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# **Money Growth Targeting**

**by**

**Jürgen von Hagen**

**Conference on Monetary Policy Rules**

**Stockholm 12 – 13 June 1998**

**Sveriges Riksbank**

**and**

**Institute for International Economic Studies,  
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# **Money Growth Targeting**

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## Abstract

The recent debate over monetary policy strategies concludes that monetary targeting and inflation targeting in practice lead to very similar patterns of central bank behavior. This raises the question why central banks insist on the strategies they use. In this paper, we develop an answer from political economy. After showing that closed-loop monetary strategies using similar information sets imply similar monetary policy performance, we argue that monetary strategies are helpful in solving internal and external coordination problems for the central bank. We illustrate the point by reviewing the Bundesbank's introduction of monetary targeting in the mid-1970s. Monetary targeting was important for the Bank as a signal that the previous monetary regime had been overcome, as a means to define the role of monetary policy vis-a-vis other players in the macro economic policy game, and to structure the internal monetary policy debate. The last section discusses the implications of this view for the new European Central Bank.

## I. Introduction

The preparation of the European Monetary Union (EMU) and its European Central Bank (ECB) has revived interest in monetary strategies in recent years. In Europe, much of that debate has recently focused on the choice between “inflation (forecast) targeting” (Svensson, 1997) and “monetary targeting” for the ECB. Following the lead of the Bank of England, inflation forecast targeting was adopted by several European central banks in the 1990s. Monetary targeting has been the Bundesbank’s strategy since 1975 and is, therefore, connected with the Bundesbank’s successful low-inflation monetary policy since then. Since the early 1990s, the French central bank has announced annual monetary targets, too.

Today’s discussion about monetary strategies raises an interesting puzzle. On one side of the debate, macro economists continue to follow the tradition of Poole (1970) and analyze the performance of alternative monetary strategies in the framework of stochastic macro models; see e.g. Svensson (1997, 1998). They regard the choice of a monetary strategy as part of an optimal control problem that depends on issues such as the stability of the demand for money and the relative variances of shocks to the real and the financial sector. On the other side of the debate, central bankers have noted that the close similarity in the use of central bank instruments and the reaction of central banks to news and shocks under inflation forecast and monetary targeting, suggesting that strategy choice does not seem to matter much for the day-to-day conduct of monetary policy; see e.g. Freedman (1996), King (1996). In the same vein, Clarida and Gertler (1996), Bernanke and Mihov (1997), and Mishkin (1998) argue that the Bundesbank’s conduct of monetary policy looks much like what one would expect under an inflation target. Furthermore, Groeneveld et al. (1996) point out that the adoption of inflation targeting seems to have made little if any difference for empirical inflation and interest rate dynamics. Almeida and Goodhart (1996) find no significant change in the conduct of interest rate policies of six inflation-targeting central banks. Do monetary policy strategies not matter after all?

A simple answer is that central banks in practice do not adhere to “pure” strategies (Svensson, 1998), or that central banks do what central banks do, no matter what label they use for their monetary policy orientation. A more sophisticated explanation notes the difference between an *open-loop* monetary policy strategy, i.e., one that fixes an intermediate target during a given control period - a year in the case of annual monetary or inflation forecast targets - with no regard to incoming information during that period, and a *closed-loop* strategy that continuously revises the intermediate target based on incoming information to achieve better

control over the ultimate targets of monetary policy. While macro economic models of monetary policy strategies typically assume open-loop strategies, monetary policy in practice seems to rely on closed-loop strategies. As we show in section 2, admitting closed-loop strategies indeed implies that central bank behavior is similar under different strategies and that the performance of monetary strategies in terms of the target variables of monetary policy becomes very similar, provided that the ultimate goals of monetary policy are the same.

This raises the question why central banks do make efforts to identify their monetary strategy. The answer we develop in this paper focuses on political economy. Our analysis deviates from the conventional analysis of monetary strategies in two regards. One, we emphasize that central banks are no unified actors. Instead, decisions over monetary policy decision involve many different individuals with different preferences and different views of the economy. Two, we emphasize that many of the shocks central banks face are not exogenous but rather the result of deliberate actions of other actors in the economic policy game. Central banks can use monetary strategies to structure internal decision making problems and to shape the form of the policy conflict with other actors. To make this point, we review in section III the introduction of monetary targeting by the Bundesbank in the mid-1970s. In section IV, we broaden the perspective to discuss some implications for the monetary strategy of the ECB.

One implication of the political economy view of monetary strategies is that the choice of a monetary strategy at a particular point in time depends largely on the particular decision making and strategic problems the central bank faces at that point both internally and vis-à-vis other actors in the economic policy game. That is, the choice of monetary strategy is highly path-dependent. Path-dependence is indeed suggested by observing the evolution of monetary strategies in the past 30 years. Argy et al. (1990) note that monetary targets were adopted in the G7 after a period of high inflation combined with high and volatile money growth and large fiscal expansions, and after loosing the exchange rate as the anchor of monetary policy at the end of the Bretton-Woods regime. Almeida and Goodhart (1996) and Debelle (1997) point out that inflation targeting was adopted by countries which had earlier experienced failures with exchange rate or monetary targets, and again after a period of high inflation rates. These observations suggest that strategy choices of central banks tend to be similar when they share a common experience of policy failure.

## **II. Observational Similarity of Closed-Loop Monetary Strategies**

Monetary policy strategies are typically discussed within the framework of the Tinbergen policy paradigm. Accordingly, a central bank wishes to achieve a certain target value  $y^*$  for its target variable  $y$  during a given period,  $t+1$ .<sup>1</sup> This is expressed by assuming that the central bank seeks to maximize the expected value of a quadratic objective function in the deviations of  $y_{t+1}$  from  $y^*$ . The central bank controls some instrument  $r_t$ . To emphasize the fact that the transmission of monetary policy to the target variable involves some lags, we assume that the target variable is related to the instrument and a set of other variables  $x$  through a dynamic linear model. This model bears various representations which are the basis for designing monetary strategies. All variables below are defined as averages over a time period of given length.

Consider first a strategy of direct targeting. Such a strategy starts from a final-form representation of the model for the target variable which links the target variable  $y_{t+1}$  to the instrument in period  $t$  and a vector of past observations of other variables,  $x_{t-1}$ ,

$$y_{t+1} = \beta x_{t-1} + \delta r_t + u_{t+1} , \quad (1)$$

where  $u_{t+1}$  is a random error whose expectation conditional on information available at the end of period  $t-1$ ,  $E(u_{t+1}|I_{t-1}) = 0$ . Maximizing the expected value of the objective function leads to the instrument rule:

$$r_t^* = \frac{1}{\delta}(y^* - \beta x_{t-1}) . \quad (2)$$

The direct strategy implies a control error of  $u_{t+1}$ .

Under an intermediate target strategy, the central bank uses a representation of the model that relates the target variable to an intermediate target variable  $z_t$ , an element of the vector  $x$  that is observable during the control period  $t$  and can be controlled with the central bank instrument  $r$ . Note that  $z$  can be a synthetic variable, i.e., one composed of several economic variables, such as an inflation forecast derived from a number of inputs (e.g., Svensson, 1998). The representation of the model used now has two parts, one linking the target to the intermediate target and one linking the latter to the instrument:

$$\begin{aligned} y_{t+1} &= \beta_z' x_{t-1} + \beta_z z_t + \epsilon_{z,t+1} \\ z_t &= \alpha_z z_{t-1} + \theta_z r_t + \eta_{z,t} . \end{aligned} \quad (3)$$

---

<sup>1</sup>Generally,  $y$  could be a synthetic variable, such as a desired combination of output growth and inflation. See e.g. Brunner and Meltzer (1969).

Here,  $\beta_z'$  is defined as the vector  $\beta$  whose element multiplying  $z$  has been set to zero.<sup>2</sup> The *open-loop* version of such a strategy first derives a target value for the intermediate target at the start of period  $t$ :

$$z_t^* = \frac{1}{\beta_z}(y^* - \beta_z' x_{t-1}) . \quad (4)$$

During the period, the central bank then sets its instrument such that  $z_t = z_t^*$  is maintained:

$$r_t^* = \frac{1}{\theta_z}(z_t^* - \alpha_z z_{t-1} - \eta_{z,t}) . \quad (5)$$

Equation (5) shows that the intermediate target strategy allows the central bank implicitly to react to the unobserved random shock  $\eta_{z,t}$  that occurs during the control period. In this regard, it is informationally more efficient than the direct strategy. The open-loop strategy leaves a control error  $\epsilon_{z,t+1} = u_{t+1} - E(u_{t+1} | I_{t-1}, \eta_{z,t})$  with regard to the target variable.

