

STRICTLY CONFIDENTIAL (FR)  
CLASS II - FOMC

BOARD OF GOVERNORS  
OF THE  
FEDERAL RESERVE SYSTEM

## Office Correspondence

Date August 14, 1991

To Federal Open Market Committee

Subject: Alternative Operating Procedures

From Donald Kohr

In response to the Committee's request at its last meeting, the attached memo reviews possible alternatives to the current operating procedure, which concentrates on the level of the federal funds rate, adjusts the expected level of the rate in discrete steps based on the Committee's judgment using a number of economic and financial indicators, and transmits those adjustments in an obvious way to the financial markets. In their discussion, Committee members seemed to have been motivated by two related objectives. One was to reduce the "announcement effect" of each change in policy. The other was to remove at least some of the discretionary element of changes in the federal funds rate, allowing reserve conditions to vary automatically with changes in other variables, such as the demand for reserves or money.

In his memo, Mr. Lindsey discusses two types of possible alterations in operating procedures. One would involve somewhat looser targeting of the federal funds rate than the narrow area around a single level that has become the practice in recent years, without any necessary implications for how the target is arrived at. Included in this category are greater toleration of short-run deviations from the

expected level of the funds rate, a range for the expected level, and a return to borrowed reserve targeting. The other type of change is to establish a formal link between reserve conditions or the federal funds rate and movements in money or reserves.

Allowing some ambiguity with respect to System intentions would tend to diffuse reactions to any change in policy, because it could take some time for such a change to be recognized by the market. It would allow underlying demands for reserves, including those resulting from shifting expectations for monetary policy, to show through a little more into short-term rates, and might enable the desk to "test the waters" with respect to a possible shift in policy without committing irretrievably to such a shift. On the other hand, ambiguity about Federal Reserve intentions risks misperceptions and associated interest rate volatility and delays in getting desired changes in interest rates into the market. A shift toward ambiguity might be difficult to explain to the public, and could result in heightened demands for explicit announcements of Fed targets, unless it were also accompanied by a shift toward operating procedures that placed a greater reliance on reserve or money quantities to guide open market operations.

Such a reliance would introduce a greater element of automaticity into changes in the federal funds rate, which could then be seen as falling out of a process of equilibrating shifting demands for money or reserves to a predetermined supply. The difficulty is to

identify a measure of money or reserves--or another policy indicator--that has a sufficiently tight relationship to the ultimate objectives of policy to justify allowing short-term interest rates to change primarily in response to deviations of the indicator from a preset path. In the early 1980s, the Committee moved away from use of M1 (and by implication total or nonborrowed reserves) as such an indicator, and considerable doubts have been expressed about the short-run relation of M2 to the economy or prices. However, these conclusions could be re-examined in light of more recent experience.

There are a number of possible operating procedures that are not treated in the accompanying memo. Among these are tying movements in the funds rate formally to incoming information on real variables, such as employment or GNP, or on nominal variables such as nominal GNP or prices. Variables in the first group cannot be controlled over time by the central bank, and a focus on them alone could endanger the Committee's price stability objective. The latter group may engender difficulties with lags in the effect of policy; however, combinations of these variables could be explored to key automaticity in federal funds rate responses. Another class of procedures not addressed in the memo are those that would combine discretionary changes in federal funds rates under most conditions with greater automaticity when movements in money or reserves approach the outer limits of ranges established by the Committee. Such limits could be defined by the annual ranges or they could be keyed to even longer-term trends in money or in money-based measures such as  $P^*$ .

A letter from Al Broaddus at the Federal Reserve Bank of Richmond advocating additional research into reserve-based operating procedures also is attached as background for Committee discussion.

