




BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
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MEMBER OF THE BOARD

To: Federal Open Market Committee
From: Robert C. Holland 
Subject: Supplement to Stage II Report of the
Subcommittee on the Directive

Attached is a memorandum prepared at my request at the New York Trading Desk which I hope will be helpful in your consideration of the Stage II report of the Subcommittee on the Directive. The Trading Desk memorandum articulates how the Desk might work with the operating target of nonborrowed reserves being recommended by the Subcommittee.

Attachment

Open Market Operations and a
Nonborrowed Reserves Operating Target

The Subcommittee on the Directive, in Phase II of its study, has recommended that nonborrowed reserves be adopted as an intermeeting operating target for open market operations. The proposals outlined in the Subcommittee's report suggest that the Desk should seek to achieve an average level of nonborrowed reserves over the four or five week interval as long as the Federal funds rate stays within a specified range of tolerance. Initially changes in this rate would be constrained to about 25 basis points a week in either direction, though the maximum weekly change could become larger as experience with the new procedures accumulates. It is also anticipated that the maximum permissible weekly change could be increased in cases where it is likely that nonborrowed reserves would otherwise deviate markedly and cumulatively from its target.

The proposal, if adopted, would make some difference in the way that weekly objectives for the Desk are established and thus could have cumulative effects on the behavior of reserves and interest rates over longer periods of time. Short-run variations in the expected growth rates for the monetary aggregates may have a lesser effect on the weekly reserve objectives. Since operations would be directed more at achieving nonborrowed reserve levels, bank demand for reserves would be accommodated to a lesser extent and the Federal funds rate might show greater movement at times. Additional flexibility with regard to movements in the funds rate could prove beneficial to the Desk as the rate could provide more information about reserve supplies

than it does at present. Modest changes in reserve objectives might not have as much of an impact on markets if the Federal funds rate were to vary by more from day to day. At the same time, the operations needed to achieve the weekly goals are not likely to be substantially different than those observed under current operating procedures since the direction and volume of open market operations during a particular statement week are largely determined by fluctuations in reserve factors that are not under the System's control.

How the targets and constraints would be developed

Before we can assess the operating aspects of a nonborrowed reserve procedure, consideration should be given to how the specification would be derived. As we understand it, the nonborrowed reserve targets would be designed to be consistent with the two-month ranges established for M_1 and M_2 .¹ First, the deposit and currency levels associated with the midpoints of these ranges would be specified. An estimate of the credit proxy would be used to determine the member bank portion of demand and time deposits and the other categories of reservable liabilities. With lagged reserve accounting, for example, deposits need to be specified for the period starting about one week before the meeting until roughly two weeks before the next meeting.

¹ This is in contrast to a specified constant increment or decrement to an initial reserve level that would achieve a desired growth rate in nonborrowed reserves.

After this, average reserve ratios are applied to each deposit component, prior to adjustment for seasonal variation. Reserve requirements depend on the size of a bank as well as the category and initial maturity of deposits. The average required reserve ratios thus capture the variation in the composition and distribution of each deposit component at member banks.

The above procedures result in an estimate of the required reserve portion of the reserve target. The monthly and quarterly econometric models, as well as judgemental assessments, can be used to obtain the Federal funds rate and range that is estimated to be consistent with the short-run behavior of the aggregates and related reserve values. Member bank borrowing would be expected to take on a trend derived from the relationship between this funds rate (or the expected path for the funds rate) and the current discount rate. Excess reserves, while quite variable from week to week, can generally be assumed to show little change--other than seasonal--on average over a four or five week period.

These procedures lead to a nonborrowed reserves target for an intermeeting period. To provide for flexibility in operations, the Desk would be instructed to seek the resultant average level of nonborrowed reserves over the entire intermeeting period and deviations of \$50 million on either side of the specified average would be considered acceptable.

How the Desk would operate

a. establishing weekly objectives

Under current operating procedures, the Desk each Friday stipulates a Federal funds rate objective that will guide its actions over the next week. This objective is based in part on the effect that incoming data have on projections of the monetary aggregates for two-month periods. With an average level of nonborrowed reserves for a four-week intermeeting period as an operating target, along with a constraint on the Federal funds rate, the Desk would have to stipulate both its nonborrowed reserves as well as its Federal funds rate expectation on Fridays. It would also have to take account of projections for the aggregates, though perhaps to a lesser degree than currently.

