FUNDAMENTAL REAPPRAISAL OF THE DISCOUNT MECHANISM

A STUDY OF THE MARKET FOR FEDERAL FUNDS

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Prepared for the Steering Committee for the Fundamental Reappraisal of the Discount Mechanism Appointed by the Board of Governors of the Federal Reserve System

The following paper is one of a series prepared by the research staffs of the Board of Governors of the Federal Reserve System and of the Federal Reserve Banks and by academic economists in connection with the Fundamental Reappraisal of the Discount Mechanism.

The analyses and conclusions set forth are those of the author and do not necessarily indicate concurrence by other members of the research staffs, by the Board of Governors, or by the Federal Reserve Banks.

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I. INTRODUCTION

This study has several purposes: (1) to evaluate the operations of the Federal funds market, with emphasis on the participation of smaller country banks as a source of funds complementary to those provided by the Federal Reserve discount window; (2) to determine whether it is feasible and desirable to promote a further development of this market so as to reduce commercial bank reliance on the discount window; and (3) if such is the case, to recommend the degree, if any, to which the Federal Reserve should become involved in that development. Federal funds are balances on deposit with Federal Reserve Banks that, together with vault cash, constitute the legal reserves that member banks of the Federal Reserve System must hold in a specified ratio to deposits. Federal funds transactions refer to the lending (selling) and borrowing (buying) of these balances or claims on such balances at rates of interest set by the parties to a transaction.

This study analyses data on transactions in Federal funds to determine how the existing market functions and the extent to which banks of various types can and do operate within it. Analysis has been supplemented by interviews with "knowledgeable market participants." In these interviews probing was directed to assessing the current nature of these markets with respect to "depth, breadth, and resiliency," and to ascertaining any changes in these market qualities over time -- seasonally, cyclically, or secularly. An attempt was also made to determine the underlying causes for any deficiencies in market operations for the several classes of banks studied.

Some consideration was given to procedures that might improve market operations. This related to the problem of Federal Reserve involvement if the System were to act as a clearinghouse for information about market functioning as a broker for Federal funds, or were to utilize the Federal funds market as a medium for controlling open market operations.

From time to time the performance and characteristics of the Federal funds market have been reviewed in detail by Federal Reserve System committees and by members of the staffs at the Reserves Banks. Appendix A contains a list of System publications that discuss the function of the market, variations in patterns of activity, and extent of member bank participation.

II. Major Findings

The market for Federal funds has experienced two periods of marked development -- the 1920's and the 1950's. Its development of the 1950's carried into the 1960's -- confirming and sharpening the structural outline of the market and increasing its dimensions. Throughout the 1920's banks used Federal funds almost exclusively in adjusting their reserve positions. While banks continued this method of reserve adjustment in the later period, the volume of Federal funds acquired increased in importance both as an outlet for short-term investment of secondary reserves and directly or indirectly in connection with financing of U. S. Government securities dealers. And in the 1960's an increasing number of banks sought Federal funds to support expansions of loans and investments.

Through the early 1950's, the structure of the market changed somewhat -- shifting from a direct exchange of Federal funds between banks to an exchange through an intermediary or a broker. The development of facilities for matching the supply of and demand for funds through a broker was accompanied by an even faster growth in market activity and in the number of accommodating banks. At the same time the market changed from one that was primarily regional and local in character to one that is strongly national, with its center in New York City. With the further growth of accommodating banks outside New York since 1960, and the matching of transactions within correspondent groups, transactions in the central market are now largely for the purpose of clearing residual needs.

Currently it is estimated that more than 2,300 country banks, or more than one out of every three, participate in the market either as buyers or sellers, or both. Participation rates range from about 17 per cent in the Minneapolis District to 83 per cent in the Boston District. Five districts report a range of 40 to 50 per cent. Similarly, virtually all of the Reserve city and larger country banks are now active in the market. The number of country banks using the market has increased more than fivefold since 1960.

As a rule, country banks are more often sellers than buyers, and they sell substantially more than they borrow. The typical movement of Federal funds is from smaller country banks to smaller city banks to major city banks.

Country banks supply net to the market about $800 million to $1 billion on a daily average, constituting a fifth to a quarter of the total volume of trading. This represents from 12 per cent to 15 per cent of country bank required reserves. The increased participation is reflected in reductions in the ratio of their required reserves and in the ratios of balances due from banks to total deposits.

Relatively few country banks rely heavily on the Federal funds market as a source of funds, and the effect of their aggregate transactions on the market is negligible. Average daily purchases do not exceed $300 million, or about 3.7 per cent of their required reserves. In sharp contrast to attitudes of most of the larger banks, many country banks turn exclusively to the Federal Reserve as their source of borrowed funds, although they use the Federal funds market regularly to dispose of funds.

There is still evidence that a good many small banks have no knowledge of the Federal funds market. In addition, some small banks are inately conservative, and they prefer to hold excess reserves rather than run the risk of having to borrow to offset deficits when they occur.

Transactions in Federal funds are accomplished rapidly and efficiently in increasing volume for increasing numbers of banks at nearly uniform rates. This reflects a high degree of adjustment between demand and supply and between price and quantity exchanged.

The growth in unity and breadth of the market during the 1960's and the increase in its efficiency have strengthened the "links" among the various divisions of the money market and the links of the money market with the markets for longer-term credit. A given volume of Federal funds now moves through the market with a smaller change in rates than in earlier years. Market participants may move back and forth from one sector to another of the shorter-term money market in response to shifting rate differentials without causing unacceptable price changes.

The Federal funds market mechanism now consists of four brokers and perhaps as many as 70 accommodating banks in principal cities throughout the nation. The number of regional accommodating bank arrangements increased in response to competition from large central money market banks. More recently competition among regional banks in soliciting business over wider areas than previously has forced local competitors to establish facilities for their own correspondents.

The variety of facilities for trading Federal funds is a product of the last 10 years. The new facilities reflect heightened competition among banks, changes in policies, and more widely diffused knowledge of the market. It is now possible for all but the very small banks to keep most of their funds fully invested. Transaction units have been reduced from $1 million to $200,000 and even $25,000 in some instances.

There is no concrete evidence that small banks find it difficult to gain access to the market. As needs have grown, the market mechanism has been modified to facilitate their transactions.

Participants view the suggestions for a Federal funds auction with concern. Auctions would replace completely or radically alter the present range of facilities which now satisfy efficiently both sides of the market -- facilities which have evolved over time "to bridge" the unit banks. The sensitive index of pressures within the banking system provided by the Federal funds rate would be lost.

III. DESCRIPTION OF THE MARKET

The money market is made up of institutions that provide a mechanism for the exchange of cash balances for short-term, interest-bearing obligations or for the exchange of such obligations for cash balances. At present most of these shifts in the form of reserves are handled through a closely connected nationwide network of arrangements. Commercial banks are significant participants in the money market either as buyers or sellers of money market instruments, largely to maintain their legal reserves at required levels. Among the instruments they use are Federal funds. Purchases or sales of Federal funds permit adjustment for either a deficit or surplus in a bank's reserve position at the Federal funds rate and consequently constitute an important element in the administration of an individual bank's liquidity.

The market for Federal funds, now almost 50 years old, is a by-product of Reserve System organization imposed on the American unit banking structure. It emerged in the early 1920's as an offshoot of the money market. Normally, transactions in Federal funds are for overnight, and the rate of interest is negotiated or determined by the supply and demand in the market. The market cannot increase or decrease total member bank reserves but can only redistribute them and by so doing makes possible a fuller use of bank reserves and resources.

