The Federal Funds Market—

A Study by a Federal Reserve System Committee

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Preface

This study was originally made by a special committee at the request of the Conference of Presidents and the Board of Governors of the Federal Reserve System. The report was submitted in December 1957. The primary purpose of the study was to obtain information on the structure of the market for Federal funds, the volume of operations, and the use of the market by banks and others—to give a cross-section view of the structure and operation of the market rather than to determine its behavior over a period of time.

The study was based primarily on data collected in November 1956, and information obtained from interviews with officials of banks and other institutions active in the Federal funds market. The data collected in November and information obtained in the interviews revealed conditions in the Federal funds market during a part of the period of credit restraint which prevailed until the latter part of 1957. Federal funds data available in some Federal Reserve districts and interviews indicate that some changes occurred in the Federal funds market under the easy-money conditions which began in the latter part of 1957. Recognition has been given at appropriate places to the more significant of these changes.

Information developed in the study shows that the Federal funds market has become an important segment of the short-term money market. Since the focus of the study was on fact finding covering a limited period, no attempt has been made to draw broad conclusions concerning the efficiency of the Federal funds market as a means of redistributing the supply of bank reserve funds, the effect of the market on the loan and investment policies of the institutions that use it most frequently, or the implication of Federal funds transactions for credit regulation. Nevertheless, much of the material is of general interest and is unavailable elsewhere.

The Committee desires to express its appreciation to the banks,

dealers, and others for their willing cooperation in supplying data and other information about the Federal funds market and its operation. The Committee also wishes to acknowledge the assistance received from members of the staffs of the Board of Governors and the Federal Reserve Banks through the various stages of the study. It is especially indebted to a technical review committee consisting of Harold V. Roelse, Vice President and Economic Adviser of the Federal Reserve Bank of New York, Donald S. Thompson, First Vice President of the Federal Reserve Bank of Cleveland, and Albert R. Koch, Associate Adviser of the Division of Research and Statistics of the Board of Governors for many valuable suggestions. The Committee expresses its appreciation to Marie Butler, Chief of Economic Editing of the Board's Division of Research and Statistics, for many helpful suggestions in preparing the manuscript for publication.

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I. Summary

The Federal funds market refers to the borrowing and lending of a special kind of money—deposit balances in the Federal Reserve Banks—at a specified rate of interest. Such transactions are commonly referred to in the financial markets as purchases and sales of Federal funds. As ordinarily used, the term does not include borrowing from the Reserve Banks.

The need for readily available media for adjusting cash and reserve positions is especially important for commercial banks which are required by law to maintain certain minimum reserves against their deposits. A multitude of business and financial transactions are constantly shifting funds among the upwards of 13,000 independent banks, so that some have excess reserves and others have deficiencies. The larger banks in financial centers are especially subject to wide day-to-day swings in their reserve positions. For these larger banks particularly, the Federal funds market is an important method of making adjustments for these daily changes.

ORIGIN AND GROWTH OF FEDERAL FUNDS MARKET

The Federal funds market is not a recent development. It originated in New York City in the early twenties. Several conditions contributed to the emergence of the market at that time. The post-World War I depression resulted in sharp disparities in the reserve positions of New York City banks, some having substantial excesses and others having to borrow at the Reserve Bank. At times the discount rate was above some short-term market rates, providing an additional incentive for deficit banks to borrow excess reserves of other banks. Officials of some of the New York City banks talked things over and began buying and selling excess reserves to adjust their reserve positions. The transfer was usually accomplished by an exchange of checks—the lender's check being drawn on its reserve balance at the Federal Reserve Bank and presented for clear-ance the same day, that of the borrower being drawn on itself and payable through the clearing house the next day.

Although member banks were the first to buy and sell Federal funds, New York City acceptance houses soon became active in the market. The acceptance houses, in their dealings with the Federal Reserve Bank of New York as well as in other transactions, received and paid out Federal funds in the normal course of their operations. Dealers with more Federal funds than needed in settling their own transactions began selling them in the market. Gradually, the acceptance dealers began to shop among the banks for funds, getting daily information about the demand and the available supply. Soon the dealers began to buy and sell Federal funds at a ¼ per cent spread and later, as interdistrict transactions developed, the spread sometimes reached 1 per cent because of discount rate differentials among the Reserve Banks. Usually, only small amounts were purchased outright, large amounts being acquired on an option basis.

New York City dominated the early Federal funds market, both in terms of volume of transactions and number of institutions participating. Local markets also developed in other financial centers, such as Chicago, Boston, Philadelphia, and San Francisco, but the volume of trading was much smaller than in New York City. There were some interdistrict transactions in Federal funds, but the volume was relatively small. New York City acceptance houses with branches in the principal cities, discount rate differentials which were common among the Reserve Banks, and the differences in time between East and West all contributed to the development of interdistrict trading in Federal funds.

There was little activity in the Federal funds market in the thirties. In the early thirties, doubt about the financial position of borrowing banks was a limiting factor. Later there was little need to borrow because of the large volume of excess reserves. During World War II and immediately following, member banks had ready access to Reserve Bank credit through sales of Government securities at pegged rates, and banks held such large amounts of these securities that there was little demand for Federal funds.

Several developments set the stage for a revival of the Federal funds market following World War II. As a result of a change in character, the call-loan market no longer served as a significant medium for adjusting bank reserve positions. Growth of the Treasury bill market provided a suitable means for most temporary adjustments but not for those expected to last for only one day or a few days. Activity in Federal funds was limited, however, as long as banks had ready access to reserves at low cost under the System's policy of supporting the prices of Government securities.

Following the Federal Reserve-Treasury "accord," monetary policy became more flexible. In periods of credit restraint, member banks were forced to rely more frequently on borrowing to obtain needed reserves. The tendency was to increase the demand for Federal funds, and the rise in market rates made it more profitable to sell such funds. Dealers in Government securities often found it both expensive and difficult in periods of tight money to meet their financing needs by borrowing from New York City banks. In seeking outside financing, dealers extended their contacts in the Federal funds market.

Several technical factors also contributed to the growth of the Federal funds market. The reduction in the deferred availability schedule in the collection of checks resulted in a substantial rise in float. Even though the impact of float on total reserves could be largely offset by System actions, periodic fluctuations in the reserve positions of individual banks tended to encourage adjustments in the Federal funds market. Other factors that encouraged the use of Federal funds were an improvement in wire-transfer facilities and bank competition, particularly with respect to accommodating correspondent banks.

STRUCTURE OF THE MARKET

The Federal funds market, although national in scope, is loosely organized. Unlike the securities market, there are no dealers who maintain a position in Federal funds and stand ready to buy or sell at quoted prices.

The Federal funds market is predominantly a bank market. This was clearly revealed by interviews and daily reports of Federal funds transactions received from a sample of banks and dealers during November 1956. At that time, about 150 banks—mostly the larger ones in financial centers—were active participants in the market. In addition, a number of smaller though still sizable banks, occasionally entered the market—usually as sellers of funds. Banks accounted for approximately 80 to 90 per cent of the total dollar volume of Federal funds transactions reported in the November survey.

Government securities dealers have become active participants in the Federal funds market in recent years. Dealers have been drawn into the market by the practice, which has grown rather rapidly in recent years, of settling Government securities transactions in Federal funds. The bulk of the transactions in short-term issues and some of those in long-term issues are settled in Federal funds. As a result of this practice, dealers receive and pay out Federal funds in the ordinary course of their operations.

In recent years, dealers have also developed out-of-town sources of financing, both advances and repayments usually being made by wire transfer and consequently in Federal funds. Dealers, however, account for only a small part of total transactions—well below 10 per cent in the November 1956 survey. Other participants include foreign banks and their agencies in New York City, which are usually suppliers of Federal funds; and a few savings banks which occasionally participate in the market indirectly by asking their commercial banks to buy or sell Federal funds for them. This "other" group is relatively unimportant, supplying less than 8 per cent of the banks' purchases and accounting for less than 1 per cent of their sales of Federal funds in the November survey.

A stock brokerage firm in New York City, which is a member of the New York Stock Exchange, and the correspondent banking system play leading roles in bringing buyers and sellers of Federal funds together. The stock exchange firm operates purely as a broker, mostly with banks and on a national scale.[1]

Beginning early and continuing throughout most of the day, banks report their needs and offers of Federal funds to this brokerage firm, which attempts to put the two sides together as quickly as possible. The firm is often given considerable discretion, par-

[1] Two other New York institutions recently instituted a brokerage service in Federal funds; however, the description of the activities of the broker who has been in this business for several years continues to be typical of the brokerage function in the Federal funds market.

ticularly by potential buyers, in arranging transactions. Sellers of funds are typically more discriminating, the most important limitation placed on the broker being a list of approved banks to which they are willing to sell Federal funds. The brokerage firm does not make a specific charge for its services. Most banks compensate the firm by giving it some of their stock brokerage business. A small percentage of the banks prefer to pay a flat fee, usually a commission of 1/16 of 1 per cent.

Correspondent banks also play a significant role in facilitating funds transactions. A large part of the total volume of transactions is among these banks. A few of the large city banks "accommodate" their correspondents—by buying from and selling Federal funds to them—even when the transactions run against their own reserve positions. A larger number buy and sell with correspondents only as needed in adjusting their own reserve positions. The large city correspondents are also sources of information on potential buyers and sellers of Federal funds, and the "going" rate; and the correspondent account is an important medium for handling interest payments on funds transactions.

MECHANICS OF OPERATION

The daily volume of bank purchases of Federal funds in November 1956 ranged from a low of $600 million to a high of $1.1 billion. Transactions in Federal funds fall into two general categories. About three-fourths of the dollar volume in November was in the form of overnight, unsecured loans. The remainder involved the transfer of securities either in the form of repurchase agreements or buybacks, the securities usually being run through a bank's books as an outright purchase or sale.

Under a repurchase agreement, the lender of funds buys securities, mostly short-term Government securities, and the seller agrees to repurchase them within a stated time at an agreed price and rate of interest. In the case of a buyback, the lender enters into two contracts at the same time: one, to buy securities, usually Treasury bills, for delivery and payment the same day; the other, to sell the same issue of securities for delivery and payment the following day. In both contracts, settlement is in Federal funds. The securities are bought and sold at agreed prices, or rates of discount in the case of

Treasury bills. The difference in prices or rates of discount represents the interest cost to the borrower of the Federal funds. It is significant that in both repurchase agreements and buybacks the risk of price change is eliminated. In this respect, repurchase agreements and buybacks differ from outright purchases and sales of securities.

The attitude of bank officials toward the "straight" overnight, unsecured transaction as compared to the repurchase agreement or buyback varies rather widely. The fact that the straight Federal funds transaction accounted for approximately three-fourths of the total volume in November 1956 is evidence of its general popularity. Most bankers regarded this type of transaction as more convenient, involving less bookkeeping and no handling of securities. On the other hand, the repurchase agreement and buyback do have certain advantages. The lender incurs less risk; legal limitations on sales of Federal funds to a single borrower are more liberal even under the recent ruling that such transactions are to be classified as loans; and sometimes the rate is more favorable to the lender than the rate on straight transactions. The repurchase agreement and buyback were most popular in the Richmond, Kansas City, Cleveland, and Dallas Federal Reserve Districts, where they accounted for more than one-half of total sales. They also accounted for nearly one-half of total purchases in the Kansas City District, and for a substantial amount of purchases in the New York and San Francisco Districts.

Transactions in Federal funds are typically negotiated by telephone and later confirmed by wire or letter. In transactions between banks in different Federal Reserve districts, the funds are advanced and repaid by wire transfer. The payment of interest, however, is usually by credit to a correspondent bank account. The mechanics of handling intracity transactions vary. Transactions among New York City banks are still settled by an exchange of checks—the lender giving a check on its reserve balance, and the borrowing bank giving its own check payable through the clearing house the next day. In cities other than New York, local transactions are usually negotiated by telephone and, upon instructions by draft or letter, settlement is by debits and credits to the reserve accounts.

Federal funds are typically traded in units of $1 million or more, but transactions for smaller amounts frequently occur. Some of the larger banks, as a matter of policy, buy and sell smaller amounts to accommodate their correspondents. When reserve positions are tight, banks may also be willing to deal in smaller units in order to meet their needs.

REGIONAL PATTERN OF TRANSACTIONS

The Federal funds market is nationwide. The number of banks in each Federal Reserve district participating in the November 1956 survey ranged from a low of 5 to a high of 23. Purchases of Federal funds in November 1956 were concentrated in three districts—New York, San Francisco, and Chicago. These three districts, in which most of the larger money market banks are located, accounted for more than four-fifths of total purchases. New York, primarily New York City, was by far the most important buyer with more than 60 per cent of the total; San Francisco was next with 12 per cent, followed by Chicago with 9 per cent. Sales were much more evenly distributed. The New York District was the largest seller, accounting for more than one-third of the total. Other districts in the order of their importance were San Francisco with 18 per cent; Cleveland, 11 per cent; Boston, 7 per cent; and Chicago, 6 per cent.

Banks in the New York District were the largest net buyers of Federal funds, their total purchases being more than double their total sales. Banks in the Chicago District purchased substantially more than they sold; the Atlanta and Dallas Districts also had net purchases, but too small to be significant. In the remainder of the districts, sales exceeded purchases. Thus, out of a network of transactions crisscrossing the United States, the net result appeared to be an inflow of Federal funds to New York City and, to a lesser extent, Chicago.

New York City, as the nation's financial center, is clearly the hub of the Federal funds market. In addition to the inflow of funds from outside, there is a sizable local market in New York City. Practically all of the transactions in Federal funds in the Federal Reserve District of New York were accounted for by New York City banks, and nearly one-half of total purchases and one-half of total sales were made locally. Other local markets of less importance center around San Francisco and Chicago. In the San Francisco District, over one-half of total purchases and 38 per cent of total sales were made within the district. About one-fourth of the purchases and over one-third of the sales reported for the Chicago District were among district banks. In the other districts, transactions were principally with New York and secondarily with other parts of the country. Only small amounts were within the district.

USE OF MARKET BY BANKS

In recent years, most of the larger banks, in order to keep fully invested, have followed a policy of daily or at least very short-term adjustments in their reserve positions. Such a policy frequently requires quick turnarounds in the market; a bank may be a lender of excess reserves one day, a borrower to meet a deficiency the next. The Federal funds market is more suitable than the short-term securities market for these adjustments. A bank can lend excess reserves in the Federal funds market without incurring any risk of loss from a price change or without absorbing any cost from a spread between buying and selling prices. Call loans formerly had the same advantages, but in recent years they have taken on more of the characteristics of customer loans. Consequently, banks rarely ask immediate payment of call loans.

The Federal funds market is used by only a small percentage of the member banks, the more active participants being the larger banks in financial centers. In the latter part of 1956, about 150 banks were active participants in the market; others used the market infrequently. Available information indicates that the number of participating banks has increased, particularly since the shift to an easy-money policy in the latter part of 1957. Smaller banks, regardless of their attitude toward the market, are handicapped because of the legal limit on loans to a single borrower and because the amounts of their excesses and deficiencies of reserves are well below the unit in which Federal funds are customarily traded.

Interviews with officials of banks active in the Federal funds market revealed rather wide variation in attitudes toward this method of adjusting reserve positions. On the basis of motives for using the market, banks may be classified into two broad groups—

adjusting and accommodating banks. These groupings, however, are not mutually exclusive.

Most of the bank participants use the Federal funds market only in adjusting their own reserve positions—to dispose of an excess or to meet a deficiency. These banks seldom lend and borrow on the same day. They may do so occasionally when the morning estimates of their reserve positions prove to be inaccurate.

"Adjusting banks" may be subdivided into three groups. The largest consists of banks trying to balance out the reserve week without either an excess or a deficiency. These banks shift between lending and borrowing, as necessary, to dispose of an excess or to cover a deficiency in reserves. Another group, consisting mostly of the smaller banks active in the Federal funds market, follows a policy of keeping a cushion of excess reserves. These banks are typically sellers, rarely buyers. A third but small group of banks appears to use the Federal funds market, in part at least, to meet persistent reserve deficiencies. These banks are typically buyers of funds or, if both buyers and sellers, net buyers on balance.

Federal funds data for selected banks were available at the Reserve Banks of New York and Chicago for longer periods than at other Reserve Banks, and afforded a comparison of borrowings from the Reserve Banks with Federal funds transactions by the same banks. It appeared that the more or less continuous borrowers preferred the Federal funds market. Few of the banks, however, were able to meet all of their needs in the Federal funds market, and most of them had to resort occasionally to the discount window as well.

"Accommodating" banks use the Federal funds market for two purposes: to adjust their own reserve positions, and to accommodate their correspondents and other customers. These banks, relatively few in number, commonly buy and sell Federal funds the same day. They are two-way traders, often engaging in accommodation transactions which are contrary to their own reserve positions.

The attitude of the larger banks toward buying and selling Federal funds to accommodate correspondents varies widely. A few banks pursue a policy of accommodation purchases and sales as a service to correspondents and as a means of broadening their contacts so that Federal funds will become a more reliable source of reserves. Other larger banks are opposed to such a policy. Important reasons given were the expense and inconvenience of handling a growing volume of small transactions, the dilemma of making unsecured loans to all correspondents or of incurring the ill will likely to be provoked by selectivity, and apprehension that in the long run accommodation purchases and sales might tend to reduce correspondent balances. Even though opposed in principle to accommodation purchases and sales, some large correspondent banks engage in such transactions when necessary to meet competition.

The extent to which banks use the Federal funds market in adjusting their reserve positions depends on several factors. Relative cost of alternative sources is an important but not necessarily a dominant consideration. The fact that the prevailing Federal funds rate does not rise above the discount rate, however, is evidence that preferences for the Federal funds market are normally not strong enough to induce banks to pay more than the cost of borrowing from a Reserve Bank.

Expectation as to the length of time a reserve excess or deficiency is likely to continue is another factor having a significant influence on choice of a reserve adjustment medium. The spread between bid and asked quotations and the risk of price change make the Treasury bill and other short-term securities unsuitable for very short-term reserve adjustments. On the other hand, short-dated securities are more suitable than Federal funds as a medium of adjustment for an excess or a deficiency expected to persist over a period of time. Inasmuch as Federal funds and the Treasury bill are used for largely different types of reserve adjustment, the Federal funds rate is not tied so closely to the bill rate as to the discount rate.

A third important influence on use of the Federal funds market is the attitude of bank officials toward borrowing from the Reserve Bank. Traditional reluctance toward borrowing from a Reserve Bank manifests itself in different ways. Some banks have a strong preference for the Federal funds market, using the Reserve Bank as a source of last resort. The majority of banks participating in the Federal funds market appear, however, to be willing to borrow at the Reserve Banks as well as in the market. Some prefer to borrow from a Reserve Bank to meet deficiencies, and to use the Federal funds market only to dispose of excess reserves.

Bank use of the Federal funds market is influenced by the attitude of officials toward such things as the convenience of using the Federal funds market and its reliability as a source of funds as compared to alternative adjusting media. Availability of Federal funds also affects the use of the market by banks. The supply available may be quite limited at times because excess reserves are held largely by banks which do not participate in the market.

DETERMINATION AND SIGNIFICANCE OF THE RATE

A New York City brokerage firm and correspondent banks play significant roles in bringing buyers and sellers together. As bids and offers begin coming in early in the morning, the broker attempts to match them and establish an opening rate. This opening rate is widely quoted as large banks and dealers call in to check on the rate. Some banks call their correspondent bank and Government securities dealers to check on the rate.

The New York City rate tends to set a pattern for the rest of the country. The November 1956 survey revealed only minor regional variations in the Federal funds rate. Such differences become more significant, however, during periods when the discount rates of the Reserve Banks are not uniform.

The Federal funds rate is inherently a sensitive indicator of bank reserve positions. Banks use the market primarily to adjust their reserve positions, and they account for the bulk of all transactions. The rate's significance as a money market indicator, however, is limited in three important respects. First, it reflects conditions in only a segment of the money market—the ebb and flow of reserve funds among the larger banks, Government securities dealers, and a few other institutions. Second, the Federal funds market is used primarily for very short-term reserve adjustments. It does not directly reflect the impact of longer term adjustments made through the securities market. Third, in periods of credit restraint the Federal funds rate tends to move up to the discount rate and remain there for extended periods. Under these circumstances, the Federal funds rate fails to register any intensification—or possibly any moderate easing—of pressures on bank reserve positions. In periods of credit ease, the large supply of excess reserves relative to the demand for them may push the Federal funds rate well below the discount rate. In this event, the Federal funds rate tends to reflect day-to-day changes in the availability of reserves in the Federal funds market.

FUNCTIONS OF THE MARKET

The Federal funds market has become a significant means of adjusting the reserve positions of the large banks in financial centers. The market is particularly suited to day-to-day reserve adjustments because it does not involve the risk of price change or the cost of a spread between bid and asked prices as does the securities market.

Directly, the Federal funds market increases the mobility but not the total volume of reserve balances. Through the market's facilities, banks with deficiencies purchase the excess reserves of other banks. The effect, therefore, is to make the excess reserves of one area or group of banks available to meet the reserve pressures which may converge on others. Indirectly, the operation of the Federal funds market, by increasing the availability of excess reserves, probably results in a somewhat lower level of total reserves than would exist otherwise. In borrowing Federal funds, banks draw on existing reserves to meet their deficiencies. In the absence of a Federal funds market, it is unlikely that deficiencies would be met without some addition to total reserves. Borrowing from a Reserve Bank would result in a corresponding increase in total reserves. Selling securities, unless purchased by banks with excess reserves or by nonbank buyers drawing checks on banks with excess reserves, would pass along the reserve deficiencies to other banks. In the subsequent process of adjusting reserves, banks with deficiencies would probably borrow from the Reserve Banks, thereby adding to the total volume of reserves. Thus the Federal funds market, by facilitating use of existing reserves, tends to reduce the level of reserves which otherwise would be outstanding under a given set of circumstances and to minimize repercussions from the temporary shifting of reserve funds among banks.

II. Background and Scope of Study

Commercial banks in the United States have a particular need for some readily available means for adjusting reserve positions. In a unit banking system with more than 13,000 independent banks, excess reserves are not so readily transferred among banks as are excess funds among the branch offices of a single bank. An independent bank faced with a reserve deficiency must turn to some external source for the needed funds—another commercial bank, a Reserve Bank, or the money market—either by direct borrowing or a disposal of assets.

Numerous financial and business transactions—most of them unpredictable—affect a bank's reserve position. Such factors as currency flows, wire transfers, Treasury operations, daily check clearings, and Federal Reserve System purchases and sales of securities are continually altering a bank's reserve balance and the volume of deposits against which it is required to hold a reserve. As a result, the reserve balance may be in excess of the legal requirement one day and deficient the next. Seasonal or other recurring periodic shifts may result in a persistent drain on reserves in one period, a rather steady inflow of funds in another.

The reserve position of the large city bank is likely to be more volatile from day to day or week to week than that of the small bank located in a rural area, although the latter may experience relatively wider seasonal swings. Many of the large banks hold correspondent balances and deposits of large business firms, the operations of which are regional or national in scope in contrast to the local operations of most small firms. Adjustments of reserve and cash positions thus tend to converge on large banks in the financial centers.

Most of the large banks strive to maintain an average reserve balance just sufficient to meet the legal minimum for the reserve computation period. (The computation period is weekly for central reserve and reserve city member banks, and semimonthly for all other member banks.) Excess reserves in a Reserve Bank earn no income; a reserve deficiency subjects a bank to a penalty. Many small banks, however, prefer to maintain cushions of excess reserves so that they need not be concerned about their reserve balances falling below the legal minimum. The extent to which a bank may achieve a goal of keeping "fully invested" depends in part on the facilities available for adjusting its reserve position.

