Research Department
Federal Reserve
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Contemporaneous Reserve Accounting

In October, 1979, the Federal Reserve switched from a policy of controlling the money stock by managing the federal funds rate to a procedure which focuses on the provision of reserves to the banking system. It was anticipated that this change in operating procedures would enable the System to control the stock of money more precisely and that part of the cost of doing this would be somewhat greater volatility in short term interest rates.

Annual monetary growth has been lowered by around 1½–2 percentage points since the late seventies but the weekly and monthly numbers unexpectedly have become more volatile. Several economists have argued that this greater volatility has increased uncertainty in the financial markets and been one of the factors keeping short-term interest rates high. They argue that a further change in the System's operating procedures—namely a shift from lagged to contemporaneous reserve accounting—is required to eliminate short-run monetary instability. The Board of Governors announced recently that it plans to make this shift.

Reserve Accounting

Banks and other depository institutions issuing transactions accounts are required to hold reserves equal to certain proportions of their deposit liabilities. Before 1968, banks were required to meet their reserve requirements *contemporaneously*. The amount of reserves a bank was required to hold in a given statement week was related to its deposit totals in that same week. From the individual bank's point of view, the difficulty with such a system is that, because its deposits vary daily, it does not know precisely how many reserves it will be required to hold during a given week until the final day of the week. Hence it must forecast its deposit totals—at least, for the last day or so of the week—in order to determine its required reserves. Since both its deposits and its reserves are subject to unexpected shocks, this is like trying to hit a moving target (its required reserves) with a shaky rifle (its actual reserves).

In 1968, this moving target was replaced by a fixed one when the Federal Reserve moved to a system of *lagged reserve requirements* (LRR). Under LRR a bank's required reserves in the current week depend on its deposit liabilities two weeks ago. Although its actual reserves still are subject to unforeseen shocks, the target it is striving to hit is predetermined.

Monetary control under LRR

For monetary control purposes, lagged reserve accounting imposes certain limitations on the Fed. The most important of these limitations is that, during a given week, the Fed is obligated to provide as many reserves as the banking system requires. This is because required reserves are a predetermined amount: neither a single bank nor the banking system as a whole can alter required reserves because these depend on deposit totals two weeks ago. If the Fed were to supply less or more reserves than the banking system required, interest rates would vary sharply as banks found themselves with deficient or surplus reserves and unable in the aggregate to do anything about it.

There are two categories of reserves—non-borrowed reserves and borrowed reserves. Although the Fed cannot control total reserves in the current week, it can adjust the proportions which are in non-borrowed or borrowed form. Indeed, manipulation of the non-borrowed/borrowed "split" has been the principal monetary control instrument since 1979.

Suppose the Fed wants to restrain monetary growth. It can do this by reducing non-borrowed reserves by selling securities. With no change in required reserves in the current week, banks bid up the federal funds rate as they seek to meet their requirements. This rise

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in the funds rate induces banks to borrow at the discount window so that the share of borrowed reserves in the total increases. The increased cost of federal funds in turn induces banks to raise both their prime lending rates and their offering rates on certificates of deposit and non-deposit liabilities. This rise in rates leads the public to take fewer bank loans and to switch out of transaction deposits into other bank liabilities. Both of these changes show up in reduced monetary growth. However, because the banking system is not *forced* to reduce transaction deposits in the current week—since the Fed can raise the cost but cannot reduce the quantity of total reserves in the current week—this effect on money growth occurs only with a lag.

Several economists—mostly monetarists—have argued that the limitations imposed by the LRR system are largely responsible for the fluctuations in monetary growth which have been observed in the last three years. Their argument runs as follows. Suppose the stock of transactions deposits rises in the current week either because banks are making more loans or because the public is shifting funds into transactions accounts from other bank liabilities. Because of LRR, this increase in money has no effect on the demand for reserves *this week* and hence no immediate impact on the federal funds rate. As a result, there is no immediate tendency for the increase in money to be reversed.

Two weeks hence required reserves will be higher and hence the Fed is obligated to increase total reserves. If the Trading Desk does not increase non-borrowed reserves, these additional reserves will be supplied through the discount window as the funds rate is driven up. This increase in the funds rate will drive loans and transaction deposits downward again—as banks raise their prime lending rates and their offering rates on certificates of deposit—but this reversal will not occur at once. It may take several months before money is brought back on track. The reversal could be hastened if the Fed were actively to reduce unborrowed reserves, but it will do so only if it regards the surge in money as permanent. Monetarists argue that this cautious control has produced cycles in monetary growth which are about four months in length.

Contemporaneous accounting

The cure for this problem, say the monetarists, is a return to contemporaneous reserve accounting (CRR). And, after studying the issue, the Board of Governors announced recently that it has decided in principle to do just that. The new system—which will not come into use until mid-1983 at the earliest—will not be quite like the pre-1968 regime. The principal differences are that the accounting period will be extended from one to two weeks, the contemporaneous requirement will apply only to *transactions* accounts, and the system will not be a perfectly contemporaneous one. There will be a two-day lag with reserves over two-week periods ending on Wednesdays being based on deposit totals for two-week periods ending on Mondays.

