MONETARY CONTROL: THE SWISS EXPERIENCE

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I. Introduction

The switch to a floating exchange rate in January 1973 must surely be regarded as the most significant event in recent Swiss monetary history. The adoption of a floating exchange rate considerably enhanced the scope for conducting an effective anti-inflationary monetary policy. Under the fixed-rate regime, the Swiss National Bank (SNB)—Switzerland's central bank—was virtually powerless in shielding the Swiss economy from foreign price movements. In the late 1960s and early 1970s, Switzerland, like most other industrialized nations, was saddled with high and accelerating inflation. Although the SNB strenuously attempted to curb inflation through a variety of measures, its efforts turned out to be an exercise in futility. Since Swiss prices were closely linked to foreign prices, the SNB's restrictive monetary policy did not durably lower the inflation rate. Instead, it resulted in chronic balance-of-payments surpluses that compelled the SNB to intervene on the foreign exchange market and to purchase U.S. dollars against domestic currency. The resulting expansion in the domestic money stock was inconsistent with the SNB's desire to keep prices stable.

This conflict became very acute in 1971 when a huge balance-of-payments surplus compelled the SNB to absorb large amounts of U.S. dollars. From March 1971 to March 1972, official interventions on the foreign exchange market caused the Swiss monetary base to surge by a staggering 47 percent. Not surprisingly, this massive increase in the monetary base was followed by a sharp acceleration of inflation (Figure 1), reaching a peak of over 10 percent in 1974.

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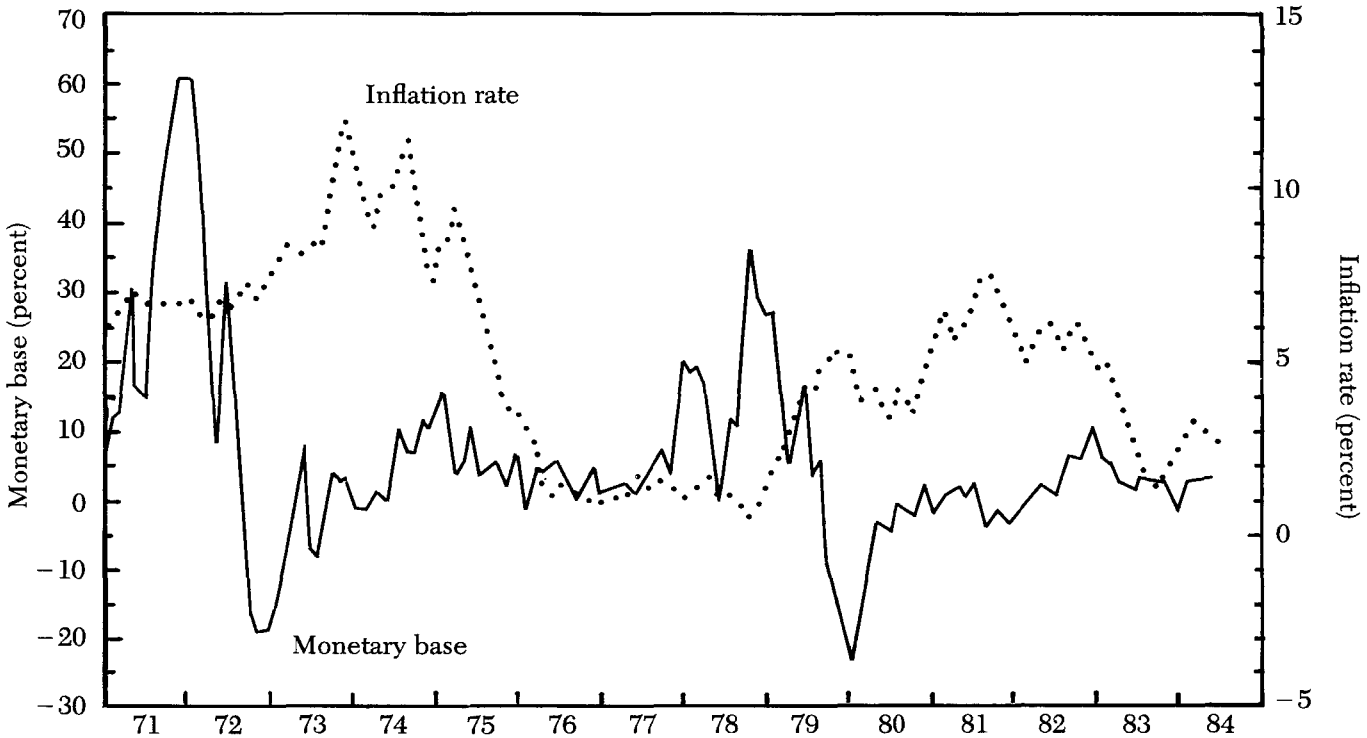
FIGURE 1
BASE MONEY GROWTH AND INFLATION



NOTE: Year-on-year rates of change in monetary base and consumer prices.