MEDIA FOR ADJUSTING RESERVE POSITIONS

The system of correspondent banks has long played a prominent role in providing facilities for the adjustment of bank reserve positions. In earlier years, it was common practice for smaller banks to deposit temporary excess funds with larger correspondent banks in financial centers. Such balances, and borrowing from correspondent banks, were important sources of funds for meeting deficiencies in reserves. Correspondent banks in regional financial centers, in turn, redeposited balances with the large money market banks, principally in New York City. For the money market banks, call loans to brokers and dealers were an important outlet for temporary excess funds, and such loans were frequently called when funds were needed to meet deficiencies. The money market banks also placed call loans for the accounts of correspondent banks and others. Thus correspondent balances, borrowing from correspondents, and the call-loan market were important media for adjusting bank reserve positions.

The Federal Reserve Banks, authorized by the Federal Reserve Act of 1913, also provided facilities for adjusting reserve positions. Member banks could borrow from the Reserve Banks to meet temporary deficiencies, using subsequent temporary excesses to repay the indebtedness. Member banks were still dependent on other outlets, however, for the investment of temporary surpluses in earning assets. Correspondent balances and call loans continued to be widely used as reserve adjustment media.

As a result of legislation in the early thirties that prohibited the payment of interest on demand deposits and regulated brokers' loans, as well as of institutional changes, correspondent balances and call loans became less attractive for reserve adjustment purposes. Correspondent balances earned no interest, and the call loan became similar to a customer loan. In recent years, money market banks have restricted new loans to brokers and dealers when funds were tight but have rarely called such loans when funds were needed. Call loans and interbank loans are typically made in clearing-house funds and have the disadvantage of not affecting the borrowing bank's reserve position until the following day. It is much more difficult to estimate accurately the factors that will affect a bank's reserve position tomorrow than those that will affect it today. Although not so important as in earlier years, many banks still adjust their reserve positions, in part, by borrowing from correspondents and by transferring deposits from correspondents to Reserve Banks and vice versa.

An important medium for adjusting bank reserve positions is the market for short-term paper and securities. This is predominantly an institutional market. Prior to the thirties, open market commercial paper and bankers' acceptances were the principal money market instruments other than call loans. Government deficits in the thirties and particularly in World War II resulted in marked increases in the supply of 91-day Treasury bills and other short-term Treasury obligations. As commercial bank holdings increased and the market for these securities broadened, short-term Treasury securities became an important outlet for excess reserves as well as a source of funds for meeting deficiencies. In recent years, a growing number of large business corporations and other nonbank institutions have adopted the policy of investing their temporary excess balances in Treasury bills and other short-term Government securities. Thus, through the purchase and sale of short-term paper and securities, the temporary excess funds of some institutions are made available to meet the short-term deficiencies of others.

Short-term paper and securities are not well suited, however, for day-to-day adjustments in bank reserve positions. Changes in a bank's reserve position cannot be estimated accurately even a few days in advance. Consequently, most of the large banks make estimates each morning of their reserve positions for the day. Actions are then taken to adjust reserve positions—to lend an estimated excess or to borrow to cover an estimated deficiency. Daily adjustment, however, often requires quick turnarounds—borrowing one day, lending the next, or even a turnaround within the day. For this purpose, even the highest quality short-term paper and securities have the disadvantages of possible price fluctuation and a spread between the buying and the selling price. A Treasury bill, for example, unless held for at least two or three days, is usually an unprofitable investment.

For day-to-day adjustments in reserve positions, a medium is needed which does not involve a spread between buying and selling prices or a risk of price change. The Federal funds market—the borrowing and lending of balances in a Reserve Bank—overcomes these disadvantages. This is an important reason why the Federal funds market has become an important method of making daily reserve adjustments, particularly for the larger banks in financial centers which are subject to wider day-to-day fluctuations in reserve positions than are most other banks.

DEFINITION AND USES OF FEDERAL FUNDS

Federal funds refer to deposit balances in the Reserve Banks and claims against such balances. Federal funds transactions represent the borrowing or lending of reserve balances, typically for one day, at a specified rate of interest. In the market, however, such transactions are commonly referred to as purchases or sales of Federal funds—the terms generally used in this study.

Federal Reserve balances have two unique qualities not possessed by commercial bank deposits. First, the legal reserve of a member bank must be held in the form of a deposit balance in a Reserve Bank. Second, Reserve Bank balances, including checks and drafts drawn on them, are immediately available funds—the depositing bank receiving an immediate credit and the drawee bank an immediate debit to their reserve accounts—in contrast to checks drawn on a commercial bank which give the holder available funds at a Reserve Bank only after one or two days, depending on the time schedule for crediting reserve balances for checks in the process of collection.

The principal uses of Federal funds derive from these qualities of Reserve Bank balances. Member banks, primarily the larger ones, are active participants in the Federal funds market and account for a large part of the total volume of transactions. Most of the banks use the market to make short-term adjustments in their reserve positions. A very small percentage of the banks active in the Federal funds market use it not only to adjust their own reserve positions but also to accommodate others, principally their correspondent banks.

Immediate availability of Federal funds, in contrast to the delayed availability of clearing-house funds, has given rise to other uses. A large part of all transactions in Treasury bills and other short-term Government securities is settled in Federal funds. Purchases and sales for the Open Market Account of the Federal Reserve System are also settled in Federal funds. The practice of settling a substantial part of Government securities transactions in Federal funds, which has become increasingly widespread, has drawn others than member banks into the market. Government securities dealers, as market intermediaries, have become important participants. Dealers in financing their positions often use repurchase agreements and buybacks to tap out-of-town money, and settlement is made in Federal funds, transmitted through the Federal Reserve leased-wire system. Other corporations, largely because of their securities transactions, find themselves in possession of or in need of Federal funds. They sometimes enter the market as buyers and sellers, usually indirectly by having their commercial bank act for them.

Federal funds transactions vary rather widely in form.[1] Most of them are overnight, unsecured loans, often referred to as straight Federal funds transactions. Sometimes the transaction takes another form, such as a repurchase agreement in which the buyer of funds sells securities under an agreement to repurchase them within a certain period, at a specified price. The buyer also agrees to pay a certain rate of interest for the Federal funds so obtained. These agreements may have a maturity of one day, several days, or, infrequently, several weeks. Similar to the repurchase transaction but varying slightly in form is the so-called buyback or simultaneous purchase and sale—one transaction for immediate delivery and payment, and the other for delivery and payment the next day—with the price adjusted for the interest differential.

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[1] Types of transactions are discussed more fully in Chap. IV.

PURPOSES AND SCOPE OF THE STUDY

The scope of this study was limited.[2] The primary purpose was to set forth the facts about the Federal funds market. Specifically, the study was directed toward the following objectives:

1. Development of data on Federal funds transactions to give a comprehensive cross-section view of the market.
2. A brief review of the origin and growth of the market in so far as available data permit.
3. Determination of the present structure of the market, including local, regional, and interregional arrangements for trading in Federal funds; principal borrowers and lenders; and the geographic pattern of funds transactions.
4. Analysis of the use of the market by banks and the attitude of banks toward Federal funds as compared to other reserve adjustment media.
5. Analysis of the factors determining the Federal funds rate, regionally and nationally, and the significance of the rate as a money market indicator.

The study was directed primarily toward the buying and selling of Federal funds for one day, whether by means of a direct, unsecured loan or by transferring securities under repurchase agreement or buyback. One-day transactions account for the bulk of all trading in Federal funds. Although not limited to banks, the emphasis was on bank participation in the Federal funds market for purposes of reserve adjustment. Dealer financing as such was not included but account was taken of dealer participation in the market. To include all dealer transactions involving transfers of Federal funds would get into the whole field of dealer financing—a subject too broad in scope to incorporate in the study.

Even though the study was focused on bank participation in the market for one-day funds, other aspects were considered at appropriate places. Data were collected for both one-day and over-one-day transactions to determine the relative importance of each. Data were also obtained to show the relative importance of banks, dealers, and others in the market. In analyzing the forces which determine the Federal funds rate, all relevant factors were considered.

SOURCES OF INFORMATION

The factual information was derived mainly from two sources. First, a daily report of purchases and sales of Federal funds, to-

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[2] As explained in the Preface, the study was originally made at the request of and was submitted as a report to the Board of Governors and the Conference of Presidents of the Federal Reserve Banks.

gether with the rate paid or received, was obtained from a nationwide sample of banks and a sample of Government securities dealers during the month of November 1956. The reports provided for a breakdown of purchases and sales by regions and by banks, dealers, and others. The bank sample—selected on the basis of a preliminary investigation—included all member banks which appeared to make active use of the Federal funds market. Banks which used the market only infrequently were not asked to report. Reports were received from 150 banks, including banks in each Federal Reserve district. Five banks included in the sample on the basis of the preliminary investigation reported no transactions during the survey month. Daily reports were also received from eight Government securities dealers in New York City which were active in the Federal funds market.

A second important source of information was personal interviews. Officials responsible for managing the money position in each of the sample banks were interviewed to get information on questions such as the following:

1. How does the bank manage its money position, particularly with respect to the role of Federal funds as compared to other reserve adjustment media?
2. What are the attitudes toward buying or selling Federal funds?
3. What factors are considered in deciding whether to use Federal funds or some other reserve adjustment media, such as borrowing from the Reserve Bank?

Government securities dealers were interviewed to determine their role in the Federal funds market. Others especially conversant with Federal funds were interviewed to get additional information on the development of the market, its present structure, and current practices.

Other less important sources of information were used. A few of the Reserve Banks had Federal funds data for a sample of banks over a more extended period. Borrowings from the Reserve Banks and from "others" (borrowings from the latter representing mostly Federal funds) by weekly reporting member banks provided another clue to recent trends in the use of the Federal funds market by banks.

LIMITATIONS OF THE DATA

Certain limitations of the November 1956 data should be noted. First, although a period of one month was considered sufficient to give a good cross-section view of the structure and current operations of the Federal funds market, it was inadequate to reveal seasonal and other behavior characteristics over time. For these latter purposes, data for a more extended period would have been required, and their collection would have caused a prolonged delay in completion of the study. Second, tabulation of the November data revealed a discrepancy between total purchases and total sales. The fact that total reported purchases exceeded total reported sales on all except two business days indicated that the discrepancy did not result from reporting errors alone. The principal source of the discrepancy was that reports from Government securities dealers and the sample of reporting banks represented a more complete coverage of purchases than of sales. Institutions other than member banks (mostly in New York) such as foreign banks and their agencies and a few of the large savings banks participate in the market at times, principally as sellers of funds. The small banks, usually not active in the market and therefore not included in the November survey, when in the market are typically sellers rather than buyers of funds. Reasons for the discrepancy between purchases and sales are explained more fully in the Technical Note on pages 106-07. It is believed that the nature of the discrepancy does not impair the validity of the data for the purposes for which they are used.

It should be noted that bank use of the Federal funds market is probably influenced significantly by monetary policy and conditions existing in the money and credit markets. The data should be interpreted in relation to the banking and credit environment which prevailed in November 1956. Consequently, monetary policy and credit conditions during the period are briefly summarized where such information is considered important in interpreting the data.

III. Growth of Federal Funds Market[1]

The Federal funds market is a specialized product of American financial organization. Prior to the formation of the Federal Reserve System, the principal instruments in the short-term money market were commercial paper and call and time loans on security collateral at the New York Stock Exchange. These instruments continued to account for most of the activity in the money market even after 1914, but they were eventually superseded in importance by new instruments.

The financing of World War I inaugurated a market for short-term United States Government securities. The basic framework of the acceptance market had been completed by 1918, and further development was encouraged and supported by the Federal Reserve System. The market for Federal funds emerged as a byproduct of the organization of the Federal Reserve System, and in the early twenties became a "new market" within that group of institutions known as the money market.

The Federal funds market has experienced two marked periods of development—the 1920's and the 1950's. A change in the functional role of the market between these two periods prevents strict comparisons. Throughout the twenties, banks participated in the Federal funds market almost exclusively in order to adjust reserve positions. While this original function remained the primary one in the later period, Federal funds acquired increased importance, directly or indirectly, in connection with dealer financing and the settlement of transactions in short-term Government securities.

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[1] This chapter, developed as a part of the Committee's study, was published in essentially its present form by the Federal Reserve Bank of Boston in 1957.

BEGINNINGS AND EARLY DEVELOPMENT

The Federal funds market originated in New York City.[2] The first transactions were among several of the leading city banks in the early summer of 1921. By mid-1923 a fairly active market had developed which the city banks used frequently in adjusting reserve positions. A few of the banks, however, did not participate as a matter of policy until later. As the decade of the 1920's progressed, trading within New York City broadened and transactions among Federal Reserve districts developed on a limited scale. Before 1925, local markets appeared in such cities as Boston, Philadelphia, Chicago, and San Francisco.

In the late spring and early summer of 1921, depressed conditions had diverse effects on the large New York City banks. Some had substantial excess reserves; others were borrowing at the Federal Reserve Bank of New York. Banks with surplus funds had trouble finding investment outlets in the usual channels. Activity in the money markets diminished, and open market money rates declined steadily from the 1920 peak, some falling close to and others below the average discount rate in all Federal Reserve districts after mid-1921. This situation was discussed informally by the officers of several leading banks. As a result, banks which were borrowing from the Reserve Bank began purchasing balances from banks with excess reserves. The lending banks were able to realize a return on their excess reserves until they could be placed in loans, investments, or other outlets in the money market. The banks with insufficient reserves were able to reduce their borrowings from the Reserve Bank.

Federal funds transactions involved the transfer of reserve balances from the lending to the borrowing bank on the books of the New York Federal Reserve Bank, generally by an exchange of checks. Initially, the practice was for both the lender and the borrower to make their checks payable immediately. But in order to forestall the possibility of an early deposit of the borrower's check,

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[2] Information and data on the early Federal funds market and its later growth and development were obtained from the following sources: (1) interviews with officials reputed to be familiar with and who participated in the market during its early period of development; (2) information in the files of the Federal Reserve Bank of New York; and (3) published sources such as *The New York Money Market,* edited by Benjamin H. Beckhart, Columbia University Press, New York, 1932.

it became customary for the borrowing bank to draw the check on itself, payable through the clearing house the next business day.

The typical unit of Federal funds traded in the twenties was $1 million, but transactions of $500,000 appeared frequently, and $100,000 was not uncommon when the money market was tight. During the first year of operation of the Federal funds market, the volume of transactions was reported as probably rarely exceeding $20 million a day. Prior to 1925 the volume on an average day was reported to have ranged between $40 million and $80 million. Beginning in 1925, the volume was estimated at about $100 million for an average day but at times ranged up to $250 million. The volume tended to approach the upper limit of the range on reserve settlement days in New York because the greatest demand arose from banks wishing to adjust their reserve positions.[3] Some 30 to 40 banks and about 10 acceptance houses accounted for the bulk of the trading. Agencies of foreign banks located in New York City were also important sources of Federal funds at times.

Role of acceptance houses in the 1920's. Although member banks in New York City were the first buyers and sellers of Federal funds, the discount or acceptance houses played a leading role in the development of the market in the 1920's and 1930's. Some of these firms conducted business in Government securities, commercial paper, and other investments as well as in acceptances. Moreover, the Federal Reserve System during the 1920's conducted a substantial volume of open market operations in acceptances as well as in Government securities. The Federal Reserve Bank of New York purchased from banks properly endorsed acceptances when they were offered, but a substantial part of its market transactions was with acceptance dealers. From about 1924 on, the Bank dealt with about 10 recognized dealers when buying acceptances and Government securities for its own account and for the accounts of its foreign correspondents. Such recognized dealers were also permitted to sell acceptances and Government securities to the Bank under repurchase agreements.[4]

At least one of the leading acceptance houses maintained a non-

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[3] Prior to 1928 the reserve computation period was one week, and settlement was on Friday; from January 1928 to March 1942 it was semiweekly, and settlement days were Tuesday and Friday.

[4] The policy of dealing only with recognized dealers was abandoned in 1953.

member clearing account at the Federal Reserve Bank of New York, as did several American foreign banking corporations which were active in the acceptance market. These accounts had been opened as early as 1919, partly as a convenience to the New York Reserve Bank in handling transactions in acceptances and Government securities. Thus, having these accounts, the firms were in a position to sell their own checks on the Federal Reserve Bank. In some cases, the deposit accounts of these firms were built up through sales of acceptances and Government securities direct or under repurchase agreement to the New York Reserve Bank. In other cases, the firms acquired title to reserve balances in settling transactions with the Reserve Bank before such funds reached the commercial banks. Dealers also acquired title to Federal funds from several other sources: outright purchases, conversion of deposit balances in excess of the customary amounts carried with commercial banks, proceeds of the sale of acceptances and securities to out-of-town banks received through the Federal Reserve Bank, payments received in redemption of United States Government securities and interest coupons, and maturing acceptances.

Acceptance houses used Federal funds in settling their own transactions, and also sold funds in the market. In the former case, Federal funds were used (1) in payment of acceptances and United States securities when the terms so specified, and (2) in payment of calls on war loan deposits if such accounts were maintained. Alternatively, surplus funds were sold in the market, and when demand was insufficient to absorb the surplus the balance was deposited in the New York clearing-house banks.

Federal funds deposited by a dealer in his regular account at a commercial bank drew only the rate then paid on demand deposits. When, however, dealers requested Federal funds in making withdrawals from their accounts, the commercial banks usually charged the call-loan rate or more, depending upon their reserve positions. A bank with excess reserves, however, might be willing to supply the dealer with its check on the Reserve Bank at or below the discount rate. Gradually the dealers began to shop among the banks for Federal funds, and found that regular purchases and sales could be accomplished. The leading dealers eventually developed a systematic daily telephone canvass of possible buyers and sellers, thus collecting daily information about the demand and supply of Federal funds, and they soon began to buy and sell Federal funds on a quarter-point spread. Later, as interdistrict trading developed, the spread ran as high as one percentage point at times because of discount rate differentials. The dealers usually purchased only small amounts of Federal funds outright but customarily acquired large blocks on an option basis. They also performed the service of combining small purchases into usual-size trading units, and at times split large blocks for retailing.

Money brokers. Money brokers found that the status of a bank's reserve position was important in relation to the call-money market. Lending banks with excess reserves were less likely to call their loans than banks which were short of reserves. Therefore, brokers arranged to supply Federal funds to banks with insufficient reserves, obtaining the funds from banks with excess reserves. Brokers considered this service an important adjunct to their call-money operations as it led to procurement of blocks of call and time money on which they received a commission from the borrower.

Regional developments. Acceptance houses having branches in the principal cities, particularly Chicago, Boston, Philadelphia, and San Francisco, developed a considerable volume of interdistrict transactions in Federal funds and formed the focal point of local markets in some of these cities. Local markets in the 1920's were generally limited to centers where financial activity was most concentrated. Atlanta, Dallas, Minneapolis, Richmond, and St. Louis had only small amounts of transactions in Federal funds among local banks. Some of these cities, however, at times sold Federal funds to New York, Philadelphia, and San Francisco.

As might be expected, the New York City market was the largest, both in terms of volume and in the number of participating banks. Most of the transactions were between New York City buyers and sellers and, to a lesser extent, between New York City banks and out-of-town institutions. Banks which bought and sold Federal funds were able to match needs locally to a larger extent in the early years of the market than they were in the 1950's. If excess funds remained, they were offered to buyers in New York or in other cities. Certain New York City banks, however, pursued a policy during the 1920's of not dealing in Federal funds with out-of-town correspondents, and thereby discouraged extension of the market. For these reasons, the volume of interdistrict transactions was probably relatively smaller than at present, while the volume of intracity trading in financial centers like Boston, Chicago, and Philadelphia was substantially larger.

Interdistrict trading. The differentials in discount rates among Federal Reserve Banks which characterized the 1920's encouraged transactions across Federal Reserve district lines. During the latter part of the 1920's a relatively active interdistrict market developed with participants along the West Coast. Advantages in supplying this market were found not only in the differential in discount rates but also in time-zone differentials. When New York banks closed at 3 p.m., San Francisco banks were still open for business since it was only noon on the Coast. (When New York is on daylight saving time and San Francisco is not, a four-hour differential exists.) This time differential enabled Eastern banks to estimate their reserve positions and, if in excess, to sell Federal funds to banks in the West before the wires closed about 2:30 p.m. The funds were usually returned to the East early the following day.

The amount of Federal funds offered depended not only on time differences but upon correspondent relationships. For example, two large San Francisco banks depended on their wholly owned Eastern affiliates as important sources of Federal funds. These affiliates acted as agents in procuring funds when they had none of their own. Certain San Francisco banks solicited Federal funds from banks in many parts of the country and were willing to receive such funds up to certain limits at all times and without notice, agreement as to rates being understood. Under one such agreement, Federal funds were received but were paid for only at the demand deposit rate unless the bank could actually profit from their use. Many of the transactions in San Francisco were at flat rates, the rates having little relationship to rates in New York City. In general, Federal funds were received from most of the large cities. New York, Boston, and Philadelphia supplied the bulk, followed by Chicago, Detroit, Atlanta, New Orleans, St. Louis, Kansas City, and Dallas. In other cases, however, Federal funds from the East were sent to banks in the Middle West and forwarded from there to San Francisco.

Relation to other markets. The volume of Federal funds transactions in the 1920's was small compared to the volumes in other segments of the money market; it was also small compared to the present volume of Federal funds transactions. In part, this position of the Federal funds market probably reflected the somewhat narrower function which it performed in the 1920's compared to today.

Throughout the 1920's, the concentration of both primary and secondary commercial bank reserves in New York City was significant, although somewhat smaller in relative volume than under the old national banking system. New York correspondents placed funds for the interior banks in call and time loans on the New York Stock Exchange, short-term commercial paper, acceptances, and securities, and in addition held some funds on deposit. Call loans during the 1920's were considered the safest and most liquid available use for temporary surplus funds of banks and others. The call-loan market was the most centralized market and normally commanded higher rates than were paid on demand deposits. Interior banks shifted from balances with New York City correspondents to brokers' loans and vice versa, depending on the call-loan rate. New York City banks followed the tradition of placing loans for correspondents before their own.

Table 1 on page 31 shows the amounts of the various instruments outstanding in the money market in 1925. The daily volume of Federal funds transactions reportedly ranged from about $100 million to $175 million. The market for commercial paper was broadest during most of the twenties in the sense that it was used by the greatest number of banks. The Federal funds market was probably the narrowest but was an important segment of the money market.

The chief function of the Federal funds market was to facilitate short-term adjustments in bank reserve positions. It served as a medium for mobilizing the excess reserves of some banks and made them available to other banks with reserve deficiencies. Federal funds were also used at times in settling securities and other transactions by bank customers. The Federal funds market was used as an investment medium by relatively few banks. Alternative markets were generally more profitable and offered a wider range of choice. Today, Federal funds provide a partial substitute for several classes of money market instruments which were available in the late twenties and early thirties.

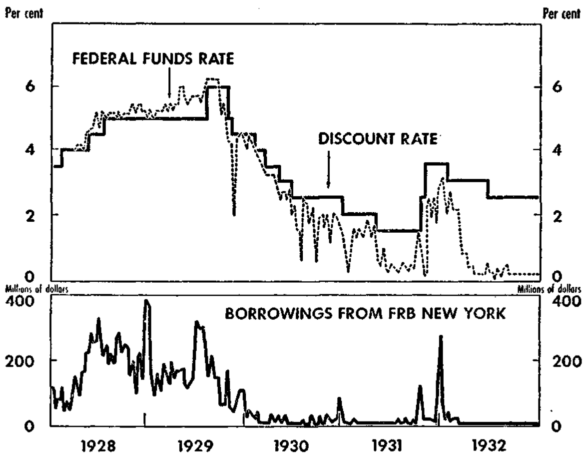
Rate relationships in the twenties. The Federal funds rate in the twenties, as now, tended to be limited by the discount rate of the Federal Reserve Banks, but not so closely.

