THE FEDERAL RESERVE

LEASED WIRE SYSTEM

ITS ORIGIN PURPOSES AND FUNCTIONS

by

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PREFACE

A major portion of the reference material utilized in the preparation of this thesis was obtained from correspondence, telegrams, memoranda, reports of committees and individuals, operating procedures and instructions, agreements and other unpublished documents contained in the files of the Federal Reserve Bank of New York. While these sources are not specifically cited in the footnotes or under the bibliography, full acknowledgement is made of their importance and the liberal extent of the references made thereto.

The writer assumes full responsibility for all statements, interpretations and conclusions contained herein. The opinions expressed are his own personal views, formulated as the result of research and experience, and this thesis does not purport in any way to express or reflect the opinions of the Federal Reserve Bank of New York, the Board of Governors of the Federal Reserve System, or any other individual, group or organization.

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CHAPTER I

INTRODUCTION

The Federal Reserve Leased Wire System is a nationwide telegraphic network which provides a teletypewriter service between, and for the exclusive use of, the Board of Governors of the Federal Reserve System, the twelve Federal Reserve Banks and their twenty four branches, the Treasury Department (Washington, D. C. and Chicago Offices) and the Commodity Credit Corporation (Washington, D. C.).

Summary of Types and Significance of Messages Handled

Each day there flow over the facilities of the Federal Reserve Leased Wire System thousands of messages involving transactions of considerable importance not only to the Federal Reserve Banks but also to member banks of the Federal Reserve System, the Treasury Department and to the public in general because of the significant role which the subject matter of the messages plays in our national economy. Some of the messages represent wire transfers of funds totaling billions of dollars daily. These reflect the flow of investment funds to and from the central money markets, purchases and sales of federal funds for reserve purposes and adjustments of available balances for accommodation of the seasonal and otherwise varying needs of industry, commerce and agriculture throughout the different sections of the country. Others are for the purpose of making transfers by wire of marketable bearer securities of the United States Government in connection with sales of such securities to purchasers in other Federal Reserve cities. Still others relate

to important matters of Federal Reserve policy including open market operations, changes in discount rate and member bank reserve requirements, margin requirements in connection with loans secured by stock exchange collateral and other matters pertaining to the monetary policies of the Federal Reserve System. A great many of the messages are concerned with Treasury financing or other aspects of fiscal management. A number relate to the collection of cash items as well as the advice of return of such items because of nonpayment. Daily settlements of all transactions between the several Federal Reserve Banks are effected over the leased wire system through operation of the Interdistrict Settlement Fund and numerous other messages conveyed via the leased wire system pertain to the normal day to day communications among Federal Reserve offices. The leased wire network has quite appropriately been referred to as the central nervous system of the Federal Reserve Banks.

Objective of Thesis

It will be the purpose of this thesis to describe the present facilities of the leased wire system and comment on pending improvements; to trace the historical development of the leased wire system to its present form; and a special effort will be made to indicate the scope and nature of the various types of transactions functioned over the leased wire system from the point of view of their importance not only to the Federal Reserve Banks but also to their member banks and the general public.

CHAPTER II

ORGANIZATION AND FACILITIES

Characteristics of Equipment

The Federal Reserve Leased Wire System in its present form had its inception in July 1953 when the American Telephone and Telegraph Company adapted its so-called 81-D-1 Automatic Teletypewriter System to meet the particular requirements of the Board of Governors of the Federal Reserve System, the Federal Reserve Banks and the Treasury Department. The installation consists of the most modern equipment available and is designed for the rapid, fully automatic transmission of messages. Private lines or circuits connect each station on the network. The lines and equipment are designed for handling transmissions at speeds up to seventy five words per minute and all circuits are arranged for duplex operation, that is, one channel for sending and one channel for receiving. This permits the simultaneous receipt and transmission of messages over the same circuit by any station on the network and eliminates the delays and limitations imposed by the use of single or "one-way" circuits.

Each station on the network is equipped with at least one friction feed sending teletypewriter and a corresponding receiving teletypewriter, for the transmission and receipt of conventional messages, with the exception of the Commodity Credit Corporation whose requirements are met by a single receiving machine. The occasional messages which are sent by that corporation are transmitted over the facilities of the Board of

Governors. In addition, under a new procedure originated by the Federal Reserve Banks in cooperation with the American Telephone and Telegraph Company, which is now in the process of installation, each Federal Reserve Bank and branch will be equipped with special sprocket feed sending and receiving teletypewriters for multiple form transmission of messages pertaining to wire transfers of funds. Provision is also being made for installing similar sprocket feed equipment for receiving wire transfers of United States Government securities at all head offices and branches, except Buffalo and Helena which do not process such transfers. Installation also will be made of separate multiple form sending machines for messages pertaining to Government security transfers at those Federal Reserve Banks and branches where the volume of such transactions is sufficient to warrant the installation of this specialized type of equipment.

The advantages of the new form transmission procedure are that at the sending bank the preparation of all advices and entry tickets on multiple part forms and the transmission of the message will be accomplished in a single operation, and at the receiving bank all necessary accounting forms, advices, and other required records will be prepared automatically by the machine receiving the message. This will eliminate a series of coding, decoding and typing operations which previously were required and will result in considerably more expeditious service to member banks of the Federal Reserve System, to dealers in United States Government securities and to the general public in consummating transfers of funds and making deliveries of securities. Although substantially increased rental will result from the additional equipment and circuits which will be required under the new form transmission procedures, it is expected that the Federal Reserve Banks and branches will realize overall operating economies because of reduced personnel requirements. This

innovation has attracted the attention of a considerable number of bankers, but to my knowledge has not yet been utilized elsewhere.

The 81-D-1 private wire system is completely integrated and automatic. All sending and receiving stations are connected by private lines to the switching center of the leased wire system, which, for security reasons, is located in the Federal Reserve Bank of Richmond, Richmond, Virginia. The only manual operations necessary under normal conditions are the perforation of messages in tapes by the operators at the originating stations by means of the sending teletypewriters; placing of the tapes in the transmitters for automatic transmission; and removal of the received messages from the incoming teletypewriters at destination. The automatic directing and relaying of the messages are effected by the use of "Station Directing Codes" which are punched into the perforated tapes by the teletypewriter operators when originally preparing the messages. All messages flow from the station of origin to a terminus unit at the switching center in Richmond. Here they are automatically retransmitted by means of the station directing codes to similar units connected with outgoing lines and forwarded to their destination through selection and connection with the desired station's receiving teletypewriter. A message originating from any station on the network is normally received at the station to which addressed within a relatively few seconds after the time of dispatch, despite the very long distances which in some instances must be traversed.

Equipment has also been installed at the switching center so that multiple address messages, that is, messages addressed to more than one station on the network, can be routed at the switching center in a manner so that they will be automatically retransmitted to all addressees simultaneously. Inasmuch as the Board of Governors, the Treasury

Department and other stations on the network quite frequently have important policy or directional messages of some length addressed to all or a number of the Federal Reserve Banks and branches (such messages are commonly referred to as "book" messages) this has proved to be a very practical and time saving arrangement.

Safeguards

Messages addressed to stations temporarily out of service and single or multiple address messages with incorrect directing codes are automatically intercepted at the switching center. When service which had been temporarily suspended is restored, the intercepted messages are immediately and automatically released and forwarded to their points of destination. Necessary steps are taken at the switching center for the prompt re-coding and re-sending of messages containing improper directing codes. Also at the switching center, traffic may be observed and controlled to avoid "bottlenecking" and to insure a proper and continuous flow of work. A system of alarms at both the switching center and outlying stations has been installed to indicate trouble conditions and direct the attention of personnel to the equipment involved so that corrective action may be taken as promptly as possible. Every effort has been made in designing the system to minimize any delays or errors which might result from mechanical or human failures.

A point to point message numbering system whereby each station maintains number controls of messages sent to and received from each other station is also utilized for prompt detection and corrective action in case of loss of a telegram in transmission or misplacement of the message after receipt. This is an extremely important protective measure. A message which is unaccounted for well might represent a transfer of millions of dollars in cash or Government securities or

instructions to take immediate action in some other matter of importance where failure to comply promptly could result in monetary loss or other serious embarrassment and inconvenience.

Contractual Relationship and Distribution of Costs

Contractual relationships with the American Telephone and Telegraph Company pertaining to the leased wire system are handled by the Board of Governors of the Federal Reserve System. Bills covering monthly circuit and equipment rentals, installation and other charges and the costs of operating the switching center are rendered to and paid or reimbursed by the Board of Governors. When presently pending improvements, which will extend form transmission procedures throughout the entire System, have been completed, total circuit and equipment rentals will aggregate in excess of $400,000 annually. The distribution of such expenses among those participating in the network is made on a word count basis.

Each month the Treasury Department, the Commodity Credit Corporation and the Federal Reserve Banks report to the Board of Governors the number of words sent during the previous month. The Treasury report includes the number of words originated at both its Washington and Chicago Offices and the Reserve Banks submit consolidated reports showing the number of words sent by head office and branches. The Board of Governors combines the number of words transmitted by it during the month with the number reported by the other participants to determine the grand total of the number of words dispatched over the leased wire system for the month. The per word cost for leased wire messages is then ascertained by dividing the total rental and other expenses for the month by the total number of words sent. Each participant is charged with its proportionate share of the expenses on the basis of the number of words sent by it. The word count at each station is accumulated

principally by means of mechanical counters attached to the transmitting teletypewriters which count each six impulses (letters, digits, spaces, etc.) as one word. The word count in connection with multiple address messages is obtained by manual count of the number of words multiplied by the number, less one, of the stations to which the message was directed. The deduction of one in the multiplication of the number of stations to which the message was sent is made because the word count has been included once by the mechanical counter attached to the transmitting equipment.

Standby and Emergency Equipment

Normally all telegraphic communications between Federal Reserve Banks and branches and other stations on the network are transmitted over the leased wire system. However, each leased wire station also is provided with standby equipment to furnish telegraphic communications in the event of leased wire failure or other emergency. This equipment permits participation in a national teletypewriter exchange service, known as TWX, provided by the American Telephone and Telegraph Company which has over thirty six thousand subscribers, including many banks and other financial institutions as well as business, industrial and commercial enterprises of all sizes and categories. This is much like a telephone service except that instead of voice conversation, communication is by teletypewriter and the messages are typed on one machine and reproduced instantly in printer form on any other teletypewriter to which connection has been made by the TWX operator.[1] In the event both the leased wire and TWX equipment should be inoperative at the same time for any reason, commercial wires would be used.

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[1] 1956 Bell System National TWX Teletypewriter Directory, American Telephone and Telegraph Company, November 14, 1955, p. 4.

Importance of Equipment

The maintenance of fast and uninterrupted communications over the Federal Reserve Leased Wire System is basic to the efficient functioning of our high speed, dynamic and expanding national economy. This is a factor the importance of which cannot be overemphasized, although it may not always be thoroughly recognized nor fully understood. Without a high speed and efficient wire service, federal funds could not be made immediately available nor could reserves be mobilized instantaneously at any point in the country; nationwide accessibility to money markets would not be feasible; a uniform countrywide market for United States Government securities could not be sustained; the Treasury would be unable to promptly, efficiently and economically shift its balances among the various Federal Reserve districts as circumstances required; and settlement on the same day of the huge and growing volume of interdistrict transactions would not be possible.

In view of the vital nature of the transactions conveyed over the leased wire system and the heavy responsibilities involved, it is essential to provide the most modern and best available communications facilities and to utilize all available safeguards to protect against delays and interruptions in services. Continuous studies and reviews of the facilities of the leased wire system are carried on by the Reserve Banks under coordination of a special Federal Reserve System committee on leased wire operations. The primary objective of these studies is to provide needed foresight in maintaining at all times adequate facilities to accommodate the rapidly increasing volume of work and in meeting the exigencies of peak periods and the pressures of closing hours with a minimum of malfunctioning, breakdowns or delays in service.

Mr. Glenn Garrison in an article appearing in the April 15, 1925 issue of "Commerce and Finance" made the following rather colorful reference to the Federal Reserve Leased Wire System which is equally as applicable today as at the time the article was written:

> "Imagine a Gargantuan water tank filled with liquid gold instead of water. Conceive this tank to be connected by mains to twelve other huge tanks placed in strategic financial centers of the United States. Realize that these twelve tanks are connected with smaller ones advantageously located in their particular districts. Then you have an idea of the reservoir of credit stored up by the Federal Reserve Banks.
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> "The supply of water in a reservoir is really not useful unless it can be quickly and easily distributed. The same statement applies to a supply of credit no matter how large it may be. The United States is so vast that business conditions in different parts of it fluctuate and vary materially. One section is apt to have a surplus of credit, while another section is badly in need of it. The leased wire system of the Federal Reserve Banks furnishes the means of bringing these sections quickly and easily together."[2]

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[2]Glenn Garrison, "Electric Conduits for National Credit", Commerce and Finance, April 15, 1925, No. 15, p. 705.

CHAPTER III

THE GOLD SETTLEMENT FUND[3]

Purposes

The Federal Reserve System's Gold Settlement Fund, as it was designated at the time of its original establishment in 1915, or the Interdistrict Settlement Fund as it is known today, is basic to the functioning of an effective and efficient nationwide mechanism for the transfer of funds, for the clearing and collection of checks and for the settlement of the balances arising from these and other interdistrict transactions.

Prior to the establishment of the Federal Reserve System and the inauguration of the Gold Settlement Fund, there was no satisfactory means for collecting checks and other cash and noncash items drawn on or payable at out of town banks, particularly in cases where such banks were located in areas remote from the collecting banks. Neither was there a system whereby counterbalancing claims between localities could be offset or transfers of funds made to minimize the need for physical movements of cash. The absence of such facilities caused considerable delays in the transfer of funds for the settlement of adverse balances. The Gold Settlement Fund was designed to improve this situation by providing the commercial banks and the United States Treasury at minimum cost with a nationwide check clearance service and

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[3]In this chapter the Annual Reports of the Federal Reserve Board (1914-1920) have been drawn on heavily for the information contained herein.

payment mechanism, including a method for the rapid transfer of funds among the various Federal Reserve districts.[4] Today, all entries affecting the books of the Interdistrict Settlement Fund are made from information contained in telegrams which are dispatched daily by the Federal Reserve Banks to the Board of Governors over the circuits of the Federal Reserve Leased Wire System.

Origin

The Federal Reserve Act in Section 16 authorizes the Board of Governors of the Federal Reserve System at its discretion to exercise the functions of a clearing house for the several Federal Reserve Banks and to issue regulations governing the transfer of funds among the Reserve Banks.[5] Considering this a matter of primary importance for the effective discharge of the functions of the Federal Reserve System, the Federal Reserve Board in its early organizational plans took under advisement the ways and means of performing such a clearing house function. Acting pursuant to the general authority of Section 16 of the Act, the Board devised a plan for the establishment of a gold fund to be operated under its custody and control for the weekly settlement of balances arising out of transactions among the twelve Federal Reserve Banks.[6] The regulation governing the establishment and operation of this fund, which was designated as the Gold Settlement Fund, was issued and became effective on May 8, 1915.[7]

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[4] Monthly Review of Credit and Business Conditions, Federal Reserve Bank of New York, October 1954, p. 136.

[5] Federal Reserve Act as Amended to October 1, 1955, Section 16, p. 92, par. 14 and p. 93, par. 15.

[6] Circular No. 13, series of 1915, Federal Reserve Board, Federal Reserve Board, Washington, D. C., May 8, 1915.

[7] Regulation L, Series 1915, Federal Reserve Board, Federal Reserve Board, Washington, D. C., May 8, 1915.

Establishment and Manner of Operation

The regulation provided for the appointment by the Board of Governors of a settling agent to keep the necessary records and accounts of the fund. Each Federal Reserve Bank was required, not later than May 24, 1915, to deposit with the Treasury for credit to the account of the Gold Settlement Fund the sum of $1,000,000 in gold, plus an amount at least equal to its net indebtedness then due to all other Federal Reserve Banks.[8] The Treasurer of the United States agreed to advise the Federal Reserve Board of the receipt of funds deposited for the account of the Gold Settlement Fund and to deliver to the Board gold order certificates made payable to the Board covering the sums deposited. Each Federal Reserve Bank was further required to maintain at all times a balance in the Gold Settlement Fund of not less than $1,000,000. The amount standing to its credit on the books of the fund counted as a part of the bank's legal reserves maintained against outstanding Federal Reserve notes and deposit liabilities.[9]

In its relations with other Federal Reserve Banks, each Reserve Bank was required by the regulation to keep on its books:

(a) An account showing the balances "due to" other Federal Reserve Banks, representing the proceeds of items actually collected by it, and payments and transfers made to it, for the account of such other Federal Reserve Banks, and

(b) An account showing balances "due from" other Federal Reserve Banks representing the proceeds of items sent

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[8] Federal Reserve Bulletin, Federal Reserve Board, Washington, D. C., June 1, 1915, p. 82.

[9] "Gold Clearance Fund at Washington", Federal Reserve Bulletin, Federal Reserve Board, Washington, D. C., May 1, 1915, pp. 9, 10, 11.

to, and payments and transfers made to, such other Federal Reserve Banks for its account.

The regulations also required that at the close of business every Wednesday night, each Federal Reserve Bank telegraph to the Federal Reserve Board the amounts due on that date to each other Federal Reserve Bank as indicated by its "due to" account. On Thursday, the settling agent was to make the proper debits and credits to the accounts of each Federal Reserve Bank in the Gold Settlement Fund and telegraph to each bank the amounts of the credits due it from each other Federal Reserve Bank and its net debit or credit balance arising from the weekly settlement. On receipt of the telegram from the settling agent, each Federal Reserve Bank was required to:

(a) Charge on its books the "due to" accounts of the other Federal Reserve Banks with the amounts it had reported due to them and credit the Gold Settlement Fund in like amount, and

(b) Credit on its books the "due from" accounts of other Federal Reserve Banks and debit the Gold Settlement Fund with the amounts due to it as reported in the settling agent's telegram.