Sometimes banks will deliberately run "short" on their reserve positions by lending reserves to other banks -- thus causing or sometimes increasing a daily deficiency that they expect to cover later in the reserve period. On the other hand, some banks depend on this market as a source of funds for carrying an overinvested position in loans or securities for short periods.

Facilities for accomplishing Federal funds transactions have been developed in large part during the last 10 years. They reflect the growth of the market, heightened competition among large as well as many smaller banks, changes in practice and policies of participants, and more widely diffused knowledge of the market. The market now provides a way for all but the smallest banks to maintain a more fully invested position. A number of the smallest banks are unaware of the market or have no desire to participate.

Scope. Member bank reserve balances are of uniform quality and can be transferred freely thoughout the United States. At present such balances are bought and sold at several points in each Federal Reserve district, but New York City still occupies the prominent position and is the central market since half of all transactions originate in, or are handled by, that city and the brokers and principal accommodating banks are located there. Local selling points are intimately connected with the central market and with one another. They are "linked" in the sense that price differences can bring transactions from one market to another and that some of the competing buyers and competing sellers carry out transactions in more than one market within a district or in several districts. In a real sense the market is national.

The Federal funds market has experienced two periods of marked development -- the 1920's and the 1950's; its development of the 1950's being carried into the 1960's -- confirming and sharpening the structural outline of the market and increasing its dimensions. Throughout the 1920's banks used Federal funds almost exclusively as a method of adjusting their reserve positions. While banks continued this method of reserve adjustment in the later period, the volume of Federal funds acquired increased in importance both as an outlet for short-term investment of secondary reserves and directly or indirectly in connection with financing of U. S. Government securities dealers. In the 1960's as well, an increasing number of banks sought Federal funds to support expansion loans and investments.

Through the early 1950's, the structure of the market changed somewhat -- shifting from a direct exchange of Federal funds between banks to an exchange through an intermediary or a broker. The development of facilities for matching the supply of and demand for Funds through a broker was accompanied by an even faster growth of activity and number of accommodating banks. At the same time the market changed from one that was primarily regional and local in character to one that is strongly national, with its center in New York City. With the further growth of accommodating banks outside New York since 1960, and the matching of transactions within correspondent groups, transactions in the central market are now more largely for the purpose of clearing residual needs. Thus, the functions of the brokers changed from principally completing transactions for numbers of individual banks of differing size to completing transactions to a greater extent for the large money market and regional banks.

Interbank Trading. Banks account for most of the activity in the Federal funds market. On the average only about 10 per cent of total activity is with nonbank groups -- chiefly U. S. Government securities dealers, savings banks, and corporations -- but at times, the proportion may rise to 25 per cent. In 1966 on an average day $3.5 billion to $3.8 billion shifts from bank to bank, but at times the total may come close to $5 billion. The average amount has increased significantly since the mid-1920's and had more than tripled by 1960. And the number of banks participating has risen in each year since 1950.

Table 1

TRADING IN FEDERAL FUNDS

Period	Number of banks	Daily-average gross purchases (in millions of dollars)*
1925-32	30-40	100- 250
1951-53	75-100	350- 450
1955-57	125-200	800-1,200
1960-63	175-275	1,500-2,500
1963-66	180-350	2,000-3,800

*Partially estimated approximate amounts. Lower limits refer to earlier parts of designated periods.

Some 300 member banks are regular participants in the Federal funds market -- buying and selling on from one to several occasions in every reserve period.[1] These banks hold about 60 per cent of all commercial bank deposits and include practically all banks with $100 million or more of deposits. The most active participants are found in Federal Reserve cities, but some 40 of the larger country banks have substantial regular dealings, and another 350 may trade as often as

[1] A number of nonmember banks and agencies of foreign banks are also traders -- usually on the selling side. The nonmembers include both small and large banks and may number several hundred.

25 times a year. Estimates place the total number of participants as high as 2,500 banks. Many of these will have only one or two transactions during the year and include banks that have deposits of only $1 million to $2 million. Usually the transactions of the smaller banks are sales, which are made possible by excess reserves arising from seasonal or temporary forces.

Brokers, Accommodating Banks, and Accommodating and Correspondent Systems. Until December 1958, when The Irving Trust Company established its Federal funds desk,[2] Garvin Bantel Corporation, a member of the New York Stock Exchange, was the only broker in the Federal funds market, and there were as few as seven or eight accommodating banks, most of which were in New York City. Garvin Bantel Corporation had initiated its interdistrict business in 1948 and had encouraged participation by out-of-town banks. Participation by such banks became significant in the early 1950's, as increasing numbers of banks began to direct their transactions through that firm. Garvin Bantel estimates that until about 1953 it handled nearly 80 per cent of all trading in Federal funds, but as the number of accommodating banks expanded, this proportion dropped to 50 per cent in 1957 and subsequently fell to one-third. Since the entry of Mabon, Nugent and Co., also a member of the New York Stock Exchange, in the fall of 1963 and George Palumbo & Co., Inc., a money broker, in November 1964, four firms have shared the volume of Federal funds moved through brokers. These firms are in daily telephone contact with market participants, and they act merely as agents in bringing buyers and sellers together.

[2] The Federal funds desk is run separately from Irving's transactions in Federal funds for its own account or for accommodation of correspondents.

Although the volume of transactions handled by brokers has increased since 1950, as the number of banks seeking funds has risen, most of the increase is the result of increased trading by the larger banks. The number of banks using brokers has failed to grow proportionately. There are eight banks in New York City and another 30 or more commercial banks in other parts of the nation -- at least two in each Federal Reserve district -- that perform an accommodating business for correspondents. Accommodating banks differ from brokers in that they generally deal as principals and often trade on both sides of the market. This group of roughly 40 banks constitute the major accommodators. During the last 4 years, however, perhaps another 40 have offered this service in limited degree.

The increase in the number of accommodators in the Midwest, Southwest, and West in 1964 and 1965 was significant. With the exception of the San Francisco area,[3] however, most of the important accommodators are in New York, and with the brokers they form the focal point of the market. Accommodators outside New York and San Francisco generally service correspondents on a regional basis and may cross district lines to a limited extent.

Some accommodators -- 2-way trading banks -- are net buyers, while others try to maintain balanced positions. Although all of the 2-way traders are large banks, not all large banks conduct 2-way

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[3] Banks in the San Francisco Federal Reserve District accounted for more than one-sixth of the gross transactions in Federal funds in 1966 -- a larger fraction than for any other district except New York. Two-way trades amounted to two-thirds of total transactions of banks in the San Francisco District.

Table 2

PURCHASES OF FEDERAL FUNDS THROUGH BROKERS

Year	Number of Banks[1]	Amounts (in millions of dollars)	
		Total	Daily Average
1949	15-20	$22,000	$100-150
1950	30-40	39,000	150-200
1951	35-45	53,000	210-250
1952	45-50	68,000	260-320
1953	50-75	70,000	280-340
1954	75-85	83,000	330-360
1955	85-100	79,000	320-350
1956	115-130	86,000	350-400
1957	130-145	87,000	310-340
1958	135-155	115,000	350-400
1959	140-160	94,000	330-360
1960	160-175	132,000	375-425
1961	180-210	158,000	450-510
1962	180-220	185,000	535-600
1963	185-225	160,000	430-540
1964	190-230	185,000	415-610
1965	200-240	281,000	650-887
1966	225-250	442,000	1,050-1,330

[1]An accurate percentage of Funds transactions cleared through the brokers in relation to total activity cannot be computed because of double counting. Not only does the activity of the accommodating banks overstate the net movement of funds from ultimate supplier to ultimate user within a given day, but the activity of the brokers will include some of the same transactions reported by the accommodators. Hence, in a movement of Funds from Bank X to Bank Y, two purchases may be reported--the purchase by the accommodating bank from Bank X, and the purchase by Bank Y. They may be identical. The Funds may ultimately move to Y from the accommodating bank through one of the brokers.

