

Berichte

The "New Era" of Controlling Monetary Aggregates*

Since about 1975 a marked shift towards controlling monetary aggregates has taken place in several countries. Among others, the central banks of Switzerland and Germany (at the beginning of 1975), of the United States (in March 1975), of Canada (in early 1976), and of the United Kingdom (in July 1976) adopted a policy of monetary growth targets. What distinguishes the new strategies of the central banks mentioned is the stringency in pursuing monetary growth targets. So far the Swiss National Bank (SNB), the Deutsche Bundesbank, and the Federal Reserve (Fed) have realized the strictest approach to controlling monetary aggregates. Therefore, this report concentrates on these central banks, roughly outlining the features which are common to their strategies and evaluating some special problems of their new approaches.

I. Characteristic features of the "New Era"

What's new about the "New Era"? Is it really a "new" era? No doubt, that one has to be very careful in using such a lofty qualification. Thus, it is perhaps less ambitious to simply speak of "experiments" in monetary policy as the central banks themselves have repeatedly emphasized. The essential characteristics of the "new era" or "experiment" can be briefly summarized in the following six points:

1. Most obvious, the central banks committed themselves to publicly announce and to pursue monetary growth targets. In comparison with the previous practice this strategy is a courageous step on a new ground, in particular if we consider the general reluctance of central banks in making experiments, in setting up and in publicly announcing quantitative targets.

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2. The adoption of monetary growth targets was accompanied with a transition to broader monetary aggregates. This notion covers a large spectrum of definitions of the money stock in the various countries, implying that a policy of monetary growth targets is not tied to a specific definition of the money stock.

3. The underlying rationale of the new policy orientation — explicitly focused by all central banks — is to reduce short-run cyclical instability in economic activity. Monetary growth targets are supposed to restore a sense of greater stability and confidence in economic performance. Thus, “stability” or “stabilization” is the crucial and almost magic word of the new strategy. The argument goes that the expectations and decisions of economic agents could be stabilized by giving them in advance a monetary framework (a sort of “monetary budgeting”). No doubt, that the bad experiences with stop-and-go practices, with time lags and the ensuing danger of procyclical effects of past monetary policy have facilitated the move towards monetary growth targets.

4. In computing the monetary growth target the longer-run perspective is explicitly aimed at gradually reducing the growth rate of the money stock to a level compatible with the longer-term growth rate of potential physical output. Being still a long way from that objective the computation of monetary growth targets has to take into account also some cyclical components, such as predicted changes in capacity utilization, in income velocity of money, and in the rate of inflation.

5. The tactical element of the new strategies lies in a certain shift of responsibility for inflationary price shocks. By setting a monetary framework in advance and by publicly announcing the decomposition of monetary growth targets — the so-called “unavoidable” rate of inflation on the one hand, and the expected growth rate of real GNP on the other — the monetary authorities seek to set some disciplinary data in order to affect the price and wage policies of both private parties and the Government. Whether or not such a disciplinary effect will be attained ultimately, is another question. In any case, however, the convenient excuse of an overly monetary alimentation of inflation falls away. Thus, the group of those who are responsible for inflationary price shocks is narrowed.

6. Last but not least, the “New Era” seems to be deeply imbedded in the monetarist doctrine, even though most central banks do not ex-

plicitly profess to monetarism. Actually, the shaping and practical implementation of monetary policy diverge more or less from the policy recommendations of the monetarists. Their basic ideas, however, recur time and again. So the "New Era" may be perhaps qualified as "experiments in practical monetarism", as Paul A. Volcker, President of the Federal Reserve Bank of New York, put it most recently.

