

The information in this chapter was last updated in 1993. Since the money market evolves very rapidly, recent developments may have superseded some of the content of this chapter.

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## **Chapter 3**

### **THE DISCOUNT WINDOW**

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The discount window refers to lending by each of the 12 regional Federal Reserve Banks to depository institutions. Discount window loans generally fund only a small part of bank reserves. For example, during 1990 and 1991, discount window loans averaged just over 1 percent of total reserves. Nevertheless, the window is perceived as an important tool for reserve adjustment, and at times it has been an important part of the Federal Reserve's monetary control procedures.

#### **HOW THE DISCOUNT WINDOW WORKS**

Discount window lending takes place through the reserve accounts depository institutions are required to maintain at their Federal Reserve Banks. In other words, banks borrow reserves at the discount window. This is illustrated in balance sheet form in Table 1. Suppose the funding officer at Bob's Bank finds it has an unanticipated reserve deficiency of \$1 million and decides to go to the discount window for an overnight loan in order to cover it. Once the loan is approved, Bob's Bank's reserve account is increased by \$1 million. This shows up on the asset side of Bob's balance sheet as an increase in "Reserves with Federal Reserve Bank," and on the liability side as an increase in "Borrowings from Federal Reserve Bank." The transaction also shows up on the Federal Reserve Bank's balance sheet as an increase in "Discounts and Advances" on the asset side and an increase in "Bank Reserve Accounts" on the liability side. This set of balance sheet entries takes place in all the examples given in the box.

The next day, Bob's Bank could raise the funds to repay the loan by, for example, increasing time deposits by \$1 million or by selling \$1 million of securities. In either case, the proceeds initially increase Bob's Bank's reserves. Actual repayment occurs when Bob's Bank's reserve account is reduced by \$1 million, which erases the corresponding entries on Bob's liability side and on the Reserve Bank's asset side.

Discount window loans, which are granted to institutions by their district Federal Reserve Banks, can be either advances or discounts. All loans today are advances, meaning they are simply loans secured by approved collateral and paid back with interest at maturity. When the Federal Reserve System was established

TABLE 1  
**Borrowing From the Discount Window**

| Bob's Bank                            |   |
|---------------------------------------|---|
| <b>Assets</b>                         | <b>Liabilities</b>                      |
| Reserves with<br>Federal Reserve Bank | Borrowings from<br>Federal Reserve Bank |
| +\$1,000,000                          | +\$1,000,000                            |
|                                       |   |
| Federal Reserve Bank                  |   |
| <b>Assets</b>                         | <b>Liabilities</b>                      |
| Discounts and<br>Advances             | Bank Reserve<br>Accounts                |
| +\$1,000,000                          | +\$1,000,000                            |

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in 1914, however, the only loans authorized at the window were discounts, also known as rediscounts. Discounts involve a borrower selling "eligible paper," such as a commercial or agricultural loan made by a bank to one of its customers, to its Federal Reserve Bank. In return, the borrower's reserve account is credited for the discounted value of the paper. Upon repayment, the borrower gets the paper back, and its reserve account is debited for the value of the paper. In the case of either advances or discounts, the price of borrowing is determined by the level of the discount rate prevailing at the time of the loan.

Although discount window borrowing was originally limited to Federal Reserve System member banks, the Monetary Control Act of 1980 opened the window to all depository institutions that maintain transaction accounts (such as checking and NOW accounts) or nonpersonal time deposits. In addition, the Fed may lend to the U.S. branches and agencies of foreign banks if they hold deposits against which reserves must be kept. Finally, subject to a determination by the Board of Governors of the Federal Reserve System that "unusual and exigent circumstances" exist, discount window loans may be made to individuals, partnerships, and corporations that are not depository institutions. Such lending can take place only if the Board and the local Reserve Bank find that credit from other sources is not available and that failure to lend may have adverse effects on the economy. This last authority has not been used since the 1930s.

## EXAMPLES OF DISCOUNT WINDOW TRANSACTIONS

*Example 1* - It is reserve account settlement day (Wednesday) at a regional bank, and the bank is required to have enough funds in its reserve account at its Federal Reserve Bank to meet its reserve requirement over the previous two weeks. The bank finds that it must borrow in order to make up its reserve deficiency, but the money center (that is, the major New York, Chicago, and California) banks have apparently been borrowing heavily in the federal funds market, pushing the rate on federal funds far above its level earlier that day. As far as the funding officer of the regional bank is concerned, the market for funds at a price she considers acceptable has "dried up." She calls the Federal Reserve Bank for a discount window loan.