Now assume that there is an alternative representation of the model for the target variable, one that links the target to an alternative intermediate target,  $w_t$ :

$$\begin{aligned} y_{t+1} &= \beta_w' x_{t-1} + \beta_w w_t + \epsilon_{w,t+1} \\ w_t &= \alpha_w w_{t-1} + \theta_w r_t + \eta_{w,t} , \end{aligned} \quad (6)$$

where the coefficients and the residual are defined appropriately. Going through the same steps as before, the instrument rule becomes:

$$r_t^* = \frac{1}{\theta_w}(w_t^* - \alpha_w w_{t-1} - \eta_{w,t}) , \quad (7)$$

and the control error with regard to the target becomes  $\epsilon_{w,t+1} = u_{t+1} - E(u_{t+1} | I_{t-1}, \eta_{w,t})$ . Obviously, the outcomes of the two intermediate target strategies are different, because the two intermediate targets have different information content for the target variable. Equations (3) - (7) summarize the essence of the Poole (1970) problem of choosing an intermediate target variable. It consists of comparing the two open-loop control errors and choose the strategy that leaves the smaller variance.<sup>3</sup>

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<sup>2</sup>Comparing (3) and (2), we note that  $\epsilon_{z,t+1} = u_{t+1} - \beta_z \eta_{z,t}$  and  $\delta = \beta_z \theta_z$ .

<sup>3</sup>As Poole and the subsequent literature show, this variance depends on the variance of the shocks and the parameters of the model in its structural form.



But the information structure of the problem implies that the central bank can improve on either one of the two strategies. Specifically, once it has set its instrument to the target value under the z-strategy at the start of period  $t$ , the central bank can observe the development of the other variable,  $w_t$ , and obtain an observation of the current random shock,  $\eta_{w,t}$ . Similarly, under a w-strategy it can observe  $z$  and derive the shock  $\eta_{z,t}$ . Since these shocks are correlated with  $u_{t+1}$ , the central bank can use this information to revise its initial intermediate target as the observation becomes available.<sup>4</sup> Former Bundesbank president Helmut Schlesinger (1988, p. 6) describes this practice of in-period revision of the intermediate target: “the Bundesbank has never, since 1975, conducted a rigid policy geared at the money supply alone; all available information about financial markets and the development of the economy must be analyzed regularly.”

Thus, the central bank receives new information relevant to its forecast of  $y_{t+1}$  during the period and reacts to such information. This can be interpreted as a revision of the intermediate target during the control period, and an adjustment of the instrument  $r$  to achieve the revised intermediate target.<sup>5</sup> Thus, let  $t_i$ ,  $1, \dots, n$ , be a subunit of the control period, and let  $\eta_{w,t_i}$  be the observation of  $\eta_w$  during that time period.<sup>6</sup> The revision of the intermediate target in subperiod  $i$  is

$$z_{t_i}^* - z_t^* = -\frac{1}{\beta_z} E(\epsilon_{z,t+1} \mid \eta_{w,t_1}, \eta_{w,t_2}, \dots, \eta_{w,t_i}) , \quad (8)$$

where, for simplicity, we assume that the elasticity of  $y_{t+1}$  with regard to within-period changes of the intermediate target is  $\beta_z$ . The control error with regard to the target variable from this *closed loop* version of the z-strategy after  $n$  adjustments becomes  $u_{t+1} - E(u_{t+1} \mid I_{t-1}, \eta_{z,t}, \eta_{w,t_1}, \eta_{w,t_2}, \dots, \eta_{w,t_n})$ , which, for large  $n$ , or frequent revisions, approximates  $u_{t+1} - E(u_{t+1} \mid I_{t-1}, \eta_{z,t}, \eta_{w,t})$ . It is straightforward to show that, by the law of iterated projections, the same error is obtained from a *closed loop* version of the w - strategy.

Thus, from an optimal control point of view, the performance of the monetary strategies is similar provided that they use the same information sets, pursue the same objective, and the central bank is willing and able to react to information arriving during the control period.

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<sup>4</sup>In addition, the central bank can use other variables that are observable during the control period to extract further information about the control error  $u_{t+1}$ . We do not explore this point here as it adds nothing to the conclusions.

<sup>5</sup>Obviously, the case where new information arrives that suggests that the central bank should tolerate a deviation of  $z_t$  from  $z_t^*$  with no change in  $r_t$  is a special case of this.

<sup>6</sup>Leroy and Waud (1977) demonstrate the empirical implementation of a similar updating procedure within a Kalman-filtering approach.

### **III. Money Growth Targeting in Germany<sup>7</sup>**

The similarity of alternative monetary strategies under closed-loop strategies raises the question why central banks stress the importance of one strategy over another. In this section, we argue that intermediate target strategies are important for the central bank as an organization, because they can help solving several coordination problems. To make this point, we review the experience of the Bundesbank's introduction of money growth targeting in 1974 as an illustration.

#### **III.1. The Economic Background in 1974**

Germany's economy in the early 1970s was in a macroeconomic disequilibrium characterized by inflationary pressures and the inability of monetary policy to fight them due to the restrictions of the fixed exchange rate. Inflation, as measured by the GDP deflator, reached eight percent - one percent above the OECD average - in 1970 and 1971 despite a relative weak economy; it slowed down to five percent in 1972 only to accelerate again to seven percent. Inflation was fueled by aggressive wage demands of the German unions, which were sustained by an explicit guarantee for full employment promised by the Brandt government

A rapid expansion of government spending, which rose from 38.5 percent of GDP in 1970 to 48.6 percent in 1975 contributed to the inflationary pressures. Despite an overheated economy, the fiscal impulse as calculated by the German Council of Economic Advisors (CEA) was positive and large in 1970, 1971, and 1972. Following the 1966 recession, the German government had vested itself with new fiscal policy tools and given fiscal policy the leading role in macroeconomic stabilization. Fiscal policy had indeed been prominent in the stabilization package of 1967. As fiscal policy was much less subject to external constraints than monetary policy, the combat against inflation in the early 1970s should have come through a fiscal contraction. Finance minister Möller recognized this necessity, but was unable to get his proposals for spending cuts passed by the cabinet. Möller resigned over the issue in May 1971. His successor Schiller also tried to make the government adopt a more disciplined fiscal stance; Schiller resigned in 1972 realizing his political inability to achieve this.

In September 1972, Schiller's successor Schmidt argued that the fight against inflation did not justify

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<sup>7</sup>The following two sections draw on material presented in von Hagen (1998). While the Bundesbank granted access to its archives for the purposes of this study, legal regulations prohibit references to exact dates and names from the records used in this research.

cutting back or postponing government programs of high importance for society. In his view, fiscal stabilization was possible only by raising taxes. Thus, the dilemma of fiscal stabilization was fully apparent: In times of recession, it was easy for the government to spend more, but it was politically impossible to cut spending during a boom. In view of this difficulty, the government, in a declaration of 18 January 1973, demanded that monetary policy take the leading role in the short-run stabilization of the economy.<sup>8</sup>

**FIGURE 1 ABOUT HERE**

**FIGURE 2 ABOUT HERE**

Monetary policy was caught by necessity to fix the DM's dollar exchange rate in the face of strong pressures for an appreciation. As the Bundesbank's Report for 1970 (p. 22) stated, the external constraint kept the Bank from stopping the rise in domestic demand by a monetary contraction. Figures 1 and 2 illustrate this. Figure 1 shows the high and rising money growth rates reaching almost 15 percent in 1971 - 72. Figure 2 shows the repeated cuts in German interest rates following the Fed's lead even in the face of rising inflation rates. In the course of 1971 and 1972, the Bundesbank tried various capital and exchange restrictions - which it had to demand from the federal government - to contain capital inflows and tighten its policy relative to the US. But these attempts did not succeed for long. Each time, "the dike broke" as a Bundesbank Council member put it, forcing the Bank to adjust its rates downwards. The Bank had, as one central banker stated in a Council meeting, lost control over the money supply.

At the same time, the Bank's paradigm of monetary control evidently failed (Schlesinger, 1979). The cornerstone of this paradigm was the assumption of a stable "liquid reserves ratio (LRR)." "Liquid reserves" consisted of central bank money held by commercial banks less required reserves. In the early 1970s, short-term treasury bills issued by the Bundesbank with an unconditional buy-back guarantee, unused discount loan quota<sup>9</sup>, and short-term dollar assets were considered perfect substitutes for central bank reserves and were counted as liquid reserves, too, as commercial banks could turn these into actual reserves at any point in time

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<sup>8</sup>The Council of Economic Advisors (Report 1972/73, para 329sq.) Supported this demand arguing that fiscal policy had failed as an instrument for stabilization.

<sup>9</sup>Discount credit was supplied at a below-market interest rate but under a rationing scheme giving each bank an individual discount quota.

on their own initiative. The LRR was taken with regard to bank deposits. According to the LRR hypothesis, banks aimed at a stable LRR over time, implying that money growth would be preceded by a rising LRR. However, the expansion of the money supply in the early 1970s was preceded by a drop in the LRR from an average of 11.6 percent in 1969 to an average of 6.8 percent in 1970 and 6.0 percent in 1972.<sup>10</sup>

Under the LRR approach, required reserves ratios were the Bundesbank's main instrument for short-run monetary control. Raising or cutting these ratios could turn liquid into required reserves and thus destroy or create liquid reserves immediately. Beyond that, the Bank's instruments consisted only of lending to commercial banks under automatic-access facilities (discount and Lombard credit), offering short-term paper at preset interest rates, and foreign exchange market interventions. Importantly, these instruments left the initiative for creating central money largely with the banking system. Bundesbank Council members were often frustrated by the impression that they had much less control over central bank money growth than the banking industry. One indication of this frustration is the frequent description of the Bank as a "self-service store for central bank money" used in Council meetings in the early 1970s.