Source: Data 1949-1962 supplied by The Garvin Bantel Corp. - the only broker in the market. Volume data 1963-1966 based on reports of three brokers to the Federal Reserve Bank of New York. Number of banks estimated.

trading. There are also differences in the use of the market within a given area, including New York. Many banks are referred to as adjusting banks, for they may appear as net buyers or as net sellers or they may run a balanced position. The smaller the bank the more likely it is to be exclusively a seller.

Development of regional accommodating or correspondent systems facilitated the entrance of smaller banks into the market. Such systems have been designed to meet competition offered in regional markets by the large central money market banks. More recently, competition among the regional banks, soliciting business over wider areas than previously, has forced local competitors to establish facilities for their own correspondents.[4] Perhaps more importantly these arrangements reflect the attempt of the larger banks in interior parts of the United States to improve the flexibility of their own reserve positions and to meet marginal needs -- thus helping to retain and improve their position in influence and size. Numbers of banks involved in these arrangements range from five or six to several hundred. To a considerable extent these networks are mutually exclusive.

Some leading correspondents have taken an aggressive approach in developing trading positions in Federal funds to enable them to provide a "new business service" -- selling or buying funds to or from their correspondents -- while others encourage only sales. A few have adopted a passive attitude -- offering to buy or sell only upon

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[4] For example, the promotion of trading in Federal funds by large Dallas banks in 1965-66 forced city banks in Oklahoma to offer trading services to country banks more willingly, and this has resulted in extensive trading by Oklahoma banks.

specific request from the smaller banks and being reluctant to improve the familiarity of these banks with the market.

Accommodating banks usually operate on both sides of the market during the same day. In providing or absorbing funds as a service to correspondents, the accommodator generally will (1) to the extent possible, match on its own books "buy" and "sell" orders, which it receives from a correspondent or customer bank; (2) when its own reserve position is more than adequate, care for the correspondent's needs out of its own position; (3) when it is not possible to accomplish transactions by means of (1) or (2), use its best effort to cover a correspondent's needs in the national market. At times it may even borrow from its Federal Reserve Bank. In other cases the lead correspondent acts only as agent, and he pools sales of a customer bank with his own. Funds purchased by smaller banks usually come from the lead bank's reserves.

All of the accommodating or correspondent arrangements do not provide the same degree of service, and some may limit their service only at certain times during the year. In some cases they may require a collateral loan agreement of the correspondent. When the service provides for purchases of funds by the smaller banks, the lead bank usually sets up an informal "line of funds." If the correspondent's needs exceed the level of his credit line, the accommodating bank will refer the request to an officer in charge of the bank's money position or the representative who regularly calls upon the particular bank. Minimum transaction units generally range from $200,000 down to $25,000 in size. Some, however, place $200,000 as the minimum and will use $100,000 or less only under pressure. Legal borrowing and lending limits are generally observed, and this requires in a number of States that sales by smaller State bank correspondents be secured by U. S. Government securities.

Some lead correspondents charge 1/8 of 1 percentage point on purchases of less than $1 million, but will sell at the prevailing rate regardless of the amount. Other will take 1/8 of a percentage point on sales. Some lead correspondents buy and sell at the same rate. If the bank is acting as agent or if sales are usually combined with those of the lead bank, the correspondent receives the rate on the combined transaction. Few if any lead banks view the service of providing Federal funds as a source of profits.

Probably 85 per cent of the transactions are for overnight and the rest range from 3 days to 2 weeks, with the rate fixed from day to day. In some instances Federal funds remain at the bank's disposal until either party terminates the arrangement or until the rate changes. There has been a tendency to increase the length of transactions with smaller banks to minimize costs.

General Patterns of Funds Activity.[6] Trading in the Federal funds market has shown a very rapid rate of growth since World War II. This factor, along with the large number of new entrants and the spreading of knowledge about the market, has tended to blur the cyclical pattern of growth in such trading. In general, transactions in Federal funds have grown at a slower rate during periods of restrictive

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[5] One typical regional trading system with 124 members collected income and cost data for a 6-month period. Gross income amounted to $5,000 and was derived largely from rate spreads. Cost, without overhead allocation, for overhead expenses exceeded income slightly.

[6] For more detail see references cited in Appendix A

conditions in the money market. The years 1965 and 1966 were exceptions. Those years produced record levels of transactions -- reflecting increased trading by all banks as policies and practices changed, as well as a large number of new entrants. Important factors in these years were the significant shifts in relationships of interest rates in the money market, which were in part, a result of monetary policy.

As a general rule, Federal funds activity is highest over the longer run in periods when the market is neither very firm nor very easy. This reflects chiefly rate relationships. When money is tight and demand strong, the supply tends to dry up because of greater profitability of other uses of short-term funds. Under very easy conditions demand is low, driving rates down to levels where the increased supply seeks more profitable outlets.

The major cyclical shifts in supply and demand for Federal funds may be attributed to banks that consistently borrow -- sometimes in such funds and sometimes at the Reserve Banks -- to maintain their loan and investment portfolios in periods of heavy credit demands and monetary restraint. Although many of these banks remain net buyers as markets ease, their net purchases are sharply reduced.

Federal funds activity also shows intra-monthly variations in volume associated in part with float but more importantly with the ebb and flow of pressures on the large banks caused by the complex of "operating factors" such as the movement of correspondent balances, financing needs of U. S. Government securities dealers, Treasury calls and deposits, and corporate tax and dividend dates. The generalized pattern presents a sharp rise in activity at midmonth.

Intra-weekly patterns of activity also exist, but these have changed in recent years. Trading is generally a little higher on Fridays when some banks try to obtain the cumulative effect of transactions over the weekend. And trading is often heavier toward the end of the settlement week as banks seek to bring their reserves to the required level for their reserve computation period.

Smaller country banks as a rule seem to divide their activity equally more or less among the 12 months. This is in contrast to larger banks, which may concentrate their activity during certain periods of the year or which may shift from sellers to buyers or vice versa.

IV. COUNTRY BANKS AND THE MARKET

As indicated earlier, one purpose of this study was to evaluate the use of the Federal funds market by country banks as a source of funds alternate to borrowing from the Federal Reserve Banks.

Growth in Participation. Participation of the smaller country banks in the Federal funds market began to accelerate early in the 1960's and became increasingly widespread after 1962. Before that, banks with less than $100 million in deposits seldom traded in that market. The standard unit of trading there was $1 million, a relatively large amount for small banks. Furthermore, it was more than they would generally have for sale and more than they would need for reserve adjustment. The small banks usually carried excess reserves, and if these amounts were not sufficient to meet their reserve losses, the banks would borrow at the Federal Reserve or from correspondents with whom they lodged excess funds, or they would buy Treasury bills.

The forces underlying increased participation by the smaller banks in the Federal funds market have been present for some time. The basic force was the combination of rising short-term interest rates and increased banking costs, which provided a strong stimulus, particularly after 1964.

