

# Federal Reserve Open Market Techniques

*By Howard L. Roth*

Open market operations are the Federal Reserve's primary monetary policy instrument for promoting noninflationary economic growth and other policy goals. Through open market operations—the buying and selling of U.S. government securities—the Federal Reserve influences interest rates and the supply of money and credit. Changes in financial conditions lead in turn to movements in economic activity and the general level of prices in the economy.

In conducting open market operations, the Federal Reserve uses a number of different techniques, ranging from outright transactions with U.S. government security dealers to self-reversing transactions with foreign central banks. The particular technique used depends, among other things, on the Federal Reserve's operating procedures and changes in factors other than open market operations that affect reserve availability.

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This article describes the different techniques that are used in conducting open market operations and identifies some changes that have occurred in recent years in their relative importance. The first section provides background material on the role open market operations play in the conduct of monetary policy. The open market operating techniques are described in the second section, while the third section examines the changes that have occurred in the usage of these techniques in recent years.

## **Open market operations and monetary policy**

Open market operations by the Federal Reserve lead initially to changes in the supply of reserves that depository financial institutions have available to meet their reserve requirements. Changes in reserves—which are held either as deposits at Federal Reserve banks or as vault cash—lead in turn to changes in interest rates and the supply of money and credit. For example, when reserves

increase, depository institutions are able to increase their loans and investments, and thereby increase the deposit accounts held by borrowers. The attendant rise in the supply of money and credit tends, in turn, to be accompanied by a decline in interest rates. Alternatively, a reduction in reserves leads to a decline in money and credit and upward pressure on interest rates.

The linkage between open market operations and reserves is made clear by the accounting transaction that occurs when the Federal Reserve pays for the securities it buys or is paid for securities it sells. When the Federal Reserve buys securities, it pays for them by crediting the reserve accounts held at the Federal Reserve by the sellers' depository institutions.<sup>1</sup> The sellers' accounts at depository institutions, in turn, are credited. Conversely, sales of securities by the Federal Reserve are handled through debits to depository institutions' reserve accounts at the Federal Reserve. Thus, when the Federal Reserve purchases securities, reserves increase; and when the Federal Reserve sells securities, reserves decline.

The Federal Reserve's portfolio of securities is one of several sources of reserves, as shown in Table 1. Other sources include Federal Reserve loans to depository institutions and Federal Reserve float. Table 1 also shows how the total source of reserves can be used. In general, sources of reserves can be used three ways: they can be used as reserves, be used by the public as currency, or be used to increase other nonreserve liabilities of the Federal Reserve.<sup>2</sup>

<sup>1</sup> The Federal Reserve engages in security transactions with about three dozen large securities dealers. About a third of the dealers are departments in large money center banks. To buy or sell securities from a bank, the Federal Reserve simply credits or debits the bank's reserve account.

<sup>2</sup> The Federal Reserve capital accounts and the Treasury's monetary net worth make up the remaining uses.

As indicated in Table 1, total sources of reserves equal total uses of reserves.<sup>3</sup> Also, as the table shows, reserves equal total sources minus the uses other than reserves. The following reserve equation is similarly constructed and provides a breakdown of sources and nonreserve uses of reserves along the lines of Table 1.

$$\begin{aligned} \text{Reserves} &= \text{Securities} + \text{Loans} \\ &+ \text{Float} + \text{Other Sources} \\ &- \text{Currency in Circulation} \\ &- \text{Treasury Deposits} \\ &- \text{Foreign and Other Deposits} \\ &- \text{Other Uses.} \end{aligned}$$

The sources and uses on the right hand side of the equation are more generally referred to as factors affecting reserves. The most important factor is the Federal Reserve's portfolio of securities. Loans to depository institutions are also a factor affecting reserves because reserves increase when the Federal Reserve credits the accounts of borrowing institutions for the amounts of their loans. Float—cash items in the process of collection minus deferred availability cash items—arises when the scheduled credit-deferral period on a check presented to the Federal Reserve for collection elapses before the Federal Reserve can collect

<sup>3</sup> Table 1 is a condensed version of a table published weekly in Federal Reserve publication H.4.1, "Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks," and monthly as Table 1.11 in the *Federal Reserve Bulletin*. The consolidated balance sheet of the 12 Federal Reserve banks is published in the *Federal Reserve Bulletin* every month as Table 1.18. Information about the Treasury's monetary accounts is printed in the *Treasury Bulletin*.