On any Friday, the Desk would need to indicate how much progress it expects to make in the week toward attainment of the FOMC's nonborrowed reserves objective. The Desk would review current and expected values of required reserves relative to the nonborrowed reserves specification. The Desk could then estimate member bank borrowing levels consistent with attaining the path for nonborrowed reserves, assuming that bank demand for excess reserves continues to fluctuate around frictional levels. The Desk would set expected weekly nonborrowed reserves targets over the intermeeting period in such a way that the specified monthly average level could be achieved without violating the Federal funds rate constraint. For example, suppose the objective were a nonborrowed reserves average of \$35 billion over a

four-week intermeeting period. The Desk might indicate on Friday that it is expecting an average level of around \$35.1 billion in the current statement week because--given the pattern of required reserves and the Federal funds rate constraint--it would expect nonborrowed to dip somewhat in the next week. The Desk would also indicate that it expects a funds rate of around, say, 5 percent. Or it might give a funds rate range of 5 to 5 1/4 percent to allow for some rise in borrowing in the course of limiting the supply of nonborrowed reserves.²

On the following Friday, the Desk would reassess its approach. It might find, for instance, that required reserves are going to be stronger in the new week than had been expected earlier. To keep nonborrowed reserves on track with the four-week average objective, it may then have to indicate a higher Federal funds rate expectation--say 5 1/4 to 5 1/2 percent--than in the week before. It would do so particularly if the increase in required reserves reflected a strengthening of the aggregates, rather than just a change in deposit mix. In that case, there would be no conflict between the FOMC's short-term objectives for the aggregates and the impact on the funds rate of adherence to a nonborrowed objective.

² Under contemporaneous reserve accounting--or one with a shortened lag that makes the required reserve estimate somewhat less certain--a funds rate range during the statement week would be needed to permit an unexpected movement in required reserves to be accommodated by borrowed rather than nonborrowed reserves.

If, however, the strengthening of required reserves merely reflected a change in deposit mix, and the aggregates appeared satisfactory, the Desk might wish to provide somewhat more nonborrowed reserves than seemed at the moment consistent with the four-week target in order to keep the funds rate from rising. It could do so on the thought that the deposit mix might soon change and lower required reserves in the future, or it could do so on the grounds that the projected multiplier between nonborrowed and the aggregates for an intermeeting period was originally too high. In the latter case, the Desk would presumably have to inform the Chairman that an internal inconsistency was developing among the various specifications.

Inclusion of a nonborrowed objective could, however, reduce the weight to be given to incoming data on the monetary aggregates in establishing weekly objectives for the Desk. If the FOMC took that approach, the aggregates would probably have to be somewhat further out of line relative to expectations than under current procedures before the Desk indicated that an inconsistency was developing.

b. open market operations during a week

Under current operating procedures, the Desk responds from day to day to rather small deviations, of say 1/8 of a percentage point, in the Federal funds rate from its weekly objective. While the Desk judgmentally estimates a nonborrowed reserves level consistent with its weekly objectives, the determining variable of action is the funds rate rather than the behavior of nonborrowed reserves. With nonborrowed reserves as an operating

target, the Federal funds rate could move somewhat more at times, because bank demand for reserves would be accommodated to a lesser extent.

Under the proposed procedure, the Desk would need to assess, each day, the progress that it was making in achieving the objective it had set for that week. In order to see how this could be done, we will construct a "hypothetical" week (using part of the example established earlier but assuming the discount rate was above 5 1/4 percent). Suppose the Desk was expecting nonborrowed reserves to average \$35.1 billion and the Federal funds rate to remain in a range of 5 to 5 1/4 percent, on average. In the previous week, the rate had averaged 5.15 percent. At the start of the statement period, projections of nonborrowed reserves showed that the Desk would need to add \$600 million of reserves, on average, to estimated levels--say because Treasury balances were going to rise and drain reserves. Suppose further that Federal funds were trading around 5 percent before the weekend because the reserve drains had not yet occurred. If it appeared that the need for additional reserves was permanent, the Desk might make some outright securities purchases on Friday of \$350 million or so, for cash. (This would bring expected reserve levels for the week to around \$300 million below the desired average.) This would contrast with current procedures in the sense that the Desk does not typically take action to add reserves when Federal funds are trading within--or at the lower end--of their expected range. The funds rate might decline a bit after the purchase of securities, but unless it was a precipitous

drop the Desk would assume that the reserve estimates were still roughly accurate and that banks were not yet aware that reserve levels would be declining toward the end of the week.

