Money Markets in the United States of America

New York is, and has been for many years, the most important banking and financial centre in the United States and it is there that money market transactions are effectively centralised. Nowhere else in the United States is the financial business undertaken comparable in scope and volume. There are subsidiary money markets in other centres, of which the most important is Chicago. These markets supplement the facilities offered in New York, but it is the rates and yields established there that provide the basis for dealings in the country at large. Activity in the various centres is fused into a national market in three ways: first, banks throughout the United States are linked by a widespread network of correspondent relationships both with New York and with other leading centres; second, the various dealers in securities likewise have connections across the country as well as branch offices at key points; by these means, surplus funds can be invested in a variety of short-dated assets, which can readily be sold, thereby facilitating the day to day adjustment by banks and others of their cash and liquid balances; and, third, the transfer facilities made available by the Federal Reserve System to its members greatly assist the free movement of money around the country.

The two groups of institutions that constitute the most important elements in the New York money market — apart from the Federal Reserve authorities themselves — are the larger commercial banks and the dealers in Government securities. The principal assets in which they operate are Government securities, securities of Federal agencies, and Federal funds, the markets in which represent the core of the national money market. There are also subsidiary markets, such as those in commercial paper, bankers' acceptances and Negotiable Certificates of Deposit, besides the extension of United States banks as major operators into the international market for Euro-dollars which is centred for the most part in Europe. But the intervention of the United States author-

ities for the purpose of credit or monetary control is concentrated mainly in the highly developed Government securities market; these operations in turn have an immediate impact on the supply of Federal funds — balances with Federal Reserve Banks, which are bought and sold — and this latter market therefore provides an important initial means of spreading the effects of official monetary action throughout the banking system and the economy.

Some idea of the size and composition of the market in Government securities can be derived from an analysis of the figures. Gross public debt of the Federal Government at the end of 1969 was $368.2 billion. Of this, $235.9 billion was marketable. Of total marketable securities, 50 per cent. matured within one year and 31 per cent. in one to five years. Excluding United States Government Agencies and trust funds, the Federal Reserve Banks and the commercial banks were the largest groups of investors. But with only about 15 per cent. of total public debt, commercial bank holdings represented a considerable decline when compared with earlier years. The holdings of the Federal Reserve Banks were slightly higher, State and Local Governments about 7 per cent. and the big business corporations 4 per cent. Other holders include individuals (about two-thirds of whose holdings are non-marketable savings bonds), mutual savings banks, insurance companies, and foreigners.

At the shortest end of the range of Government paper are Treasury bills, issued on a discount basis with original maturities of 3, 6, 9, and 12 months, (1) of which 3 months bills would be the largest in terms of volume of issue (2). Certificates of indebtedness, which have not been used since 1967, (3) were fixed interest obligations issued at par with an original maturity of no more than one year. The Treasury note is similar, but has a maturity

(1) At times of the year when expenditures exceed receipts, the Treasury also issues special "tax anticipation bills", which are acceptable in payment of Federal taxes and are calculated to mature when funds begin to move into the Treasury again. Commercial banks are usually permitted to pay for these bills — whether bought for their own or for customers' accounts — by crediting the Treasury's tax and loan account with themselves.

(2) For a fuller discussion, see "U.S. Treasury Bills: Trends and New Developments 1959-1969", Federal Reserve Bank of Cleveland *Economic Review*, January 1970, p. 8.

(3) Once Treasury bills with one-year maturities became available on a regular basis, there was little need of the Treasury Certificate of Indebtedness, which unlike a bill is a coupon-bearing instrument.

that extends from one to 7 years. Finally, Treasury bonds provide the instruments of long-term debt, though with the effluxion of time they will also qualify as short-dated securities. They carry coupons and are generally defined as having a maturity of seven years or longer; they are also subject to a 4¼ per cent. rate limitation (because of this the Treasury has not been able to sell any new bonds since early 1965).

Of the several kinds of Government security, the Treasury bill occupies a special place in the money market. It was first introduced in December 1929, but before the Second World War the amount outstanding rarely exceeded $2.5 billion. As a result of war-time deficit finance, the Treasury bill issue increased many fold and, in the post-war period, the amount of bills outstanding has varied from $11.5 billion to over $80 billion. The short maturity of the Treasury bill makes it much sought after for inclusion in the secondary reserves of both financial and business corporations, as also by local governments. Moreover, the open market operations of the authorities are usually carried out in this medium.