Under CRR required reserves in a given statement period will *no longer* be predetermined. If banks take actions which alter total deposits, this will change required reserves *contemporaneously*. Hence the Fed will not be obligated to supply a quantity of reserves equal to a predetermined required amount. Instead it will be able to offset changes in borrowing at the discount window by equal changes in non-borrowed reserves to keep total reserves unchanged. Thus, with contemporaneous accounting, the Fed will *in principle* be able to control *total reserves*, rather than only the non-borrowed/borrowed reserves split. At present, however, although the System has decided to move to contemporaneous accounting, it has not yet decided whether to adopt total reserves as its short-run operating target rather than the non-borrowed reserves target currently in use.

Monetarists argue that the switch to CRR will enable the Fed to move to a regime of controlling total reserves. This will permit closer short-run monetary control since the "multi-

plier" relationship between the stock of money and total reserves can be predicted with greater precision than that between money and non-borrowed reserves. This is because borrowings at the discount window are volatile and difficult to forecast in the short run. Hence, argue monetarists, the Fed should switch from a non-borrowed to a total reserves target when it adopts contemporaneous accounting.

This monetarist argument for total reserves targeting raises two important and as yet unanswered questions. The first relates to how banks will react to the introduction of CRR. Since reserve management will become somewhat more difficult—because, once again, the target as well as the rifle will be uncertain—banks may choose, as they did before 1968, to hold more excess reserves or may become less inhibited from having reserve deficiencies. This would weaken the link between total reserves and money and offset some of the improved monetary control expected to result from total reserves targeting. For example, if banks react to an increase in total reserves by simply adding to their excess reserves, there is no effect on the stock of money.

The second question relates to the difficulty of predicting required reserves. Under total reserves targeting, the Desk must predict the total demand for reserves, given its target for money. This total demand depends critically on the legal reserve requirements. At present, different classes of transactions accounts have different requirements so that the demand for reserves depends on the distribution of deposits among these classes. An unexpected shift in this distribution will alter the demand for reserves—and hence produce a change in the funds rate—even though money remains on target. Because such shifts are difficult to predict, it is widely believed that total reserves targeting would increase interest rate volatility and possibly reduce short-run monetary control. This is not a long-term objection to total reserves targeting. When the Monetary Control Act of 1980 is fully phased in, most transactions accounts will bear the same reserve requirements, making it feasible to make accurate predictions of required reserves and so to move to total reserves targeting.

The monetary control mechanism will adjust to shocks more rapidly under CRR whether or not the Fed adopts total reserves targeting. If banks create more deposits, required reserves increase immediately, putting upward pressure on the federal funds rate immediately rather than with a two-week lag. Hence there will be less tendency for money to drift away from target because banks begin their adjustments sooner. However, this advantage depends on the Fed's willingness to allow interest rates to fluctuate. If the Desk sought to "manage" the funds rate, the greater precision of control promised by CRR would fail to materialize.

Several writers have argued that the shift to CRR will reduce the amount of interest rate fluctuations. Under LRR, the banking system can obtain additional reserves at the discount window but cannot reduce its required reserves. Under CRR, it has an additional option—reducing loans or issuing more CDs—which lowers deposits and hence reduces required reserves. It is argued that this new option will mean that the impact on interest rates will be smaller. This argument depends on the assumption that the Desk will continue to target unborrowed reserves. If the Fed shifts to a *total* reserves control procedure, the banking system as a whole will no longer be able to increase total reserves by borrowing at the window. Empirical studies by the Federal Reserve suggest that with existing reserve requirements volatility would be increased with a total reserves target, though it would be reduced under a non-borrowed reserves target. However, such studies necessarily assume that the behavior of the banks and the public will not be dramatically different under the new procedures. Although this seems a plausible assumption, only actual experience can provide a firm answer to this question.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 7/21/82	Change from 7/14/82	Change from year ago Dollar	Change from year ago Percent
Loans (gross, adjusted) and investments*	160,373	491	9,860	6.6
Loans (gross, adjusted) — total#	140,062	583	10,699	8.3
Commercial and industrial	44,045	148	5,044	12.9
Real estate	57,101	44	3,593	6.7
Loans to individuals	23,395	4	561	2.5
Securities loans	2,726	480	1,341	96.8
U.S. Treasury securities*	6,630	15	411	6.6
Other securities*	13,681	− 107	− 1,250	− 8.4
Demand deposits — total#	138,823	−1,040	− 338	− 0.9
Demand deposits — adjusted	26,873	−1,319	− 973	− 3.5
Savings deposits — total	30,505	− 119	183	0.6
Time deposits — total#	99,238	1,897	16,135	19.4
Individuals, part. & corp.	89,648	1,794	15,060	20.2
(Large negotiable CD's)	37,840	1,404	4,359	13.0

Weekly Averages of Daily Figures	Week ended 7/21/82	Week ended 7/14/82	Comparable year-ago period
Member Bank Reserve Position			
Excess Reserves (+)/Deficiency (−)	10	55	13
Borrowings	7	10	72
Net free reserves (+)/Net borrowed(−)	3	45	− 59

* Excludes trading account securities.

Includes items not shown separately.

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