For a description of the items appearing in these tables, see *The Federal Reserve System: Purposes and Functions*, Board of Governors of the Federal Reserve System, Washington, D.C., 1984, *Statfacts: Understanding Federal Reserve Statistical Reports*, Federal Reserve Bank of New York, November 1981, or any of a number of undergraduate money and banking textbooks.

**TABLE 1**  
**Sources and uses of reserves**  
**November 20, 1985**  
(millions of dollars)\*

Sources		
Federal Reserve portfolio of securities		180,341
Loans to depository institutions from the Federal Reserve		1,178
Float†		1,483
Other sources		<u>47,122</u>
Total sources		<u>230,124</u>
Uses		
Currency in circulation	191,471	
Minus vault cash used to satisfy reserve requirements	<u>20,117</u>	171,354
Treasury deposits		3,036
Foreign and other deposits held with Federal Reserve banks		800
Other uses		<u>8,575</u>
Total nonreserve uses		183,765
Reserves		<u>46,359</u>
Total uses		<u>230,124</u>

Source: *Federal Reserve Bulletin*, Tables 1.11 and 1.12, February 1986

\*Biweekly averages of daily averages for two-week period ended November 20, 1985

†Cash items in the process of collection minus deferred availability cash items

from the depository institution on which the check was drawn. When this happens, both the presenting institution and the paying institution have credit for the funds, a development that adds reserves to the financial system until the Federal Reserve collects.

Another factor affecting reserves is currency in circulation, which consists of paper currency and coin held outside the Treasury and Federal Reserve banks. As the negative sign in the equation indicates, when currency in circulation increases, reserves of depository institutions decline. Deposits held with the Federal Reserve banks, other than reserve deposits, also affect reserves. These deposits include accounts that the Treasury, foreign central banks, and international institutions hold at

Federal Reserve banks. The Treasury uses its account for depositing tax revenues and other receipts and for making expenditures. Foreign central banks and international institutions hold accounts at the Federal Reserve Bank of New York to facilitate international settlements. When the Treasury, foreign central banks, or international institutions transfer funds from domestic depository institutions to accounts at the Federal Reserve, reserves of depository institutions decline. Increases in these deposits are associated with decreases in reserves.

The factors affecting reserves can be divided into two categories—controllable and uncontrollable—according to whether the Federal Reserve has close control over them. The

only factor the Federal Reserve can control closely is its portfolio of securities. All of the other factors cannot be closely controlled.

Within this framework of factors affecting reserves, the Federal Reserve follows a three-step procedure in conducting monetary policy. The first step is to determine a target level of reserves consistent with the objectives of monetary policy.<sup>4</sup> The second step is to estimate the net change in reserves that will occur due to movements in uncontrollable factors. The third step is to undertake open market operations that increase or decrease security holdings enough to bring about the targeted level of reserves. Reserves are targeted over two-week maintenance periods that correspond to periods during which depository institutions are required to hold specified average levels of reserves.

A simplified example helps illustrate the three-step reserve-targeting procedure. Suppose the Federal Reserve determines that the target level of reserves for a reserve maintenance period is \$41 billion. Also, suppose reserve projections show that when estimated developments of uncontrollable factors are taken into account, reserves would average \$40 billion if the Federal Reserve took no action. In this case, therefore, the Federal Reserve would seek to supply depository institutions with an average of \$1 billion in reserves by increasing its holdings of securities through open market operations. If, on the other hand, reserve projections showed reserves would exceed the targeted level, the Federal Reserve would absorb reserves by reducing its holdings of securities.

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<sup>4</sup> More precisely, reserve targets are formulated in terms of non-borrowed reserves—reserves net of adjustment and seasonal borrowing by depository institutions.

## Open market techniques

Open market operations are carried out by a unit in the Securities Department of the Federal Reserve Bank of New York.<sup>5</sup> This unit, known as the Desk, operates according to directives from the Federal Open Market Committee (FOMC).