As a result of the shift to a floating exchange rate, the SNB gained full control over the monetary base since it was no longer committed to intervene on the foreign exchange market. The SNB immediately employed its newly won powers to launch a major assault on inflation. As indicated by Figure 1, the SNB's efforts to lower the inflation rate have been reasonably successful. Since 1974, Swiss consumer price inflation has followed a downward trend and has remained well below the average for industrialized countries. Although double-digit inflation rates seem to be a thing of the past in Switzerland, we would be dishonest if we were to characterize the SNB's policy record as impeccable. Just a quick glance at Figure 1 suggests that the Swiss inflation rate has gyrated considerably over the past decade. From 1974 to 1978, it fell rapidly to a low of less than 1 percent, only to rise again to roughly 7 percent in 1981. Currently, consumer prices are rising at an average annual rate of about 3 percent. Thus, the SNB has not managed to eradicate inflation completely even though its policy performance compares favorably with that of other central banks.

The remainder of this paper proceeds as follows. In the next section, we discuss the Swiss experience of monetary targeting. In particular, we analyze the reasons that led the SNB to choose the monetary base as its intermediate target. In section III we present current estimates of money demand functions for Switzerland. In section IV we discuss the international dimension of Swiss monetary policy and briefly describe our attitude toward interventions. The last section contains our conclusions.

II. Monetary Targeting in Switzerland

Switzerland's success in maintaining a relatively low inflation rate is attributable to the fact that the SNB was one of the first central banks to adopt growth targets for the money stock. In Switzerland, most observers would share the viewpoint that inflation is due minly to excessive monetary growth. Hence, price stability requires a tight control of the money supply. Since 1980, the target has been set in terms of the monetary base. From 1975 to 1978, the targeted variable was M_1, but even then it was the base which was used as the prime instrument of monetary policy. It is interesting to note that the SNB seems to be the only central bank in the industrialized world to rely on the monetary base as a target variable even though Karl Brunner and other leading monetarists have consistently argued in favor of such an approach. Since control of the monetary base is a controversial issue, it may be useful to comment briefly upon our experience.

In our view, the monetary base is a highly useful intermediate target variable. In principle, two conditions must be met if an intermediate target is to serve as a useful policy tool. First, the intermediate target variable should bear a close and systematic relationship with the variables the central bank ultimately wishes to influence. Second, the central bank should be able to control the intermediate target variable with reasonable accuracy.

As regards the first condition, the SNB has always regarded price stability as the ultimate objective of monetary policy. The SNB's focus on price stability reflects a firm political consensus in Switzerland as to the ultimate objectives of monetary policy. We do not believe that monetary policy should be used as a means for boosting output and employment. In our experience, a change in base money growth exerts at best a transitory effect on output and employment. This does not imply that the SNB completely ignores conditions in the labor market. Although we do not set targets for employment or other real variables, we attempt to achieve price stability in a way that causes as little fluctuation in output as possible.

The available empirical evidence lends strong support to the view that there is a close and fairly stable relationship between base money growth, on the one hand, and the inflation rate or nominal-income growth on the other. According to Figure 1, the Swiss inflation rate tends to react to changes in base money growth with a time lag ranging from two to three years. The message conveyed by Figure 1 is corroborated by econometric studies of the link between money and prices in Switzerland.

Tables 1 and 2 report estimates obtained by regressing the rate of increase of nominal income and the rate of inflation on past values of the rate of growth in base money (M_0) and M_1. A third-degree polynominal distributed-lag formulation is adopted in all cases, the lags varying between 4 and 19 quarters, and the weights being constrained to zero at the far end. Seasonally adjusted quarterly data covering the period 1973.1–1982.4 are used for all estimations. Nominal income is defined as nominal GDP, and inflation is measured in terms of the GDP deflator. In some instances, when explaining nominal income growth, we also included the rate of increase of nominal exports in an attempt to capture the effect of autonomous expenditures (there are no quarterly estimates of total government expenditures and revenues available for Switzerland). It is evident from the estimates in Tables 1 and 2 that there is a significant positive relationship between nominal income growth or inflation, on one hand, and monetary growth on the other. No meaningful signs can be detected during the first year following a monetary shock, but once

TABLE 1

MONEY AND NOMINAL INCOME

A1) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i \Delta\log(M_0)_{-i}$, $\sum\alpha_i = 0.713$, (3.97)

$\bar{R}^2 = 0.0123$, SEE = 0.0198, DW = 1.97.