In 1961 there were probably as many as 400 country banks that traded funds at one time or another during the year. (See Table 3.) These banks generally ranged in size from $75 million to $100 million or more in deposits. Today it is estimated that about 2,500 country banks, or one out of every three, trade at least once during one reserve period in the year. This represents a five-fold increase

Table 3

PARTICIPATION OF RESERVE CITY AND COUNTRY BANKS IN THE FEDERAL FUNDS MARKET, 1961 AND 1966

Federal Reserve District	1961				1966			
	Reserve City Banks - Total Number in District[1]	Country Banks			Reserve City Banks - Total Number in District[1]	Country Banks		
		Total Number in District	Number Trading[2]	Per Cent Trading		Total Number in District[3]	Number Trading[2]	Per Cent Trading
Boston	5	256	61	23.8	4	247	204	82.6
New York	19	456	81	17.8	15	394	200	50.8
Philadelphia	6	468	40	8.5	6	402	200	49.8
Cleveland	21	530	60	11.3	16	488	225	46.1
Richmond	16	412	29	7.0	17	392	168	42.9
Atlanta	25	395	15	3.8	26	494	205	41.5
Chicago	27	976	70	7.2	26	980	450	45.9
St. Louis	18	460	14	3.0	15	468	151	32.3
Minneapolis	11	465	10	2.2	8	487	85	17.4
Kansas City	35	722	12	1.7	22	813	175	21.5
Dallas	21	609	10	1.6	17	658	175	26.6
San Francisco	24	136	40	29.4	21	204	100	49.0
Total	228	5,885	442	7.5	193	6,027	2,338	38.8

[1]Percentage of Reserve city banks trading ranged from 50 to 100 per cent in 1961 and from 95 to 100 per cent in 1966. The smaller percentages apply to Midwest and Southwest Districts.

[2]Data for Boston, Philadelphia, New York, Richmond, Chicago, Minneapolis, and Kansas City Districts derived from surveys. Other data partially estimated.

[3]Data are for the beginning of 1966.

Source: Board of Governors of the Federal Reserve System, Federal Reserve Bulletin, June 1966, pp. 894-95; and May 1962, pp. 646-47.

in numbers since 1961 and a doubling since 1964. These include banks with deposits of as little as $1 million, and some are found in every Federal Reserve district.[7] The greatest growth in participation, however, has been among banks in the $10 million to $50 million deposit grouping. For banks with deposits of $10 million or less, it is estimated that between 15 per cent and 72 per cent of the number in the several districts currently participate (see Table 4). In general, activity is related to bank size -- with the proportion of banks that trade increasing with each size class up to the level of $50 million in deposits. Participation now includes significant percentages of banks in the third and fourth size categories, where banks are ranked by size of deposits into six groups of 1,000 each. The fifth and sixth thousand comprise banks of less than $5 million in deposits -- found in greatest numbers in the Midwest and South where activity rates are lowest.

The reduced size of the trading units in correspondent trading arrangements has not only encouraged small country banks to enter the market but has increased the frequency of their trades within reserve periods. It is no longer necessary to accumulate funds during a part of the reserve period to meet transaction sizes.

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[7] The Minneapolis District has the lowest rate of participation of any district -- probably because of the bank holding companies located there and the large number of very small banks. One large holding company arranges purchases and sales for its members through the Bank of America, with appropriate entries to reserve accounts at the Federal Reserve Bank of Minneapolis. About two-thirds of the trading banks in the Minneapolis District are members of this bank holding company.

The repeal of Section 6 of the Bank Holding Company Act in July 1966 and concurrent withdrawal of the Federal Reserve Board's ruling of 1959 prohibiting trading of Federal funds between bank subsidiaries of a holding company apparently had had little effect on trading by the end of 1966. After July 1 subsidiary banks of a holding company were in effect permitted to deal with each other at arm's length and were consequently as free to trade Federal funds as are any other banks within the limits and collateral requirements of Section 23A of the Federal Reserve Act.

Table 4

PARTICIPATION OF SMALL MEMBER BANKS IN THE FEDERAL FUNDS MARKET, 1966
Banks with deposits of $10 million or less

Federal Reserve District	Total Number in District[1]	Banks Trading Funds		Memo: Percentage of Total Country Banks in Dictrict
		Number[2]	Per Cent of Total	
Boston	139	100	72	56
New York	185	44	24	47
Philadelphia	237	50	21	60
Cleveland	285	63	22	58
Richmond	251	57	23	64
Atlanta	280	56	20	57
Chicago	600	150	25	61
St. Louis	346	69	20	74
Minneapolis	360	54	15	74
Kansas City	650	90	14	80
Dallas	491	98	20	75
San Francisco	117	39	33	57
Total	3,941	870	22	

[1] Based on numbers of banks shown in annual member bank operating ratios or monthly reviews of the Federal Reserve banks.

[2] Figures for Boston, Philadelphia, New York, Richmond, Chicago, Minneapolis, and Kansas City Districts derived from surveys. Data for other districts are partially estimated.

Even so, most of the trading in Federal funds continues to be concentrated in a relatively small number of large banks in the money market centers. About 46 banks, a third of which have deposits of $1 billion or over, account for three-fourths of all transactions. It is the transactions of these banks that have the greatest impact on the money market. The tendency up to the mid-1960's was toward increasing concentration, but a small lessening in concentration has developed with the rise of regional correspondent systems with widespread participation on the part of country banks. Although the average dollar volume of transactions of most of the country banks is relatively small in the aggregate and does not have a substantial impact on the money market, the transactions of these banks play a continuous role that is marginally important to reserve management of most participants.

Sales of Funds. Although country banks of all sizes both buy and sell Federal funds, they are generally sellers more often than buyers, and they sell substantially more than they borrow. The typical movement of Federal funds is from smaller country banks and smaller city banks to the major city banks. On balance, country banks supply net to the market from $800 million to $1 billion on the average daily, or from one-fifth to one-quarter of the total volume of trading. This amount represents from 10 per cent to 12 per cent of the required reserves of country banks. Most of these funds come from banks with at least $25 million of deposits.

The increased participation of country banks in the market is reflected in the reduction of the ratio of their excess reserves to required reserves and in the ratio of demand balances due from banks to total deposits. In 1961 these ratios were 8.0 per cent and 7.0 per cent, respectively. By 1966 they had declined to 3.5 per cent and 5.4 per cent, respectively -- suggesting that the decline in excess reserves is real and not simply a transfer of funds from one nonearning asset to another. The growth in sales of Federal funds by country banks has been greater than the decline in their excess reserves. The fall in the ratio of demand balances due from banks occurred despite a modest increase in the level of such balances; in 1966 these balances averaged 12 per cent higher than in 1961, whereas total deposits had risen by 49 per cent. The increase in the balances reflected largely operating needs. Relatively few leading correspondents are reported to have insisted on larger balances in return for providing Federal funds. Some participants are reported to have made voluntary increases in deposit balances because they liked the service.

Many smaller country bankers indicate that trading in Federal funds has reduced their reliance on purchases or sales of Treasury and other money market instruments as a means of reserve adjustment. In general, these bankers continue to feel that Treasury bills and similar instruments involve inconvenience, cost, and exposure to market loss when used to adjust reserve positions within the 2-week settlement period. Some indicate that their reluctance to place liquid reserves in Treasury bills have previously resulted in manitenance of excess reserves at a higher level than that which they found desirable since they entered the Federal funds market.

Smaller banks thus have reduced their nonearning assets by selling Federal funds, and in some cases they have substituted these funds for other earning assets. And the larger city banks have bought Federal funds to facilitate maintenance of a position in loans and investment with relatively high yield.