### III.2. Regaining Monetary Control

In the first months of 1973, the DM came under renewed pressures for appreciation, forcing the Bundesbank to undertake massive interventions in the foreign exchange market. In early February, the Bank recommended closing-down the foreign exchange market to the federal government. Instead, the government tightened administrative controls against capital inflows, arguing that it was important to find a "European" solution to the dollar problem, i.e., one that would be supported by France and England. Yet, the dollar crisis became more and more acute. During February alone, foreign exchange inflows amounted to some 15 percent of the monetary base. On 1 March 1973, the Bundesbank was forced to buy dollars in the equivalent of DM 2.7 billion or three percent of the monetary base. Once again, the Bundesbank asked the federal government to close the markets. This was done on 2 March. When the markets reopened on 19 March, the fixed exchange rate had been suspended indefinitely.

Freed from the external constraint, members of the Bundesbank Council held very diverse views on the

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<sup>10</sup>This decline was due to the development of an interbank market and changing banking regulation in Germany; cf. the Bank's Annual Report for 1973, p. 3, and the Council of Economic Advisors' Report for 1973-74, para 172.

future approach to monetary policy. Several members favored administrative controls of credit creation, such as a minimum reserve held against bank loans and the imposition of quantitative loan limits on commercial banks (Annual Report, 1972, 28). While the CEA (Report 1972/73, para 397sq.) warned against embarking on such a path towards rigid economic planning, finance minister Schmidt signaled his sympathy for the approach, although he argued that such far-reaching administrative interventions should be reserved for times of crisis.<sup>11</sup> The Bank's proposal for a revised Bundesbank Act in 1973 indeed contained provisions for both instruments, and both were included in the finance ministry's draft bill. Schmidt, however, insisted that quantitative loan limits could only come under a shared responsibility of the Bundesbank and his department; a condition that would obviously have undermined the Bank's autonomy over monetary policy. When the Council realized this, even members that had advocated this approach recommended not to pursue it any further.

In a discussion about the options for monetary control in January 1973, the Council considered two alternatives to the quantitative loan limits: a required LRR, and direct control of the central bank money supply. The required LRR was rejected in view of the instability of this ratio in recent years. It was argued that direct control over central bank money foremostly required abolishing all mechanisms granting banks automatic access to central bank money, i.e., reducing liquid reserves to zero. Members of the Bank's Board and staff were confident that the central bank money stock could be controlled with reasonable precision if this were achieved.<sup>12</sup> The suspension of foreign exchange interventions together with the results of various previous measures implied that this condition was suddenly and quite unexpectedly fulfilled in March 1973. The decision to conduct monetary policy on the basis of controlling base money had, in effect, been taken by happenstance.

The Bank immediately used its new scope for monetary policy to embark on a restrictive course. In a significant break with its own past, it refrained from creating new LR, keeping the LRR close to zero (see figure 2). The steep rise in interbank rates (figure 2) illustrates the tightness of the new monetary policy. Proposals came from some Council members to ease money market conditions, but were rejected on the grounds that it was essential to abolish all channels of automatic access to central bank money for the banking

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<sup>11</sup>Börsenzeitung 22. 9. 1972

<sup>12</sup>Later Council meetings refer to this debate as the time when it was decided to control the money supply.

sector. In May 1973, the Bank increased its discount rate twice. The reasoning on the Council was that the banking industry's expectation of easy and automatic access to central bank money had to be shattered permanently. In late May, the Bundesbank replaced its Lombard credit with "special Lombard," which the Bank could suspend unilaterally.<sup>13</sup> A steep rise in the volatility of overnight rates and in the Frankfurt interbank spread of rates, which climbed to 13 percent in March, 28 percent in April and 33 percent in August, illustrate that the new policy took a banking industry which had been used to be able to obtain central bank reserves when needed by surprise. Soon, the Bank was criticized for endangering the stability of the whole banking sector by leaving banks with insufficient reserves.<sup>14</sup>

Figure 1 shows that the intended deceleration of money growth began to show starting in mid-1973. In this sense, the direct control of central bank money was a success. But the new approach was confronted with difficulties. On the one hand, the Bundesbank either had to be ready to supply and absorb liquidity quickly when demand peaked or able to forecast the liquidity demand of the banking sector correctly, if it wanted to control the quantity of central bank money directly but avoid large gyrations of money market rates. The former would have required more flexible and larger open market operations than the Bank deemed desirable in the narrow government bond market. The latter proved technically exceedingly difficult.

On the other hand, Council and staff members of the Bank saw a contradiction between the Bank's required reserves system and a rigid quantitative control of base money. The reserve requirement was based on lagged deposits, which made the demand for reserves largely exogenous towards the end of the month. Critics deemed it inappropriate for the Bank to require banks to hold a certain amount of reserves without assuring that this requirement could be met in principle, i.e., in the aggregate at least. Given that deposit flows could be volatile and largely unexpected at the level of the individual bank, they argued that violating the reserve requirement was not always the result of improper bank management. With reserves demand being exogenous, the Bank would have to adjust the supply of reserves to avoid large swings in short term interest rates. But an unconditional readiness to serve the banking sector's demand for reserves obviously undermined the control of base money.

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<sup>13</sup>An internal memorandum later argued that the Bundesbank's determined abolition of automatic access to central bank money for commercial banks was a very visible change in its policy and the essential precondition for the success of the intended monetary restriction.

<sup>14</sup>"Die Bundesbank spielt mit dem Feuer", Handelsblatt 27 July 1973

The solution to these problems lay in renouncing the direct, short-run control of base money and focus on its medium-run growth. In June 1973, a memo to the Council argued that monetary policy should aim at a medium-run growth target for the money supply and accommodate seasonal and short-run peaks in the banks' demand for reserves. This would still enable the Bank to reach its real intention of keeping money growth in line with the growth of the economy. Such a medium-run oriented control could be achieved by controlling the "price" of central bank money, i.e., the Bundesbank's lending conditions. Raising the cost of refinancing at the central bank would cause banks to curtail lending, which in turn would reduce their demand for base money. Following this proposal established the Bundesbank's approach of controlling base money "via the interest rate channel" (Mainert, 1974; Dudler, 1983). In subsequent years, the overnight interbank rate, seen as a summary statistic of the Bank's lending conditions, became the focus of short-run central bank operations.

Still, there were conflicting interpretations of the new approach. The Bank's Annual Report 1973 (p. 4), like the CEA's Report 1973/74 (para 170, 292) talked about an "immediate control of base money". This view met opposition within the Bank for three reasons: First, because of the contradiction to the required reserve system discussed above. Second, because targeting the monetary base raised the question of an appropriate base money target, which could not be answered easily. Third, because there were calls inside and outside the Bank for targeting a nonbank aggregate. Significantly, the European Council had recommended in 1972 that the member states' central banks adopt such targets.

Targeting money, however, raised the question of the appropriate target aggregate. With the steep rise in short-term interest rates, M1 grew much more slowly during 1973 than the broader M2 (M1 plus time deposits) or M3 (M2 plus savings deposits), raising doubts about the appropriateness of any of these for monetary targeting. Furthermore, nonbank aggregates were available only on an end-of-month basis, implying a much higher volatility than base money, for which monthly averages of daily data were available. In late 1973, a staff member of the Bank found an ingenious solution to this problem. Referring to a new academic literature, he argued that only an aggregate that weighted deposits according to their maturities would avoid the statistical biases simple-sum aggregates showed in times of rising or falling interest rates. Assuming that required reserve ratios proximately reflected liquidity degrees of deposits, these ratios were the appropriate as weights. This led to the definition of the Bundesbank's "central bank money stock" (CBM) consisting of currency in circulation plus deposits weighted by required reserve ratios as of 1974. Given that excess reserves held by banks were negligible, the new aggregate was, of course, identical to the monetary base, as long as required reserve ratios

would not deviate too much from their 1974 levels.<sup>15</sup> The ingenuity of the proposal was that it made targeting CBM acceptable both for those members of the Council who favored the immediate control of base money and for those who favored targeting a non-bank aggregate, and that it corresponded pretty much to the “monetary control with zero liquid reserves” the Bundesbank had practiced since March 1973 anyway.

### III.3. Monetary Targeting

By 1974, the general economic picture had changed in Germany. The tight monetary policy pushed the economy towards recession, soon amplified by the oil price shocks.<sup>16</sup> While inflation showed first signs to slow down, unemployment moved to the forefront of economic policy. In its 1974 Report, the CEA criticized the Bundesbank for not sufficiently clarifying its policy intentions to the public, arguing that the sudden contraction had contributed unduly to the rise in unemployment. Schlesinger (1983, p. 6), the Bank’s chief economist, later acknowledged that unions and enterprises had underestimated the Bank’s determination to fight inflation in 1973, the expectations error resulting in higher unemployment. The CEA demanded a more transparent monetary policy orientation and proposed announcing a target for money growth, primarily to provide some orientation for unions and employers in their wage negotiations. The federal government adopted the idea by making a money growth target for CBM part of its stabilization program of late 1974.