The operations available to the Desk for managing reserves fall into two broad categories—outright or permanent transactions and temporary or self-reversing transactions. Buying, selling, or redeeming securities are outright transactions, while engaging in repurchase agreements (RP's) or engaging in matched sale purchase agreements (MSP's) are temporary transactions. With RP's, the Federal Reserve buys securities but agrees to sell them at a specified future date at a specified price.<sup>6</sup> Under MSP's, it sells securities but agrees to buy other securities at specified future dates and terms.

### *Outright transactions*

The Desk uses outright transactions when it wants to provide or absorb reserves over relatively long time spans. Outright transactions typically are used when projections show a shortage or excess that is likely to persist longer than a single two-week maintenance period.

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<sup>5</sup> Lucid descriptions of these operations are provided by Paul Meek, *U.S. Monetary Policy and Financial Markets*, Federal Reserve Bank of New York, 1982, and in *Open Market Operations*, Federal Reserve Bank of New York, 1985. See also William Melton, *Inside the Fed: Making Monetary Policy*, Dow Jones-Irwin, Homewood, Ill., 1985.

<sup>6</sup> The Federal Reserve's use of "RP" is opposite that of securities dealers. When the Federal Reserve says it is undertaking RP's, it is putting out money and taking in securities, thereby increasing reserves. When securities dealers undertake RP's, they are effectively borrowing money. The conventional definition of an RP, then, is a sale of securities with an agreement to repurchase the securities on a fixed date.

Long-lasting needs to add or drain reserves arise for a variety of reasons—to meet the needs of a growing economy, to offset long-lasting seasonal movements in uncontrolled factors, and to accommodate permanent changes in the demand for reserves.

A growing economy requires a growing money supply. Depository institutions must hold additional reserves to support growth in checkable and nonpersonal time deposits. And growth in currency in circulation must also be supported by additional reserves if reserve availability is to be maintained. Outright purchases supply the reserves needed for monetary expansion.

Seasonal movements in factors affecting reserves for more than a two-week maintenance period also may call for outright transactions. For example, currency in circulation rises before holidays as consumers prepare to make additional purchases, and then returns to more normal levels after the holidays. If not offset, the rise and fall of currency in circulation would first drain reserves from the financial system and then supply reserves. The seasonal pattern for the Christmas holiday season spans several weeks. By purchasing securities outright before Christmas and selling securities outright after Christmas, the Desk can offset much of the seasonal effect of currency in circulation on reserves.<sup>7</sup>

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<sup>7</sup> Recent changes in the long-run demand for reserves by depository institutions have been met with outright transactions. The Depository Institutions Deregulation and Monetary Control Act of 1980 mandated reserve requirements for nonmember banks and thrift institutions. The reserve requirement of these institutions has been phased in over six years. Demand for reserves by these institutions increases on the dates that their reserve requirements increase. The act also provided a schedule for reducing the reserve requirements of member banks. The phasing down, completed in 1984, reduced member banks' demand for reserves. Because they affected the demand for reserves, the phase-ups and phase-downs had to be accounted for in implementing policy. Since a phase-down permanently reduces demand for reserves, its effect on reserves is offset by an outright transaction

The Desk engages in outright transactions with U.S. government security dealers and with foreign central banks and other institutions that maintain accounts at the Federal Reserve Bank of New York. The Desk acts either as an intermediary between the foreign accounts and the securities market or deals directly with the foreign accounts in buying securities from them or selling securities to them. Foreign central banks and international institutions maintaining accounts at the Federal Reserve Bank of New York usually also hold accounts at domestic depository institutions. When the deposits of foreign institutions rise above the levels needed for ordinary transactions purposes, the surplus funds are normally invested in interest-earning assets. In many instances, foreign institutions ask a depository institution or a securities dealer to invest the funds in the securities market. In other instances, the institutions ask the Desk to invest the surplus funds. Depending on its perception of the need to add or drain reserves from the financial system, the Desk either invests the funds in the market or sells securities from its own account to absorb the funds.