Country banks can be net sellers only to the extent that city banks are buyers. The eagerness of the larger banks to buy in recent periods is reflected in the breaking down of large transaction units into units of $200,000 and less. An increasing number of larger country banks are acquiring Federal funds and are then "laying them off" or arranging "arbitrage" -- in the form of a repurchase agreement with U. S. Government securities dealers made at a higher rate than the purchase; or some may put the funds into Treasury bills when the rate on bills is attractive relative to the Federal funds rate.

Purchases of Funds. On the buying side, relatively few country banks rely heavily on the Federal funds market as a source of funds, and the effect of their aggregate transactions is negligible. Average daily purchases probably do not exceed $300 million -- or not more than 3.7 per cent of required reserves. And many smaller banks have no need to borrow from any source.

A bank's appraisal of the advantages and disadvantages of using the Federal funds market or the discount window or of liquidating Treasury bills is a major factor in its decision of how to adjust its deficits. Frequently, the decision reflects practical considerations of which convenience is seemingly more important than cost.

In sharp contrast to attitudes of most of the larger banks, many country banks indicate that they seldom obtain funds in the Federal funds market although they use that market regularly to dispose of excess funds. These banks apparently have no hesitancy about borrowing from the Federal Reserve. In fact, they prefer to resort to the discount window rather than attempt to obtain Federal funds or to liquidate securities, particularly in a declining market or when the outlook for rates is uncertain. In this group are banks that never buy Federal funds and some that buy them only when there is a rate advantage.

These banks cite the following advantages of using the Federal Reserve discount window:

Convenience. Notes can be prepared in advance and collateral is already in safekeeping. This avoids the necessity for trying to locate Federal funds, particularly when they are scarce.

Timing. Funds can be obtained from the Federal Reserve later in the day. In certain cases, the time differences between New York and the West are very important.

Dependability. The Federal Reserve is a more dependable source of funds, and banks can borrow the extra amount needed; sometimes this amount may exceed the amount that can be legally borrowed in the market.

Cost. Borrowing at the Federal Reserve is slightly cheaper when rates are nominally the same because interest is figured on a 365-day basis instead of the 360 days used in calculating interest on Federal funds. Since balances are maintained at the Federal Reserve Banks, it is argued that some use should be made of them. And if banks turn to the correspondent, it is possible that the correspondent bank would ask that the requesting bank deposit additional balances, which would tie up more funds and raise the cost to that bank.

Some District Comments on Funds Trading. The following comments by Federal Reserve Banks in several districts reflect the practices and attitudes of smaller banks toward use of the Federal funds market.

Chicago

"We are reasonably sure that the large Chicago banks do not encourage their country correspondents to purchase Fed funds, particularly in the current situation, but some individual banks can get overnight money this way largely due to competition among large banks for correspondent balances. It is our impression that the Fed funds available to small banks from their correspondents are considered part of the package of correspondent services and that a banker that keeps a good balance may be able to get Funds if he wants them. But it seems much more likely that he may prefer to draw down his balance temporarily when he needs short-term money. <u>We still find evidence that there are a good many small banks that do not know anything about Federal funds and some seem unaware that they can buy as well as sell</u>."

(Underscoring supplied) <u>Letter</u> F.R.B. Chicago, September 19, 1966.

<u>Richmond</u>

"Most banks meet reserve deficiencies in the short run primarily by buying Federal funds or borrowing from the Federal Reserve. Large banks tend to incur deficiencies more frequently than small banks and therefore rely more heavily on both sources of funds. Of the 120 banks in the survey with deposits of less than $5 million, 4 percent bought Federal funds and 12 percent borrowed at the discount window in 1965 but less than 1 percent tapped both sources. In the next size classification $5-$10 million, only 2 percent of the 129 banks used both sources while 13 percent bought Federal funds and 17 percent borrowed from the Federal Reserve. The proportion using both sources rose rapidly to 8 percent in the $10-$25 million range, 29 percent of the $50-$100 million banks and 82 per cent of banks with deposits over $100 million."

"The proportion of banks buying Federal funds but not borrowing at the discount window also rose with bank size up to the $100 million level, then dropped strongly from 43 percent to 9 percent... The combination of those buying Funds and those using both sources grew steadily with bank size ranging from 5 percent to 91 percent. Thus, the larger the bank the stronger the tendency to borrow."

F.R.B. Richmond, <u>Monthly Review</u>, September 1966, pp. 10,11.

<u>Minneapolis</u>

"The results of the survey indicate that only a limited number of Ninth District member banks made use of the Federal funds market. Among those that did enter the market, size and frequency of transaction seemed directly related to size of bank."

"The average frequency of purchase like size of transaction varied by size of bank: small banks made fewer purchases than large banks. For example, each of the seven banks with deposits of between $4 and $8 million that entered the market on the buying side made an average of 7.6 purchases. On the other hand, each of the largest-size buyers, $32 million and over, averaged 48.6 purchases."

"The average number of sales among banks that were active in the selling side of the market was somewhat lower, 17.4, than the number of purchases per bank. Average sales were pulled down by the behavior of the larger banks those with $16 million and more in deposits; on the average each of the larger banks made fewer sales than purchases."

"Several banks, however, returned their questionnaire with the comment that they had never heard of Federal funds."

"The negative attitude of some city banks (in trading Funds with smaller correspondents) may be explained by their status as members of one or another of the several holding companies that exist in the district... larger city banks that are members of a holding company (are) legally able to trade funds with some of the country banks they serve as correspondents but not with others. Their attitude towards trading with country banks may reflect a desire to avoid having to discriminate among customers."

(Underscoring supplied) F.R.B. Minneapolis, Monthly Review, July 1966, pp. 6, 7, 8.

New York

"Second District country member banks as a group entered the market more often as sellers than as buyers -- in accord with the fact that country banks... hold relatively high levels of excess reserves."

"... most of the participating banks... with less than $10 million in total deposits entered the market only as sellers." ... participating banks in the intermediate size range, $10 million to $25 million in deposits was fairly evenly divided between banks that just sold funds and banks which acted as both buyers and sellers while most banks with deposits of $25 million or more traded at various times on both sides of the market. Even among banks which both sold and purchased funds, however, the frequency of transaction on the selling side was substantially greater than on the purchasing side."

F.R.B. New York, Monthly Review, May 1966, p. 115.

Philadelphia

"Some 30 percent of the nonbuyers and 45 percent of the nonsellers suggested that they feel too small to be active in

Federal Funds. As would be expected, these banks are indeed almost always very small and typically are located in rural areas. It should be important, however, that there are many banks as small or even smaller that are active... The true explanation is, therefore, that management is either unaware of the opportunities offered by the market or feels that the potential profit from Federal funds transactions does not justify the 'trouble' of entering the market."

"... only 15 and 17 percent of the nonsellers and buyers respectively noted that they were unaware of Federal funds and most of them are the smaller banks.(Some lead correspondents) have apparently not been so active (as others) in acquainting their country correspondents with the Funds market."

"Country member banks which avoided Federal funds because they preferred other methods of borrowing and lending were frequently large institutions, frequently situated in urban areas. Rather than buy they borrow directly from correspondents or at the discount window."

(Underscoring supplied) F.R.B. Philadelphia, Monthly Review, August 1966, pp. 8,9.