II. Elements of the strategic approaches

1. In evaluating the new monetary strategies *three elements* are to be analyzed: (1) The instruments, (2) the monetary indicators which are simultaneously control variables, (3) the intermediate targets. Control variables bundle up the numerous effects emitted by the central bank's monetary impulses in only one or two magnitudes. Because of this property control variables are also best suited to serve as monetary indicators. Changes in control variables are supposed to bring or to keep the intermediate target on track. A problem of monetary semantics is that the central banks' "official" terminology normally does not speak about "intermediate targets", "control variables" and "monetary indicators". Thus, for analytical purposes it is necessary to interpret as objectively as possible the published reports of the Fed, the SNB and the Bundesbank in terms of the elements mentioned. These elements are summarized in the following juxtaposition:

	Monetary indicators/ Control variables	Intermediate targets
<i>Bundesbank:</i>	FLR (<i>i_{CB}</i>)	CBM
<i>SNB:</i>	<i>B^a</i> (<i>i_{CB}</i>)	<i>M₁</i>
<i>Fed:</i>	RA (FFR)	<i>M_{1,2,3}</i> (longer-run), <i>M_{1,2}</i> (short-run), FFR (?)

2. With respect to the instruments of monetary policy, by and large, nothing has changed as compared to the situation prior to the "New Era". Similar holds for the monetary indicators and control variables, respectively. Common to all central banks' concepts is that these variables include at least one component, i.e. excess reserves (ER), which signal the future expansion potential of banks. Within the Bundesbank's approach the "free liquid reserves" of banks (FLR) are still employed as monetary indicator and, at the same time, as control variable. The

FLR consist exclusively of banks' future expansion potential, comprising their ER and — as "potential" central bank money — their open rediscount quotas and their holdings of money market papers returnable to the Bundesbank at any time. Thus, in the Bundesbank's concept the aged "free reserves doctrine" seems to be pretty well alive. In the Fed's approach the indicator and control variable functions are fulfilled, now as before, in particular by various reserve aggregates (RA), such as the monetary base, total or nonborrowed reserves, and the RPDs. Only in Switzerland a marked shift occurred in so far as the "adjusted monetary base" (B^a = monetary base minus SNB's refinancing credits granted to banks) is now designed to serve as monetary indicator and control variable. i_{CB} (those interest rates which the central bank is able to fix directly) and FFR (Federal funds rate) are set in parentheses. This is to indicate that these variables also function to a certain degree as monetary indicator and control variable in the pertinent cases, partially as supplements, partially as reflexes of changes in the liquidity and reserve aggregates. Due to the relative unimportant role of i_{CB} in the Fed's conception the FFR replaces i_{CB} .

3. With respect to the intermediate targets each central bank has its own speciality: Within the Bundesbank's concept it is the CBM ("central bank money" in the specific definition of the Bundesbank). The CBM is a money stock definition *sui generis*, from the uses side comprising all currency in circulation and vault cash of the banks plus required reserves calculated at constant reserve ratios. The CBM consists exclusively of "used up" actual central bank money. Moreover, due to the composition of the CBM there is (empirically) a significant *pars-pro-toto*-identity between the M_3 -aggregate and the CBM. Thus, the CBM is a monetary aggregate and not a reserve aggregate, as it is often interpreted. The CBM is therefore not an indicator of whether monetary impulses have been emitted, but of whether they have shown up — together with all the other influences besides monetary policy — in the aggregates $M_{1,2,3}$. The SNB has chosen the M_1 -aggregate in the usual definition as its intermediate target. Unlike the Swiss and the German central bank the Fed specifies *tolerance ranges* and announces target values of four variables: (1) for the 12-months growth of the $M_{1,2,3}$ -aggregates and the credit proxy; (2) for the 2-months growth of the aggregates M_1 and M_2 ; (3) for the monthly evolution of the FFR, and (4) — until March 1976 — for the monthly growth of the RPD-reserve aggregate. Whereas the $M_{1,2,3}$ -aggregates are employed as

intermediate targets, the role of the FFR remains somewhat unclear (see IV).

4. The fact that single number targets (SNB, Bundesbank) simulate a precision of monetary control which actually does not exist, is often mentioned as a disadvantage. On the other hand, however, the Fed's procedure gives the very same impression when the upper and the lower limits of the $M_{1,2,3}$ -tolerance ranges are changed by 0.5 percentage points.

