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MONETARY POLICY IN THE EARLY 1980s

Robert L. Hetzel

Federal Reserve Bank of Richmond

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*The formulation and implementation of monetary policy is discussed for the period Oct. 1979 to Dec. 1983. Particular emphasis is placed upon understanding the operating procedures of the New York Desk. In this regard, two aspects are stressed. First, the way in which operating procedures derive endogenously from the nature of the monetary policy the Fed desires to implement. Second, the way in which the operating procedures adopted in Oct. 1979 became themselves a source of economic instability and contributed to cyclical behavior in market rates and the money supply.

1. Introduction

A requirement for the study of macroeconomic behavior in the early 1980s is an understanding of the monetary policy pursued by the Federal Reserve and of the way this policy was implemented. In an attempt to fulfill this requirement, the formulation and implementation of monetary policy are discussed below for the period Oct. 1979 to Dec. 1983. Particular attention is paid to the choice by the Fed of the funds rate or the money supply as its primary policy variable. It is contended that the operating procedures adopted in Oct. 1979 contributed to the cyclical behavior of interest rates and money.

2. Monetary Policy Before Oct. 1979

The formulation of monetary policy has retained a basic continuity before and after Oct. 1979. [See Hetzel(1984).] Monetary policy is not formulated within an analytical framework where settings on policy variables are derived from explicitly specified values of ultimate objectives. Instead, policy variables are moved in a way that expresses the Fed's intended emphasis on qualitative objectives like "low" unemployment and "low" inflation. The relative importance of these qualitative objectives varies in a way that depends upon the contemporaneous state of the economy.

Money supply targeting did not exist in the 1970s in a significant sense. First, because of the phenomenon known as base drift, there were no operationally-significant long-run targets for the money supply. Second, the Desk was not given short-run targets for the money supply. Finally, changes in the funds rate were constrained in magnitude and, especially significant, were constrained to be monotonic over significant periods of time [Hetzel(1981)]. The FOMC specified benchmarks for money growth. When compared to projections of near-term money growth, these benchmarks provided the Desk with a criterion for when to alter the funds rate. The role of the money supply in the 1970s was

then to serve as a triggering mechanism for producing desired changes in the funds rate. In this way, the operating procedures built the politically advantageous rationale of monetary control into increases in the funds rate, while still allowing the Fed to retain the funds rate as its primary policy variable.

3. The Oct. 1979 Operating Procedures

It is assumed that the reader is familiar with the operating procedures adopted by the Fed on Oct. 6, 1979; therefore, only an abbreviated review is provided below. [See Hetzel(1982) or Goodfriend(1982).] Because of lagged reserve accounting, the banking system's demand for reserves is essentially predetermined in a given reserve accounting period. Of this predetermined reserve demand, whatever the Desk does not supply through open market operations must be borrowed by the banking system from the discount window. Given that, when in the window, banks are pressured to find alternative sources of reserves, higher levels of borrowed reserves engender higher levels of the funds rate. The funds rate, consequently, is determined as the sum of the discount rate plus an amount that varies positively with the level of borrowed reserves. (The discount rate and borrowed reserves and their relationship to the funds rate are shown in Figures 1 and 2.) The new procedures worked through a leverage over the funds rate. The funds rate influenced bank portfolio adjustments and, as a by-product, bank liabilities and the money supply.

At its meetings, the FOMC set an initial target for borrowed reserves. Given the intra-yearly target for M1 and, consequently, the implied path for total reserves, this target for borrowed reserves determined the target for nonborrowed reserves. Given the nonborrowed reserves target, the actual movement of total reserves associated with a miss of the M1 target produced a change

in the level of borrowed reserves and in the funds rate that acted to counteract misses of M1 from target.

4. The Oct. 6, 1979 Actions

Starting in the spring of 1979, monetary policy became preoccupied with the threat of recession. "The Federal Open Market Committee received forecasts from its staff of a recession beginning July 1979. . . .[Wallich(1980) p. 3]" In this environment, the FOMC became unwilling to raise the funds rate. Between February and July 1979, M1 grew at an annualized rate of 9.7 percent, but the funds rate was allowed to rise over this interval by only half a percentage point. By September M1 and M2 were at the top of the intrayearly ranges implied by their four-quarter target ranges. The anticipated recession did not materialize. By September the threat of recession had disappeared and inflation and the depreciation of the dollar emerged as the primary public concerns.

From the perspective of the Fed in Oct. 1979, the overriding imperative for monetary policy was to assuage the inflationary psychology of the public that manifested itself in speculative activity in commodity and foreign exchange markets and threatened to spread to wage setting behavior.

> Inflation feeds in part on itself, so part of the job of returning to a more stable and more productive economy must be to break the grip of inflationary expectations. We have recently seen clear evidence of the pervasive influence of inflation and inflationary expectations on the orderly functioning of financial and commodity markets and on the value of the dollar internationally. . . .[Volcker(1979b) pp. 888-9]

> . . .in the absence of firm action to deal with inflation and inflationary expectations, there was a clear risk that the runup in energy prices would work its way into wages and prices generally, thereby raising the nation's underlying inflation rate. [Volcker(1979c) p. 959]

The actions of the Fed taken on Oct. 6, 1979, reflected its concern over inflationary psychology. First, the Fed felt it had to establish a credible anti-inflationary stance for monetary policy. New operating procedures that

would allow the Fed to avoid overshooting its four-quarter target ranges for the monetary aggregates were considered a prerequisite for such a policy. ". . .it was clear by early fall that the growth in money and credit was threatening to exceed our own targets for the year and was nourishing inflationary expectations [Volcker(1979c) p. 959]."

Second, the Fed took actions to limit the extension of credit which, in its view, was financing speculative behavior. Credit extension by banks was constrained by the imposition of marginal reserve requirements on their managed liabilities. "And we placed a special marginal reserve requirement of 8 percent on increases in managed liabilities of larger banks. . .because that source of funds. . .has financed much of the recent excessive buildup in bank credit [Volcker(1979c) p. 960]." For the same reason, the increased variability of the funds rate under the new operating procedures was considered important. ". . .in the then existing market circumstances, perceptions (right or wrong) that changes in money market rates would be limited seemed to be encouraging banks and other lending institutions to aggressively market credit [Volcker(1980) p. 25]." Finally, the Fed exhorted banks not to extend credit for speculative purposes. "The Board of Governors has particularly stressed its own concern that, in a time of limited resources, banks should take care to avoid financing essentially speculative activity in commodity, gold and foreign exchange markets [Volcker(1979a) p. 4]."

For the first time in its history, the Fed had in place operating procedures that appeared to allow explicit targeting of the money supply in that a prerequisite for money supply targeting, the existence of meaningful targets for the money supply, was met. The Humphrey-Hawkins legislation, which took effect in 1979, required that the four-quarter target ranges for growth of money be applied solely to a fourth-quarter base, rather than to a moving quarterly base

as had been the prior practice. The resulting elimination of the phenomenon of base drift over the calendar year endowed the Fed with operationally-significant long-run targets for the money supply. Beginning in Oct. 1979, the FOMC began to specify short-run targets for the money supply derived from the four-quarter targets.

In Oct. 1979, money supply targeting appeared to offer solutions to the Fed's immediate problems. On the basis of interviews with four governors and with Board staff, Woolley (1984, Chap. 5) observes that the Fed viewed itself as facing two problems in fall 1979. First, it was recognized that market rates would have to rise significantly, but there was uncertainty over the magnitude of the rise required. A way of resolving this problem was to allow the funds rate to rise by whatever amount was necessary in order to prevent an overshoot of the four-quarter target range for M1. Second, given Congressional concern about interest rates, there was the political problem of how to engineer this rise. It was felt that the new operating procedures, by obviating the need to set an explicit target for the funds rate, would loosen the political constraints on raising interest rates. The new procedures allowed full use of the language of monetary control in communicating to Congress and the public the need to raise rates.