Two questions were occupying the Bundesbank Council in the second half of 1974: One, what should be the future monetary policy strategy as the immediate fight against excessive money growth and inflation was showing success, and, two, how should the Bank react to the weakening economy. One group of Council members argued for a more expansionary monetary policy to increase output and employment. In mid-1974 already, a majority was favorably inclined to respond to the demands for an easier monetary policy, which were also voiced by the CEA (Report 1974/75, para 246) and the main economic research institutes. To avoid a rise in inflation expectations, however, such a move had to be moderate, and the Bundesbank would have to find a way to assure the public that it did not mean a return to the high inflation rates of the recent past. These

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<sup>15</sup>Internal memoranda of the Bundesbank show that the staff had used CBM already since 1971 for analytical purposes. It is noteworthy that the proponent of CBM recognized the arbitrariness of assuming that required reserves ratios equaled relative liquidity degrees and the fact that CBM gave an excessive weight to currency in circulation. The latter, in fact, and the volatility of currency demand in the 1980s led to the demise of CBM and its replacement as target aggregate by M3 in 1988.

<sup>16</sup>See Neumann (1981).



members found the proposal of a monetary target a convenient way to communicate to public that the Bundesbank still intended to keep a check on monetary expansion. Some Council members also argued that a monetary target, once announced to the public, would create a first line of defense against demands for further monetary easing from the political sector should the desired economic upswing fail to come.

Opposing the concept of an active monetary stabilization policy, another group of Council members, led by Emminger, the vice-president of the Bank, and Schlesinger, demanded that the Bank liberate itself from short-run stabilization objectives and pursue a “steady” course of monetary policy primarily geared at price stability. Some Council members complained that the Bundesbank was taking up too many responsibilities in stabilization, and that its policy had become intransparent and incoherent as a result. From their point of view, the concept of a monetary target was attractive because of its consistency with the framework of controlling the medium-run growth of CBM. They argued that money should grow in line with potential output, yielding a low rate of inflation on average over the medium run. In fact, this concept was already implicit in the Annual Report of 1973, which argued (p. 45) that “as in 1973, the Bundesbank will, in 1974, endeavor to steer CBM such that the volume of money and credit can expand to an extent compatible with a stable growth of the economy.”<sup>17</sup>

The circumstances in late 1974 thus were such that both proponents and critics of an active monetary stabilization policy in the Council found the announcement of a monetary target for 1975 attractive, albeit for very different reasons. The numerology of the particular target proposed, an annual growth rate of eight percent, underscores the coincidence of the compromise: With six percent annual CBM growth in 1974, eight percent were conceived as the announcement of a moderate easing of monetary policy. Given a predicted real growth rate of two and an inflation rate of six percent, a CBM target of eight percent could also be interpreted as a “neutral” stance of monetary policy. Finally, potential output was expected to grow at three percent in 1975 and the “unavoidable” inflation rate at five percent.<sup>18</sup> Hence the particular target of eight percent was agreeable to Council members pushing for a monetary expansion, a neutral stance, and a more steady course of

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<sup>17</sup>See Bockelmann (1989).

<sup>18</sup>Used until 1982, the concept of an “unavoidable” inflation rate for the next year was used to indicate the level of inflation that could not be influenced by current monetary policy.

monetary policy. As such, it was adopted almost unanimously.<sup>19</sup>

On 19 December 1974, immediately after the decision to adopt and publish a monetary target, the Bundesbank Council decided to lower the discount rate, contemporaneously with the announcement by the federal government of a program to stimulate output growth. Several further cuts in the discount rate followed, all motivated by the intention to revive the sluggish economy. Critics of this course argued during the Council meetings that the monetary target demanded the orientation of monetary policy at more long-term developments. However, their position was weakened by the fact that CBM growth itself slowed down in the Spring of 1975. Only later in the year money growth recuperated; in the end the target was overshoot by two percent.

The years of 1976 and 1977 repeated the experience. Some members of the Council continued to demand “steady” orientation of monetary policy; others replied that the Council could not simply ignore the short-run effects of monetary actions, and that a large degree of flexibility was precisely the advantage of monetary policy as a tool to steer the economy. Each year, measures to slow down money growth were taken too late for fear of negative effects on the fledgling economic recovery. Nevertheless, in view of the public’s positive response to the new concept and reasoning that it was too early to abandon the experiment, the Council each year followed Schlesinger’s proposal to adopt a monetary target of eight percent, though there were some slight modifications in the target formulation .

The CEA, in its Report for 1974/75 (para 394) recommended that monetary policy should adopt a “neutral” stance with regard to the business cycle, letting money grow at the rate of potential output growth and the “unavoidable” inflation rate. In the years following the first monetary target, however, the Bundesbank did not adopt such an orientation. Instead, its monetary target was explicitly imbedded in the federal government’s general economic perspective for the following year. The Annual Report of 1976 (p. 23), for example, argued that “The Bundesbank and the federal government aim at a real growth rate of five percent.” The Report for 1977 defines “strong economic growth and a further containment of inflation” as the goals of monetary policy.

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<sup>19</sup>Some Council members were concerned that the publication of the monetary target would impose artificial restrictions on the Bank’s ability to react flexibly to cyclical shocks and demanded that the monetary targets remained adjustable in the short run. Others doubted the ability to control the money supply and to predict the relationship between nominal output and money with sufficient precision. A compromise was found by arguing in the published announcement, that a strong correlation between output and money growth did not exist in the short run and that the target rate of eight percent seemed adequate only from “today’s perspective”. This would leave the Bank sufficient room for discretion.

Obviously, soon after the first success in the fight against inflation, active stabilization had regained importance in the Bank's policy orientation relative to price stability and a steady course of monetary policy.

#### III.4. Crisis and Survival of Monetary Targeting

The conflict over monetary targeting in the Council became more acute in late 1977, after the third overshooting of the monetary target in a row and in view of a re-emergence of inflation (see figure 2).<sup>20</sup> The proponents of a "steady" monetary policy criticized that it was time to end the period of experimentation with monetary targets. While the public had responded positively to the new approach, the Bundesbank had to ask itself how seriously it wanted to take its monetary target. These Council members demanded a stronger role of the monetary target to guide council decisions. But a leading Council member took a strong position against this, arguing that monetary targeting was a questionable concept. In his view, an "interest rate" policy would have delivered better results in 1977. He found the idea that the Bank could avoid political pressures by basing its decisions on objective data dubious. Instead, he claimed that the Bank had such a strong position in the public opinion that it could make decisions even against political pressure.

Furthermore, this member demanded that the Bundesbank Council should not narrow its mandate unduly to the setting of a monetary target and give up the possibility of making discretionary decisions. Another leading member supported this view arguing that the Council should under no circumstances make itself a slave of a mere number. If the Council did, in the end, adopt a monetary target for 1978, this was mainly due to the consideration that, not unlike 1974, it intended an easing of monetary policy for external and cyclical reasons, and feared that a reduction of the discount rate without announcing a monetary target might have created the impression that the Bundesbank had left its steady course and would have fueled inflation expectations. Thus, the Bank's Report for 1977 (p. 20sq) emphasized that missing the monetary target in 1977 did not indicate that the Bank had given up its stability-oriented monetary policy, and that the new target for 1978 demonstrated the continuation of this course.

Already in the Spring of 1978, however, money growth was too fast for achieving the target. This was partly the result of large foreign exchange inflows as the dollar weakened rapidly. Early in June, the Council

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<sup>20</sup>CPI inflation was flat around 3.6 percent in 1977 and resumed its decline in 1978 due to the weakening of the dollar. However, inflation measured by the GDP deflator increased by 3.7 percent in 1977 and by 4.3 percent in 1978, up from 3.6 percent in 1976.

discussed a suspension of the monetary target.<sup>21</sup> In the end, it feared that a suspension or revision of the monetary target would undermine the Bank's credibility and preferred a public statement that the overshooting was to the external pressures (Monthly Report July 1978, p. 5sq.). In the debate, Council members emphasized that the deviation from the monetary target could be limited should economic growth pick up and inflation revive. This scenario did in fact emerge in the second half of 1978.

On the external front of monetary policy, the years from 1974 to 1977 had seen repeated crises in the "Snake", the European post-Bretton Woods exchange rate arrangement. Following the realignments of 1977, there were increasing demands for a reform of the system. Such reforms should facilitate a lasting participation of France and should make the system less centered on the DM and more symmetric, instead.<sup>22</sup> More symmetry, in this context, could only mean that the Bundesbank would have to lend greater support for the weaker partner currencies and thus follow the more inflationary policies of their central banks, an obvious infringement of its independence. In July 1978, the German chancellor Schmidt and the French president Giscard d'Estaing launched their initiative for the "European Monetary System" which was to meet these demands. It was formally adopted in December and started operating in March 1979. An important consequence of the event was that it shifted the balance on the Bundesbank Council in favor of maintaining the monetary target.