The effects of outright transactions on reserves are illustrated in Table 2. Entry 1 shows the effect of an outright purchase of \$1 billion in securities from a security dealer. The Federal Reserve's security portfolio (an asset of the Federal Reserve) is increased by \$1 billion. The reserve account of the securities dealer's depository institution (a liability of the Federal Reserve and an asset of the depository institution) is correspondingly increased. The securities dealer's demand deposit at the financial institution (an asset of the securities dealer and a liability of the

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reducing the supply of reserves. Similarly, a phase-up is offset by an outright purchase of securities.

**TABLE 2**  
**Reserve accounting**  
 (billions of dollars)

		<b>Federal Reserve</b>		<b>Depository Institutions</b>				
(1)	Securities	+ 1	Reserves	+ 1	Reserves	+ 1	Demand deposits	+ 1
(1)								
(2)			Reserves	- 1	Reserves	- 1	Demand deposits	- 1
(2)			Foreign deposits	+ 1				
(3)	Securities	- 1	Foreign deposits	- 1				
(3)								
(4)			Reserves	+ 1	Reserves	+ 1	Demand deposits	+ 1
(4)			Foreign deposits	- 1				
(5)	Securities	+ 1	Reserves	+ 1	Reserves	+ 1	Demand deposits	+ 1
(6)	Securities	- 1	Foreign deposits	- 1				
(6)								
(7)			Reserves	+ 1	Reserves	+ 1	Demand deposits	+ 1
(7)			Foreign deposits	- 1				
(8)	Securities	- 1	Reserves	- 1	Reserves	- 1	Demand deposits	- 1
(8)								
		<b>Public</b>		<b>Foreign</b>				
(1)	Demand deposits	+ 1						
(1)	Securities	- 1						
(2)					Demand deposits	- 1		
(2)					Deposit at FRB	+ 1		
(3)					Securities	+ 1		
(3)					Deposit at FRB	- 1		
(4)	Securities	- 1			Securities	+ 1		
(4)	Demand deposits	+ 1			Deposit at FRB	- 1		
(5)	Demand deposits	+ 1	RP's	+ 1				
(6)					RRP's	+ 1		
(6)					Deposit at FRB	- 1		
(7)			RP's	+ 1	RRP's	+ 1		
(7)	Demand deposits	+ 1			Deposit at FRB	- 1		
(8)	Demand deposits	- 1						
(8)	RRP's	+ 1						

depository institution) is increased. And the securities dealer's portfolio of securities (an asset of the securities dealer) is reduced. Thus, the outright purchase injects reserves into the financial system. Conversely, an outright sale drains reserves from the financial system, and the associated accounting entries are the reverse of those for an outright purchase.

The effects of outright transactions with foreign accounts are illustrated by entries 2 and 3 in Table 2. The illustration assumes that the Desk sells securities to a foreign account. To see the effect on reserves, it is useful to break the transaction into two components. One is the transfer of excess funds by the foreign institution from its account at a domestic depository institution to its account at the Federal Reserve Bank of New York. The other is the subsequent investment of these funds in securities from the Federal Reserve's portfolio. In entry 2 of Table 2, the foreign institution transfers funds from its account at a depository institution account to its account at the Federal Reserve, a transfer that drains reserves from the financial system. In entry 3, the Federal Reserve sells securities from its own account to the foreign account. The net effect of entries 2 and 3 is that securities are transferred from the Federal Reserve to foreign institutions, demand deposits of foreign institutions are reduced, and reserves are drained from the financial system. Conversely, when the Federal Reserve purchases securities offered for sale by foreign accounts, reserves are injected into the financial system.

When the Desk acts as agent for a foreign account in the securities markets, the level of total reserves in the financial system is not affected. When the Desk buys securities in the market for a foreign account, entry 2 is still appropriate but entry 3 is not. Instead, entry 4 records the investment of the funds in the mar-

ket by the Federal Reserve acting as agent. When the seller of the securities deposits the check drawn on the foreign institution's account at the Federal Reserve Bank of New York, reserves (and demand deposits) increase to their original level. The net result of the two transactions shown in entries 2 and 4 is that the public has fewer securities and higher demand deposits while foreign institutions have lower demand deposits and fewer securities. Reserves are unchanged.

