerging turbulences in the European Monetary System; of course, this move also coincided with the rapid slowdown in German GDP growth as well. The monetary targets would 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.[74]

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 the political effects of maintaining long-term price stability.

IV. Some Comparative Observations on German and Swiss Monetary Policy

Several patterns emerge from our case studies of German and Swiss monetary policy since the adoption of announced monetary targeting. First, both central banks respond to short-term challenges to multiple goals at all times, particularly the exchange rate and their short-term monetary targets, despite having price stability as the primary goal for the medium-term. Neither

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[74] Issing (1995), op cit.

central bank is willing to totally ignore the performance of the real economy in pursuit of that goal, should a crisis occur. This fact does not come as a surprise to careful observers of the Bundesbank or the Swiss National Bank, but it is worth reemphasizing that even a tight monetary target allows for such responsiveness when some discussing proposals for the Federal Reserve or the future European Central Bank would believe that even a multi-year inflation target would push towards total singlemindedness.

Second, it would appear that the credible commitment to a long-term price stability goal enhances the exercise of disciplined discretion in the short-term. By disciplined discretion we mean the independent exercise of policy according to the central bank's own judgment of current circumstances, but with any resulting deviations from long-term goals explained. Clearly, this relies upon the credibility of the long-term commitment, but there appears to be a positive synergy between having to occasionally break or put the long-term commitment into perspective, and popular support for and understanding of said commitment. In a monetary targeting context, there is something of a contradictory air of the inevitable having to explain either deviations in money growth as *ex post* uninformative (e.g. due to velocity shocks or portfolio shifts), or policy actions as being motivated by information beyond the monetary intermediate target. The fallout, however, of so doing seems to be limited despite the frequent target misses.

Third, we would go so far as to say that targets by providing a framework for transparent indication of monetary policy stance and intentions, actually increase flexibility, as seen especially in the situation of German reunification. The ability to have a standard and a goal for forward-looking policy to point to amongst the chaos of present day decisions seems to anchor public expectations. It is important that policy explanations be explicit and informative, perhaps

institutionalized in some reporting mechanism - neither the Bundesbank nor the Swiss National Bank seem to find that the announcement of target and interest rate numbers alone are enough. There is little explicit legal accountability to the electorate or government, in the United States or New Zealand senses, but there is a constant stream of statements from these central banks delineating their decisions, their reasoning, their responsibilities, and their preformance.

Beyond these patterns, there is also considerable convergence in operational design of the Swiss and German monetary frameworks. We see this as indicative of their common choices about transparency and flexibility. While both target monetary aggregates, they derive their target series from headline (not core) CPI, making their inflation goals underlying the targets easily comprehensible. They both define price stability operationally to mean inflation rates of greater than zero measured inflation, for all the usual reasons, and neither fully reverse overshootings of inflation/monetary targets (in fact, despite some financial observers beliefs that the Swiss engage in reversals to a significant degree, there is no evidence of such behavior).

Both countries are actually somewhat gradualist in their manners of disinflation when necessary, explicitly recognizing the cost in output both in their policy statements and in their derivation of inflation goals from potential output. While neither has an explicit numerical 'escape clause' with legal standing, a la New Zealand, to allow flexibility in the face of severe financial or supply shocks, both have exercised that flexibility as though it were there, and take full advantage of the flexibilities built into their targets (for the Germans, having a target range for monetary growth; for the Swiss having a multi-year target). In fact, the Swiss National Bank expects its public to take very literally the sentence included every year in the statement announcing the next

year's target to the effect of, "this target will be altered as circumstances change."[75]

The relevance of our findings for a number of current issues in the design of monetary policy is clear. In the United States, two major topics of discussion in recent years about the structure of the Federal Reserve have been whether its objective should be changed to one solely of the pursuit of price stability, and how far it should go in increasing the transparency of its discussion of policy decisions. We would argue that these two issues are linked, and that some efforts with regards to the latter may well make movements toward the former more effective and less costly. In light of our study, we can see that discussions of the proposed operational regime for the future European Central Bank vastly exaggerate the difference between monetary targeting as practiced by its two most-cited successes and inflation targeting as adopted recently in a number of other countries. More broadly, only variants on fixed exchange rate regimes would appear to give the type of binding constraint on policy usually said to characterize monetary targeting - on the basis of the Swiss and German experiences, binding a central bank's hands extremely tightly does not appear to be a necessary condition for sustained low inflation.