The institutional forces that shape the way in which the Fed implements its monetary policy are discussed at the end of the paper. At this point it is only noted that the money supply targeting begun in Oct. 1979 was effected more as a strategy for raising market rates than as a strategy of monetary control in the spirit advocated by proponents of money supply targeting. Specifically, the Fed never precommitted itself to acting on the basis of the behavior of the money supply when that behavior did not appear to capture the Fed's perception of the contemporaneous state of the economy. Immediately after its actions of Oct. 6,

the Fed reasserted its traditional view of the inadvisability of precommitting itself to act on the basis of money supply targets set in advance. (The context of the following statement concerned the usefulness of money supply targets set several years in advance.)

> Other governmental policies, institutional changes, exogenous shocks to the economy--emanating from both domestic and foreign sources--and changes in the public's money preferences can alter the relationship between money and economic performance. Rigid adherence to a fixed money stock path set for years ahead might therefore turn out to be inappropriate, sometimes needlessly wrenching financial markets or unduly constricting our flexibility in responding to some cyclical or other disturbances. [Volcker(1979c) p. 961]

Also, the Fed did not precommit itself to sticking with a single definition of the money supply, rather than switching among available definitions on the basis of which definition appeared to be capturing its contemporaneous perception of the economy's most pressing problems. Finally, the new operating procedures effected monetary control via the funds rate. The Fed, therefore, retained the ability to shift unobtrusively between the funds rate and the money supply as the primary policy variable.

Initially, the new procedures appeared to work. The first significant deviation of M1 from its intrayearly target occurred toward the middle of Feb. 1980 when M1 grew in excess of its target. (See Fig. 3.) The Desk responded by lowering the target for nonborrowed reserves modestly in late February and significantly in early March. The Board raised the discount rate from 12 to 13 percent effective Feb. 15. By the March 18 FOMC meeting, M1 was back on target. This experience is interesting because it is one of only two times in the post-Oct. 1979 period when the Desk responded vigorously and immediately to a miss of the M1 target by altering its nonborrowed reserves target, rather than responding only belatedly when the associated change in borrowed reserves failed to offset the miss. In both these instances, M1 responded promptly to Desk action.

5. Credit Controls

The first manifestation of the Fed's preoccupation with inflationary psychology was its actions on Oct. 1979. The second manifestation was the Special Credit Restraint Program (SCRP) announced March 14, 1980. According to the Board press release, the SCRP represented "further actions to reinforce the effectiveness of the measures announced in October of 1979." The Fed particularly valued the aspects of the SCRP that allowed it to restrict bank lending and thus reduce speculative credit extension. "Some parts [of the SCRP] were quite acceptable to us in terms of what we call voluntary restraints on banks [Volcker(1983d) p. 48]." Specifically, banks were "informally" required to hold loan growth to within 6 to 9 percent. Also, the marginal reserve requirement on managed liabilities of large member banks was increased to 10 percent, while large nonmember banks were subjected to a 10 percent reserve requirement on increases in managed liabilities. A surcharge on the discount rate of three percentage points was applied to borrowing by large banks. Extension of consumer credit was discouraged by a special deposit requirement of 15 percent on increases in covered types of credit, and increases in assets of money market mutual funds were subject to a reserve requirement of 15 percent.

As stated in the initial Board press release, the SCRP was intended to prevent "use of available credit resources to support essentially speculative uses of funds." The sharp effect of this program on curtailing credit extension by banks, however, frustrated the monetary control aspects of the Fed's Oct. 1979 actions [Hetzel(1982)]. Just prior to the introduction of the SCRP, M1 was on target. The SCRP severely crimped the extension of bank credit and, in the process, pushed M1 well below its target range (Fig. 3).

It appears paradoxical that the Fed would have retained the new operating procedures because they worked at cross purposes with the SCRP. The Fed,

however, did not anticipate the strongly depressing effect of the SCRP on the economy. Retention of the new operating procedures caused the drop in M1 to produce a large reduction in the funds rate. The Fed may have considered the reduction in the funds rate produced by retention of the new procedures as an acceptable way of counteracting the effects of the SCRP, given the political undesirability of an immediate dismantling of the program.

6. Money Supply Targeting in 1980

As shown in Fig. 3, 1980 contained an incipient monetary acceleration that peaked in February and a more sustained acceleration that dominated the second half of the year. M1 exceeded its intra-yearly targets from the Aug. 12 through the Dec. 19 FOMC meeting. The varying responses of the Fed toward these monetary accelerations illustrates the way in which the Fed approached monetary control after Oct. 1979. The Fed considered the money supply as a useful criterion for changing the funds rate only when the behavior of money captured its perception of the behavior of the economy.

In the first quarter of 1980, incoming data indicated considerable strength in the real sector. This strength was reflected in the strength in M1; therefore, the Fed was willing to use M1 as a criterion for altering the funds rate. Incoming data in the second and third quarters indicated weakness, and it was generally accepted by midsummer that a major recession was underway. The strength of M1 in the summer did not accord with the Fed's perception of weakness of the economy; therefore, beginning in August the operating procedures were manipulated in order to mitigate the rise in the funds rate these procedures entailed. From the July through the October FOMC meeting, the target for M1 was raised from the bottom of its range to above the top of its range. The discount rate was raised a percentage point on Sept. 26, but other increases in the discount rate and significant reductions in the target for nonborrowed

reserves were postponed until November [Hetzel(1982) pp. 247-8]. As the fall progressed, it became clear that the recession of late spring and summer had only been a temporary reaction to the SCRP and that the economy was growing strongly. As it became clear that the strength in M1 reflected strength in the economy, the Fed became willing to allow the new procedures to increase the funds rate sharply.

7. The Monetary Acceleration in the Last Half of 1980

Before discussing the behavior of interest rates and money in the last half of 1980, it is necessary to explicate several aspects of the new procedures and the environment in which they were employed. First, in the absence of a quantifiable model for deriving the funds rate from the money supply target, monetary control under the new procedures relied upon a feedback mechanism whereby as long as the money supply was off target, the funds rate was pushed in the apparently appropriate direction. (See Appendix.) Second, temporal nonlinearities in the borrowed reserves function were important. [This function expresses the positive relationship running from borrowed reserves to the differential between the funds rate and the discount rate. See Goodfriend(1983).] At the start of a monetary acceleration, bank use of the discount window is negligible. Banks are allowed to use the discount window without the administrative pressure that causes them to look to the funds market for reserves and thus to force up the funds rate and other market rates. As a monetary acceleration persists, banks are forced to use the discount window over an extended period and become subject to administrative pressure. Consequently, the passage of time causes a given level of borrowed reserves to produce a higher differential between the funds rate and the discount rate.

Third, while the new procedures altered the significance of discount rate changes for purposes of monetary control, they left unaltered the use of such

changes to communicate policy intentions to financial markets. Before Oct. 1979, when the Desk targeted the funds rate directly, changes in the discount rate could not affect the level of the funds rate. After Oct. 1979, the Desk targeted nonborrowed reserves. The demand for total reserves was predetermined because of lagged reserve accounting. Consequently, the amount of reserves the banking system had to borrow in a reserve accounting period was essentially given. Changes in the discount rate altered the marginal cost of obtaining this given amount of reserves; therefore, such changes were passed on directly to the funds rate. During the 1970s, the discount rate served as a signal of Fed intentions with respect to the funds rate. A rise, say, in the funds rate followed by a rise in the discount rate signaled to the market that the increase in the funds rate would be long-lived. In the fall of 1980, as the differential between the funds rate and discount rate widened, the market interpreted the Fed's willingness to raise the discount rate as a test of its willingness to persevere with monetary control [Levin(1981) pp. 33-34].

Finally, monetary accelerations and decelerations possessed some self-reinforcing dynamics that were not appreciated at the time. The monetary acceleration in the last half of 1980 produced uncertainty in the bond market over the course of long-term rates. Sellers and buyers of bonds left the long-term markets for short-term markets. Sellers increased their demand for bank credit. Buyers only partly turned to the market for the nonmonetary liabilities of banks. The increased demand for bank credit was, therefore, only partly matched by an increased demand for the nonmonetary liabilities of banks. The result was to increase demand deposits and M1 and to reinforce the monetary acceleration in progress.