*Example 2* - A West Coast regional bank, which generally avoids borrowing at the discount window, expects to receive a wire transfer of \$300 million from a New York bank, but by late afternoon the money has not yet shown up. It turns out that the sending bank had, because of an error, accidentally sent only \$3,000 instead of the \$300 million. Although the New York bank is legally liable for the correct amount, it is closed by the time the error is discovered. In order to make up the deficiency in its reserve position, the West Coast bank calls the discount window for a loan.

*Example 3* - It is reserve account settlement day at another bank, and the funding officer notes that the spread between the discount rate and fed funds rate has widened slightly. Since his bank is buying fed funds to make up a reserve deficiency, he decides to borrow part of the reserve deficiency from the discount window in order to take advantage of the spread. Over the next few months, this repeats itself until the bank receives an "informational" call from the discount officer at the Federal Reserve Bank, inquiring as to the reason for the apparent pattern in discount window borrowing. Taking the hint, the bank refrains from continuing the practice on subsequent Wednesday settlements.

*Example 4* - A money center bank acts as a clearing agent for the government securities market. This means that the bank maintains book-entry securities accounts (see Chapter 13, "Clearing and Settlement of Money Market Instruments") for market participants and that it also maintains a reserve account and a book-entry securities account at its Federal Reserve Bank, so that it can clear securities transactions. One day, an internal computer problem arises that allows the bank to accept securities but not to process them for delivery to dealers, brokers, and other market participants. The bank's reserve account is debited for the amount of these securities, but it is unable to pass them on and collect payment for them, resulting in a growing overdraft in the reserve account. As the close of business approaches, it becomes increasingly clear that the problem will not be fixed in time to collect the required payments from the securities buyers. In order to avoid a negative reserve balance at the end of the day, the bank estimates its anticipated reserve account deficiency and goes to the Federal Reserve Bank discount window for a loan for that amount. The computer problem is fixed, and the loan is repaid the following day.

Discount window lending takes place under two main programs, adjustment credit and extended credit.<sup>1</sup> Adjustment credit consists of short-term loans extended to cover temporary needs for funds. Loans to large banks under this program are generally overnight loans, while small banks may take longer to repay. Under normal circumstances, adjustment credit should account for the larger part of discount window credit. Extended credit provides funds to meet longer-term requirements in one of three forms. First, seasonal credit can be extended to small institutions that depend on seasonal activities such as farming or tourism and that also lack ready access to national money markets. Second, extended credit can be granted to an institution facing special difficulties if it is believed that the circumstances warrant such aid. Finally, extended credit can go to groups of institutions facing deposit outflows due to changes in the financial system, natural disasters, or other problems common to the group. Borrowers under the seasonal program pay a rate tied to market rates. Borrowers under the second and third categories of extended credit initially pay the basic discount rate, but may pay a higher rate, generally 50 basis points higher than market rates, as the term of their borrowing grows longer.

The Federal Deposit Insurance Corporation Improvement Act of 1991 placed limits on the extent to which the Federal Reserve can lend to troubled depository institutions. Specifically, as of December 1993 the Act generally limits discount window loans to undercapitalized institutions to 60 days in any 120-day period and limits lending to critically undercapitalized institutions to a 5-day period after they are so identified. (These limits can be overcome in certain circumstances, especially if the appropriate federal banking agency or the Chairman of the Federal Reserve Board certifies to the lending Federal Reserve Bank that the borrowing institution is viable.) In order to borrow from the discount window, the directors of a depository institution first must pass a borrowing resolution authorizing certain officers to borrow from their Federal Reserve Bank. Next, the institution and the Reserve Bank draw up a lending agreement. These two preliminaries out of the way, the bank requests a discount window loan by calling the discount officer of the Reserve Bank and telling the amount desired, the reason for borrowing, and the collateral pledged against the loan. The discount officer then decides whether or not to approve it.

Collateral, which consists of securities that could be sold by the Reserve Bank if the borrower fails to pay back the loan, limits the Fed's (and therefore the taxpaying public's) risk exposure. Acceptable collateral includes, among other things, U.S. Treasury securities, government agency securities, municipal securities, mortgages on one- to four-family dwellings, and short-term commercial

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<sup>1</sup> For more detailed information on discount window administration policies, see *The Federal Reserve Discount Window*, Federal Reserve System (1990). The federal regulation governing the discount window is Regulation A, 12 CFR 201.

notes. Usually, collateral is kept at the Reserve Bank, although some Reserve Banks allow institutions with adequate internal controls to retain custody or to have the collateral maintained by a third-party custodian.