When the call-loan rate was close to the Federal funds rate in New York City, the interior banks with surplus funds which participated in the Federal funds market usually sold Federal funds to avoid the ½ of 1 per cent commission charged by correspondents in placing call loans. Federal funds also had the advantage of immediate availability in contrast to call loans, which were in clearing-house funds and therefore not immediately available. The banks also used the Federal funds market as a last-minute outlet for surplus funds not needed as reserves or for call loans.

The Federal funds and call-loan rates at times tended to fluctuate in opposite directions. When rising call rates attracted a substantial volume of funds from outside areas to New York City, the transfers were effected over Federal Reserve Bank wires in Federal funds, thus creating a surplus of such funds in New York City. At other times, when Federal funds were demanded in the interior and call-loan rates were low, the demand for Federal funds to make wire transfers drove the rate above the discount rate on occasion. Regardless of other factors, the Federal funds rate tended to be strong on reserve settlement days.

During 1928, the Federal funds rate frequently stood above the discount rate, and in 1929 the spread at times reached ¾ to 1 per cent. Some banks lacked eligible paper for rediscount; others with a large volume of call loans preferred to borrow reserves in the Federal funds market rather than risk criticism by borrowing at the Reserve Bank. After the stock market collapse in October 1929 the Federal funds rate dropped sharply, partly because of the heavy inflow of funds to New York in meeting margin calls, and partly because of Federal Reserve action to relieve strains in the money market. In 1931 and 1932—except late in 1931 when discount rates were raised because of the crisis abroad which resulted in the suspension of gold payments by the United Kingdom and an outflow of gold from the United States—pursuit of an easy-money policy

THE FEDERAL FUNDS RATE, DISCOUNT RATE, AND BORROWINGS—NEW YORK CITY 1928-1932



NOTE.—Average weekly rate on Federal funds, and the discount rate of the Federal Reserve Bank of New York. Borrowings from Federal Reserve Bank of New York by New York City weekly reporting member banks.

by the Federal Reserve System and gold inflows caused the Federal funds rate frequently to drop as low as ¼ to ⅛ of 1 per cent.

MARKET IN THE 1930'S AND WORLD WAR II

The Federal funds market dried up during the Great Depression. Banks became very cautious about arranging these unsecured loans as uncertainty developed about bank solvency. Many banks adopted the policy of operating with large cash cushions. The volume of transactions began to decline, especially interdistrict transactions, as the number of bank failures increased. Sporadic trading, however, continued where correspondent relationships were strong, and sometimes Government securities were pledged if a series of transactions was contemplated.

Later in the 1930's, as gold flowed in from abroad, banks accumulated huge excess reserves and there were few occasions when banks needed to borrow. At times, however, moderate trading was resumed as increases in required reserves in 1936 and 1937 and expanding loan and investment portfolios temporarily absorbed some of the overhang of excess reserves.

Early in 1941, as markets began to tighten in response to financial pressures resulting from World War II, Federal funds transactions became more frequent, principally in New York but also in several other large cities. At least one money broker stood ready to provide clearing facilities for transactions in New York City. The volume of transactions was smaller than in the late 1920's and probably averaged $75 million to $125 million a day. Many banks still had excess reserves. The volume tended to increase toward the close of the war. The market, however, continued to be local or regional in character throughout the war years.

During the war and early postwar periods, banks made most of their reserve adjustments in the Treasury bill market rather than in the Federal funds market. Under the directive of the Federal Open Market Committee, banks could sell Treasury bills to the Reserve Banks at a discount of ⅜ of 1 per cent with the option of repurchasing a like amount of bills of the same maturity at the same rate of discount. Thus, reserves were readily available to member banks at a rate of ⅜ of 1 per cent. This policy also affected the yields of other Treasury securities of similar maturity which were originally issued for longer terms and at higher rates. Thus, it was profitable for banks to buy longer maturities and sell them as they approached maturity.

POSTWAR MARKET

Changes which developed in the banking system as a result of the Great Depression, easy-money conditions in the late 1930's, legislation, financing of World War II, and the increase of bank mergers and branch systems provided a different structural setting for the money market when the postwar period opened. The rapid growth of production, population, and income expanded the demand for banking services, while growth in the average size of business units created a demand for bigger banks with more capital funds to permit larger loans to a single borrower. Significant shifts in the distribution of population and income also had a marked impact on commercial banking.

The greater diffusion of deposits throughout the United States, the relatively small volume of commercial paper and acceptances, and the growth of the market for United States Government securities altered the character of the money market. Market shifts, as well as legislation, changed significantly the character of the call-loan market even before formal closing of the money desk on the Stock Exchange in 1946. These changes resulted in new money market arrangements, and altered the relative importance of money market instruments, as indicated in Table 1.

TABLE 1
MONEY MARKET INSTRUMENTS OUTSTANDING, 1925 AND 1956[1]
[In millions of dollars]

Instruments	1925	1956
Brokers' loans	2,000 – 3,000	500 – 800
Commercial paper	600 – 800	475 – 550
Acceptances	600 – 800	625 – 700
U. S. short-term securities	2,500 – 3,000	58,000 – 60,000

[1] Approximate range in amounts outstanding during the year.

The most striking change was the marked increase in short-term Treasury securities. The daily volume of Federal funds transactions also increased from an estimated range of $100 million to $175 million in 1925 to $600 million to $1.2 billion in 1956. On the other hand, brokers loans, commercial paper, and acceptances were relatively much less important than in the 1920's.

Legislation in the early thirties contributed to these changes. The prohibition of member banks acting as agents for nonbank lenders in the placement of securities loans, the elimination of payment of interest on demand deposits, and the establishment of margin requirements were some of the important features affecting the money market. The volume of call loans declined, and such loans came to involve customer relationships so that, in actual practice, banks rarely called them to meet reserve deficiencies.

The large increase in size and marked change in composition of the public debt as well as its broadening and shifting ownership provided a new sensitive medium in which financial institutions and others could adjust their cash positions. Federal Reserve credit policy, especially after early 1951, was reflected in higher rates for

Government securities and a greater reliance on borrowing from the Reserve Banks for reserve adjustment.

With the increase in breadth and activity in the Government securities market as short-term rates rose, the competitive search for Federal funds became more intense. Moreover, negotiation over the form of settlement—clearing-house or Federal funds—became a factor in many financial transactions, including payment for new long-term capital issues. To a large extent, dealer transactions had always been settled in Federal funds, but insistence by customers on such settlement made a substantial addition to demands. Consequently, securities dealers found it necessary to become active participants in the Federal funds market both as intermediaries and as principals.

Before World War II, Government securities dealers borrowed largely from the New York City banks to finance their positions. This continued to be the situation during the period of relatively easy money in the early postwar period—until 1952. New York banks were again a major source of dealer financing during the period of ease in 1954. During recent periods of tight money, however, dealers in Government securities had difficulty in obtaining adequate financing from the New York City banks at favorable rates in relation to yields on securities in their portfolios. As a consequence, dealers sought financing outside the city. Through the use of repurchase agreements, they were able to tap the temporary funds of a variety of financial and nonfinancial institutions.

Banks in large centers have found that purchases of Federal funds offer a partial substitute for the demand deposit balances which they acquired in the 1920's when interest payments on these balances were permitted. On the other hand, sales of Federal funds, in a significant sense, now fill the position formerly occupied by the old call-loan market as an outlet for secondary reserves. The current role of banks, dealers, and others in the Federal funds market will be explained more fully in the next chapter.

Growth in volume and participants. The volume of transactions in the Federal funds market on an average day has increased significantly since the mid-1920's, as Table 2 shows. The number of banks participating in the market has also increased, especially since 1950. Banks actively participating in 1957 numbered about 150, and other banks participated less frequently.

TABLE 2
TRANSACTIONS IN FEDERAL FUNDS, SELECTED PERIODS

Period	Average daily volume of transactions (In millions of dollars)	Number of participants	
		Banks[1]	Dealers in acceptances and Govt. securities
1925–32.........	100 - 250	30 - 40	10
1950–53.........	350 - 450	75 - 100	14
1955–57.........	800 - 1,100	125 - 200	18

[1] Includes foreign agencies.

In relation to required reserves, Federal funds transactions have shown little, if any, growth. On an average day, the volume of transactions in the 1920's ranged from about 4 to 10 per cent of the required reserves of member banks. In mid-1957 it ranged from about 4.5 to 7 per cent. By this measure, bank use of Federal funds at the present time is of no greater relative importance than in the earlier period. It should be noted, however, that in 1957 required reserves as a percentage of deposits were approximately double those in the 1920's. While the volume of Federal funds transactions as a percentage of required reserves was about the same, in absolute terms it was probably five to eight times larger in 1957.

With daily average borrowing from the Reserve Banks added to Federal funds transactions, the total at times reached some 50 per cent of total required reserves in the 1920's in contrast to about 10 per cent in recent periods—an indication of the substantially larger borrowed reserve base under the credit structure of the 1920's.

Growth in the volume of bank transactions in Federal funds is also indicated by borrowings of weekly reporting member banks. Since 1953, borrowings from the Reserve Banks and borrowings from "others" have been reported separately. A comparison of borrowings from others (than the Reserve Banks) with Federal funds data available at some of the Reserve Banks shows that one-half to two-thirds of such borrowings of weekly reporting member banks represented Federal funds. Data on borrowings from others than the Reserve Banks indicate that the volume of Federal funds transactions almost doubled over the three-year period 1953-55.

Borrowing from the Reserve Banks in 1956, however, did not reach the levels attained in late 1952 and early 1953.

Some differences in the prewar and postwar markets. The basic functions of the Federal funds market have changed relatively little over the years. It has been used mainly by the large banks in making day-to-day adjustments in their reserve positions. The scope of the Federal funds market is considerably broader than in the prewar period. Today, it is common practice for banks to sell Federal funds to or buy funds from banks in New York and other cities. Changes in the operating policies of many New York banks with their correspondents, the clearing facility offered by a New York stock brokerage firm, and services provided by correspondent banks facilitate intercity and interdistrict transactions.

Differences in size and character of business among banks in one city result in varying reserve needs which frequently cannot be completely adjusted in the local Federal funds market. Similarly, intercity trading within districts occurs in greater volume currently because of the more rapid growth of banks outside the traditional money centers and because a different pattern of financial settlement developed as these banks extended the scope of their activities.

Currently, some banks "follow the clock," buying or selling Federal funds successively in New York, Chicago, occasionally in St. Louis or Kansas City, and finally in San Francisco or Los Angeles. Banks in Denver rarely make overnight, unsecured purchases or sales with other banks, but on occasion sell funds through buybacks with Government securities dealers. Other banks in the Mountain Time Zone, for example in Phoenix, participate actively in overnight, unsecured transactions either as buyers or sellers.

The core of the market, as in the 1920's, is still the large money market banks, but today their number is greater and they are more widely distributed over the nation. In recent years, however, a substantial number of somewhat smaller banks have participated actively either in unsecured transactions or in repurchase agreements and buybacks.

FACTORS INFLUENCING POSTWAR GROWTH

The chief factors influencing the postwar growth of the Federal funds market were the alteration of the institutional framework of the money market and related changes in institutional practice, generally described earlier. There were other factors, however, which influenced directly or indirectly development of the market.

Services of intermediaries. Federal funds transactions began to grow in volume as well as frequency in 1947 and 1948. Interdistrict dealings with New York City and other centers increased slowly when they were resumed after the close of the war, and were handled almost entirely by correspondent banks.

Growth of the Federal funds market, especially in the 1950's, was encouraged by improvement in the facilities for bringing buyers and sellers together. A New York City brokerage firm, a member of the New York Stock Exchange, which earlier had acted as a clearing center locally for potential buyers and sellers of Federal funds, initiated its service on an interdistrict basis about 1949, with the result that an increasing number of banks arranged transactions through the firm. Data supplied by the broker show that the volume of Federal funds transactions handled by the firm has grown substantially since 1949. The average daily volume of transactions ranged from $350 million to $400 million in 1956, compared to $100 million to $150 million in 1949. The number of participating banks also increased significantly. Although the proportion of the total volume of transactions handled by the firm may well have varied, the data indicate substantial growth in the Federal funds market.

In recent years, some of the New York City banks have developed an accommodating business—in effect performing a brokerage function among their correspondents. These accommodating banks buy and sell Federal funds as a service for their correspondents, as well as to adjust their own reserve positions.[5] This service has also attracted a number of newcomers to the market, mostly relatively small banks with close correspondent relationships, or banks which for some reason prefer not to deal through the broker. The ability of the accommodating banks to serve their customers was dependent, in part, on the services of the broker in facilitating contacts or furnishing information.

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[5] For a more complete description of accommodating banks and their activities, see Chap. V, pp. 85–87, 90–91.

Federal Reserve operating practices. Certain technical modifications in Federal Reserve operating practices probably contributed, at least indirectly, to growth in the Federal funds market. Changes related to computation of required reserves provided more leeway for using Federal funds in the reserve adjustment process. Beginning in March 1942, member banks located in central reserve and reserve cities were permitted to average reserves for weekly periods rather than semiweekly. In October 1949, all member banks were permitted to offset a deficiency in one reserve computation period with an excess in the subsequent reserve period, provided the deficiency carryover did not exceed 2 per cent of the required reserve. In one respect, the longer period and the privilege of carrying over a deficiency might have tended to reduce the need for reserve adjustment because of the greater probability that a deficit for one day or a few days would be offset by surpluses on other days. Most of the large banks in financial centers, however, make daily reserve adjustments on the basis of early morning estimates of their reserve positions. The longer period for averaging reserves and the privilege of carrying over a deficiency facilitate management of a bank's reserve position and fuller use of its available funds.

Reduction in the check collection time schedule, to the extent that it resulted in increases in float and wider temporary swings in reserve positions, perhaps contributed to an increased volume of Federal funds transactions. The maximum in the time schedule was reduced from eight days to three days in 1939 and to two days in 1951. Banks which watch their money positions closely allow specifically for the effect of float on their day-to-day reserve positions, particularly as the level and amplitude of swings have increased in recent years.

Improvement in wire-transfer facilities, making possible more rapid transfers of funds, facilitated and probably encouraged bank use of the Federal funds market. Since the close of the war, the System's wire-transfer facilities have been steadily improved. The transmission time of instructions over the wire has been reduced, and the volume of messages handled has increased. The inauguration of the "bank wire" by commercial banks in 1950 substantially improved communication among banks. The wire now links more than 200 banks in 60 principal cities.

Easy and tight money conditions. Available data indicate that the years of most rapid growth in the volume of Federal funds transactions were 1950, 1951, and 1954, with increases of 80, 36, and 18 per cent, respectively. These were years in which, for the most part, money market conditions reflected some degree of ease. It should be noted, however, that credit conditions were not so easy during the latter part of 1950 and 1951, and that the volume of Federal funds transactions in 1950 was influenced by a relatively large number of new entrants into the market. Available data also indicate an increase in the volume of Federal funds transactions following the shift to easier money conditions in the fall of 1957.

The volume of Federal funds transactions also increased during periods of credit stringency, but at a much diminished rate as compared to periods of ease. From 1952 to 1953, the volume of Federal funds traded through the New York brokerage firm increased only 3 per cent, and in a substantially broader market the increase from 1955 to 1956 was about 11 per cent. Data for a number of individual banks in New York City and Chicago, as well as for some outside those areas, reveal the same tendencies.

There are good reasons why the volume of Federal funds transactions might well increase more rapidly in periods of easy money. During periods of ease, Federal funds are generally more readily available in the market. More of the banks active in the Federal funds market are likely to develop excess reserve positions in periods of easy money than in periods of tight money; and these banks are likely to be more willing to sell temporary excesses. If estimates prove to be wrong and reserves are subsequently needed, Federal funds can often be purchased at the same or possibly a lower rate.

Sustained demands for Federal funds during periods of ease come from several sources. Borrowings by Government securities dealers tend to be larger when money market conditions are easier, reflecting the greater opportunities for profitable positions in securities when rates are falling than when rising. Larger borrowing by dealers in 1954 and in 1958, for example, supported a part of the demand for Federal funds by banks particularly active in financing the dealers. New York City banks were able to buy large amounts of Federal funds which, to some extent, influenced their willingness to lend to dealers. The fact that the Federal funds rate is frequently below the discount rate of the Reserve Banks during periods of monetary ease also tends to strengthen the demand for Federal funds. The rate differential is an inducement for banks with temporary reserve deficiencies to purchase Federal funds rather than to borrow at the discount window.

During periods of tight money, there is a tendency for the supply of Federal funds offered in the market to diminish. Excess reserves are less prevalent among banks, particularly among larger banks, which participate actively in the Federal funds market. Moreover, banks may be somewhat more reluctant to sell temporary excesses because of a more continuous need for funds to meet customer loan demands and because they may not be able to buy adequate amounts of Federal funds later if needed. Some banks also adhere more closely to certain rules, such as dealing only with banks with which they have established credit lines. Demand for Federal funds, however, tends to intensify as reserve deficiencies recur more frequently and in larger amounts. Thus, in periods of tight money the volume of transactions is likely to increase at a slower rate than in periods of ease because the supply of Federal funds tends to be more limited. Furthermore, in periods of tight money the Federal funds rate is usually equal to the discount rate much of the time. When such rate equality prevails, purchasing Federal funds is no cheaper than borrowing at the discount window.

It is difficult, however, to establish from experience in the 1950's a functional relationship between the volume of Federal funds transactions and conditions of ease or tightness in the money market. In the first place, complete data on the volume of Federal funds transactions during the period are not available. Second, it is impossible to isolate the extent to which changes in the volume of transactions resulted from changes in credit conditions or from other influences. For example, the structure of the Federal funds market changed somewhat from one period to another as more banks became aware of and began to use the market. Despite the significance of these factors, however, it appears that periods of ease are more favorable to growth in the volume of Federal funds transactions than periods of restraint.

Other factors. The marked increase in Government securities transactions probably contributed to an expansion in Federal funds activity inasmuch as transactions in short-term Government securities are typically settled in Federal funds. Deficit financing in World War II resulted in a tremendous rise in Government securities outstanding, including short-term issues. At the end of the war, commercial banks, other financial institutions, and large corporations had large holdings. As private demand for credit increased with the postwar expansion in business activity, lending institutions disposed of some of their Government securities to obtain funds for loans. In the earlier postwar years, playing the pattern of rates probably tended to expand the volume of transactions in Government securities.

The excess profits tax may have induced some additional trading in Federal funds during the period 1951 to 1953. In 1951, the Bureau of Internal Revenue ruled that purchases of Federal funds, like other forms of borrowing, could be included in the "capital base" in calculating excess profits tax liabilities. There is no concrete evidence that banks generally increased their purchases of Federal funds for the express purpose of reducing their tax liability, although it is not unlikely that some may have done so. Perhaps a few large banks may have bid aggressively for Federal funds during that period and supplemented their borrowing at the Reserve Banks to establish a larger capital base. For the most part, however, the inclusion of Federal funds purchases in the capital base was a collateral benefit, and the basic forces stimulating expansion of the market lay elsewhere.

Differences in discount rates among the Reserve Banks which at times have existed for short periods tend to stimulate transactions in Federal funds. Available data show that banks in districts where the discount rate is higher rely less on borrowing from the Reserve Banks and meet a larger proportion of their reserve needs by buying Federal funds from banks in districts where the discount rate is lower.

RULINGS ON FEDERAL FUNDS TRANSACTIONS

The Federal Reserve Act, Section 19, reads in part:

> The required balance carried by a member bank with a Federal Reserve Bank may, under the regulations and subject to such penalties as may be prescribed by the Federal Reserve Board, be checked against and withdrawn by such member banks for the purpose of meeting existing liabilities. . . .

This provision makes possible borrowing and lending of excess reserve balances or, in other words, the purchase and sale of Federal funds.

The market in Federal funds has been subject to several rulings by the Federal Reserve Board and the Comptroller of the Currency. These rulings arose from uncertainty and lack of uniformity in reporting Federal funds purchases and sales.

Board ruling of September 1928. In September 1928 the Federal Reserve Board ruled that a bank purchasing Federal funds should carry the amount on its books as a liability. Such purchases outstanding were to be reported as "bills payable and rediscounts" rather than as a deposit liability.

Board ruling of January 1930. As the practice of using book entries and wire transfers in settling transactions became widespread toward the end of the 1920's, the Federal Reserve Board ruled that all such transactions should be classified in accordance with the purpose to be effected and the principles involved rather than in accordance with the mechanics. On every such transaction, whether effected by check, book entry, wire transfer, or otherwise, and regardless of the method of repayment, the purchasing bank was required to show its resulting liability to the selling bank as money borrowed, and the selling bank was required to treat the transaction as a loan.

In directing the banks to treat Federal funds sales as loans, sales by a member bank were thus made subject to the limitations imposed by Federal and most State statutes on loans to a single borrower. The effect was to limit unsecured sales of Federal funds to a single borrower to 10 per cent of the selling bank's capital and surplus. Purchases were subject to the legal restriction that aggregate borrowings could not exceed capital stock.

Until recently, repurchase agreements and buybacks were generally considered and treated as investments. They were not regarded as being subject to the legal limitations on loans.

Recent rulings by the Comptroller. In September 1956, the Comptroller of the Currency instructed his examiners that repurchase agreements and similar transactions should be treated as loans. Thus, repurchases involving Government securities were subject to the limitation that loans to a single borrower so secured could not exceed 25 per cent of a bank's capital and surplus. In January 1957, it was held that the limitation did not apply to transactions between a bank and a Government securities dealer or broker.

The Comptroller issued a regulation, effective August 16, 1957, which had the effect of raising the limit on loans to a single borrower, secured by direct obligations of the United States maturing within 18 months, to an amount equal to the lending bank's capital and surplus. Loans to a single borrower backed by Government securities maturing in over 18 months and by agency obligations were limited to 25 per cent of a bank's capital and surplus. Under provisions of the Federal Reserve Act, the regulation was also applicable to State member banks.

As a result of this regulation, the amount of Federal funds a member bank could sell to a single borrower through repurchase agreements was limited to 100 per cent of the bank's capital and surplus if direct obligations of the United States maturing within 18 months were involved, to 25 per cent if Government securities maturing in over 18 months and agency obligations, and to 10 per cent in the case of municipal securities. The limit on unsecured sales of Federal funds to a single borrower continued to be 10 per cent.

The effect of the ruling that made repurchase agreements subject to loan limitations was mixed, according to reports received in January 1958. Repurchase agreements are an important source of financing for Government securities dealers. Opinion among dealers seemed to be that the supply of funds available through repurchase agreements was reduced. The impact was spotty, however, as banks in certain areas were influenced more than in others. Some banks were influenced by the restrictive effects of the loan limitation; others by the necessity for treating repurchases as loans in published statements. Despite the raising of the limit on transactions covering shorter issues to 100 per cent of capital and surplus, the effect was still to restrict the amount of repurchases made by a number of banks.

The Comptroller of the Currency issued another regulation, effective April 18, 1958, removing the limitation on loans to a single borrower collateraled by direct obligations of the United States maturing within 18 months. The effect was largely to remove the limitation on the amount of repurchase agreements to a single borrower, inasmuch as most repurchase transactions involve short-term Government securities. From the standpoint of a borrowing member bank, however, both unsecured purchases of Federal funds and repurchases are subject to the regulation limiting total borrowings, except from a Federal Reserve Bank, to the amount of its capital. The effects of this ruling are not clear because, under the easier money conditions which have generally prevailed since the latter part of 1957, dealers experience less difficulty in obtaining financing at larger banks where limitations on loans to a single borrower are a less important factor.

IV. Structure of Federal Funds Market

This chapter examines the structure of the market in which Federal funds are bought and sold. The first section deals with major groups of participants in the market—commercial banks, Government securities dealers, and a miscellaneous group including corporations and agencies of foreign banks. The second section is devoted to the mechanics of the market, including such matters as types of contracts and the facilities for bringing buyers and sellers together. The final section describes the regional and interregional patterns of trading as revealed by the survey data.