Also, reintermediation on the asset side of bank balance sheets became important. Market rates rose as the monetary acceleration progressed in the

last half of 1980. Inertia in the prime rate caused it to lag market rates. As the customary positive differential between the prime rate and the paper rate practically disappeared, businesses shifted out of the paper market into the market for bank credit. The increase in the demand for bank credit added to deposit creation and reinforced the existing monetary acceleration.

As shown in Fig. 3, the monetary acceleration of the last half of 1980 carried M1 from well below the four-quarter target cone to somewhat above this cone by year-end. This monetary acceleration can be understood by putting together the separate pieces discussed above. In the late spring, the new operating procedures pushed the funds rate sharply lower in response to the monetary deceleration produced by the SCRP. The end of this program allowed the economy to revive and caused a resurgence of credit demands. The funds rate was at too low a level to prevent a monetary acceleration. Borrowed reserves rose in response to the overshoot of the M1 target in August. Because banks had been out of the window, however, this increase in borrowed reserves initially produced only a small increase in the funds rate. Also, the Fed, concerned about the recession, was reluctant to allow the operating procedures to raise the funds rate [Monetary (1981) p. 73].

Given the persistence of the overshoot in M1, the characteristics of the operating procedures described above acted to increase the funds rate. First, the target for borrowed reserves was ratcheted upward over time. Second, the administration of the discount window caused over time given levels of borrowed reserves to produce a higher differential between the funds rate and the discount rate. Third, as the monetary acceleration persisted, the Fed became concerned that the bond market would perceive monetary policy as having become inflationary. For this reason, as the differential between the funds rate and the discount rate widened, the Fed felt compelled to raise the discount rate,

even though the immediate effect of such an action was to raise the funds rate and to leave this differential unaffected. Finally, as the monetary acceleration persisted, the target for nonborrowed reserves was lowered.

All these factors combined to force a sharp increase in the funds rate toward year-end. The funds rate rose about three percentage points in each of the months November and December, reaching a peak of 20 percent early in January. The new procedures raised the funds rate in light of the monetary overshoot, but in the absence of any way to associate a particular level of the funds rate with the money supply target, this process was carried too far. An overshooting of the funds rate occurred and a monetary deceleration ensued. The peak in the funds rate series in January 1981 came a month after the trough in the rate of growth of M1 series in December 1980.

8. Monetary Deceleration in 1981

The transactions measure of the money supply targeted in 1981 was called shift-adjusted M1-B. M1 comprises all checkable deposits. The introduction nationwide in 1981 of the new interest-bearing checkable deposits, NOW and ATS accounts, imparted a onetime fall to the income velocity of M1 to the extent that these new deposits were drawn from nonmonetary sources. Institutional arrangements encouraged in particular the relabeling of savings accounts as NOWs due to the existence of the same Reg. Q ceiling on savings and NOW accounts, even though the latter offered transactions services not offered by the former. Shift-adjusted M1 represented an attempt to construct a money series comparable to the old M1 series by removing increments to NOW and ATS accounts originating from nonmonetary sources such as savings deposits.

Considerable effort on the part of the Board staff went into the construction of the shift-adjusted M1 series. Survey information was collected monthly from a sample of banks and S&L's on the sources of new OCD (other

checkable deposit) balances. Cross-section regression analysis was used with the balance sheet data of about 9000 banks that report weekly as a way of estimating the source of OCDs. Also, the Survey Research Center of the University of Michigan conducted four surveys of households about the source of funds used for new OCD accounts. [See Bennett (1982) and Simpson (1981).] The shift-adjustment of M1 was discontinued in 1982 because of the assumption that the transitional shift of funds into the new accounts had ended. (There is, consequently, a discontinuity in the M1 series shown on Fig. 3 between the December 1981 observation and the January 1982 observation.)

The shift-adjusted M1 series exhibited a sharp deceleration in 1981. Using fourth quarter to fourth quarter figures, M1 grew at about 8.3 percent in 1977 and 1978. In 1979 and 1980, M1 grew at 7.5 percent and 7.3 percent, respectively. In 1981, the growth rate of shift-adjusted M1 fell to only 2.3 percent.

The economic recovery begun in the second half of 1980 extended into 1981. Real GNP grew by 8.6 percent in 1981Q1. (Subsequently, the business cycle peak was dated as July 1981.) The irregular slowing of the rate of growth of various price indices provided mixed evidence on whether inflation was slowing. The implicit GNP deflator rose by 8.9 percent from 1980Q4 to 1981Q4, a slowing of only a percentage point from the previous year. The producer price index rose at a 12 percent rate through April, but rose more slowly thereafter. The rise in the CPI moderated in the first and second quarters, but rose more strongly in the third quarter. In this economic environment, the Fed continued to be preoccupied by inflation and inflationary psychology. The Fed was especially concerned about displaying a firm anti-inflationary posture in order to influence wage negotiations in 1982.

> The stubbornness of our inflation in large part reflects the adaptation of our economic and social institutions to persistently rising prices. The process is embedded in a whole pattern of economic, social, and political behavior that tends to sustain --

> and intensify -- its own momentum. We see the process at work in contracts that extend over a period of time: in the pattern of three-year wage bargaining, building in past or anticipated rates of inflation into future cost. . . .The most critical area -- inevitably, because it accounts for some two-thirds of all costs -- is the trend of wages and salaries. [Volcker(1981b) pp. 10,11]

> . . .a crucially important round of union wage bargaining begins next January, potentially setting a pattern for several years ahead. That is one reason why we need to be clear and convincing in specifying our monetary and fiscal policy intentions and their implications for the economic and inflation environment. [Volcker (1981a) p. 617]

The primary concern of monetary policy in 1981 was to avoid a fall in market rates that would be perceived as a weakening of the Fed's anti-inflationary resolve. ". . .a decline in short-term rates could exacerbate inflationary expectations and abort a desirable downtrend in bond yields and mortgage interest rates [Board(1981) p. 138]. Shift-adjusted M1 remained below its four-quarter target cone in the first quarter of 1981 (Fig. 3), and, as a consequence, the new operating procedures pushed the funds rate down to 14.7 percent in March (Fig. 5). M1 grew strongly in April, but still remained only at the lower boundary of the four-quarter target cone (Fig. 3). Despite this latter fact, in early May, the Board raised the discount rate and the surcharge on the basic discount rate, placing the surcharge rate at 18 percent (Fig. 1). The Desk reduced the target for nonborrowed reserves by an amount that exceeded any other discretionary change ever effected under the new procedures. By May, the funds rate had been pushed back up to 18.5 percent.

At the May 18 meeting, the FOMC emphasized its concern that monetary policy appear firmly anti-inflationary.

> The indications of some slowing of the rise in the consumer price index did not appear to reflect as yet any clear relaxation of underlying inflationary pressures, and emphasis was placed on the importance of conveying a clear sense of restraint at a critical time with respect to inflation and inflationary expectations. [Board(1981) p. 111]

In order to prevent weakness in M1 from lowering the funds rate, the FOMC adopted an open-ended directive with respect to the extent that growth in M1 could decline. ". . .the Committee decided to seek behavior of reserve aggregates associated with growth of M1-B from April to June of 3 percent or lower. . . . [Board(1981) p. 112]" When M1 fell after the May FOMC meeting, the target path for total reserves was reduced in line with reductions in actual total reserves in order to prevent the target for borrowed reserves and the funds rate from falling.

When M1 declined in May and June, it was dropped as a target in favor of M2, which was growing strongly. The Fed contended that the public's demand function for M1 had shifted leftward due to the growth of money market funds that were serving as transactions balances and that are included in M2, but not M1. "You may recall that last year [1981] M1 grew slowly. . . .We believe that this was a reflection of financial innovations including prominently the rapid growth of money market funds, which to some limited extent serve the function of transactions balances [Volcker (1982c) p. 10]."

At the time, there was no econometric evidence that M2 was a useful definition of the money supply. Turnover rates on money market fund accounts were even less than for savings accounts. Also, the pattern of growth in money market mutual fund accounts did not explain the pattern of errors in the M1 demand equations used in the Board's econometric models. M2, as redefined in 1980, was widely viewed as a "kitchen sink" definition because of the heterogeneity of its components.