The discount rate is established by the Boards of Directors of the Federal Reserve Banks, subject to review and determination by the Board of Governors. If the discount rate were always set well above the prevailing federal funds rate, there would be little incentive to borrow from the discount window except in emergencies or if the funds rate for a particular institution were well above that for the rest of the market. Since the 1960s, however, the discount rate has more often than not been set below the funds rate. Figure 1, which portrays both adjustment credit borrowing levels and the spread between the two rates from 1955 through 1991, shows how borrowing historically tended to rise when the spread rose. In recent years adjustment borrowing has fallen off and become less sensitive to the spread. One likely explanation is that, because of troubles in the banking industry, banks have become more reluctant to go to the window for fear of giving the appearance that they are in financial trouble (Peristiani 1991).

The major nonprice tool for rationing discount window credit is the judgment of the Reserve Bank discount officer, whose job is to verify that lending is made only for "appropriate" reasons. Appropriate uses of discount window adjustment credit include meeting demands for funds due to unexpected withdrawals of deposits, avoiding overdrafts in reserve accounts caused by unexpected financial flows, and providing liquidity in case of computer failures (see box, Example 4), natural disasters, and other forces beyond an institution's control.<sup>2</sup>

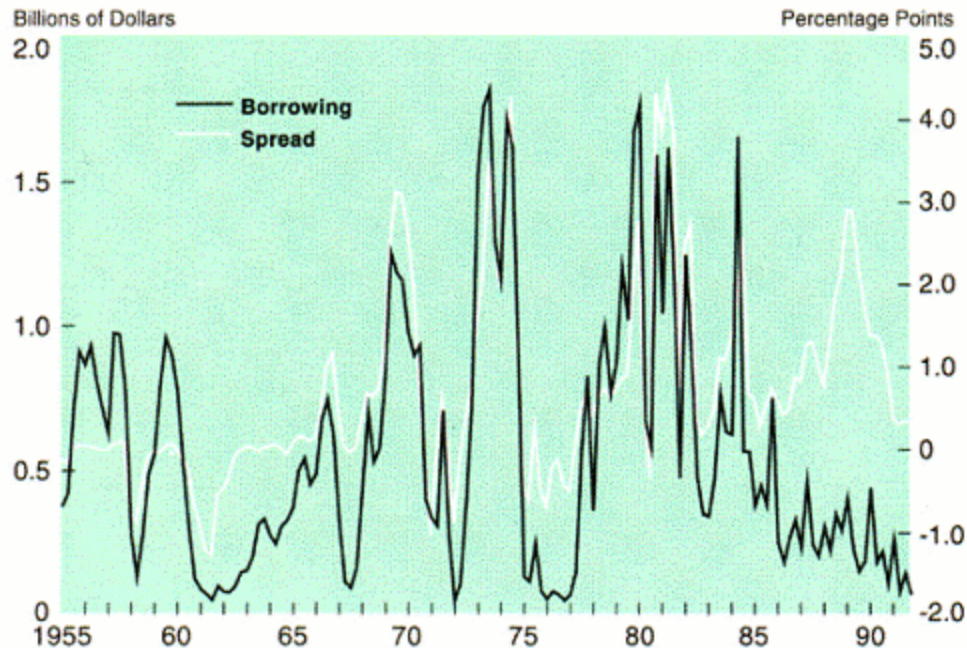
An inappropriate use of the discount window would be borrowing to take advantage of a favorable spread between the federal funds rate and the discount rate (Example 3). Borrowing to fund a sudden, unexpected surge of demand for bank loans may be considered appropriate, but borrowing to fund a deliberate program of actively seeking to increase loan volume would not. Continuous borrowing at the window is inappropriate. Finally, an institution that is a net seller (lender) of federal funds should not at the same time borrow at the window, nor should one that is conducting reverse repurchase agreements (that is, lending money using securities as collateral).