In its debate over the monetary target for 1979 several members of the Bundesbank Council were decidedly in favor of abandoning the strategy. They argued that the monetary target was not taken seriously neither within nor outside the Bank, instead, the repeated violations of the target had made the Bank a laughing stock to the observer. Other members, however, raised important reasons for keeping the monetary target. One was the visible revival of inflation. They thought that a monetary target would make it easier to pursue a restrictive course of monetary policy in the following years. The other reason, stressed by many Council members, was that abandoning monetary targeting at the time when the new EMS was beginning to operate would create the impression that the Bank was giving up on its efforts to maintain price stability, and that this would fuel inflation expectations. Remarkably, even the leading Council member who had strongly opposed monetary targeting the year before, supported the strategy now, referring also to the high reputation the strategy had gained the Bank abroad. A federal government representative attending the Council meeting argued that

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<sup>21</sup>Then Bundesbank president Emminger suggests that monetary targeting would almost have been adopted at that point. See Emminger (1986)

<sup>22</sup>see Fratianni and von Hagen (1992) for a description and analysis of the EMS.

the Bank should keep its strategy, because the start of the EMS made a public demonstration of its compatibility with a stringent stability-oriented monetary policy both to the partner central banks and the public very important. In the end, the Council adopted a target for 1979 almost unanimously; the target was announced as a corridor of two percent to gain some flexibility for responding to the pressures from the EMS.

### III.5. Monetary Targeting: A Political Economy Perspective

The review of the Bundesbank's adoption of monetary targeting reveals several motivations for such a strategy choice. Poole-type arguments play almost no role among them. Although the Bundesbank Council discussed the controllability of the money supply and the link between money and nominal output growth as preconditions for monetary targeting, the Poole-question, namely what is the dominant source of shocks in the economy, was not discussed when monetary targeting was adopted.

#### III.5.1. Marking the Beginning of a New Regime

A first important motive was certainly that controlling and targeting money emphasized the difference between the Bretton Woods regime and the new regime that had begun in 1973. The loss of control over money creation had been the main problem prior to 1973. For the Bundesbank, whose legal mandate is to control the economy's supply of money and credit, losing the technical ability fulfill this task had to be an existential crisis. The fact that Vice-president Emminger (1976, 523) called the international financial markets a "rival monetary government" ('monetäre Nebenregierung') leading to "intolerable" imported inflation and currency crises shows that the Bank saw the loss of monetary control not only as a threat to monetary stability but also to its own institutional identity (Giersch 1980, 54). Emminger asserted that the end of the fixed-rate system served primarily to "regain sovereign control over our money supply" ('Wiedergewinnung der Herrschaft über die eigene Geldversorgung' 1976, p. 532, 540). The announcement of a monetary target was, therefore, a strong assertion that the Bank had regained control over its essential variable and that it was now able to use monetary policy to achieve its domestic policy goals. In the same vein, it underscored the Bank's determination not to allow commercial banks access to channels of automatic money creation, as before.

From this perspective, it is easily understood that the Bank maintained its monetary target despite massive internal criticism, when its authority over domestic monetary policy was threatened again by the imposition of the European Monetary System. Even harsh critics within the Bank were ready to support the

strategy as a clear signal that the Bank was not about to give up control over its essential variable again in favor of a more “symmetric” exchange rate system.

But note that the signal was set not at the beginning of the new regime. Signaling theories of monetary strategies (Canzoneri, 1985) suggest that the Bank should have adopted a target in 1973 or 1974 to reveal its new stance of monetary policy and guide expectations towards lower inflation. Instead, the signal was set when inflation had already slowed down and the Bank was ready to give output and employment greater weight in its policy again. That is, the signal was used when the priorities of monetary policy were beginning to become more ambiguous than in the immediate post-Bretton Woods period. In this regard, the adoption of monetary targeting resembles the adoption of inflation targets in several countries in recent years (Debelle, 1997).

### III.5.2. Defining the Role of Monetary Policy

Another important motivation for monetary targeting was that it defined and clarified the role of monetary policy in the context of macro economic policies in general. As discussed above, the early 1970s revealed the political inability of the government to deliver a fiscal contraction when this was required to macro stabilization. When the government called upon monetary policy to take the leading role in this regard, members of the Bundesbank Council feared that accepting this call would make the goals of monetary policy exceedingly complex and ambitious. Aiming at price stability, full employment and output growth simultaneously, monetary policy would degenerate to short-run oriented activism with no clear long-run orientation.

The CEA, in its Report for 1972/73 (paras, 329sq.) joined the federal government in demanding a more active role of monetary policy and argued that the latter should be primarily geared at fighting inflation. But monetary stabilization policy was faced with two difficulties. On the one hand, a continued fiscal expansion - the fiscal impulse remained large and positive in most years after 1973 - necessarily brought a price-stability oriented monetary policy in conflict with fiscal policy, and it was not clear whether the Bank could maintain its course in such a conflict. On the other hand, responding to the continued wage pressures with a restrictive monetary policy would bring monetary policy in conflict with the labor unions, and have negative employment effects that would work against the full-employment guarantee promised by the federal government. In view of these difficulties, the Bundesbank Council was reluctant to accept the responsibility for macro economic stabilization, arguing that the central bank was unable to fight inflationary pressures coming

from non-monetary sources. Some members of the Council even thought that monetary policy could no longer play an active role in macroeconomic stabilization at all, as prices and output in their view were determined by highly cartelized unions and firms. But it was clear that the Bank could not simply deny its role in macroeconomic policy once it was liberated from the external constraints. Rather, the challenge was to define its role properly.

Monetary targeting was a significant step in that direction. Although the Bank had declared the fight against inflation as its principal goal of monetary policy in 1973 (Annual Report 1973, p. 45), the rise in unemployment suggested that wage setters had not taken this declaration serious enough in 1973 and 1974. In view of this, an important purpose of the monetary target was to convey to unions and employers the Bundesbank's firm determination not to misuse monetary policy to undo the negative employment effects of excessive wage settlements by higher inflation rates any more.<sup>23</sup> As Schlesinger (1979, p. 308) puts it "...monetary policy has no influence on whether or to what extent the monetary framework it has marked out is used to expand output or to raise cost and prices. ...But as the monetary target tends to act as a signpost, the pressure to exercise cost and price discipline is likely to grow. Indeed, experience even permits the conclusion that the formulation of this target helped to bring about a 'social consensus' among all groups..." The general perception of the German public, therefore, was that by announcing its monetary target the Bundesbank had clarified the rules of the game: Monetary policy was no longer to be made responsible for employment.

Significantly, the monetary target became the basis for a new assignment of responsibilities in macroeconomic policy. In December 1973, a representative of the federal government attending a Council meeting reported that a fiscal expansion was planned in view of the incipient recession.<sup>24</sup> Nevertheless, the government encouraged the Bank to maintain its restrictive course a little later, even if output was stagnating and unemployment rising. Against the proposal of several Council members, the representative of the federal government argued that the Bank should not throw the towel shortly before a break in the inflation trend had been reached. If a critical situation should develop in the labor market, the federal government would implement an appropriate employment program. In its Annual Report for 1974 the Bank described the new

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<sup>23</sup>Schlesinger (1974, 1979). The Council of Economic Advisors' Report for 1971/72 (para 64) explains that employers were used to accept high wage demands relying on the possibility to raise prices later.

<sup>24</sup>According to the Bundesbank Act, federal government representatives are allowed to participate in Council meetings without a vote.

assignment: monetary policy was primarily responsible for price stability, while the federal government's task was to alleviate structural weaknesses. The CEA (Report 1973/74) put it even more bluntly: Monetary policy should take care of price stability, and fiscal policy of a sufficiently high level of employment.

It must be noted in this context that the Bundesbank began to announce inflation targets together with adopting monetary targeting, first a series of "unavoidable" inflation rates and, from 1984 on, a fixed rate of two percent.<sup>25</sup> Thus, the monetary target was visibly backed up by a declaration about the intended goal of monetary policy. The monetary target, however, was important in this context, because by pointing to the link between inflation, output growth, and money growth it strengthened the focus of monetary policy on price stability.

A second aspect of the Bundesbank's definition of its role in the macro economic policy game was that monetary targeting showed that the Bank accepted responsibility for inflation, but only for that part of inflation that was due to monetary policy, namely excessive monetary expansion. Significantly, the Bundesbank never announced a target inflation rate for a specific time horizon, as inflation forecast targeting banks do. Instead, it declared that monetary policy aimed at a low rate of inflation "over the medium run". This allowed the Bank to refrain from counteracting each increase in the price level with a monetary restriction and emphasized that monetary policy would not take responsibility for rises in the price level caused by the policies of other actors in the economic policy game, while the fairly precise monetary target suggested that the Bank intended to keep the monetary contribution to price level developments under close control. In particular, this meant that the Bank would not feel compelled to counteract the inflation effects of a fiscal expansion or excessive wage pressures.

This aspect of monetary targeting became most evident in the post-unification period, 1990-92. For example, the July 1991 Monthly Report argues (p. 17) that "the Bundesbank cannot prevent the price increase caused by the rise in consumption taxes at mid-year. This increase will be on the order of one half of a percent." Similarly, the 1992 Annual Report (p. 26) identifies increasing taxes and public sector user fees as a main cause for the four-percent upwards shift in the price level, again implying that the Bundesbank would not try to undo this effect. In view of the incipient acceleration of the price level, the Bundesbank explained, in its Annual Report for 1991, that "beyond the impact effects (of the rise in VAT), a cumulative process of price

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<sup>25</sup>See von Hagen (1995).



and wage increases must not begin" (p. 31), while the Monthly Report for February 1991 holds that "monetary policy has the task of making sure that the price increases resulting from tax increases do not continue in an inflationary process" (p. 8) and "the Bundesbank must do everything possible with her means to assure that the current tendency for rising prices does not form the basis for permanently higher inflation expectations." (p. 9).