The dropping of M1 in favor of M2 should be viewed within the Fed's perspective of money supply control [Hetzel(1984)]. The Fed considers it desirable to have available a multiplicity of definitions of the money supply. This multiplicity increases the probability that at any given time the Fed will have

available a definition of money whose behavior captures its perception of the contemporaneous state of the economy. In May 1981, this perception, still dominated by inflation, appeared to be better captured by the strength in M2 than by the weakness in M1.

It should also be noted that the Oct. 1979 operating procedures were organized around the impact on borrowed reserves of discrepancies between actual and path total reserves. The behavior of total reserves, however, derives almost exclusively from the behavior of M1, rather than M2, because the non-M1 components of M2 are either not reservable or are reservable at very low required reserves ratios. Consequently, targeting M2 required overriding the new procedures and allowed the funds rate to be set directly.

The Desk stopped lowering the path value of total reserves in line with the actual value in the last part of June; therefore, the weakness in M1 caused borrowed reserves to fall in July. The normal effect of this fall in producing a lower funds rate was offset, however, probably due to the characteristic of discount window administration whereby extended periods of borrowing increase the pressure on banks to turn to the funds market. In June and July the funds rate was at 19 percent, and in August it was almost 18 percent. Only in September did the fall in borrowed reserves depress the funds rate significantly. By early October, the shortfall of total reserves from path had reached the unprecedented level of $370 million [Monetary(1982) p. 51]. The first significant discretionary action taken in response to this shortfall was the one percentage point reduction in the discount rate effective November 2. Despite the fact that shift-adjusted M1 remained well below its four-quarter target cone throughout most of 1981, the funds rate was not allowed to fall below its March value of about 15 percent until November.

9. Interaction between the Fed and the Bond Market

The primary characteristic of the bond market in 1981 was extreme uncertainty over how to price bonds. First, there was uncertainty over future inflation. The rate of inflation as measured by the CPI had risen from around 5 percent in 1975 to over 12 percent in 1980. With unit labor costs rising at an annual rate of 10 percent in 1981, forecasters were not predicting any near-term abatement of inflation. Second, there was uncertainty over the cyclical behavior of the economy. Since 1979, forecasters had been consistently wrong in predicting the timing of peaks and troughs in the business cycle. In spring 1981, forecasters were not predicting a recession, but rather were emphasizing the "resilience" of the economy and stressing the strength in energy and high technology areas. Most important was the uncertainty over the size of future federal deficits and the effect of these deficits on interest rates. Throughout 1981, the Administration revised upward its estimate of the following year's fiscal deficit. There was considerable skepticism that the Economic Recovery Tax Act of 1981 would increase economic activity, the savings rate, and tax receipts as promised by the Administration. An attempt to reduce spending failed in the fall because of Congressional opposition.

In setting rates in this environment, market participants relied partially on their perception of the Fed's judgment about the appropriate level of rates. The Fed's judgment was viewed as summarized in the level of the funds rate. Consider, for example, the following quote from the Salomon Brothers newsletter, Comments on Credit, 12/9/83: "The widespread focus on the daily fluctuations of the Federal funds rate as a guide to bond pricing will probably continue. . . ." As shown in Fig. 5, in the period after Oct. 1979, the funds rate and the bond rate often exhibited broadly similar movements.

The interaction between the Fed and participants in the bond market helped to sustain the historically high level of bond yields in 1981. The Fed was concerned about the inflationary expectations of the bond market and did not want a decline in the funds rate that would be interpreted as an easing of policy. The Fed wanted bond rates to fall before lowering the funds rate, so it looked to the bond market in setting the funds rate. The bond market, however, looked to the Fed. The bond market concentrated on the historically high level of the funds rate and the absence of reductions in the discount rate until year end. Market participants wanted a permanently lower funds rate before setting lower bond rates. Eventually, bond yields fell significantly in November after evidence of a sustained decline in the funds rate.

10. The Return to Rate Targeting in 1982

Early 1982 marks the transitional period from a primary concern by the Fed for inflation to a primary concern with recession. Real GNP had remained essentially unchanged in the second and third quarters and fell in the fourth quarter of 1981, while by year-end inflation had clearly moderated. Consequently, the Fed's perception of the economy's most pressing problem began to change.

> Now we can see clear signs of progress on the inflation front. . . . we are also seeing signs of potentially more lasting changes in attitudes of business and labor toward pricing, wage bargaining, and productivity. . . .I believe the pattern is likely to spread, "building in" lower rates of increase in nominal wages and prices over time. And as the inflationary and cost pressures ease, the economy can resume a healthy pattern of growth. . . .[Volcker (1982b) pp. 167-168]

The Fed also continued to be concerned in early 1982 about the bond market. In the last several months of 1981, the federal deficit projected for the current fiscal year had risen from about $40 to $110 billion. For fiscal year 1984, projections of a balanced budget had given way to projections of a deficit of $150 billion. In this environment, the Fed remained concerned that any

easing of monetary policy would exacerbate the inflationary anticipations of participants in the bond market.

The rate of growth of M1 rose in November and December of 1981 and surged in January 1982 at an annual rate of 21.5 percent. The January surge carried M1 above the level of the year-end lower boundary of the four-quarter target cone (Fig. 3). The Fed reacted to this bulge in M1 in a way that reflected a compromise of its conflicting concerns over recession and the inflationary expectations of financial markets. It retained the Oct. 1979 operating procedures, but effectively raised the M1 target by "rebasing." (Rebasing involved raising the base used for calculating growth of M1 in 1982 [Volcker(1982a) p. 17].) The result was a moderated increase in the funds rate. In 1981Q2, M1 had risen $12 billion while the funds rate was increased 550 basis points and the surcharge adjusted discount rate was raised 300 basis points. In 1982Q1, M1 rose $10 billion while the funds rate was increased 235 basis points and the discount rate was not changed.

Apart from the summer of 1980 when the Fed was concerned with recession, the primary concern of policy since October 1979 had been to convey a firm anti-inflationary stance in order to assuage the inflationary psychology of the public.

> Progress toward disinflation at first was slow - almost invisible. . . .for a long while there was little room for modifying policy in response to domestic or international concerns. The danger was that the wrong "signals" would only increase the risk that the whole process of restoring stability -- domestically or internationally -- would be longer delayed or even aborted. [Volcker(1983c) p. 3]

In response to the moderation of inflation and the continuation of recession, the primary concern of monetary policy during 1982 became economic recovery. In retrospect, this change in the primary emphasis of policy was evident by June in the change in Fed rhetoric. This rhetoric began to emphasize "flexibility" and

"judgment," code words for the Fed's view that money supply targets are nonbinding. Such a rhetoric would have been inappropriate if the priority of policy were dealing with the inflationary psychology of the public.

> . . .we need. . .to be conscious of the fact that the world as it is requires elements of judgment, interpretation, and flexibility in judging developments in money and credit and in setting appropriate targets. . . .we cannot always assume a rigid relationship between money and the economy that, in fact, may not exist over a cycle or over longer periods of time, especially when technology, interest rates, and expectations are changing. . . .we must. . .take into account a wide range of financial and non-financial information when assessing whether the growth of the aggregates is consistent with the policy intentions of the Federal Reserve. The hard truth is that there inevitably is a critical need for judgment in the conduct of monetary policy. [Volcker(1982d) pp. 406-7]

Early in July, the Fed was concerned about the liquidity of the CD market in the aftermath of the Penn Square Bank failure. In retrospect, however, it was primarily concern over the international debt situation that served as the catalyst for the decision to revert to interest rate targeting and to push down the level of market rates. The sharp appreciation of the dollar in 1982 as well as the continued high level of market rates precipitated the situation in which numerous countries neared default on their external debt. The Record of Policy Actions of the FOMC indicates that the Fed began negotiating with the Bank of Mexico in June to furnish reserves under the existing swap arrangement [Board (1982) p. 120]. Apparently, such negotiations led to the fear that defaults by large debtor nations would threaten the world financial system.