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## Office Correspondence

Date August 14, 1991

To Mr. Donald L. Kohn

Subject: Alternative Operating Procedures

From David E. Lindsey

### Introduction

At the last Committee meeting, the staff was asked to prepare an overview of alternative operating procedures that would move away from the practice of recent years in which adjustments to the intended federal funds rate have been entirely discretionary, have been quickly recognized by market participants as discrete changes in the stance of monetary policy, and therefore have tended to constitute "announcements" of Federal Reserve policy. In recent years, as in the 1970s, the Federal Reserve has been perceived as being responsible for the average rate at which federal funds trade, within a relatively narrow margin for variation, over intervals as short as a reserve maintenance period. But as the funds rate has become more nearly a discretionary policy-determined variable, the less could it be characterized as responding to market forces balancing demands and supplies for money or reserves. Accordingly, sustained increases in the federal funds rate are more likely to be seen as deliberate policy decisions, rather than as a byproduct of procedures to attain other, more basic policy objectives, such as monetary control. Partly as a consequence, an entirely discretionary policy also risks an undesirable inertia in the

federal funds rate, so that policy may not effectively counter cyclical developments in the economy or make progress toward price stability.

On the other side of the ledger, current procedures likely have damped the short- and intermediate-term volatility in security prices that can arise through variability in the relationship of interest rates to alternative operating objectives or through market misperceptions about policy intent. Tying open market operations to movements in monetary aggregates or in reserves likely would have contributed considerably to short- and intermediate-term variation in interest rates at a time when questions were being raised--within and outside the Federal Reserve System--about the relationship of money and reserves to the objectives of the Committee, except over fairly long periods. Indeed, current operating procedures have evolved in a series of steps over the 1980s as a result of concerns about avoiding inappropriate interest rate movements and unnecessary volatility that can result from shifts in demands for money or borrowed reserves.

Structural changes in the M1 demand function induced the Committee in October 1982 to replace its nonborrowed reserves operating target tied to a desired path for M1 with an operating target for adjustment plus seasonal borrowing. For a brief time, the borrowing objective was informally linked to deviations of M2 from path, but by early 1983 its setting had become wholly discretionary, eliminating the last vestige of any mechanism involving automatic feedback from undesired movements in a monetary aggregate to discount borrowing and hence to the funds rate. The Committee reacted to the fragile state of

financial markets after the stock market crash of October 1987 by instituting a flexible approach to the borrowing objective that was tantamount to federal funds targeting, although in a form not as rigid as in the 1970s. Attempts to revert to the borrowed reserves operating target in 1988 were frustrated by the breakdown in the discount window borrowing function. Finally, after market misinterpretation of open market operations around Thanksgiving 1989, the Manager has had to pay even more attention in day-to-day open market operations to funds rate objectives, allowing the prevailing funds rate more frequently to override reserve projections in guiding day-to-day operations. In this evolutionary process, the FOMC has judged, at least implicitly, that the advantages gained in each adaptation, by avoiding potentially inappropriate funds rate movements possible with earlier procedures, have outweighed the disadvantages noted above.

The table on the next page vividly demonstrates the effects on one measure of funds rate variability of these procedural changes. The root mean squared deviation of the maintenance-period average effective federal funds rate around the Desk's expected level has dropped with successive shifts from nonborrowed and borrowed reserves targeting to a focus on the federal funds rate.<sup>1</sup>

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1. The subsequent increase in funds rate volatility, especially from December 1990 to March 1991, was associated with the reduction of nontransactions reserve requirements to zero. For a time, reserve balances fell to levels at which reserve demands for clearing purposes dominated demands to satisfy reserve requirements. More recently, this effect has been significantly mitigated by growth of required reserve balances as transactions balances have increased, by increased required clearing balances, and by additional experience gained by institutions in operating with lower reserve balances.

**Deviation of Effective Federal Funds Rate From Desk's Expectations  
(Maintenance Period Averages)**

	<u>Mean Absolute Deviation</u>	<u>Root-Mean- Squared Deviation</u>
	--- percentage points ---	
Oct. '79 - Oct. '82 <sup>*</sup>	.43	.55
Oct. '82 - Oct. '87 <sup>**</sup>	.15	.23
Oct. '87 - Thanksgiving '89	.09	.11
Thanksgiving '89 - 12/12/90	.08	.10
12/13/90 - 3/20/91	.14	.17
3/21/91 - 8/7/91	.09	.13

<sup>\*</sup>Excludes the period encompassing the end of 1980.