Kansas City

"No accurate figures on the number of member banks trading in Federal funds resulted from the survey. Some guesses are possible, however. Under 10 percent of the member banks with deposits of less than \$5 million trade Federal funds. Approximately 25 percent or less of the banks with deposits of \$5-\$10 million participate in the market. About 50 percent of the member banks in the \$10-\$50 million size range participate. Over 90 percent of the over \$50 million banks participated through member correspondents."

"The number of banks participating in the Federal funds market is apparently largely dependent on awareness and familiarity with the market and many smaller banks in the District are unacquainted with Federal funds and the large city banks are not encouraging familiarity. The number of participating banks is growing rapidly, however, as knowledge of the market spreads through other channels."

"Most of the smaller banks that are trading Federal funds are sellers of funds. The city banks have no explanation of this except for reference to the traditional aversion of small banks to borrowing."

Letter, F.R.B. Kansas City, December 16, 1966.

San Francisco

"Recent data from District Federal funds reporters indicate that both California and Pacific Northwest banks have been selling and purchasing funds from other District Banks. Some of these transactions have been in small magnitudes -- indicating the probability that the transactions were with relatively small banks."

"A check with our Discount Department disclosed no complaints by banks applying at the discount window about lack of access to Federal funds market."

"It would appear, therefore, that small banks in the San Francisco District do have access to the Federal funds market through their correspondent or other banking relationships. The only bar would appear to be for the smallest banks which cannot profitably participate in the market on the sell side because of the small volume of their lendable funds."

"June 30 call report data... indicate that even banks with less than $2 million in deposits participated in the Federal funds market on both the buy and sell side. This confirms interviews with District banks -- which make a market in Federal funds -- that small country banks were actively participating in the market at times in such small amounts that interest costs probable did not cover the communication cost of the transaction."

Letter, F.R.B. San Francisco, November 11, 1966.

V. FEDERAL FUNDS VS. BORROWING AT RESERVE BANKS

On an average day in the late 1920's, Federal funds traded for all member banks ranged from about 4 per cent to 10 per cent of required reserves. In the late 1950's and early 1960's this ratio ranged from about 7 per cent to 12 per cent of these requirements. At the time of this writing, the ratio is close to 25 per cent. By this measure, trading in Federal funds has become of substantially greater relative importance than in earlier periods. It should be noted, however, that the reserve requirement level is about 20 per cent higher than in the 1920's. Meanwhile, trading in Federal funds has shown a much greater rise; as compared with the lower limit of the trading range, it has increased 15 times, and as compared with the upper limit, it has risen about 10 times; as compared with the 1950's, the ranges have more than tripled.

If the daily-average volume of discounts and of trading in Federal funds are combined, the total at times in the 1920's reached about 50 per cent of required reserves in contrast to about 12 per cent in heavy trading days in the 1950's and 21 per cent in recent periods. This indicates that borrowings from the Reserve Banks made up a substantially larger part of the reserve base in the credit superstructure of the 1920's.

It should also be noted that borrowings from the Reserve Banks during periods of expansion in the 1950's and 1960's averaged about $100 million less than in the late 1920's. However, the composition of total borrowing as suggested by the figures above was reversed; the ratio of Federal funds to borrowings in the 1920's was about one to four; now it is four or five to one. It may be said that in the

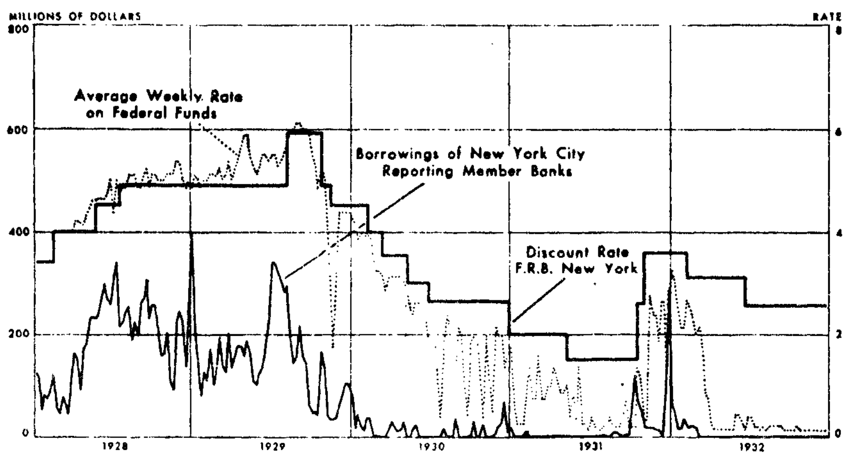
1920's Federal funds were considered a supplement to discounting but that in the 1960's discounting had become a supplement to trading in Federal funds. Although transactions in Federal funds relieve the individual bank from use of the discount window, they do not relieve the banking system as a whole from reliance on the Federal Reserve.

VI. THE FEDERAL FUNDS RATE

Except for a period of about 2 years in the late 1920's and a similar period beginning in the midautumn of 1964, the Federal funds rate has fluctuated between the discount rate and a lower limit at 1/8 to 1/2 of a percentage point. Because of their access to the discount window at the Reserve Banks, member banks have not usually been willing to pay more than the discount rate. The lower limit of the Federal funds rate is set at the point where banks recover costs, even though some accommodating banks may absorb some of these costs in promoting the market.

Chart 1

THE RATE ON FEDERAL FUNDS -- NEW YORK



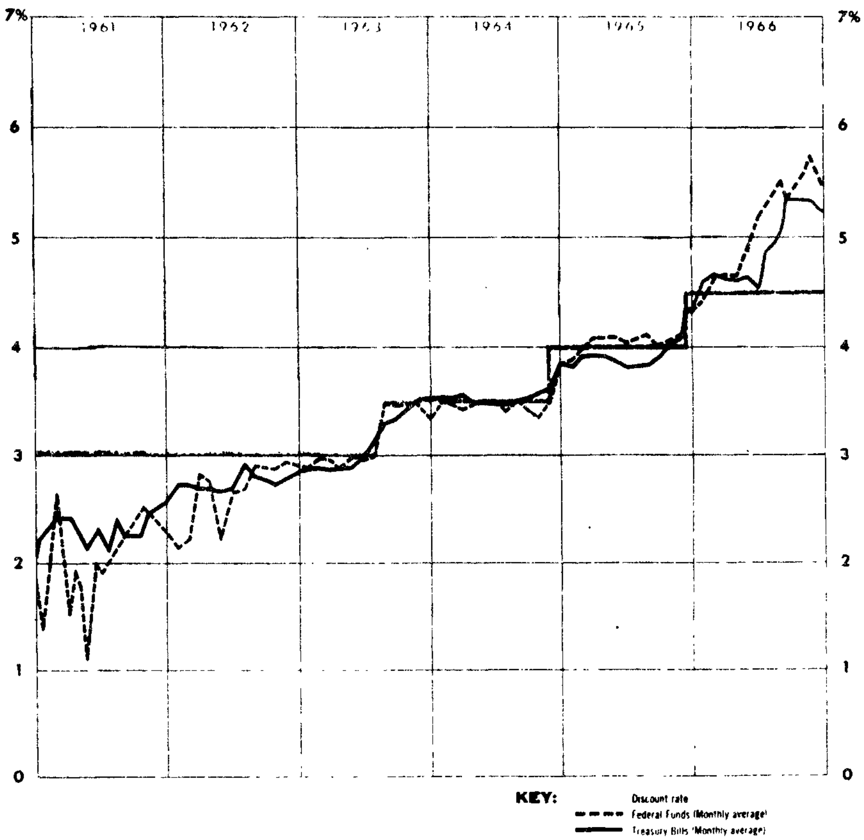
SOURCE: N. Y. Herald Tribune and Federal Reserve Bank of New York. Funds Rate Data not available in series from prior to April 1928.