The difference between the total debits and credits would equal the bank's net debit or credit in the Gold Settlement Fund as advised in that day's telegram from the settling agent.

To ascertain the initial amount which each Federal Reserve Bank was required to deposit in the fund, a preliminary settlement was made as of the close of business May 19, 1915 and as a result deposits aggregating $18,450,000 were made for the original establishment of the fund.[10]

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[10]Federal Reserve Bulletin, Federal Reserve Board, Washington, D. C., June 1, 1915, p. 82.

The first regular weekly settlement was effected on Thursday, May 27, 1915.[11]

Changes in Procedures and Structure of Fund

In general, the manner of operation, as well as the purpose and utility of the fund, have remained quite stable from the date of inception to the present time.

The first important change in operating procedures was made on July 1, 1918 when, because of the greatly increased volume of transactions handled through the fund, settlements were inaugurated on a daily basis in place of the previous weekly settlements.[12] Under the daily settlement plan, the Federal Reserve Banks telegraphed to the Board by 10:00 a.m. in the morning of each business day the respective amounts credited to other Federal Reserve Banks on the previous day. Upon receipt of the telegrams by the Board, clearing was effected by book entries in the fund and within one hour each Federal Reserve Bank was advised of the amounts of credits to its account from the other Federal Reserve Banks and of the net debit or credit to its balance in the Gold Settlement Fund on the books of the Board. The first Federal Reserve private leased wire service, which was placed in operation during the month of June 1918, contributed much toward the feasibility of making daily gold fund settlements because of the more direct and quicker service which was afforded as compared with the commercial wires which previously had been utilized.

Daily settlements on the basis described above however, continued to result in a delay of at least one day in consummating settlements

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[11] Board Bulletin, p. 82.

[12] "Plan for Daily Clearings through the Gold Settlement Fund", Federal Reserve Bulletin, Federal Reserve Board, Washington, D. C., July 1, 1918, p. 610.

between the Federal Reserve Banks. As the balances involved continued to become larger, these delays became of more significance. As a result, on March 1, 1920 each Federal Reserve Bank commenced dispatching its "due to" wire to the Board as soon as possible after the close of business each business day, and in any event prior to the final closing of its books for the day. Settlement was effected by the Board on the same day and telegrams were dispatched to reach each bank in advance of the opening for business the following morning. At that time necessary entries were made and the books were finally closed for the preceding day. This eliminated the "float" formerly incurred and the effectiveness of the method would seem to be indicated by the fact that settlements have continued to be made in essentially the same manner to the present time.

The last major change in the structure of the fund occurred when the Gold Reserve Act of 1934 transferred to the United States the ownership and possession of all Federal Reserve Bank gold.[13] At this time the designation of the fund was changed to the Interdistrict Settlement Fund and, in exchange for the gold previously held, there was substituted an equivalent amount of gold certificates which remained on deposit with the Treasury for the account of the fund.[14]

Growth of Fund in Importance and Volume of Transactions

The advantages of the arrangement were apparent from its inception and there was a rapid and steady growth in the volume of transactions settled through the fund. Considerable impetus was given to the increase

[13] Twenty-first Annual Report of the Federal Reserve Board Covering Operations for the Year 1934, Federal Reserve Board, Washington, D. C., June 24, 1935, p. 3.

[14] Monthly Review of Credit and Business Conditions, Federal Reserve Bank of New York, October 1954, p. 137.

in the use of the fund when on July 15, 1916 the Federal Reserve Banks began active check clearing and collection operations for their member banks and a further stimulus resulted from the heavy demands in connection with the financing of World War I.[15] It may be fairly stated that the utility, and in fact the indispensibility of the fund, was proved beyond a reasonable doubt when put to the test of meeting the vast financial requirements of World War I. During that period heavy sales of Government Bonds and Treasury Certificates, coupled with the need for redistribution and disbursement of the sums realized, resulted in continuous transfers of very large amounts from districts where balances had accumulated to other districts where funds were needed to meet disbursements for munitions, supplies, payrolls, and other requirements. When it is realized that these enormous transfers were made almost instantaneously by means of the leased wire and that settlements of balances was made daily without the necessity for physical movements of funds as otherwise would have been required, it will be recognized that the arrangement resulted in savings of great magnitude in both time and expense to the Government and to the public. There is no doubt that the previous more cumbersome methods of effecting interdistrict settlements requiring physical transfers or shipments of money would have been a serious deterrent to the war effort.

The Gold Settlement Fund, implemented by the Federal Reserve System's leased wire service, proved equally valuable in meeting the expanding operations and growing requirements of commercial banks by providing an expeditious means for the settlement of balances arising from

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15"Clearing Circulars Issued by Banks", Federal Reserve Bulletin, Federal Reserve Board, Washington, D. C., July 1, 1916, pp. 312, 313, 314.

interdistrict check clearing and collection operations and making possible the transfers of bank balances by wire on an immediately available basis to any point in the country. This permitted the maximum utilization of resources and the fullest accommodation of the varying sectional requirements of industry, commerce and agriculture. It is quite probable that without the rapid and efficient Federal Reserve collection, transfer and settlement system, the tremendous growth in our national economy which has been experienced over the years would have been seriously impeded, if not impossible.

The fact that the Interdistrict Settlement Fund has served and is continuing to serve a very useful purpose appears to be amply illustrated by the growth in the volume of transactions settled through the fund. For the seven months from its inception to December 31, 1915, the total of clearings and transfers settled aggregated $1.05 billion.[16] This increased to $5.53 billion in 1916, the first full year of operations.[17] There were further substantial increases each year through 1920 when settlements aggregated $92.63 billion.[18] The first decline to a total of $68.22 billion was experienced in 1921 reflecting the post World War I depression.[19] In 1922 the upward trend was resumed and continued without

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[16] Second Annual Report of the Federal Reserve Board for the Year Ending December 31, 1915, Federal Reserve Board, Washington, D. C., February 1, 1916, p. 79.

[17] Seventh Annual Report of the Federal Reserve Board Covering Operations for the Year 1920, Federal Reserve Board, Washington, D. C., February 16, 1921, p. 71.

[18] Seventh Annual Report of the Federal Reserve Board, p. 71.

[19] "Clearings and Transfers through the Gold Settlement Fund", Twelfth Annual Report of the Federal Reserve Board Covering Operations for the Year 1925, Federal Reserve Board, Washington, D. C., March 22, 1926, p. 108, Table No. 62.

interruption through 1930 when a total of $153.66 billion was reached.[20] Reflecting the overall status of our national economy, precipitous declines in volume were experienced over the depression years of the early 1930's. The low point was reached in 1933 when settlements totaled $78.91 billion, the lowest figure in any year since 1922.[21] With the increases in economic activities commencing after the mid-thirties, the total settlements again moved up reaching $110.66 billion in 1937.[22] In 1938, there was a drop to $95.08 billion.[23] However, in 1939 with the increased activity occasioned by the onset of World War II the upward movement again resumed and by 1942 a new high of $190.47 billion had been reached, surpassing the previous high of $151.46 billion attained in 1930.[24] The increases during the war and post war periods were at an extremely accelerated rate and for 1955 the all time record total of $901.39 billion was reached, representing an increase of 7% over the year

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[20]"Gold Settlement Fund", Seventeenth Annual Report of the Federal Reserve Board Covering Operations for the Year 1930, Federal Reserve Board, Washington, D. C., February 25, 1931, p. 155.

[21]Twentieth Annual Report of the Federal Reserve Board Covering Operations for the Year 1933, Federal Reserve Board, Washington, D. C., May 28, 1934, p. 121.

[22]"Summary of Transactions through the Gold Settlement Fund", Twenty-fourth Annual Report of the Board of Governors of the Federal Reserve System for the Year 1937, Board of Governors of the Federal Reserve System, Washington, D. C., April 4, 1938, p. 68, Table No. 19.

[23]Board of Governors, Interdistrict Settlement Fund Weekly Summary of Transactions, Board of Governors, Washington, D. C., 1938, Forms B-812.

[24]Federal Reserve Board, Gold Settlement Fund Weekly Summary of Transactions, Federal Reserve Board, Washington, D. C., 1930, (not numbered).

1954.[25] This bears a close relationship to the 7 1/2% increase to the record figure of $387 billion in the value of the gross national product for the year 1955, as compared with 1954.[26]

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[25] Board of Governors, Interdistrict Settlement Fund Weekly and Monthly Summary of Transactions, Board of Governors, Washington, D. C., 1942-1955, Forms B-812, G 15 (a).

[26] The New York Times, Wednesday, February 15, 1956, p. 41, Columns 2, 3.

CHAPTER IV

HISTORICAL DEVELOPMENT OF FACILITIES AND POLICIES, EARLY PHASES - 1914 TO 1939

Commercial Wires Initially Utilized

From the time the Federal Reserve Banks commenced operations in November 1914 until June 1918, telegrams between the banks, the Federal Reserve Board and the Treasury Department, including those pertaining to the weekly gold fund settlements, were conveyed over the commercial telegraph wires of the Western Union or Postal Telegraph Companies.

Use of Code and Test Words

Initially the messages were sent in the regular code of the American Bankers Association (ABACO) but for security reasons there was soon added to the messages a special test or key word which was used in connection with telegrams involving the payment of money. Messages requiring testing included all interdistrict transfers of funds and other transactions which were settled through the Gold Settlement Fund. The testing procedure required corresponding mathematical computations at both the sending and receiving stations. Among other factors, the computation involved the dollar amount of the transaction and any error or discrepancy in the message was immediately indicated by failure of both stations to arrive at the same test word. The testing procedure not only provided a means for authentication of messages, in lieu of signatures, but also served as a safeguard against possible errors in the amounts of money conveyed, which frequently ran into millions of dollars. In most of the important aspects, the same procedure for testing messages relating to transfers

of monies or securities has been retained to the present day.

The use of codes in transmitting telegraphic messages has varied over the years. When the first leased wire system was installed in 1918, the Federal Reserve Board directed that the use of the ABA code and test words be discontinued in the transmission of all messages with the exception of those relating to transactions in the Gold Settlement Fund and orders for shipments of gold notes. In 1919 the Federal Reserve System adopted a code of its own which was intended for comprehensive use on all leased wire messages. However, some of the code words contained as many as eleven letters and it was found that comprehensive use of the code was cumbersome and caused delays and inaccuracies in transmitting messages. Accordingly, use of the code was dropped for all messages conveyed over the leased wire except those relating to the transfers of funds or United States Government securities. In 1938 the Federal Reserve leased wire code was completely revised and simplified so that no word contained more than five letters. However, it has not been used on a comprehensive basis and to this day coded messages continue to be limited to those involving transfers of funds or United States Government securities. The use of the code for these purposes also is being rapidly eliminated as progress continues in converting to the new form transmission procedures.

Need for Improved Wire Facilities

When the Federal Reserve Banks commenced active check clearing and collection operations in July 1916, the volume of transactions between the banks increased substantially. The increase in collection activities, accompanied by a steady growth in the volume of interdistrict transfers of funds and other business between Federal Reserve offices during World War I, made it desirable to establish daily, rather than weekly, settlements through the Gold Settlement Fund to eliminate the

large float which was being created. Because of the further substantial increase in wire communications which this would entail and in view of the lengthening delays which were being experienced in transacting business over the commercial wires, the need for better telegraph facilities became apparent. As a result, the Conference of Governors of the Federal Reserve Banks appointed a committee of three Governors to consider the matter of a private wire connection between the Federal Reserve Board and the Federal Reserve Banks. This committee, in its report dated April 1, 1918, recommended acceptance of a proposal submitted by the American Telephone and Telegraph Company for establishment of a private telegraph system to furnish a means of rapid communication between the Federal Reserve Board, the Federal Reserve Banks and the Treasury Department. The committee concluded that "the urgent need for this service is so manifest that your committee unanimously recommends installment without delay, in order that the Treasury Department, the Federal Reserve Board, and the Federal Reserve Banks may have the benefit thereof during the Third Liberty Loan."

First Federal Reserve Private Wire System

The committee's recommendations were approved and an order for installation of the necessary equipment was placed promptly. On June 7, 1918 private wire facilities were available to all Federal Reserve Banks, the Federal Reserve Board and the Treasury Department in Washington, D. C. and the first Federal Reserve private wire system had come into being. The leased wire service which was originally installed was a manually operated Morse system. All transmissions and receptions were in dots and dashes by operators using the Morse code. As it was impossible to include all Federal Reserve Banks on one circuit, the system was divided into an Eastern Division and a Western Division. Chicago, Cleveland,

Philadelphia, New York, Boston, Washington, Richmond and Atlanta constituted the Eastern Division and Chicago, St. Louis, Kansas City, Minneapolis, Dallas and San Francisco, the Western Division. Because of its central location, Chicago was placed in charge of leased wire operations and was connected on both circuits, serving as the central clearing or relay office for all messages between the Eastern and Western Divisions.

Description, Limitations and Costs

The manner in which the circuits were arranged made it necessary for all messages from points in the Eastern Division destined for the Western Division, to be transmitted first to Washington, D. C. from where they were retransmitted to Chicago. Chicago, in turn, again retransmitted the messages to the desired destination in the Western Division. Similarly, traffic from the West to the East was transmitted to Chicago from where it was retransmitted via Washington to the point of destination in the East. Thus, all interdivisional main line traffic had to be manually retransmitted at least once, and in most instances twice, before arrival at the desired station on the leased wire network. Because of circuit arrangements, it was also necessary for a large percentage of intradivisional communications to be retransmitted at the Washington or Chicago relay points in order to reach the station of destination.

Communications between head offices and their respective branches were the responsibility of the individual head office. While several branches were connected on the main line leased wire circuits, head office to branch communications continued to be principally by commercial wire. Under the arrangement, a telegraphic message from a branch office in one Division to a branch office in the other Division might require as many as five separate transmissions before reaching its destination.

The possibilities of delays as well as the opportunities for errors under such an arrangement are manifest.

A further limitation of the system was that all circuits were single or "one way" and only one station on a circuit could transmit at a time. Under the operating procedures which were established, it was intended that each point was to have proper use of the wire in its turn in accordance with the importance of the message. But in the face of a rapidly increasing volume of transactions this arrangement quickly resulted in serious delays on the busier circuits.

Initial rental costs for the circuits were assessed at preferential Government rates and totaled approximately $4,700 per month.[27] Rental costs were billed by the American Telephone and Telegraph Company to the Federal Reserve Bank of Chicago to whom telegraph operators' salaries were also reported by the other Federal Reserve Banks. The combined rentals and operators' salary costs were prorated by the Chicago bank among the Reserve Banks in proportion to their capital funds. With the permission of the Secretary of the Treasury, each Federal Reserve Bank included in its monthly bill to the Treasury Department covering its expenses of conducting Fiscal Agency operations, one-half of its prorated share of the leased wire costs.

Growing Inadequacy of Leased Wire Facilities

Although the leased wire system represented a great improvement over the use of regular commercial channels, it soon became evident that the facilities provided were inadequate to accommodate the demands which were placed upon them. This was due in part to the rapidly expanding volume of interdistrict transactions, particularly transfers of funds,

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[27]From the files of the Federal Reserve Bank of New York, Wire Transfer Division, 1918.

and the heavy war financing requirements of the Government. However, it was also occasioned in part by the increased telegraph volume which the installation of the leased wire system itself generated. Because of the convenience and ready availability of the leased wire facilities, many messages were transmitted by telegraph, in preference to mail or other means of communication which previously had been utilized. For example, in the absence of specific regulations as to the types of transactions which would be handled over the leased wires, some of the Reserve Banks immediately commenced making free transfers of funds for their member banks payable not only to banks but to individuals or any other designees. This, of course, greatly increased the demand for such transfers and resulted in many long and complicated messages passing over the leased wires directing the manner in which a Reserve Bank was to make payments of funds, including the disbursement over its counters to individuals on presentation of specified documents or other prescribed identification. Some Reserve Banks even sent telegrams for their member banks directed to such members correspondent banks in other cities ordering transfers of funds between the accounts of individuals or corporations, in which the Reserve Banks had no participation and in which they were in no way concerned. This practice was justified as a needed service to member banks on the grounds that commercial telegraph facilities were so overloaded with important war messages that telegrams were being delayed in transmission up to as long as four or more hours.

As a result of the overloaded condition of the wires, it frequently was necessary at New York to wait as much as two hours before a single message could be sent because the wire was in use by Washington. Occasionally, the Treasury would find it necessary to utilize the wire for the greater part of a day. This would hold up Reserve Bank telegrams

and delay until the following business day the completion of millions of dollars of transfers of funds and also seriously retarded the transmission of other important messages of all types.

Steps Taken to Alleviate Congestion

Prompt action was taken toward alleviating congestion and bottlenecks by adding additional circuits and facilities as experience indicated that this was necessary. What were among the more important of the earlier changes occurred in September 1918 when the Chicago to Washington circuit was converted to a duplex line permitting simultaneous two way traffic between the Eastern and Western Divisions, and an additional circuit from New York to Chicago with a drop at Washington was placed in operation. The new circuit provided a direct contact between the two largest Federal Reserve Banks and resulted in the elimination of a tremendous amount of relay on the part of the operators in Washington. These changes helped materially in speeding up traffic but the volume of transactions increased apace and it was necessary to continuously expand circuit capacities.

In May 1919, the New York - Chicago wire was converted from a single to a duplex circuit. This, together with the New York - Washington and Washington - Chicago duplex circuits, provided a triangle of two way wires connecting the Eastern and the Western Divisions and furnished alternate relay routes which added a highly desirable flexibility to the system in the event of wire trouble and also greatly increased the capacity of the network.