<sup>\*\*</sup>Excludes the periods encompassing the ends of 1982 and 1986.



The increased attention to the federal funds rate does not appear to have greatly hampered the execution of policy. Over the nearly nine years since the nonborrowed reserves procedure was replaced, discretionary movements in the operating target--first for borrowed reserves and then for the funds rate--have seemed adequate to avoid the excessive policy inertia in a cyclical context that some observers contend characterized policy implementation in the 1970s. Changes in the operating target at FOMC meetings have been supplemented by frequent adjustments during intermeeting periods, at times also involving a full or partial pass-through to the funds rate of discount rate changes. Even since the essential form of current procedures emerged in the fall of 1987, this policy flexibility has continued to produce substantial cumulative movements in the funds rate--upward as well as downward--that were able to sustain economic expansion while holding the line on inflation through the rest of the 1980s and then to cushion the downturn in economic activity that began last summer.

Looking forward to a time when a tightening of monetary policy may be called for, however, the disadvantages associated with transparent discretionary control over the federal funds rate could be seen as relatively more important than they have been during the easing trend of recent years. This memo briefly discusses a variety of alternative procedures, in order to provide background for the Committee's discussion of the issues and possible decision to have the staff undertake a more thoroughgoing analysis. Consideration of

alternatives--ranging from more minor changes to more major ones-- basically involves traveling backward in time through this process of evolution in operating procedures. Even more radical approaches to policy implementation than the Committee has attempted in the past, such as pursuing a total reserves or total base operating target or restructuring discount window arrangements to establish a penalty rate, also are catalogued.

Alternative Procedures: Summary

Three alternatives would result in some ambiguity about the federal funds rate associated with the Desk's operating objective, but would retain discretion over changes in the operating target--by the Committee at FOMC meetings and, through delegated authority, by the Chairman between meetings--in response to a variety of economic and financial developments.

1. Gear open market operations somewhat more to reserve projections and less to the prevailing funds rate, thereby providing a little more scope for funds rate variability and at times increasing market uncertainty about the funds rate objective, while still retaining the single-valued federal funds rate objective.
2. Establish a range for the funds rate objective, say  $1/8$  to  $1/4$  percentage point in width, along with alternative 1, thereby reintroducing an element of indeterminacy to the intended funds rate and providing some scope for "testing

the waters" prior to formal changes in the stance of operating policy.

3. Reestablish an operating target for discount window borrowing that no longer would be "approached flexibly" by the Trading Desk, thereby allowing still more scope for funds-rate variability to emerge in response to unpredicted shifts in the borrowing relation or market expectations of an impending change in the discount rate or the borrowing objective.

The next two alternatives would institute an automatic response of the operating target to deviations of M2 from the Committee's path.

4. Establish an operating target for discount borrowing that would automatically be adjusted by some fraction, say 1 or 2 percent, of the divergence of M2 from a preset path. This procedure would mimic the behavior of a nonborrowed reserves operating target in an institutional setting with a uniform 1 or 2 percent reserve requirement on all components of M2, and thus promote variations in the federal funds rate in response to unanticipated movements in M2, as well as to unpredicted shifts in the borrowing relation or to varying market expectations.
5. Establish an operating target for the federal funds rate that would automatically be adjusted by some fixed amount for each \$1 billion of the divergence of M2 from a preset path. This technique would essentially replicate the

behavior of a nonborrowed reserves operating target in an institutional setting with a uniform reserve requirement on all components of M2 and with a stable borrowing function, thus short circuiting effects of instability in the borrowing relation or of varying market expectations while still retaining the automatic funds rate response to unanticipated movements in M2. For example, adjustments of 2-1/2 or 5 basis points for each \$1 billion deviation of M2 from path would be virtually equivalent to a uniform 1 or 2 percent reserve requirement against M2 and a borrowing function in which a \$100 million change in borrowing widened or narrowed the spread of the funds rate over the discount rate by 25 basis points.