The important point here is that price level shocks, which, in macro economic models are typically assumed to be exogenous, are in reality the outcome of the actions of other agents of economic policy. The following example illustrates the point. Let  $\pi$  and  $y$  be the rates of inflation and output growth, respectively,  $m$  the money growth rate,  $g$  the rate of fiscal expansion, and  $u$  a stochastic shock. Output growth is determined by a rational expectations supply curve,

$$y_t = \pi_t - \pi_t^e \quad (9)$$

where the superscript 'e' denotes an expectation, and inflation is given by

$$\pi_t = m_t + b g_t + u_t, \quad (10)$$

where  $b > 0$  is a parameter. Finally, assume that the government, who controls  $g$ , wishes to maximize

$$U_t = (y_t - y^*) - \frac{1}{2}(g_t - g_t^*)^2 - \frac{1}{2}\lambda \pi_t^2, \quad (11)$$

where  $y^* > 0$  and  $g_t^* = G + \epsilon_t$  is the government's target rate of fiscal expansion, which includes a political preference shock each period. Consider a monetary strategy that makes  $m$  react negatively to inflation,  $m_t = -\theta \pi_t$ . In this case, the rate of fiscal expansion is

$$g_{at} = \frac{b\psi + g_t^* - \lambda b\psi^2 u_t}{1 + \lambda b^2 \psi^2}, \quad \psi = \frac{1}{1 + \theta}. \quad (12)$$

In contrast, when  $m$  is predetermined, the rate of fiscal expansion is

$$g_{bt} = \frac{b + g_t^* - \lambda b u_t}{1 + \lambda b^2}. \quad (13)$$

(12) and (13) show that fiscal policy does more to stabilize the exogenous shock,  $u_t$ , when monetary policy

remains predetermined. Furthermore, the expected rate of fiscal expansion is smaller in that case, if  $\lambda bG > 1$ , and fiscal policy reacts less strongly to the fiscal preference shock,  $\epsilon_t$ . Thus, by announcing a predetermined monetary policy, the central bank can induce fiscal policy to behave in a more disciplined way.

Ultimately, the Bundesbank's willingness and ability to define its monetary policy goal in this way witnesses the political independence of the Bank; only an independent Bank can define its own responsibility. In this sense, monetary targeting also signaled the Bank's independence. Interestingly, during a Council discussion in late 1976, when some members criticized the concept of monetary targeting, representative of the federal government encouraged the Council to hang on to its strategy because it resulted in a more steady monetary policy and removed monetary policy from the daily business of economic policy, thus strengthening the independence of the central bank.

### III.5.3. Monetary Targets as Focal Points

A third motivation for monetary targeting relates to the time horizon involved in this particular strategy. In the context of monetary targeting, the central bank would use its instrument to steer an intermediate target whose reactions to instrument changes could be expected to appear in the data with a lag of 2 - 3 months. While a deviation of money growth from target implies an unambiguous direction where to move monetary policy instruments, an assessment of the magnitude of such moves needs some time. Based on this reasoning, the proponents of monetary targeting on the Council hoped that this strategy would remove monetary policy from the daily attention of the media and thus relieve the Council from the need to take "spectacular" actions repeatedly.

Note that this is different from Blinder's (1987) and Goodhart's (1998) interpretation of intermediate targeting as an attempt to deflect political pressure from the central bank by reducing monetary policy decisions to "technicalities." In Blinder's view, the Fed adopted monetary targeting primarily to shield itself against the criticism of raising interest rates to excessive heights in its effort to combat inflation; the Fed would respond to such criticism that it controlled money growth and that interest rates were determined by the market, not monetary policy. Goodhart (1998) suggests that, given the inflation target set by the British Chancellor, the inflation forecast helps deflect criticism against the Bank of England's interest rate policy, as the Bank can only be criticized for a flawed forecast or flawed assumptions about the time horizon over which interest rates affect this forecast, both rather technical issues. As indicated above, critics of monetary targeting on the Bundesbank

Council in 1977 rejected the view that the Bank could deflect criticism by hiding behind technical issues as an illusion; there is not much evidence that this view played an important role in the adoption of monetary targeting. Monetary targets in Germany came when interest rates had already come down again. The purpose here was to take the pressure of daily activism from the Bank and allow it to develop a more consistent strategy of time, a “steady” course of monetary policy.

In fact, this motivation was as much directed to the inside of the Bank as to the outside. As the historical review suggests, the Council at the time was split into a group favoring more activist policies and a group favoring more long-term oriented policies. Born of a lucky compromise between these groups, as described above, the monetary target became the focal point of the debate between these groups. Although not a strict guideline, the monetary target and the comparison of actual money growth with it became a regular topic in Council debates. In 1975 and 1976, Council members argued that the target had become a “healthy” disciplining device, although the proponents of a “steady” monetary policy regularly demanded a greater role of the monetary target as a guide for policy decisions. One leading member of the Council and proponent of the strategy summarized the 1975 experience saying that the monetary target had helped the Bundesbank avoid a “stop and go” policy of the kind observed in the Federal Reserve System. When, in the course of 1976, considerations of short-run stabilization policy began to gain greater weight in the Council’s decisions again, much of the debate focused again on the monetary target and its appropriate role in monetary policy decisions. Repeatedly, Council members argued that missing the target again would damage the Bundesbank’s credibility. In December of that year, a leading proponent of the strategy called into question the sense of a monetary target if the Council did not take its implications sufficiently serious. But the fact that the Council maintained its strategy indicates that the members were willing to some extent at least to accept the implication of a more “steady” policy orientation. Furthermore, the fact that the Council repeatedly discussed the appropriate definition of target and changed it e.g. from a year-end to an annual average target suggests that the members felt bound by the target to some extent during the year.

It is clear, nevertheless, that the power of the monetary target as a focal point was variable over time. As one Council member judged later, the basic, medium-run orientation of monetary policy had been accepted in principle, but this could not prevent short-run developments to gain importance occasionally. Excess money growth would receive relatively less attention in Council meetings as long as the rate of inflation was kept in check. The 1978 experience confirms that monetary targeting regained importance when inflation was back on

the rise.

At the same time, the review of monetary policy in the second half of the 1970s points to the strong status-quo bias of Council decisions. One aspect of status-quo bias is that Council decisions were usually taken with large majorities. In our context, the status-quo bias protected monetary targeting against its critics. Repeatedly in 1975-77, members of the Council argued that it was not yet time to end the “experiment”, even though the critics had their points against monetary targeting. Often, maintaining the strategy was justified by reference to the positive echo it had received in the general public. Facilitated by a coincidence of circumstances, monetary targeting thus proved to be a stable institution once it had become the status quo.

The monetary target served as a focal point in another aspect, too. The emphasis on the control of money growth was a clear break with the option of administrative controls of credit creation or of imposing a required liquid reserves ratio.<sup>26</sup> Among the Council members, monetary targeting cemented the decision in favor of conducting monetary policy on the basis of controlling base money creation by means of the Bank’s interest rate instruments and required reserve ratios, and thus ended the debate over the basic approach of Bundesbank monetary policy.

In sum, monetary targeting served the Bundesbank a number of politico-economic functions: It marked the end of the old regime where the Bank was powerless, it defined its monetary policy goal and its role in the macro economic policy game, it was intended to discipline other actors in this game, and it served as a focal point in council meetings, strengthening the pursuit of a consistent monetary policy geared at price stability over time. Looking ahead at the European Central Bank, the questions determining its strategy choice then are, what will be the main politico-economic difficulties facing the ECB and how can strategy formulation contribute to solving them?

#### **IV. Implications for the ECB**

Preparatory work at the EMI (1997) indicates that the ECB will develop an intermediate target strategy, that this strategy will be a sophisticated or closed-loop one, and that the choice of strategies has been narrowed down to monetary targeting or inflation forecast targeting. Subsequently, we will focus on these alternatives

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<sup>26</sup>It also emphasized the independence of the Bundesbank from the federal government, which, under Schmidt’s version of credit controls at least, would have been greatly reduced by pursuing that option.

and assume that inflation forecast targeting would strongly resemble the current practice of European central banks relying on such strategies. That is, the inflation forecast would be based on a set of variables assumed to affect inflation two years ahead: aggregate demand and supply, including a detailed analysis of private consumption, fiscal policies, labor market conditions including wage developments, other cost factors, exchange rates and interest rates, and the developments of monetary and credit aggregates, with no explicit weights for these different factors,<sup>27</sup> and without revealing forecasting model other than in very general terms.<sup>28</sup>

#### IV.1. Decision Making Within the ECB

One important role of the intermediate target for internal decision making purposes is its function as a focal point in central bank council debates. Political economy suggests that, for the ECB, a strong focal point will be important, since its council will be a new institution void of historically grown rules of convention. Two aspects will be particularly relevant, how narrow the focal point will be and how strongly it will reflect economic developments in the individual EMU member states.