However, it appeared that the increase in facilities could not keep up with the growing demands which were being placed on the leased wire system. Concern was felt with the lengthening delays being experienced in consummating transfers and other business, despite the increased

expenses which were being incurred because of the additional circuits provided. As a result, in March 1919 the Governors of the Federal Reserve Banks appointed a committee to consider ways and means of improving the leased wire service and to provide a more equitable division of the expenses. The recommendations made by the committee were subsequently approved by the Federal Reserve Board and became effective on July 1, 1919. The principal effect of this action was to materially curtail the types of messages which would be accepted for conveyance over the leased wire system. The use of the wire was limited exclusively to messages between Federal Reserve Banks, their branches and departments of the Government. This prohibited all commercial telegrams as well as messages signed by member banks. Wire transfers of funds were limited to those ordering payments or credits to banks or bankers. Orders directing payments by Reserve Banks to individuals, firms or corporations other than banks were prohibited, although such transfers could be effected through their banks. Brevity was directed in the wording of telegrams and in no case was the wire to be used when the mails would serve the same purpose. Each office was directed to arrange for careful censorship of all messages sent, with the view toward eliminating unimportant telegrams and unnecessary wordage.

Also effective on July 1, 1919, pursuant to the committee's recommendations, expenses of the leased wire system were prorated among the twelve Federal Reserve Banks according to the number of words sent by each bank, rather than according to their capital stock as had been the practice previously. It was felt that this plan would not only provide a fairer division of the expenses but that it also would tend to make the banks exercise more care in eliminating unnecessary messages and words in sending telegrams. At the same time, the portion of the expenses

of the leased wire service which the Reserve Banks charged to the Treasury Department was reduced from fifty per cent to twenty-five per cent which, at that time, represented a more equitable distribution of the costs on the basis of the proportionate volume of Government business conveyed over the wires.

Change From Government to Commercial Rates

In 1920 representatives of the American Telephone and Telegraph Company approached the Reserve Banks in regard to assessing leased wire rental charges at the regular commercial rate, rather than the preferential Government rate which was only fifty per cent of the commercial rate. They regarded the Government rate as having been extended only as a temporary war measure and since the company's counsel had advised that the Federal Reserve Banks were not Government institutions they saw no reason why regular commercial charges should not be assessed.

It was pointed out that under an opinion of the Attorney General of the United States, the Federal Reserve Board was an independent Federal establishment or bureau and that monies expended by it were public monies.[28] The question, therefore, rested principally on whether the leased wire system was a Federal Reserve Board or a Federal Reserve Bank system.

It was finally agreed that, effective May 1, 1920, existing contracts would be taken over by the Federal Reserve Board from the Federal Reserve Bank of Chicago and that all main line services then in operation would be continued at Government rates. However, head office to branch lines, which it was agreed could not properly be classified as "Board" services, as well as all main line and other installations subsequently made were to be paid for at the regular commercial rates. To

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[28] 30 Op. Atty. Gen. 308, 311 (1914).

adjust to the new arrangement, the Reserve Banks commenced reporting telegraph operators' salaries to the Federal Reserve Board which then allocated leased wire rental and salary expenses to the respective Federal Reserve Banks. At the same time, the Treasury was placed on a basis similar to the Reserve Banks whereby it paid for its share of the leased wire costs according to the actual number of words sent on Government business, instead of by payment of a specified percentage of the total leased wire costs.

The arrangement with respect to the payment of Government rates for "Board" services continued only until July 1, 1921 at which time Government rates were discontinued entirely and all charges were made at the regular commercial rate.[29] This increased leased wire costs by about $115,000 per annum to a total of approximately $485,000, including rental costs and operators' salaries.[30]

Further Restrictions Placed on Leased Wire Messages

In 1922 and 1924 it was again necessary to take System-wide action to relieve wire congestion and regulations were issued by the Federal Reserve Board further restricting the types of messages which could be sent over the leased wires. The regulations provided that telegraphic transfers of funds for transmission over the leased wires would be accepted from and paid to member banks only and that transfers would be limited to bank balances for round amounts in multiples of $100. Such transfers were made without cost to member banks. The term "bank balance" was contrued to mean an accumulation of funds comprising a permanent

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[29] Eighth Annual Report of the Federal Reserve Board Covering Operations for the Year 1921, Federal Reserve Board, Washington, D. C., February 20, 1922, p. 59.

[30] Eighth Annual Report Board, p. 59.

account carried by one member with another member bank. Transfers of the proceeds of individual collection items were not permitted. Descriptive data in transfer messages was limited to the name of the sending bank, the name of its correspondent member bank requesting the transfer, the name of the member bank receiving credit and the name of its correspondent bank. Transfers for consummation on the date of receipt were not to be accepted by Federal Reserve Banks later than thirty minutes prior to the closing hour of the Federal Reserve Bank to which the transfer was directed. Any telegraphic transfers requested after that time would be consummated only at the discretion of the Federal Reserve Bank receiving the credit. The restrictions as to the type of transfers which would be accepted related only to transfers made over the leased wire system. The Federal Reserve Banks continued to make transfers in any amounts and for any purpose over commercial telegraph wires at the expense of the bank requesting the transfer. Such transfers were accepted from and paid to member banks only, but could be for the use of any bank, individual, firm or corporation.

The use of the leased wires was also prohibited for tracing or advising payment or nonpayment of noncash collection items or for tracing the proceeds thereof and for reconciling exceptions in accounts between Federal Reserve Banks, except where a loss might be involved. Directions were again issued to the effect that telegrams should not be sent when communication by mail would suffice and that all telegrams should be worded as concisely as possible.

The above described restrictions in the types of business handled over the leased wire, which became effective in July 1924, resulted in a material curtailment of the volume of traffic to the extent the leased wire system was able to render prompt and efficient service over the

period of the next several years. Due largely to the effects of the restrictions which were imposed, although no doubt also influenced in some measure by prevailing business conditions, the number of words conveyed over the leased wires declined from 20.4 million in 1923 to 13.4 million in 1925.[31] The reduced volume permitted, at least temporarily, some contraction in circuit capacities and costs of the services were reduced correspondingly. Among the changes which were made, the New York-Chicago circuit was converted from a duplex to a single wire in the latter part of 1924. But as volume increased with the expanding business activities of the late twenties it was again necessary in 1928 to duplex this circuit.

Conversion From Morse System to Teletype Machines

The next significant change in the leased wire system was conversion from the use of Morse code to a teletype machine system. The original impetus to this change occurred in the latter part of 1929 when the Federal Reserve Bank of Chicago found it increasingly difficult to hire competent Morse telegraph operators and obtained permission of the Leased Wire Committee to install the American Telephone and Telegraph Company's Telegrapher Printer Service on some of the main line circuits. The charge for the printer equipment was slightly higher than for the regular Morse service, but this was more than offset by the difference in the salaries of typists, who could be utilized to operate the printer equipment, as compared with the higher prevailing salaries for Morse operators who were in extremely short supply. There was also considered to be a substantial advantage to the printer equipment in that it provided a written record of the messages exactly as they were transmitted,

[31] Computed from material in the files of the Federal Reserve Bank of New York.

thereby reducing the number of errors made and the time spent in determining whether an error was attributable to the sending or the receiving operator.

On March 30, 1930, the printer service was placed in operation on the New York - Chicago duplex circuit. It was also installed on several other lines carrying a substantial volume of traffic, including the St. Louis - Chicago and the San Francisco - Chicago circuits. Experience with the teleprinters was quite satisfactory in most respects and generally resulted in some overall savings in expenses. However, messages could be transmitted at a rate of only forty words per minute, which was but slightly more than half the rate of speed that could be attained by an experienced Morse operator. From the beginning, this reduced speed tended to delay materially New York - Chicago traffic and the New York Reserve Bank was never fully satisfied with the new equipment. However, the lesser speed of transmission did not become a serious deterrent until the period of the banking holiday. At that time, the leased wires were heavily burdened with long messages, including requests for rulings and interpretations with respect to the numerous laws, proclamations and executive orders which were issued, and on February 5, 1934 it was necessary to reconvert the New York - Chicago wire to the Morse system on a twelve hour a day operating schedule. The added capacity gained by this change permitted the relaying of some of the Washington - Chicago traffic, which was also subject to serious delays because of the heavy volume, through New York thereby also relieving the congestion on that line.

The need for this increased capacity was of relatively short duration. Because of the marked falling off in leased wire transmissions resulting from the serious business depression of the nineteen thirties, the contraction of facilities soon became feasible. Since it was the

consensus that operating economies as well as increased accuracy in transmissions could be realized from the use of printer rather than Morse equipment, conversion on a gradual basis of the entire leased wire system to teletypewriter service was recommended by the Leased Wire Committee. This was approved by the Conference of Governors on February 5, 1935. At that time, the Federal Reserve Board also concurred in a recommendation of the Leased Wire Committee that the Board assume its proportionate share of the expenses of the leased wire system, which previously had been entirely allocated among the Federal Reserve Banks.

By August 4, 1936, sixty speed teletype service had been installed and was placed in operation on the Chicago - New York and Washington - New York circuits. The installation of the sixty speed machines offset in some measure the reservations to the adoption of this type of equipment expressed by the Federal Reserve Bank of New York on the basis of its earlier experience with the forty speed machines, which, as mentioned above, had been found too slow to carry peak loads in busy periods without serious delays in service.

During the course of conversion to teletypewriter service, traffic surveys indicated that on the basis of the prevailing volume of business, numerous circuits no longer required private lines but could be advantageously converted to less expensive non-private facilities furnished by either the American Telephone and Telegraph Company or the Western Union Telegraph Company. As a result, by mid-1938 all main line facilities had been converted to teletypewriter exchange service provided by the American Telephone and Telegraph Company (TWX), with the exception of the Washington - Chicago, Washington - New York and Chicago - New York

circuits. These lines carried a sufficient volume to warrant their continuation on a private line basis. Branch leased wire facilities were also fully converted to either TWX or TWS, the latter being a service provided by Western Union similar to the TWX service of the American Telephone and Telegraph Company. The last regular use of the Morse system was discontinued on June 16, 1938 when the New York - Boston circuit was converted from a full time leased wire with Morse equipment to TWX. The changes which were made resulted in substantial savings in the costs of operating the leased wire system.

As of August 15, 1938, the Chicago - San Francisco circuit was converted from TWX to a telemeter service provided by the Western Union Telegraph Company when a change in the tariffs made it possible to utilize this service at a cost lower than TWX. While telemeter service was not a private wire system it was closely akin thereto. Several customers were included on a split type circuit under an arrangement whereby messages transmitted by one customer could not inadvertently reach the receiving machine of another customer on the line. The principal difference from a private line system was that there could be delays in the pick up of messages for transmission caused by another customer using the line. A similar situation would, of course, exist in a private wire system where several stations in the network were included on one circuit, which was generally the case. Charges for telemeter service were on a per word basis with the cost per word declining as the number of words increased. After traffic exceeded a specified volume per month, there was no additional charge for the excess wordage. This feature, together with the fact that telemeter circuits were the equivalent of a duplex wire permitting simultaneous two way transmission, made

it a very desirable type of service capable of accommodating expansion in volume at a reasonable increase in cost, or at no extra cost after a certain specified volume was surpassed. The overall advantages of the telemeter service were such that this system was promptly adopted on many of the main line circuits, by all branch lines previously utilizing TWS and by some branch lines using TWX, where there was sufficient volume to warrant the change.

At this time, the leased wire system was comfortably accommodating the demands being made upon its capacities. In the circumstances, the Board of Governors approved, effective July 1, 1939, a recommendation that all telegrams between Federal Reserve Banks and branches which were then being sent over commercial wires should be sent over the Federal Reserve leased wires, except in cases where undesirable circuitous routing would be involved.[32] Charges for such telegrams were to be made on the basis of regular commercial wire rates. The effect of this action was that the leased wires were opened to telegraphic transfers of funds ordered by and payable to member banks for any purpose and in any amount, without limitation as to descriptive data, subject in each case to a charge not exceeding the commercial wire rate for the telegram or telegrams involved in the transfer. While such transfers would be accepted from and paid to member banks only, they could be for the use of any bank, individual, firm or corporation. Leased wire telegraphic transfers of bank balances in multiples of $100 also were authorized, subject to commercial wire charges, when ordered by a member bank for the credit

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[32] Circular No. 1958, Federal Reserve Bank of New York, June 30, 1939, p. 2.

of any nonmember clearing bank or by any nonmember clearing bank for the credit of any member bank or any other nonmember clearing bank.[33]

Free transfers of bank balances made for and paid to member banks continued to be restricted to even amounts in multiples of $1,000. This limitation with respect to amount had been fixed in 1938, replacing the previous restriction which had been in effect since 1924, authorizing such transfers in round amounts of $100. The change had been made because it was found that transfers in increments of $100 were being used to circumvent the free transfer privileges and because it was considered that inasmuch as only bank balance transfers were involved the smaller increments were unnecessary, as well as undesirable.

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[33] Circular No. 1958, p. 1.

CHAPTER V

HISTORICAL DEVELOPMENT OF FACILITIES AND POLICIES, RECENT PHASES - 1940 TO PRESENT

Reperforator Tape Switching System

While the conversion to teletypewriter service was in process, the Western Union Telegraph Company developed a reperforator switching turret which permitted automatic relay of messages without the necessity of manual retransmissions at relay points, as was required in other systems for relaying telegrams which were in existence at that time. Under the reperforator tape system, instead of manually retyping and retransmitting telegrams at relay points, switchboards similar to telephone switchboards were employed for automatic relay of the messages. The telegrams were received at the switching center on perforated tape with the first word on the tape indicating the destination of the message. The operator at the switching turret, by means of inserting a jack in the switchboard, made a direct connection between the sending and receiving stations, which permitted automatic through transmission of the messages. This arrangement greatly reduced the time required for retransmitting telegrams and also eliminated the possibility of errors in retransmission, other than errors resulting from selection by the operator of the improper station of destination.

Western Union recommended that the new switching system be adopted for use in connection with the Federal Reserve Leased Wire System. After careful consideration of that Company's proposals, as well as

counter proposals made by the American Telephone and Telegraph Company, it was decided to install a reperforator switching turret in the telegraph room of the Board of Governors in Washington, D. C., as this appeared to be by far the most advanced development to that time for the retransmission of telegraphic messages. The installation was completed and the new system was placed in operation on August 1, 1940. In addition to the installation of the turret, this required conversion on all main lines, from American Telephone and Telegraph Company equipment and circuits to Western Union machines and lines. High speed (sixty word per minute) duplex private wire circuits and teleprinter machines were installed for operation between Washington - New York and Washington - Chicago and low speed (forty word per minute) single circuit private lines and teleprinter machines were installed connecting on one circuit Washington - Philadelphia - Baltimore and on a second circuit Washington - Richmond. All other main line leased wire circuits were operated on Western Union telemeter service. American Telephone and Telegraph Company services were retained only in connection with several of the branch lines.

When the reperforator switching turret was first installed, serious operating difficulties and delays were encountered due to the many new technical innovations which were included in the engineering of the equipment. However, these were ironed out within a short time and in the spring of 1942, as the result of favorable experience, a similar turret was installed at the Federal Reserve Bank of Chicago. This extended the benefits of more rapid and more accurate retransmission of telegraphic messages, previously enjoyed only by the Eastern Division, to the Western points of the leased wire system. Sub-switching centers

were also installed at the Federal Reserve Bank of St. Louis and the Federal Reserve Bank of San Francisco so that messages could be relayed to their branch offices without being manually retyped and retransmitted.

This service operated very satisfactorily and permitted telegraphic communication over the leased wire system to be transmitted rapidly and with a minimum of errors. The elimination of errors in the retransmission of messages at relay points was of significance and resulted in a sharp decrease in the number of service messages sent daily inquiring about and correcting such errors. The system proved adequate to the needs of the war and post war years and, in addition to affording substantial improvements in the speed and accuracy of transmission, savings in operating costs of nearly $100,000 a year were realized as compared with the costs of earlier and less efficient services.

Question of Liberalizing and Making More Efficient Leased Wire Services

In 1948 the Bankers Trust Company, New York City, inaugurated at its own expense a private leased wire service between itself and its correspondent banks located in various of the larger cities throughout the country. Because of the competitive aspects involved, other large New York City banks immediately began giving active consideration to providing a similar service for their own correspondent banks, either individually or on a joint basis, and representatives of several New York City Banks discussed the subject with the Federal Reserve Bank of New York. The thought occurred that the Federal Reserve System might render a worthwhile service to a considerable number of its member banks, and at the same time assist in resolving the competitive aspects without the necessity of expensive duplications of wire facilities by individual banks or groups of banks, by expanding its own leased wire

system to include member banks in Reserve cities. It was thought that this might provide economically and to a much larger group of banks, substantially the same services which were then being enjoyed by the participants in the wire service of the Bankers Trust Company. The question was submitted to the Conference of Presidents of the Federal Reserve Banks for consideration but in April 1949, before any specific action had been taken, announcement was made of the establishment of a private bank wire system sponsored by a group of large commercial banks in New York City and Chicago. In the circumstances, it was decided that the Federal Reserve System would give no further consideration at that time to expanding its leased wire system to include member banks.

While the subject of member bank participation in the Federal Reserve Leased Wire System was under consideration, questions had arisen as to the adequacy of the services which were being rendered and, in November 1949, the Federal Reserve Banks were asked to submit any suggestions they might have with respect to the question of liberalizing and making more efficient the leased wire services. This culminated in the Board of Governors approving, effective January 12, 1951, the following changes in Federal Reserve Bank operating procedures:

(a) Federal Reserve Banks and branches would absorb the costs of telegrams transmitted over the Federal Reserve leased wires in connection with telegraphic transfers for member banks of bank balances in amounts of $1,000 or over, rather than only in even multiples of $1,000 as previously had been the case;

(b) Federal Reserve Banks and branches would absorb the costs of all telegrams transmitted over the Federal

Reserve leased wires which related in any way to cash items deposited for collection through the Federal Reserve check collection system by member or nonmember clearing banks;

(c) Messages relating to cash items dispatched by a Reserve Bank to a direct sending member or nonmember clearing bank located in another Federal Reserve city previously sent by commercial wire "collect", would be sent over the leased wires to the Reserve Bank or branch in whose territory the direct sending bank was located without charge to the direct sending bank, and the message would be relayed by the receiving Reserve Bank by commercial wire "collect".