When the Federal Reserve redeems maturing securities held in its portfolio, the effect is to drain reserves in a similar manner as an outright sale of securities. The Desk redeems maturing securities by subscribing for a smaller amount of the issues offered in a Treasury or federal agency refunding than the Federal Reserve's current holdings of maturing issues. The accounting entries for a redemption are not shown in Table 2.

### *Temporary transactions*

The Desk uses temporary transactions when it wants to provide or absorb reserves for relatively short time periods. Temporary transactions typically will be used when projections show a shortage or excess that is likely to persist no longer than a single two-week maintenance period.

Short-run needs to add or drain reserves typically arise from changes in uncontrollable factors. Temporary transactions are arranged to limit the effects on reserves of anticipated changes in uncontrollable factors and to offset the effects on reserves of unanticipated changes in these factors.

The Desk engages in two kinds of repurchase agreements and two kinds of matched sale-purchase transactions. System RP's are arranged for the account of the Federal Reserve Bank of New York. Customer-related

RP's are arranged for foreign and international institutions holding accounts at the Federal Reserve. MSP's in the market are between the Federal Reserve and securities dealers. The other kind of MSP is between the Federal Reserve and official foreign and international accounts.

The Desk makes available a daily investment facility in which foreign account funds are pooled. This arrangement allows the Desk either to invest the entire pool in the market in one transaction (customer-related RP's), to meet these investment needs from its own portfolio of securities (MSP's with the foreign investment pool), or to engage in a combination of the two. This pooling of foreign funds simplifies Desk operations and enables the Desk to serve the investment needs of more foreign accounts than it could otherwise.

The reserve effects of temporary transactions are also shown in Table 2. As entry 5 shows, the accounting for a System RP is similar to that for an outright purchase. One difference is that the securities dealer considers the transaction as having increased one of its liabilities, repurchase agreements. The securities dealer has borrowed funds from the Federal Reserve with an agreement to repay with interest on an agreed-on date, at most 15 days later. The other difference from an outright purchase is that the transaction is later reversed. Most often, the funds are loaned only overnight. In that case, reserves are increased for only one day. When the transaction is reversed, the accounting entries are reversed and reserves return to their original level.

Customer-related RP's and MSP's with the pool are alternative ways of investing the pool. The Desk does not consider MSP's with the pool a reserve management technique even though the MSP's drain reserves. Instead, when the Federal Reserve forecasts the level

of reserves that will be available in the financial system, it assumes that the funds in the pool will be invested with the system as MSP's. That is, the pool is treated as an uncontrolled factor that regularly absorbs reserves, like currency in circulation.

The accounting entries for doing MSP's with the foreign pool are shown in entry 6 of

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*The use of temporary transactions has changed significantly in the past few years.*

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Table 2. Making MSP's with the pool does not offset the initial reserve drain when foreign and international accounts transfer their excess funds from depository institutions to the Federal Reserve Bank of New York. The net effect on reserves from lines 2 and 6 is a drain of reserves.

Because the prospective drain on reserves from doing MSP's with the pool is factored into reserve projections, customer-related RP's reduce the drain and increase reserves relative to the level that was projected. In this respect, both customer-related RP's and System RP's supply reserves to the financial system. However, like the outright purchase of securities for foreign or international account illustrated in entries 2 and 4, customer-related RP's have no net effect on reserves when the initial buildup of funds in foreign institutions' accounts at the Federal Reserve is taken into account. The accounting entries recording the investment of funds in the market are shown in entry 7. The foreign institution invests in reverse repurchase agreements (RRP's), an asset. The public, most likely a securities dealer, incurs an increase in RP's, a liability. There is no net effect on reserves when entries 2 and 7 are combined. The entries are reversed as the RP unwinds the next day.

Both System RP's and customer-related RP's increase reserves relative to reserve projections. The choice between the two depends largely on the magnitude of the reserve need that the Desk wants to meet. Customer-related RP's are limited by the amount of funds in the pool. System RP's can be used to meet larger reserve needs. Another consideration can be the duration of the reserve need. Reserve needs extending more than one day can be easily handled with multi-day System RP's. Designing a customer-related RP for this task would be difficult because the future size of the pool cannot be known precisely.

