

The Reserve Multiplier — Why It Varies

The deposit expansion and contraction associated with a given change in bank reserves, as illustrated earlier in this booklet, assumed a fixed reserve-to-deposit multiplier. That multiplier was determined by a uniform percentage reserve requirement specified for transaction accounts. Such an assumption is an oversimplification of the actual relationship between changes in reserves and changes in money, especially in the short run. For a number of reasons, as discussed in this section, the quantity of reserves associated with a given quantity of transaction deposits is constantly changing.

One slippage affecting the reserve multiplier is variation in the amount of excess reserves. In the real world, reserves are not always fully utilized. There are always some excess reserves in the banking system, reflecting frictions and lags as funds flow among thousands of individual banks.

Excess reserves present a problem for monetary policy implementation only because the amount changes. To the extent that new reserves supplied are offset by rising excess reserves, actual money growth falls short of the theoretical maximum. Conversely, a reduction in excess reserves by the banking system has the same effect on monetary expansion as the injection of an equal amount of new reserves.

Slippages also arise from reserve requirements being imposed on liabilities not included in money as well as differing reserve ratios being applied to transaction deposits according to the size of the bank. From 1980 through 1990, reserve requirements were imposed on certain nontransaction liabilities of all depository institutions, and before then on all deposits of member banks. The reserve multiplier was affected by flows of funds between institutions subject to differing reserve requirements as well as by shifts of funds between transaction deposits and other liabilities subject to reserve requirements. The extension of reserve requirements to all depository institutions in 1980 and the elimination of reserve requirements against nonpersonal time deposits and Eurocurrency liabilities in late 1990 reduced, but did not eliminate, this source of instability in the reserve multiplier. The deposit expansion potential of a given volume of reserves still is affected by shifts of transaction deposits between larger institutions and those either exempt from reserve requirements or whose transaction deposits are within the tranche subject to a 3 percent reserve requirement.

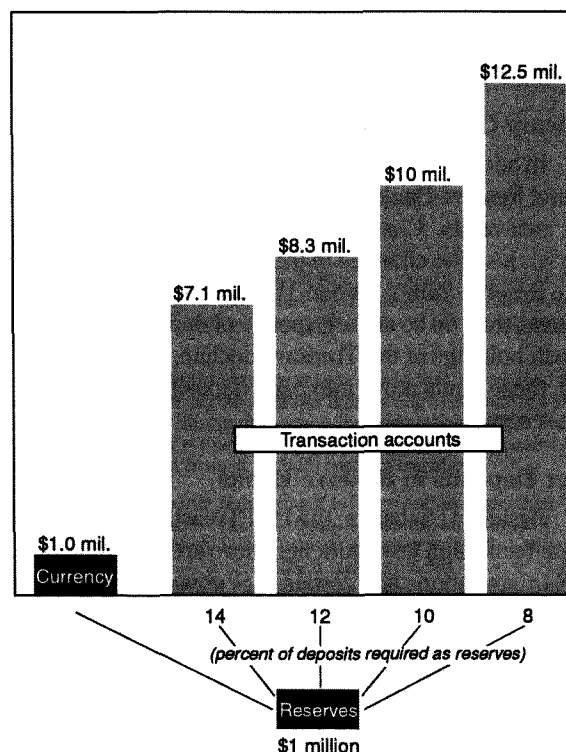
In addition, the reserve multiplier is affected by conversions of deposits into currency or vice versa. This factor was important in the 1980s as the public's desired currency holdings relative to transaction deposits in money shifted considerably. Also affecting the multiplier are shifts between transaction deposits included in money and other transaction accounts that also are reservable but not included in money, such as demand deposits due to depository

institutions, the U.S. government, and foreign banks and official institutions. In the aggregate, these non-money transaction deposits are relatively small in comparison to total transaction accounts, but can vary significantly from week to week.

A net injection of reserves has widely different effects depending on how it is absorbed. Only a dollar-for-dollar increase in the money supply would result if the new reserves were paid out in currency to the public. With a uniform 10 percent reserve requirement, a \$1 increase in reserves would support \$10 of additional transaction accounts. An even larger amount would be supported under the graduated system where smaller institutions are subject to reserve requirements below 10 percent. But, \$1 of new reserves also would support an additional \$10 of certain reservable transaction accounts that are not counted as money. (See chart below.) Normally, an increase in reserves would be absorbed by some combination of these currency and transaction deposit changes.

All of these factors are to some extent predictable and are taken into account in decisions as to the amount of reserves that need to be supplied to achieve the desired rate of monetary expansion. They help explain why short-run fluctuations in bank reserves often are disproportionate to, and sometimes in the opposite direction from, changes in the deposit component of money.

The growth potential of a \$1 million reserve injection



Money Creation and Reserve Management

Another reason for short-run variation in the amount of reserves supplied is that credit expansion — and thus deposit creation — is variable, reflecting uneven timing of credit demands. Although bank loan policies normally take account of the general availability of funds, the size and timing of loans and investments made under those policies depend largely on customers' credit needs.