> . . .we have to evaluate the significance of developments abroad as well as at home, as reflected in trade accounts and the exchange rate, and of strains in the financial structure itself. [Volcker (1982e) p. 747]

> . . .the potential for an international financial disturbance impairing the functioning of our domestic financial markets at a critical point in our recovery is real. [Volcker(1983b) p. 170]

Coping with the international debt situation appeared to the Fed to require a substantial reduction in the level of interest rates in the United States for a variety of reasons. First, because much of the debt of third-world countries in particular was of short maturity, a lower interest rate would reduce the burden of interest payments as debt was rolled over. Second, because the debts were denominated in dollars, a lower rate of interest in the United States would facilitate repayment by limiting the contemporaneous appreciation of the dollar. Third, a lower rate of interest in the United States would spur the U.S. economy and in the process increase the exports of debtor nations and their supply of foreign exchange. Finally, a lower rate of interest in the United States would allow central banks of other industrialized countries to lower their bank rates. The resulting stimulus to their economies would increase their imports from debtor countries. ". . .an environment of sustained recovery and expansion in the industrialized world is critically important [Volcker(1983a) p. 82]."

From July 1982 through December 1983, the end of the period considered here, the funds rate was set judgmentally on the basis of the contemporaneous behavior of the economy. In light of the reduction in inflation and of the depressed level of economic activity, a lower level of interest rates was considered desirable. After the funds rate was pushed down, the rate of growth of M1 surged. Because the strength in M1 was not reflected in strength in the economy, the Fed dismissed the behavior of M1 as reflecting a rightward shift in the public's demand for M1 that should be accommodated. These attitudes are reflected in the minutes of the Board action to lower the discount rate in November. "The Board members regarded such an action as. . .appropriate in light of continued progress toward price stability and widespread evidence of persisting sluggishness in economic activity. The Board members also recognized that current economic and financial uncertainties were fostering exceptional

demands for liquidity and relatively rapid growth in the monetary aggregates [Minutes(1982)]."

Beginning in the middle of July, the Fed began to push the funds rate down aggressively. At the time, M1 was just barely within the top of its four-quarter target cone (Fig. 3), and it was on target on the basis of the path established earlier in the year in conjunction with "rebasing." M2 and M3 were both above their target range. Without a definition of the money supply available that could capture its perception of the economy's most pressing problem, a depressed level of economic activity, the Fed began to implement monetary policy by targeting the funds rate directly. The funds rate was lowered through reductions in the discount rate and increases in the target for nonborrowed reserves. From the end of June to the end of August, the funds rate fell from about 15 percent to about 9 percent.

The last hurrah of the Oct. 1979 procedures occurred in September when the resurgence of M1 was allowed to increase the target for borrowed reserves, and the funds rate rose a percentage point. The increase in the funds rate was brought to an end by a large, ad hoc increase in the target for nonborrowed reserves. At its meeting on October 5, the FOMC formally dropped M1 as a target of policy. Publicly, it was argued that M1 was no longer a useful target because the maturing of All Savers Certificates in October and the introduction of money market deposit accounts in December would render its behavior difficult to interpret. Formally, M2 and M3 were retained as targets, but the Record of Policy Actions for the October 5 FOMC meeting indicates that their continued growth above the target range would not affect the funds rate. "Should economic and financial uncertainties lead to still stronger liquidity demands, somewhat more rapid growth in the broader aggregates would be tolerated [Board(1982) p. 126]."

From the perspective of the Fed, the key tactical problem in the summer and fall of 1982 was how to lower the funds rate without causing financial markets to believe that monetary policy had become more expansionary and, therefore, more inflationary. The strategy adopted was to lower the funds rate in steps while observing the reaction of financial markets. This strategy was continued until reductions in the funds rate no longer produced declines in market rates, particularly, intermediate and long term rates. (Note that if the Fed were following a money supply, rather than an interest rate, targeting procedure, it would have raised its money supply targets for 1983. Instead, it lowered the funds rate and accepted whatever increase occurred in the rate of growth of M1.)

Initially, the decision by the Fed to lower the funds rate caused the bond market to rally (Fig. 5). The market viewed the reduction in the funds rate as a judgment by the Fed that the level of market rates necessary in order to control inflation had fallen. This judgment was accepted by the market on the basis of the sustained reduction in inflation that had occurred and on the basis of the credibility that the Fed had established with the highly restrictive monetary policy in 1981. In retrospect, the process of lowering market rates ended in December when a reduction in the discount rate of half a percentage point left intermediate and long-term rates unchanged. By December, investors had become concerned over a resurgence of M1 growth.

11. 1983 - Setting the Funds Rate Judgmentally

Money supply targets in 1983 were formulated so as to be nonbinding. The Fed continued to dismiss M1 as a suitable target, and its four-quarter target range was replaced by a "monitoring" range. The base for growth of M2 in 1983 was changed from 1982Q4 to February/March 1983. (This choice of base was supposed to minimize distorting effects associated with the introduction of money market deposit accounts in December 1982.) The new base would not be

known until mid-April and the first reported monthly growth rate given this base would not be available until mid-May. Consequently, M2 could not constrain monetary policy until close to mid-year.

Also, the FOMC made clear that its targets could be subject to revision. ". . .members anticipated the need for reviewing those targets during the spring and possibly altering them in light of. . .their relationship to other economic variables [Board(1983), p. 92]." In the first half of 1983, M1 grew significantly faster than the upper boundary of its monitoring range. At the July FOMC meeting, M1 was "rebased" by changing the base for its monitoring range to 1983Q2, as shown in Fig. 3. In this way, the FOMC indicated it would not react to the high rate of growth of M1 in the first half of 1983.

Early in 1983, majority sentiment within the Fed about the economy reflected widespread sentiment among forecasters outside the Fed. The economy would recover from the recession, but at a slower rate than in past recoveries due to the retarding effect of high real interest rates and a strong dollar. There also seemed little prospect for a revival of inflation, given the prevalent view within the Fed of inflation as a real phenomenon. Unit labor costs were behaving favorably, excess capacity was high, and special factors did not appear to be forcing up prices in particular markets.

Given the outlook described above, a majority within the FOMC desired to continue to reduce the funds rate. This desire, however, was frustrated by the nervousness of financial markets over the rapid rise in M1. In February, six Federal Reserve Banks renewed their requests for a lower discount rate, but the Board, worried about the reaction of the bond market, denied the requests. The FOMC at its meeting on March 29 instructed the Desk to lower the funds rate if either the growth of the monetary aggregates moderated or the economy weakened. Neither condition was met subsequently.

> . . .it was pointed out that the strength of the aggregates needed to be judged in the context of the. . .relatively high level of real interest rates. With the economic recovery still in its early and fragile stages, the view was expressed that strong upward pressures on interest rates would involve an unacceptable risk of unduly retarding, and perhaps aborting, the recovery. . . .The Committee members agreed that lesser restraint on reserve positions would be acceptable in the context of more pronounced slowing in the growth of the the monetary aggregates, after taking account of any distortions relating to the introduction of new deposit accounts, or of evidence of a weakening in the pace of the economic recovery. [Board(1983) p. 99]

There was only one major policy move in 1983, when policy is understood in the contemporaneous context of the level of the funds rate. By May, it became apparent that the economy was growing vigorously, while the high rate of growth of M1 continued unabated. At its May 24 meeting, the FOMC voted "to increase only slightly the degree of reserve restraint." (Five members dissented over this tightening move.) The funds rate was then raised from 8 1/2 to 9 1/2 percent. As shown in Fig. 3, M1 grew rapidly in the first half of 1983, but then grew only very slowly in the second half (as measured by the data available contemporaneously). There was no significant change in the funds rate in the last half of 1983 because everything seemed to be going all right. Inflation remained subdued and the rate of growth of real GNP appeared to be subsiding to a normal rate for an economic recovery.

An important characteristic of the policy environment in 1983 was the multiplicity of goals pursued by the Fed. Basically, Congress and the Executive Branch, sensitive to criticism over the deficit, were pressing the Fed for an expansionary monetary policy. They feared negative political repercussions from the common criticism that high deficits cause high interest rates and that high rates would end the economic recovery. An expansive monetary policy was viewed as protection against this outcome. If the economic recovery were to stall before the elections in 1984, the Fed would probably be required by Congress to set explicit targets for real GNP. In 1983, one objective of monetary policy

was to maintain the economic recovery. Another objective fostering an expansionary monetary policy was prevention of default by large sovereign borrowers. This objective was viewed as limiting the ability of the Fed to increase the funds rate.