The ensuing analysis is based partly on interviews with the various participant banks and partly on the data collected in November 1956. The volume and pattern of transactions revealed in the November 1956 data reflected in part the considerable pressure then existing in the money market. In addition to the usual year-end pressures on bank reserves, stemming chiefly from currency outflow and seasonal credit needs, there were continuing uncertainties over the Suez crisis, a heavier atmosphere in the capital markets, and two Treasury financing operations involving short-term securities. Treasury bill yields rose almost steadily during the month, and there were persistent rumors of an increase in the discount rate. Although net borrowed reserves were not particularly high for the country as a whole—indeed, the banking system held positive free reserves on eight days in the latter half of the month—the pressure on money market banks in New York City was quite pronounced until the end of the period. The geographical pattern of reserve pressures was an influence in the interregional flow of Federal funds.

PARTICIPANTS IN THE MARKET

Commercial banks have dominated the volume of trading in Federal funds in recent years, although other institutions have made steady if less important use of the market. The mechanics of trading have been shaped to some extent by the needs of these nonbank participants.

Member banks. The immediate availability of reserves provided by the Federal funds market makes possible a closer adjustment in bank reserve positions and a much greater flexibility in the management of bank assets.

Member banks accounted for 80 to 90 per cent of total purchases of Federal funds and for roughly 85 to 95 per cent of total sales reported in November 1956.[1] The role of dealers was significant, but their purchases and sales represented less than 10 per cent of the total. Moreover, most of their transactions were with banks. Transactions with banks accounted, on the average, for 70 per cent of total dealer purchases, and about 90 per cent of dealer sales. Transactions of "others"—foreign bank agencies, corporations, commercial banks not belonging to the Federal Reserve System, and savings banks—were of about the same total magnitude as dealer operations.

Bank participation in the market, although widespread geographically, is limited principally to the larger banks. Table 3 shows the number of banks reporting in November 1956 by size groups.

TABLE 3
SIZE OF BANKS SURVEYED IN NOVEMBER 1956

Total assets, in millions of dollars	Number of banks
(A) Over 1,000	21
(B) 500 – 1,000	27
(C) 250 – 500	50
(D) Under 250	52
Total	[1] 150

[1] Five of the 150 banks reported no transactions in Federal funds in November 1956. All five were in Group D, the smallest size category.

[1] All references to reporting banks, unless otherwise noted, refer to the 150 banks which reported in the November 1956 survey. Data from the survey relate to gross purchases and sales reported by each respondent. Some banks, mostly large New York City banks, frequently made purchases and sales on the same day. If net purchases or sales were used, the preponderance of buyers on certain days would be smaller, as would also purchases of some of the larger banks.

Of the 150 banks covered, five reported no transactions during that particular month. All of the banks reporting no transactions were in the smallest size classification—Group D. Nearly all of the member banks in the A, B, and C size groups were included in the survey. Consequently, virtually all of the larger banks were familiar with and used the Federal funds market. A number of banks of smaller size than those included in the reporting sample used the market occasionally.

Information obtained since November 1956 indicates a further increase in the number of banks participating in the Federal funds market. The increase has reflected in part growing familiarity with the market among a larger number of banks and a desire to utilize excess reserves which became more prevalent under the easy-money conditions which developed in the latter part of 1957.

Government securities dealers. As pointed out previously, Government securities dealers were drawn into the Federal funds market because of needs related to securities transactions. Banks, the principal customers of the dealers, insisted that securities transactions be settled in Federal funds. Today, practically all transactions in short-term Government securities and many in long-term issues are settled in Federal funds.

Dealer financing with corporations and banks outside New York City led to extensive use of the wire-transfer mechanism in shifting funds and securities. All such transactions require payment in Federal funds. Finally, all transactions with the System Open Market Account, as well as repurchase agreements with the Federal Reserve Banks, are payable in Federal funds, although in the case of transactions for "regular" delivery, settlement is made on the following day.

As the practice of settling transactions in Federal funds spread, others than dealers found it to their advantage to use this method of payment. Corporations, for example, were under pressure to follow suit because of their trading activities in the short-term Government securities market. Corporation procurement of Federal funds, however, is largely a matter of bank-customer relationship, as discussed in a subsequent section on nonbank participation in the Federal funds market.

Dealer activity in the Federal funds market is largely centered in one commercial bank in New York City which clears a substantial amount of the transactions in United States Government securities for nonbank dealers. A "clearing charge" is paid for this service. The bank makes or receives payment for transactions settled in Federal funds for its dealer customers in the form of debits or credits to its reserve account at the Federal Reserve Bank of New York. The bank keeps a tabulation of debits and credits for each dealer during the day and, at the close, arrives at a net balance of Federal funds either "due to" or "due from" the dealer. A charge or credit for these funds is then computed at the current Federal funds rate and is carried on a memorandum basis from day to day. It is expected that these charges or credits will "wash out" over a period of time, but if not the dealer settles with the bank at regular intervals.

In the case of the larger, more active dealers, the amounts involved in daily activities with the clearing bank are so large that these dealers will, if necessary and possible, buy Federal funds in the market before the close of the day to cover a substantial deficit accumulated with the clearing bank. If these dealers accumulate an excess of Federal funds with the clearing bank, they may sell the excess in the market toward the close of the day. Ordinarily, dealers make purchases and sales fairly late in the day, but they may act earlier if they are sure of their Federal funds position. In any case, the larger dealers try to come out as nearly even as possible with the clearing bank each day, leaving relatively small debits or credits to be carried over. Their reliance on the clearing bank as a residual supplier of Federal funds is for small amounts on most days. The clearing bank prefers it this way as the dealer transactions affect its reserve position.

Smaller dealers, on the other hand, normally rely to a much greater extent on the clearing bank for Federal funds and rarely buy or sell Federal funds in the market. When large amounts of Federal funds have to be supplied to the dealers—for example, when dealers are taking up new issues of United States Government securities at the Federal Reserve Bank—both large and small dealers may have to rely on the clearing bank, especially under tight-money conditions. The clearing bank frequently attempts to offset a dealer shortage or excess of Federal funds through purchase or sale of Federal funds in the market for its own or for dealer account. The clearing bank will borrow from the Federal Reserve Bank if necessary in order to meet dealer needs for Federal funds.

One large dealer clears all of its Government securities transactions through its own facilities. This dealer buys and sells Federal funds in the market to meet its general needs, and has special arrangements with two of the largest banks in New York City to provide Federal funds to meet its residual needs. The two banks furnish Federal funds at the current rate, taking turns for a week at a time.

Dealers go into the Federal funds market only to satisfy their own needs. They never act as broker for Federal funds, as does the New York City stock exchange firm that brings together a considerable number of buyers and sellers. Most dealer transactions in one-day Federal funds are with the large banks in New York City; some are arranged through the New York City broker.

Dealers, however, have extensive contacts with banks throughout the country as sources of financing for their positions. When the dealers borrow from or make repurchase agreements or buybacks with out-of-town banks or nonbank sources they automatically receive Federal funds. Rates on dealer repurchase agreements are more closely related to rates on alternative sources of financing available to dealers than to the rate on straight Federal funds transactions.

New York City banks make dealer loans available, with only a few exceptions, in clearing-house funds. The rate charged by New York City banks on dealer loans is frequently higher than the cost of financing in other cities; it is also often above the yield on the dealers' portfolio, especially in periods of tight money. Thus, dealers are often under pressure to borrow out of town or from nonbank sources, both to obtain lower rates and to acquire Federal funds to pay for the securities against which they are borrowing. If they borrow from the New York City banks, dealers are required to pay the current rate of interest on the loan plus the cost of the Federal funds for one day or for three days if they borrow on Friday. When money is tight in other parts of the country, dealers rely more heavily on the New York City banks, thus exerting direct pressure on the New York Federal funds market. In such instances, Federal funds are supplied by the clearing bank and by other New York City banks, even though borrowing from the Federal Reserve Bank is necessary.

When dealers encounter difficulty in obtaining financing out of town, it is usually late in the day before they turn to the clearing bank and other New York City banks. The result is often unforeseen swings mainly in the reserve position of the clearing bank, but also in other New York City banks which supply Federal funds to the dealers. Thus, dealer financing needs at times place special burdens on the New York money market with repercussions on the Federal funds market. It is for this reason that Federal funds are often very tight on Thursdays when dealers pay for the unsold portions of their awards of new Treasury bills. In some instances, the situation is relieved by Federal Reserve open market operations in extending repurchase agreements to the dealers; however, until the dealers learn, usually after noon, whether the Federal Reserve will make funds available, they attempt to locate funds elsewhere.

In the normal course of trading in Government securities, the flow of Federal funds tends to balance itself out. The biggest problems arise when dealers acquire securities which they pay for in Federal funds and then hold unsold in their portfolios. Similar effects are produced when dealers buy blocks of securities for payment in Federal funds and sell them the same day for payment in clearing-house funds. Most situations of this kind arise from transactions with nonbank investors.

On the other hand, dealers sometimes acquire excess Federal funds when they buy securities for clearing-house funds and sell them for Federal funds. When dealers have to borrow in clearing-house funds, repayment is made in clearing-house funds. If in the meantime the underlying securities have been sold for Federal funds, as is frequently the case, these funds can be sold in the Federal funds market. Thus, dealers may offset the cost of Federal funds purchased when they borrow in clearing-house funds unless the Federal funds rate declines in the meantime. Such imbalances in availability of Federal funds to dealers are normally only moderate in amount but occasionally can become quite important.

The analysis above is more descriptive of dealer activities in Federal funds under tight-money conditions, such as prevailed in

1956 and most of 1957. Under conditions of easy money, dealer trading and financing needs can usually be satisfied with less difficulty and with less concentrated pressures as Federal funds are generally available on a country-wide basis at relatively attractive rates. As a result, there is usually much less borrowing at the Federal Reserve Bank of New York by the clearing bank and other New York banks arising from dealer needs.

Other financial institutions. Agencies of foreign banks licensed by the New York State Banking Department, foreign banking corporations chartered under New York State law, and savings banks located in the New York area have been active sellers of Federal funds in the New York market. A few nonmember banks, by utilizing their correspondent balances with member banks, also sell Federal funds. Savings banks are probably less active sellers than the other institutions, their transactions apparently being more closely related to their operations in Government securities.

Sales by these institutions reportedly were substantial in 1956-1957, aggregating well over $50 million on some days. Practically all sales are made to banks and dealers in New York City. These "other" participants rarely purchase Federal funds.

Corporations. Corporations engage in repurchase agreements or similar transactions with Government securities dealers. These transactions are frequently made for payment in Federal funds to meet dealer needs for financing short-term securities which ordinarily require settlement in Federal funds. From the standpoint of the corporations, these transactions are effected as a means of pinpointing a short-term investment for a particular maturity date, and are usually for more than one day. To the dealer it is a source of financing. The volume of dealer activity in the Federal funds market may be strongly influenced by the ebb and flow of financing available to dealers from corporations.

Direct participation in the Federal funds market by nonfinancial corporations appears to be nominal. Large corporations use Federal funds for various purposes and have access to such funds through their commercial banks. Corporations needing to make payments in Federal funds usually turn to their banks. The general practice of banks is not to make an extra charge for the Federal funds. In effect, the bank handles the payment for its customer and the corporation does not acquire title to the Federal funds.

In special cases, where the activity in Federal funds for a corporate customer is exceptionally large, the bank may keep a record of the inflow and outflow to ascertain whether a fair balance is maintained between the two. If there is a continuing net drain of Federal funds in meeting the corporation's needs, the bank may make a charge for this facility.

Corporations occasionally sell Federal funds acquired from the sale of Government securities. Normally, however, the proceeds are handled in the same way as receipts from other transactions. In practice, most corporations instruct a bank to take delivery of securities purchased, make payment in Federal funds against debit to the corporation's deposit account, and place the securities in custody for its account. In case of sales of securities, the procedure is reversed.

MECHANICS OF THE MARKET

Estimating reserve positions. In order to meet the legal reserve requirement and to keep fully invested, many of the larger banks attempt to estimate their current and prospective reserve positions. Usually, the forecasting techniques are relatively simple. Indeed, existence of the Federal funds market allows the individual bank such a degree of flexibility that quite simple projections can be used. If the projections turn out wrong, actions taken earlier in the day can later be reversed, generally at little or no extra cost. It is only natural, then, that Federal funds operations at most banks seem to be focused chiefly on deficiencies and surpluses that are expected on the same day, or have already developed at the time of the purchase or sale.

Accordingly, forecasts used as a basis for transactions in Federal funds generally have a very short range—the end of the day or occasionally the end of the current reserve week. If a shortage or overage persists, a more fundamental adjustment is likely to be made through shifts in securities or other assets. Assuming, however, that the imbalance is to be only temporary, the sale or purchase of Federal funds is usually geared to the current day's reserve position or to the pattern for the reserve period as it then appears.

Under these circumstances, forecasting a bank's reserve position includes more or less standard information such as debits and credits in the local clearing house, large changes in deposit balances, debits and credits through wire transfers during the day, required reserves, deferred availability figures on the books of the Reserve Banks, and adjustments designed to bring balances with correspondent banks up or down to some normal working level. Most banks apparently prefer, at least under tight-money conditions, to get into the Federal funds market as early as possible to meet their needs in case the supply turns out to be inadequate. Some of the large money market banks often commit themselves even before they have learned their opening positions, implying a forecast from the previous day's data. At the other extreme, while many banks attempt to project reserve positions for the remainder of the reserve accounting period, few of them make a practice of buying or selling Federal funds against prospective deficits or surpluses later in the reserve period. Under easy-money conditions, however, banks, in planning their reserve operations, tend to rely more on the Federal funds market to provide reserves for longer periods. Federal funds are more readily available and frequently at advantageous rates.

Types of contracts or transactions. Emphasis on the use of Federal funds for very short-term reserve adjustments quite naturally carries over into the specific form of the contracts. The November 1956 data show that Federal funds transactions are predominately for one business day. Over-one-day transactions were reported on almost every business day during the month, but the amount was never more than 5 per cent of total transactions, and for the month as a whole accounted for only 1.5 per cent of total purchases and 2.2 per cent of sales. Extensive interviews with banks also revealed that a high percentage of bank transactions is for one day only.

As to type of contract, Federal funds transactions fall into two major classes—straight, unsecured one-day loans, and repurchases and similar agreements. A modification of the straight one-day transaction has emerged, however, as a result of the April 1958 ruling of the Comptroller of the Currency which removed the limitation on loans to a single borrower if secured by Government securities maturing within 18 months. The limit is 10 per cent for an unsecured loan. The buyer of Federal funds advises the seller that the transaction is secured by the pledge of securities, usually maturing within 18 months, held in custody for the account of the seller. Otherwise the transaction is the same as a straight one-day loan. Recently, New York City banks have been making frequent use of the secured one-day loan when buying Federal funds from out-of-town banks.

"Straight" Federal funds transactions. A straight Federal funds transaction may be executed in any one of several ways. If both buyer and seller are in close geographical proximity in the same Federal Reserve district, the transfer—after the two parties have settled on the terms, usually by telephone—is ordinarily handled by telephone request to the Reserve Bank followed by written confirmation, by a direct letter of instruction to the Reserve Bank or, as in New York City, by an exchange of checks.

The transfer of reserve balances typically takes place after a telephone request to the Reserve Bank, although such request must be followed by written confirmation. In the Boston District, for example, even Federal funds transactions involving banks in cities outside of Boston are sometimes initiated by a telephone call to the Reserve Bank, followed by letter of confirmation. In the case of direct letters of instruction, the lending bank transmits a letter on the first day, and the borrowing bank a similar document the next day. These letters simply request the shift of reserves from one account to the other and then back again. An exchange of checks is confined largely to New York City. The lending or "selling" bank writes a draft on its balance at the Reserve Bank, which is of course available immediately. In exchange the lender receives from the borrowing or "purchasing" bank a check written on itself, for an equal or slightly larger amount, depending on how the interest payment is to be handled. This check, however, must go through the local clearing house, so that it does not become an immediate claim on reserves until the following day.

When the two parties to a Federal funds transaction are located in different Federal Reserve districts, the buyer and seller usually work out the details by the "bank wire" or by long-distance telephone with formal confirmation following by either wire or letter. The actual transfer of Federal funds is accomplished through the system of leased-wire facilities connecting the Federal Reserve Banks into a national network. The selling bank instructs the Reserve Bank in its district to make a wire transfer of a specified amount to the buying bank, which means that the proceeds will be credited to the reserve account of the buying bank. On the next day, the purchaser repays by carrying out the reverse procedure. The interest charge may be included in the remittance but when the banks have a correspondent relationship it is generally credited to the account of the lending bank or paid by separate check.

A step-by-step description of the execution of a typical straight Federal funds transaction between banks in different Federal Reserve districts is as follows:

Bank A located in Columbus, Ohio, arranges—by direct telephone, through the New York stock broker, or by bank wire—to sell $5 million of Federal funds at 3 per cent to Bank B in Chicago. If by telephone, the arrangement is confirmed by bank wire or by letter. Bank A then instructs the Federal Reserve Bank of Cleveland to make a wire transfer of $5 million to Bank B through the Federal Reserve Bank of Chicago. This transfer, of course, results in a debit of $5 million to the reserve account of Bank A at the Federal Reserve Bank of Cleveland and a credit of $5 million to the reserve account of Bank B on the books of the Federal Reserve Bank of Chicago. The following day, Bank B instructs the Federal Reserve Bank of Chicago to make a wire transfer to Bank A of at least $5 million, the principal. Bank B might also remit the interest of $416.65 in the same wire transfer but, since the Federal Reserve Banks levy a charge on wires involving odd amounts, interest is more frequently paid by check or, where a correspondent relationship exists, by credit to the correspondent account.

"Other" Federal funds transactions. Federal funds transactions falling into the "other" category are even less uniform than straight transactions. Their distinguishing feature, as noted above, is the transfer of securities, which makes possible a greater variety of techniques. For one thing, a rather extensive range of securities is used, including issues of the United States Treasury, municipal bonds, and securities issued by such agencies as public housing authorities. The specific form of the transaction may differ, too, although most of the variants can be classed under the general headings repurchase agreements and buybacks.

The difference between these two forms is, however, more legal than economic. In the repurchase agreement, the lender of Federal funds buys a security at a certain price, actually taking title to it. But at the same time and in the same contract, he receives from the seller of the security (who is, in effect, borrowing Federal funds) a commitment to repurchase the same security on a specified future date at a specified price, generally the same as the sales price plus interest at a specified rate for the life of the contract. Both the initial purchase and the repurchase are paid for in Federal funds. Thus, in a single contract the two parties have agreed to a transfer and return of Federal funds, to be accompanied by a movement in the opposite direction of an equivalent dollar amount of securities.

The buyback, as the term is commonly used in the market, consists of two separate contracts made at the same time—one for the sale (or purchase) of securities for immediate delivery and payment; the other for the purchase (or sale) of securities for delivery and payment the following day or at a later date. Most of these transactions are in Treasury bills, and the bills are sold to the lender of Federal funds at an annual rate of discount and bought back generally at the same rate, so that the lender earns the discount for the number of days the contract is outstanding. Buybacks in interest-bearing securities are less frequent because of the capital gains and losses affecting tax positions if these securities are sold and bought back at different prices, and because of the difficulty in setting prices that would result in the desired effective yield for the period of the contract. The situation is different in the case of tax-exempt securities or of Treasury bills, in which capital gains and losses are not treated as such for tax purposes. Practices with respect to pricing, however, vary widely.

The purchase of Federal funds under a repurchase agreement may be described as follows:

Assume that Bank A in New York City arranges directly by telephone to sell Bank B in Dallas, Texas, $5 million (par value) of 3¼ per cent certificates of indebtedness due October 1, 1957, at a price of $100 (par) and agrees to buy back the same certificates on the next day at par, plus interest for one day at 3 per cent, both transactions for payment in Federal funds and delivery in New York. The arrangement provides that Bank A will deliver the certificates to Bank C in New York City against payment of $5 million, Bank C to hold the securities in custody for the account of Bank B. All terms of the transactions are confirmed by bank wire.

Bank B then instructs the Federal Reserve Bank of Dallas to transfer $5 million to Bank C in New York City and wires Bank C instructions to pay the $5 million to Bank A against delivery of the certificates of indebtedness and to hold the certificates in custody. Bank A then delivers the certificates to Bank C, receiving a draft for $5 million drawn on the Federal Reserve Bank of New York, which it deposits at the Reserve Bank for credit to its reserve account. Alternatively, Bank B might instruct Bank C to advise by wire when the certificates are received in custody, whereupon Bank B would wire transfer the $5 million direct to Bank A.

The following day the foregoing procedure is reversed as Bank A delivers to Bank C its check for $5 million on its reserve account against release of the certificates, whereupon Bank C wire transfers the $5 million to Bank B in Dallas through the Federal Reserve Bank of New York. The interest of $416.65 is credited by Bank A to Bank B's correspondent account, or it may be remitted with the wire transfer of the principal or by separate check.

There are many variations of the above-described technique, especially as to the prices specified in the agreement, as the price is important from the standpoint of capital gains taxes. In the example above, the purchase and sale prices are the same and there is no tax effect.

To illustrate a buyback, suppose that on June 19, 1957 Bank A in New York City agrees to sell Bank B in Richmond $5 million of Treasury bills due September 5, 1957 at a discount rate of 3.20 per cent, for delivery the same day against payment in Federal funds. Simultaneously, but in a separate contract, Bank A agrees to buy from Bank B $5 million of the same issue of Treasury bills at the same rate of 3.20 per cent discount for New York delivery and payment on the following day in Federal funds.

The steps involved in the execution of these commitments are generally as follows:

Bank B instructs Bank A to deliver the Treasury bills to Bank C in New York against payment of the proceeds of the sale amounting to $4,965,333.33 (78-day bills at 3.20 per cent discount). Bank B then instructs the Federal Reserve Bank of Richmond to transfer that amount to Bank C, and wires Bank C instructions to pay it to Bank A against delivery of the Treasury bills. Bank A then delivers the Treasury bills to Bank C and receives a draft for the proceeds drawn on the Federal Reserve Bank of New York which it deposits at the Reserve Bank for credit to its reserve account. Alternatively, Bank B might wire the proceeds of the sale direct to Bank A upon advice from Bank C that the Treasury bills had been received in custody.

On the following day, Bank A delivers to Bank C a Federal funds check for $4,965,777.78 (77-day bills at 3.20 per cent discount) against release of the Treasury bills, which funds Bank C wire transfers to Bank B through the Federal Reserve Bank of New York. This wire transfer, of course, results in a credit to Bank B's reserve account with the Federal Reserve Bank of Richmond. Bank A thus pays Bank B 3.20 per cent or $444.45 for the use of the funds for one day.

In the foregoing buyback transaction, the wire transfers between Federal Reserve districts would generally be made in round amounts to avoid an extra wire charge, and the odd amounts arising from the pricing of the bills would be a charge or credit to correspondent accounts in the same way as the interest charges involved in other types of transactions.

In both the repurchase and buyback transactions, ownership of the securities is transferred. In perhaps the majority of cases this is accomplished through the transfer of the securities by the borrowing bank from its investment account to a custody account in its trust department for account of the lending bank. In other cases the securities may be delivered to another bank to be held in custody for account of the lending bank as described in the example above. When the borrower is a Government securities dealer, the collateral usually remains in safekeeping with one of the local banks in New York City and the Federal funds are transferred to that bank for account of the dealer against delivery of the securities into custody.

In a few cases the transfer of securities may be effected by wire. This is done through the wire-transfer facilities of the Commissioner of Public Debt, which make it possible to present Government securities to a Federal Reserve Bank or branch and have them reissued at any other Reserve Bank or branch against payment in Federal funds.