The largest holders of bills (at end-1969) that can be identified as a group (4) were the Federal Reserve Banks with over 27 per cent. of the total, followed by the commercial banks with 8 per cent., State and Local Government (6 per cent.) and non-financial corporations (2.6 per cent.). Even smaller amounts were held by savings and loan associations, insurance companies, and mutual savings banks. Though perhaps less marked than it was, the interest of the non-financial corporation should be noted. Funds accumulated to meet dividends, interest and tax payments may be placed in bills at the expense of demand balances with banks (on which no interest may be paid). In addition, the proceeds of corporate, State and municipal security issues are often put temporarily into bills, or into short repurchase agreements with dealers, pending final disbursement. Meanwhile, the share of the commercial banks has declined. This has been due partly to the emergence of other investment assets, the lengthened maturity of the banks' deposit

(4) "All others" accounts for almost 53 per cent. of the total and represents a residual. It includes holdings of all those not reporting in the Treasury Survey, including investor groups not listed separately. In this context, it should be noted that dealer positions are not important, within one year representing about 4 per cent. of the total.

liabilities (the need for Treasury bills as a liquidity cushion has declined), (5) and also to the persistently high level of the demand for loans.

The Government securities market is served by about 11 non-bank dealers in New York (some of whom also have branches in other main financial centres across the country) and by 8 dealer banks. (6) Of these, 4 to 6 of the non-bank dealers and 3 of the banks might be described as very active, the others less so, though some may be very active in one type of business and relatively inactive in others. While all may regularly " take positions " in Government securities (i.e. hold a portfolio or inventory), some may operate more as brokers. In the long-term market, only two or three of the dealers make an effective market. (7) A number of other commercial banks which are not dealers in Government securities on a continuing basis nevertheless have a trading account (which is kept separate from their ordinary investment portfolio) and " make markets " in certain Government securities for customers and the smaller banks in their own areas. (8) There is also a Government Security Dealers Association, established in April 1969, (9) but this is a professional body, formed to establish a

(5) See Robert E. Knight, "An Alternative Approach to Liquidity", Federal Reserve Bank of Kansas City *Monthly Review*, December 1969.

(6) These included the following bank dealers: Bankers Trust Company, New York; Chemical Bank New York Trust Company; Continental Illinois National Bank and Trust Company of Chicago; The First National Bank of Chicago; First National City Bank, New York; Harris Trust and Savings Bank, Chicago; Morgan Guaranty Trust Company of New York; United California Bank, Los Angeles; and the following non-bank dealers (all with head offices in New York): Briggs, Schaedle & Co., Inc.; Discount Corporation of New York; The First Boston Corporation; Aubrey G. Lanston & Co., Inc.; Merrill Lynch, Pierce, Fenner & Smith, Inc.; New York Hanseatic Corporation; Wm. E. Pollock & Co., Inc.; Chas. E. Quincey & Co.; Salomon Brothers & Hutzler; Second District Securities Co., Inc.; and F.I. Dupont & Co. These were described as "primary dealers".

(7) But there are obvious reasons why the long-term Governments market is becoming inactive. New issues for maturities of more than 7 years are subject to an interest rate ceiling of 4¼ per cent. and with the current high level of interest rates (1969) it is impossible to make any new long-term issues of Governments.

(8) For a competent recent study of the Government securities market, see *Report of the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market* (April 1969).

(9) This had been recommended by the Joint Study: "Such an organization could concern itself with such matters as a code of dealer conduct, trading practices, clearing arrangements, hours of trading, and the like. It could provide a basis for self-regulation in the industry and could become a principal source of contact between the market and the Treasury and Federal Reserve regarding matters of market practices". (*Report of the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market*, p. 6).

code of dealer conduct, the membership of which differs somewhat from the list of dealers that report to the Federal Reserve. It might be noted that the Fed does not necessarily do business with all of the dealers that report. At the same time, its basic premise is not to discourage free entry; it wants as much competition as possible. The Fed believes in free entry when the entrant is of good reputation, has adequate financial capital, and is in fact prepared to " make markets " even at times when conditions are poor. (10) After a dealer has been operating for a time, the Fed will ask him to report his figures (11) and, if the entrant can convince the Federal Reserve's Open Market Account that he is in practice making reasonable markets, the Account may be prepared to do business with him. The dealer will be informed verbally. There used to be a formal document but this procedure was discontinued in the middle 1950's. The Fed does not publish lists of such dealers, though it does have a list of those who report. Withdrawal of trading privileges is rare and, if anything, there is a bias against it, but if the Fed really felt that a dealer was not making markets and that his trading volume was falling off, discussions would follow and the Fed might then discontinue doing business with him. On the other hand, a firm may itself decide to move out of the Government securities area and would then automatically cease to do business with the Fed.

The active dealers carry an inventory of securities with varying maturity dates (with the emphasis, however, primarily on the shorter-dated securities) and stand ready to buy and sell in some volume at their quoted prices. In certain respects, the New York dealers resemble the London discount houses, but whereas the latter depend for their profits largely on the difference between the running yield on their portfolios and the rates at which they borrow to carry them, the dealers in New York derive a major source of income from their " turn ", i.e., the spread between the selling

(10) Since 1966, many firms dealing in securities have attempted to broaden their horizons (a "department store" type of operation) and several firms that were not in Governments have wished to move into this business, though some of them were surprised to discover the extent of the risks involved and the potential losses with which they might be faced.