On Monday, incoming data might show that float had been \$235 million higher than expected on Friday, raising the week's average reserve level by roughly \$100 million. As a result, nonborrowed reserves were now running \$200 million below the desired average level. The funds rate was around $4 \frac{7}{8}$ percent during Monday. The Desk might not act right away to add the additional reserves, although it would probably not absorb reserves because the funds rate was "too low". In fact, the strategy would be to wait until the final day to provide reserves because the indicated reserve addition could be accomplished through \$1.4 billion or so of one-day repurchase agreements. Waiting would permit the Desk to receive further information on reserve levels. On Tuesday, of the hypothetical week, estimates of reserve supplies were little changed while the Federal funds rate began to rise as the increase in Treasury balances started to drain reserves from banks. Unless the rate rose precipitously, the Desk would remain with its original plan to add reserves on the final day. By Wednesday morning, the funds rate was $5 \frac{5}{16}$ percent and still rising while new estimates showed a need to increase reserve levels by \$225 million on average, taking account of a reserve shortfall the day before. The Desk would offer overnight repurchase agreements. The amount indicated by the non-borrowed target would be around \$1.6 billion. Suppose, however,

that the demand for such agreements was larger than expected-- either because banks wanted more excess reserves than allowed for or because market factors were unexpectedly draining reserves. In this case, the Desk might make \$2.2 billion of such agreements. If excess reserves were to end up higher than expected, reserve carry-ins would be likely to reduce bank demand in the following week. Otherwise, the addition of \$85 million, on average, could be offsetting the effect of an error in estimating reserve supplies. The next day, it turned out that both causes had been at work. Nonborrowed reserves had turned out \$30 million above path while market factors had absorbed \$55 million more reserves, on average. The Federal funds rate had declined, on average, by about 18 basis points.

The hypothetical example was constructed to indicate that the Desk could, under a nonborrowed reserves procedure, be taking action to affect reserves over a wider range of Federal funds rates than it does under current operating practices.³ The Desk could be able to act early on the basis of anticipated reserve needs--such as those generated by the periodic variations in Treasury balances--and the number of times it enters the market to both add and drain reserves during the same statement week could be reduced. The constraints foreseen for the Federal funds rate would prevent disruptive movements in the rate. It

³ Some announcement of the new operating procedures would be helpful so that Desk actions would not confuse observers.

is doubtful that greater fluctuations would be destabilizing if they occurred in an environment where the funds rate was typically more variable and Desk operations were viewed by observers as being addressed mainly to reserve levels. Presently, the market views most operations as efforts to "set" a particular Federal funds rate. In fact, when participants are convinced that they know the desired rate, that rate often prevails until very late in the week even when there are large reserve excesses or scarcities. At these times, the Desk feels constrained in its ability to manage non-borrowed reserves because entering the market to affect reserves could be misleading about System objectives particularly because the market assumes that Desk actions provide indications about policy in the future. If the rate were to vary by more from day to day, then modest changes or even reversals in weekly objectives would have less of an impact than at present. Some more variability in the Federal funds rate could also provide the Desk with information about reserve supplies. This is particularly beneficial since the projections have a sizable error component.

While the setting of weekly reserve objectives would be affected under the proposed procedures, the direction and magnitude of changes in the System portfolio are likely to be quite similar to those observed at present. This point develops from the realization that actual operations are dominated by fluctuations in market factors and periodic variations in required reserves that arise from seasonal movements in deposits and their distribution within the banking system. For purposes of this

analysis, the market factors may be regarded as exogenous variables over which the Federal Reserve has no control.⁴

Weekly changes in nonborrowed reserves are the result of changes in the portfolio combined with changes in market factors. The net increment or decrement in nonborrowed reserves is typically far smaller than the variation in either of the components. Most of the time, the Desk is seeking to offset the impact of movements in the Treasury balance, float, and other factors that affect reserves. In the past year in particular, the intramonthly variation in the Treasury balance has been quite large and instrumental in shaping open market operations.⁵ A rise in the balance at Reserve Banks in the last part of the month has often reduced average reserve levels by as much as \$4 billion in a two-week period--only to increase them by similar amounts when Treasury cash holdings drop in the