Militating in favor of a restrictive monetary policy was the objective of avoiding an economic recovery that would revive inflation. The chairman of the Fed was especially concerned about the time when the economic recovery would have advanced to the point where the revived demand for credit from the private sector would clash with the demand for credit from the public sector. At this time, if market rates were not allowed to rise, the possibility of a noninflationary recovery would be lost. Given the difficulty of raising rates, this objective worked against any lowering of the funds rate.

12. Evaluating the Oct. 1979 Operating Procedures

It is difficult to evaluate the Oct. 1979 procedures for several reasons. First, they were in place only intermittently in the interval from Oct. 1979 until their demise in 1982. In 1980, they were temporarily superseded by the SCRP, the objective of which was to control credit, not money. In 1981, when weakness in M1 did not correspond to the Fed's predominant concern over inflation, the new procedures were overridden in order to produce desirable behavior of the funds rate. In the first half of 1982, after an initial rise in the funds rate, significant additional rises were not allowed. Second, there was only very limited use of prompt discretionary changes in nonborrowed reserves in response to deviations of M1 from target. Finally, the implementation of the new procedures reflected the unchanged view within the Fed of monetary policy operating through interest rate control. The purpose of the new operating procedures was to facilitate politically a rise in market rates, rather than to control the money supply in the way envisaged by proponents of

monetary control. The spirit in which the new procedures were approached is captured by Governor Teeters in a comment on their abandonment. "I never was greatly enamored with monetarism anyway. It was a camouflage for raising interest rates [Teeters(1984) p. 6A]."

Judged by the experience in the last half of 1980 in particular, the Oct.6 procedures were themselves a major source of instability. The new procedures effected monetary control through control of the funds rate, which in turn was indirectly controlled by borrowed reserves and the discount rate. A salient characteristic of these procedures was the lack of an analytical model that could associate a numerical value of the funds rate with the targeted value of the money supply. By default they relied on a simple feedback mechanism whereby, as long as an overshoot of the money supply target existed, the funds rate would rise, and conversely. This feedback mechanism, taken in combination with the lags inherent in monetary control and with the turbulent economic environment of the early 1980s, was a source of instability.

In the early 1980s, the economy and credit markets were subjected to large shocks generated by the SCRP and by the restrictive monetary policy that followed the expansionary policy of the last half of the 1970s. In this environment, no one had any idea of what funds rate would produce the targeted value of the money supply. A money supply and funds rate cycle would begin with a funds rate too low to prevent an increase in credit demands from initiating a monetary acceleration. Initially, the monetary acceleration would proceed while the funds rate rate would be little changed, but later the funds rate would rise sharply. The sharp rise in the funds rate in time would produce a monetary deceleration and a subsequent sharp drop in the funds rate. Because of the temporal lags in the relationship running from the funds rate to the money supply, the simple feedback mechanism of the new procedures induced cycles in

the money supply and the funds rate by causing the funds rate to overshoot and undershoot the level necessary in order to achieve the targeted value of the money supply. Furthermore, the way the bond market keyed off the funds rate caused the rises and falls in the funds rate to be transmitted to the entire maturity spectrum of rates.

13. The Endogenous Determination of Operating Procedures

The character of monetary policy is determined by the nature of existing institutional arrangements. The dominant characteristic of these arrangements is the independence of the Federal Reserve. In order to maintain its independence, the Fed must pursue a monetary policy that precludes the formation of coalitions within Congress and the Executive Branch capable of threatening its independence. Generally, such a policy is viewed by the Fed as requiring it to balance multiple, changing objectives. This requirement produces the desire by the Fed for "flexibility," that is, an absence of precommitment [Hetzel(1984)]. A prototypal situation was the last half of 1982 and 1983 in which monetary policy was implemented in a way that the Fed believed allowed it the flexibility to balance in an ongoing fashion a nominal and a real objective.

> The question, of course, is. . .how to maintain the progress against inflation while maintaining growth. . .(p. 7) I do not believe we can bootstrap our way to combining price stability with growth simply by committing ourselves at this stage to a mechanical rule. There is more to it than that. [Volcker(1983e) p. 11]

Within the Fed, money supply targeting is associated with precommitment, that is, a commitment to vary the funds rate on the basis of the behavior of the money supply relative to targets set in the past. The money supply targeting that occurred after 1979 was acceptable to the Fed only because, at the time, it possessed a single objective, lowering the rate of inflation. The Oct. 1979 operating procedures were implemented without the kind of precommitment advocated by proponents of money supply targeting. They were, nevertheless, still

viewed as lacking the flexibility offered by judgmental variation of the funds rate, that is, direct control of the funds rate in the absence of a criterion for changes specified in advance. In the more typical environment of 1982 and 1983, in which the Fed felt the need to balance on an ongoing basis multiple objectives, a return to the implementation of policy through judgmental variation of the funds rate was inevitable.

14. Concluding Comment

The purpose of this paper is to provide a description of monetary policy in the early 1980s and of the operating procedures used to implement that policy. The task of assessing this policy is left to others. It is hoped that this paper and Hetzel(1984) will encourage economists discussing the policies of the Federal Reserve to eschew labels applied to schools of thought in macroeconomics. Monetary policy is formulated with a logic that derives from the institutional setting within which it is placed. The political economy of monetary policy possesses little, except jargon, in common with the ideas associated with macroeconomic debates. Familiar, but irrelevant, labels should not replace the careful study of the actual monetary policy of the Federal Reserve.

*The views expressed here are solely those of the author and, it must be strongly emphasized, do not necessarily reflect the views of the Federal Reserve System or the Federal Reserve Bank of Richmond.

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Appendix

The feedback mechanism running from M1 to the funds rate, mentioned in section 7, possessed the relatively nondiscretionary component described below. Three characteristics of the new procedures were important in this respect. First, an overshoot, say, in M1 would cause a positive gap to appear between the actual and path level of total reserves. This reserves gap would be added by the Desk to the initial target for borrowed reserves. Second, after a miss, the FOMC would attempt to return M1 to its intrayearly target path. Consequently, over time, the total reserves path would be unaffected by the M1 miss. Third, the FOMC set the initial target for borrowed reserves equal to the value of the target that existed going into FOMC meetings. As a consequence of these three characteristics, as long as, say, an overshoot of a given M1 target path persisted, a gap would reemerge after each FOMC meeting between actual and path total reserves. After each FOMC meeting, the target for borrowed reserves would, therefore, be ratcheted upward. Given the approximate fixity of the total reserves path, these increases in the borrowed reserves target would ratchet downward the target for nonborrowed reserves.

Eventually, the increase in borrowed reserves would cause the funds rate to rise sufficiently in order to eliminate the overshoot of the M1 target. This process is shown in Fig. 4 in the inverse movements of rates of growth of M1 and nonborrowed reserves. Explicit, discretionary changes in nonborrowed reserves were infrequent and often small in magnitude, so the inverse movements in M1 and nonborrowed reserves derived primarily from the process just described. The intervals over which the series move together, summer 1981 and summer 1982 and henceforth, are periods of funds rate control, rather than nonborrowed reserves control.