The accounting entries for a MSP in the market are given in entry 8 of Table 2. From the securities dealer's point of view, it has made a short-term loan to the Federal Reserve. The loan is recorded on the dealer's books as a debit to RRP's and a credit to demand deposits, another asset. When the MSP matures, the accounting entries are reversed. Thus, reserves are lower for the duration of the MSP and then return to their original level.

### **Use of the techniques**

In conducting open market operations, the Desk relies more on temporary transactions than on outright transactions. The use of temporary transactions has changed significantly in the past few years. Their use declined sharply in 1980 and 1981, but has increased somewhat since 1981.

The dollar volume of total temporary transactions typically has been ten times the volume of total outright transactions. For example, temporary transactions totaled \$310 billion in 1985, compared with \$34 billion for outright transactions (Table 3).<sup>8</sup>

The reason for the much heavier use of temporary transactions is that uncontrolled factors

are highly volatile in the short run. For example, while total reserves showed a net change of around \$80 million a week in 1985, absolute week-to-week changes in uncontrolled factors averaged \$1.4 billion during the year. To prevent this short-run variability in uncontrolled factors from leading to weekly variability in reserves, the Desk provided and absorbed reserves through temporary transactions.

The dollar volume of total temporary transactions dropped \$63 billion in 1980, fell another \$101 billion in 1981, and then increased \$41 billion in 1982. From 1983 to 1985, total temporary transactions averaged

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### *Changes in operating procedures contributed to the sharp drops in temporary transactions in 1980 and 1981.*

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almost precisely their 1982 level. Much of the pattern since 1979 can be attributed to changes in day-to-day operating procedures and changes in the variability of uncontrolled factors.

Changes in operating procedures contributed to the sharp drops in temporary transactions in 1980 and 1981. Until October 1979, the Desk had used its reserve management techniques in day-to-day operations to hold the federal funds rate to a narrow band around a level thought to be consistent with the desired growth of money and credit. Heavy use of temporary transactions was required. Under the operating procedures instituted in October 1979, the Desk targeted nonborrowed reserves—reserves net of adjustment plus seasonal borrowing by

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<sup>8</sup> The source of most of the dollar figures in Table 3 is a series of articles published yearly by the staff of the Federal Reserve Bank of New York, "Monetary Policy and Open Market Operations," *Quarterly Review*, Federal Reserve Bank of New York.

**TABLE 3**  
**Volume of open market operations**  
 (billions of dollars)

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
<b>Outright transactions</b>								
<b>Purchases</b>								
In market	15.0	7.1	8.5	8.8	10.5	10.7	14.1	17.1
From foreign accounts	9.9	14.1	4.4	8.4	9.4	11.8	9.7	9.4
<b>Sales</b>								
In market	0.2	2.3	2.8	2.6	1.5	0	1.1	1.5
To foreign accounts	13.7	5.6	4.5	4.1	7.1	3.4	7.6	2.7
Redemptions	<u>2.3</u>	<u>3.0</u>	<u>3.5</u>	<u>1.9</u>	<u>3.2</u>	<u>2.8</u>	<u>8.0</u>	<u>3.7</u>
Total outright	41.1	32.1	23.7	25.8	31.7	28.7	40.5	34.4
<b>Temporary transactions</b>								
<b>Repurchase agreements</b>								
System	221.5	185.5	167.2	110.9	179.1	124.0	144.8	156.4
Customer-related	47.3	53.0	64.3	79.5	89.1	159.9	126.7	116.7
<b>Matched sale purchases</b>								
in market	<u>140.2</u>	<u>194.6</u>	<u>138.6</u>	<u>78.4</u>	<u>42.0</u>	<u>11.9</u>	<u>55.0</u>	<u>36.6</u>
Total temporary	409.0	433.1	370.1	268.8	310.2	295.8	326.5	309.7

depository institutions from the Federal Reserve. Because the federal funds rate was allowed to vary over a much wider range, fewer temporary transactions were needed.<sup>9</sup>

