
FRBSF WEEKLY LETTER

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Monetary Policy in West Germany

Rising inflation in the 1970s led central banks in a number of industrialized countries to adopt money growth targets as guides to policy. The West German Bundesbank was the first central bank to announce a target for money growth. Apparently, the Bundesbank's policy also has been among the most successful in terms of reducing inflation. This *Letter* examines the West German experience during the period between 1975 and 1987, when the Bundesbank targeted an unusual aggregate called Central Bank Money (CBM). (The Bundesbank has announced that it will target M3 in 1988.) Although the Bundesbank chose this aggregate because of its stable relationship with real output and interest rates, the Bundesbank's success in reducing inflation has not been due to rigid adherence to its monetary growth targets.

Choosing a monetary target

Initially, the Bundesbank examined a number of alternative aggregates as possible targets. The narrow M1 aggregate (comprising currency and demand deposits) was rejected as too unreliable primarily because the decontrol of interest rates in 1965-67 led to an increase in the extent of substitution between demand deposits and short-term deposits.

After some experimentation with other aggregates, the broader M2 aggregate was introduced. But the omission of savings deposits in M2 proved to be a problem. As a result of the sharp interest rate swings of the early 1970s, it became apparent that substitution between savings and time deposits had a substantial impact on the behavior of M2.

In response to the inadequacies of M2, the monetary authorities defined a new aggregate called M3. M3 internalized the deposit shifts that plagued the M1 and M2 aggregates, but the Bundesbank chose not to target this aggregate on the grounds that assigning equal weights to its demand, time, and savings deposit components exaggerates the "moneyness" of the latter two components.

To resolve this dilemma, the Bundesbank devised the CBM aggregate, which placed more appropriate weights on nontransaction balances. The currency component was given a weight of 1. The weights were 0.166 for demand deposits, 0.124 for savings deposits, and 0.081 for time deposits. These weights correspond to the reserve requirements that were in effect for each type of deposit in January 1974. CBM is like the monetary base in that it comprises *required* reserves; however, unlike the base, it excludes excess reserves and nonresident holdings of deposit accounts. This aggregate was expected to share some of the characteristics of M3 and at the same time reflect movements in transactions aggregates to a greater extent than did M3.

The chart plots the growth rates of CBM and M3 for the period 1975-1986. The close relationships between the growth rates of the two aggregates suggest that the two have similar characteristics. Moreover, statistical analysis suggests that unlike M1 and M2, both CBM and M3 have a stable relationship with real output, prices, and interest rates. Apparently, the narrower aggregates are subject to random portfolio disturbances which make their relationships with output less reliable. In contrast, both CBM and M3 appear to internalize these disturbances. Since any given monetary aggregate will not be useful as a target of monetary policy unless it has a stable relationship with the key macroeconomic variables of interest, these findings support the Bundesbank's decision to reject the narrower aggregates as policy tools in favor of CBM in 1975. Moreover, these results imply that controlling CBM growth ensures price level stability.

Targets for CBM

Since 1975, then, the Bundesbank has formulated target growth rates for CBM consistent with anticipated growth rates of real output and inflation. The rate of inflation that the Bank has allowed in these targets has declined over time. For example, the Bundesbank incorporated a 4 to 5 percent inflation rate in its 1976 target, a

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3.5 to 4 percent rate in the 1981 target, and a 2 percent rate in the 1986 target.

The Bank announced single point targets for CBM growth through 1978 and in 1979 began to announce its targets as ranges. The upper bound of the target range decreased steadily from a high of 9 percent in 1979 to 5 percent in 1985, but in 1986 and 1987 the upper bound was increased by a half-percentage point each year. The width of the range also was narrowed from three to two percentage points beginning in 1984, but was increased to three percentage points in 1987.

The track record

The Bundesbank's record in hitting its target ranges has been mixed. CBM growth was above target from 1975 to 1978 — the four years in which the target was a single point. In two of these years, though, the discrepancy was relatively small — around one percentage point. Over the nine years in which a target range has been announced (that is, 1979-87), CBM growth fell outside the target range four times. In 1980 and 1981 CBM growth ended the year below its lower bound. In 1986 and 1987, by contrast, CBM growth overshot the target by relatively wide margins.

A closer examination of the Bundesbank's track record since 1975 reveals that in addition to its concern for price level stability, the Bundesbank attaches great importance to exchange rate stability — especially the stability of the deutsche-mark-dollar rate. The exchange rate matters because Germany's foreign trade is a significant proportion of its GNP, and the mark-dollar rate is especially important because, after the dollar, the mark is one of the most important reserve currencies in the world. Any sign of instability in the dollar sets up speculative movements in the mark.