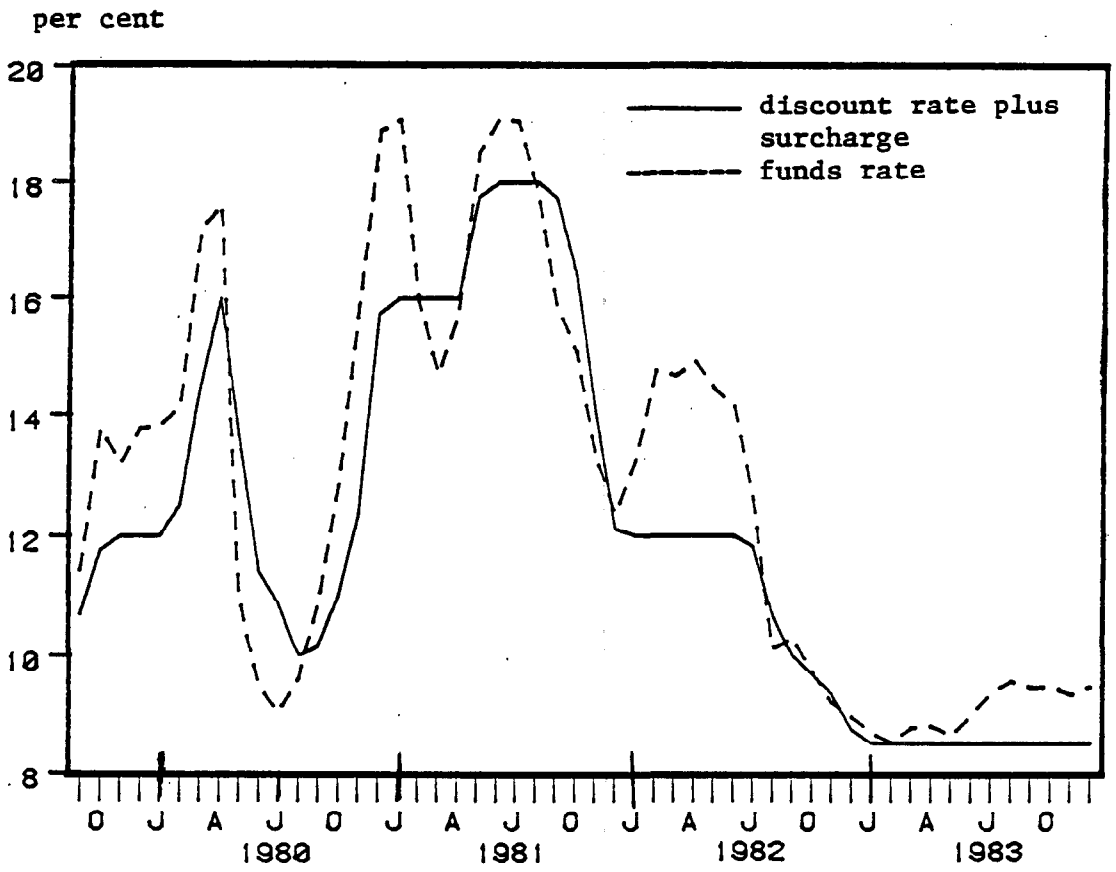

Fig. 1. Funds Rate and Discount Rate Plus Surcharge.
note: From March 1980 through November 1981, in addition to the basic discount rate, a variable surcharge was applied to frequent borrowing by large banks from the discount window.

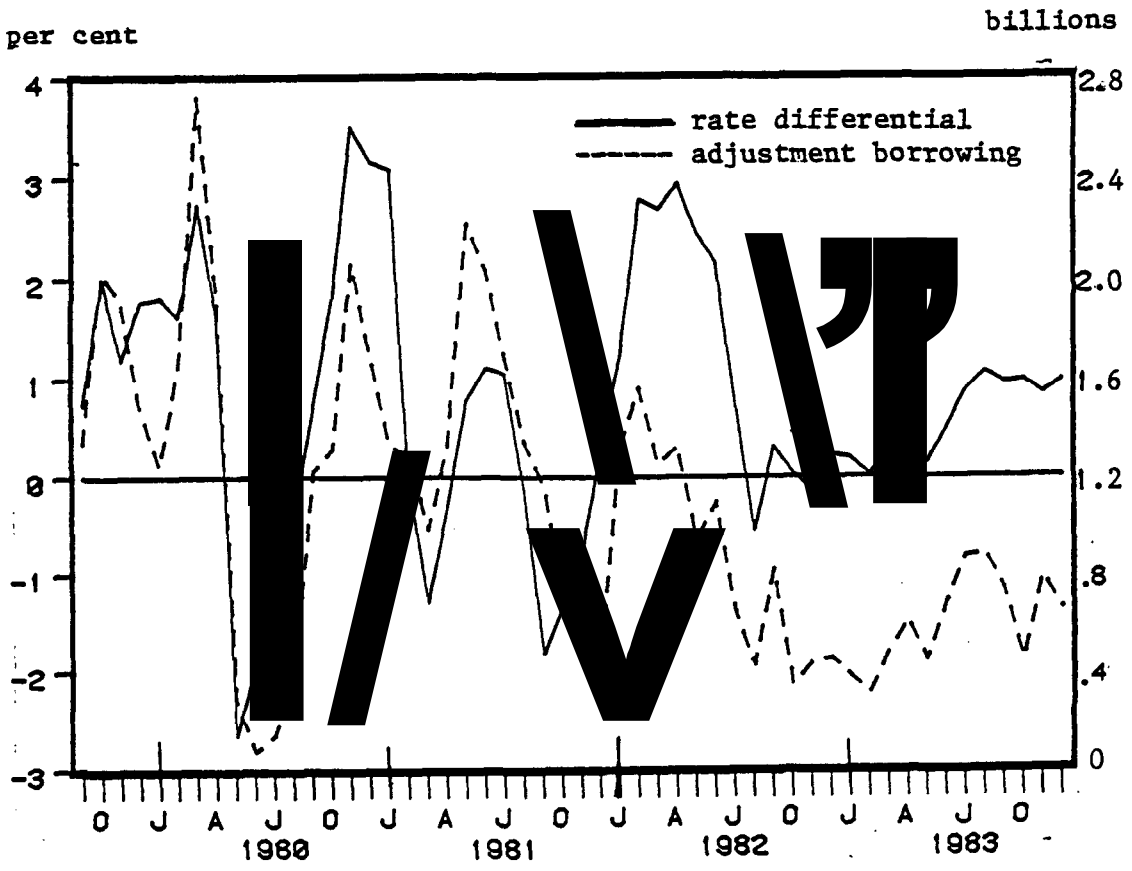

Fig. 2. Adjustment Borrowing and the Differential Between the Funds Rate and the Discount Rate Plus Surcharge.
note: Adjustment borrowing is borrowing at the discount window minus seasonal borrowing and extended credit.