The decision to absorb telegraphic costs relating to the collection of cash items represented a broad change in Federal Reserve policy. Previously all telegraphic charges pertaining to the payment or nonpayment of cash items, or in connection with receiving or transmitting any other information or instructions with respect to such items, were charged to the account of the depositing bank. As late as November 1948 the policy of continuing to charge to depositing banks the costs of all telegrams relating to the collection of cash items had been confirmed. This action was taken because it was felt that if the Federal Reserve Banks were to absorb wire costs relating to the collection of cash items, commercial banks, particularly those engaged in a correspondent banking business, would raise serious objections on the grounds of competition in the check collection field, since they themselves were not permitted to absorb such costs. However, it was believed that with the inception

of The Bank Wire the possibility of such criticism would be minimized, as it was understood correspondent banks would absorb the costs of such messages relating to the collection of cash items sent over their own private wire system.

Survey of Efficiency of Leased Wire System

In November 1950, the Leased Wire Committee was requested to ask the Western Union Telegraph Company and the American Telephone and Telegraph Company to make a survey of the operating efficiency of the Federal Reserve Leased Wire System to determine whether it was abreast of the most recent developments in the communications field and was being operated efficiently and at a reasonable cost.

This was motivated by the fact that since 1940, when the reperforator switching turrets were installed, the number of words transmitted over the leased wire system had doubled from the rate of approximately ten million to twenty million words per year and material delays in the transmission of messages between some points on the network were again being experienced. Many of these messages were transfers of funds, some of which resulted from sales or purchases of Federal funds, or transfers of Government securities and, because of their importance, it was considered essential to provide the means for handling these types of messages with the greatest dispatch, especially during the peak period at or around the closing hour. It had also come to the attention of the Reserve Banks that the switching center equipment for relaying messages which was being used in the operation of The Bank Wire was of a more modern and efficient type than that used at the Federal Reserve switching centers.

While the overall surveys were in progress, it became necessary as an interim measure to increase the capacity of the existing leased wire system to improve the transmission of messages. The Chicago - Washington and Washington - New York circuits were particularly congested and to alleviate this condition a leased wire duplex circuit was installed between the Chicago switching center and the Federal Reserve Bank of New York. A leased wire duplex circuit was also installed between the Federal Reserve Bank of Boston and the Federal Reserve Bank of New York, replacing a telemeter circuit which no longer was adequate. The traffic on the single or "one way" leased wire circuit connecting Washington - Philadelphia - Baltimore had increased over 250% since 1940 and serious delays were being experienced by all of these offices in transmitting their outgoing messages. Therefore, two separate single wire circuits connecting Washington - Philadelphia and Washington - Baltimore were installed, doubling the former capacity.

Installation of New 81-D-1 Leased Wire System

After thorough study of the adequacy of the existing facilities of the leased wire system and of proposals submitted by the Western Union Telegraph Company and the American Telephone and Telegraph Company for installation of a new communications system, the Leased Wire Committee concluded that the present system was not adequate for the volume of traffic and was not modern compared with newer facilities which were available for private wire systems. The Leased Wire Committee, in its report transmitted to the Conference of Presidents on December 31, 1951, pointed out the following disadvantages of the then existing leased wire system:

1. It was not a fully integrated system to the extent that some of the branch lines were not connected with the main line circuits.
2. The present system utilized the facilities of both Western Union and American Telephone and Telegraph Companies and was composed of single, duplex, telemeter and TWX circuits.
3. There were delays in the transmission of messages, especially during the periods when it was most important that wire transfers of funds and CPD transactions be completed promptly.
4. The switching centers at Washington and Chicago were manually operated.
5. It was necessary to manually retype messages at several head offices for relay to their branches.
6. Expansion of switching system facilities was difficult and time consuming.
7. The system was unnecessarily vulnerable because of the location of the switching centers in critical target areas.

The committee concluded that the proposal of the American Telephone and Telegraph Company for installation of a completely automatic and integrated communications system with no manual handling of messages had substantial advantages over both the present leased wire system and the proposal submitted by Western Union, which provided for installation of semi-automatic push button equipment at switching centers in Washington, Chicago and San Francisco. It therefore recommended that the Telephone

Company's proposal be accepted. The following were considered to be among the more important advantages of the system recommended for adoption:

1. It was a fully integrated automatic system connecting all Federal Reserve Banks and branches.
2. All circuits were duplex permitting simultaneous two way transmission.
3. It was much less vulnerable during a national emergency because a single switching center would be located at Richmond, which was considered to be a nontarget area. If any office on a circuit, except Richmond, were incapacitated, the service to all other offices on the circuit would not necessarily be affected.
4. One switching center (instead of two main switching centers and various relay points under the existing system and three switching centers under the proposed Western Union System) would speed up transmission time between points of origin and destination.
5. There would be no manual operation of any kind in relaying messages.
6. Less personnel was required than under the existing system or the system proposed by Western Union.
7. It would increase speed of transmission from sixty five or less words per minute to seventy five words per minute.
8. It was capable of more rapid expansion and realignment of circuits.

9. Less space in Reserve Bank buildings was required.

10. The American Telephone and Telegraph Company had more lines available than Western Union.

The rental and installation costs of the system proposed by the American Telephone and Telegraph Company compared favorably with those quoted by Western Union and, although the rentals exceeded somewhat those of the existing leased wire system, it was thought that the difference would be largely compensated for by the lesser number of personnel which would be required.

The committee's recommendations were approved and on March 19, 1952 the Board of Governors formally accepted the proposal of the American Telephone and Telegraph Company and ordered the installation of that Company's 81-D-1 automatic teletypewriter system. It was recognized that because of a shortage of teleprinter machines and because all of the equipment for the switching center would have to be manufactured and installed, completion of the new communications system would take more than a year. Installations progressed as anticipated and on July 6, 1953, the new system was placed in operation, once again providing the Federal Reserve System with the fastest and most advanced type of private communications system available for the prompt and efficient transmission of telegraphic messages.

CHAPTER VI

THE BANK WIRE

Extent and Nature of Network

The Bank Wire is a nationwide private telegraphic network engineered by the Western Union Telegraph Company connecting approximately two-hundred of the larger commercial banks located in fifty-nine major cities throughout the country. It was designed for the one prime purpose of transmitting messages from one bank to another speedily, accurately and in confidence and is the largest communications system of its kind in the world.[34]

Transmission of messages is by means of teleprinter machines, at least one of which is installed in the office of each participating or sponsoring bank. All outgoing messages flow to one of five switching centers, located in San Francisco, Dallas, Chicago, Atlanta, and New York, from where they are directed to the bank of destination by means of reperforator tape switching turrets. Attendants at the switching centers forward the messages by push button operation, but there is otherwise no manual retyping or retransmission of any kind between the point of origin and the station of destination, thereby insuring that the messages will be received in exactly the form they were originally dispatched.

Relationship Between The Bank Wire and Federal Reserve Leased Wire System

There is no direct connection of any kind between The Bank Wire and the Federal Reserve Leased Wire System, but one may be said to complement

[34] The American Banker, September 30, 1950, Vol. CXV, No. 177.

the other in expediting the completion of nationwide banking and business transactions of many kinds. For example, a Bank Wire participant in Dallas may wish to replenish its reserve account by selling securities held in custody by its New York City correspondent bank and having the proceeds of sale transferred to its credit at the Federal Reserve Bank of Dallas. To accomplish this, it would order sale of the securities and transfer of the proceeds by means of a telegraphic message conveyed over The Bank Wire to its New York City correspondent bank. The New York City bank would effect the sale of the securities and direct the Federal Reserve Bank of New York to charge its reserve account for the amount to be transferred and credit the Federal Reserve Bank of Dallas for the account of its correspondent bank in that city. The desired transfer would be effected over the Federal Reserve Leased Wire System and all phases of the transaction would be accomplished with utmost dispatch.

When the question of establishing a private bank wire service was originally being discussed, some bankers were of the opinion that the need for an elaborate and expensive leased wire system among commercial banks might be alleviated if the Federal Reserve System would permit the transfer of balances of individuals, firms, or corporations over the Federal Reserve leased wires without cost, or would otherwise broaden the use which commercial banks might make of its leased wire services. The subject was informally discussed with Reserve Bank representatives and the matter received their careful consideration. It was the prevailing viewpoint that at peak periods the Federal Reserve leased wires were loaded to capacity with Federal Reserve and Fiscal Agency messages and that substantial expansion in the scope and type of messages handled might result in serious delays. It was also considered that Federal

Reserve facilities for transferring funds were primarily for the purpose of transferring bank balances and that if the facilities were opened to the free transfer of corporate balances, including those pertaining to the business of insurance companies, firms and corporations having offices, stores or factories located throughout the country, the volume involved would be so great that the situation would arise where transfers of bank balances would be of secondary importance and subject to delays because of the extent of corporate transfers conveyed over the leased wires. There was a strong desire to avoid any possibility of delay in transmitting important official Federal Reserve telegrams, Fiscal Agency messages or bank balance and security transfers totaling billions of dollars daily, by increasing the volume of member bank business transacted over the leased wires. At the same time, the Federal Reserve Banks gave preliminary consideration to the desirability of one or more Reserve Banks being connected as participants in the commercial bank wire network and to the action they should take if requested either to convey telegrams to a Bank Wire participant for transmission over The Bank Wire, or to accept from participants in The Bank Wire, telegrams which had been transmitted over The Bank Wire.

However, the necessity or occasion to reach final decisions on the above questions never materialized. The majority of commercial bankers apparently considered it more practical and desirable to establish their own private wire network, rather than to seek expansion of the services of the Federal Reserve Leased Wire System to accomplish their objectives, and the Reserve Banks were never formally requested to consider such an expansion of their facilities. Neither were the Reserve Banks invited to participate in The Bank Wire network, nor did they request to be admitted

to participation. Some bankers were strongly opposed to the Federal Reserve Banks having any connection whatsoever with the planning, organization or operation of The Bank Wire, and even objected to discussing it with them.

Inasmuch as the business of the Federal Reserve Banks, including the business transacted over the leased wires, is in most respects fundamentally different from the business of commercial banks, it seems to me quite appropriate that the Federal Reserve System and the commercial banking system each should have its own private wire system. This permits them to serve in the manner they deem most efficient and effective their own particular needs and requirements, without question as to the relative importance of messages or conflict as to preference and priority in the transmission of messages during peak periods, particularly at or near closing hours.

Leased Wire Service of Bankers Trust Company

Prior to April 1948, several New York City banks had leased wire connections with a few other banks in some of the larger cities of the country, but the networks were not extensive and the costs of the services were shared between the participants. At that time, the Bankers Trust Company, New York City, inaugurated a rather extensive private wire system of its own for the purpose of improving its service to correspondent banks. The wire facilities were leased from Western Union and switching turrets were located at Bankers Trust Company's head office in New York City and at its Chicago office. Originally, it had connections with approximately twenty banks in fifteen cities but the services proved very attractive and the network grew quite rapidly, soon extending to include over forty banks in twenty six cities from coast to coast.

The entire costs of the services were absorbed by the Bankers Trust Company, with the exception of the salaries of teletype operators employed at the offices of outlying banks connected on the network.

Other New York City banks doing a substantial correspondent bank business, as would be expected, were much disturbed about this type of competition. Within a short time several such banks began formulating plans for the operation of a similar wire system and invited other banks to join with them. The way became cleared to operate a joint wire service of this type when it was ascertained that it would not be in violation of the regulations of the Federal Communications Commission for a group of banks to operate a single communications system and to share the costs thereof, provided the arrangement was made in the name of one bank rather than of an association. The regulations apparently were in no way concerned with the manner in which the expenses were shared. Previously the Bankers Trust Company had given consideration to a cooperative system with other New York City banks but at that time were of the understanding that the regulations of the Federal Communications Commission would not permit the operation of a system by an association of banks for their mutual benefit, since this would be considered as engaging in competition with regular communications companies. While the distinction appears quite technical, the new interpretation, nevertheless, cleared the way to go ahead with the group enterprise.

At first, there was no great enthusiasm for the project on the part of a few of the larger banks because of reservations that the benefits to participants would be sufficiently great in terms of use, time savings and other services to justify the very considerable expenses which would be involved. However, the competitive aspects continued to be a matter

of major concern and the problem engaged the attention of large correspondent banks not only in New York City but in Chicago as well.

One of the many problems which the private wire system of the Bankers Trust Company posed for its competitors is illustrated by the confusion caused in another New York City bank with respect to the payment of telegraphic charges for transfers of funds. Formerly, in the ordinary course of business such charges were passed on to the customers ordering the transfers. However, with increasing frequency customers complained about the imposition of the charges, stating that Bankers Trust Company was offering a similar service free of cost. In these cases, it was necessary to refer the complaints to an officer who would determine on the basis of overall relationships with the particular customer whether or not to absorb the charges. If it were decided that the charges should be absorbed, the name of the customer was placed on a preferred list and the bank subsequently assumed all telegraphic costs which ordinarily would have been passed on to the customer. In addition to the confusion caused by the need to maintain and refer to such a preferred list, the situation was quite undesirable from the point of view of the bank's overall customer relationships.

Announcement of Joint Private Wire Service

By February 1949, arrangements among the banks to establish a joint wire service had progressed to the point an article appeared in the newspapers stating that the National City Bank, the Guaranty Trust Company, the Chemical Bank and Trust Company and the Central Hanover Bank and Trust Company, all of New York City, were planning a new wire system to link one hundred banks in thirty six cities and that the system, which

was "intended to compete with a similar but smaller network established nearly a year ago by the Bankers Trust Company, would involve an annual operating cost of about $500,000."[35] The response of out-of-town banks to the service was reported as having been generally enthusiastic but some New York City bankers continued to hesitate joining in the plan because of the high costs of the services and the uneconomical aspects involved in the duplication of facilities, which would result from the operation of two competing leased wire networks among commercial banks covering many of the same principal cities.

After a series of meetings over a period of several months, it was agreed that the Bankers Trust Company's wire system would be discontinued after the larger facilities became available and, on the basis of this understanding, the Chase National Bank and the Bankers Trust Company joined as sponsors of the new wire network. Four Chicago banks, namely the Continental Illinois National Bank and Trust Company, the First National Bank of Chicago, the Harris Trust and Savings Bank and the Northern Trust Company, also joined with the New York City banks as sponsoring institutions. A press release issued in April 1949 stated that the contemplated communications system, to be known as "The Bank Wire", would link at least one hundred and twenty banks in thirty eight cities from coast to coast and that the project was expected to involve an annual operating cost approaching $750,000. It was reported that "while all banks participating in the (Bank Wire) system will contribute to the cost of its operation and maintenance, it is understood that the sponsors will underwrite a larger portion of the expense."[36] It will

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[35] The New York Times, Thursday, February 17, 1949, p. 35, Column 5.

[36] The New York Times, Friday, April 8, 1949, p. 37, Columns 6, 7.

be recalled that the wire services of the Bankers Trust Company had been operated without charge to the participating banks. Because of the magnitude of the network and the special nature of the required equipment, operation of The Bank Wire was not scheduled to begin until the early part of 1950.

Inauguration of The Bank Wire Service

Some delay was experienced in placing The Bank Wire in operation, principally because of coal and steel strikes which held up production of the equipment needed. Initial services to one hundred forty two banks in thirty six cities were inaugurated on November 1, 1950 and services to forty six additional banks in eighteen other cities were commenced on December 4, 1950. It will be noticed that from April 1949 when the system was first announced until operations commenced, the number of banks accepted for participation increased from approximately one-hundred and twenty to one hundred eighty eight and the number of cities covered had grown from thirty eight to fifty four, indicating the keen desire among banks to participate in the service. The number of sponsoring banks had also increased from ten to sixteen including:

New York City Banks

Bank of the Manhattan Company
Bankers Trust Company
Central Hanover Bank and Trust Company
Chase National Bank
Chemical Bank and Trust Company
First National Bank
Guaranty Trust Company
Irving Trust Company
Marine Midland Trust Company
J. P. Morgan & Company, Inc.
National City Bank
New York Trust Company

Chicago Banks

Continental Illinois National Bank and
Trust Company
First National Bank
Harris Trust and Savings Bank
Northern Trust Company

At present, there are seventeen New York City and Chicago sponsoring banks. Among the original New York City sponsors, the Bank of the Manhattan Company and the Chase National Bank have combined through merger, as have the First National Bank and the National City Bank. The Bank of New York and the Manufacturers Trust Company have joined as additional sponsors. The City National Bank and Trust Company of Chicago has been added to the four original sponsoring banks in that city.

Contractual Arrangements

The agreement covering The Bank Wire installations and services was executed on October 30, 1950, and is between the Bankers Trust Company and The Western Union Telegraph Company. Rentals for all circuits and equipment are payable by Bankers Trust at rates fixed under the applicable tariff filed by Western Union with the Federal Communications Commission. Charges for circuits are in accordance with the agreed upon hours of operation, regardless of the number of words sent. Western Union has provided space in its own buildings for installation of necessary switching center equipment and the switching centers are operated and maintained by Western Union personnel. Western Union also maintains for the convenience of the banks a record of the number of messages relayed through the switching centers. Installation costs of switching center equipment, the monthly rental charges for such equipment and the salaries of switching center supervisory and operating personnel are payable by Bankers Trust Company. Bankers Trust Company also has contracted to pay the installation costs and rental charges

for equipment located at the offices of all sponsoring and participating banks. Western Union maintains the circuits and equipment, both at the switching centers and the out stations. The costs of such maintenance are included in the established monthly rental rates and no additional charges are made therefor.