Relative advantages of different types of transactions. There is considerable regional variation in the relative importance of repurchase agreements and buybacks as compared to straight Federal funds transactions. According to the November 1956 data, the repurchase agreement and buyback were most popular in the Kansas City District, these types of transactions accounting for nearly 70 per cent of the sales and 45 per cent of the purchases of reporting banks during the month. In the Richmond, Cleveland, and Dallas Districts, they accounted for 80 per cent, 63 per cent, and 52 per cent, respectively, of the sales but only a very small fraction of the purchases. In the San Francisco District, about 30 per cent of the purchases and slightly less than one-fifth of the sales were in the form of repurchase transactions. In New York, they accounted for about 30 per cent of the purchases but only a small percentage of the sales. The straight transaction was predominant in the other districts. A good part of the sales via repurchase agreements represented transactions with Government securities dealers in New York City.

Many New York City banks do not make repurchase agreements with dealers, but do make them with some frequency with out-of-town banks. A few New York City banks make repurchases with dealers on bills but not on other securities. Repurchases between dealers and out-of-town banks, however, are widely used.

These regional variations reflect, in part, legal limitations and differences in attitudes as to the relative merits of each type of transaction. Interviews with commercial bankers active in the Federal funds market indicated that the principal appeal of repurchases and buybacks was the more liberal legal limits on loans to a single borrower than on straight sales of Federal funds. As explained in Chapter III, the legal limit on repurchases involving Government securities is more liberal than on unsecured transactions. This feature gives repurchases considerable appeal, especially to relatively small banks. Although somewhat more bookkeeping is required than in the case of straight Federal funds, a real advantage is the greater ease in finding a buyer if Federal funds can be offered in a larger block, thus avoiding the expense and inconvenience of trying to sell a number of smaller parcels.

Other lesser advantages are also claimed for repurchase agreements and buybacks. From the standpoint of the lending bank, the interest rate, especially when the transaction is with a Government securities dealer, is often higher than the rate on straight Federal funds. The risk is also less than for an unsecured loan. On the other hand, a bank may sometimes be able to obtain funds at a lower rate under a repurchase agreement than a straight unsecured purchase. In order to be in a position to benefit from these rate differentials when they arise, some banks are active in both types of transactions, even when the rates are equivalent. Rates on repurchase agreements are subject to much more negotiation than those on straight Federal funds transactions.

Despite these apparent advantages, however, the greater part of Federal funds trading is in the form of straight, that is, overnight, unsecured transactions. The chief reason given in the interviews was the greater convenience of the straight transaction. Many bankers think one-day repurchase agreements are too much trouble. The bookkeeping is more extensive and the securities involved must be physically transferred. Moreover, a transaction between a dealer in New York and a bank outside involves the performance of various functions by the bank's New York correspondent—acquiring the securities possibly with clearing costs, issuing a trust receipt, remitting Federal funds to the dealer, and then reversing the whole process the following morning. For these reasons, many lending bankers consider repurchase transactions unprofitable unless they run for three or four days.

Some bankers apparently avoided repurchases and buybacks prior to the recent rulings of the Comptroller of the Currency because of uncertainty as to whether they were subject to the limitations on loans. Some also indicated that repurchase agreements with dealers should be held to a minimum in order to maintain the impersonal nature of the Federal funds market, and to avoid the development of a situation in which dealers might rely unduly on this form of bank financing.

Finally, most repurchase or buyback transactions for more than one day are between corporations and banks outside New York City and Government securities dealers. New York banks do not favor longer term transactions, preferring to lend to dealers only on collateral loans in clearing-house funds.

Units of trading and limits on transactions. The typical unit of trading in the Federal funds market is $1 million. The minimum amount is also generally $1 million, although banks which rely heavily on the Federal funds market to cover deficiencies often make exceptions in a tight-money market. Transactions in smaller units are also made as an accommodation to small correspondent banks whose legal limits make it impossible for them to deal in larger units. Although trades of as little as $50,000 have occasionally been reported, few banks are willing to make transactions for less than $200,000.

On the upper side, the size of Federal funds transactions is limited by the legal restriction on loans to a single borrower. As a matter of policy, however, many banks prefer not to lend the legal maximum to a given bank, even though within the borrower's legal limit. The policy of some banks is to lend only part of the legal maximum to any borrower; others set a specific maximum for each borrowing bank on the basis of creditworthiness and perhaps also on the closeness of the correspondent relationship.

Handling of interest payment. Interest payments on repurchase agreements and buybacks are usually included in the repurchase price, but in most straight Federal funds transactions the interest is remitted separately. As indicated before, the most common method is simply to debit or credit correspondent balances. Then from time to time the bank owning such balances will transfer additional funds into or out of the account in order to maintain it at a normal working level. Where no correspondent relation exists, interest payments are generally made by a treasurer's or cashier's check. Infrequently, interest will be transferred by wire, but the high charges on small amounts have generally discouraged this means of payment.

At the local level, the interest is sometimes included with the principal and sometimes not. In Chicago, for example, even local transactions are executed by wire transfer and the interest is usually included in the return payment wire. Similarly, where transactions are carried out by an exchange of checks (one a draft on Reserve Bank balances and the other a clearing-house check), the borrower's check is frequently written to cover both interest and principal. On the other hand, when the transfer is made by a letter of instruction to the Reserve Bank, interest is often handled separately by a treasurer's check.

Facilities for bringing buyers and sellers together. While the Federal funds market is clearly national in scope, it is not highly organized at either the national or the regional level. It is much less formal, for example, than the stock exchanges, where the price and volume of each trade are recorded and immediately published. It is also a looser organism than the Government securities market, in which dealers take positions in the "commodity" to be traded, and compete directly with one another through the posting of firm quotations of both bid and offered prices. The Federal funds market has no group of recognized traders of this sort, and rates are arrived at, for the most part, by direct negotiation and then reported only informally, if at all, to other parties in the market.

Nevertheless, the activities of several institutions serve to register the shifting relationship between demand and supply, as well as actually to bring together an important number of buyers and sellers of Federal funds. At the national level, these functions are performed by the stock exchange firm in New York City, which acts as a broker in Federal funds, and by two or three large New York City banks that, within limits, "make markets." To a less marked degree, the network of correspondent relationships among banks all over the country fulfills a similar role. Formal arrangements in local and regional markets for putting buyers and sellers in touch with each other have practically disappeared as both facilities and trading have developed on a national basis.

The stock exchange firm in New York City which is active in the Federal funds market acts purely as a broker, merely serving the function of putting potential buyers and sellers in touch with each other. The firm operates on a national scale and works mostly with banks. Transactions are occasionally handled for dealers and even for corporations. Mostly this broker handles straight Federal funds transactions, but occasionally puts together repurchase agreements or buybacks, which sometimes run for more than one day, especially if the parties concerned are a dealer and a bank.

Throughout each day, buyers and sellers report their needs to the broker who attempts to put the two sides together as quickly as possible. In some cases the broker is given discretion as to rate and amount; in other cases limits may be imposed, the limit on amount being related to bank legal loan limits or to the amount of unsecured credit the selling bank is willing to extend to other banks.

Reimbursement for the broker's services in most cases is through stock and bond business given the firm, although a few customers prefer to pay a commission on Federal funds transactions.

The data collected in November 1956 indicated that the New York broker arranged Federal funds transactions for banks in all parts of the country. There was considerable regional variation, however. In some Federal Reserve districts, banks used the broker mainly when purchasing Federal funds; in others, the firm was used for both purchases and sales, and in one district banks turned to the broker principally when selling Federal funds.

A slightly different but also important role is played by one of the large banks in New York City. Each day this bank undertakes to make a two-way market which serves both buyers and sellers of Federal funds. One or two other banks perform a similar role from time to time, but in recent years only the one New York City bank has "made" markets almost daily. Its coverage of banks throughout the country is extensive. Generally speaking, this bank will purchase Federal funds in appropriate amounts from any bank—but its sales of Federal funds are confined to banks for which appropriate loan lines have been determined. The bank does not normally buy from or sell to other New York City banks directly but deals with them through brokers.

Closely related to the Federal funds market is this same bank's practice of making one-day loans to Government securities dealers at a preferential rate. These loans, collateraled by Treasury bills, are extended and repaid in Federal funds. They are normally made only when the bank has Federal funds available on balance. The preferential rate on such loans is usually slightly above the Federal funds rate but below the rates on other dealer loans secured by Government securities.

The correspondent banking system also plays a significant role in the Federal funds market. Some of the larger banks, including six of the major banks in New York City, buy and sell Federal funds not only to meet their own reserve needs but also as a service to customers. These banks try to fit the two objectives together, but unless their reserve positions are extreme, they stand ready to trade with an established customer even if it costs them to do so. In fact, one of the largest advised its correspondents in writing that as long as its own position is not badly unbalanced, it will meet any request or absorb any offer for Federal funds.

At the regional level, a large California bank has to some extent established itself as a clearing center for West Coast banks. This may stem, however, from the time lag which leaves only an hour or so between the beginning of business hours in the Pacific Zone and the close of Federal funds trading in New York City. Once this period has passed, the West Coast banks apparently turn to trading among themselves, thus enlarging the potential role that can be played by a bank willing to trade on both sides of the Federal funds market.

The attitude of the larger banks toward buying and selling Federal funds as a service to their smaller correspondents varies rather widely. At one extreme is the relatively small number of large banks, described above, which are willing to accommodate correspondents even if it means entering into transactions contrary to their own reserve needs. A more moderate position, which probably includes a larger number of banks, is one in which a bank is willing to enter into transactions with its correspondents only when it needs to adjust its own reserve position. At the other extreme is a group of banks which are quite reluctant to start the practice of buying and selling Federal funds as a service to their correspondents, and do so only when forced to by competition. Their reluctance stems from the burden of handling a large number of transactions for small amounts, and a desire to avoid either the risk of making unsecured loans to all small correspondents, or the ill will that would probably result from a policy of selectivity on the basis of creditworthiness. Also, some banks prefer making secured loans to their smaller correspondents to the uncertainty involved in selling them Federal funds at fluctuating rates.

The correspondent system facilitates the functioning of the Federal funds market in other ways. Although data are not available on this point, interviews left the impression that a substantial part of the volume of transactions is among banks having a correspondent relationship. Smaller banks often contact their correspondent for information about banks offering or bidding for Federal funds, and to check on the "going" funds rate. Nonmembers occasionally buy or sell Federal funds through their accounts with correspondents that are members of the Federal Reserve System. As already mentioned, correspondent balances are also an important medium for the payment of interest on Federal funds transactions.

On the strictly local level, there have been some relatively formal clearing centers in the past, but these have now largely faded away. There has been a tendency for regional facilities to wane as national facilities developed and as the market broadened. Some banks turned from the local to the national market because they were frequently unable to meet all of their requirements in the local market. Local banks are often ranged on the same side of the market—all sellers and no buyers, or vice versa. In addition, the development of outside alternatives lured away some banks that prefer not to disclose their positions to local competitors. In some cases, time differences may cause banks to prefer the national instead of a local market. Some banks do not get a clear estimate of their reserve positions until an hour or two before the market closes in New York. There is a tendency for such banks to turn directly to the national market instead of wasting valuable time contacting local banks which may be unable to meet their needs.

Regional and interregional pattern of transactions. The most striking feature of the regional pattern of Federal funds activity is, as might be expected, the dominant position of New York City. Although the large proportion of transactions in New York City in November 1956 may have been attributable in part to the concentration of reserve pressures on the New York banks, there is no doubt that New York City is normally the hub of a nationwide market in Federal funds. In the November survey, banks or dealers in New York City were parties to the overwhelming mass of Federal funds transactions—transactions which generated a sizable net flow of funds into New York City from the rest of the country. Furthermore, through the facilities of the New York broker an additional undetermined quantity of transactions was arranged through New York City without involving New York banks or dealers. The correspondent relationships of some New York City banks also served a clearing function, connecting out-of-town banks with one another through New York.

The importance of New York was confirmed by the November data.[2] Banks in the New York District accounted for 62 per cent of total purchases and 35 per cent of total sales of reporting banks for the month. Banks in this district, however, had only about one-fourth of the total assets of all member banks. Reporting banks in the San Francisco District accounted for 18 per cent of total sales and 12 per cent of the purchases. Banks in the Cleveland District were important sellers, contributing 11 per cent of total sales. Sales were considerably more evenly distributed among the Federal Reserve districts than were purchases. Three districts accounted for more than four-fifths of the total purchases in November—New York 62 per cent, San Francisco 12, and Chicago 9.

There was a substantial amount of Federal funds trading within New York City. Such transactions in November 1956 accounted for more than 20 per cent of the total volume of transactions in Federal funds. The large volume of trading within the city reflected not only the transfer of Federal funds between banks, and banks and dealers, but also purchases from agencies of foreign banks, savings banks, and others not included in the survey. The latter confine their Federal funds transactions almost entirely to New York City.

All reporting New York City banks and dealers, however, bought and sold Federal funds outside as well as within the city. Out-of-district purchases of New York City banks in November ranged between two-fifths and four-fifths of their total purchases, the average being considerably more than one-half. Sales showed a similar pattern. On a few days, all sales of New York City banks were to out-of-town buyers.

The pattern of New York dealer transactions was similar to that of the banks. The rest of the country provided generally about one-fifth or more of total dealer purchases of Federal funds. The portion of dealer sales taken by the rest of the country varied quite widely, with 100 per cent of such sales being absorbed by out-of-town buyers on one day. Generally, however, most of the Federal funds disposed of by dealers went to banks and other dealers within the city, and on three days during the period their entire sales were made to New York City buyers.

The transactions of banks and dealers together served, on bal-

[2] Data on purchases and sales used in this section were adjusted to include weekends and holidays. Thus, transactions made on a Friday or on a day preceding a holiday run until the next business day.

ance, to shift Federal funds into New York City during most of November 1956. The New York District was a net purchaser of Federal funds from the rest of the country on 17 days—all but two of the business days during the period. On 15 days when New York was absorbing funds from the rest of the country, the net inflow represented well over one-half of the total net interdistrict flow of funds, with the proportion usually ranging around 70 to 80 per cent of the total.

The only other local markets of importance are San Francisco and, to a lesser extent, Chicago. Except for these relatively small local markets, a large part of the flow of Federal funds is to and, to a lesser extent, from New York City.

In November 1956, each of the other districts was a net supplier of Federal funds to New York City on at least 9 of the 19 days on which New York banks were open for business. For six Federal Reserve districts, there was a net flow of funds to New York City on at least four out of five days. The districts with the largest percentages of total sales going to New York City were: Cleveland 92, Richmond 92, Kansas City 65, St. Louis 62, Dallas 61, Boston 60, Atlanta 60, Philadelphia 57, and Minneapolis 56. Table 4 on the following page shows a distribution of Federal funds purchases and sales by survey banks according to the location of the seller or buyer.

On a number of days, other districts than New York also bought more Federal funds than they sold. Next to New York, which was a net buyer on 17 of the 19 business days, were the Chicago and Dallas Districts with 15 and 12 days, respectively; the Kansas City and Atlanta Districts, 10 days each; and Philadelphia, 9 days. The remaining six districts were net buyers on less than one-third of the days.

Atlanta, Richmond, and Cleveland District reporting banks, in the order listed, acquired the largest percentages of their total purchases from New York City. Other district banks which obtained over one-half of their total purchases from New York City were Kansas City, St. Louis, Minneapolis, Dallas, and Boston.

In summary, a substantial part of Federal funds trading was done locally in only three Federal Reserve districts. In New York, nearly one-half of the purchases and sales were within the district, mainly within New York City. Banks in the San Francisco District also

TABLE 4
PURCHASES AND SALES OF FEDERAL FUNDS BY SURVEY BANKS
NOVEMBER 1956

[Monthly totals for Federal Reserve districts. Dollar items in millions]

Federal Reserve district	Total[1]	As a percentage of purchases or sales		
		Within district	New York City	Elsewhere
Purchases				
Boston	$ 557	12	52	37
New York	14,056	10	35	55
Philadelphia	698	20	35	45
Cleveland	264	6	71	24
Richmond	374	—	81	19
Atlanta	169	—	83	17
Chicago	2,103	24	29	47
St. Louis	519	29	60	11
Minneapolis	164	2	57	41
Kansas City	542	11	66	23
Dallas	687	6	54	40
San Francisco	2,654	53	27	20
Sales				
Boston	1,344	4	60	36
New York	6,672	9	39	52
Philadelphia	949	12	57	31
Cleveland	2,069	([2])	92	8
Richmond	788	([2])	92	7
Atlanta	146	—	60	40
Chicago	1,150	37	45	17
St. Louis	699	2	62	36
Minneapolis	384	1	56	43
Kansas City	681	16	65	19
Dallas	632	6	61	33
San Francisco	3,317	38	44	19

[1] Purchases and sales adjusted to include weekends and holidays.
[2] Less than one-half of 1 per cent.
NOTE. — Details may not add to totals because of rounding.

did a substantial amount of trading with each other, over one-half of total purchases and nearly two-fifths of the sales being within the District. In Chicago, too, over one-third of the sales and nearly one-fourth of the purchases were among District banks. Thus, sizable local markets have developed only around the two largest financial centers, and in San Francisco, where the wide time differential is an important stimulant to local trading.

Data on the Federal funds transactions of the large New York City banks, which are available since November 1956, indicate that their purchases of Federal funds continued in about the same volume under conditions of easy money. Their sales, however, increased somewhat, as well as the number of days they were net sellers. Data available for banks in some of the Reserve districts also indicated an increase in the volume of Federal funds transactions and in the number of participating banks following the development of easier money conditions in the fall of 1957. The increase in volume probably reflects in part the greater availability of Federal funds in a period of easy money.

V. Bank Use of Federal Funds Market

The significant role played by Federal funds in the short-term adjustment of member bank reserve positions emerged clearly from the data collected in November 1956. Purchases of Federal funds by the 150 banks reporting in the survey averaged $760 million daily as compared to daily average borrowings from the Reserve Banks of $555 million. Indeed, although reporting banks accounted for less than three-fifths of the total assets of all member banks, their purchases of Federal funds were greater than average daily borrowings of all member banks from the Reserve Banks. Average daily purchases of Federal funds by reporting banks were equivalent to more than 6 per cent of their required reserves.

This chapter is devoted mainly to why and how banks which were active in the Federal funds market used the market as compared to alternative reserve adjustment media. For banks with excess reserves, such alternatives consist mainly of the purchase of Treasury bills or other short-term investments; for those with a reserve deficiency, the principal alternatives are the sale of Treasury bills or other securities, and borrowing from the Reserve Banks.[1]

The principal reasons for bank preference for adjustment in the Federal funds market have already been indicated in preceding chapters. The market makes possible a closer adjustment to daily variations in reserve positions and, correspondingly, greater flexibility in the management of bank assets. There is, however, a great deal of variation in the extent to which participating banks use the Federal funds market and in their attitudes toward its use. Wide variations in attitude prevail as to the extent to which buying or selling Federal funds is considered advantageous and the conditions under which such operations appear to be more or less attractive. Some banks participating in the market only sell Federal funds; others are

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[1] Other alternatives and their limitations are discussed in Chap. II, pp. 13–16.

principally buyers; and some stand ready to buy or sell at any time. Some banks engage only in straight Federal funds transactions (unsecured, overnight loans); others use only repurchase agreements or buybacks overnight or for longer periods.

Bank attitudes toward, and uses of, the Federal funds market presented in this chapter are based largely on interviews with officials responsible for managing the money positions of the banks which reported in the November 1956 survey, together with whatever statistical support was provided by the survey data. Any appraisal of attitudes reflected in the interviews as to relative emphasis on the various factors involved must of necessity be a subjective process. The statistical data, while illustrative of use of the market for a short period, are not a reliable measure of any "typical" behavior of individual banks or groups of banks. Also, the attitudes of the banks interviewed may be subject to bias in that they are representative of the banks which were active participants in the Federal funds market. It is to be expected that such banks would look favorably on this market as a means of reserve adjustment.

DECISIONS TO USE THE MARKET

The principal elements entering into bank decisions to use the Federal funds market rather than alternative media may be reviewed from the standpoint of (a) bank preference for selling Federal funds, and (b) bank preference for buying Federal funds.

Why banks prefer to sell Federal funds. Why does a bank sell Federal funds in preference to using other short-term outlets for temporary surpluses, such as the purchase of Treasury bills, acceptances, and commercial paper, or the extension of overnight loans to securities dealers? The answer to this question is explored primarily in terms of the alternative use of the Federal funds market or the Treasury bill market, as bills are by far the most widely used and easily available form of short-term instrument. The larger banks, mostly in New York City and Chicago, use loans to Government securities dealers at times as a limited alternative. In recent years, however, dealers have relied less on such loans for their financing as the New York rates on dealer loans have not been fully competitive with the cost of financing from other sources. Important among these other sources are repurchase agreements with out-of-town banks and large business corporations.

Interviews with bankers indicated that the major considerations in choosing among alternatives were: (1) flexibility and convenience, (2) rate of return, and (3) promotion of the market.

Flexibility and convenience. The most important advantage of the Federal funds market is its flexibility. It enables a bank to maintain a more closely balanced position each day—with a minimum of risk—than any other money market instrument. Ease of processing encourages participation in the Federal funds market, and affects the form of Federal funds transactions used—straight Federal funds, repurchase, or buyback.

In short, most of the banks interviewed indicated that the fullest employment of their resources is a major objective of reserve management; and that the Federal funds market is a flexible and convenient outlet for temporary surpluses.

Banks which operate actively in Federal funds make a daily analysis of their money positions. Typically, the participating banks try to keep their reserve positions in balance day by day over the reserve week, or at least to limit any cumulated deficit early in the week to an amount expected to be covered by an inflow of funds between Monday and Wednesday. The pressure to keep fully invested prompts banks that manage their reserve positions closely to sell today's excess in the market unless they are fairly certain of a deficit position tomorrow. Because of the spread between bid and asked prices and rate fluctuations, and the more complicated bookkeeping and processing involved, Treasury bills and other short-term paper and securities are not considered a real alternative to Federal funds for use of strictly one-day money. Banks which have large but unpredictable swings in cash positions thus tend to regard the Federal funds market as the more suitable medium for disposal of a temporary surplus.

The longer an excess is expected to continue, the more willing the banks are to place all or at least a part of it in Treasury bills or other short-term paper, relying on the Federal funds market to absorb fluctuating amounts above what they are fairly sure to have available for at least a few days. Even banks which normally carry an excess day after day, however, often prefer to sell Federal funds.

The Federal funds market enables them to employ varying amounts as excess reserves fluctuate from day to day. In addition, most Federal funds transactions normally involve less effort and clerical cost than bill transactions.

In a sense, buyback and repurchase arrangements combine the features of bill purchases and Federal funds sales. They eliminate the risk of market fluctuations in bill rates and the risk inherent in an unsecured loan. On the other hand, such arrangements are less convenient for the large banks, which often regard them as not worthwhile for just one day.[2]

Rate of return. The relative rate of return is another factor influencing willingness to dispose of excess reserves in the Federal funds market. A major function of reserve management is the maximization of bank earnings. Earnings, in turn, reflect not only interest rates but market losses and high operating and processing costs. Many of the banks contacted in the fall of 1956 indicated that a better rate on Federal funds than on bills, and fluctuations in bill rates which resulted in an uncertain return, were major influences in their choice of the Federal funds market for the disposition of excess reserves.

The incentive to sell Federal funds is naturally greater when the rate is high than when it is nominal. In fact, numerous banks expressed unwillingness to sell Federal funds when the rate drops below ½ of 1 per cent because costs absorb most of the return. Despite this reluctance, however, the volume of transactions at rates below ½ per cent is sometimes substantial in periods of easy money. Only a small return is needed to cover "out-of-pocket" expenses.