(11) E.g. details of positions, sources of financing, and the distribution of their inventory. With a time-lag of a month, this information for the dealers as a whole is then released to the market once a week.

(or "asked") price and the buying (or "bid") price. More specifically, they normally make their profits by "catching the turns". Less frequently, they may make large profits from taking a position in longer-dated securities, when they have anticipated correctly the movement of rates and prices (the London discount houses also aim to make such profits on their bond portfolios). At times — if they have anticipated incorrectly — they may make losses. Alternatively, they may — and do — arbitrage between domestic securities (e.g. following an approach to the market by the Treasury with a new high coupon issue or bond). At times of high interest rates, carrying an inventory (or portfolio) in the United States is relatively expensive to finance and, for this reason, portfolios would usually be kept small at such times. However, even if a dealer is not holding a security of the maturity required, he is generally able to fill an order after contacting the principal banks (including the large savings banks), insurance companies, foundations and pension funds. Temporarily, he may have to borrow securities for this purpose, pledging other securities from his inventory in the meantime (sometimes, having to put up cash, which is expensive), though ultimately he must purchase securities outright in order to complete the transaction. (12) Deals between widely separated points are consummated through deliveries "over the wire", payments being made in Federal funds. (13)

There are also four brokers in Government securities. They serve solely as intermediaries between the dealers, so that the latter do not have to reveal their hands, unless they wish to do so. The brokers can try out the market without giving anything away. Also, they get information from all dealers about the prices being offered and the brokers circulate a report on the trades being made, thereby reflecting dealer interest in the market at the times to which these reports relate.

The most active market is that in Treasury bills: it may represent more than three-quarters of the total dollar volume of trading in all Governments. (14) New offerings of bills with 13 weeks' and 26 weeks' currencies (15) are made on and dated for each Thursday, applications being received by Federal Reserve Banks up to 1.30 p.m., New York time on the preceding Monday. These may be submitted either on a competitive or a non-competitive discount basis. The latter, frequently submitted by small banks, businesses and individuals, are awarded in full up to a maximum of $200,000 per applicant at the average price for accepted competitive bids. (16) There is also a minimum amount for non-competitive tenders; this stands at $10,000. (17) The bulk of the tender, therefore, is on a competitive basis, the bids coming in (without deposits) from the larger banks in money market centres (they also tender for customers like corporation treasurers) and the

(12) Borrowing securities (usually from a bank) is done to facilitate a delivery; it may only be for two or three hours — to cover a time gap before other securities come into the dealer's portfolio, or it might run for a month or more. If short-term securities are involved, it is usual to put up collateral of equal value. If the securities borrowed are long-term, the lender will require a little margin (say, 2 per cent.). The fee charged is ½ per cent. To a very limited extent the Federal Reserve has recently started lending securities to dealers.

(13) In the past, payments for longer-term Government issues were frequently made in Clearing House funds, with payments for bills and other shorter issues normally made in Federal funds. In recent years, it is understood that the proportion of payments in Federal funds has been growing throughout the maturity range. It seems fair to say that securities of maturities generally held and traded by banks out to seven years are likely to be traded for payment in Federal funds, whereas payments for longer maturities will probably still be made, to a considerable extent, in Clearing House funds. Odd lot purchases of Government securities of whatever maturity by individuals or brokerage houses are also now likely to be cleared in Federal funds. Activity of this type has grown substantially during the recent period of very high interest rates.

(14) Dealer transactions in United States Government securities maturing within one year amounted to well over 80 per cent. of their total transactions throughout 1969. This is partly due to the increased participation of small investors, which no doubt will diminish to some extent now that the Treasury has increased the minimum size of bills on offer from denominations of $1,000 to $10,000.

(15) Once a month, 9 and 12 months bills will be issued. On occasion, too, strips of bills are issued offering a range of maturities (e.g. one might be offered based on an average of 45 days, with maturities staggered about the average; or the average may be longer, depending on the circumstances in the market, to which the issue would be tailored). But such issues are not all that frequent and tend to be made when the Treasury wants to raise a substantial amount of new funds in a short time through the sale of additional bills. In addition, from July to March, the authorities issue Tax Anticipation Bills. Normally, they mature in March, April, and June (sometimes in September and December). In the short-term, they are bought by commercial banks that are in a tight situation. They pay for them against their Tax and Loan Accounts and then sell them quickly usually to dealers, sometimes to the Federal Reserve, when the latter is active in the open market. Subsequently, (say) two to three months before tax dates, corporations come into the market to buy up these bills.