Those countries and central banks interested in emulating the Deutsche Bundesbank's and the Swiss National Bank's performance - both in terms of sustained low inflation and of consistent support for the central banks' policies and independence[76] - might best turn their attention to the manner in which policies are operationally implemented and conveyed to the public, rather than to more abstract concerns about "credibility." In fact, with the spread of

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[75] We are grateful to Georg Rich for discussion of this point.

[76] Posen (1993, 1995) points out the irrelevance of central bank independence over the long-term without sustained public support.

inflation targets as a monetary regime, 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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[1] Citations for central bank documents are given in the main text.

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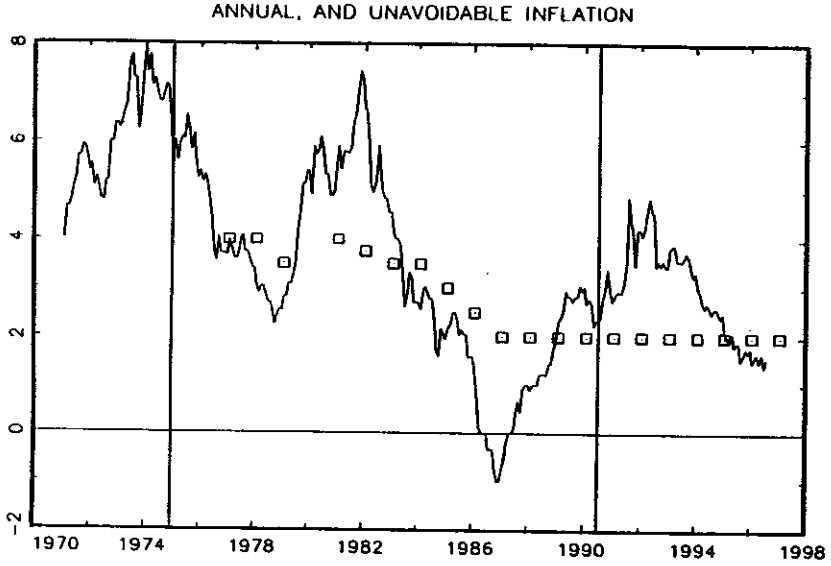
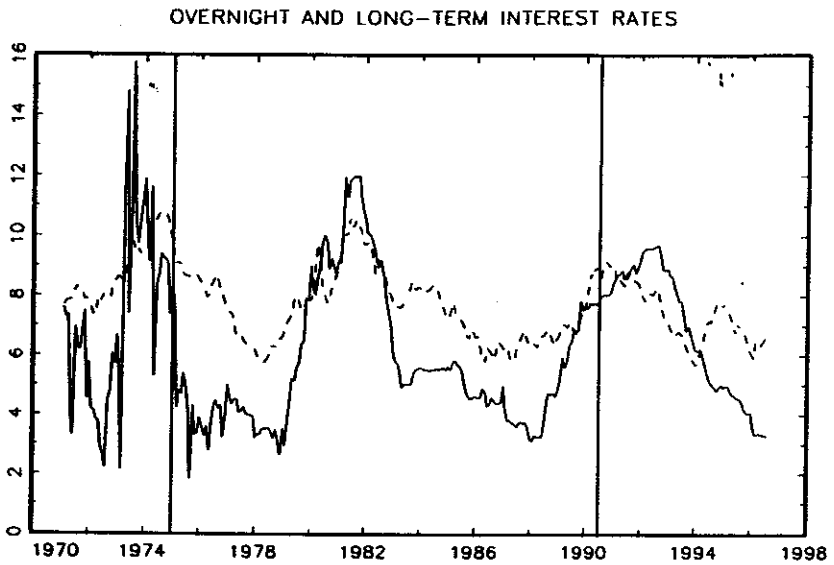
FIGURE 1.1: GERMAN ECONOMIC TIME LINE