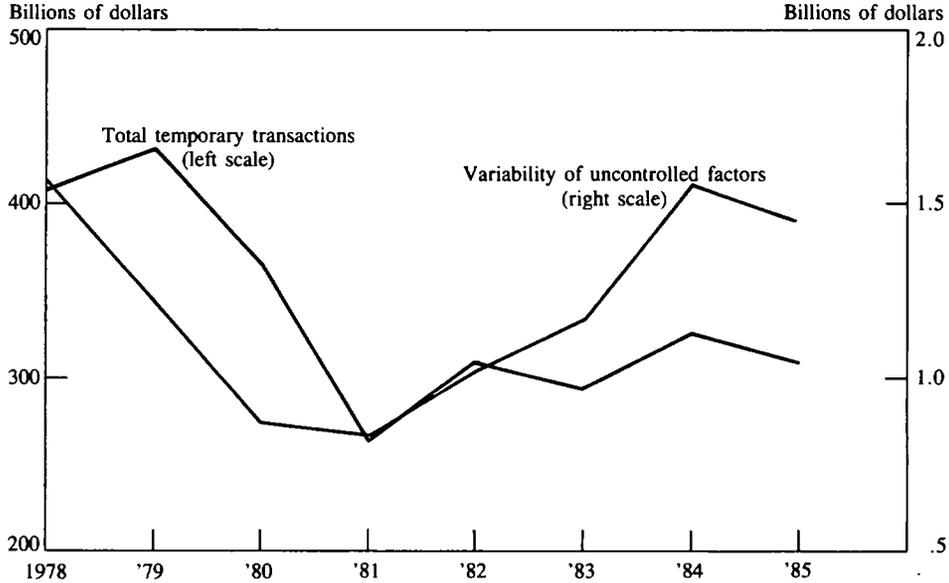
Another change in operating procedures occurring in the fall of 1982 is consistent with the increased use of temporary transactions after 1981. The nonborrowed reserves operating procedure was modified in late 1982 when a breakdown in the relationship between M1 and economic activity forced the Federal Reserve to rely more on judgments of mone-

etary and economic developments in deciding on the appropriate level of reserves in the financial system. The new procedure has been described as being between a nonborrowed reserves operating procedure and a federal funds operating procedure. As such, the use of temporary transactions might be expected to be more frequent than under the nonborrowed reserves procedure used from late 1979 to late 1982 but less frequent than under the federal funds rate procedure used until late 1979.

A decline in the variability of uncontrollable factors also contributed to the decline in the use of temporary transactions in 1980 and 1981. Chart 1 plots the dollar volume of total temporary transactions and the variability of total uncontrolled market factors for 1978 through 1985. Variability is measured by the average absolute week-to-week change in total uncontrolled market factors. Chart 1 shows that uncontrolled factors became less variable during the years that the use of temporary

<sup>9</sup> A study of the new operating procedures revealed that the number of market entries to conduct temporary transactions in the first year under the new operating procedures was about a third less than in the preceding year. See Fred J. Levin and Paul Meek, "Implementing the New Operating Procedures: The View from the Trading Desk," *New Monetary Control Procedures*, Federal Reserve Staff Study, Vol. 1, Board of Governors of the Federal Reserve System, February 1981. See also Neil G. Berkman, "Open Market Operations Under the New Monetary Policy," *New England Economic Review*, Federal Reserve Bank of Boston, March/April 1981, pp. 5-20.

**CHART 1**  
**Relationship between temporary transactions**  
**and the variability of uncontrolled factors**



transactions was declining. The average absolute change declined from \$1,202 million in 1979 to \$850 million in 1981.

An upward movement in the variability of uncontrolled factors appears to be in part responsible for the increased use of temporary transactions after 1981. As shown by Chart 1, the variability of uncontrolled factors reached

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*An upward movement in the variability of uncontrolled factors appears to be in part responsible for the increased use of temporary transactions after 1981.*

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a low in 1981, then rose steadily from 1982 through 1984 before declining slightly in 1985.

The factor contributing most to changes in

variability in recent years has been Treasury deposits with the Federal Reserve. The variability of these deposits and their average level fell dramatically in 1979, remained low for three years, and then rose sharply in 1982 (Table 4). Since 1982, these deposits have been quite variable, although not as variable as they were in 1978.