The discount officer's judgment first comes into play when a borrower calls for a loan and states the reason. The monitoring does not end when (and if) the loan is approved, however. The discount officer watches for patterns in borrowing and may look at such summary measures as discount window loans as a percentage of deposits and of reserves, and duration and frequency of past borrowing. He or she pays attention to special circumstances and efforts to obtain credit elsewhere

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<sup>2</sup> In order to encourage depository institutions to take measures to reduce the probability of operating problems causing overdrafts, the Board of Governors announced in May 1986 that a surcharge would be added to the discount rate for large borrowings caused by operating problems unless the problems are "clearly beyond the reasonable control of the institution."

FIGURE 1



and compares discount window borrowings with fed funds market activity to make sure banks are not borrowing from the Fed simply to lend at a higher rate in the fed funds market.

If the discount officer suspects that borrowing by an institution has possibly gone beyond what is appropriate, he or she makes an "informational" call in order to find out the particular problems and circumstances of the case (Example 3), as well as how the institution plans to reduce its reliance on the discount window. If little or nothing changes, it may be time for counseling as well as a more direct effort to help the borrower find new sources of credit. It is conceivable that an institution's credit could be terminated if counseling were to fail, but this is rarely if ever necessary.

When deciding whether and how much to borrow from the discount window, a bank's funding officer can be expected to compare the benefit of using the discount window with the cost. The benefit of an additional dollar of discount window credit is the net interest saving, that is, the difference between the funds rate and the discount rate. The marginal cost is the cost imposed by nonprice measures used by the Fed to limit the amount of borrowing. An equilibrium level

of borrowing is reached when the marginal benefit of the net interest saving is balanced by the marginal cost imposed by nonprice measures (Goodfriend 1982, p. 4).

## ANTECEDENTS

Two major nineteenth century writers argued that the most important function of a central bank is to act as lender of last resort to the financial system. The first major writer to detail the role of a lender of last resort was Henry Thornton at the beginning of the nineteenth century.<sup>3</sup> In today's terms, Thornton described a lender acting as a "circuit breaker," pumping liquidity into the market in order to prevent problems with particular institutions from spreading to the banking system as a whole. He emphasized that the lender of last resort's role in a panic is precisely opposite that of a private banker in that the former should expand lending in a panic while the latter contracts it. At the same time, Thornton did not advocate lending in order to rescue unsound banks, since that would send the wrong message to bankers, namely, that imprudent management would be rewarded with a bailout. Rather, he urged that loans be made only to banks experiencing liquidity problems due to the panic. In other words, the central bank has a responsibility to protect the banking system as a whole, but not to protect individual banks from their own mistakes.

The other major writer to deal with the subject was Walter Bagehot, who detailed his beliefs in *Lombard Street* in 1873. Generally, Bagehot agreed with Thornton, but developed the lender's role in far greater detail. His contribution is best summed up in the venerable Bagehot Rule: Lend freely at a high rate. This implies three points. First, the public should be confident that lending will take place in a panic, so that there is no question as to the central bank's commitment. Second, lending should go to anyone, not just banks, who presents "good" collateral, and collateral should be judged on what it would be worth in normal times, not on the basis of its temporarily reduced value due to a panic. Finally, borrowers should be charged a rate higher than prevailing market rates to ensure that central bank credit goes to those who value it highest, to encourage borrowers to look first to other sources of credit, to give borrowers incentives to pay back such credit as early as possible, and to compensate the lender for affording borrowers the insurance provided by a lender of last resort.

The ideas set forth by both Thornton and Bagehot emphasized emergency lending rather than adjustment credit. In actual practice, the Bank of England did act as lender of last resort several times during the late nineteenth century, but such lending was done in addition to its normal practice of providing adjustment

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<sup>3</sup> For a more detailed treatment of the material in this and the following paragraph, see Humphrey and Keleher (1984).

credit at the "bank rate." In the United States, the "real bills" doctrine was more influential in shaping the central bank than were the ideas of Thornton or Bagehot.<sup>4</sup>

The real bills or "commercial loan" school asserted that expansion of the money supply would not be inflationary so long as it was done to meet the "needs of trade." According to this school of thought, the central bank's task would be to expand discount window loans as production (and demand for money) expanded over the business cycle. Loans made by rediscounting commercial loans (which were considered to be made for "productive" purposes) would be self-liquidating, since they would be paid back as the goods produced were sold on the market. The money supply increase would consequently be extinguished.<sup>5</sup> Reflecting the influence of the real bills doctrine, the Preamble to the Federal Reserve Act of 1913 included as a stated purpose "to furnish an elastic currency." Accordingly, the Act contained provisions for the rediscounting of bank loans "arising out of actual commercial transactions" and it defined what paper was eligible for rediscount.