The governing agreement specifies that the facilities of The Bank Wire are for the private use of "banks connected with the private wire system only in communicating with any other bank connected to the system", and "that such facilities will not be used, either directly or indirectly, for the handling of communications for the general public." This provision has been broadly construed to permit transmission over The Bank Wire of messages addressed to or received from a nonparticipant, provided no charge is made against the nonparticipant, and further provided that the receiving or sending participant bank has a direct interest in the text of the message. Interpretation in this manner has permitted participating banks to convey, by telephone or other means of communications, to nonparticipating banks messages received over The Bank Wire, and to accept from nonparticipants, by telephone or otherwise, messages for transmission over The Bank Wire. In effect, this has extended the benefits of the private wire system to correspondent banks of all participating banks, even though such correspondents are not themselves directly connected with The Bank Wire network. The result has been to greatly expand the scope of operations of The Bank Wire and to extend its usefulness to numerous banks throughout the nation located in small communities, as well as to those situated in the larger cities.

All other sponsoring banks have authorized the Bankers Trust Company to act as their agent in executing the agreement with Western Union,

without reference to their own interests in such agreement. The sponsors have also agreed that the rights, duties and obligations of Bankers Trust Company are to be those of all sponsor banks, and that each sponsor will assume and fulfill its proportionate share of the duties and obligations assumed by Bankers under the terms of the agreement.

An Operating Committee, consisting of representatives of certain sponsor banks, was initially appointed by the sponsors to supervise the operations of The Bank Wire in accordance with duties and powers as outlined in a "Memorandum of Operation of The Bank Wire", which is the basic document governing the manner of operation of the service.

Memorandum of Operation

The memorandum of operation of The Bank Wire provides for the continuance of the Operating Committee on a rotating basis among the sponsoring banks. It grants to the committee supervisory powers over all operating matters affecting The Bank Wire, with the exception that it is required to refer to the sponsor banks for approval such major questions as the extension or termination of the contract with the communications company, any change in the method of expense distribution or any other matter which in the aggregate may increase to the extent of $50,000 or more per annum, the expenses of The Bank Wire. The Operating Committee has broad powers to prescribe rules and regulations governing the use of The Bank Wire's facilities by sponsor banks and by participating banks.

The memorandum of operation defines the terms and conditions for admission of additional sponsor banks from among other banks having their principal office in New York City or Chicago and for the withdrawal from the agreement of sponsor banks. It also provides that banks, other than those having a principal office in New York City or Chicago, may use the

facilities of The Bank Wire as participating banks upon the consent of two-thirds of the banks then represented on the Operating Committee. To qualify as a participant, a bank must enter into an agreement, in a form approved by the Operating Committee, with the leasee of the wire facilities.

Operating costs allocated to participating banks are apportioned on a basis recommended by the Operating Committee and approved by two-thirds of the Chicago sponsor banks and two-thirds of the New York sponsor banks. At the present time, participating banks may send or receive up to a total of one hundred messages per month without incurring any costs for their use of Bank Wire facilities, over and above their equipment rental costs. Messages in excess of one hundred per month are charged for at the rate of twenty seven cents per message.

Total operating costs, including any administrative expenses, counsel fees and other non-recurring charges, less the payments received from participating banks, are allocated among the sponsor banks. Each sponsor is charged for the rental of equipment located at its offices, as well as for the related equipment required at switching centers. The balance of the operating costs are apportioned among the sponsors on the basis of their proportionate use of the facilities as measured by the number of messages sent and received by them in relation to the total of all messages conveyed over the wires. Provision has been made for a minimum monthly assessment against sponsor banks. The amount of such assessment is presently set at $700 per month. Any surpluses which may be accumulated are distributed annually among the

sponsor banks on the basis of their proportionate activity, in the same manner as expenses are allocated.

The Operating Committee has appointed subcommittees on administration, allocation of costs, circuits and publicity to assist it in supervising the operations of The Bank Wire. The subcommittees submit to the Operating Committee their recommendations pertaining to matters in the fields with which they are specifically concerned. A full time, technically trained communications consultant, whose salary is paid for as an operating cost of The Bank Wire, has been employed and works in close cooperation with the Subcommittee on Circuits. He conducts continuous traffic studies to ascertain the adequacy of existing circuits and makes recommendations for expansion of facilities as the need appears. He is consulted on the feasibility, from a communications viewpoint, of admitting new applicants for participation in The Bank Wire network and furnishes advice on all technical questions with the view to keeping Bank Wire facilities modern, adequate to the volume of business transacted and operating at a high level of efficiency in rendering desired services to participants. Surveys are being conducted at the present time to determine the feasibility of substantially extending Bank Wire facilities to banks located in the rapidly growing areas of the State of Florida.

Types of Messages Handled

There is virtually no limit to the types of messages which may be conveyed over The Bank Wire, nor to the services which it affords to participating and sponsoring banks in transacting business either for

their own accounts or on behalf of their customers. Some of the typical ways in which the wire may be used to advantage are indicated below.

Transfer of Funds

In a matter of minutes, funds in any amount can be transferred from one city to another for any desired purpose. Without a doubt, one of the principal attractions of The Bank Wire to country correspondent banks is the facility it affords for the shifting of both bank and corporate balances by telegraph at low cost and with immediate availability.

New York City banks have experimented in utilizing The Bank Wire for transferring funds among themselves but this proved impractical because the volume involved interfered materially with traffic between New York City banks and their out-of-town correspondents, which is the type of communication The Bank Wire was primarily organized to handle.

Payments

Instructions may be issued for payments to firms, corporations, banks or individuals, including payments of a specialized character. For example, transactions requiring payments to Directors of Internal Revenue for release of merchandise from bond in distant cities can be handled promptly and efficiently.

Security Transactions

The system is ideally suited to handle orders for purchases or sales of securities, including instructions for delivery and receipt. It also may be used for the transmission of quotations or special instructions of all kinds affecting transactions in securities and commodities.

Collection Items

It is possible to obtain over The Bank Wire reports on the fate of drafts, notes, coupons, bonds or other items entered for collection.

Special or supplementary instructions may be given with respect to such items or any documents related thereto. Arrangements may also be made for prompt remittance of the proceeds by wire.

Reports of Balances or Deposits and Stop Payment Orders

Through use of the wire, reports of balances or deposits can be obtained promptly. Stop payment orders may be received at the earliest possible moment and prompt notification can be given in the event of prior payment. Quick notification of the removal of stop payment orders also can be effected.

Credit Information

Business men and bankers often need credit reports on firm and individual names from distant cities on short notice. The use of the wire service for handling such credit inquiries can bring the desired information quickly and confidentially.

Letters of Credit

Shipment of goods may be expedited by wired notification of the opening of a letter of credit and information concerning the necessary documents. Irregularities in documents can be clarified and adjusted over the wire in a matter of minutes.

Foreign Exchange

In the buying and selling of merchandise abroad and in the handling of foreign transactions, many business firms and banks require prompt, up to the minute quotations of foreign exchange rates. The use of the wire system makes possible the rapid receipt of such quotations and permits the prompt execution of orders for foreign exchange purchases and sales.

Trust Transactions

The wire service enables banks acting as trustee or in an agency capacity to transfer funds for payments of securities, to expedite the release of securities to underwriters following closings, to report subscriptions to new issues, to complete exchanges, to file stop payment and stop transfer orders, to report details of record date transfers and to facilitate many other trust transactions.[37]

Purchases and Sales of Federal Funds

Requests for purchases or sales of Federal Funds may be made over The Bank Wire to banks anywhere in the country.[38] The actual inter-district transfer of Federal Funds balances, however, would be made over the Federal Reserve Leased Wire System.

The following is an example of how The Bank Wire can render a valuable service in facilitating business transactions. A miller in Minneapolis ships flour to a dealer in Los Angeles who has a limited line of credit. Shipments are made at frequent intervals and the cost of each shipment usually exhausts the dealer's total line of credit. Because remittances for these shipments are made in Los Angeles funds, the miller is often imposed upon to make a second shipment before payment of the remittance for the previous shipment has been finally collected. On occasion, a third shipment may be in process of preparation prior to final payment of the remittance for the first shipment. This, of course, results in a considerable over extension of credit by the miller to the dealer. The XYZ Trust Company (a New York City or Chicago "Bank Wire" bank) could readily solve this problem for the miller by requesting him

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[37]Brochure, Private Wire System, Bankers Trust Company, New York City, (not dated).

[38]Brochure, The Bank Wire, Manufacturers Trust Company, New York City, July 1955.

to ask his local bank to forward the bill of lading and draft for each shipment direct to the Los Angeles correspondent bank of the XYZ Trust Company for collection, with instructions to transfer the proceeds by wire to the XYZ Trust Company for account of the Minneapolis bank for use of the miller. The telegrams from the Los Angeles bank to the XYZ Trust Company and from the latter to the Minneapolis bank would be dispatched over The Bank Wire and the miller would receive immediate credit, making it unnecessary for him to overextend credit to the dealer.

Another typical way in which The Bank Wire permits a bank to render a valuable service to its commercial customers is illustrated by the following situation. A large national corporation with numerous plants and offices located throughout the country has standing instructions with its principal bank of account in New York City to charge its account on stated dates and in specified amounts for transfer to banks in locations where disbursements must be made to meet payrolls or for other purposes. By utilization of The Bank Wire, the transfers can be made immediately available in the desired locations at the time the payments are due. Therefore, unnecessary accumulations of balances at numerous points may be avoided and funds are not tied up in transit, as would be the case if the transfers were effected by the shipment of drafts or some other means.

The broadness of the services afforded by The Bank Wire appear to be aptly summarized in a remark made by an officer of one of the New York City sponsoring banks prior to the time the service was placed in operation. This remark was to the effect that the potential uses of The Bank Wire were limited only by the scope of the banking business and the imagination of the banks in taking full advantage of the facilities

offered. No doubt new uses for The Bank Wire will continuously be discovered and its facilities will no doubt be of material assistance in keeping the caliber of banking services abreast of the technical changes and improvements in all fields which the nation is now experiencing.

Evaluation of Services

At the present time, about 200,000 messages of a wide variety are being transmitted monthly over the facilities of The Bank Wire and there would seem to be no question that this mechanism has contributed an important forward step in the rendering of comprehensive and efficient banking services throughout the nation. Any earlier reservations there may have been on the part of some bankers with respect to the value of the services which could be provided in relation to the substantial expenses involved, apparently have been dissipated by the enthusiasm with which The Bank Wire has been received and the effectiveness with which it has operated. It is now generally regarded as an integral and essential element of our banking system which could be dispensed with only at serious detriment to our banks, to business and to our economic system which requires the most rapid possible communications.

CHAPTER VII

TELEGRAPHIC TRANSFERS OF FUNDS

Scope and Significance

One of the most important uses of the leased wire is for effecting interdistrict transfers of funds between member banks of the Federal Reserve System. At the present time, such transfers constitute about one-half of the entire traffic of the leased wire system and the significance of this function may be illustrated by the fact that for the year 1954 the aggregate amount of transfers of funds handled by the Reserve Banks exceeded one trillion dollars.[39] This tremendous flow of funds, which at the Federal Reserve Bank of New York alone averages well over one billion dollars daily and frequently exceeds two billion dollars a day, affords maximum elasticity to the functioning of the nation's banking system and the accommodation of business in general. In order to appreciate fully the value of this service to member banks and their depositors, it may be helpful to review briefly the situation which existed prior to the establishment of the Federal Reserve System.

Situation Prior to Federal Reserve System

Before the establishment of the Federal Reserve System there was no centralized mechanism for transferring funds to and from distant cities.

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[39] Forty-first Annual Report of the Board of Governors of the Federal Reserve System Covering Operations for the Year 1954, Board of Governors of the Federal Reserve System, Washington, D. C., March 15, 1955, p. 69.

It was customary for the larger commercial banks to maintain balances with correspondent banks in the principal financial centers in order to accommodate depositors' needs for funds in those cities. Such balances were known as "exchange" and "exchange" on other cities was bought and sold much in the same manner foreign exchange is traded today. Rates of exchange fluctuated with the supply of and demand for funds at various points. Seasonal factors, such as crop movements, exerted an influence on rates. When balances at distant points had to be replenished, or when there was an occasion to reduce them, it was necessary for banks to ship gold or currency. Not only were the shipments expensive and subject to hazards, but the funds were unavailable for investment or other use during the period of transit.

Improvements Resulting From Federal Reserve Leased Wire System

The Federal Reserve Act provided for a system of centralized reserves. The creation of the Gold Settlement Fund and the development of the Federal Reserve Leased Wire System made it possible to transfer funds throughout the country quickly and inexpensively and the need to ship currency for the purpose of settling balances was eliminated. This provided the means of making funds available at any point throughout the country within minutes after dispatch, and with no loss of interest involved.

Regulations Affecting Telegraphic Transfers

Prior to the establishment of the leased wire system, telegraphic transfer of funds were handled by the Reserve Banks through commercial telegraph channels. Errors were frequent, lost messages difficult to trace, and long delays in transmission were commonly experienced.

The tremendous rise in economic activity during World War I, the inauguration of daily gold fund settlements and a sharp upward trend in the number of telegraphic transfer of funds, which at the Federal Reserve Bank of New York alone increased from 10,000 in 1917 to 39,000 in 1918, were instrumental in the establishment of the leased wire system in June 1918.[40]

When the leased wire was first inaugurated, free transfers of funds were made by some Reserve Banks virtually without restrictions of any kind. The earliest regulation in this respect, issued in 1919 by the Federal Reserve Board, prohibited direct payments by Federal Reserve Banks to individuals, firms or corporations other than member banks, but permitted such transfers (called third party transfers) to be effected through the banks of such individuals, firms or corporations without cost. This ruling applied uniformly to all Reserve Banks and was set forth in the Federal Reserve Bank of New York's first circular issued to its member banks pertaining to procedures governing "Telegraphic Transfers".[41] This circular provided that:

> "The funds of each member bank on deposit with us may be made immediately available in any other Federal Reserve District by telegraphic transfer at par, free of charge.
>
> "Wire transfers of funds through the Federal Reserve Banks shall be strictly limited to those ordering payments or credits to banks or bankers.
>
> "Direct payments by Federal Reserve Banks to individuals, firms or corporations other than banks will not be permitted but such transfers can be effected through their banks."

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[40] Sixth Annual Report Federal Reserve Bank of New York for the Year Ended December 31, 1920, Federal Reserve Bank of New York, March 1, 1921, p. 43.

[41] Circular No. 264, Federal Reserve Bank of New York, March 18, 1920.

At that time, there were no restrictions with respect to the minimum amounts of transfers that could be made. This privilege resulted in requests for transfers by wire of sums as small at $10 in payment of personal transactions. Because of the difficulties encountered by the increasing volume of such transactions, the Reserve Banks in 1922 requested member banks to refrain from making requests for telegraphic transfers for small amounts or in instances where the transfers could be made as conveniently through the mails. However, by 1924 the number of small transfers increased to the extent that they were over-crowding the leased wire system and seriously interfering with the processing of bank balance transfers, a basic function of the Federal Reserve System. In order to alleviate this condition, the Reserve Banks, on July 1, 1924, discontinued sending third party transfers over the leased wires. Requests for such transfers were transmitted over the commercial wires and a service charge was imposed amounting to the commercial telegraph rate for each message. At the same time transfers of funds over the leased wires free of charge were restricted to bank balances in multiples of $100.[42]

At the origin of the Federal Reserve System, only those banks which became members of the System were entitled to the rights and privileges pertaining thereto. An amendment to Section 13, paragraph 1 of the Federal Reserve Act, under date of September 7, 1916, authorized the Federal Reserve Banks to grant to nonmember banks the privilege of participating in the System's check clearing and collection facilities, provided the nonmember bank maintained with the Reserve Bank of its district a balance sufficient to offset items in transit for its account. Many

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[42]Circular No. 616, Federal Reserve Bank of New York, July 1, 1924.

banks and trust companies availed themselves of this privilege as the System expanded its activities. In furthering the development of an efficient check collection system, the Reserve Banks cooperated in establishing special check collection arrangements and provided for the settlement of resulting balances on their books for the accounts of nonmember as well as member banks.

To assist nonmember clearing banks in maintaining sufficient balances at the Reserve Banks or at their correspondent banks, the rules governing transfers of funds were broadened in 1936 to permit telegraphic transfers over commercial wires of round amounts in multiples of $100 at the request of or for credit to nonmember clearing banks.[43] The revised regulations authorized acceptance of such transfers from any member bank for the credit of any nonmember clearing bank or from any nonmember clearing bank for the credit of any member bank or any other nonmember clearing bank. This was the first regulation extending to other than member banks the privilege of making transfers of funds through the Federal Reserve Banks. Transfers over the leased wires continued to be made only when ordered by and payable to member banks.

In 1937, the Board of Governors brought to the attention of all Federal Reserve Banks, the experience of one Reserve Bank which had found that unauthorized third party transfers were being made over the leased wire system for the purpose of avoiding wire charges. This was accomplished in the following manner. The third party interests were not indicated in the text of the messages but the transfers were for amounts ending in even hundreds of dollars; the hundred dollar digits serving as

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[43] Circular No. 1700, Federal Reserve Bank of New York, September 28, 1936.

a code to direct the credit to a commercial account. This matter was considered in a report, dated June 1, 1937, of the Leased Wire Committee which suggested that the responsibility for correcting abuses of this nature rested with each Federal Reserve Bank. A few such transfers were noticed coming into the Federal Reserve Bank of New York but they were brought to the attention of the member banks concerned and the practice was soon discontinued.