The final two alternatives would further reduce the interest-responsiveness of reserve supply, either through establishing a total reserves or total monetary base operating target or by establishing a penalty discount rate.

6. Establish a total reserves or total monetary base operating target, thereby curtailing the safety-valve role of the discount window over periods longer than one day. Federal funds and other short-term rates would vary considerably in response to changes in demands for reserves. Short-run control over M1 (but not necessarily M2) would be enhanced.
7. Establish a penalty discount rate above the expected trading area for the funds rate, perhaps in combination

with a nonborrowed reserves operating target, thereby further curtailing the safety-valve role of the discount window, additionally elevating the equilibrating role of reserve demands in determining the funds rate, promoting still more variability at least of short-term interest rates, and implying as a side effect even closer short-run control over M1.

Alternative Procedures: Discussion

1. Gear operations less to the prevailing funds rate. Even if the Committee retained a single-valued funds rate objective, it could be made a little less transparent to market participants if open market operations were geared somewhat more to projected reserve needs and less to actual funds trading at "Fed time" each morning. This approach would provide a bit more scope for variation in the funds rate in response to reserve market pressures or changing market expectations. The Manager could widen the current implicit quasi-"intervention points"--in which reserves are drained (added) when the rate moves far enough below (above) the objective regardless of projected reserve needs. Instances of operations both to add and drain reserves in the same maintenance period hence would occur less often. Signals from open market operations themselves about the funds rate objective would become slightly more difficult for the market to read. More occasions might arise in which questions about the Federal Reserve's intended rate on federal funds were raised, and policy moves to change the funds

rate objective might less often be immediately recognized by market participants.

As with the other alternatives as well, the issue to be assessed is what would be gained on balance by such a change in Desk operations. The Federal Reserve would place a little more distance between itself and day-to-day movements in the funds rate. That rate also would come a little more to reflect underlying factors affecting the supply and demand for reserves, including market expectations of Federal Reserve policy moves. Conceivably, additional flexibility at times could be used to assess market reaction to movements of the funds rate far enough away from the previously perceived objective to foment market suspicions of a current or imminent policy change. At other times, however, markets could perceive the possibility of a policy move when no such change is intended, inducing a subsequent "whipsawing" of securities prices once the unchanged basic policy stance became more apparent over time. It also might take longer for markets to recognize an intended change in policy, which would delay the response but could tend to diffuse public discussion of such changes.

## 2. Reestablish a range for the funds rate objective.

Committee selection of a range for intended funds rate trading also could be combined with the last alternative's approach by the Desk to open market operations. This alternative would further loosen up funds rate variability by introducing some indeterminacy in the operating target for the funds rate, say of 1/8 or 1/4 percentage point. Market participants thus would be less able to pin down the intended policy

stance at any point in time, and expectations and pressures in the reserves market would have even more room to show through to actual funds trading. Enough ambiguity about Committee intent would be restored to permit more frequent probes by the System into market responses to changes in the funds rate, with enhanced opportunities to "validate" those changes in the funds rate that seemed to have avoided untoward market reactions. Under such a system, implementation of policy on a daily basis could become somewhat more flexible and judgmental.

The rationale for simply introducing more flexibility and ambiguity into the System's approach to its federal funds target may be difficult to explain to a public grown accustomed to having little doubt about the current federal funds rate objective and to instantaneous recognition of changes in such objectives. One possible response would be increased calls from Congress to announce our current objectives.

3. Reestablish a borrowed reserves operating target. The Desk could be instructed essentially to abandon its flexible approach to the formal borrowing objective now used in constructing reserve paths. The Committee could instruct the Manager to make a reasonable effort to attain the path objective for adjustment plus seasonal borrowing, regardless of implied funds rate movements, except perhaps for especially sizable ones. This alternative would again make the federal funds rate, for a given discount rate, depend importantly on the behavior of depository institutions in tapping the discount window.

