

The New Federal Reserve Technical Procedures for Controlling Money

As part of its anti-inflationary program announced on October 6, 1979, the Federal Reserve changed open market operating procedures to place more emphasis on controlling reserves directly so as to provide more assurance of attaining basic money supply objectives. Previously, the reserve supply had been more passively determined by what was needed to maintain, in any given short-run period, a level of short-term interest rates, in particular a level of the federal funds rate, that was considered consistent with longer-term money growth targets. Thus, the new procedures entail greater freedom for interest rates to change over the short-run in response to market forces. ^{1/}

This note describes the new technical operating procedures and how the linkage between reserves and money involved in the procedures is influenced by the existing institutional framework and other factors. This linkage is relatively complicated and variable, particularly over the short-run, so that, for example, it does not necessarily follow that rapid expansion of reserves would be accompanied by, or would presage, rapid expansion of money. The exact relationship depends on the behavior of other factors besides money that absorb or release reserves, and consideration must also be given to timing problems in connection with lagged reserve accounting.

In setting reserve paths to control money under existing conditions account must be taken of: (i) the prevailing reserve requirement structure, with varying reserve requirements by type of deposit (some of which may not be included in targeted money measures) and by size of deposit; (ii) the public's demand for currency relative to deposits; (iii) availability of reserves at bank initiative from the discount window; (iv) lags in response

^{1/} Consistent with this, the federal funds rate range adopted by the Federal Open Market Committee for an intermeeting period has been greatly widened.

on the part of the public and banks to changes in reserve supply through open market operations; (v) the growing amount of money-supply type deposits at institutions not subject to reserve requirements set by the Federal Reserve; (vi) lagged reserve accounting. To help insure that operations are undertaken most effectively, the Federal Reserve has the new operating technique and related factors under continuous examination in light of experience gained. At present, studies are under way on such elements as lagged reserve accounting and the role of the discount window. Possible changes in other elements involved with the technique would require Congressional action--such as extending reserve requirements to nonmember institutions and certain aspects of simplifying reserve structure.

The principal steps in the new procedure are outlined below.

(1) The policy process first involves a decision by the Federal Open Market Committee on the rate of increase in money it wishes to achieve. For instance, at its October 6 meeting, taking account of its longer-run monetary targets and economic and financial conditions, the Committee agreed upon an annual rate of growth in M-1 over the 3-month period from September to December on the order of $4\frac{1}{2}$ percent, and of M-2 of about $7\frac{1}{2}$ percent, but also agreed that somewhat slower growth was acceptable.

(2) After the objective for money supply growth is set, reserve paths expected to achieve such growth are established for a family of reserve measures. These measures consist of total reserves, the monetary base (essentially total reserves of member banks plus currency in circulation), and nonborrowed reserves. Establishment of the paths involves projecting how much of the targeted money growth is likely to take the form of currency, of deposits at nonmember institutions, and of deposits at member institutions (taking account of differential reserve requirements by size of demand deposits and between the demand and time and savings deposit components of M-2).

Moreover, estimates are made of reserves likely to be absorbed by expansion in other bank liabilities subject to reserve requirements, such as large CD's, at a pace that appears consistent with money supply objectives and also takes account of tolerable changes in bank credit. Such estimates are necessary because reserves that banks use to support expansion of CD's, for example, would not be available to support expansion in M-1 and M-2. Thus, if the reserves required behind CD's were not provided for in the reserve path, expansion in M-1 and M-2 would be weaker than desired. The opposite would be the case if the reserve path were not reduced to reflect contraction of large CD's. For similar reasons, estimates are also made of the amount of excess reserves banks are likely to hold.

(3) The projected mix of currency and deposits, given the reserve requirements for deposits and banks' excess reserves, yields an estimate of the increase in total reserves and the monetary base consistent with FOMC monetary targets. The amount of nonborrowed reserves--that is total reserves less member bank borrowing--is obtained by initially assuming a level of borrowing near that prevailing in the most recent period. For instance, following the October 6 decision, a level of borrowing somewhat above that of September was initially assumed. Following subsequent meetings, the assumed level of borrowing for the nonborrowed path was always close to the level prevailing around the time of the FOMC meeting, though varying a little above and below that level.