A2) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i\Delta\log(M_0)_{-i} + 0.246\ \Delta\log(X)$, $\sum\alpha_i = 0.482$, (2.75) (2.61)

$\bar{R}^2 = 0.1615$, SEE = 0.0182, DW = 1.90.

B1) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i\Delta\log(M_1)_{-i}$, $\sum\alpha_i = 0.709$, (3.77)

$\bar{R}^2 = -0.0334$, SEE = 0.0202, DW = 1.88.

B2) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i\Delta\log(M_1)_{-i} + 0.260\Delta\log(X)$, $\sum\alpha_i = 0.458$, (2.98) (2.48)

$\bar{R}^2 = 0.1483$, SEE = 0.0184, DW = 1.91.

TABLE 2

MONEY AND PRICES

A) $\Delta\log(P) = \sum_{4}^{19} \alpha_i\Delta\log(M_0)_{-i}$, $\sum\alpha_i = 0.621$, (6.88)

$\bar{R}^2 = 0.1671$, SEE = 0.0101, DW = 2.04.

B) $\Delta\log(P) = \sum_{4}^{19} \alpha_i\Delta\log(M_i)_{-i}$, $\sum\alpha_i = 0.619$ (6.51)

$\bar{R}^2 = 0.1012$, SEE = 0.0105, DW = 1.75.

the effects become apparent they tend to last for a long time. Our results suggest that the lags could extend up to five years.

It is noteworthy that the monetary base actually performs somewhat better than M_1 as a predictor of nominal income growth and inflation. This can be seen from the standard error of estimate (SEE) that is systematically smaller with the first measure of the money supply. However, the difference is rather small, and on balance the two definitions of money yield very similar results so that no strong case in favor of either aggregate can be developed on the basis of these estimates.

Let us turn now to the question as to whether the monetary base can be controlled by the central bank. Central bankers outside Switzerland frequently profess to be unable to control the monetary base and, therefore, oppose growth targets for that aggregate. Normally,

they refer to various institutional obstacles to support that view. There is little doubt that certain institutional prerequisites must exist if monetary base control is to work. In the light of Swiss experience, it seems that two conditions are particularly important.

First, the central bank should be legally empowered to keep a tight rein on its advances to commercial banks. In most countries, the central bank has only limited influence over its loans to commercial banks. Notably, discount and lombard loans are extended on the initiative of commercial banks. Thus, central-bank efforts to vary the monetary base in line with a growth target may be thwarted by unexpected changes in discount and lombard loans.

In Switzerland the problems posed by unexpected changes in discount and lombard loans are not serious since the SNB tends to act as a tight-fisted banker when confronted with requests for financial assistance by commercial banks. The available policy instruments are powerful enough to give the SNB virtually full control over the monetary base.

While the growth trend of the monetary base is determined entirely by the SNB (mainly through foreign exchange swaps), problems occasionally arise in checking commercial bank borrowings from the SNB at month-ends, when bank demand for liquidity typically rises. The bulk of the discount and lombard loans is granted under existing credit lines. As long as these are not exhausted, banks are free to borrow from the SNB at the official lending rates. Furthermore, for national defense purposes (to finance inventories of strategic materials), the SNB is committed to extend—upon request by commercial banks—some types of loans under repurchase agreements.

In an effort to tighten its control over the monetary base at month-ends, the SNB, in May 1981, introduced an application system for discount and lombard credits, as well as for credits extended under repurchase agreements. Commercial banks must notify the SNB a few days in advance as to the amount they wish to borrow at the end of a particular month. If the SNB considers commercial bank borrowings to be excessive, it has sufficient time to take offsetting measures. Thus, both the trend and the seasonal movements in the monetary base are now largely determined by the SNB.