In 1938, for the purpose of clarifying the provisions of the regulations with respect to transfers of funds eligible for transmission over the leased wires, and to minimize the number of unauthorized "free" transfers, the Board of Governors in a letter dated May 2, 1938 approved the following recommendations of the Conference of Presidents of the Federal Reserve Banks.

1. Only transfers of member bank balances in round amounts in multiples of $1,000 will be made over the leased wires.
2. Each Federal Reserve Bank reserves the right to decline to effect over the leased wires any transfer which, in its opinion, is an abuse of the wire transfer facilities.

In 1939, the Reserve Banks commenced utilizing the leased wires for telegraphic transfers which were previously conveyed over commercial wires. Charges for such transfers continued to be made at commercial wire rates and there were otherwise no basic changes in the regulations relating to the transfer of funds.[44]

The same general policies prevailed until 1951. At that time, as a result of the development of "The Bank Wire", the regulations governing

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[44] Circular No. 1958, Federal Reserve Bank of New York, June 30, 1939.

transfers of funds over the leased wires were liberalized with respect to member bank balance transfers. Whereas formerly such transfers were restricted to multiples of $1,000, the new regulations permitted free telegraphic transfers of member bank balances of $1,000 and over, without further limitation as to amount.[45] This afforded the banks a more flexible free service that better supplemented their own private wire system and broadened accommodations in the transfer of funds and the purchase and sale of Government securities and Federal Funds.

Federal Funds Transfers

Member banks endeavor to keep only the minimum required reserves with the Federal Reserve Banks. These balances earn nothing and the banks continuously seek earnings for available funds and manage their reserve positions with this consideration in mind. Out-of-town banks transfer excess reserves and other available balances to their city correspondents for investment in short-term Government securities or other short-term liquid investments afforded by the large money markets of the country. The large city banks, or so-called money market banks, similarly seek to keep their available funds invested in earning assets to the maximum extent possible. Practically all transfers of funds in and out of the money market are made through New York City banks by means of the leased wire system, and the most important immediate determinant of day to day money market conditions is the reserve position of the New York City banks.[46]

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[45] First Supplement to Operating Circular No. 10, Federal Reserve Bank of New York, January 8, 1951.

[46] Harold V. Roelse, "The Money Market", Money Market Essays, Federal Reserve Bank of New York, March 1952, p. 5, Column 2.

Recently, the relatively restrictive Federal Reserve credit policy and the resultant tightness in the reserve positions of member banks, coupled with the requirements of dealers in United States Government securities and other short-term investors, who must make settlements in immediately available balances, has resulted in a strong demand for Federal Funds and an attractive rate of return, running close to the Federal Reserve discount rate of 2 3/4%. This has developed a growing tendency among banks to utilize the Federal Funds market to maintain a fully invested position and there has been an expanding countrywide activity in this field, extending to the smaller out-of-town banks as well as the larger city correspondent banks.

The increased interdistrict activity in Federal Funds transactions is reflected in an acceleration of leased wire operations at the Reserve Banks. If the transaction is between two banks in New York City, or between other banks in the same Reserve District, the use of the leased wire is not involved. However, if the trade is between banks in different Federal Reserve Districts, the lending bank authorizes its Federal Reserve Bank to charge its account and credit the borrowing bank by means of a transfer over the leased wires. Because such trades are usually for one business day, the funds are repaid by a return wire transfer on the next business day.

The Federal Reserve Leased Wire System provides the sole facility for channeling Federal Funds to the points they are required on an immediately available basis. It is, therefore, an essential element in interdistrict dealings in Government securities and other transactions which must be settled in Federal Funds. It also makes possible the functioning of a nationwide Federal Funds market which banks generally may

utilize to relieve temporary excesses or shortages in their reserve balances at the Federal Reserve Banks.

Summary of Present Regulations and Scope of Operations

The following summarizes the present regulations of the Federal Reserve Banks pertaining to telegraphic transfers of funds.

All Federal Reserve Banks absorb the cost of telegrams transmitted over the Federal Reserve leased wires in connection with telegraphic transfers of member bank balances of $1,000 or over between Federal Reserve Banks and branches. Telegrams from member banks sent over the commercial wires requesting Reserve Banks to make such transfers may be sent to the Reserve Banks collect. Such transfers will be made for and paid to member banks only.

Telegraphic transfers of funds for any purpose and in any amount and without limitation as to descriptive data also will be transmitted over the leased wires, subject, however, to a charge not exceeding commercial wire rates. Such transfers will be made for and paid to member banks only, but may be for the use of any bank, individual, firm or corporation.

In addition, the Reserve Banks will make telegraphic transfers of bank balances, in multiples of $100, over the leased wires for nonmember clearing banks, subject to commercial telegraph charges. Requests for such transfers will be accepted from any member bank for the credit of any nonmember clearing bank, and from any nonmember clearing bank for the credit of any member bank or any other nonmember clearing bank.

Member and nonmember clearing banks are required to prepay the cost of commercial telegrams sent to the Reserve Banks requesting transfers that are subject to a charge, and commercial telegrams sent by the

Reserve Banks to member and nonmember clearing banks advising of credits arising from telegraphic transfers are sent on a collect basis.[47]

The privilege and facilities for transferring bank balances by wire at par to all sections of the country are available without cost to the more than sixty five hundred member banks of the Federal Reserve System.[48] Under the procedure of coding and decoding such messages, the transfers are usually completed within one hour. The recently developed procedure for transmitting wire transfers of funds on fanfold forms in clear English, which will be extended to encompass the entire Federal Reserve System within the next few months, will make possible the completion of such transfers between any points in the country within a few minutes, even at the heaviest volume periods. Transfers of funds are handled with the same speed and efficiency for nonmember clearing banks and, through member bank, for the accounts of firms, individuals or corporations, subject to a small charge to the depositing bank.

The facilities of the leased wire system have provided the means of quickly mobilizing the reserves of the country in accordance with economic requirements and exercise a significant role in minimizing sudden or disruptive tendencies. The leased wires have also aided in broadening the market for Federal Funds, much in the same manner as they have helped to broaden the market for Treasury issues, as will be discussed in a subsequent chapter of this thesis.

The tremendous increase during recent years in the volume and dollar amount of telegraphic transfers has presented few major operating problems

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[47] Operating Circular No. 10, Federal Reserve Bank of New York, December 8, 1949, and First Supplement thereto, January 8, 1951.

[48] Forty-first Annual Report of the Board of Governors of the Federal Reserve System, Board of Governors of the Federal Reserve System, Washington, D. C., March 15, 1955, p. 81, Column 3.

because of the continued technical advances in communications. In 1944, the Federal Reserve Banks handled 906,000 telegraphic transfers of funds aggregating two hundred and fifteen billion dollars.[49] In 1954 these figures rose to approximately 1,808,000 transfers totaling over one trillion dollars.[50] During 1955, the upward trend in the volume of wire transfers continued, as illustrated by an increase of 8% at the Federal Reserve Bank of New York over the comparable figure for 1954.[51]

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[49] Thirty-third Annual Report of the Board of Governors of the Federal Reserve System Covering Operations for the Year 1946, Board of Governors of the Federal Reserve System, Washington, D. C., June 17, 1947, p. 77, Table No. 5, Column 3.

[50] Forty-first Annual Report of the Board of Governors, p. 69. Table No. 5, Column 1.

[51] Compiled from the files of the Wire Transfer Division of the Federal Reserve Bank of New York, 1954-1955.

CHAPTER VIII

FACSIMILE TRANSMISSION AT THE FEDERAL RESERVE BANK OF NEW YORK

Purpose, Participants and Allocation of Costs

At the present time, facsimile transmission equipment, leased from the Western Union Telegraph Company, is utilized for the purpose of conveying officially signed instructions and advices of credits in connection with transfers of funds between the Federal Reserve Bank of New York and twelve of the larger New York City Clearing House banks. The banks participating with the Federal Reserve Bank of New York in the arrangement are The Bank of New York, Bankers Trust Company, The Chase Manhattan Bank, Chemical Corn Exchange Bank, The First National City Bank of New York, Guaranty Trust Company of New York, The Hanover Bank, Irving Trust Company, Manufacturers Trust Company, The Marine Midland Trust Company, J. P. Morgan & Company, Inc., and The New York Trust Company. The Federal Reserve Bank pays one-half of the rental costs for the equipment and the balance is prorated among the other participants based largely on their respective use of the equipment in terms of the number of transactions processed.

While the facsimile transmission installation is not a part of the Federal Reserve Leased Wire System, it closely supplements the leased wires in accelerating the large volume of transfers of funds between the participating New York City money market banks and other banks located throughout the country. When it is considered that in 1955 over 80% of the total of $401 billion of wire transfers of funds handled by the

Federal Reserve Bank of New York were dispatched by or destined for the New York City banks which participate in the facsimile transmission procedure, the scope and importance of the transfers conveyed via the facsimile equipment are readily apparent. For this reason, when the new leased wire form transmission procedures were being developed, the advice copy of the fanfold form for incoming transfers to the Federal Reserve Bank of New York was designed in a manner so that the advice may be officially signed and retransmitted over the facsimile equipment in the form received without retyping or other additional handling by the Reserve Bank.

Background and Installation of First Intrafax Network

Shortly after World War II the Federal Reserve Bank of New York commenced an investigation of the possibility of utilizing some sort of mechanical or electrical equipment as a substitute for messenger service in transmitting authorizations for wire transfers of funds and advices of credits for such transfers between itself and the larger New York City banks. Consideration was given to various types of equipment which might be employed for this purpose, including teletype machines and facsimile transmitters. However, it did not appear that teletype was particularly well suited for the purpose and, at that time, facsimile transmission had not been developed to the point where it was considered sufficiently dependable or otherwise practical.

In 1951, the Federal Reserve Bank of New York renewed its investigation of this matter. It learned that the Western Union Telegraph Company had made several improvements in facsimile transmission methods and a survey was conducted to determine whether the new techniques might be adaptable to the Reserve Bank's operations. After several months of

study, Western Union prepared a report stating that, on the basis of its observations, it appeared that telefax (trade name for Western Union's facsimile transmission process) could be used advantageously in conveying wire transfers of funds between the Federal Reserve Bank of New York and the larger local banks. Under the facsimile procedure recommended, the recipients of advices of credits or letters of instructions to transfer money, instead of receiving delivery by messenger, would receive over the wires on specially prepared teledeltos recording paper facsimile reproductions of the original messages bearing authorized autograph signatures, which may be regarded for all purposes in the same manner as though the originals had been delivered by messenger.

Western Union offered to make a trial installation between the Reserve Bank's Wire Transfer Division and four or five of the larger New York City banks with no expense to the Reserve Bank during the trial period except for certain incidental out of pocket costs for line circuits and forms. The proposal was accepted and arrangements were made for a trial hookup with Bankers Trust Company, The Chase National Bank, Chemical Bank and Trust Company and The First National Bank. Experimental operations commenced in December 1951.

After a period of about two months, the Reserve Bank and the other banks concluded that the use of facsimile equipment, in lieu of messengers, for conveying instructions and advices of credits in connection with transfers of funds offered substantial advantages. In the Reserve Bank's operations, the principal advantage was a more even flow of work than was possible when messengers delivered batches of messages at half-hour or hourly intervals. The commercial banks found that facsimile transmission resulted in speedier completion of their outgoing transfers,

a more even flow of work, and earlier notification of credit for incoming transfers.

On the basis of the results of the experiment, facsimile equipment was installed in eleven additional New York City banks, which agreed to participate in the arrangement, and on October 14, 1952 the service, designated as an "Intrafax" system, was formally inaugurated. The following extracts from a press statement released on that date by the Federal Reserve Bank of New York point up some of the interesting features of the arrangement:

> "Transfers of more than a billion dollars a day between the Federal Reserve Bank of New York and 15 large New York City banks today began flashing automatically in picture form over a new intra-city facsimile telegraph system.
>
> "The banks now equipped with facilities for direct, two way facsimile communication with the Federal Reserve Bank are: Bank of the Manhattan Company, Bank of New York, Bankers Trust Company, The Chase National Bank, Chemical Bank & Trust Company, Corn Exchange Bank Trust Company, The First National Bank, The Hanover Bank, Irving Trust Company, Manufacturers Trust Company, The Marine Midland Trust Company, J. P. Morgan & Co., Inc., The National City Bank, The New York Trust Company, and The Public National Bank and Trust Company.
>
> "To make a money transfer - often millions of dollars in a single request - the necessary instructions are filled in on a special form and signed by an authorized official. The form is then placed on a metal drum, which is put in a facsimile transmitter. Here the form is whirled before a tiny electronic eye, which sends an exact picture of the form.
>
> "The receiving bank gets the picture on a miniature facsimile telegraph machine, called a Desk-Fax, simply by pushing a button to open the receiving circuit in response to a light signal. Each of the New York City banks has one or more of the Western Union Desk-Fax machines.
>
> "This marks the first time in banking history that signatures transmitted by facsimile have been used to authorize fund transfers on so large a scale."

Since all of the transfers, whether emanating from or destined for the participating New York City banks, flow through the Federal Reserve Bank of New York, the main operating center was set up in the Reserve Bank's Wire Transfer Division. This installation included eight recorder units for receiving incoming messages, eight drum type facsimile transmitters and two switchboards through which operators made the appropriate contacts with the participating banks for receiving or transmitting messages in response to signals conveyed by flashing lights.

Limitations of Intrafax System and Conversion to Letterfax

This was a big step forward in expediting transfers of money to and from the larger New York City banks and provided a service which these banks considered to be highly advantageous. However, with the steady increase in the volume of traffic over the next several years, the Intrafax equipment became progressively less able to handle the load, especially during peak periods of the day. From October 1952, the start of facsimile transmission, through the first ten months of 1955, traffic increased 25%. The equipment at that time permitted only one-way transmission and the machines were not built to stand the heavy use to which they were subjected, requiring continuous servicing and resulting in occasional breakdowns or delays.

The following statistics illustrate the steady upward trend of Intrafax traffic:

	Year	Daily Average Transactions
(Last 2 1/2 months)	1952	921
	1953	959
	1954	1,095
(First 10 months)	1955	1,148

In order to provide improved services, the Western Union Telegraph Company, on June 28, 1955, submitted to the Federal Reserve Bank of New York a brochure proposing a more advanced and better facsimile transmission system called "Letterfax". This proposal was accepted by the Reserve Bank and the other participating banks and the new system was installed and placed in operation on November 7, 1955.

Letterfax operates on the same general principles as the previous system but offers a number of advantages over the older method. Under the new system, each participant is provided with at least one letterfax transmitter and one recorder mounted on a console and connected by a duplex circuit with the switchboard, or concentrator, located at the Federal Reserve Bank of New York. This permits simultaneous receipt and transmission of messages by all participating banks, as compared with the limitations of one-way operation imposed upon them by the equipment formerly used. The operating center at the Reserve Bank is equipped with four recorder consoles, each of which contains two receiving units; four transmitter consoles, each containing two transmitting units; and switchboards for making the desired contacts with the outlying stations.

Each letterfax transmitter, at the participating banks as well as the Reserve Bank, has the capacity for sending three advices at once, as compared with single message transmission under the former method. Also, the reception of traffic is now automatic. The advice is received on the recorder, automatically cut off and deposited in the message accumulator, which will store in excess of fifty messages in the order received. Formerly, at the out stations, each message had to be individually removed at the time of receipt to permit further traffic. At the Reserve Bank, receipt of messages previously was on continuous

roll paper but no automatic cutting or storing devices were provided. These improvements have greatly minimized the loading and unloading procedures of the operating personnel and facilitated the flow of work. A further advantage of the new equipment is that the scanning speed has been increased with the result that the actual time required for transmitting a message has been reduced to about one-third of the time previously required.

Improvements Resulting from Letterfax

The letterfax equipment proved successful from the start. After three months of operation, a comparative analysis was made of the flow of work at the Federal Reserve Bank of New York on February 1, 1956, using letterfax equipment, as compared with May 6, 1955 using telefax equipment. The analysis indicated that, as a result of the increased speed and capacity of the letterfax equipment, the peak volume was handled one hour earlier, providing a much improved service to the participating member banks in handling their wire transfers. Letterfax has greatly alleviated delays in transmitting advices during peak hour and peak day operations and can readily absorb any large or sudden increases in the flow of advices to or from the individual banks. While the present system has been engineered to handle anticipated loads for some years to come, the facilities are readily susceptible of expansion with maximum economy in the amount of space required for the additional equipment.

Potentialities of Facsimile Transmission

The potentialities of facsimile transmission are fully recognized by the large New York City commercial banks. At a Planning Committee meeting of the Bank Management Conference of New York, held on March 8, 1955, a proposed network of wire facilities was discussed with Western

Union representatives for making payments among New York City Clearing House banks by facsimile reproduction of authorized payment forms, instead of by cashier or other official checks as at present. A brochure fully describing the equipment, cost and other details was sent to the banks on April 8, 1955. The proposed system embraces the establishment of a switching center at the New York Clearing House. The clearing house banks are actively considering the plan, the primary purpose of which is to provide a fast, dependable and error free means of transferring advices among themselves, but a number of problems have not been fully resolved and no decision has as yet been reached with respect to the proposal.

Technical difficulties at the present time limit facsimile transmission at reasonable costs to relatively short distances. However, some communications people are of the opinion these difficulties may be eliminated and it is quite possible that because of its authentic reproduction qualities and the other advantages which it affords, facsimile transmission may become one of the foremost communication systems of the future.

CHAPTER IX

WIRE TRANSFERS OF MARKETABLE SECURITIES OF THE UNITED STATES[52]

Scope and Nature of Function

Another important use of the Federal Reserve Leased Wire System is for making telegraphic transfers of long term and short term, outstanding, unmatured marketable bearer securities of the United States. This service is performed by the Federal Reserve Banks as fiscal agents of the United States.