Timing of sales is often influenced by fluctuations in the Federal funds rate. Instead of selling their surpluses on Wednesday when the rate is likely to be lower, some of the country banks, having a semimonthly reserve computation period, often wait until Thursday when dealers' needs, reflecting payment for their awards of the weekly Treasury bill offering, normally exert upward pressure on rates. A few banks indicated they might broaden their list of approved borrowers in case of a decline in the Federal funds rate,

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[2] See Chap. IV, pp. 56–58.

but this is not the common practice. There is a tendency, however, for sellers to try to dispose of Federal funds as early as possible in the day, unless the opening rate is low, in case the rate weakens as trading progresses.

Irrespective of the level and range of fluctuations in the Federal funds rate, money-position managers can be expected to measure the rate against the returns available on alternative uses of excess reserves. As the Treasury bill is the principal alternative for most of these banks, the Federal funds and Treasury bill rates are compared. When the bill rate is below the Federal funds rate, there is an inducement to sell Federal funds instead of buying bills. Some banks surveyed in November 1956 became active sellers of Federal funds when such conditions prevailed.

On the other hand, when the bill rate is above the Federal funds rate, especially if this relationship occurs frequently or is for an extended period, banks tend to shift back to bills. Such shifts, however, are mostly by banks with consistent surpluses, or at least with excesses expected to be available for more than just a day or two. Regardless of rate advantages, most banks do not consider purchases of bills or other short-term Government securities appropriate for day-to-day reserve adjustments because of the spread between bid and asked prices.

The increased fluctuation in bill rates in recent years has probably been more important than the comparative levels of rates in influencing choice between the bill and Federal funds markets. With day-to-day fluctuations in bill rates, a "misguessed market" trend can lead to a principal loss on a quick bill turnaround—a loss which management can readily observe. An analogous error in the Federal funds market would simply mean a smaller return. In periods of tight money, the Federal funds rate usually stays close to the discount rate and is likely to be more stable than the bill rate; in periods of easy money, the Federal funds rate fluctuates more widely, often declining to a nominal rate of ⅛ of 1 per cent. At this rate, the supply tends to dry up as the return hardly justifies the effort and expense of locating a buyer.

Promotion of the market. Many banks, recognizing the longer run value to them of the function performed by the Federal funds market, are inclined to give it continuous support. By promoting development of a broad market, the banks help to make Federal funds a more dependable medium for meeting reserve deficiencies when they occur. This is probably of more vital concern to banks which not only buy and sell to meet their own reserve needs but also provide or absorb Federal funds as a service to correspondent customers. A broad Federal funds market is especially useful to these "accommodating" banks, as will be explained in a subsequent section of this chapter.

Most banks which use the market primarily for adjusting their own reserve accounts are also cognizant of the advantages of a broad market and of maintaining close contact with the market. A bank may therefore choose to fulfill another bank's need for Federal funds, even though alternative uses are slightly more profitable immediately, in anticipation of a return favor at a time when reserve conditions are reversed. More important are the indirect gains in terms of improved correspondent relations, larger correspondent balances, and a better working knowledge of money and economic conditions fostered by regular contacts and dealings in the Federal funds market. The fact that some banks in financial centers expressed a willingness to sell Federal funds at nominal rates toward the end of the day, often to a neighboring bank, indicates the importance attached to promotion of this market, as well as the absence of a really practical alternative use of overnight money.

Why banks prefer to buy Federal funds. Why does a bank purchase Federal funds in preference to utilizing other sources in meeting a temporary reserve deficit? In meeting such a deficit, the principal alternatives to the purchase of Federal funds are the sale of Treasury bills and other short-term securities or use of the Federal Reserve discount window. Small country banks may draw on correspondent balances or borrow from city correspondents for longer periods. The larger banks, mainly in New York City, which make loans to Government securities dealers presumably have the additional alternative of reducing their dealer loans which are subject to call. In practice, however, such loans are rarely called for immediate payment. Moreover, such calls would not be an alternative for New York City banks desiring to obtain reserves the same day since most call loans are made and repaid in clearing-house funds. Dealer loans by banks in other cities, such as Chicago, normally would be repaid in Federal funds sent from New York by wire transfer. Banks are generally reluctant, however, to call dealer loans on short notice, preferring instead to raise the rate on renewals, which often results in repayment. In any event, dealer loans are currently a ready alternative for only the few banks which make such loans in significant amount.

For the larger banks, then, the principal sources of funds for meeting a temporary deficit remain the purchase of Federal funds, the liquidation of short-term securities, or borrowing from the Federal Reserve Bank. Choice among these media is largely dependent upon such considerations as (1) bank attitudes—how banks view the differing sources, (2) the availability of the various sources, and (3) their relative costs.

Bank attitudes toward the differing sources. A bank's own appraisal of the advantages and disadvantages of utilizing the discount window, the Federal funds market, or liquidating bills (assuming availability) is a major factor influencing immediate decisions. In part, this appraisal revolves around a bank's basic attitude toward borrowing—with particular reference to borrowing from the Federal Reserve; in part it reflects more pragmatic considerations such as convenience and relative costs.

Bank willingness to use the discount window is, in many instances, a primary factor affecting the choice among sources of funds. Interviews with bankers confirmed the reality of bank "reluctance to borrow" from the Reserve Bank, at least in terms of expressed banker attitudes. Most banks expressed a definite preference for use of the Federal funds market. In contrast, however, a minority indicated they prefer the Federal Reserve as a source of borrowed funds, although they use the Federal funds market regularly to dispose of funds. Between these extremes were various shadings of view, depending on the frequency and magnitude of reserve deficiencies, individual bank policies toward indebtedness, and differing interpretations of System discount policy.

Some of the banks interviewed apparently have no hesitancy about borrowing from a Reserve Bank and prefer the discount window to the Federal funds market, or to liquidating securities, particularly in a declining market. In this group are banks which never buy Federal funds and banks which buy them only when there is a rate advantage. The advantages in using the Federal Reserve discount window cited by this minority group of banks included:

Convenience. Notes can be prepared in advance and collateral is already in safekeeping. Thus, borrowing from the Reserve Bank is easier than trying to locate Federal funds, particularly when they are scarce.

Timing. Can borrow from the Reserve Bank later in the day. Time differences between New York and the banks in Western districts make this particularly important in certain cases.

Dependability. A more dependable source and can borrow the exact amount needed, which may be in excess of the legal limit that can be borrowed in the market.

Cost. Even when the Federal funds rate and the discount rate are nominally the same, borrowing at a Reserve Bank is slightly cheaper because interest is figured on a 365-day basis instead of 360 days as in the case of borrowing Federal funds.

As indicated, however, both the data and the individual bank interviews revealed that the majority of the banks surveyed are reluctant to borrow at the discount window; if funds are needed they take advantage of every opportunity to obtain them in the market and come to the Federal Reserve discount window only as a last resort.

The principal reasons expressed by the majority of banks which favored purchasing Federal funds were:

Convenience. Funds can be located in the course of ordinary telephone contacts.

Relationship with Federal Reserve. This includes avoidance of "red tape" in borrowing, and a desire to reserve the discounting privilege for emergencies.

Cost. Federal funds are cheaper at times, and continuous contact with the market makes it possible to take advantage of the rate differential.

Promotion of correspondent relationships. The Federal funds market provides an opportunity to accommodate customers and attract new ones.

Apart from the basic attitudes of banks toward borrowing from the Federal Reserve, convenience and cost are seemingly the most important practical factors. It is obvious from the above that the "convenience" of the discount window and of the Federal funds market is appraised differently among bankers. For example, in one major city each of two large banks operating directly across from one another—one normally utilizing the discount window, and the other purchasing Federal funds to adjust—gave as the principal reason that it was "mechanically easier."

Availability of alternative sources. The availability of alternative sources of funds to meet a deficit is another major factor influencing choice, particularly with respect to the possible use of Treasury bill sales. Bill portfolios may be so low as to limit the practical usefulness of this alternative, especially in the case of the largest banks. In 1956 and most of 1957, for example, such banks held relatively few bills, and occasionally the bill rate was above the discount rate. Thus liquidating bills was not an advantageous method of meeting reserve deficiencies. Following the change to easy-money conditions in the latter part of 1957, however, these banks acquired more bills and reserve adjustments through the sale of bills became more frequent.

Availability of Federal funds is influenced by several factors. As discussed previously, it depends in part on the amount and distribution of excess reserves, as well as upon the contacts of a particular bank. Availability tends to be less in periods of tight money and greater in periods of ease. The magnitude of the deficit to be covered is another factor limiting recourse to the Federal funds market under certain conditions. Frequently, banks may not know their reserve needs until too late in the day to obtain Federal funds. As a result, banks may be forced to turn to the discount window, at least for residual needs. Another factor limiting the "availability" of Federal funds is that of borrowing limits which, again, may not permit a bank to cover its entire deficit in the Federal funds market.

Finally, willingness to use the discount window may vary, depending upon a bank's borrowing record, that is, whether a bank has been a continuous borrower at the discount window. The Federal Reserve System considers continuous borrowing an inappropriate use of the discount window and a matter for discount administration by the Reserve Bank. As a result, Federal funds may be particularly attractive to a bank which, for various reasons, may need to borrow frequently.

In practice, many banks which are heavy purchasers of Federal funds are also fairly regular customers of the discount window. Practical considerations related to availability influence the use of one source as opposed to the other or a combination of both at any given time. These include the time of day the deficiency arises, that is, whether Federal funds are still available, the size and expected duration of the deficit, and the bank's recent record of borrowing from the Federal Reserve.

To meet small deficits, the discount window is preferred by some banks, especially if they do not have a record of continuous borrowing. If a large amount of funds is needed, banks which normally buy Federal funds obtain as much as possible in the market (up to their borrowing limits), and then turn to the Federal Reserve for the remainder. If Federal funds are available only in limited amounts, particularly among established contacts with lending limits large enough to be of help, borrowing at the discount window may be preferable. A bank which has been a large and continuous user of the discount window, however, may deem it worthwhile to execute a good many small Federal funds transactions if by so doing it can "get out of the Fed" for a while.

Banks, when almost continuously in need of funds, are likely to take advantage of any weakening in the Federal funds rate and thus benefit both by a cost saving and a chance to pay off indebtedness to the Reserve Banks, at least temporarily. Although none of the banks interviewed was an express advocate of continuous borrowing, a few were, in practice, continuous borrowers, including both borrowings in the Federal funds market and from the Federal Reserve. Banks with more or less chronic deficits return to the Federal funds market day after day to meet their needs, whereas banks with more balanced reserve positions and thus needing to borrow infrequently, often prefer discounting to take care of deficits which are expected to last more than a day or so. There are, of course, endless combinations of conditions which affect decisions at any particular time, but they do not alter the basic policies or attitudes of banks.

The extent to which banks can and do substitute Federal funds for discounting cannot be discerned from the survey data which covered only the month of November 1956. Some information on this practice was obtained from data on borrowings of individual banks in New York and Chicago for which Federal funds data were available over a longer period. Examination of the borrowing patterns of the banks in these centers which actively used both sources of borrowings indicated that:

(1) Few banks were continuous borrowers.

(2) Continuous borrowers preferred Federal funds. For the few banks which were in debt much of the time, borrowing from the Reserve Banks appeared to be *supplemental* to purchases of Federal funds. When needs were small they tapped only the Federal funds market.

(3) Despite a preference for borrowing from the Federal funds market, few "continuously" indebted banks could obtain all the funds needed in the market. These banks usually had to resort to the Federal Reserve discount window as well.

(4) Finally, examination of the records of Federal Reserve borrowings and net Federal funds transactions of money market banks showed relatively few instances where banks were able to break up extended periods of "continuous borrowing" from the Federal Reserve by substitution of Federal funds. Continuous borrowers (consecutive reserve periods) at the Federal Reserve were at the same time frequently net purchasers of Federal funds. Chicago banks were rarely able to meet all of their reserve needs in the Federal funds market. There were relatively more cases in which New York City banks were able to obtain sufficient Federal funds to meet their deficiencies for a number of weeks during a more or less extended period of indebtedness. However, most of them resorted to the discount window as well from time to time.

Relative costs. Although all of the banks included in the study were acutely cost conscious, the majority indicated that relative cost is only one of the considerations involved in deciding among alternative sources of funds. Experience indicates, however, that relative cost is at times an important reason for shifts in borrowing sources. During periods of differentials in discount rates among the Reserve Banks, banks in the districts where the discount rate is higher turn to the Federal funds market for a large part of their reserve needs to take advantage of a lower Federal funds rate.

Theoretically, when the highest yield bills are below the discount and Federal funds rates there is an inducement to sell bills rather than to borrow, either in the funds market or from the Reserve Bank. In practice, a bank which has a sufficient bill portfolio will probably choose to liquidate bills. Among the banks surveyed, several with relatively large bill portfolios indicated they would prefer to obtain funds by selling bills if the rate were lower than the discount and Federal funds rates. A few banks indicated that they would sell bills, or possibly longer investments, at a loss rather than borrow from the Federal Reserve.

The actual range of variation in the Federal funds rate substantiates the view that for some borrowing banks, rate considerations are secondary within certain limits. The hard core of discount-window users normally do not switch to Federal funds when there is a rate advantage. Nevertheless, market quotations for Federal funds, as well as conversations with bankers, indicate that few banks will pay more than the discount rate for Federal funds and few are totally indifferent to relative cost considerations.

USE OF MARKET IN NOVEMBER 1956 [3]

Bank use of the Federal funds market is directly related to bank reserve positions. If reserve pressures are spread fairly evenly among banks participating in the Federal funds market, there will be less activity than when both excesses and deficits exist in sizable volume. Moreover, the volume of trading is influenced by the distribution of excesses and deficits. Banks needing funds may not have established contacts with potential sellers, or much of the excess may be concentrated in banks which do not participate in the market or which have selling limits too small to be of much help to banks needing large blocks of funds. Thus the volume of transactions is likely to be relatively small when excess reserves are concentrated in country banks and reserve deficiencies in central reserve or reserve city banks. Country banks, especially the smaller ones, tend to "freeze" excess reserves. For various reasons, such as the relatively small amount held by an individual bank and lack of established contacts, these banks are less likely to dispose of excess reserves in either the Federal funds market or the bill market.

Interpretation of the November 1956 data requires consideration of the conditions then prevailing with respect to bank reserves and the money market.[4] Furthermore, the November data are inadequate for determining the relative use by banks of Federal funds compared to other reserve adjustment media. Data were obtained

[3] All data on Federal funds used in the tables in the remainder of this chapter were adjusted to include weekends and holidays. Thus, a purchase or sale on a Friday or on a day preceding a holiday runs until the next business day.

[4] See Chap. IV, p. 43.

on banks' Federal funds transactions but data on their transactions in Treasury bills and other instruments were not available. As a result, the data could not be directly related to uses of alternative media except for a comparison of Federal funds purchases and borrowing from the Reserve Banks.

The preceding discussion of factors affecting bank use of Federal funds focused primarily on the attitudes revealed in interviews with officers in charge of managing the money position of the banks which participate actively in the Federal funds market. The next section is based on the data collected in November 1956. It shows the frequency of bank use of the Federal funds market during the month and examines the patterns of use by banks with basically different motives—those which use the market only to adjust their reserve positions and those which use the market not only to adjust their reserve positions but to accommodate other banks as well.

Frequency of transactions among banks. Frequency of purchases in November 1956 tended to vary directly with size of bank. The average number of days that banks bought funds was 21 in Group A (assets over $1 billion), 11 in Group B (assets of $500 million to $1,000 million), 7 in Group C (assets of $250 million to $500 million), and 3 in Group D (assets under $250 million). All five of the banks that made purchases every business day during the month were from the two largest size groups. On the other hand, only one Group A bank and four Group B banks made no purchases during the month, as compared to one-third of the banks in each of the two smaller size groups.

The tendency toward more frequent purchases by the larger banks reflected, in part, the activity of the big New York City banks. These banks are frequent buyers of Federal funds. In November, the number of days Federal funds were purchased by the eight Group A banks in New York City averaged 28, compared to 17 for the thirteen Group A banks in other cities. Similarly, the number of days the four Group B banks in New York City made purchases averaged 18, compared to about 10 for the twenty-two Group B banks in other cities. No Group C bank and only one Group D bank from New York City was included in the study; however, even outside of New York City there was a marked tendency for the large banks to be more frequent buyers on balance than banks in the smaller size groups. For outside banks, the average number of days purchases were made was 17 for Group A, 10 for Group B, 7 for Group C, and 3 for Group D.

The larger banks not only purchased Federal funds more frequently but also in larger amounts. Group A banks and two of the Group B banks in New York City accounted for 84 per cent of total Federal funds purchases in November 1956. In fact, the concentration of buying at the large banks was more than merely proportional to their size. Total monthly purchases of Federal funds as a percentage of total assets amounted to 25 per cent for Group A and 31 per cent for Group B banks as compared to 11 per cent for Group C and 7 per cent for Group D banks. Much of this difference between the two larger and the two smaller size groups resulted from the concentration of buying in the large New York City banks. In particular, the relatively large purchases in Group B reflected mainly the activity of two New York City banks which accounted for nearly four-fifths of the total purchases of all Group B banks. Total monthly purchases of reporting New York City banks amounted to 32 per cent of total assets in Group A, and 157 per cent in Group B. For banks outside New York City, the corresponding figures were 18 and 7 per cent, respectively.

Unlike purchases, frequency of Federal funds sales did not reveal any clear trend by size of bank. The average number of days during November 1956 that Federal funds were sold was 11 for banks in Group A, 15 in Group B, 10 in Group C, and 10 in Group D. Frequency of sales among these size groups reflected two conflicting influences. On the one hand, of the banks participating in the Federal funds market, the larger banks are generally more active than the smaller banks. On the other hand, the smaller banks, when in the market, are more often sellers than buyers.

Although the larger banks tended to sell greater dollar amounts of Federal funds than the smaller banks, the difference was much less than on the buying side. Indeed, in proportion to size the smaller banks were the heaviest sellers. Total sales during the month expressed as a percentage of total assets were 9 per cent in Group A, 36 per cent in Group B, 22 per cent in Group C, and 39 per cent in Group D.

Adjusting and accommodating banks. Classification of survey banks according to basic motives in reserve management is perhaps more significant than classification by size. On this basis, the banks may be divided into two broad categories, namely, "adjusting banks" and "accommodating banks." The former buy and sell Federal funds only to adjust their own reserve positions; the latter in addition buy and sell as a service to their correspondents.

The term adjusting banks refers to banks which purchase or sell Federal funds almost exclusively as a means of making temporary adjustments in their own reserve positions. Of the 145 banks reporting Federal funds transactions in November, 133 can be regarded as adjusting banks.[5]

The adjusting group is divided into three separate subgroups. Group 1 consists of banks which reported only purchases of Federal funds in November 1956. These banks appeared to have more or less chronic reserve deficiencies and were typically buyers of Federal funds on balance. Group 2 banks—the majority—aim to maintain a balanced reserve position with neither persistent excesses nor deficiencies. Sometimes these banks are in the Federal funds market as buyers; sometimes as sellers. Group 3 consists of banks that sold but did not purchase Federal funds during the month. Some of the participating banks, especially the smaller institutions, aim to maintain a surplus position most if not all of the time. These banks, when in the market, are typically sellers of Federal funds.

These three subgroups of adjusting banks are not mutually exclusive, and even banks in the third subgroup occasionally experience a reserve drain of sufficient magnitude to result in a temporary deficit. Furthermore, individual banks may shift from one subgroup to another as conditions change or as management alters its policy. Nevertheless, the attitude of an adjusting bank toward alternative reserve adjustment media appears to be conditioned, at least in part, by the status of its reserve management policy and its reserve position over time.

Accommodating banks not only buy and sell to meet their own reserve needs but, in addition, provide or absorb Federal funds as

[5] Five banks included in the November 1956 survey reported no transactions, as previously indicated.

a service to their correspondents. There are relatively few accommodating banks—about a half-dozen in New York City and a few in other parts of the country. Of the 145 banks, only 12 clearly fell into the accommodating category; this classification was substantiated by information obtained in the interviews.

Table 5 shows the daily average volume of Federal funds transactions accounted for by the accommodating and adjusting banks during November 1956. It also shows the average number of days

TABLE 5
FEDERAL FUNDS ACTIVITY OF ACCOMMODATING AND ADJUSTING BANKS
NOVEMBER 1956

[Dollar amounts in millions]

Class of bank	Number of banks	Purchases			Sales		
		Average amount[1]	Percentage of total	Average frequency[2]	Average amount[1]	Percentage of total	Average frequency[2]
Accommodating......	12	$441	58	29	$212	35	21
Adjusting............	133	317	42	—	400	65	—
(1) Purchases only..	19	144	19	14	—	—	—
(2) Purchases and sales.........	71	173	23	8	252	41	11
(3) Sales only.......	43	—	—	—	148	24	15
Total................	145	$758	100		$612	100	

[1] Total of daily averages for banks in each group.
[2] Average number of days purchasing or selling in 30-day period.

Federal funds were purchased and sold by the banks in each classification. The 12 accommodating banks are conspicuous in the data because of their almost continuous operation on both sides of the market.[6]

Of the 133 adjusting banks, 43 were sellers only and are classified as Group 3 (surplus banks). The 19 Group 1 banks—purchases only—represent largely the banks which in that period at least experienced recurring reserve deficiencies. Group 2 includes the largest number, 71, and consists of banks which shifted from one side of the market to the other within the month. This is, of course, a less homogeneous group than the others.

Accommodating banks accounted for more than one-half of total

[6] There were, of course, some borderline cases where more or less arbitrary decisions had to be made in classifying banks. For instance, a few banks which reported very small purchases or sales against their own reserve positions were excluded from the "accommodating" category.

purchases and approximately one-third of total sales. On the average, they purchased Federal funds much more frequently than banks in the other groups, including those adjusting banks which made purchases only. The accommodating banks were also more frequent sellers of funds.

The variation in activity reflected, in part, the relative size of the accommodating and adjusting banks. As pointed out previously, the large banks made more extensive and continuous use of Federal funds than did the smaller banks. In fact, 10 banks accounted for 70 per cent of the average daily amounts of purchases in November. Moreover, there was a tendency for the large banks to be net purchasers of Federal funds and for the smaller banks to be net sellers.

Federal funds activity in relation to size of bank and required reserves is shown in Table 6.[7] In relating variation in activity to

TABLE 6
FEDERAL FUNDS ACTIVITY IN RELATION TO SIZE OF BANK AND REQUIRED RESERVES
NOVEMBER 1956

Class and size of bank[1]	Number of banks	Purchases[2]		Sales[2]	
		Percentage of required reserves	Average frequency[3]	Percentage of required reserves	Average frequency[3]
Accommodating	12	11.5	29	5.5	21
Over 1,000	7	8.2	29	3.2	18
500 - 1,000	4	42.3	30	2.8	27
250 - 500	1	15.0	26	20.8	26
Adjusting	133	—	—	—	—
(*1*) *Purchases only*	*19*	*6.2*	*14*	—	—
Over 1,000	4	5.9	25	—	—
500 - 1,000	3	8.5	20	—	—
250 - 500	8	7.3	11	—	—
Under 250	4	2.5	2	—	—
(*2*) *Purchases and sales*	*71*	*4.0*	*8*	*5.8*	*11*
Over 1,000	9	5.6	16	3.6	10
500 - 1,000	16	1.8	7	7.5	16
250 - 500	23	3.9	8	5.8	8
Under 250	23	4.0	7	9.7	12
(*3*) *Sales only*	*43*	—	—	*9.8*	*15*
Over 1,000	1	—	—	2.1	5
500 - 1,000	4	—	—	6.2	14
250 - 500	17	—	—	10.1	15
Under 250	21	—	—	19.8	15

[1] Size in terms of assets, in millions of dollars, as of Dec. 31, 1956.
[2] Daily average for banks in each group.
[3] Average number of days purchasing or selling in 30-day period.

[7] As pointed out previously, practically all of the member banks in the three larger size groups were included in the survey.

size, however, it should be remembered that the Federal funds mechanism is fundamentally a large-bank device and that all participating banks are "large" compared to the majority of banks in the United States. Only 10 of the participating banks had assets of less than $100 million. Also, it is significant that there are banks of all degrees of "bigness" in each of the adjusting groups.