##### IV.1.1. Hierarchies of Arguments vs. Hierarchies of Decision Makers

Central bank decisions in practice are the outcome of voting games on the central bank council. Social choice theory implies that such games do not deliver consistent voting outcomes unless some structure is imposed on the process (McKelvey, 1976; Shepsle, 1979). Hierarchies are one important type of structure: making certain alternatives inadmissible in the decision making process or making some participant superior to others can increase the consistency and predictability of collective decisions. Monetary strategies have different properties in this context.

Monetary targeting creates a hierarchy of arguments in central bank deliberations, as the growth rate of the target aggregate becomes the focal point of central bank discussions. Ideally, arguments for or against

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<sup>27</sup> The Bank of England's Inflation Report (May 1997, p. 42) argues that "the outlook for inflation in two years or so depends more fundamentally on the growth of broad money and nominal demand in relation to the supply capacity of the economy". This still leaves aggregate demand and all the factors influencing it of equal importance to money.

<sup>28</sup> Haldane (1996) reports that the Bank of England's inflation forecast is an amalgamum of an a-theoretic Kalman-filter projection and a small structural macro model. Leigh-Pemberton (1997) describes the forecast as a mixture of econometric analysis and judgmental corrections.

central bank actions are admissible only if they relate to the framework of monetary targeting; observations from the various sectors of the economy are taken into account only if they help explain current monetary developments and their implications for expected inflation. In contrast, inflation forecast targeting emphasizes that there are many important factors determining inflation, with no clear hierarchy of the arguments. Deliberations within the central bank can therefore be expected to have a much broader range of admissible arguments and lead to less consistency of Council decisions.

The weaker structure of arguments under inflation forecast targeting would likely induce the ECB Board to create a hierarchy of decision makers instead. A possible basis for this is in the information requirement of inflation forecast targeting. Inflation forecasts use large amounts of non-financial data that must be fed through an analytic framework. The forecasting process described by Leigh Pemberton (1997) or Goodhart (1998) are highly labor-intensive and time-consuming. It is natural to expect that the staff involved in this process would be concentrated at the ECB in Frankfurt, while the economics departments of the national central banks would specialize on the national economies. The implication is that the ECB Board would have a strong information advantage under inflation forecast targeting, and that the ECB president and the board members would try to exploit this advantage to establish dominant positions for themselves in the Council. But the national central bank presidents would likely be unwilling to accept such dominance, stressing the fact that the ECB is owned by the national central banks. The outcome could be a power struggle that would make ECB decisions inconsistent and erratic. With monetary targeting, which primarily requires data from the financial sector that is readily available for all members of the central bank council, the distribution of information is much more equal and the development of a hierarchy of decision makers actors is much less likely.

#### IV.1.2. Monetary Policy and Regional Shocks in the EMU

A second aspect of the broader data requirements of inflation forecast targeting is that all non-financial data entering the forecast would have strong regional and almost no EMU-wide content. As long as labor mobility remains as low as it is in Europe today and a fully integrated labor market does not exist, the concepts of EMU employment, EMU unemployment rates, EMU wage rates etc. will necessarily remain elusive. For the same reason, and because national fiscal policies will continue to focus on national output, the concept of aggregate EMU demand will remain vague. The implication is that a strategy of inflation forecast targeting would make ECB monetary policy decisions focus strongly on regional economic trends and shocks more than

on aggregate EMU trends and shocks.

This is reminiscent of the Fed's history in the late 1920s. As Friedman and Schwarz (1963) point out, the dominance of regional interests on the Open Market Investment Council, the principal policy making body of the Fed at the time, prevented the Fed from developing a coherent strategy at the beginning of the Great Depression. With a dominance of regional considerations on the ECB board, aggregate EMU business cycles would be unnecessarily pronounced. Furthermore, as the ECB council members focus on regional developments, the median voter's decision over changes in monetary policy instruments would take such developments into account, making ECB's monetary policy responsive to asymmetric shocks at the national level. One way to prevent such outcomes would be to insist on large majorities or even unanimous decisions, which, however would make ECB decisions extremely status-quo biased and hence prevent timely actions.

A strong regional focus of Council decisions can be avoided by focusing on financial market variables. In the integrated EMU financial market, it will soon be normal for citizens and businesses located in one member state to hold deposits with and borrow money from financial institutions in other member states. Financial market variables, will, therefore, soon lose all regional connotations. Focusing on financial aggregates would force the ECB Council to think in terms of European aggregates output and inflation and develop a truly European monetary policy. Importantly, it would also be a strong signal to the public that monetary policy cannot cater to the special needs of any member economy.

#### IV.2. The Signaling Aspect of Intermediate Targets

The EMI's (1997) report on the strategy of the ECB emphasizes the value of a monetary policy strategy as a mechanism to create accountability and, with it, help the ECB to build credibility. By announcing an intermediate target and showing its determination to pursue it, the ECB will give the European public a chance to monitor its actions and show its reliability. Two aspects matter in the choice of an intermediate target, the transparency of the procedure and the degree of activism signaled to the public.

##### IV.2.1. Transparency and Accountability

To promote accountability of the central bank, an intermediate target strategy should be easy to understand and to monitor for the public. Inflation forecast targeting has the advantage that it reveals potential discrepancies between the current stance of monetary policy and its goal of price stability immediately: An

inflation forecast exceeding the target rate of (trend) inflation calls for a monetary restriction. A monetary target is much less informative in this regard, as a growth rate of, say, 12 percent, of the money supply may or may not be excessive at any point in time.

However, an inflation forecast is built on a much broader and more complex framework of analysis. Notwithstanding the good quality of the analysis of the inflation reports currently published by some central banks (Svensson, 1996), the sheer amount of information makes it hard for outsiders to appreciate the central bank's actions and reasoning.<sup>29</sup> Thus, the signaling value of the inflation forecast is reduced by the complexity of its derivation, leaving considerable scope for fudging and making monetary policy look better than it is. Monetary targets, in contrast, are derived from a much more parsimonious model, whose basic relationship is easily understood. But monetary targets have the disadvantage that the relationship with inflationary developments is less precise in the short run. Revision of and deviations from the monetary target will, therefore, require more commenting by the central bank ex post.

While the direct relationship of the inflation forecast to the policy goal is an advantage as regards the signaling of intentions, it is a disadvantage as regards the monitoring of central bank policies. Inflation forecasts are typically for inflation two years ahead, so that it takes considerable time to find out how good the forecast was and whether the central bank's reactions to an increased forecast were appropriate. Deviations from a monetary target can be observed much faster, requiring earlier justification from the central bank. A related issue is accountability for deviations from the target. The link between the inflation forecast and the central bank's instruments is much weaker than the link between central bank instruments and monetary aggregates, particularly narrow aggregates, since the latter include part of the central bank's own liabilities. Since the central bank's control is greater in principle regarding monetary targets, the public will hold it more accountable for deviations from such targets than for inflation forecast errors.

To conclude, none of these aspects creates a clear preference for inflation forecast or monetary targeting. The closer connection of the former to the goal of price stability suggests that adopting it as intermediate target may have greater signal value in times of a shift in the monetary policy regime, i.e., when price stability acquires more importance as a policy objective, while a monetary target is attractive when the controllability of money was the source of failure of monetary policy before the strategy change. The historical

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<sup>29</sup> Time series models in particular are notoriously sample-dependent, implying that the empirical quality of the Bank's forecast cannot be assessed by outsiders.



experience confirms this: inflation forecast targeting was adopted in the early 1990s only after the credibility of its alternatives - exchange rate and/or monetary targets or no targets at all - had been squandered, while the Bundesbank adopted monetary targeting after a period when money growth was out of control. For the nascent ECB, recent inflation experience will not be a problem while the procedure for controlling monetary conditions has to be established. This suggests that a monetary target might be useful for the ECB to emphasize its determination to prevent money growth from going out of control as a precondition to reach its goal of price stability.

#### IV.2.2. Defining the Responsibility of Monetary Policy

The Treaty on European Union mandates the ECB to secure price stability in the EMU, but leaves the concrete meaning of this mandate unspecified. Like the Bundesbank in the early 1970s, the ECB will thus have to define its responsibility in EMU. The views on this range from an activist central bank which, like the Greenspan Fed, makes itself responsible for suppressing inflationary pressures as they arise (CEPR, 1997), to a more hands-off attitude like the Bundesbank aiming at controlling the trend inflation rate over the medium run and focusing on the monetary policy contribution to price level movements.