Over the period of rigorous pursuit of a borrowed reserves objective--from October 1982 through the stock market crash of October 1987--the two-week maintenance-period average effective funds rate deviated from the Desk's expectation by no more than 23 basis points two-thirds of the time (table following page 3). There is reason to think that comparable pursuit of an operating target for borrowed reserves in the current financial environment would yield a higher figure. With the heightened reluctance of banks to avail themselves of discount credit, borrowing has moved closer to a frictional level at positive funds rate-discount rate spreads; the reluctance to borrow also seems to have manifested itself in a much less interest-elastic borrowing relationship than in the mid-1980s.<sup>2</sup> If so, Desk attempts to attain a borrowing objective over a maintenance period would imply wider funds rate movements in current circumstances in response to unanticipated shifts in the borrowing relation or to daily shocks to other factors affecting reserve supply or demand of comparable size to those of the earlier period.

Compared with the approach of recent years, this alternative would afford more scope for market expectations about the System's impending policy stance to show through to the funds rate, supplementing other sources of information about market expectations

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2. At that time, the bluebook incorporated a relationship in which a 25 basis point change in the spread was associated with a \$100 million change in adjustment plus seasonal borrowing. In recent bluebooks, the assumed relation has been 100 basis points per \$100 million of borrowing--four times as steep. Only some of the steepening is believed to be associated with the narrow spread observed so far this year and the induced borrowing levels close to frictional minimums.



now available in futures and forward quotes on federal funds and other instruments. Under this alternative, the Federal Reserve could back well away from transparent targeting of the federal funds rate. However, with the degree of funds rate volatility likely to be even greater than experienced during the regime of borrowed reserve targeting, and with the rate movements not closely connected to broader monetary, financial, or economic developments, the Committee's tolerance for funds market variability undoubtedly would be tested.

4. Establish an operating target for discount borrowing automatically tied to misses of M2 from target. This approach would approximately conform to the nonborrowed reserves procedure of October 1979 to October 1982, but with automatic movements in borrowed reserves linked to deviations from target of M2 rather than M1. The borrowed reserves objective would be changed as the intermeeting period progresses by an amount equal to some specified fraction, say 1 or 2 percent, of the absolute divergence of M2 from a target path set by the FOMC for the intermeeting period. The alternative hence is designed to mimic the workings of a nonborrowed reserves operating target in an institutional setting in which a uniform required reserve ratio of 1 or 2 percent is established on all components of M2.<sup>3</sup> The procedure thus would institute a primary role for intermediate-term control over M2 in the policy process. Systematic movements in the funds rate in the same direction as unpredicted swings in M2 growth would be overlaid

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3. Required reserves, which today cover only transaction deposits, currently are 1.46 percent of M2 as a whole. Prior to the reduction in non-transaction reserve requirements to zero late last year, this figure was 1.84 percent.

on the unsystematic variability in the funds rate associated with the operating target for borrowed reserves, as discussed in the context of the last alternative. The systematic part of funds rate movements would act automatically to counter over- or under-shoots of M2, helping to restore the aggregate to its target over time.<sup>4</sup>

One critical issue is whether the Committee would be prepared to elevate M2 as the dominant determinant of systematic movements in the funds rate over intermeeting periods, thereby eschewing discretion in favor of an automatic monetary control mechanism. The shorter- and even intermediate-run relationships between M2 and nominal spending are usually seen as being much less reliable than the longer-run connection. Thus, absent a situation in which inflation has become intense and the central bank's credibility has been brought into serious question, the underlying case for emphasizing shorter-run monetary control has been viewed as being much less persuasive than the case for longer-run control. Indeed, the Committee in the operating paragraph of the current directive has placed the monetary aggregates only third on the list of factors governing intermeeting adjustments of the policy stance. Thus, the Committee would need to assess whether the systematic variation in the funds rate automatically produced by variations in M2 from its intermeeting target path under this procedure typically would serve to promote its broader policy objectives.