III. Techniques of controlling monetary aggregates

Common to the monetary control techniques of all three central banks are the following features and problems, respectively:

1. On principle, the adoption of monetary growth targets does not mean that ad hoc-measures have been given up. Rather, the very control policy continues to be discretionary, that is to say a policy of "ad hoccery".

2. The technique of controlling monetary aggregates may be denoted as "indirect control mechanism". Discretionary injections or absorptions of actual or potential central bank money are supposed to change the control variables, thereby affecting the money market rates and subsequently radiating out from the money market on the whole interest rate structure of the various financial markets. The transmission of changes in the control variables to the intermediate targets is viewed by all central banks as a portfolio adjustment process generated through interest rate impulses which ultimately lead to changes in the growth rates of monetary aggregates. The control devices of all central banks are thus based on price respectively interest rate-theoretical grounds. To judge from the central banks' statements the transmission of monetary impulses to the intermediate targets primarily runs through the banking sector with credit interest rates and the demand for and the supply of bank credit as key variables.

3. The main problems of controlling monetary aggregates are the tuning and the timing of control variables, and in addition, the time lags. The crucial point is: When and by how much should RA (B^a , FLR) be changed to bring or to hold $M_{1,2,3}$ (M_1 , CBM) "on target"? And how long does it take until changes in the control variables affect the composition of banks' and nonbanks' portfolios? The plain fact is that, up

to now, a reliable basis is missing for calculating the appropriate change in control variables required to achieve a certain monetary growth target. What would be needed are empirically supported and predictable experiences about the portfolio behavior of banks and nonbanks to escape from the “trial and error” method used so far.

4. Along with this problem, fluctuations of considerable size in the velocity of money and in the money multipliers have proved to be a serious disturbing factor for the control policy of all three central banks. These fluctuations reflect, although not exclusively, also changes in the portfolio behavior.

IV. The performance of the new strategies

On the basis of the short experience it would be downright a speculative endeavor to judge whether the “New Era” was a success or not. With respect to the implementation procedure and the performance of the new strategies, however, some inferences can already be drawn.

1. The Bundesbank was faced in particular with the following problems:

- a) Its main problem were extremely fluctuating FLR-multipliers ($m^{\text{FLR}} = \text{CBM}/\text{FLR}$) which made the control of the CBM-growth rate enormously difficult. As recent experience shows, m^{FLR} fluctuated between the extreme values of 45 and 7 within a period of only 6 quarters (Q3/1974 - Q4/1975) without affecting the speed of expansion of the CBM very much. Considering these wide fluctuations it is yet somewhat amazing that the CBM-growth targets of each 8 % in both past years were only slightly overshot.
- b) According to the Bundesbank the CBM is designed to serve as an “indicator of monetary expansion”, a confusing notion which has never been defined precisely, but which is nevertheless time and again stressed by the Bundesbank. Actually, there is no room left for the so-called “monetary expansion” in the Bundesbank’s approach. Since the CBM largely is a reduced copy of the M_3 -aggregate the CBM measures itself — to exaggerate a little bit.
- c) The analyses of the Bundesbank do not show on what theoretical and empirical basis the composition and weighing of the CBM-components rest or whether there is such a basis at all. A priori the CBM-definition seems arbitrary. Its obvious advantage is only that the CBM is largely independent of shifts among deposits.

- d) Even though this aspect is of minor relevance for the construction of an intermediate target, the performance of the CBM as intermediate target over the past five years was by far superior as compared with other monetary aggregates — in the meaning of the smallest variances between the growth rates of both CBM and nominal GNP.
- e) The Bundesbank explicitly includes expected changes in the velocity of CBM in the computation of the CBM-growth rate, thereby bridging a gap to a magnitude (nominal GNP) which is about 10 times as great as the CBM. Bad miscalculations of the velocity of CBM might result in short-run revisions of the CBM-growth target, thereby casting considerable doubt on the desired stabilizing effect and on the credibility of the new strategy.