Choosing a monetary strategy will be an important opportunity for the ECB to reveal its view of the appropriate role for monetary policy to the public. With inflation forecast targeting, the ECB would emphasize its desire to reach or not to exceed a certain inflation rate in the coming years, and given that it will be a new institution it would try hard to achieve this to build its reputation. But this would force the bank to combat non-monetary shocks to the price level should they arise in the early years. Thus, as endeavored by the authors of CEPR (1997), inflation forecast targeting would give the ECB the appearance of an activist central bank. In fact, shocks are easily foreseen, as the governments of the large EMU countries are embarking on more expansionary fiscal policies now that the restraints of the EMU entry conditions are gone. Inflation forecast targeting then carries the risk of conflicts with the European governments that would make it difficult for the ECB to develop its reputation and a consistent monetary policy. With a more hands-off attitude as signaled by the combination of monetary targeting and the announcement that ECB monetary policy makes itself responsible for inflation over the medium run, the ECB would see no need for responding to fiscal expansions with a tight monetary contraction. It would, however, have to educate and convince the public that the rise in the price level observed is due to bad fiscal rather than bad monetary policy.

The choice between an activist and a more hands-off central bank policy is a difficult one. With regard to price stability it involves a choice between promising a more ambitious target not being quite sure whether this can be achieved, and a vaguer and more long-run target with a greater chance of achieving it. Interestingly, inflation forecast targeting central banks announce their inflation targets as a target range (Almeida and Goodhart, 1996) for a precise period while the Bundesbank has always announced a precise number without indicating the target period. The choice is thus between uncertainty in the short run and in the long run. Which of these announcements is more credible in the public view can hardly be determined in general. Bundesbank Council discussions at the time reflect the concern not to engage in overly ambitious policies. To what extent this will be a concern for the ECB depends, of course, on its council members and how they view the ECB's position in European macroeconomic policy.

A related issue concerns the coordination of monetary and fiscal policy. In contrast to national central banks, the ECB will face 11 fiscal authorities, four of which are "large" relative to the size of the EMU economy. Fiscal expansions in these economies will likely create pressure on the European price level. Taking responsibility to respond to such situations would draw the ECB into the middle of the coordination problem of fiscal policies among the EMU member states. As the ECB becomes a part of that coordination, it would risk making monetary policy enter compromise with the governments and their policy goals frequently. With a more hands-off attitude as signaled by monetary targeting, the governments would be forced to coordinate fiscal policies among themselves, including disciplining each other to refrain from fiscal expansions, and leaving monetary policy with the possibility to pursue a low trend inflation rate.

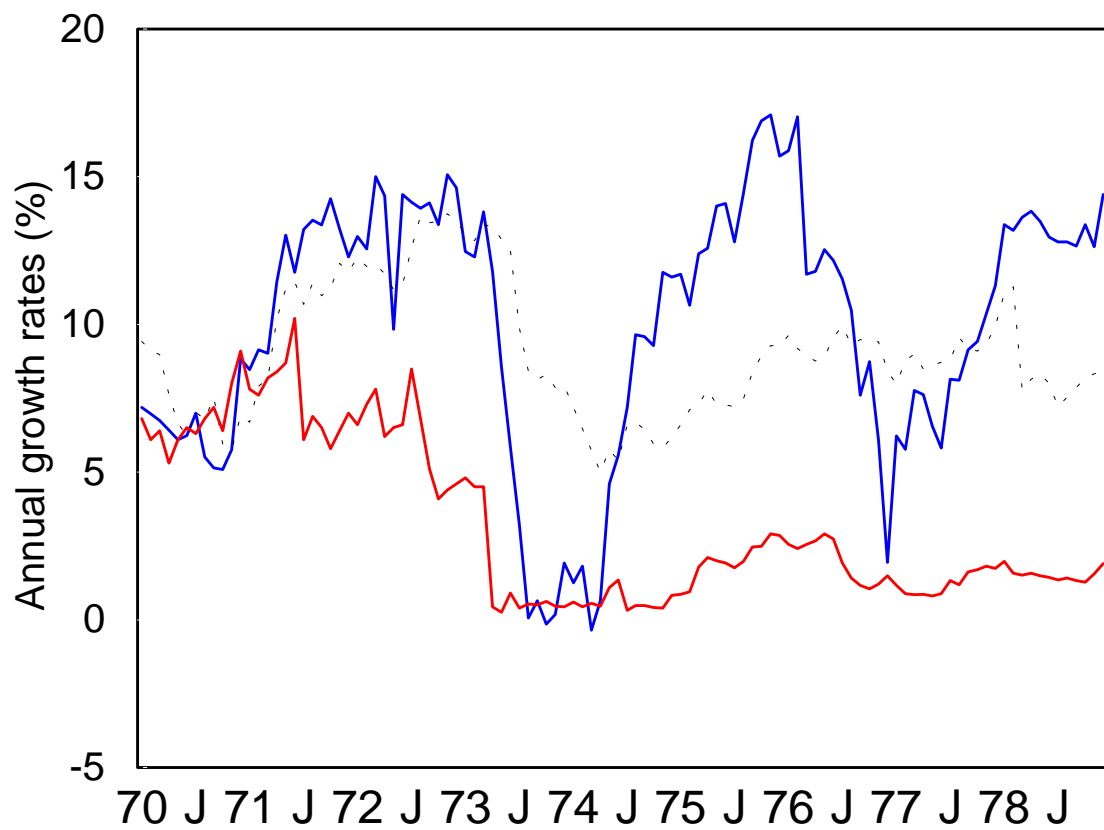
We can illustrate this again, assuming that the central bank either sets a predetermined money growth rate or a reaction function with  $m = -\theta\pi$ . Suppose that there are now two governments, each setting a fiscal instrument  $g_i$ ,  $i = 1, 2$ , and let the common inflation rate be  $\pi = m + \alpha g_1 + \alpha g_2$ . Assume that the governments wish to maximize a utility function  $U_i = -1/2 [(g_i - g_i^*)^2 + \pi^2]$ , where  $g_i^*$  has a fixed and a stochastic component as before. In each case, assume that the governments coordinate their fiscal policies, i.e., they maximize the sum of their utility functions. The equilibrium reaction functions are  $g_i = g_i^*/(1+4\alpha^2)$  with a predetermined monetary policy, and  $g_i = g_i^*/(1+4\theta\alpha^2)$  when monetary policy responds to a price increase every period. Since  $\theta \leq 1$ , we see that with a predetermined monetary policy government respond less to a fiscal preference shock. Thus, a more hands-off definition of the ECB's responsibility may induce greater fiscal discipline in the EMU, thus facilitating the ECB's task to achieve price stability in the long run.

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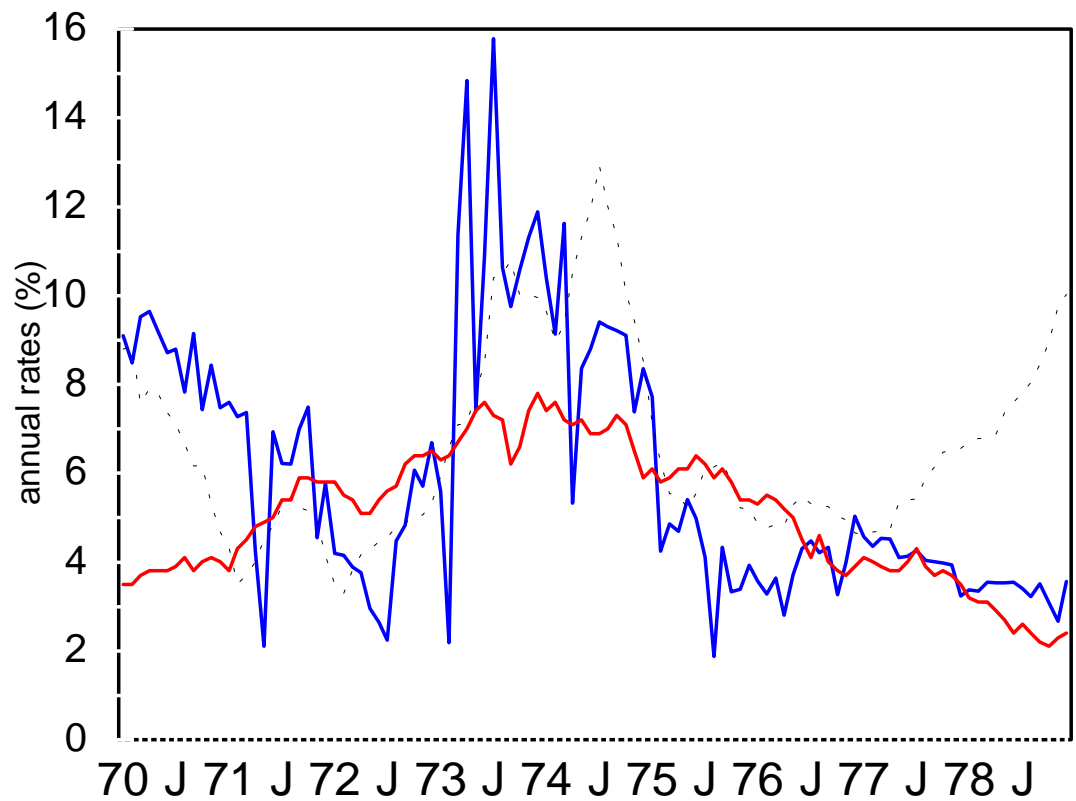
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**Figure 1: Money Growth, 1970-78**



— M1    - - - ZBG    — LRR

**Figure 2: Inflation and Interest Rates**



— overnight rate Frankfurt — — Federal Funds, New York  
— CPI Inflation