The 1979-81 decline in the variability of Treasury deposits was due to changes in Treasury cash management techniques. In 1978, Congress authorized commercial banks to pay interest on tax and loan (T&L) accounts and charge the Treasury for services. The Treasury returned to a practice followed before 1967 of transferring funds from T&L accounts to Federal Reserve accounts only in anticipation of expenditures. In this way, the Treasury could maintain a fairly constant balance at the Federal Reserve, and the Treasury account at the

**TABLE 4**  
**Variability of uncontrolled factors**  
**affecting reserves held at Federal Reserve banks**  
(millions of dollars)

	Period							
	1978	1979	1980	1981	1982	1983	1984	1985
Uncontrolled factors providing reserves								
Loans	278 (867)	305 (1,338)	339 (1,441)	333 (1,358)	246 (1,046)	319 (1,039)	579 (3,721)	511 (1,313)
Float	972 (5,430)	1,155 (6,616)	948 (4,685)	722 (3,337)	556 (2,540)	438 (1,787)	465 (830)	357 (801)
Other sources*	226	284	248	286	283	235	347	323
Uncontrolled factors absorbing reserves								
Currency in circulation	471	522	573	649	737	741	818	828
Treasury deposits with the Federal Reserve	1,665 (8,034)	410 (3,238)	559 (3,018)	365 (3,163)	807 (3,800)	937 (2,164)	1,214 (4,399)	1,097 (4,071)
Foreign and other deposits with the Federal Reserve	100	156	114	115	128	79	78	155
Other uses†	232	238	110	180	151	101	241	166

Note: Variability is measured as the mean absolute week-to-week change in the weekly averages of daily data for each factor indicated. The yearly average of weekly averages of daily data is shown in parentheses for selected factors.

\*Includes other Federal Reserve assets, gold stock, the special drawing rights certificate account, and Treasury currency outstanding (lines 11 through 14 of Table 1.11 in the *Federal Reserve Bulletin*). For a description of these items, see "Statfacts: Understanding Federal Reserve Statistical Reports," Federal Reserve Bank of New York, November 1981.

†Includes other Federal Reserve liabilities and capital, service-related balances and adjustments, and Treasury cash (lines 21, 19, and 16, respectively, of Table 1.11 in the *Federal Reserve Bulletin*).

Federal Reserve became a much less variable factor affecting reserves.

The rise in the variability of Treasury deposits after 1981 has been due to a shortage of collateral to back T&L accounts. Funds in T&L accounts must be backed by U.S. securities owned by the commercial bank. When available collateral is depleted, additional receipts must be transferred to the Federal Reserve.

Float has also contributed to changes in the variability of uncontrolled factors. The variability of float declined substantially, beginning in 1980. The Federal Reserve has taken sev-

eral steps to reduce float in recent years. The most significant step was to begin charging depository institutions for float in 1983. Float is, in effect, an extension of credit to depository institutions presenting checks. This credit was interest-free until 1985. Pricing of float and improvements in transporting and processing checks have led to the reduction of float indicated by the averages appearing in parentheses in Table 4.<sup>10</sup>

<sup>10</sup> The Federal Reserve has designed its credit deferral schedule so that presenting institutions generally receive credit no later than when the check clears. Thus, float is seldom negative, on

The variabilities of other uncontrolled factors have not changed dramatically. The variability of currency in circulation grew steadily over the period, about in line with growth in currency.<sup>11</sup> The variability of loans nearly doubled in 1984, primarily because of Continental Illinois' need to borrow heavily on an extended basis. Extended borrowing resulted in more variability of loans than normal again in 1985, although to a less extent than in 1984. The higher variability of loans is most likely temporary.

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average, during a week. Because of this, the decline in the weekly average of float since 1978 has been accompanied by a decline in the variability of float.

<sup>11</sup> The variability of currency in circulation is partially predictable, making it less troublesome in formulating policy than if it were totally unpredictable.

## Summary and conclusions

The Federal Reserve uses a number of techniques when conducting open market operations to control the supply of reserves available in the financial system. Open market operating techniques include outright and temporary transactions with U.S. government security dealers and foreign official institutions. Due to the need to prevent undue short-run variability in reserve availability, temporary transactions are used more heavily than outright transactions. In recent years, though, the use of temporary transactions has declined somewhat, due in part to a change in the Federal Reserve's operating procedures. Changes in the variability of factors affecting reserves other than open market operations have also affected the relative usage of temporary transactions.