## **EVOLUTION OF DISCOUNT WINDOW PRACTICES**

The only type of lending allowed Federal Reserve Banks by the Federal Reserve Act of 1913 was discounting. In 1916 Congress amended the Act to add the authority for Federal Reserve Banks to lend to member banks by making advances secured by eligible paper or by Treasury securities. Advances replaced discounts in practice during 1932 and 1933, when the volume of banks' eligible paper fell precipitously as the result of the general banking contraction taking place at the time. Emphasis on lending on the basis of "productive" loans gave way to concern with whether or not collateral offered to secure an advance, be it commercial notes or government securities, was sound enough to minimize risk to the Fed. Since then, advances have been the predominant form of discount window lending.

The Fed firmly established nonprice rationing of discount window credit as a matter of practice during the late 1920s. In accordance with the real bills doctrine's stress on "productive" uses of credit, the Fed already discouraged the use of the discount window to finance "speculative" investments, but other reasons for lending came to receive its disapproval. For example, in 1926 the Board adopted a policy of discouraging continuous borrowing from the discount window. In 1928, it specifically stated that banks should not borrow from the window for profit. Since then, the Fed has emphasized nonprice measures along with the discount rate to control borrowing.

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<sup>4</sup> The lender of last resort idea did surface in the practice of some American clearinghouses acting as emergency lenders during panics. See Gorton (1984).

<sup>5</sup> For a demonstration of the fallaciousness of the real bills doctrine, see Humphrey (1982).



Because market rates were well below the discount rate, banks used the discount window sparingly between 1933 and 1951. Daily borrowings averaged only \$11.8 million from 1934 to 1943, and only \$253 million from 1944 to 1951. For the most part, banks held large amounts of excess reserves and were under little pressure to borrow. Even after the business recovery of the early 1940s, borrowing remained at low levels. Banks held large quantities of government securities, and the Federal Reserve's practice of pegging the prices of these securities, instituted in 1942, eliminated the market risk of adjusting reserve positions through sales of government securities.

The pegged market for government securities ended in 1947, and the subsequent increased fluctuations of their prices made buying and selling them a riskier way for banks to adjust reserves. As a result, the discount window began to look more attractive as a source of funds, and by mid-1952 borrowings exceeded \$1.5 billion, a level not seen since the early 1930s. Given the new importance of the window, the Board in 1955 revised its Regulation A, which governs discount window credit, to incorporate principles that had developed over the past 30 years. In particular, the General Principles at the beginning of Regulation A stated that borrowing at the discount window is a privilege of member banks and for all practical purposes enshrined nonprice rationing and the discretion of the discount officer regarding the appropriateness of borrowing as primary elements of lending policy.

The new version of Regulation A notwithstanding, the discount rate was for the most part equal to or greater than the federal funds rate during the late 1950s and early 1960s, so banks had little financial incentive to go to the window. By the mid-1960s, however, the difference between the federal funds rate and the discount rate began to experience large swings, and the resulting fluctuations in incentives to borrow were reflected in discount window credit levels (see Figure 1).

In 1973, the Board expanded the range of permissible discount window lending by creating the seasonal credit program. More significantly, in 1974 the Fed advanced funds to Franklin National Bank, which had been experiencing deteriorating earnings and massive withdrawals. The advance was made to avoid potentially serious strains on the financial system if the bank were allowed to fail and to buy time to find a longer-term solution. This particular situation was resolved by the takeover of the bulk of the bank's assets and deposits by European American Bank, but the significant event here was the lending to a large, failing bank in order to avert what were perceived to be more serious consequences for the banking system. The action set a precedent for lending a decade later to Continental Illinois until a rescue package could be put together.

Reflecting a discount rate substantially below the federal funds rate from 1972 through most of 1974, discount window borrowings grew to levels that were high by historical standards. A recession in late 1974 and early 1975 drove loan demand

down, and market rates tended to stay below the discount rate until mid-1977. During the late 1970s, the spread was positive again, and borrowing from the window increased. The spread became highly volatile in the early 1980s, largely as a consequence of the operating procedures for monetary policy (described below) that were in place during this period. Borrowing became more volatile as well. As was mentioned above, in recent years, borrowing has been low and relatively insensitive to changes in the spread.