(4) Initial paths established for the family of reserve measures over, say, a 3-month period are then translated into reserve levels covering shorter periods between meetings. These paths can be based on a constant seasonally adjusted rate of growth of the money targets on, say, a month-by-month basis, or can involve variable monthly growth rates within the 3-month period if that appears to facilitate achievement of the longer-run money targets.

(5) Total reserves provide the basis for deposits and thereby are more closely related to the aggregates than nonborrowed reserves. Thus total reserves represents the principal over-all reserve objective.^{1/} However, only nonborrowed reserves are directly under control through open market operations, though they can be adjusted in response to changes in bank demand for reserves obtained through borrowing at the discount window.

(6) Because nonborrowed reserves are more closely under control of the System Account Manager for open market operations (though subject to a small range of error because of the behavior of non-controlled factors affecting reserves, such as float), he would initially aim at a nonborrowed reserve target (seasonally unadjusted for operating purposes) established for the operating period between meetings. To understand how this would lead to control of total reserves and money supply, suppose that the demand for money ran stronger than was being targeted--as it did in early October of last year. The increased demand for money and also for bank reserves to support the money would in the first instance be accompanied by more intensive efforts on the part of banks to obtain reserves in the federal funds market, thereby tending to bid up the federal funds rate, and by increased borrowing at the Federal Reserve discount window. As a result

^{1/} In the control process, the monetary base in practice is given less weight than total reserves. This is principally for a technical reason. If currency, the principal component of the base, is running stronger than anticipated, achievement of a base target would require a dollar-for-dollar weakening in member bank reserves. But, because of fractional reserve requirements, the weakening in reserves would have a multiple effect on the deposit components of the monetary aggregates (it could weaken the demand deposit component by about 6 times the decline in reserves). Achievement of a base target in the short run could therefore lead, in this example, to a much weaker money supply than targeted. If a total reserve target were achieved, the money supply would be stronger than targeted, but only by the amount by which currency is stronger than expected. Thus, the variation from a money supply target would be less under total reserves than under a monetary base guide. Of course, should currency persistently run stronger or weaker than expected, compensating adjustments could be made to either a total reserves or monetary base target.

of the latter, total reserves and the monetary base would for a while run stronger than targeted. Whether total reserves tend to remain above target for any sustained period depends in part on the nature of the bulge in reserve demand--whether or not it was transitory, for example--and in part on the degree to which emerging market conditions reflect or induce adjustments on the part of banks and the public. These responses on the part of banks, for example, could include sales of securities to the public (thereby extinguishing deposits) and changes in lending policies.

(7) Should total reserves be showing sustained strength, closer control over them could be obtained by lowering the nonborrowed reserve path (to attempt to offset the expansion in member bank borrowing) and/or by raising the discount rate. A rise in the discount rate would, for any given supply of nonborrowed reserves, initially tend to raise market interest rates, thereby working to speed up the adjustment process of the public and banks and encouraging a more prompt move back to the path for total reserves and the monetary base. Thus, whether adjustments are made in the nonborrowed path--the only path that can be controlled directly through open market operations--and/or in the discount rate depends in part on emerging behavior by banks and the public. Under present circumstances, however, both the timing of market response to a rise in money and reserve demand, and the ability to control total reserves in the short run within close tolerance

limits, are influenced by the two-week lag between bank deposits and required reserves behind these deposits.^{1/}

(8) Other intermeeting adjustments can be made to the reserve paths as a family. These may be needed when it becomes clear that the multiplier relationship between reserves and money has varied from expectations. The relationship can vary when, for example, excess reserves and non-money reservable liabilities are clearly running higher or lower than anticipated. Since October 6 such adjustments during the intermeeting period have been made infrequently. Given the naturally large week-to-week fluctuations in factors affecting the reserve multiplier, deviation from expectations in one direction over a period of several weeks would be needed before it would be clear that a change in trend has taken place.

A variable relationship between expansion of reserves and of money is implicit in the description of procedures just given. This is illustrated by experience in the fourth quarter, as shown in the table on the next page. It can be seen from panel I that M-1 increased at only a 3.1 percent annual rate (seasonally adjusted) in that period and M-2 at a 6.8 percent rate. At the same time, as shown in panel II, nonborrowed reserves, total reserve and the monetary base rose at substantially more rapid rates--by annual rates of about 13, 13½, and 8 percent, respectively.