2. Some major deficiencies of the SNB's approach were:

- a) As experience shows so far, the SNB has chosen with M_1 an intermediate target which is a variable too narrow and volatile because of shifts in nonbank deposits. Similar holds for B^a as control variable. Extremely wide fluctuations of the B^a -multiplier and a considerable over-respectively undershooting of the M_1 -growth target — specified at a level of each 6% in both past years — have been the consequence. To judge from recent experience the combination of not adjusted monetary base and a broader monetary aggregate, say M_2 or M_3 , showed a far better correlation — again in the meaning of the smallest deviations between the growth rates of both variables, thus possibly suggesting an adoption of that combination. Even though B^a has analytical advantages as monetary indicator, with respect to the practice of controlling M_1 , however, the elimination of refinancing credits seems to be a somewhat artificial separation of determinants of M_1 which belong together.
- b) M_2 as intermediate target (instead of M_1) would have had the advantage of partially *identical* growth rates of both M_2 and nominal GNP over the past five years with correspondingly small fluctuations of the velocity of M_2 . In contrast, the growth rates of both nominal GNP and M_1 did not show any connection whatsoever.
- c) The SNB's procedure to set the same target value (or a target value at all) for both the control variable and M_1 is very questionable, if the respective money multiplier is highly unstable (as it actually

was during the past five years). For 1977 the SNB has, presumably therefore, renounced to publicly specify a target value for B^a .

- d) Foreign reserve transactions of the SNB have so far been the most important lever to affect the monetary base. This practice is subject to constraints in so far as the attempt to keep the Swiss exchange rate stable and, at the same time, the domestic monetary growth rate on target is not always compatible. In those cases other instruments of monetary policy need to be intensified.

3. The Fed's approach was impaired by the following problems:

- a) A serious defect was that, with respect to the setting of monetary growth targets, no consultations with the Federal Government took place. Furthermore, the Fed did not make public the components of monetary growth targets, for instance, what is considered as "unavoidable" rate of inflation. Since the new approach is to a great extent based on psychological grounds, more public relations by means of publicly announcing the decomposition of monetary growth targets could possibly improve the performance of the new strategy.
- b) It is very difficult to judge whether the Fed's approach has been a success or not, especially due to the simultaneous announcement of target values for four different monetary variables, moreover, due to the extremely wide tolerance ranges, and also due to the changing bases for the computation of target values for the longer-run $M_{1,2,3}$ -aggregates.
- c) The simultaneous setting of interest rate and quantity targets sharply raises the problem of consistency, because only a small number of interdependences between the monetary variables can be built into an empirical model.
- d) The wide tolerance ranges may be considered by the Fed as "political advantage" and "monetary flexibility", especially in the light of House Concurrent Resolution 133. From an economic point of view, however, this practice is questionable because the pursuit of either the lower or the upper limit of those wide tolerance ranges may have very different effects on economic activity. Thus, as long as the ranges for the annual $M_{1,2,3}$ -growth targets are not considerably reduced, it is hard to believe that a policy of controlling the money stock is really seriously treated by the Fed.

- e) In addition, the role of the FFR is hard to assess. If the FFR is employed as control variable — implying that it has to be adjusted appropriately if necessary — why does the Fed then specify tolerance ranges for this rate at all? On the other hand, in hitting the target ranges the control of the FFR was by far better achieved than the control of the monetary aggregates, the latter ones falling very often outside their specified ranges. This accuracy regarding the FFR may suggest that a sort of “money market myopia” continues to dominate the Fed’s strategy, with the FFR as its real, but somewhat concealed intermediate target.

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Zusammenfassung

Die „Neue Ära“ der Kontrollen monetärer Aggregate

Der Bericht, selbst eine Zusammenfassung eines größeren Papers, gibt einen Überblick über Gemeinsamkeiten und Hauptprobleme der seit etwa 1975 praktizierten neuen Strategien der Schweizerischen Nationalbank (SNB), der Bundesbank und der Federal Reserve (Fed).