Transactions in Federal funds between banks are now quoted in terms of the effective or prevailing rate -- the level at which the great bulk of transactions are accomplished. The quote is considered representative of rates for the entire market -- New York City and elsewhere. Quotations above and below the effective rate, when they occur, merely indicate a range of quotations on a given day. During the postwar period the quotes have usually changed by 1/4 of a percentage point, but more recently, as in other markets, the change has frequently been 1/8 of a percentage point -- reflecting extent of competition within this market and the relation to rates in alternative markets. Differentials of 1/4 of a percentage point were also a characteristic of the 1920's.

The premiums that were bid on Federal funds during the 1920's ranged from 1/8 of a percentage point to more than a full percentage above the discount rate when the latter was at levels of 4, 4 1/2, 5, and 6 per cent. Banks' willingness to pay this rate was attributed to lack of eligible paper or to fear of criticism at the Reserve Bank because of loans on stocks. The premium bid of the mid-1960's developed from the efforts of leading banks to obtain a larger volume of reserves for lending and investing and from fears that they would be criticized if borrowing from the Federal Reserve were used for extended or continuous periods. At times the premium that emerged was 1 5/8 percentage points above the 4 1/2 percent discount rate, and on November 2, 1966, it was 1 3/4 percentage points. After the discount rate was raised to 4 1/2 per cent in December 1965, it was not changed and lost touch with market rates. Under the circumstances the premium on Federal funds was undoubtedly larger than it would have been if the discount rate had been raised to conform with general increases in market rates. In a sense the Federal funds rate became a discount rate. Discipline exercised at the discount window insured that Federal Reserve advances were not a steady and continuous source of supply for any given bank; hence banks had to obtain reserves from the Federal funds market, and demand forced up the rate on these funds. Administration of the discount window in the 1950's and 1960's was more severe than in the 1920's and was substituted for the higher discount rate levels that had prevailed in the earlier period.

Chart 2

MARKET RATES ON U. S. THREE-MONTH TREASURY BILLS,
FEDERAL FUNDS, AND FEDERAL RESERVE
BANK OF NEW YORK DISCOUNT RATE

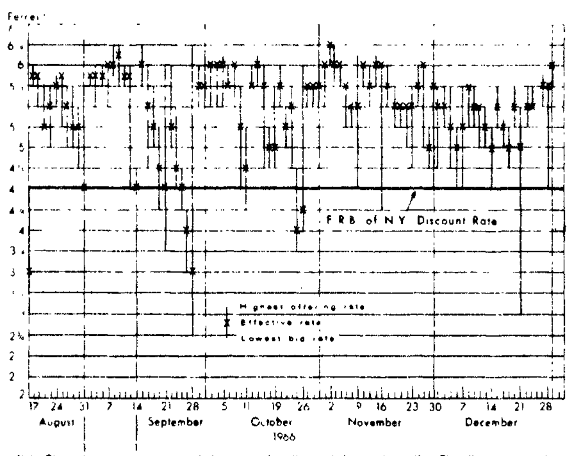


This was particularly true in 1966. In late summer the System issued a letter dated September 1 calling for cooperation of member banks in curtailing expansion in loans to business. The letter indicated that member banks experiencing deposit losses that made efforts to reduce loan expansion instead of cutting further into municipals, would be extended credit for a longer period than usual. The banks, however, did not take advantage of this offer to any extent and made most of their adjustments without the System's assistance, showing a strong preference for the "privacy" of the Federal funds market.

Paying more than the discount rate for Federal funds reflects the elasticity of the demand for these funds. In fact, the market may be said to represent a source of marginal demand and supply, one in which increases in either demand or supply quickly result in higher or lower interest rates in contrast to some other markets where competition is less perfect. The rate acts as a sensitive indicator of shifting pressures in the banking system -- particularly when related to who is supplying the funds, to the volume of the flows, and to the depth of the demand. The huge flow of Federal funds during the past 2 years and the widespread participation of banks of all sizes in the market underscore this characterization of the market.

Chart 3

DAILY RATE FOR FEDERAL FUNDS AND FEDERAL RESERVE
BANK OF NEW YORK DISCOUNT RATE



Note The vertical lines represent each day's range from the low bid to the high offer. The effective rates indicated by X marks were reported to the Trading Desk at the Federal Reserve Bank of New York as the rates at which the largest volume of business was transacted

Source Federal Reserve Bank of New York

Transactions are accomplished rapidly and efficiently in increasing volume for increasing numbers of banks at nearly uniform rates. This reflects a high degree of adjustment between demand and supply and price and quantity exchanged. The several markets and several market rates that may exist at any given time are each the result of forces of the same general character but of different magnitudes in the several markets. The rates are not unrelated to each other but they reflect distinct prices, and the departures from the effective rate merely reflect a wider range of quotes on a given day.[8] Lack of perfect adjustment and of a uniform rate arises from institutional friction, the absence of knowledge of the market as a whole, and use of Federal funds by nonbank groups and others.

The growth in unity and breadth of the Federal funds market and the increase in its efficiency during the 1960's have strengthened the "links" among the various divisions of the money market and the links of the money market to the longer-term credit markets. A given volume of Federal funds will now move through that market with less change in rates than was formerly the case, the market participants may move back and forth from one sector of the money market to another in response to shifting rate differentials without causing disruptive price changes.

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[8] See Chapter 4, Trading in Federal Funds -- Findings of a Three-Year Survey, by Dorothy M. Nichols, Board of Governors of the Federal Reserve System, Washington, D. C., September, 1965, for a detailed discussion of determination of rates and rate structure. This study provides a detailed analysis of Funds transactions by 250-260 banks that reported to the System between September, 1959, and September, 1963.

VII. THE MARKET AS A SOURCE AND OUTLET FOR FEDERAL FUNDS

In general, the Federal funds market has encouraged and permitted banks to reduce their excess reserves and, in addition, has helped to distribute reserves supplied by the Federal Reserve through open market operations, the discount window, and reductions in the level of required reserves. For all banks the market provides an important means of adjusting their reserve positions, and the condition or atmosphere in the market is related to developments in other segments of the short-term market.

The Federal funds market also represents both a source of and an outlet for these funds over periods of time. Deposit swings, however, force short-run variations in the size of purchases or sales. Transfers of reserves from selling banks to buying banks -- in addition to reducing the excess reserves of the selling banks -- influence the composition of assets in the banking system. Net buyers of Federal funds absorb the obligation of extending credit to a variety of users.

The smaller country banks use the market principally as an investment medium, and their widening use of the market in recent years has caused them to compute reserve requirements more accurately and to sell excesses to city banks. Country banks are much less active on the buying side, and as was indicated earlier, some of them prefer to go to the Federal Reserve when the need to borrow arises. Most of the country banks that do not participate in the Federal funds market hold deposits of $5 million or less. Some of these banks have no familiarity with the market, but others state that they expect to enter the market in the future if conditions suit them. Banks of this size that do participate are almost exclusively sellers, but a few of them state that they would borrow if necessary.