Second, the central bank cannot operate a system of monetary base control unless commercial banks hold excess reserves, that is, reserves in excess of the legally required level. In order to prove this proposition, suppose that the SNB—for some reason—decides to reduce the monetary base. If commercial banks did not hold any excess reserves, the restrictive measure of the SNB, in the short run, would result in a reserve deficiency since bank deposits could hardly react

instantaneously to the fall in the monetary base. Unless the SNB were prepared to tolerate a reserve deficiency, it could not help providing assistance in the form of discount and lombard loans to commercial banks in order to make up the deficiency. Thus, if commercial banks did not maintain excess reserves, the SNB could not reduce the monetary base, at least not in the very short run.

In Switzerland, commercial banks know that they cannot count on the SNB to obtain automatically additional liquidity if they should be short of legally required reserves. Therefore, they have an incentive to hold adequate reserves. If a bank endeavors to hold insufficient excess reserves, it may well find that it has to borrow additional liquidity in the money market at very high interest rates in case of a reserve deficiency. It is not uncommon for the Swiss overnight lending rate to rise to 100 percent and more, especially at month-ends.[1]

Excess reserves constitute an important element in the transmission of monetary disturbances to the real sector of the economy. If the SNB wishes to decrease the monetary base, the initial effect is to reduce excess reserves of commercial banks. In the very short run, a decision to diminish the monetary base through, say, a reduction in the SNB's foreign exchange swaps leads to an increase in short-term interest rates, prompting commercial banks to substitute interest-earning assets for excess reserves. Since the policy shift does not instantaneously affect domestic output and prices, the drop in the monetary base, at first, is merely offset by an interest-induced rise in the base velocity. However, as time wears on, higher (real) interest rates will lower output and eventually prices, causing the nominal demand for base money to decline. Thus, the initial rise in interest rates and base velocity is reversed.

Unlike the monetary base, the money stock M_1 can only be controlled indirectly by the SNB. Until 1978—when a target for M_1 was in effect—the SNB attempted to influence M_1 by way of an operational target for the monetary base. In order to translate the M_1 target into a monetary-base target, we used a small model for forecasting the money multiplier.[2] This system worked quite well except in periods of violent exchange rate fluctuations when the multiplier became difficult to predict. (See Rich and Schiltknecht [1980]; Rich and Béguelin [1985].) Since our multiplier forecasts were frequently unreliable, we decided in 1979 to choose the monetary base as our intermediate target. The shift to a monetary base target was facilitated

[1]See Rich and Béguelin (1985) for a formal analysis of the reasons why Swiss banks hold excess reserves.

[2]The model is presented in Büttler et al. (1979).

by the fact that the base is under our direct control and seems to be as closely related to our ultimate target variable as M_1.

On the whole the SNB has been reasonably successful in achieving the targeted growth rates of the money supply. Except for the turbulent 1978–81 period (see section IV below), the effective growth rates have come close to the intended ones (see Table 3). This record has undoubtedly contributed greatly to establish SNB credibility and to help promote price stability in Switzerland.

III. The Role of Money Demand Functions in Setting Monetary Targets

One of the main pillars of monetarist thought is the hypothesis of a stable demand function for money. This question has been investigated thoroughly with data from many countries, including Switzerland. The existence of a well-behaved money demand function is crucial for the validity of monetarist prescriptions, and knowledge of its properties is important for the formulation of policy. Thus, at the

TABLE 3

MONETARY GROWTH: TARGETED AND EFFECTIVE

	Target Variable[a]	Target[b]	Effective[b]
1975	M_1	6	4.4
1976	M_1	6	7.7
1977	M_1	5	5.5
1978	M_1	5	16.2
1979	—	—	—
1980	M_0	4[c]	−0.6[c]
1981	M_0	4	−0.5
1982	M_0	3	2.6
1983	M_0	3	3.6
1984	M_0	3	2.5
1985	M_0	3	2.2

[a]M_1 covers currency outside the federal government and the commercial banks, as well as demand deposits of Swiss nonbanks with the postal giro system and the commercial banks. M_0 stands for the adjusted monetary base (deposits of private sector with the SNB and outstanding bank notes less the month-end bulge in SNB credit to the commercial banks).

[b]Average of monthly year-on-year rates of change.

[c]The target for 1980 was defined as the average percentage increase in M_0 over the level of November 1979. For each month of 1980, the percentage increase over the level of November 1979 was calculated. The monthly growth rates were in turn compounded in order to obtain annualized rates. The effective rate of −0.6 percent represents the average of the annualized growth rates.

SNB, the annual monetary target is set with reference to money demand functions and subject to predictions as to the values of their arguments. Hence, the estimation of money demand functions is an ongoing project at the SNB.