In analyzing use of the funds market by individual banks, activity in relation to required reserves and size is more important than activity alone. Within each group the large banks tend to purchase more in proportion to size than the small banks; however, small banks tend to sell more than the large banks. This corroborates information obtained in the bank interviews. Despite these marked tendencies, there are variations. Of the fifteen banks with purchases averaging more than 10 per cent of required reserves, three had assets of more than $1 billion; four, $500 million to $1,000 million; six, $250 million to $500 million; and two, less than $250 million. The averages conceal the fact that for a good many of these banks the volume of transactions in Federal funds was small. For 40 per cent of the 102 banks reporting purchases in November, the average daily amount was less than 2 per cent of their required reserves; similarly, average daily sales were less than 2 per cent of required reserves for one-fourth of the 126 banks which sold Federal funds.

Use of Federal funds and borrowings. Of the 145 banks reporting Federal funds transactions in November 1956, 87 banks, or 60 per cent, were in debt to the Federal Reserve Banks some time during the month. Most of the reporting banks also purchased Federal funds.

As one would expect, buying Federal funds and borrowing from the Reserve Banks were closely related to the banks' reserve positions during the month. Table 7 shows that all of the Group 1 banks which only purchased Federal funds had a net deficit position for the month; that the number of Group 2 banks was fairly evenly divided between net surplus and net deficit positions; and that most of the Group 3 banks with sales only had net surplus reserve positions.

A comparison of the extent to which reporting banks used bor-

TABLE 7
NET SURPLUS OR DEFICIT RESERVE POSITIONS OF SURVEY BANKS
[Based on daily averages for November 1956]

Surplus or deficit	Accom-modating banks	Adjusting banks (1) Purchases only	Adjusting banks (2) Purchases and sales	Adjusting banks (3) Sales only
Number of banks:				
Net surplus or deficit	12	19	71	43
Net surplus[1]	5	—	39	36
Net deficit[2]	7	19	32	7
Percentage ratio of net deficit to required reserves of deficit banks:				
Under 5	2	2	13	4
5 - 9.9	2	2	10	1
10 - 25	1	11	9	2
Over 25	2	4	0	0

[1] Sales of Federal funds exceeded purchases plus borrowing from Federal Reserve.
[2] Purchases of Federal funds plus borrowing from Federal Reserve exceeded sales.

rowing from a Reserve Bank and purchases of Federal funds is shown in Table 8 on the following page.

The data reveal a striking contrast in the use of Federal funds and Federal Reserve borrowings by the accommodating and adjusting banks. The accommodating banks relied much less on borrowings from the Federal Reserve than did the adjusting banks in Groups 1 and 2—those which purchased Federal funds. Only one-half of the accommodating banks borrowed at any time during November, and the largest daily average amount borrowed by any one of them was 6 per cent of its required reserve. On an average daily basis, each of the accommodating banks purchased larger amounts of Federal funds and purchased more consistently than it borrowed from the Federal Reserve.

Accommodating banks also relied much less on Federal Reserve borrowings than the adjusting banks (Group 1) which purchased but did not sell Federal funds. Possible explanations for this difference are: the attitude of management toward borrowing as compared to buying Federal funds; the probability that the two-way trading activities of accommodating banks afforded them access to

TABLE 8
COMPARISON OF FEDERAL FUNDS PURCHASES WITH BORROWING FROM FEDERAL RESERVE BANKS
NOVEMBER 1956

Survey banks and borrowing banks	Accommodating banks	Adjusting banks		
		(1) Purchases only	(2) Purchases and sales	(3) Sales only
Total number of survey banks	12	19	71	43
Number of survey banks borrowing from F.R. Banks	6	19	46	15
All survey banks				
Daily average purchases:				
In millions of dollars	441	144	173	—
As average percentage of required reserves	11.5	6.2	4.0	—
Daily average borrowings from F.R. Banks:				
In millions of dollars	84	311	120	20
As average percentage of required reserves	2.2	13.4	2.7	1.4
Average frequency:				
Purchasing Federal funds—				
Days[1]	29	14	8	0
Reserve weeks	4	3	2	0
Borrowing from F.R. Banks—				
Days[1]	4	15	5	2
Reserve weeks	1	3	1	1
Borrowing banks				
Daily average purchases:				
In millions of dollars	212	144	112	—
As average percentage of required reserves	8.9	6.2	3.7	—
Daily average borrowings from F.R. Banks:				
In millions of dollars	84	311	120	20
As average percentage of required reserves	3.5	13.4	4.0	3.2
Average frequency:				
Purchasing Federal funds—				
Days[1]	29	14	9	0
Reserve weeks	4	3	2	0
Borrowing from F.R. Banks—				
Days[1]	8	15	7	7
Reserve weeks	2	3	2	2
Total daily average borrowings (F.R. Banks and Federal funds):				
In millions of dollars	296	455	232	20
As average percentage of required reserves	12.4	19.6	7.7	3.2

[1] Number of days in 30-day period.

a better supply of Federal funds; and the easier basic reserve positions of the accommodating banks (see Table 7).

Borrowing from the Federal Reserve Banks was greatest among the adjusting banks, which also relied most on purchasing Federal funds. It was least among the banks which did not buy Federal funds at all. This apparently reflected differences in basic reserve positions more than preference for, or prejudice against, borrowing from the Reserve Banks. Daily average borrowings from the Federal Reserve by Group 1 banks, which purchased but did not sell Federal funds, were more than double their Federal funds purchases and accounted for nearly 60 per cent of the combined average daily borrowings of all survey banks. Over 80 per cent of the borrowings of Group 1 banks was accounted for by three of the largest banks in the country, located in New York City and Chicago. These three banks also accounted for more than two-thirds of the Federal funds bought by the 19 Group 1 banks.

The adjusting banks which both bought and sold Federal funds during the month acquired more of their reserves from the funds market than from the Federal Reserve Banks, and 25 of these banks did not borrow at all. In Group 2, banks which made use of both sources, Federal funds purchases exceeded borrowings for about one-half of the banks. Because of greater use of the discount window by some of the larger banks, however, Group 2 banks which borrowed from the Federal Reserve borrowed more on balance than their purchases of Federal funds.

These data on purchases of Federal funds and borrowing from the Reserve Banks during November, combined with the information acquired through the interviews, point to the following conclusions:

1. Accommodating banks relied less on the discount window than adjusting banks.
2. Adjusting banks (Group 1), which purchased but did not sell Federal funds, were the most active users of the discount window. Banks almost continuously in a deficit position cannot always obtain sufficient funds from the market to satisfy their needs. These banks usually purchased Federal funds before turning to the Federal Reserve, but actually covered the largest portion of their deficits by borrowing.
3. Adjusting banks which needed funds infrequently tended to borrow from the Federal Reserve.
4. Adjusting banks which were part-time buyers of Federal funds sometimes resorted to the discount window but could usually get a large part of their needs in the Federal funds market.

There is no evidence that banks deliberately borrowed from the Federal Reserve in order to sell Federal funds. Only seven banks reported sales of Federal funds in November on days they were in debt to their Reserve Banks, and 10 of the 25 instances were on Wednesdays—the last day of the reserve computation period. This timing, as well as information obtained in the interviews, suggests that a sudden shift in reserve position was responsible.

Adjusting banks' use of the market. Although use of the market by adjusting banks was covered in general terms in the preceding discussion of alternative uses by adjusting and accommodating banks, some additional detail on purchases and sales of Federal funds by groups of adjusting banks may be useful. Table 9 shows frequency of Federal funds transactions of adjusting banks and daily average purchases and sales in relation to required reserves.

TABLE 9
FEDERAL FUNDS TRANSACTIONS OF ADJUSTING BANKS
FREQUENCY AND RELATION TO REQUIRED RESERVES, NOVEMBER 1956

Frequency and relation to required reserves	Number of banks		
	(1) With purchases only	(2) With purchases and sales	(3) With sales only
Survey banks reporting transactions	19	71	43
Purchases of Federal funds:			
Frequency:[1]			
Over 20	6	10	—
11 – 20	3	12	—
5 – 10	6	11	—
Under 5	4	38	—
Daily average purchases as percentage of required reserves:			
Over 25	—	1	—
10 – 25	3	7	—
5 – 9.9	10	11	—
Under 5	6	52	—
Sales of Federal funds:			
Frequency:[1]			
Over 20	—	11	12
11 – 20	—	24	16
5 – 10	—	18	10
Under 5	—	18	5
Daily average sales as percentage of required reserves:			
Over 25	—	2	7
10 – 25	—	21	12
5 – 9.9	—	15	10
Under 5	—	33	14

[1] Number of days in 30-day period.

Purchase of Federal funds. Ninety-one adjusting banks reported purchases of Federal funds in the November survey—71 Group 2 banks (purchases and sales) and 19 Group 1 banks (purchases only). The behavior of these two groups of banks reflected mainly differences in reserve positions. If reserve pressure during the month had been more severe, probably additional banks would have been pushed into Group 1; with less pressure there would have been more banks in Group 2. All of the Group 1 banks also borrowed from the Federal Reserve during November. Nine of these banks bought Federal funds in all four of the reserve weeks covered, and all but three were in debt to other banks, to the Federal Reserve, or to both, in all four weeks. The Group 1 banks averaged larger in size than the Group 2 banks that were net purchasers of Federal funds, primarily because of two large banks which were in the Group 1 category.

The average number of days Group 1 banks made purchases was 14 as compared to 8 for Group 2. Average purchases were 6 per cent of required reserves for Group 1 banks, and 4 per cent for Group 2.

Sales of Federal funds. As compared to 71 banks which bought and sold Federal funds, 43 banks were sellers only. As a group, the latter consisted of smaller banks and tended to sell Federal funds more frequently and in larger amounts in proportion to their size than Group 2 banks. About one-half of the "sell only" banks in Group 3 had less than $250 million in assets, as compared to about one-third of the "buy and sell" banks. Variations in the relative selling activity of these two groups are shown in Table 9.

Group 2 accounted for a much larger proportion of the total dollar volume of sales than Group 3 because it included more banks and a higher percentage of large banks. About one-half of the Group 3 banks sold Federal funds in all four reserve periods. The average number of days on which sales were made was 15, and the average amount sold was about 10 per cent of required reserves.

Group 3 banks apparently normally aim to maintain a surplus position. They did not buy Federal funds in November, and they borrowed infrequently from the Federal Reserve Banks. Only 15 of the 43 banks borrowed during the month, and 6 of those banks were in debt during only one of the four reserve weeks covered. Furthermore, the relative amounts borrowed were small.

Most of the Group 2 banks were net sellers of Federal funds. Daily average sales were only 4 per cent of their combined reserve requirements and, on the average, those banks supplied funds 11 days out of the 30-day period. For two-thirds of the banks in this group, average daily sales in November exceeded purchases, and sales were also more frequent. Frequency of purchases and sales among Group 2 banks varied widely. Thirty-eight of the 71 banks purchased Federal funds on 5 days or less during the 30-day period; however, 23 of these banks were sellers on 11 or more days. On the other hand, the 22 banks which made purchases on 11 or more days were infrequent sellers.

Accommodating banks' use of market. An adjusting bank may shift from seller to buyer during the day because of an unexpected change in its reserve position, and occasionally may execute a transaction against its own reserve needs to accommodate a customer. But only a few banks stand ready to trade on both sides of the market at the same time in any volume. The distinguishing feature of accommodating banks—two-way trading banks—is their willingness to buy or sell Federal funds against their own reserve positions unless the latter are extreme. Within this group, however, there are variations in the degree to which individual banks are willing to buy or sell against their reserve positions.

Although similar factors influence the decisions of accommodating and adjusting banks, they are weighted differently. All of the accommodating banks do a large correspondent business, and look upon Federal funds trading as a means of maintaining and expanding that business.[8] The accommodating motive, however, cannot be divorced from that of tapping the Federal funds market to satisfy their own needs, which are frequently intensified by their operations in servicing customers. The stake of these banks in an active national market in Federal funds is intensified by their willingness to engage in accommodation transactions for their correspondents.

Thus motivated, most of the two-way trading banks give less weight than other banks to immediate cost or profit differences and more to the longer run objective of promoting and maintaining a nationwide market for Federal funds. These banks do not make direct profits from two-way trading except incidentally—to the extent that rates may vary during the day. Some are willing to sell Federal funds even if they may have to borrow from the Reserve Banks to cover their own positions toward the close of the day.

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[8] It may be noted that some of the big New York City correspondent banks are not in this group.

There are differences within this group, however, in long-run reserve policies and in attitudes toward the use of the discount window. The more persistent the deficit positions the more reluctant they are to borrow from the Reserve Banks, and the more important for them to develop large numbers of contacts to insure adequate sources of Federal funds when needed. On the whole, the Federal funds market probably reduces the amounts these banks borrow from the Reserve Banks.

Data from the November survey on the use of Federal funds by the accommodating banks have been included in previous tables. The data indicate that accommodating banks were in the market more often and made larger purchases in proportion to required reserves than did other banks. Although sales relative to size were less than for other selling banks, they were more frequent. Still, sales were both smaller in amount and less frequent than purchases.

Of the twelve accommodating banks, seven were net buyers and five net sellers of Federal funds. All except three of the banks making net purchases also borrowed from the Reserve Banks. The five banks which sold more than they purchased had net surplus reserve positions for the month. Three did not borrow from the Reserve Banks, and the other two borrowed in only one reserve week.

Two-way trading banks constituted only a small minority of the banks active in the Federal funds market, but they accounted for a large percentage of the total volume of transactions. The willingness of these banks both to buy and sell broadens the market, thus making it a more reliable and convenient reserve adjustment mechanism for other banks. More significantly, perhaps, a broader market facilitates shifting the excess reserves of some banks to meet the pressures converging on others.

VI. The Federal Funds Rate

Analysis of how the rate on Federal funds is established is approached in two ways. First, the network of communication among potential buyers and sellers and the mechanics of establishing a rate are described. Second, available quantitative information is utilized to ascertain more basic factors influencing the Federal funds rate. The significance of the Federal funds rate as a money market indicator is also considered.

PROCESS OF ESTABLISHING A RATE

The wide geographical area through which buyers and sellers of Federal funds are distributed and the large number of institutions which participate in the market create the need for facilities through which bids and offers of funds can be communicated. Banks in the money market centers of New York and Chicago through their widespread correspondent relationships, a brokerage firm in New York City, and, to a lesser extent, Government securities dealers are instrumental in disseminating information on the Federal funds rate and in bringing buyers and sellers together.[1]

Role of a New York City broker. The New York City firm which has been acting as a Federal funds broker for several years plays an important role in putting potential buyers and sellers of Federal funds in touch with each other, and in providing information on the Federal funds rate. Early in the morning, bids, offers, and inquiries begin flowing in to this firm. Starting with the first bid or offer received, an attempt is made to consummate an opening trade at a rate satisfactory to both parties. If the bids and offers cannot be matched, bid and asked prices are quoted, and transactions are ef-

[1] The two institutions that recently began to offer brokerage services in Federal funds have not been operating long enough for their influence in determining the rate to be assessed.

fected as customers revise their original ideas as to rates. In the absence of sizable, firm bids or offerings, advice to an inquiring customer as to an appropriate rate may be based principally on the "feel of the situation" as obtained from conversations rather than from actual bids or offerings.

Many of the banks dealing through this brokerage firm do not submit bids and offers at fixed rates. Instead, they give the firm some discretion. Some banks are willing for the firm to arrange transactions at a reasonable rate; others give authority to arrange transactions within specific rate limits. In the absence of such limits, the firm often checks back with the party concerned to ascertain whether a given rate is acceptable. The firm also checks with banks which have indicated an interest if the rate moves sufficiently.

Banks generally are interested in learning this brokerage firm's rate quotation early in the day since it serves as a guide in determining rates on Federal funds transactions between correspondent banks and also as an indicator of the state of the money market. The firm's rate on Federal funds is widely quoted as the market rate. It is from this source, for example, that the *New York Times,* the *New York Herald Tribune,* and the Dow-Jones service get quotations on the opening, high, low, and closing rates for the day.

The firm works mostly with banks, although transactions are occasionally arranged for dealers and even for corporations. Relatively few of its transactions are in the form of buybacks. The firm does not quote a rate on repurchases and usually suggests such transactions only when an alternative to a straight transaction is needed.

Other factors in the rate establishment process. As explained in Chapter IV, correspondent banks also play a significant part in the Federal funds market by providing information on potential buyers and sellers and on the Federal funds rate. In providing rate information, the banks often take into consideration the rate quoted by the New York City broker.

In addition to providing information, the policies and practices of the large correspondent banks, especially the major money market banks in New York City, are factors in rate behavior. Banks with Federal funds to sell may try to dispose of them early in the day, particularly if the rate is at or near the discount rate; and buyers may tend to hold off in the hope of taking advantage of any possible weakening in the rate. When there is a spread between bid and asked quotations, several of the banks tend to consummate transactions toward the bid side (lower rate) when their own reserve positions are easy, and toward the offered side when their positions are tight. These banks are generally accommodating banks, which means that a substantial volume of their transactions is initiated by the other party but at rates set by the accommodating bank. Only one of the banks surveyed buys at the lower and sells at the higher rate. Another accommodating bank will sell to its correspondents at the discount rate, but will buy only at ⅛ of 1 per cent below that rate. The accommodating bank most active in making a two-way market frequently makes one-day loans to Government securities dealers against Treasury bills as collateral at a preferential rate slightly above the prevailing rate on Federal funds.

Banks outside New York City generally accept the prevailing rate obtained directly from the New York broker, a New York City correspondent, or dealers. Some banks, however, check the rate with more than one of these sources. The majority of the banks receive information on the rate throughout the day and consequently are informed of any change. Isolated instances were reported of rates being adjusted retroactively when the effective rate—the rate on the largest volume of transactions—varied from the quoted rate. On the other hand, cases were reported of banks simply wiring funds to correspondents, to be disposed of at the prevailing rate as determined by the correspondents.

Interviews with banks outside New York City revealed, however, that passive acceptance of the prevailing rate may easily be overstated. In disposing of funds, many banks do "shop around" for a better rate—contacting dealers first in the hope of executing a repurchase agreement or buyback at rates slightly above the prevailing Federal funds rate. In addition to the advantage of more liberal lending limits, many banks indicated a preference for repurchases and buybacks because of a possible rate advantage. Scattered cases were reported of banks making local trades at rates nominally below the prevailing rate when the market is inactive.

Differing bank attitudes toward the discount window and the Federal funds market, outlined in the previous chapter, are reflected in the establishment of the rate. To the extent that banks prefer to borrow at the Federal Reserve when the Federal funds rate is equal to the discount rate, demand is withdrawn from the Federal funds market and upward pressure on the rate is reduced. On the other side, banks preferring to avoid Reserve Bank borrowing may take advantage of any weakening of the Federal funds rate, thus reducing the downward pressure on the funds rate.

Although the Federal funds market is national in scope, there is a tendency toward segmentation. A large segment consists of transactions arranged through the New York City broker. This firm, as mentioned previously, deals primarily with banks and in straight Federal funds transactions. Another segment is transactions arranged through correspondent banks, including accommodation purchases and sales. There are also local markets of some significance, particularly in San Francisco and Chicago.

Even though there is a close interrelationship among the segments of the market, it is unlikely that all transactions at a given time will be at a uniform rate. Potential buyers and sellers do not have information on all offer and bid quotations. In some transactions, particularly those made to accommodate correspondents, rate may be a secondary consideration. Time differentials alter the scope of the market during the day. Rates for straight transactions usually differ from rates for repurchases, especially those for more than one day. For various reasons, therefore, a small margin of transactions is likely to be consummated at rates above or below the prevailing rate.

ANALYSIS OF RATE BEHAVIOR

Two sources of information were available for study of the behavior of the Federal funds rate. Data collected in the November 1956 survey made possible a number of comparisons which are useful in establishing the positions of the several participants in the market and in understanding the relationships of various rates. For the inspection of rates over a longer period, it was necessary to rely upon broader statistical series available in various internal and external sources.

Buying and selling rates in November 1956. The daily rates reported on Federal funds transactions by banks included in the November survey are shown in Table 10. Transactions were consummated each day at rates that varied from the so-called effective rate, that is, the rate prevailing on the bulk of purchase and sale transactions as obtained by the Federal Reserve Bank of New York. The rates reported indicate a wider range of variation from the effective rate on the selling side than on the buying side. An important reason for the wider range in rates on sales than on purchases on

TABLE 10
RATES ON PURCHASES AND SALES OF FEDERAL FUNDS
NOVEMBER 1956

[Per cent, as reported by survey banks]

Day	Effective rate	Range on purchases	Range on sales
Nov. 1	3	3 - 2¾	3 - 1½
2	3	3½ - 2½	3⅛ - 1½
3 (Saturday)	—	—	—
4 (Sunday)	—	—	—
5	3	3 - 2½	3 - 1¾
6 (holiday)[1]	—	3 - 2½	3 - 1¾
7	3	3 - 2¾	3 - 1¾
8	3	3 - 2	3¼ - 1¾
9	3	3 - 2¾	3.1 - 2
10 (Saturday)	—	—	—
11 (Sunday	—	—	—
12 (holiday)[2]	—	3 - 2¾	3.1 - 2
13	3	3 - 2¾	3 - 2¾
14	2⅞	3 - 2	3 - 1¾
15	3	3¼ - 2½	3¼ - 1¾
16	3	3¼ - 2⅞	3¼ - 2¼
17 (Saturday)	—	—	—
18 (Sunday)	—	—	—
19	3	3 - 2¾	3 - 1¾
20	2 15/16	3 - 2½	3¼ - 1¾
21	2⅞	3 - 2½	[3] 3 - 1⅞
22 (holiday)	—	—	—
23	3	3 - 2½	3⅛ - 1¾
24 (Saturday)	—	—	—
25 (Sunday)	—	—	—
26	3	3 - 2¾	3⅛ - 1¾
27	2¼	3 - 1½	3 - 1
28	1	3 - less than 1	3 - less than 1
29	2⅞	3½ - 1	3¼ - 1
30	3	3 - 2	3 - 1¾

[1] Holiday in New York and St. Louis Federal Reserve Districts. No effective rate quoted.
[2] Holiday except in the Richmond, Atlanta, Minneapolis, Dallas, and San Francisco Federal Reserve Districts, and the Memphis Branch of the St. Louis District. No effective rate quoted.
[3] Plus $6 million at unspecified rate or rates.

most days is that some banks make repurchases in municipal securities with dealers at the same rate as the yield on the securities. The rates on some of these transactions were considerably below the straight Federal funds rate.

Occasionally, the highest rate reported on sales of Federal funds was slightly above the highest rate on purchases for the same day and vice versa. These discrepancies result from incomplete coverage of all participants in the Federal funds market. It is interesting to note that on four days of November 1956 banks reported purchases at rates above the discount rate.

Frictions in the market and changes in the demand-supply situation during the day are also clearly revealed; for example, even on days when transactions were reported at rates above the 3 per cent discount rate, other transactions were reported at rates as low as 1 per cent. Again, when the funds rate was moving away from the discount rate ceiling on the down side near the end of the month, transactions were reported at or above that ceiling.