To see how the Bundesbank's concern for exchange rate stabilization influenced monetary policy, it is useful to divide the period under review into three sub-periods. The first covers the five years immediately following the adoption of the CBM target. The mark tended to appreciate relative to the dollar over this period and the Bundesbank generally allowed CBM to exceed its target. In the next period, 1980-1985,

the mark fell relative to the dollar. CBM ended the year below the lower bound of its target range twice during this period and was below the midpoint once. It never ended the year above the upper bound of its target range. The years 1986 and 1987 constitute the final sub-period. In this period, the mark appreciated relative to the dollar and CBM grew above the target range in both years.

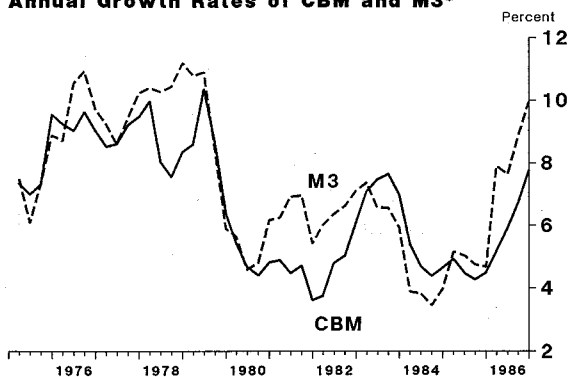
Statistical tests confirm the Bundesbank's dual emphasis on exchange rate and price level stabilization. These tests find that an increase in inflation leads to a reduction in CBM growth relative to the mid-point of its target range in the current and the subsequent quarter. Similarly, an appreciation in the value of the mark leads to an increase in CBM growth above the midpoint of its target range. However, this response is less pronounced than is the response to inflation. In contrast, the direct response to real GNP growth is ambiguous.

Thus, the Bundesbank appears to follow a policy that actively offsets the impact of exogenous exchange rate changes on the domestic economy. This requires easing in the face of sustained currency appreciation and tightening when the currency depreciates. The impact of such a policy on inflation depends upon the willingness of the central bank to respond to decreases as well as increases in the foreign exchange value of its currency.

The evidence suggests that the Bundesbank indeed has been able to do this. The Bank allowed the monetary targets to be overshot when the mark appreciated during the late 1970s and again in 1986-87, but it also tightened when the mark depreciated during the first half of the 1980s.

The relatively low rates of inflation that have prevailed in Germany over this period reflect the success of this strategy. For example, the GNP deflator increased by only 3 percent in 1986, following increases of approximately 2 percent in each of the previous two years. Although the Bundesbank allowed the rate of inflation to go up following the 1979 oil price increase, the highest annual increase in the GNP deflator recorded over this period was a 4.8 percent rate of inflation in 1981.

Annual Growth Rates of CBM and M3*



* Growth is measured over the previous four quarters.

These relatively low rates of inflation imply that the Bundesbank's concern for exchange rate stabilization has been carefully balanced against its concern for price level stability. Consequently, the Bank's anti-inflation stance remains credible, even though it has exercised considerable discretion in the implementation of monetary targeting.

Lessons from the German experience

The Bundesbank's rejection of the narrow aggregates in favor of targeting CBM, which has a more stable relationship with key macroeconomic variables, has potentially important implications for the U.S. Until recently, U.S. monetary policy has placed primary emphasis on the Federal Reserve's narrow transactions aggregate, M1. However, the behavior of the Fed's M1 aggregate over the past few years has

been largely at odds with the behavior of output and inflation in the U.S. As a consequence, the Fed today is faced with a dilemma similar to that faced by the Bundesbank earlier. The Fed's M1 has been rendered ineffective as a policy tool by increased substitutability between deposit accounts included in M1 and those not included in M1. And although the Fed's broader M2 and M3 aggregates do not appear to have been as susceptible to the random portfolio disturbances that have afflicted M1 in recent years, it is unlikely that they will be as closely related to movements in output and inflation as M1 once was. Thus, it may be useful to consider monetary aggregates similar to CBM that attempt to weight the moneyness of financial assets. Some research along these lines already has been carried out at the Federal Reserve Board.

The West German experience also demonstrates that while it is advantageous to have a long-term anchor for the price level, strict adherence to monetary targets is not a precondition for keeping inflation under control. Thus, discretion with respect to monetary targets has not led to high inflation primarily because the Bundesbank has reacted in systematic ways to economic disturbances. That is, the Bundesbank has been willing to *tighten* as well as *loosen* monetary policy in response to exchange rate developments. The Bundesbank successfully has followed a slightly more complex rule than strict adherence to monetary targets by permitting deviations from target mainly in response to movements in a single variable: the exchange rate.

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NOTE

The table entitled, "Selected Assets and Liabilities of Large Commercial Banks in the Twelfth Federal Reserve District," will no longer be published in conjunction with the *Weekly Letter*. For those in need of these data, a more timely publication entitled, "Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries" (F.R. 2416x), is available from the Statistical and Data Services Department of this Bank.