In order to illustrate the use of money demand functions in setting our target, we take the following long-run money demand function as our starting point:

$$\log(\hat{m}) = \alpha + \beta\log(y) + \lambda r;\ \beta>0,\ \gamma<0, \qquad (1)$$

where $(\hat{m})$ is desired real cash balances, y is real income, and r is a rate of interest. β is the income elasticity of the demand for money, and γ is the interest semi-elasticity. We assume that actual cash balances (m) slowly adjust toward their desired level as follows:

$$\log(m) - \log(m_{-1}) = \lambda[\log(\hat{m}) - \log(m_{-1})];\ 0<\lambda\leqq 1, \qquad (2)$$

where λ can be interpreted as the speed of adjustment. Substituting (1) into (2) we get the following short-run money demand function:

$$\begin{aligned}\log(m) &= \alpha\lambda + \beta\lambda\log(y) + \gamma\lambda r + (1-\lambda)\log(m_{-1}) \qquad (3)\\ &= a + b\log(y) + cr + k\log(m_{-1}),\end{aligned}$$

where $\beta = b/(1-k)$ and $\gamma = c/(1-k)$.

Money demand functions such as (3) have been used extensively in empirical work, generally with considerable success.[3] We report in Table 4 quarterly estimates of this function for Switzerland,

TABLE 4

DEMAND FOR MONEY: REAL ADJUSTMENT

A) $\log(M_0/P) = \underset{(0.31)}{0.338} + \underset{(2.20)}{0.366\log(y)} - \underset{(-3.61)}{0.015r_s} - \underset{(-1.46)}{0.028\Theta} + \underset{(6.00)}{0.588\log(M_0/P)_{-1}}$,

$\bar{R}^2 = 0.7398$, SEE = 0.0479, DW = 1.79, h = 1.06.

B) $\log(M_1/P) = \underset{(2.14)}{1.027} + \underset{(2.30)}{0.138\log(y)} - \underset{(-5.89)}{0.009r_s} - \underset{(-2.62)}{0.009r_L} - \underset{(-2.08)}{0.015\Theta} + \underset{(18.18)}{0.776\log(M_1/P)_{-1}}$

$\bar{R}^2 = 0.9546$, SEE = 0.0183, DW = 1.87, h = 0.50

[3]See Goldfeld (1973). Equation (3) is generally called the Chow equation (Chow 1966). Money demand equations similar to (3) can be derived from the permanent income hypothesis (Feige 1967).

covering the period 1968.1–1982.4. Both the monetary base and M_1 are considered in the analysis. P is defined as the GDP deflator, while y stands for real GDP. The equation for M_1 includes a short-term (r_S) and a long-term interest rate (r_L); however, only r_S is used in the equation for M_0. Furthermore, a shift variable (θ) is added in both equations in an attempt to capture the effect of the switch to a floating exchange-rate regime in 1973.[4]

Judging from the estimates in Table 4, both the demand for M_0 and M_1 can be explained with a reasonable level of accuracy and with a relatively small number of variables. All parameters have the expected sign. Note that the speed of adjustment is fairly low, particularly for M_1. This is not an uncommon result, however. In fact, our estimate of $\lambda(= 0.22$ for $M_1)$ is only slightly smaller than that of Goldfeld (1973). The long-run income elasticity is estimated to be somewhat less than unity for both aggregates (0.89 for M_0 and 0.62 for M_1).

Table 4 also suggests that both the demand for M_0 and M_1 are sensitive to changes in interest rates. Furthermore, there is no indication of any autocorrelation of the disturbances in either equation. On the whole, therefore, our results appear to be quite satisfactory. It is noteworthy, however, that the standard error of estimate (SEE) is considerably smaller for M_1 than for the monetary base.

Money demand functions such as (3) are sometimes criticized on the ground that equation (2) is not realistic as an adjustment mechanism, for it implies that adjustment to changes in income and interest rates is gradual, while adjustment to changes in prices is instantaneous.[5] Thus, it might be more realistic to assume that adjustment takes place in nominal terms, that is, to replace (2) by the following equation:

$$\log(M) - \log(M_{-1}) = \lambda[\log(\hat{M}) - \log(M_{-1})];\ 0<\lambda\leqq 1, \qquad (4)$$

where M and $\hat{M}$ are respectively actual and desired nominal cash balances. Since $m = M/P$ and $\hat{m} = \hat{M}/P$, substitution of (1) into (4) yields an alternative specification of the short-run, money demand function:

$$\begin{aligned}\log(M/P) &= \alpha\lambda + \beta\lambda\log(y) + \gamma\lambda r + (1-\lambda)\log(M_{-1}/P) \qquad (5)\\ &= a + b\log(y) + cr + k\log(M_{-1}/P)\end{aligned}$$

The only difference between equations (3) and (5) concerns the

[4]The term r_S is defined as the rate on 3-month deposits at large commercial banks, and r_L is the return on federal government bonds. S is equal to zero until 1972, and unity thereafter. Yearly estimates of (3) are reported in Kohli (1984).