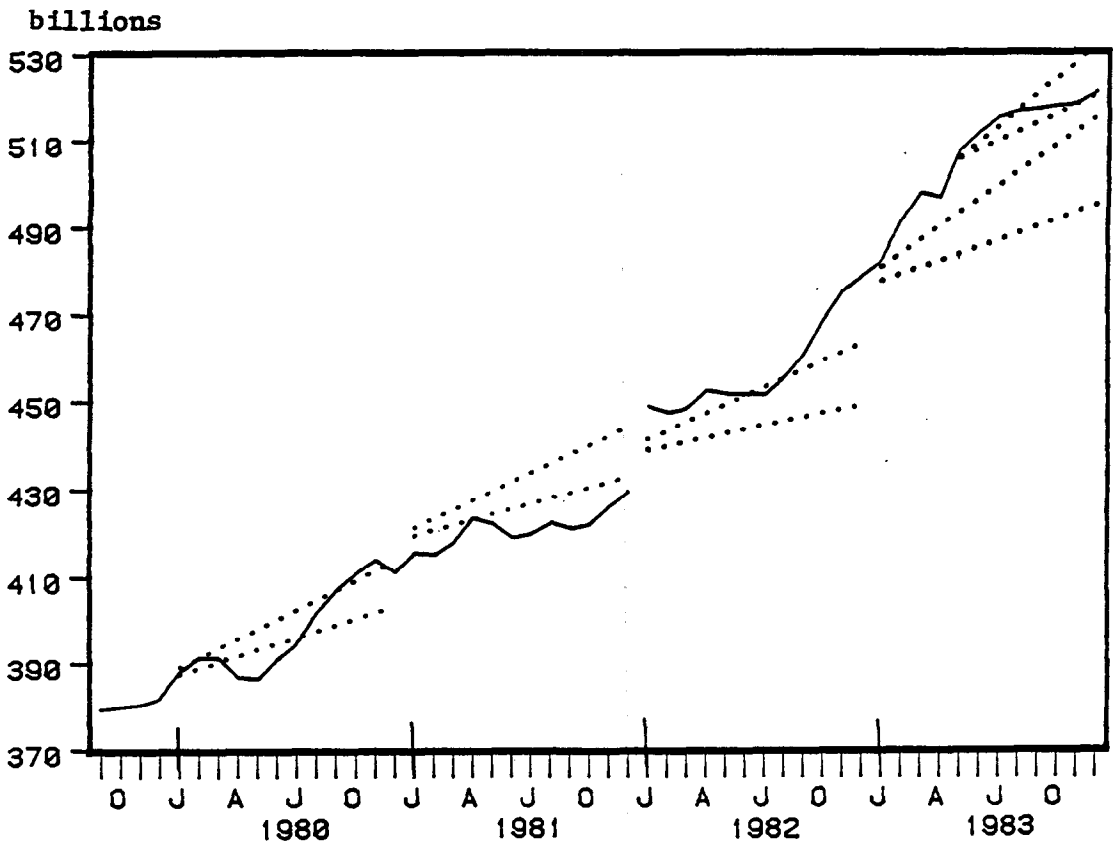

Fig. 3. M1 and Four-Quarter Target Ranges.
note: In order to display the data available contemporaneously, M1 is taken from the first Board of Governors statistical release H.6 showing complete monthly figures for a given year. In 1980, M1-B is used. In 1981, shift-adjusted M1-B is used. This series adjusts other checkable deposits for shifts from non-demand deposit sources. The discontinuity after 1981 arises from the discontinuance of the shift adjustment. After October 1982, the target range for M1 was replaced by a "monitoring" range. The dual ranges for M1 in 1983 reflect the rebasing of the M1 monitoring range in July 1983.

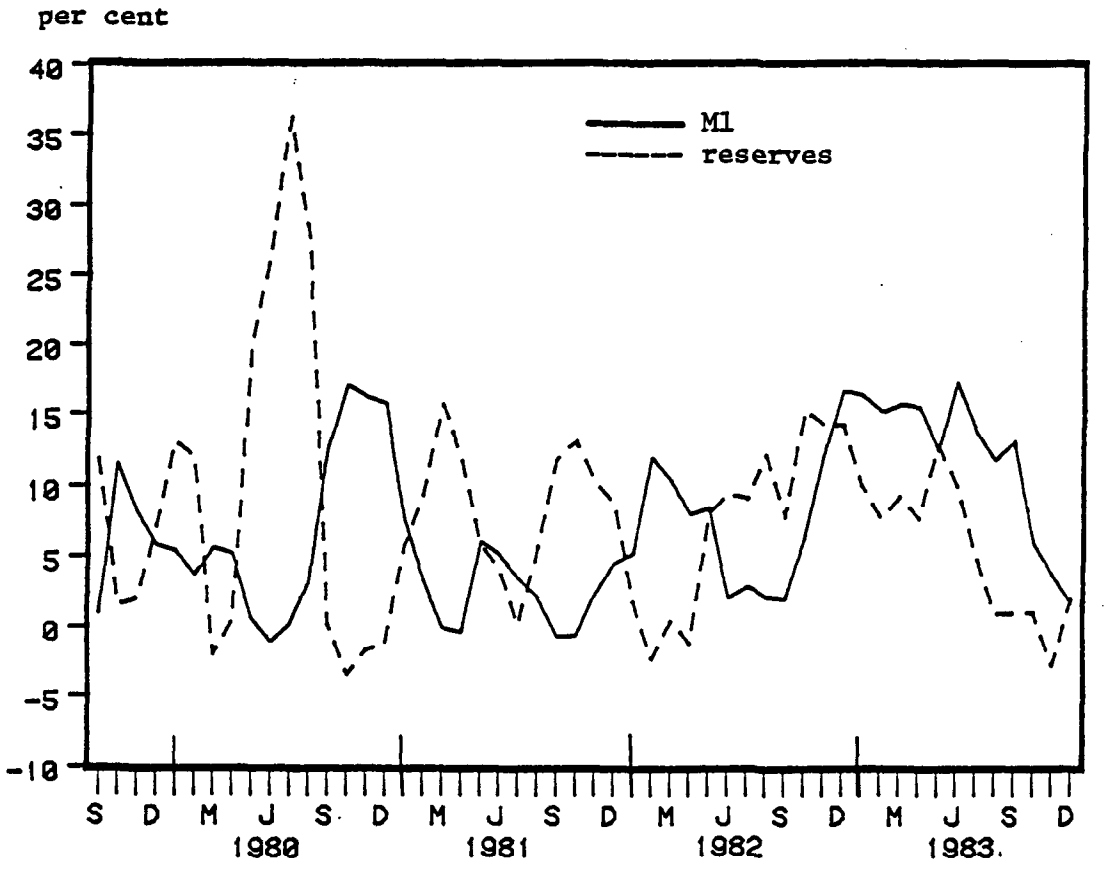

Fig. 4. Nonborrowed Reserves and M1 Growth.
note: Series are four-month moving averages of monthly growth rates. The series nonborrowed reserves (plus extended credit), adjusted for discontinuities due to regulatory changes affecting reserve requirements, was made available by the Board of Governors. The M1 series is described in Fig. 3.

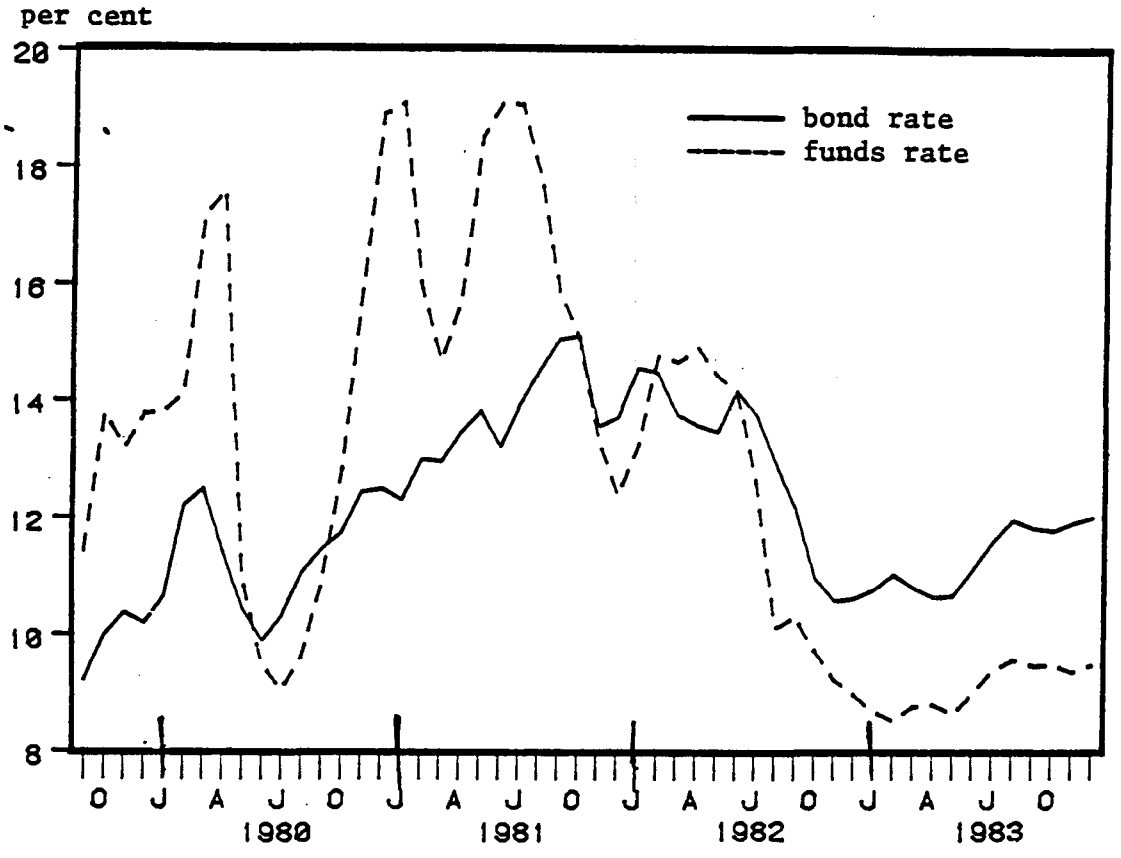

Fig. 5. Twenty-Year Bond Rate and Fed Funds Rate