⁴ Market factors are a group of variables the reserve effects of which the Desk neutralizes in its daily and weekly operations. The System's portfolio plus market factors equals nonborrowed reserves. They are variables the Federal Reserve either could not or does not desire to affect. For example, it is unlikely that the System can have significant impact on how the Treasury manages its cash balances. At the same time, the System has indicated a desire to accommodate variation in the public's demand for currency rather than to permit it to affect bank reserves. The definition of the term market factors thus depends on the type of analysis and on System objectives.

⁵ The Treasury has acted to minimize, with respect to cash needs, its deposits at commercial banks and maximize deposits at Federal Reserve Banks. This program affected errors in reserve estimates and reserve levels. Previously, misses in estimating Treasury receipts and disbursements were seen mostly as errors in projecting the mix of deposits at banks. Now they add to reserve projection errors.

first half of the month. Weekly changes in nonborrowed reserves are typically far smaller -- on the order of \$300 to \$500 million or so. The anticipated behavior of the market factors is thus a major determinant of whether open market operations are on the reserve adding or absorbing side in the short run.

Seasonal movements in deposits and required reserves are frequently large relative to smooth seasonally adjusted trends in such variables. While a \$1.0 billion unexpected deviation in demand deposits may be viewed as significant in terms of money supply growth, its impact on required reserves of \$130 million or so can be modest in comparison with the effects of seasonal swings in deposits and their distribution. The observed seasonality in required reserves stems not only from periodic variations in deposits but apparently from seasonal patterns in where deposits are held. Since percentage reserve requirements vary directly with bank size a shift in the locational distribution of a particular deposit level affects the level of required reserves. Reserve targets, prior to adjustment for seasonal variation, would presumably continue to indicate a desire to accommodate these expected shifts in bank demand for reserves. While the magnitude of such seasonal effects on required reserves varies over the year it is still an important factor in shaping open market operations in the short run.

The direction and magnitude of weekly open market operations are determined largely by the causes noted above. For these reasons, they are not likely to change materially if the Desk is instructed to seek an average level of nonborrowed

reserves over an intermeeting period. In addition, the selection of particular types of transactions is also related to seasonality and market factor variation. Aside from securities market considerations and other policy values, the choice between repurchase agreements or outright purchases, for example, depends on the anticipated duration of the reserve pattern that the Desk is seeking to counter. To return to the earlier example, adding reserves through repurchase agreements may be particularly helpful in dealing with the rise in Treasury balances in the last half of a month. The contracts expire and absorb reserves automatically when the balance starts to fall after the beginning of the next month.

One other consideration in selecting the type of open market operation is the degree of uncertainty surrounding estimates of nonborrowed reserve supplies. As there are sizable errors in daily and weekly estimates of this variable, the Desk has often added reserves when statistical projections indicated that supplies should be adequate--or the converse. Information provided by the behavior of the funds rate and by banks themselves may indicate that the projections are overstating reserve supplies. In such cases, temporary self reversing transactions may be seen as a conservative choice because operations can be considered after more information on the reserve situation and outlook is received. Since it is not likely that reserve projections can be significantly improved in the near term, uncertainty about reserve supplies will continue to play a large part in determining the choice of open market transactions under any variant of nonborrowed reserve targetting procedures.

Current procedures for targetting aggregates have been criticized because it is difficult to distinguish in the short run between temporary and significant deviations in monetary growth. The variance of the series is so large that two-month growth rates that are four percentage points away from long-term targets cannot be confidently stated to be inconsistent with particular long-run rates. The FOMC has widened the tolerance ranges for M_1 and M_2 and has recently considered the existence of "zones of indifference" within these ranges. Placing a band of \$50 million around the average nonborrowed reserve operating target, as was proposed by the Subcommittee at one point, can be viewed as analogous to the ranges presently set for the aggregates. Experience with such a specification should demonstrate whether a confidence interval of this size is large enough compared to the reserve specification errors that can occur. In the meantime, the constraints foreseen for the Federal funds rate could result in further deviations of nonborrowed reserves from its target in cases where such targets seem to be misspecified.

Sheila Tschinkel
March 9, 1976