[5]See Goldfeld (1976).

denominator of the last term on the right hand side: while the current value of the price level appears in equation (5), its lagged value shows up in (3). Empirical estimates of equation (5) are reported in Table 5.[6] Evidently, the demand functions are well behaved for both M_0 and M_1. Interestingly, the estimates in Table 5 are very similar to those reported in Table 4, although the income elasticities became somewhat larger when the adjustment mechanism (4) is used in place of (2).

Regarding the quality of the fit, we find the evidence inconclusive. For the monetary base, the standard error of the estimate is somewhat larger in case of equation (5) than in case of (3), but the reverse holds true for M_1. In any event, the differences are minute. It is noteworthy, however, that there are now traces of autocorrelation in the equation for M_1 which might be an indication of misspecification. For this reason, we have a slight preference for equation (3) over (5).[7]

In order to set a monetary target, the SNB proceeds in two steps. First, we determine a medium-run target defined as the growth rate of the monetary base required to achieve and maintain price stability in the medium-run. This target is calculated on the assumption that

TABLE 5

DEMAND FOR MONEY: NOMINAL ADJUSTMENT

A) $\log(M_0/P) = \underset{(-0.10)}{-0.122} + \underset{(2.61)}{0.421}\log(y) - \underset{(-3.48)}{0.014}r_s - \underset{(-1.84)}{0.035}\Theta + \underset{(5.96)}{0.584}\log[M_{0(-1)}/P]$,

$\bar{R}^2 = 0.7383$, SEE = 0.0480, DW = 1.79.

B) $\log(M_1/P) = \underset{(0.89)}{0.516} + \underset{(3.45)}{0.229}\log(y) - \underset{(-5.40)}{0.010}r_s - \underset{(-1.87)}{0.008}r_L - \underset{(-2.72)}{0.023}\Theta + \underset{(15.17)}{0.737}\log[M_{1(-1)}/P]$,

$\bar{R}^2 = 0.9969$, SEE = 0.0169, DW = 1.98, $\rho = \underset{(2.15)}{0.267}$

[6]All the equations are estimated by OLS except (B), where correction for autocorrelation is made with the help of the Cochrane-Orcutt method; b stands for the coefficient of first-order autocorrelation.

[7]Furthermore, a number of authors have recently argued that (5) is untenable as a description of the adjustment process during periods of monetary control. See Laidler (1982, 1984) who advocates an approach based on the concept of monetary disequilibrium. Some of the ideas suggested by Laidler are examined by Kohli (1985).

domestic interest rates are unlikely to show an upward or downward trend once the inflation rate has settled near zero. Thus, nominal base-money growth consistent with medium-run price stability may be estimated from equation (1) if a forecast of the trend growth in Swiss GDP is inserted and if domestic interest rates and the price level are treated as constants.[8] Considering the medium- and long-run growth prospects of the Swiss economy, we obtain a medium-run target for base money growth of at most 2–2.5 percent per annum. The second step involves specifying annual growth targets for the monetary base. In principle, the annual and the medium-run targets should be the same if price stability is to be achieved. In practice, the SNB has not simply set the annual targets equal to the desired medium-run growth rate. As indicated by Table 3, the annual targets to date have systematically exceeded the medium-run target, but the gaps between them have narrowed considerably over the years. This divergence is attributable to the fact that the SNB—since the mid-1970s—has attempted to pursue a gradualist approach to fighting inflation. The outcome, however, has been less gradualist than intended since there have been considerable discrepancies between effective and targeted growth rates. These gaps are not explained by defects in our system of monetary base control. Instead, they mirror severe constraints resulting from the openness of the Swiss economy that the SNB must face.[9]

IV. Monetary Control in an Open Economy

Although the link between Swiss money and prices is a tight one, it is not completely predictable, due mainly to unforeseen movements in the exchange rate of the Swiss franc. For this reason, the central bank of a small country such as Switzerland cannot chart its policy course without regard to future developments on the foreign exchange market.