In volume, the Government security transfer function is second only to the transfer of funds and constitutes about twenty per cent of the total traffic of the leased wire system. The Federal Reserve Bank of New York is now dispatching about 5,500 wires per month requesting the other Reserve Banks to deliver over $2 1/2 billion (par value) of securities and receives about 5,000 incoming wires per month requiring the delivery of over $3 billion of securities. During the year 1955, the Federal Reserve Bank of New York handled approximately 120,000 Government security transfers aggregating $62 billion. This represents an increase of 14% in the number of transfers handled as compared with 1954 and the trend has been steadily upward.

The mechanics of a wire transfer of securities is relatively simple and, perhaps, may be best described by a specific illustration. When,

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[52] Several confidential sources have been utilized extensively in the preparation of this chapter.

for example, a Government bond dealer in Chicago sells securities to a purchaser in New York, the seller delivers the securities to the Federal Reserve Bank of Chicago with instructions to deliver a like par amount of the same issue to the purchaser against payment of a stipulated amount of money. The Chicago bank sends appropriate instructions over the leased wire to the Federal Reserve Bank of New York, and retires the securities to be accounted for later to the Treasury Department. Upon receipt of the wire, the New York bank withdraws the appropriate securities from unissued stock held by it for account of the Treasury and makes delivery at its window to the purchaser against payment of the amount indicated. When the securities have been delivered and payment has been received, the Federal Reserve Bank of New York forwards a confirmation wire to the Federal Reserve Bank of Chicago and the necessary transfer of funds in payment of the securities is then consummated. The increased accountability of the Chicago bank to the Treasury for the securities retired offsets the decreased accountability of the New York bank. It is also possible for a seller to arrange for a wire transfer of securities to be delivered against receipt, or against the deposit of other securities; the mechanics, so far as the leased wire is concerned, are much the same.

Authorization for Wire Transfers of Certificates of Indebtedness and Treasury Notes

The procedure for transfer by wire of short term Government securities, including certificates of indebtedness and notes, was first established by the Treasury Department and the Federal Reserve Banks on July 15, 1921. When the service was inaugurated, no charges were made in connection with the transfers. Wire transfers of Treasury bonds were not authorized at that time. The principal reason for granting wire

transfer privileges with respect to short term obligations was to assist in the development and maintenance of a uniform countrywide market for Treasury certificates of indebtedness and Treasury notes. This objective was considered less compelling in the case of Treasury bonds. Since banks then, as now, relied on the short term Government securities market for investment of their secondary reserves, the day to day fluctuations in their reserve positions and in their requirements for cash frequently resulted in transactions in the short term securities market in order to make the necessary adjustments and to maintain a fully invested position. To permit banks throughout the country to make these adjustments readily and on the same basis regardless of their location, wire transfers of short term Government securities were authorized. Treasury bonds, on the other hand, were viewed as normally being held by banks for their investment portfolios, which did not require the day to day adjustments that characterized their holdings of short term securities.

Extension of Wire Transfer Privilege to Treasury Bills

The Treasury bill, now an important type of Government financing, was first introduced at the beginning of 1930. Its purpose was to give to the Treasury an additional flexible medium for short term financing at minimum rates and to provide the money market with a highly liquid security. At the start of the program, bills sold only on a competitive bid basis and maturities extended for three months. This was extended later to six and nine months.[53] At the present time, they are sold on a competitive bid basis but bids for amounts up to $200,000 may be tendered

[53] W. Randolph Burgess, Notes on the Mechanism of the Market for Treasury Bills, Federal Reserve Bank of New York, July 16, 1937.

on a noncompetitive basis with the rate fixed by the Treasury Department at the time of issue; they mature in three months and carry no interest coupons; the difference between the purchase price and the par value at maturity providing the income or yield on the investment.

At the time of the inauguration of the Treasury bill program, it was the view of the Undersecretary of the Treasury that the wire transfer privilege should not be extended to the bills, in view of the possibilities of error, unless and until a real need for such transfers became apparent. However, the demand for this service quickly developed and on December 6, 1930 the Treasury extended the wire transfer privilege to Treasury bills, subject to the same conditions and procedures as had been established for wire transfers of Treasury certificates of indebtedness and Treasury notes.

Telegraphic Transfers of Treasury Bonds

The matter of extending wire transfer privileges to include Treasury bonds was discussed intermittently as early as 1925. In 1938, when the short term debt was small in relation to the long term debt, this matter was again considered by the Treasury Department and the Federal Reserve Banks. At that time, the question of whether a service charge should be imposed to defray the expenses of transfers by wire of some or all securities was also considered. It was finally decided that under the circumstances then existing, there was no real need for wire transfers of Treasury bonds and the whole matter was dropped. The question arose again early in 1942 after our entry into World War II when there was some fear that coastal cities might be subjected to bombing attacks. It was felt that persons purchasing bonds in coastal cities might prefer to have them delivered to custodians in inland cities in the interests of

safety, and it was suggested that wire transfers might be made available for this purpose.

Shortly after the Conference of Presidents of the Federal Reserve Banks, held on June 23, 1942, the views of the Conference were conveyed to the Secretary of the Treasury to the effect that if wire transfer privileges were extended to Treasury bonds substantial advantages would result both to the Treasury, by reason of the further improvements of marketing facilities for Government securities, and to the Federal Reserve Banks and the banking system in general, by reason of the diminished risks surrounding transfer and delivery of Government bonds. It was presumed, at that time, that a charge could be made for transfers of long term and short term securities, which would substantially reimburse the costs of the operation. At a joint meeting of officials of the Treasury Department and officials of the Federal Reserve Banks of New York and Chicago, held in June 1942, it was decided; (1) that wire transfers of bonds should be limited to cases involving sales, in accordance with the prevailing practice in respect to short term securities; (2) that a charge sufficient to cover out-of-pocket expenses of the Treasury and the Reserve Banks should be made in the case of transfers of notes and bonds, and that the opinion of the Reserve Banks should be sought as to whether a charge should also be made in the case of transfers of bills and certificates in view of the small investment return on such securities; and (3) that the fairest way to make a charge would be to have it on a gradually increasing basis, with a stated minimum charge, the charge to be less in any case than the expense of making delivery by registered mail insured.

No further action was taken with respect to this discussion until 1943 when the Treasury Department stated that while it appeared desirable to extend wire transfer facilities to bonds, inauguration of the service would have to be deferred until additional manpower and mechanical equipment were available.

In November 1946, the Chairman of the Federal Reserve System Committee on Fiscal Agency Operations and Reimbursable Expenses, in a letter to the members of that Committee, suggested they again confer with the Treasury regarding telegraphic transfers of Government securities, including bonds. At that time, there was a price differential of about 1/64 between New York and Chicago and 1/32 between New York and San Francisco and it was felt that if wire transfer of Government bonds were permitted, it would provide a comparatively uniform market for Government securities throughout the country. Some concern was expressed regarding the physical capacity of the leased wire system to handle the increased volume of transfers. There was further concern that although the Treasury had indicated in 1943 it would be prepared to extend wire transfer facilities to bonds, except for shortages of mechanical equipment and manpower, its feeling in the matter might have changed since the Treasury no longer was in the position of selling new issues for cash to finance its expenditures and because of the continuation of the debt retirement program which had been undertaken in March 1946.[54]

In March 1947, a special Federal Reserve subcommittee, known as The Subcommittee on Telegraphic Transfer of Government Securities, was appointed to review this entire subject. After exhaustive studies covering

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[54] Thirty-second Annual Report Federal Reserve Bank of New York for the Year Ended December 31, 1946, Federal Reserve Bank of New York, March 27, 1947, p. 30.

the potential volume of wire transfers of Treasury bonds, telegraphic capacity to handle such volume, vault capacity at the Federal Reserve Banks to accommodate the increased amounts of fiscal stock which would be required, fiscal stock supplies, costs, fees and other considerations, the subcommittee in a report dated September 29, 1947, recommended that the wire transfer service be extended to include Treasury bonds. On the basis of these recommendations, which were concurred in by the Conference of Presidents of the Federal Reserve Banks, the Treasury Department on January 26, 1948 wired the Reserve Banks that effective March 1, 1948 the Treasury planned to extend telegraphic transfer facilities to include "bearer" Treasury bonds, and that all transfers involving bonds or notes which would not mature within one year from the date of transfer would be handled on a fee basis.

On January 23, 1948 the Treasury Department issued a confidential memorandum to the Federal Reserve Banks, containing instructions governing the proposed procedure. This was followed by a press release on February 4, 1948 by the Treasury Department:

> "Secretary of the Treasury Snyder today announced that arrangements have been made with the Federal Reserve Banks, effective March 1, 1948 for telegraphic transfer of Treasury bonds in coupon form, in addition to existing facilities for the telegraphic transfer of Treasury notes, certificates of indebtedness, and Treasury bills. These arrangements have been made for the purpose of facilitating a broader market for Government securities. Transfers will be made as at present only against bona fide sales."

The desirability of broadening facilities for the transfer by wire of Government securities to include bonds had become particularly cogent by 1948 because of the increased proportion of the public debt which was in the form of bonds as the result of war financing, and the expanded

service was well received and actively used.[55]

Presently Effective Regulations[56]

Transfers Authorized

The Federal Reserve Banks, as fiscal agents of the United States, are authorized to make telegraphic transfers of outstanding, unmatured, marketable bearer securities of the United States, i.e. Treasury bonds, Treasury notes, Treasury certificates of indebtedness and Treasury bills, for account of the owners, but only in those instances;

(a) Where an actual bona fide sale has been made at the time the securities are presented for transfer and delivery to the purchaser by another Federal Reserve Bank is necessary to consummate the sale, or

(b) Where the securities are pledged on original issue as collateral for Treasury Tax and Loan Accounts and, at the time of withdrawal from pledge, transfer by wire is required in connection with the delivery of the securities to the owner or his agent.

Transfers for any other reason, such as transfers for the convenience of owners or transfers of securities as collateral, are not authorized. The wire transfer service is provided as a privilege, rather than a right of the owner, and all transfers are conditioned on the availability of facilities of Federal Reserve Banks, without responsibility on their part for delays in effecting deliveries for any reason whatever.

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[55] Thirty-fourth Annual Report Federal Reserve Bank of New York for the Year Ended December 31, 1948, Federal Reserve Bank of New York, April 1, 1949, p. 50.

[56] Information under this heading has been derived principally from "Transactions in Marketable Securities of the United States," Operating Circular No. 17, Federal Reserve Bank of New York, Fiscal Agent of the United States, Revised January 9, 1951.

Under procedures prescribed by the Treasury, the transactions are designated as CPD transfers and may be accomplished only through the exchange of telegrams between Federal Reserve Banks over the leased wire system.

The procedure for consummating telegraphic transfers of securities has been greatly simplified since the service was first inaugurated. Originally, specific authorization by the Commissioner of Public Debt was required in advance of each transfer. This necessitated five telegrams, as indicated below, to complete a single transactions, in each of which it was necessary to describe the amount and the security issue involved.

(1) From the Reserve Bank initiating the request to the Commissioner of Public Debt (CPD) requesting authorization to make delivery.

(2) From the initiating Reserve Bank to the delivering Reserve Bank requesting that delivery be made on receipt of authority from CPD.

(3) From CPD to delivering Reserve Bank authorizing delivery of the securities.

(4) From CPD to initiating Reserve Bank advising that delivery of the securities had been authorized.

(5) From delivering Reserve Bank to initiating Reserve Bank advising that delivery had been made.

This procedure was cumbersome, resulted in many delays and placed additional burdens on the facilities of the leased wire system. In 1941, the present procedure was adopted under which the number of telegrams required to complete a transaction has been reduced to two, one authorizing and requesting delivery of the securities and one confirming the transaction after delivery has been made. In connection with this

change in procedure, the Federal Reserve Banks commenced making a blanket report monthly to the Commissioner of Public Debt of all transfers made during the month, instead of obtaining his specific approval of each transfer in advance.

In addition to the transfer of outstanding United States securities, as described above, the transfer by wire of securities allotted on original issue is also authorized. Where payment in full has been made for securities allotted against subscription or tender, securities in bearer form so allotted will be transferred free of charge upon request of the subscriber. Such transfers are referred to as 'Allotment Deliveries' or AD transfers. Since deliveries of Government securities to subscribers on original issue are made at the risk and expense of the Government, one important effect of the transfer of allotments by wire is to minimize the risks and cost to the Government involved in sending the securities from one Federal Reserve city to another.

Cities Between Which Transfers May be Made

Any of the securities specified above may be transferred against payment or receipt between any of the following cities: Boston, New York, Philadelphia, Cleveland, Cincinnati, Pittsburgh, Richmond, Baltimore, Charlotte, Atlanta, Birmingham, Jacksonville, Nashville, New Orleans, Chicago, Detroit, St. Louis, Little Rock, Louisville, Memphis, Minneapolis, Kansas City, Denver, Oklahoma City, Omaha, Dallas, El Paso, Houston, San Antonio, San Francisco, Los Angeles, Portland, Salt Lake City and Seattle. Transfers of any such securities may also be made between any of the cities mentioned and Washington, D. C., but such transfers may be made only against receipt. Such securities also may be transferred from the City of Buffalo, New York, to New York City or to any of the other cities named above.

Limitations

In order to avoid confusion, transfers are not authorized -

(a) On the date of original issue of the securities;

(b) On or after the date of maturity or call redemption date of the particular issue;

(c) On the last business day of a calendar month; or

(d) On the last business day preceding an interest payment date for the securities involved.

On December 12, 1955, the Treasury announced that effective January 1, 1956, only securities having a face value of $5,000 and more would be accepted for transfer by wire. Formerly, no minimum amount was specified.

Fees

Because of the special circumstances involved, no fees are charged for transfers by wire of Treasury bills or certificates of indebtedness. Neither is a charge imposed for the transfer of Treasury bonds or notes within one year of the maturity or call redemption date of the particular issue.

The amount of fee charged for each transfer of securities of any one issue or series to a single recipient, is as follows:

(a) Five dollars for each transfer in face amount not exceeding $50,000.

(b) Ten dollars for each transfer in face amount in excess of $50,000.

Securities of two or more different issues may not be combined in a single transfer, nor may securities for delivery to two or more recipients be combined in a single transfer. Fees are paid to the Reserve Bank

where the transaction originates and are turned over to the Treasury Department monthly. If sent by mail, in addition to regular postage and registry fees, shipments would be subject to postal surcharges ranging from twelve to nineteen cents per $1,000. When it is considered that the wire transfer fee includes two wires, i. e. original instructions and confirmation, the charge appears reasonable; the savings are substantial when amounts of $100,000 and over are involved. Inasmuch as the transfers handled by the Federal Reserve Bank of New York during the year 1955 averaged over $500,000 for each transaction, an appreciable advantage to the owners of United States Government securities and benefit to the market is indicated.

Delivery

Securities transferred to a Reserve Bank by wire are delivered to the transferee at the office of the receiving Federal Reserve Bank. However, securities so transferred for the account of a member bank of the Federal Reserve System, for which the Reserve Bank will hold securities in safekeeping, will be delivered to the safekeeping account of the member bank with the Reserve Bank, when so requested.

Economic Significance of Service

Federal Reserve Bank facilities for transferring Government securities by wire are dependent on the leased wire system. The economic significance of the wire transfer service is that it has substantially broadened the market for Government securities and makes possible a uniform market for such securities throughout the United States, which otherwise would not exist. If it were necessary to make deliveries of securities to purchasers in distant cities by mail, prices would vary according to the shipping and insurance costs involved in making the

deliveries. Because of the time required for shipment, interest charges would also be involved. With the huge Government debt presently outstanding and the frequent refunding operations, it appears unlikely that without the telegraphic transfer device the market could function properly, except in the unlikely contingency that all Government securities were lodged in New York City. The problem of delivery and its effect on restricting the market for Government securities was practically eliminated when the wire transfer service was extended to include Treasury bonds. The transfer facilities enable banks to readily adjust their reserve positions regardless of their location, and reduce the Treasury's risk and expense in connection with certain deliveries on original issue. These advantages are but a small part of the contingent national benefits that accrue from efficient Treasury financing based on fast, unencumbered nationwide marketing facilities through the medium of the leased wire system.

The services provided by the leased wire in the above respects, have been further enhanced by the recently developed automatic forms transmission procedure which has eliminated the use of code, smoothed out peak loads and speeded up telegraphic transfers of securities, thereby better enabling the Reserve Banks to provide for delivery, and payment on the same day in immediately available funds, of Government securities between any Federal Reserve points in the nation.

CHAPTER X

OTHER FUNCTIONS OF THE LEASED WIRE SYSTEM

Government Financing and Fiscal Management

Among the many services provided by the leased wire system, its use by the Treasury Department in Government financing ranks high in importance. The significance of this role has increased with the growth in the Federal debt and in the frequency and scope of Treasury financing operations.

Large expansion of the Federal debt began in the middle 1930's and reached previously unparalleled proportions during the second World War. The gross public debt outstanding at the end of the fiscal year 1930 amounted to slightly more than 16 billion dollars; in fiscal year 1936 it rose to almost 34 billion dollars and in 1946 was in excess of 269 billion dollars.[57] For the next several years it fell below the 1946 war financing peak but in 1954 again rose to the previously unprecedented high of 271.2 billion dollars.[58] On March 31 this year, the total gross public debt stood at almost 276 billion dollars, which closely approaches the highest figure reached in the history of the

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[57] Annual Report of the Secretary of the Treasury on the State of the Finances for the Fiscal Year Ended June 30, 1954, Treasury Department Document No. 3194, United States Government Printing Office, Washington, D. C., 1955, p. 470, Column 4.