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4. The dynamics of such an automatic feedback relationship from M2 misses to changes in short-term interest rates interacting with the delayed effects over time of changes in short-term interest rates on spending, opportunity costs, and M2 demand actually is extremely complicated, perhaps involving induced cycles in M2 growth and nominal income.

Another issue involves the unsystematic component of funds rate variation that also would emerge under this alternative as a result of changes in borrowing behavior, as discussed in the context of the previous alternative. Of course, the Committee could constrain overall funds rate movements during the intermeeting period by appending bands of, say, 2 or 3 percentage points on either side of the initial expectation for the funds rate. The Desk could be instructed not to allow the funds rate to move persistently outside these limits. Alternatively, to avoid the extra funds-rate volatility associated with reliance on borrowed reserves as the operating target, the following procedure instead contemplates using the funds rate as the operating target to be adjusted automatically in reaction to M2 target misses.

5. Establish an operating target for the federal funds rate automatically tied to misses of M2 from target. Under this approach, the funds rate operating target would be adjusted by, say, 2-1/2 or 5 basis points for each \$1 billion by which M2 diverges from an intermeeting target path. The procedure would mimic nonborrowed reserves targeting in a banking system with a 1 or 2 percent reserve requirement applied uniformly to all of M2 combined with a perfectly stable relationship connecting each 1/4 percentage point change in the funds rate-discount rate spread to a \$100 million change in borrowed reserves in the same direction.<sup>5</sup>

Although this approach would minimize unsystematic variation in the funds rate to around the levels seen in recent years, systematic

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5. Similar responsiveness of borrowing to the spread is estimated to have prevailed over a period at least as long as the decade ending in 1987.

rate swings related to deviations of M2 from target would remain. The close tie of the funds rate to M2 behavior would represent a clear departure from Committee practice since 1982, and would raise the fundamental issues surrounding the switch to an automatic mechanism designed to control M2 over the intermediate run. The absence of a reserve-based orientation in the automatic monetary control mechanism would differentiate this alternative from past practice and from many proposed techniques keyed to monetary control. The artificiality of such a system could make explaining its rationale to the public and Congress more difficult. Such an artificiality would apply as well to the linking of automatic changes in the funds rate to the behavior of other, nonmonetary variables such as the price level.

6. Establish a total reserves or total base operating target.

This even more radical alternative would at least ground monetary policy implementation on a reserves basis. However, by considerably reducing the interest elasticity of reserve supply over intervals longer than a day, volatility at least of short-term interest rates would be appreciably amplified. The role of reserves demand in equilibrating the federal funds market would be much enhanced. Funds rate movements would need to be large enough to bring required plus excess reserves demand into alignment with the targeted level of supply, implying the potential for sizable interest rate variations in reaction to changing reserve demands. Because required reserves now only apply to transaction deposits, this approach implicitly could improve short-run control over these deposits, and hence over M1.

However, the Committee for some time has deemphasized this aggregate as a guide to monetary policy. In addition, M2 in the process could be destabilized to the degree that the M1 and non-M1 components of M2 unexpectedly evince differential growth rates, as has been the case this year.

7. Establish a penalty discount rate. Instituting a penalty discount rate would further reduce the interest sensitivity of reserve supply by maintaining discount window borrowing under most circumstances at frictional levels. Because using such borrowing as an operating target would no longer be feasible, this alternative would appear most consistent with selection of a nonborrowed reserves, or in this case virtually equivalently, a total reserves operating target. The system would work much like that of the previous alternative, except that the safety-value feature of the discount window also would be circumscribed on a daily basis, adding still more to funds rate volatility in response to shocks to reserve demand or supply. This feature would imply more daily volatility in the funds rate than recently seen even if the Committee continued to pursue a funds rate operating target. An administered penalty discount rate, with minimal administrative pressure on adjustment borrowing, would tend to cap the funds rate. Even so, funds-rate volatility still could be substantial at levels of funds trading below the discount rate.