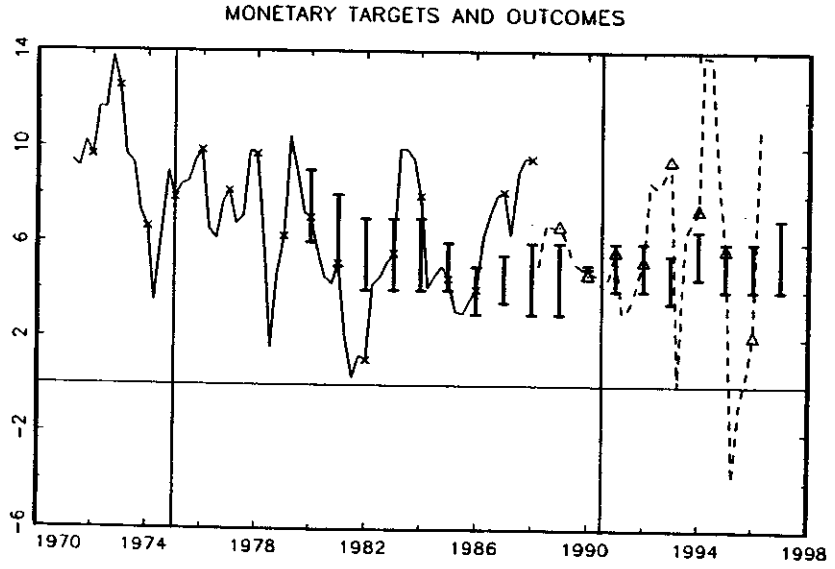
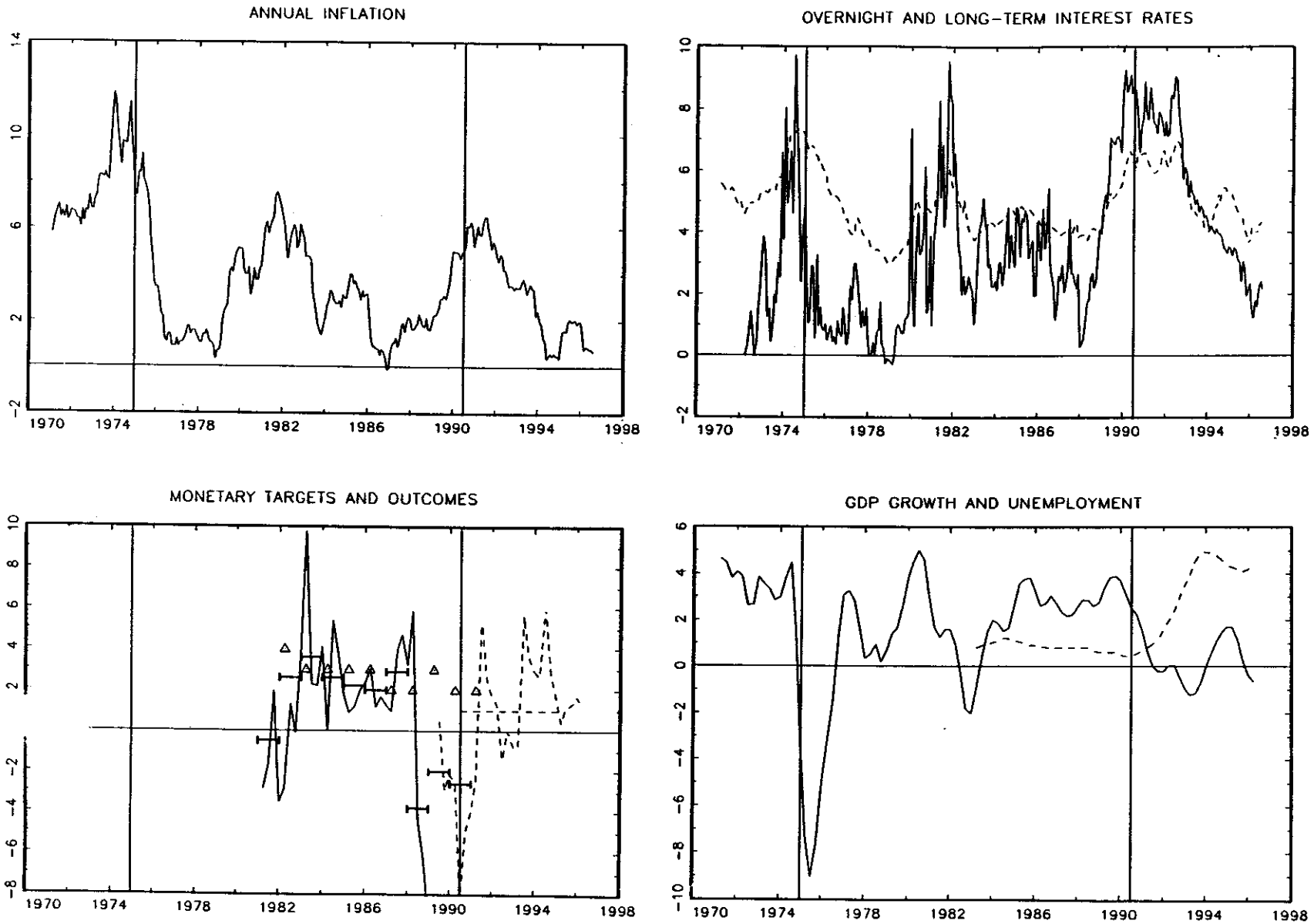


FIGURE 1.2: SWISS ECONOMIC TIME LINE



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