There were a number of reasons for the much more rapid growth in reserves and the base than in the monetary aggregates. Only about 1 percentage point of the 13½ percent annual rate of increase in total reserves

^{1/} Under lagged accounting, banks are not required to hold reserves against deposits until two weeks later. With required reserves fixed at that time, the Federal Reserve in its operations is limited in its ability to control total reserves within a given week (since the total of reserves is determined by required reserves and banks' excess reserves), but can more readily determine whether the banking system satisfies its reserve requirement through the availability of nonborrowed reserves, or is forced to turn to the discount window (or to reduce excess reserves, though most banks are usually close to minimal levels in that respect).

Changes in Reserve and Monetary Aggregates
September to December 1979
 (Seasonally adjusted)

	<u>Percent</u> <u>Annual Rate</u> ^{1/}	<u>Change in</u> <u>Millions \$</u>
I. Changes in Monetary Aggregates:		
A. M-1	3.1	2845
1. Currency outside banks	5.3	1400
2. Member bank demand deposits	2.3	972
3. Nonmember bank demand deposits	2.1	473
B. M-2	6.8	15961
II. Changes in Reserves and Related Items:		
A. Nonborrowed reserves	12.9	
B. Borrowings	--	131
C. Total reserves (A + B)	13.8	1430
D. Currency ^{2/}	5.9	1606
E. Monetary base (C + D)	8.1	3046
	<u>Percentage Points</u> <u>Contributed Towards</u> <u>Growth of</u> <u>Total Reserves</u>	<u>Change in</u> <u>Millions \$</u>
III. Total Reserves Absorbed by:		
A. Private demand deposits	1.1	111
B. Interbank demand deposits	2.7	280
C. U.S. Government demand deposits	0.0	3
D. Large, negotiable CD's	3.6	378
E. M-2 time and savings deposits	4.5	466
F. Nondeposit items	0.0	-3
G. Excess reserves	2.0	205

Addendum:

Impact of lagged reserve accounting on:

1. Total reserves		287 ^{3/}
2. Reserves against private demand deposits		-64
3. Reserves against M-2 time and savings deposits		121
4. All other items subject to reserves		230

^{1/} Growth rates of reserves adjusted for discontinuities in series that result from changes in Regulations D and M.

^{2/} Includes vault cash of nonmember banks.

^{3/} Reflects change in total reserves during period attributable to fact that required reserves are based on deposits two weeks earlier, rather than on deposits contemporaneous with reserves. Thus, adjusted to a basis contemporaneous with deposit growth from September to December, total reserves would have expanded \$287 million, or 2.8 percentage points, less than they actually did.

supported growth in the member bank demand deposit component of M-1 (as may be seen from line III.A of the table). An additional $4\frac{1}{2}$ percentage points supported the member bank interest-bearing component of M-2 (line III.E). Thus less than half of the increase in reserves supported expansion in targeted monetary aggregates. More than half of the reserves supported expansion in interbank demand deposits, excess reserves, and large negotiable CD's. If these reserves had not been supplied, growth in M-1 and M-2 would have been much slower. In fact, actual growth in M-1 and M-2 was a bit slower than targeted, though not less than the Committee found acceptable.^{1/}

As this example from recent experience helps demonstrate, the behavior of reserve measures in relation to money can be expected to vary with shifts in the currency and deposit mix, with changes in bank demands for excess reserves and borrowing, and with timing problems related to lagged reserve accounting. But even in evaluating money growth itself, which the Federal Open Market Committee sets as a target in the policy process, recognition has to be given to the likelihood that money growth can vary substantially on a month-to-month basis in view of inherently large and erratic money flows in so vast and complex an economy as ours.

^{1/} Moreover, the relatively rapid expansion in reserve measures was not associated with strength in bank credit, which in the fourth quarter grew at only about a 3 percent annual rate, well below its earlier pace. The slow expansion in bank credit during the fourth quarter reflected, on the liability side, a sharp reduction in the outstanding amount of borrowing by banks through Euro-dollars, federal funds, and repurchase agreements.