[8]This is not to imply that we rely exclusively on the information drawn from Table 4 in order to estimate nominal, base money growth consistent with medium-run price stability. Although the estimates of Table 4 are quite satisfactory, there is clearly room for improvement. In particular, it appears that the explanatory power of equation (3) is strengthened if the monetary base is disaggregated into three components: deposits of commercial banks with the SNB, as well as large-denomination and small-denomination bank notes. Furthermore, the question arises to what extent real, base money demand is affected by variables other than interest rates and output.

[9]In 1980 and 1981, substantial errors in forecasting the demand for bank notes were an additional reason for the SNB's failure to meet its annual targets. Since the demand for bank notes grew less than expected, the SNB decided to undershoot somewhat its target.

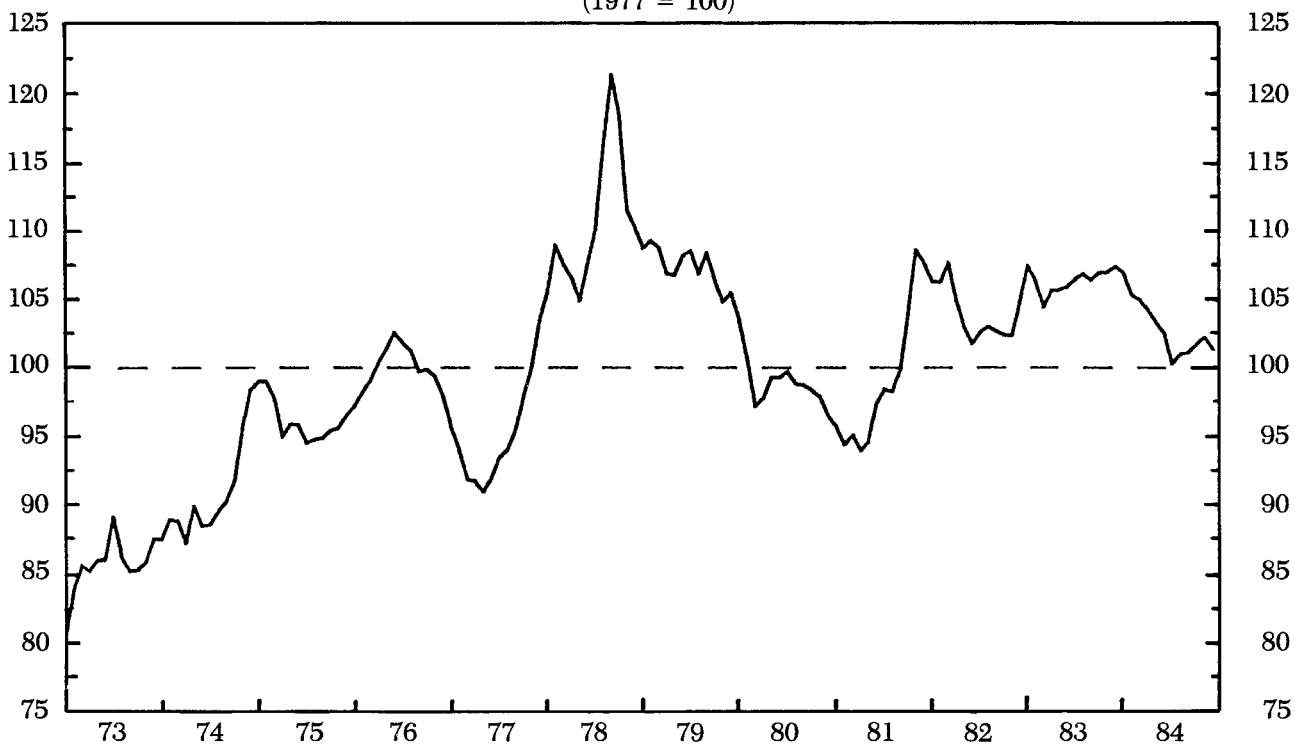
The Swiss economy is highly sensitive to exchange-rate fluctuations since both exports and imports amount to roughly 40 percent of GNP. Unfortunately, the staff of the SNB does not possess any exceptional skills in predicting future exchange rate movements. We share the fate of ordinary mortals in that our exchange rate forecasts are frequently wrong. If the SNB fixes its money stock targets on the basis of erroneous exchange-rate forecasts, it may very well be led to pursue an inappropriate policy course. The turbulent events of 1978 are a good case in point.