Regional rates. The data obtained in November 1956 do not permit a direct comparison of the rates on transactions in New York City with those outside. The San Francisco Federal Reserve District had the largest intradistrict market outside New York City —53 per cent of the purchases and 37 per cent of the sales of the district's survey banks were within the district. Thus, comparing rates on purchase and sale transactions in the San Francisco District with those of New York City banks provides a reasonably good indication of regional rate behavior. Table 11 shows daily average

TABLE 11

RATES ON PURCHASES AND SALES OF FEDERAL FUNDS
SAN FRANCISCO DISTRICT AND NEW YORK CITY SURVEY BANKS
NOVEMBER 1956

[Weighted arithmetic averages of daily rates]

Day	Purchases			Sales		
	San Francisco District	New York City	Excess[1]	San Francisco District	New York City	Excess[1]
Nov. 1	2.99	2.99	—	3.00	3.00	—
2	2.99	2.99	—	3.00	3.00	—
5	3.00	2.99	.01	3.00	3.00	—
7	2.92	2.99	−.07	3.00	3.00	—
8	2.92	2.98	−.06	2.99	3.01	−.02
9	2.96	2.99	−.03	2.99	3.00	−.01
12	2.99	2.99	—	2.99	3.00	−.01
13	2.90	2.98	−.08	2.99	3.00	−.01
14	2.92	2.81	.11	2.93	2.80	.13
15	2.89	2.99	−.10	2.98	3.00	−.02
16	3.00	3.00	—	3.00	3.01	−.01
19	2.99	2.99	—	3.00	3.00	—
20	2.85	2.91	−.06	2.93	2.93	—
21	2.90	2.85	.05	2.89	2.91	−.02
23	2.99	2.99	—	3.00	3.00	—
26	2.98	2.97	.01	2.99	2.98	.01
27	2.29	2.11	.18	2.15	2.14	.01
28	1.83	1.39	.44	1.30	1.46	−.16
29	2.53	2.57	−.04	2.50	2.70	−.20
30	2.98	2.94	.04	2.98	2.96	.02

[1] San Francisco District over New York City.

rates on purchases and sales of Federal funds for survey banks in New York City and in the San Francisco District.

One of the most significant points revealed by the data was the close correspondence between Federal funds rates in the San Francisco District and in New York City. Average rates on purchases in the San Francisco District were above and below those in New York City on an equal number of days—seven each. Rates on sales, however, were below those in New York City on nine days and above them on four days during the month. These rate differentials were usually quite small. One important reason for a disparity in rates is the difference in time. In the afternoon, when the Eastern banks are closed, the rate along the Pacific Coast is governed by the local supply of and demand for Federal funds. Regional differences in rates may also reflect regional preferences for different types of Federal funds transactions, for example, repurchases and straight transactions, as explained in Chapter IV (pp. 56-58). Repurchase agreements are negotiated sometimes at rates below but perhaps more frequently somewhat above the prevailing rate on straight Federal funds transactions.

Data for a longer period might reveal a different pattern of regional differences in rates. Available data, however, indicate that the New York City rate reflects the state of the national market with reasonable accuracy.

Relationship of the Federal funds and discount rates. It is clear that no member bank would normally pay a higher rate for Federal funds than the discount rate despite the widely prevalent reluctance to borrow from the Federal Reserve. A bank not only has the option of borrowing from a Reserve Bank; it can also carry a deficiency forward in the same reserve period or as much as 2 per cent of its required reserve into the next reserve period. Consequently, the purchase of Federal funds at a rate above the discount rate is likely to occur only when, because of some particular situation, a bank is unable or is extremely reluctant to borrow from a Reserve Bank. It was noted in Chapter III that the Federal funds rate was above the discount rate for an extended period during 1928-29, presumably because a number of banks did not possess paper eligible for discount, or because they were making a large volume of call loans and feared criticism or actual refusal if they tried to borrow from a Reserve Bank.

Recent periods of monetary stringency were marked by a comparatively high level of borrowing from the Reserve Banks. Under these conditions, it seems that excess reserves offered in the market at rates below the discount rate would be quickly absorbed by banks with current reserve deficiencies or with indebtedness at the Reserve Banks. If the Federal funds rate falls below the discount rate, banks indebted to a Reserve Bank have a cheaper source of funds and an opportunity to reduce the number of consecutive days of borrowing from a Reserve Bank. The Federal funds rate occasionally deviates from the discount rate, however, even under conditions of stringency. Variations in the reserve positions of banks which adjust via the Federal funds market occur as reserves shift from country to city banks or vice versa, and as the aggregate reserve position is affected by such factors as float and Treasury operations.

Under conditions of monetary ease, borrowings from the Reserve Banks are at a low level, and the Federal funds rate may be well below the discount rate for extended periods. When market rates are low, banks with excess reserves have a number of options and their choices depend upon their expectations as to the future course of interest rates and loan demands. Excess reserves may be used to purchase long-, intermediate-, or short-term securities. For money market banks, dealer loans may be an alternative. Rates on Federal funds and short-dated bills tend to equate under these conditions since the two are close substitutes.

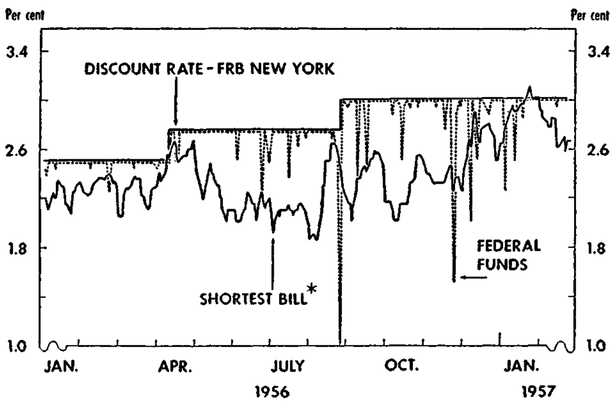
These generalizations, in so far as they apply to a period of credit stringency, were confirmed broadly by statistical data for 1956—a year in which the prevailing rate on Federal funds did not deviate from the discount rate in 23 weekly reserve periods. Inasmuch as the Federal funds market and borrowing from the Reserve Banks are alternative methods of adjusting reserves, the frequency with which the two rates were equal indicated that preferences for a particular source were not strong enough to induce banks to pay a higher rate. In 18 reserve periods, the Federal funds rate dropped below the discount rate on Wednesday, the last day of the reserve period. The deviation on Wednesday reflected the fact that excess reserves on that day cannot be carried into the succeeding reserve period; hence, banks were willing to sell Federal funds at a lower rate, if necessary, rather than hold them idle. Moreover, since the required reserve for Wednesday is based on deposit balances as of the opening of business on Wednesday, one of the unknowns in estimating a bank's reserve needs for that day is removed. Average required reserve balances are a known quantity and accumulated excesses or deficits in reserve positions can be corrected on the basis of reserve gains or losses during the day.

While the concentration of deviations on Wednesdays is understandable, such differences are more difficult to explain when borrowings from the Reserve Banks are at a comparatively high level. The lower Federal funds rate affords banks a profit incentive to buy Federal funds and reduce their indebtedness to the Reserve Banks. Comparison of daily changes in discounts of central reserve and reserve city banks with deviations in the Federal funds rate showed that reductions in the Federal funds rate occurred at the same time as reductions in indebtedness to the Reserve Banks in about 60 per cent of the cases. In 40 per cent, however, discounts increased on days when the Federal funds rate decreased.

A number of conditions probably accounted for the failure of borrowing at the Reserve Banks to respond fully to the reduced cost of Federal funds. First, a large proportion of member banks do not participate in the Federal funds market; therefore, shifts of reserves which impair or improve the positions of these banks may be reflected in their discounts. Such banks, as a group, may be losing reserves and increasing their discounts at the same time that other banks which do trade in the Federal funds market have excesses which they are willing to sell at a rate below the discount rate. Second, legal restrictions on the amount a bank is allowed to borrow in the market may prevent some banks from taking greater advantage of the opportunity to purchase Federal funds to reduce borrowing costs. Third, some of the deviations in rates were quite small, so that the rate differential offered only a small inducement to shift to Federal funds. Fourth, owing to the different time zones, banks which otherwise would take advantage of the rate differential may not receive the information in time to act upon it. In this connection, it is of interest that the New York central reserve city banks' response to rate deviations conformed much more closely to expected behavior than did that of all central reserve and reserve city banks, although there were eight instances during 1956 and the first two months of 1957 when borrowings by the New York central reserve city banks from the Reserve Bank increased as the Federal funds rate declined. Only on a few days, however, were the amounts involved of significant size.

Interrelationship with discount and Treasury bill rates. Inasmuch as the Treasury bill market, the Federal funds market, and borrowing from the Reserve Banks are to some extent alternative media for adjusting reserve positions, some interrelationship among movements in the bill rate, the Federal funds rate, and the discount rate is to be expected. The accompanying chart shows the relative

RATES ON SHORTEST TREASURY BILL, FEDERAL FUNDS AND THE DISCOUNT RATE



* Rate on shortest outstanding Treasury bill.

movements in the rates on the shortest outstanding Treasury bill, the discount rate, and the effective rate on Federal funds from January 1956 to February 1957. Of the Treasury bill issues outstanding, the shortest dated bill is the nearest substitute for Federal funds to adjust reserve positions although, as previously explained, it is far from a perfect substitute. The discount rate and Federal Reserve policy, of course, have an important influence not only on bill rates and the Federal funds rate but on the entire structure of market rates.

If the rates on outstanding bills are above the discount rate and the Federal funds rate, there is an incentive for banks with other than strictly one-day excess funds to invest in bills. The supply of

Federal funds available in the Federal funds market tends to be reduced. On the other hand, if bill rates are below the Federal funds rate, there is an inducement to put excess reserves into the Federal funds market instead of into bills. If, however, banks with excess reserves have a fairly strong preference for either of these two reserve adjustment media, the differential between the two rates could become large without any important switching of funds between the two markets.

There are several reasons for the differential that usually prevails between the Federal funds rate and the shorter term bill rates. As pointed out previously, Treasury bills are not really a good substitute for Federal funds because the latter are used primarily for one-day adjustments often involving quick turnarounds. Purchases of Federal funds and borrowing from a Reserve Bank are better substitutes—a primary reason for the closer relation between the discount rate and the Federal funds rate.

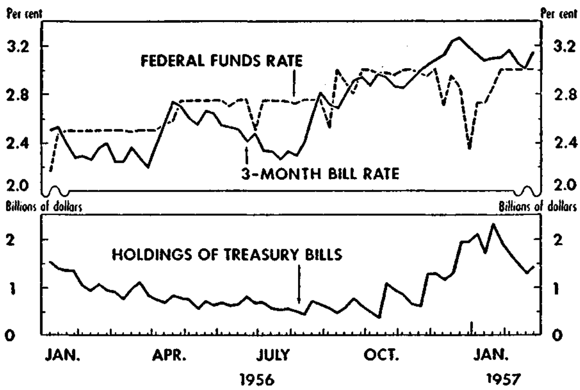
A second reason why a spread between bill rates and the Federal funds rate may persist is that both the bill market and the Federal funds market may not be available at times to a sufficient number of banks to permit shifts between these media to bring the rates together. As previously pointed out, only a small percentage of member banks use the Federal funds market. Many of the banks which use the Federal funds market may have exhausted their bill holdings or reduced them to what they regard to be a desirable minimum, especially after a prolonged period of credit restraint.

Finally, banks with low loan limits compared to their estimated liquidity needs may have to make numerous sales of Federal funds to invest the proceeds from bill sales. If the margin between bill and Federal funds rates should become sufficiently wide, however, this inconvenience and cost might be overcome. Various subjective factors such as convenience and bankers' attitudes toward the two markets also influence willingness to shift from Federal funds to bills and vice versa.

Efforts to confirm this rationale of reserve adjustments and rate relationships by reference to the statistical record lead to inconclusive results. In part, this is caused by inadequacies in the available information. The statement of condition of weekly reporting member banks does not segregate bill holdings according to maturity.

As already mentioned, however, the shorter bills are a more suitable alternative to the sale of Federal funds, particularly when bill rates are above the discount rate. A more fundamental difficulty is that changes in bank holdings of bills are often the result of a combination of factors. It is not possible to segregate the effect of a rate advantage from the effects of other factors.

RATES ON FEDERAL FUNDS, TREASURY BILLS, AND TREASURY BILL HOLDINGS OF WEEKLY REPORTING MEMBER BANKS



In November 1956, for example, an easing of the reserve positions of member banks was accompanied by a decline in the Federal funds rate and an increase in bill holdings of weekly reporting member banks. Even though the rate on the longest outstanding bill was above the discount rate and the Federal funds rate during much of this period, it was impossible to determine whether bank purchases of bills were a response to the rate differential, to easier reserve positions, to favorable treatment of banks in the Treasury's sale of special bills, or to a combination of these conditions.

The accompanying chart shows changes in the effective rate on Federal funds, the three-month Treasury bill rate, and bill holdings of weekly reporting member banks in 1956 and early 1957. There is some evidence, although by no means conclusive, that relative changes in bill and Federal funds rates affected reporting bank holdings of Treasury bills. In the first quarter of 1956, when bill rates were generally below the Federal funds rate, banks reduced their bill holdings. In the latter part of the year, reporting banks increased their bill holdings as bill rates, especially the rates on three-month bills, rose well above the Federal funds rate, and in early 1957 they reduced their holdings as the spread between bill and Federal funds rates narrowed substantially. On the other hand, there was little change in bill holdings from May through July 1956 when bill rates were considerably below the Federal funds rate.

There were other factors than rate differentials influencing bank holdings of bills during the period. Bank reserve positions tightened considerably in the first part of 1956 and 1957. Treasury financing was also an important factor. In mid-December 1955, the Treasury sold $1.5 billion of tax anticipation bills maturing in March 1956. In mid-October and mid-November 1956, the Treasury had special bill offerings amounting to $1.6 billion and $1.8 billion, respectively. These issues matured in January and February 1957. The Treasury also sold $1 billion of tax anticipation bills in mid-December 1956 which matured in March 1957.

RATE AS AN INDICATOR OF MONEY MARKET CONDITIONS

The Federal funds rate indicates supply-demand relationships in only one segment of the money market—primarily the market for one-day funds. Short-term adjustment of reserve positions may take the form of discounting or retiring debts at Reserve Banks, buying or selling bills, as well as transactions in the Federal funds market; consequently, the Federal funds rate directly reflects only one part of the whole process.

Perhaps the chief statistical weakness of the Federal funds rate as a money market indicator is its limited range of fluctuations in a period of tight money. In a period of credit restraint, such as in 1956 and most of 1957, the rate remains at the discount rate for extended periods. Thus, when the Federal funds rate is equal to the discount rate, any further intensification of reserve pressures is not registered. Furthermore, deviations from the discount rate at such times are usually ascribable to specific, known events, such as fortuitous behavior of float, an unexpected decline in the United States Treasury's deposits in the Reserve Banks, or the ready availability of Federal funds on the last day of the reserve week.

In periods of credit ease, on the other hand, the Federal funds rate is a more sensitive indicator. It is usually below the discount rate, and fluctuations in the Federal funds rate reflect rather accurately day-to-day changes in the reserve positions of the large banks in financial centers. Recently, however, there has been some tendency toward less uniformity in Federal funds rates, some of the larger banks being able to buy sizable amounts of Federal funds direct from correspondents at rates somewhat more favorable than those generally quoted in the market.

The basic limitations of the Federal funds rate as an indicator of market conditions derive from the function of the Federal funds market. The market serves primarily as a medium for one-day reserve adjustments. More fundamental adjustments of banks made in response to pressure for loans and other longer term factors are not directly reflected in the behavior of the Federal funds rate.

Despite these limitations, the Federal funds rate is a useful indicator of conditions in a segment of the money market that has grown in importance. It reflects the demand for and supply of existing reserve balances for very short-term reserve adjustment purposes, and thus provides information of value in interpreting changing conditions in the money market.

Technical Note: Discrepancies in Survey Data

Total purchases of Federal funds reported in the November 1956 survey exceeded total sales on 19 of the 21 business days covered, as shown by the tables on page 108. On about one-third of these days, sales fell short of purchases by 20 per cent or more, while in absolute terms the discrepancies ran as high as $250 million. By contrast, the excesses of total sales over total purchases on November 28 and 30 were relatively minor—less than 3 per cent of total sales. An investigation of these discrepancies indicates that they stemmed largely from three sources.

Net sales by "others" not included in reporting sample. The banks and dealers reporting Federal funds transactions were net purchasers from the nonreporting "other" group on each day during the period. The "other" group included such net sellers as savings banks, agencies of foreign banks, and corporations. Hence, these net purchases were not offset in the total figures by net sales that the "other" transactors would have reported had they been included in the sample. Almost all of these transactions took place within New York City. Incomplete coverage was the most important item accounting for the discrepancy.

Net sales to New York City banks and dealers by nonreporting banks outside New York City. For the most part, banks and dealers in New York City reported larger net transactions with member banks in the rest of the country than the out-of-town banks reported with New York City. Some part of this discrepancy may have resulted from reporting errors. A number of member banks outside New York, however, are net sellers in New York City on a sufficiently small scale and with so little regularity that they would not be considered active in the market and thus were not included in the reporting sample.

New York City banks and dealers reported net purchases from the rest of the country on 17 of the days for which nationwide purchases exceeded nationwide sales; on the remaining 2 days there were net sales, both by New York City banks and nationally.[1] Similarly, the data for banks outside New York City showed net inflows to New York City for 16 of the 17 business days on which more purchases than sales were reported. Furthermore, a comparison of net inflows as reported by New York City banks and dealers with data submitted by out-of-town banks showed smaller net inflows to New York City except on five days. Of these five, two were days on which both groups reported net outflows from New York City, and the remaining three days were at the beginning of the month when reporting errors were more likely to have occurred.

Clearing operations. On about half of the days, Government securities dealers reported larger net purchases from New York City banks than these banks reported selling to dealers. These discrepancies probably resulted in part from the clearing operations of the New York City bank which renders this service for its dealer customers. As explained in Chapter IV, this bank keeps a record of Federal funds receipts and payments from securities transactions handled for each of its dealer customers. The bank absorbs net receipts or provides Federal funds to meet net deficiences. Such net receipts and payments were not reported in the November survey.

[1] November 6 and 12 were bank holidays in some Reserve districts, including New York. Thus there were only 19 trading days for New York City banks.

PURCHASES OF FEDERAL FUNDS, NOVEMBER 1956

Reported by Survey Banks and Dealers

[In millions of dollars]

Day	Total amount	Type of transaction			Purchased from:			Location of seller		
		1-day unsecured	Other 1-day	Over 1-day	Banks	Dealers	Others	Within district	New York City	Elsewhere
Nov. 1	692	529	163	—	597	21	74	76	243	373
2	705	462	240	3	607	33	65	103	235	367
5	640	424	193	23	500	73	67	85	249	306
6	617	415	202	—	494	56	67	100	225	292
7	838	530	263	45	704	58	76	106	297	435
8	617	376	218	23	500	54	63	116	214	287
9	697	494	202	1	564	59	74	135	233	329
12	662	474	187	1	535	53	74	126	208	328
13	1,130	830	244	56	969	95	66	196	313	621
14	1,014	795	219	—	928	17	69	204	405	405
15	1,100	801	290	9	976	38	86	235	416	449
16	740	499	217	24	603	44	93	128	295	317
19	814	569	215	30	668	53	93	141	292	381
20	1,090	851	229	10	936	54	100	119	415	556
21	953	737	214	2	818	45	90	102	409	442
23	921	690	224	7	752	62	107	145	424	352
26	1,144	895	249	—	1,047	18	79	146	574	424
27	887	733	154	—	813	11	63	87	415	385
28	791	627	164	—	672	52	67	52	437	302
29	882	748	125	9	751	65	66	99	455	328
30	827	687	136	4	734	41	52	77	533	217
Total	17,761	13,167	4,347	247	15,168	1,003	1,590	2 577	7,287	7,897

NOTE.—See footnote below.

SALES OF FEDERAL FUNDS, NOVEMBER 1956

Reported by Survey Banks and Dealers

[In millions of dollars]

Day	Total	Type of transaction			Sold to:			Location of purchaser		
		1-day unsecured	Other 1-day	Over 1-day	Banks	Dealers	Others	Within district	New York City	Elsewhere
Nov. 1	601	427	174	—	533	67	1	57	373	171
2	606	439	155	12	552	54	—	131	312	163
5	490	365	95	30	440	45	5	58	308	124
6	481	371	85	25	437	39	5	69	266	146
7	715	499	216	—	672	36	7	81	448	186
8	493	291	182	20	411	58	24	67	302	124
9	556	416	125	15	520	29	7	106	328	122
12	424	340	72	12	391	26	7	79	227	118
13	898	689	209	—	831	63	4	117	430	351
14	888	712	176	—	841	42	5	160	433	295
15	844	673	125	46	730	111	3	102	538	204
16	616	416	183	17	493	98	25	43	446	127
19	630	475	155	—	540	83	7	63	436	131
20	900	713	186	1	818	82	—	40	549	311
21	821	665	130	26	735	70	16	59	476	286
23	725	567	146	12	638	77	10	65	477	183
26	1,030	828	189	13	938	89	3	92	632	306
27	828	717	103	8	773	52	3	82	358	388
28	794	695	82	17	737	45	12	83	300	411
29	792	636	156	—	724	47	21	57	430	305
30	850	710	133	7	807	40	3	63	428	359
Total	14,983	11,645	3,078	260	13,562	1,253	168	1,675	8,497	4,811

NOTE. — Totals of transactions made on business days. Data not adjusted for weekends and holidays. Details may not add to totals because of rounding.

PURCHASES OF FEDERAL FUNDS, BY FEDERAL RESERVE DISTRICT
Reported by Survey Banks and Dealers, November 1956

[In millions of dollars]

Location of purchaser	Total amount	Type of transaction			Purchased from:			Location of seller		
		1-day un-secured	Other 1-day	Over 1-day	Banks	Dealers	Others	Within district	New York City	Else-where
All F.R. districts...	17,761	13,167	4,347	247	15,168	1,003	1,590	2,577	7,287	7,897
Boston	431	402	29	—	425	6	—	36	240	155
New York	11,261	7,669	3,592	—	9,010	728	1,523	[1] 921	4,518	5,822
Philadelphia	521	491	—	30	512	9	—	87	171	263
Cleveland	243	242	1	—	243	—	—	11	171	61
Richmond	286	260	26	—	286	—	—	—	242	44
Atlanta	148	146	—	2	148	—	—	—	124	24
Chicago	1,599	1,506	31	62	1,532	—	67	344	482	773
St. Louis	374	368	6	—	374	—	—	99	224	51
Minneapolis	83	83	—	—	83	—	—	3	49	31
Kansas City	409	239	170	—	372	37	—	40	272	97
Dallas	499	491	8	—	499	—	—	40	258	201
San Francisco	1,906	1,269	484	153	1,683	223	—	997	535	374

NOTE.—See footnotes below.

SALES OF FEDERAL FUNDS, BY FEDERAL RESERVE DISTRICT
Reported by Survey Banks and Dealers, November 1956

[In millions of dollars]

Location of seller	Total amount	Type of transaction			Sold to:			Location of purchaser		
		1-day un-secured	Other 1-day	Over 1-day	Banks	Dealers	Others	Within district	New York City	Else-where
All F.R. districts...	14,983	11,645	3,078	260	13,562	1,253	168	1,675	8,497	4,811
Boston	1,003	884	107	12	918	63	22	32	579	392
New York	6,334	5,769	565	—	5,893	305	136	[1] 257	3,318	2,759
Philadelphia	648	508	140	—	505	143	—	86	367	195
Cleveland	1,401	521	727	153	937	464	—	6	1,281	114
Richmond	543	146	396	1	491	52	—	1	497	45
Atlanta	90	39	39	12	90	—	—	—	47	43
Chicago	872	775	79	18	788	74	10	304	415	153
St. Louis	506	485	11	10	496	10	—	10	300	196
Minneapolis	273	252	21	—	252	21	—	3	151	119
Kansas City	475	150	302	23	448	27	—	74	313	88
Dallas	500	205	295	—	458	42	—	25	283	192
San Francisco	2,337	1,911	395	31	2,285	52	—	877	946	514

[1] Outside New York City, but within New York Federal Reserve District.
NOTE.—Totals of transactions made on business days. Data not adjusted for weekends and holidays. Details may not add to totals because of rounding.

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