The Monetary Control Act of 1980 extended to all banks, savings and loan associations, savings banks, and credit unions holding transactions accounts and nonpersonal time deposits the same borrowing privileges as Federal Reserve member banks. Among other things, the Act directed the Fed to take into consideration "the special needs of savings and other depository institutions for access to discount and borrowing facilities consistent with their long-term asset portfolios and the sensitivity of such institutions to trends in the national money markets." Although thrift institutions may borrow from the Fed, the Fed normally expects them to go first to their own special industry lenders for help before coming to the window.

### **THE ROLE OF THE DISCOUNT WINDOW IN MONETARY POLICY**

Since the early 1970s, the Federal Reserve has used several different procedures to control the growth rate of the money supply.<sup>6</sup> In these procedures, there is an important distinction between borrowed reserves and nonborrowed reserves. Borrowed reserves come from the discount window, while nonborrowed reserves are supplied by Fed open market operations. The Fed can directly control nonborrowed reserves, but the demand for borrowed reserves is related to the spread between the funds rate and the discount rate.

During the 1970s, the Fed followed a policy of targeting the federal funds rate at a level it believed to be consistent with the level of money stock desired. It conducted open market operations in order to keep the funds rate within a narrow range, which in turn was selected to realize the money growth objective set by the Federal Open Market Committee. Under this practice of pegging the fed funds rate in the short run, changes in the discount rate affected only the spread between the two rates and therefore the division of total reserves between borrowed and nonborrowed reserves. For example, if the Fed raised the discount rate while the federal funds rate remained above the discount rate, borrowing reserves from the Fed would become relatively less attractive than going into the federal funds market. This would decrease the quantity demanded of borrowed

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<sup>6</sup> These procedures are described in more detail by Gilbert (1985) and Broaddus and Cook (1983) and are analyzed along with other possible operating procedures in Goodfriend (1982).

reserves but would increase demand for their substitute, nonborrowed reserves, thereby tending to put upward pressure on the funds rate. Given the policy of pegging the funds rate, however, the Fed would increase the supply of nonborrowed reserves by purchasing securities through open market operations. The result would be the same federal funds rate and total reserves as before, but more nonborrowed relative to borrowed reserves.<sup>7</sup>

On October 6, 1979, the Federal Reserve moved from federal funds rate targeting to nonborrowed reserves targeting. Under the prevailing system of lagged reserve requirements, required reserves were taken as given since they were determined on the basis of bank deposits held two weeks earlier. Consequently, once the Fed decided on a target for nonborrowed reserves, a level of borrowed reserves was also implied. Again assuming discount rates below the federal funds rate, an increase in the discount rate would decrease the spread between the federal funds rate and the discount rate. Since this would decrease the incentive to borrow, demand would increase for nonborrowed reserves in the federal funds market. Under the new procedure the target for nonborrowed reserves was fixed, however, so the Fed would not inject new reserves into the market. Consequently, the demand shift would cause the funds rate to increase until the original spread between it and the discount rate returned. The upshot here is that, since discount rate changes generally affected the federal funds rate, the direct role of discount rate changes in the operating procedures increased after October 1979.

In October 1982, the Federal Reserve moved to a system of targeting borrowed reserves. Under this procedure the Federal Open Market Committee periodically specifies a desired degree of "reserve restraint." More restraint means a higher level of borrowing. Open market operations are conducted to provide the level of nonborrowed reserves consistent with the desired level of borrowed reserves and the demand for total reserves. A discount rate increase under this procedure initially shrinks the spread between the federal funds rate and discount rate, and shifts demand toward nonborrowed reserves. In order to preserve the targeted borrowing level, the funds rate changes by about the same amount as the discount rate so that the original spread is retained. As a result, discount rate changes under borrowed reserves targeting affect the funds rate the same as under nonborrowed reserves targeting.

In the late 1980s and early 1990s, the Federal Reserve partially reverted to the operating procedures it had used in the 1970s, as it began to place less weight on achieving a particular level of borrowed reserves and greater weight on keeping the funds rate in a fairly narrow range. In this period the link between the discount and funds rates weakened somewhat. At times, changes in the discount rate were

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<sup>7</sup> Although under this procedure discount rate changes did not directly affect the funds rate, some discount rate changes signaled subsequent funds rate changes. See Cook and Hahn (1988).

followed by smaller changes in the funds rate, as some of the effect on the funds rate was offset by a change in the borrowed reserves target.

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