[58] Annual Report of the Secretary of the Treasury for the Fiscal Year Ended June 30, 1954, p. 470, Column 4.

country.[59] It is significant that of this amount more than 159 billion dollars represents marketable obligations to which wire transfer privileges are extended.[60]

During 1955, there were fifty-three weekly offerings of Treasury bills with accepted bids amounting to approximately $89,640 million and fourteen offerings of interest bearing marketable securities totaling approximately $49,052 million including offerings for cash, exchange or cash and exchange.[61] The leased wires were utilized extensively in connection with all such financing operations and it is estimated that about one million words were transmitted over the wires relating to basic instructions, reports and announcements pertaining to the marketing of these issues.[62] When a new Treasury issue is announced, the details are communicated to the Head Offices of the Reserve Banks over the facilities of the leased wire system, usually in advance of public release. Occasionally the text of the actual offering circulars are sent to the banks by wire, as are all details regarding offerings and allotments of the weekly issues of Treasury bills. While subscription books are open, the Reserve Banks telegraph daily reports to the Treasury with respect to the amount of subscriptions received and also the final total of subscriptions when the books close. Press statements by the Treasury

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[59] Daily Statement of the United States Treasury, U. S. Government Printing Office, Washington 25, D. C., March 30, 1956, p. 5, Column 2.

[60] Daily Statement March 30, 1956, p. 5, Column 2.

[61] Treasury Bulletin, United States Treasury Department Office of the Secretary, July 1955, pp. 19, 20, January 1956, pp. 22, 23.

[62] Compiled from information contained in files of Federal Reserve Bank of New York, New York, N. Y.

Department announcing the offerings, and subsequently the results of the financing, are wired to the Reserve Banks for release by them.

The Treasury also utilizes the leased wires in connection with calls for payments from Treasury Tax and Loan Accounts. When such calls are made, the Treasury uses the wires to instruct the Federal Reserve Banks to notify the depositaries of the call. The speed of the leased wire service is particularly essential in connection with calls on Group C depositaries where payments may be due on the same day the call is made.

The leased wires also provide the Treasury with the same advantages that member banks enjoy with respect to wire transfers of funds. The Treasury has an account with each Reserve Bank but its receipts in one Federal Reserve District may not match its needs for funds to be disbursed in that District. Therefore, to provide for its disbursements, it transfers funds from one Reserve Bank to another. As between the Federal Reserve Banks involved, these transfers are settled through the Interdistrict Settlement Fund. Were it not for the availability of Federal Reserve transfer facilities, the Treasury might be obliged to ship money from one city to another.

Federal Reserve Monetary Policies

It is generally recognized today that the primary purpose and objective of the Federal Reserve System is to help counteract inflationary and deflationary movements, and to assist in creating conditions favorable to sustaining a high level of employment, stability of the purchasing power of the dollar, a rising level of production and consumption and economic growth of the country.[63] The means through which the Federal

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[63] The Federal Reserve System Purposes and Functions, Board of Governors of the Federal Reserve System, Washington, D. C., 1954, chapter 1, pp. 1, 2.

Reserve System is able to accomplish this objective is its ability to increase or decrease the availability, cost and volume of member bank reserves. This affects the general flow of credit and money by controlling the amount and cost of credit the banks may extent to the public and influences the level of business. By increasing the availability and volume of bank reserves, the Federal Reserve is able to exercise the means of lowering interest rates, easing monetary conditions and stimulating the level of business activity. Conversely, by decreasing the availability and volume of bank reserves, the Federal Reserve exerts its influence in raising the cost of borrowing, tightening the supply of credit and money and checking undesirable inflationary tendencies or business booms.[64]

There are three principal Reserve banking methods of regulating the availability, cost and volume of bank reserves. These are (1) discount operations, (2) the raising or lowering of member bank reserve requirements, and (3) purchases and sales of United States Government securities in the open market.[65] In connection with each of these regulatory methods, the Federal Reserve Leased Wire System performs a role of some significance.

When the directors of a Federal Reserve Bank decide that credit conditions make it advisable to change the currently effective discount rate, their decision and the change recommended is wired to the Board of Governors. When the Board approves the change, it forwards notice of its concurrence over the leased wires and also uses the wires to notify

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[64] The Federal Reserve System Purposes and Functions, p. 14.

[65] The Federal Reserve System Purposes and Functions, p. 31.

each of the other Federal Reserve Banks of the action taken and the effective date of the change in the rate. Similarly, the Board of Governors uses the leased wires to notify the Reserve Banks when changes are made in member bank reserve requirements. Press releases concerning such changes are also transmitted to the Reserve Banks over the leased wire system.

With respect to System credit policies as reflected in open market operations, the importance of the speed and facilities of the leased wire system in facilitating the existence of a uniform nationwide market for Government securities has been discussed in previous chapters. The availability of these facilities also materially assists in extending the scope and effectiveness of open market operations. The transfer facilities provided by the leased wire system, permitting mobility of bank reserves and immediate availability of funds throughout the country, are necessary adjuncts to sustaining a national money market and constitute an important element in implementing Federal Reserve monetary and credit policies.

The leased wire system is also utilized at the policy making level in connection with Federal Reserve operations in the money market and Government securities market. The management of the Federal Open Market Account, located at the Federal Reserve Bank of New York, discusses the market situation, the state of bank reserves, and other pertinent factors with representatives of the Federal Open Market Committee and with its staff each morning, and it utilizes the leased wire system

actively in keeping the members of the Board of Governors and the presidents of the Reserve Banks currently informed of all important aspects of System Account operations.

The open market function at the Federal Reserve Bank of New York also supplies to all other Federal Reserve Banks a daily current market information telegram describing conditions of the market shortly after its opening at 11:00 a.m. A second such telegram is similarly dispatched each day, following the close of the market, which summarizes the day's activity. In these ways, the speed and confidential nature of the communications service provided by the leased wire system contribute toward the crystalizing of national situations and viewpoints and assist in reaching decisions with respect to policies to be followed in current operations.

A related use of the leased wires in exercising credit controls is made by the Board of Governors in announcing changes in margin requirements (1) on loans by banks for the purpose of purchasing or carrying stocks registered on a national securities exchange (Regulation U),[66] and (2) for the extension and maintenance of credit by brokers, dealers

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[66]"Loans by Banks for the Purpose of Purchasing or Carrying Stocks Registered on a National Securities Exchange," Board of Governors of the Federal Reserve System Regulation U, Board of Governors of the Federal Reserve System, Washington, D. C., as amended to April 23, 1955.

and members of national securities exchanges (Regulation T).[67] The value of the capacity of the leased wire to rapidly and confidentially communicate information to all sections of the country is readily apparent in connection with these matters. It makes possible the withholding of announcements of margin changes until after the closing of the principal securities exchanges, with the new margins taking effect at the opening of business the following morning. This furnishes a protection against disruptive influences on the markets and the unfair advantages which might result from premature release or leakage of impending changes in margin requirements.

Collection of Cash Items

With respect to telegrams relating to cash items deposited with a Federal Reserve Bank for collection, Federal Reserve instructions presently provide:

> "Telegrams pertaining to payment, nonpayment or tracing of cash items, or in connection with receiving or transmitting pertinent information or instructions, will be sent to the extent practicable, over the Federal Reserve leased wires without cost to member and nonmember clearing banks. The cost of all such telegrams sent over commercial wires will be charged to the banks from which the items were received, and commercial wire telegrams to such banks will be sent 'collect'."[68]

Currently effective Federal Reserve instructions further provide that payee and intermediary collecting banks shall dispatch telegraphic advices of nonpayment of cash items of $1,000 or over, except those not

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[67] "Extension and Maintenance of Credit by Brokers, Dealers, and Members of National Securities Exchanges," Board of Governors of the Federal Reserve System Regulation T, Board of Governors of the Federal Reserve System, Washington, D. C., as amended to April 23, 1955.

[68] "Collection of Cash Items," Operating Circular No. 4, Federal Reserve Bank of New York, Revised effective July 15, 1954, pp. 6, 7.

paid because of missing, irregular or unsatisfactory endorsement and those bearing on their face "Do not wire nonpayment" with the A.B.A. transit number of a Federal Reserve Bank or of a preceding bank endorser. To facilitate tracing and identification of the items concerned, the wires advising of nonpayment must include the A.B.A. transit numbers or the names of the two endorsers immediately preceding the Federal Reserve Bank.[69] Such wire advices are for the purpose of providing the earliest practicable notification of nonpayment as a protection to collecting banks against possible malfeasance or losses resulting from payments against "not good" items.

Pursuant to the above provisions, numerous messages are dispatched daily over the leased wires between Federal Reserve Banks and branches with respect to their check collection operations, including telegrams involving notices of nonpayment of dishonored items of $1,000 or over bearing the endorsement of another Federal Reserve Bank or branch. Telegraphic notices of nonpayment of dishonored items bearing the endorsement of a direct sending bank located in a Federal Reserve Bank or branch city, or located within telephone distance of such Federal Reserve Bank or branch city, are also dispatched over the leased wires to the Federal Reserve Bank or branch of the territory in which the direct sending bank is located, for communication to such direct sending bank by telephone or messenger. The use of the leased wires in dispatching such messages expedites receipt of the notification of nonpayment by the endorsing direct sending bank, as compared with the use of commercial wires, without cost to it and has provided a service which has been well received.

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[69] "Collection of Cash Items," Operating Circular No. 4, p. 6.

Information concerning debit entries in amounts of $10,000 or over are dispatched over the leased wires to the interested Federal Reserve Bank or branch, regardless of the reason for return, in order that reserve entries may be made on the proper date to offset the original credits for the items. The Federal Reserve Banks also use the leased wires to notify other Reserve Banks and branches of consequential delays in the presentation of items for any reason and to give prompt notification of receipt of cash letters or large items which were intended for another Federal Reserve Bank or branch. The leased wire service is utilized daily when prompt information of any kind is required with respect to cash items and is considered to be an essential element in today's check collection operations where the need for speed in presentation, early availability, continuing growth in already large volumes and, in many cases, lack of experienced help, tend to increase the number of occasions on which advices of nonpayment or other wire communications are required in connection with the vast volume and complexities of countrywide check collection operations.

Collection of Noncash Items

The currently effective uniform instructions of the Federal Reserve Banks with respect to telegraphic advices in connection with the collection of noncash items provide:

> "When instructed to do so by sending banks, this bank will request telegraphic advice of payment or nonpayment of noncash items and will transmit by telegraph any information received. Charges for all telegrams pertaining to payment, nonpayment or tracing of items, or in connection with receiving or transmitting any other information or instructions will be made at commercial rates against the banks from which such items were received; telegrams to such banks will be sent 'collect'."[70]

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[70] "Collection of Noncash Items," Operating Circular No. 8, Federal Reserve Bank of New York, Revised November 1, 1949, pp. 6, 7.

In accordance with Federal Reserve policy in effect since 1939, messages between Federal Reserve Banks and branches relating to noncash collections are dispatched over the leased wires, but the sending banks are charged for the cost of the telegrams at commercial wire rates without tax. Although the costs of the telegrams are not absorbed by the Reserve Banks, the leased wires are used quite extensively for communicating information relating to noncash collections.

Member or nonmember clearing banks may deposit with the Federal Reserve Bank or branch of the territory in which it is located noncash collection items, including notes, drafts with or without securities or other documents attached, maturing bonds and coupons or other eligible noncash collection items, payable in another Federal Reserve Bank or branch city. The instructions contained in the collection letters with respect to telegraphic advice may read "Wire Payment", "Wire Nonpayment", "Wire Fate" or "Wire Credit". The Reserve Bank's collection letters to the Federal Reserve offices in whose territories the items are payable, would relay the wire instructions as contained in the incoming collection letters. Upon payment or nonpayment of the items, the latter Reserve office would transmit over the leased wires the form of advice requested. The endorsing Reserve Bank, in turn, would convey such advice to the sending bank by telephone or commercial telegram.

With respect to the significance of telegraphic instructions, "Wire Payment" is requested when telegraphic advice that payment has been made by the drawee or payer to the collecting agent is desired, rather than when the proceeds are credited to the bank's reserve or nonmember clearing account. Such advices do not necessarily imply that actually and finally collected funds are in the possession of the Reserve Bank. "Wire

Nonpayment" is requested only when telegraphic advice of dishonor is desired. A request to "Wire Fate" indicates that a prompt advice of payment or nonpayment by the drawee or payer is desired and a request to "Wire Credit" is made when a telegraphic advice of final payment and of credit to the reserve account or nonmember clearing account of the sending bank is desired.[71] By requesting "Wire Credit" the forwarding bank receives advice of credit one or two days earlier than ordinarily would be the case, depending on its distance from the territory where the item is payable. However, the bank's reserve position is not affected as all credits for noncash collections are adjusted for reserve balance purposes to the day the item was credited by the Federal Reserve office of the territory in which the item was payable.

Member or nonmember clearing banks exercising the direct sending privilege, may forward noncash collection items directly to the Federal Reserve Bank or branch of the territory in which the items are payable, for credit on the books of the Federal Reserve office of its own territory. Direct sendings are encouraged wherever practicable and, in cases where in their judgment the number or nature of the items warrant, the Reserve Banks reserve the right to decline to accept noncash items for collection unless routed direct to the Federal Reserve Bank or branch of the territory in which payable. Telegraphic advices with respect to such direct sent items may be requested and will be furnished in exactly the same manner as described above with respect to interdistrict items forwarded through the Federal Reserve office of the territory in which the sending bank is located.

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[71]"Collection of Noncash Items," Operating Circular No. 8, Federal Reserve Bank of New York, Revised November 1, 1949, p. 7.

The leased wires also would be used by the Reserve Banks in recalling noncash items payable in another Federal Reserve Bank or branch territory in cases where the item is due on the day the recall is received, or in the event the recall notice would not reach the collecting Federal Reserve Bank or branch before the due date if sent by mail. Other special circumstances in which the leased wires would be used in connection with the collection of interdistrict noncash collection items include the conveyance of instructions to release documents, to accept less than the face amount of an item, to present a draft to someone other than the drawee,to correct an advice of payment made in error, or other instances where immediate instructions are necessary or desirable to avoid loss to another Federal Reserve Bank or any of its member or nonmember clearing banks.

General

In summary, perhaps it may be said that the most important function of the Federal Reserve Leased Wire System is to provide a dependable, quick and confidential means of conveying official and other messages of numerous types between the Board of Governors of the Federal Reserve System, the Federal Reserve Banks and branches and the Treasury Department. Some of the types of messages conveyed have been described or alluded to in the previous pages of this thesis. Other types of official communications handled would include interpretations, proclamations, instructions, reports and approvals or disapprovals thereof, directions relating to regulations, statutes or administrative acts and many others of similar urgency and importance. I believe it may be said safely that there are few, if any, functions of the Federal Reserve Banks, including their

various fiscal agency and depositary operations for the United States, that are not reflected at least occasionally in communications transmitted over the leased wire system.

CHAPTER XI

CONCLUSION

Upon casual consideration it might seem that the area of communications is somewhat remote or far afield from the central banking function. However, this actually is not the case and the foregoing account of the principal uses and functions of the Federal Reserve Leased Wire System illustrates its significance and the important role it plays in both Federal Reserve and Treasury operations.

The leased wires constitute the principal channel through which investment funds flow to and from the central money markets in response to factors creating supply and demand. They provide the means of quickly mobilizing the reserves of the country in accordance with economic requirements, afford to member banks an outlet for their investment funds regardless of location and have aided in creating a national market for Federal Funds. Together with the Interdistrict Settlement Fund, the leased wires furnish the means for effecting prompt settlement of interdistrict transactions at par and constitute an essential element in our national payment mechanism. The wire transfer service provided by the Federal Reserve Leased Wire System has substantially broadened the market for long term and short term United States Government securities and makes possible a uniform market for such securities throughout the nation, which otherwise would not prevail. The extent to which the leased wire system contributes toward efficient Treasury financing has been

commented upon, as has its role in other phases of fiscal management. Some of the ways the leased wires are utilized by the Federal Reserve System in discharging its primary responsibilities with respect to regulating the availability, cost and volume of bank reserves have been discussed and mention has been made of the significant uses of the leased wires in connection with the collection of cash and noncash items and in conveying important official messages of all types and descriptions between the Federal Reserve Banks, the Board of Governors of the Federal Reserve System and the Treasury Department.

Continuous efforts must be made to keep the leased wire system modernized, up-to-date in all respects and operating at maximum efficiency, in the same manner as has been done since the inception of the Federal Reserve System. At the present time, the American Telephone and Telegraph Company is installing for the United States Navy a private leased wire system, designated as the 82-B-1 Automatic Teletypewriter Switching System, which is of more advanced design than the 81-D-1 system utilized by the Federal Reserve Banks. It is expected that the new system will be in operation by September 1956 and the advantages which it will afford, as compared with the 81-D-1 system, include:

1. Greater multiple message capacity,
2. Greater cross office speed in the receipt and dispatch of messages at the switching center,
3. Greater capacity to handle more lines and circuits,
4. Improved message priority features,
5. More flexibility in adding new circuits and stations, and

6. Utilization of electronics in place of certain mechanical features, which is expected to eliminate the principal source of delays resulting from equipment difficulties or failures.

The 82-A-1 Automatic Teletypewriter Switching System, which is the counterpart of the 82-B-1 system adapted for commercial users, will be available to the public probably by 1958. Some or all of the improved features of the new system may not be pertinent to the requirements of the Federal Reserve Leased Wire System. But, no doubt, the Reserve Banks will keep abreast of the new developments and continue to make necessary changes and improvements as the needs appear and equipment of more advanced design becomes available, in order that the best possible services, consistent with the costs and requirements of the operations, may be provided.

The Federal Reserve Leased Wire System is indeed a dynamic, ever-changing mechanism. In view of the scope and significance of the services which it provides, there can be little question as to the importance of its role in our banking system, Treasury operations and the functioning of our national economy.

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