1. Die *Grundzüge* der „neuen Ära“, von den Notenbanken als „Experiment“ bezeichnet, wurzeln in grundlegenden monetaristischen Empfehlungen: öffentliche Vorankündigung von monetären Wachstumszielen, Übergang zu breiteren monetären Aggregaten, Verstetigungsabsicht als explizite Begründung, gewisse Verlagerung der Verantwortung für inflationäre Preisschübe von der Notenbank hin zu den übrigen wirtschaftspolitisch relevanten Gruppen.

2. Für die Vorgabe von monetären Wachstumszielen („Zwischenzielen“) haben die Notenbanken unterschiedliche Aggregate gewählt: die Bundesbank ein Konstrukt der Zentralbankgeldmenge („ZBG“), die SNB das Aggregat M_1 und die Fed die Aggregate $M_{1,2,3}$ (jährlich) und $M_{1,2}$ (zweimonatlich). Als *Kontrollvariablen* und damit zugleich *Indikatoren* der Geldpolitik fungieren vor allem die „freien Liquiditätsreserven der Banken (FLR)“ [Bundesbank], die „bereinigte Geldbasis (B^a)“ [SNB] und diverse Reserveaggregate (Fed).

3. Die *Technik* der Geldmengensteuerung fußt auf diskretionären Veränderungen der Liquiditäts- bzw. Reserveaggregate, wodurch Zinsimpulse auf den Finanzmärkten und Anpassungszwänge ausgelöst werden, die das Wachstum der monetären Aggregate beeinflussen („indirekter Kontrollmechanismus“). Kalkulationsunsicherheiten (Dosierung und Timing der Kontrollvariablen, time lags) erschweren die Steuerungspolitik ebenso wie schwankende Multiplikatoren und Umlaufgeschwindigkeiten des Geldes (v).

4. Hauptprobleme der neuen *Bundesbankpolitik* waren extrem schwankende FLR-Multiplikatoren, die willkürliche Zusammensetzung der ZBG und die Einbeziehung der v_{ZBG} in die Kalkulation des ZBG-Wachstumsziels. Starke

Fluktuationen des B^a -Multiplikators haben die Steuerungspolitik der SNB erheblich erschwert und lassen den Übergang zu breiteren Reserve- und Geldmengenaggregaten geraten erscheinen. Gravierende Mängel der neuen Fed-Strategie sind die fehlende Abstimmung der Geldmengenziele mit der Regierung und die Nichtveröffentlichung der Komponenten der monetären Wachstumsrate. Die gleichzeitige Vorgabe von mehreren Zielwerten mit großen Bandbreiten und die wechselnde Basis bei der Festlegung der längerfristigen Geldmengenziele erschweren eine Erfolgsbeurteilung der Fed-Strategie und verschärfen das Konsistenzproblem zwischen Zins- und Geldmengenzielen.

Summary

The "New Era" of Control of Monetary Aggregates

The report, itself an abridged version of a longer paper, gives a survey of common features and major problems of the new strategies practised since about 1975 by the Swiss National Bank (SNB), the West German Bundesbank and the Federal Reserve Board (Fed).

1. The fundamentals of the "new era", dubbed an "experiment" by the central banks, have their roots in basic monetarist recommendations: prior public announcement of monetary growth objectives, transition to broader monetary aggregates, stabilizing intention as an explicit reason, a certain shift of responsibility for inflationary price boosts from the central bank to the other groups involved in economic policy-making.

2. For the setting of monetary growth objectives ("*intermediate objectives*"), the central banks have chosen different aggregates: the Bundesbank a construct of the quantity of central bank money ("CBM"), the SNB the aggregate M_1 , and the Fed the aggregate $M_{1,2,3}$ (annually) and $M_{1,2}$ (two-monthly). Above all, the "free liquidity reserves of the banks (FLR)" [Bundesbank], the "adjusted monetary base (B^a)" [SNB] and various reserve aggregates [Fed] serve as *control variables* and hence simultaneously as *indicators* of monetary policy.