In 1977 and 1978, Swiss monetary policy was repeatedly bedevilled by exchange-rate problems, due to an unexpectedly strong appreciation of the Swiss franc (see Figure 2). From the SNB's standpoint, this appreciation was a mixed blessing. On the one hand, it speeded up the response in the domestic price level to the SNB's restrictive monetary policy through a drastic reduction in the domestic prices of internationally traded goods. Therefore, the inflation rate dropped to a level that was lower than might have been believed on the strength of base money growth recorded over the preceding two to three years. The rapid decline in the inflation rate, of course, was welcome news for a central bank intent on achieving price stability as quickly as possible. On the other hand, the upvaluation of the Swiss franc created difficulties for domestic industries exposed to foreign competition. By the summer of 1978, the Swiss franc had surged to such an extent that we began to worry about the prospect of a drastic slump in economic activity. In order to avert a recession, the SNB—in October 1978—reluctantly decided to replace temporarily its money stock target by an exchange rate target in the form of a floor on the Swiss-franc price of the Deutsche mark.

The official purchases of foreign exchange required to halt the upvaluation of the Swiss franc caused the monetary base to increase by 17 percent from September 1978 to March 1979. The SNB was well aware that the temporary surge in the monetary base might be followed by a new spurt of inflation. As can be clearly seen from Figure 1, the policy shift of 1978, not surprisingly, reversed the downward trend in the inflation rate. However, the renewed acceleration of inflation was short-lived because the SNB switched back to a restrictive policy stance in 1979. At the end of 1981, the Swiss inflation rate once again began to follow a downward course. Thus the 1981 bulge in the inflation rate was the price the SNB had to pay for stabilizing the exchange rate of the Swiss franc.

The experience of 1978 testifies to the difficulties of conducting an anti-inflationary monetary policy in the face of violent fluctuations in exchange rates. Since unanticipated exchange-rate movements

FIGURE 2
TRADE-WEIGHTED REAL EXTERNAL VALUE OF THE SWISS FRANC
(1977 = 100)



may impair the performance of the monetary base as a policy indicator, the SNB has not stuck slavishly to its money stock targets but has followed what might be called a pragmatic monetarist policy course. This does not mean that we discard our money-stock target at the whim of a moment. Thus far, the crisis of 1978 has been the only instance in which the SNB decided to shift to an exchange rate target. Moreover, since 1982, the SNB has taken a rather relaxed attitude toward the exchange rate. While in 1981 the SNB attempted to curb a marked devaluation of the Swiss franc by undershooting substantially its monetary target (Table 3), the recent surge in the exchange rate of the U.S. dollar vis-à-vis the Swiss franc and other major currencies has not led it to tighten its monetary policy. Instead, the SNB has adhered closely to its monetary targets over the last three years.

The SNB's relaxed attitude toward the exchange rate is also mirrored by its current policy of nonintervention on the foreign exchange market. During the 1970s, the SNB frequently attempted to manage the exchange rate of the Swiss franc through sterilized or nonsterilized interventions, but since August 1983 it has refrained from buying and selling foreign currencies, save for commercial purposes. Our current passive posture does not imply that we are opposed, in principle, to interventions on the foreign exchange market. If exchange rate movements should be large enough to damage seriously the Swiss economy, the SNB stands ready to intervene on the foreign exchange market and, if necessary, to adjust its monetary base target. However, at the present moment, we see no need for manipulating the exchange rate. In our opinion, we serve the Swiss economy better if we allow the monetary base to expand at a steady pace in line with the ultimate objective of price stability than if we attempt to smooth every wriggle in the exchange rate.

V. Conclusion

Our experience at monetary control has taught us a number of lessons. The most important one is that the fight against inflation is a task that requires considerable persistency and much consistency in policy. There may be many setbacks in the short run, but eventually the policy, if maintained, will bear its fruits. In this respect, monetary targeting has been of invaluable help to us.

A second lesson, however, is that the approach to monetary targeting should not be dogmatic. Even if we are convinced that our approach is the correct one in the long run, short-run costs may be too high to bear, and some flexibility is at times needed. This is particularly true

for a small open economy such as Switzerland where foreign developments can have too large an impact to be ignored. Moreover, there are few propositions, if any, in economics which have ever been established beyond any doubt; hence the need to keep an open and alert mind.

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