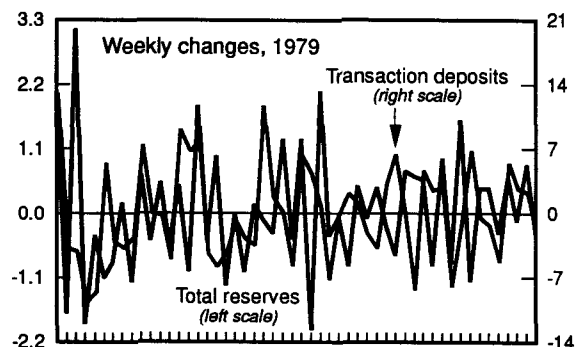
In the real world, a bank's lending is not normally constrained by the amount of excess reserves it has at any given moment. Rather, loans are made, or not made, depending on the bank's credit policies and its expectations about its ability to obtain the funds necessary to pay its customers' checks and maintain required reserves in a timely fashion. In fact, because Federal Reserve regulations in effect from 1968 through early 1984 specified that average required reserves for a given week should be based on average deposit levels two weeks earlier ("lagged" reserve accounting), deposit creation actually preceded the provision of supporting reserves. In early 1984, a more "contemporaneous" reserve accounting system was implemented in order to improve monetary control.

In February 1984, banks shifted to maintaining average reserves over a two-week reserve maintenance period ending Wednesday against average transaction deposits held over the two-week computation period ending only two days earlier. Under this rule, actual transaction deposit expansion was expected to more closely approximate the process explained at the beginning of this booklet. However, some slippages still exist because of short-run uncertainties about the level of both reserves and transaction deposits near the close of reserve maintenance periods. Moreover, not all banks must maintain reserves according to the contemporaneous accounting system. Smaller institutions are either exempt completely or only have to maintain reserves quarterly against average deposits in one week of the prior quarterly period.

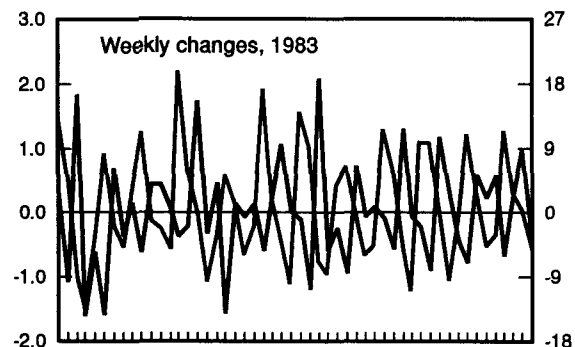
On balance, however, variability in the reserve multiplier has been reduced by the extension of reserve requirements to all institutions in 1980, by the adoption of contemporaneous reserve accounting in 1984, and by the removal of reserve requirements against nontransaction deposits and liabilities in late 1990. As a result, short-term changes in total reserves and transaction deposits in money are more closely related now than they were before. (See charts on this page.) The lowering of the reserve requirement against transaction accounts above the 3 percent tranche in April 1992 also should contribute to stabilizing the multiplier, at least in theory.

Ironically, these modifications contributing to a less variable relationship between changes in reserves and changes in transaction deposits occurred as the relationship between transactions money (M1) and the economy deteriorated. Because the M1 measure of money has become less useful as a guide for policy, somewhat greater attention has shifted to the broader measures M2 and M3. However, reserve multiplier relationships for the broader monetary measures are far more variable than that for M1.

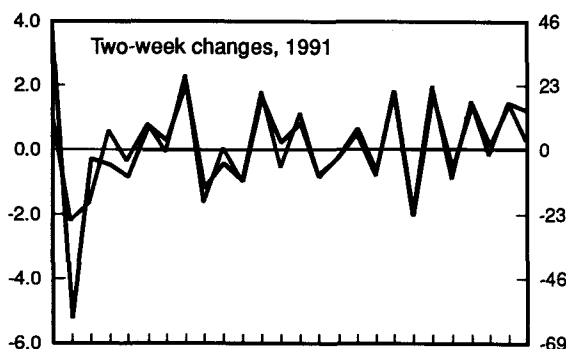
The relationship between short-term changes in reserves and transaction deposits was quite volatile before the Monetary Control Act of 1980 . . .



. . . and before adoption of contemporaneous reserve accounting in 1984 . . .



. . . but less variable afterward.



Note: All data are in billions of dollars, not seasonally adjusted. Scaling approximately reflects each year's average ratio of transaction deposits to total reserves.

Although every bank must operate within the system where the total amount of reserves is controlled by the Federal Reserve, its response to policy action is indirect. The individual bank does not know today precisely what its reserve position will be at the time the proceeds of today's loans are paid out. Nor does it know when new reserves are being supplied to the banking system. Reserves are distributed among thousands of banks, and the individual banker cannot distinguish between inflows originating from additions to reserves through Federal Reserve action and shifts of funds from other banks that occur in the normal course of business.

To equate short-run reserve needs with available funds, therefore, many banks turn to the money market — borrowing funds to cover deficits or lending temporary surpluses. When the demand for reserves is strong relative to the supply, funds obtained from money market sources to cover deficits tend to become more expensive and harder to obtain, which, in turn, may induce banks to adopt more restrictive loan policies and thus slow the rate of deposit growth.

Federal Reserve open market operations exert control over the creation of deposits mainly through their impact on the availability and cost of funds in the money market. When the total amount of reserves supplied to the banking system through open market operations falls short of the amount required, some banks are forced to borrow at the Federal Reserve discount window. Because such borrowing is restricted to short periods, the need to repay it tends to induce restraint on further deposit expansion by the borrowing bank. Conversely, when there are excess reserves in the banking system, individual banks find it easy and relatively inexpensive to acquire reserves, and expansion in loans, investments, and deposits is encouraged.

Copies of this workbook
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