3. The *technique* of controlling the quantity of money is based on discretionary changes in the liquidity and reserve aggregates, which trigger stimuli to adjust interest rates and adaption constraints that influence the growth of monetary aggregates ("indirect control mechanism"). Uncertainties in calculations (dosage and timing of control variables, time lags) render control policy more difficult, as do fluctuating multipliers and velocities of circulation of money (v).

4. The chief problems of the new Bundesbank policy were extreme fluctuations of FLR multipliers, the arbitrary composition of CBM and the inclusion of v_{CBM} in the calculation of the CBM growth objective. Marked fluctuations of the B^a multiplier have made the control policy of the SNB considerably more difficult and make a change to broader reserve and money quantity aggregates seem advisable. The lack of co-ordination of money quan-

tity objectives with the government and the non-publication of the components of the monetary growth rate are grave deficiencies of the new Fed strategy. The simultaneous setting of several objective values with broad bandwidths and the changing basis in laying down long-term money quantity objectives make assessment of the success of the Fed strategy difficult and aggravate the problem of consistency between interest-rate and money quantity objectives.

Résumé

La « nouvelle ère » des contrôles des agrégats monétaires

L'article, condensé d'une étude plus importante, offre un aperçu des points communs et des principaux problèmes des nouvelles stratégies appliquées depuis 1975 par la Banque Nationale Suisse (BNS), la Bundesbank et la Federal Reserve (Fed).

1. Les *éléments* de la « nouvelle ère », qualifiée d'« expérience » par les banques d'émission, sont enracinés dans des recommandations monétaristes fondamentales: notification officielle préalable des objectifs d'expansion monétaire, passage à de plus larges agrégats monétaires, intention de continuité comme motivation explicite, un certain déplacement de la responsabilité des poussées inflationnistes des prix de la banque d'émission vers les autres groupes significatifs de la politique économique.

2. Pour la prévision des objectifs d'expansion monétaire (« *objectifs intermédiaires* »), les banques centrales ont opté pour des agrégats différents: la Bundesbank a choisi une construction de la masse monétaire de la banque centrale (Zentralbankgeldmenge ou « ZBG »), la BNS l'agrégat M_1 et la Fed les agrégats $M_{1,2,3}$ (annuels) et $M_{1,2}$ (bimestriels). Comme *variables de contrôle* et simultanément *indicateurs* de la politique monétaire, l'on a principalement recours aux « réserves libres de liquidité des banques (RLL) » [Bundesbank], à la « base monétaire apurée » (B^a) [BNS] et à divers agrégats de réserve (Fed).

3. La *technique* du contrôle de la masse monétaire s'appuie sur des variations discrétionnaires des agrégats de liquidité ou de réserve, qui dégagent des impulsions de taux d'intérêt sur les marchés financiers et des contraintes d'ajustement influençant l'expansion des agrégats monétaires (« mécanisme indirect de contrôle »). Des incertitudes de calcul (dosage et timing des variables de contrôle, décalages dans le temps) compliquent la politique d'orientation comme aussi les multiplicateurs instables et différentes vitesses de rotation (V) de la monnaie.

4. Les principaux problèmes de la nouvelle politique de la Bundesbank résultent des variations extrêmes des multiplicateurs RLL, la composition arbitraire de ZBG et l'inertion de V_{ZBG} dans l'établissement de l'objectif de croissance du ZBG. De fortes fluctuations du multiplicateur B^a ont gêné la politique d'orientation de la BNS et font apparaître l'intérêt d'un recours à de plus larges agrégats de réserves et de masse monétaire. Les lacunes graves

offertes par la nouvelle stratégie de la *Fed* sont l'absence d'accord sur les objectifs de masse monétaire avec le gouvernement et la non publication des composantes du taux d'expansion monétaire. La prévision simultanée de plusieurs objectifs avec des marges considérables et la base variable de la définition des objectifs de masse monétaire à long terme ne permettent guère de formuler sur la stratégie de la *Fed* un jugement approuvateur et aggravent le problème de la consistance entre les objectifs des taux d'intérêt et ceux de la masse monétaire.