With country member banks in the Federal funds market now totaling more than 2,500 some of which are small banks in terms of their total deposits, it is doubtful that the dimensions of the funds market will increase substantially in the future. There are considerable differences in management capability of very small nonparticipating banks. Furthermore, many of them would find it too costly to participate, even as sellers. This cost is measured in terms of maintaining statistics on their flows of deposits, following market developments, and communication. On the buying side, the question may be raised whether smaller banks should be encouraged to become borrowers for the periods of time necessary to support additions to their portfolios even if the demands by their customers could be met in this way. The same question may be raised about some of the larger city banks, which may have exploited borrowing sources outside the Federal Reserve. Considerable skill is necessary to use short-term markets as dependable sources of reserves.

However, some observers feel that easier access to borrowings in the Federal funds market should be provided for smaller banks. Among the proposals to facilitate this are auctions in Federal funds and the performance of a brokerage function by the Reserve banks; each of these proposals is discussed later.

Clearcut evidence of the difficulty of access to the Federal funds market is lacking, particularly when the growth and development of the market over the last 5 years are reviewed. Additional participation or more continuous participation in the market by the smaller banks, if desired, can be accomplished by breaking down the innate conservatism of nonparticipants and by broadening their knowledge of the marke

VIII. ALTERNATE INSTRUMENTS OR SYSTEMS OF CONTROL

The Steering Committee, summarizing issues involved in reformulation of the "Discount Mechanism and Concept" has stated that over and above the considerations as to control mechanisms, there is need to consider the efficacy of alternative instruments of systems of control from the broad viewpoint of over-all public policy and the discount mechanism as a whole.

Auctions of Federal Funds. One suggested modification is to replace the present-purpose constraints with a quantitative limitation on borrowed reserves through regular auctions of pre-determined amounts of Federal funds (reserves). In each reserve-computation period the banks could bid for Federal funds and pay for them by tendering their own liabilities -- auctions might be used as the major source of reserve credit or for particular purposes.

The Steering Committee has also raised the following questions relating to the possible use of auctions: What becomes of open market operations -- as a provider of credit for certain other purposes or as a supplemental tool to correct errors in the auction process? What policy measures other than "price" of Federal funds auctioned would be needed to insure a proper allocation of Reserve Bank credit? Who should determine how often and what volume of reserves to auction? How would the funds be auctioned -- in the Federal funds market; or by a procedure similar to that for selling Treasury bills; or by a new method?

In the academic seminar discussing changes in the discount window[9]

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[9] Academic Seminar in Changes in the Discount Window, May 11, 1966, unpublished transcript, Board of Governors of the Federal Reserve System, pp. 158 ff.

suggestion was made that the auction be run on a 13-week cycle, say $500 million each week. Unsatisfied demands during a given week would be met at a penalty rate, that is, at a rate above the auction. Another suggestion was to hold the auction daily or with some other regularity -- with arrangements for filling noncompetitive bids at the average rate in the auction and for providing any additional amounts needed at a penalty above the average rate.

Advantages advanced for the auction proposal were that it would broaden the Funds market to the smallest bank in the smallest transaction, stabilize the sum total of System loans -- the amount of rediscounts could be fixed forever or can be changed, would provide a market determined rate (as compared with the discount rate), and that the banking system would never run out of liabilities as a means of payment.[9]

The disadvantages noted were that it would be difficult to determine the amount to be auctioned and that determination of the amount against projected demand would in effect set the rate -- that is, the problem of determining the quantity is similar to that of fixing the rate.

Without additional detail or assumptions a complete analysis of the effects of the auction proposal on present institutions in the money market is not possible. Offhand, however, it would seem that the proposal, in order to be successful, would have to replace completely, or at least in substantial part, the present range of facilities, which now satisfy quite efficiently the requirements of both sides of the Federal funds market -- facilities that have evolved over time "to bridge" the unit banks. Such facilities include the

[10] *Ibid.*, p. 162.

discount window. The market would be given an official status, and it would present new problems for the System in necessitating that more continuous and up-to-date judgments be substituted for those now made by market participants.

On the assumption that the auctions would be limited to sales of Federal funds, formulas for awards would have to be determined in such a way as to prevent cornering of the market and disorderly trading after the funds had been sold. Otherwise rate fluctuations of large amplitude could often be expected. It is not clear how open market operations could be used to compensate for errors if too large a volume of funds were supplied in an auction. Even with present techniques -- including reverse repurchase agreements -- open market operations could not be used with the continuity necessary to complete the adjustments.

Trading in Federal funds continues throughout the day -- reflecting the constantly shifting needs of banks. The present market mechanism centralizes buyers and sellers for all practicable purposes at a single point, and changes in ownership of funds are facilitated by the willingness of numbers of participants to match demand and supply -- absorbing or making the residue available at a price.

If the Federal Reserve were to enter this mechanism, the mechanism would be materially altered, to the extent that the Federal Reserve became a central point for sales; and the System would be forced to communicate, directly or through agents, with hundreds of banks -- a mechanical problem of some magnitude even with the aid of computers.

It would be difficult to demonstrate that a better allocation of Federal funds would be achieved or that the efficiency of the market would be improved. Compensating for errors on the short side at a penalty rate (above the auction average) or with additional auctions suggests the need for precise estimates of needs, and this the existing data cannot provide. Setting the penalty rate in the periods between auctions would offer the problems in determining the System-wide penalty differential, and the basis on which it would be applied. Market expectations could feed on themselves with disturbing effects on rates if the auctions were frequent and variable in amount, as would appear to be necessary.

In this connection there is a risk that in attempting to overcome these rate fluctuations the System might be obliged to abandon its auction and establish an administered or pegged rate. In this event, changes in this rate would raise problems similar to those associated with decisions to change the discount rate. In terms of an extreme, sales of Federal funds in auctions might after a time lead to demands that the System also purchase Federal funds, resulting in an enormously complex operation in which the System might in fact become the whole market.

If under the proposal some banks were able to secure more Federal funds than they can in current markets, other banks would command a smaller amount; or within the framework of the "administered price" they might have to pay more than they could conveniently afford. There is no means of providing an objective test as a basis of reference for administrative action, whether designed to achieve direct-use allocation of Federal funds or a new structure of prices that would encourage reallocation of funds among users.

The present market for Federal funds works efficiently, and it is relatively free from frictions that would limit free flows of funds, as evidenced in the coherent and consistent structure of rates. Funds rates are now considered an excellent measure of pressures within the banking system, and they aid in forming a range for other rates and in strengthening the short-term rate anchor in relation to rates in the capital market. The discount rate provides a reference point, as the sensitive market rates move above and below it. As noted earlier, the widespread participation in the Federal funds market and the closer links of that market to other parts of the money market have led to more rate stability and smaller fluctuations in rates than earlier.

Unless clearcut advantages can be shown for the proposal, it seems unwise to tamper with the current market mechanism, which commands confidence. Changes in money and capital markets that disturb confidence can have disproportionately large effects elsewhere in the economy.

Federal Reserve Banks as Clearinghouses for Funds Transactions of Smaller Banks. The suggestion has been made from time to time that the Federal Reserve Banks establish facilities for matching the requests for sales and purchases of Federal funds of the smaller banks in their districts. This service would be strictly that of a broker. The Reserve Banks would match demand and supply to the extent possible and would refer unsatisfied needs to other participants in the market. Telephone and other communication costs would be absorbed by the Reserve Banks. This proposal is less radical than the auction, but it suggests many of the same problems. It involves the question of direct intervention in the market and excites expectations of further intrusions.

With the present high degree of development of the market and the lack of evidence of unsatisfied needs, there seems to be no justification for further consideration of the proposal at this time. Available information about the market shows a high degree of participation, especially by large banks. The market provides ample facilities, and it is expected that further participation by smaller banks will come about as need develops.

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