(16) There has been a growth in the non-competitive tender in recent years and several of the large investment and dealing houses put in a number of such bids for small customers, a service for which they do not make a charge.

(17) This was raised from $1,000 to $10,000 in February 1970, when the disparity between interest rate ceilings under Regulation Q and market rates led to a substantial movement out of small savings media into Treasury bills.

dealers. There is no "syndicate" as in the London market, though the dealers' bids are normally within a narrow range. The combined dealer allotments ordinarily run to about one-quarter of the total issue, but on occasion have been more than one-third. On the Tuesday morning, each dealer knows how many bills he has been awarded at the Monday auction. Since these bills will not have to be paid for until the following Thursday, the dealers can do business in them until then without having to put up any money.

Tenders for Treasury bills are also made by the Federal Reserve either on behalf of foreign and other accounts or for the System Open Market Account. In the latter case, the Fed never tenders cash for bills, participating in the bidding only to the extent that it already holds maturing paper. If the authorities wish to absorb funds, they may "tender to miss" and allow their maturing bills to run off. Otherwise, they will tender with the intention of rolling over their maturing bill portfolio.

But a big change has taken place in recent years with the growth in the market for Federal agencies. (18) These issues include direct or fully guaranteed obligations of several of the United States agencies, though not all such securities are in fact guaranteed. (19) Not only has the number of such agency issues increased greatly, but the Federal agencies market has also become very active, especially in issues with maturities of up to 2 years.

These developments have been due to the growth in the operations of the agencies and especially to the increasing demands for housing. In addition, there has been a disintermediation of funds, which has affected all savings institutions, but especially in this context the savings and loan associations, which like the commercial banks are also subject to ceilings on the rates of interest that they may pay for funds. Federal agencies, on the other hand, pay market rates for the moneys they raise. Also, the growth in the market for Federal agencies was assisted (though only to a modest extent) by the amendment to the *Federal Reserve Act* which permitted the System to buy and sell in the open market any obligation of, or fully guaranteed by, any agency of the United States. This also permits the making of repurchase agreements against such issues. This amendment was originally enacted on a temporary basis in September 1966 and was subsequently made permanent. (So far, Federal Reserve open market operations in agency issues have been confined to including them with United States Government issues in repurchase agreements with dealers).

The main agency issues include those of the Federal National Mortgage Association, which is the largest borrower and authorised to purchase or sell Government-insured or guaranteed home mortgages or to make short-term loans secured by such mortgages, thereby providing increased liquidity to the mortgage market and the facilities of a secondary market in mortgages; (20) the Federal Home Loan Bank System established in 1932 to provide credit to its member savings and loan associations for mortgage financing (these banks are authorised to make various types of loans, both secured and unsecured, long- and short-term, and issue both consolidated notes that mature within a year and consolidated bonds with maturities up to five years); the 12 Federal Land Banks which extend long-term mortgage credit to farmers through the Federal Land Bank Associations (co-operative institutions organized by borrowers, holding in turn the stock of the Federal Land Banks) and which issue obligations ranging in maturity from 2 to 15 years; the Federal Intermediate Credit Banks, which discount agricultural paper from the production credit associations and other financial institutions making agricultural loans in order to serve the seasonal and other short- and medium-term credit requirements of farmers (the Federal Intermediate Credit Banks each month issue 9-month consolidated debentures); and the Banks for Co-operatives, which engage in two types of lending to farmers' co-operative associations — short-term funds are advanced for seasonal needs and term loans of various maturities repayable in instalments are made to co-operatives for construction and equipment purchases — and to finance these operations issue 6-month consolidated deben-

(18) On the growth of agency borrowing in recent years and its impact, see NANCY M. GOODMAN, "Agency Securities and the Federal Budget", Federal Reserve Bank of Chicago *Business Conditions*, December 1969, pp. 12-16.

(19) This is elaborated in "Securities of U.S. Government Agencies", Federal Reserve Bank of Cleveland *Economic Review*, October 1969, pp. 22-23. See also ANDREW WINNICK and WILLIAM BURKE, "The Agencies: New Directions", Federal Reserve Bank of St. Louis *Monthly Review*, May 1969, p. 109.

(20) Since April 1960, the Federal National Mortgage Association has placed increased reliance on short-term discount notes to finance secondary market operations. The notes mature in 30 to 270 days at the option of the investor. To obtain the remainder of its funds, it issues debentures with a maturity range of 1 to 15 years.

tures. Hence, two of the agencies are concerned with housing and three with agriculture. In addition, the Export-Import Bank (21) and the Tennessee Valley Authority are authorised to issue their own securities directly to the public. In effect, each agency operates as a middleman, entering the securities market to obtain funds that are channelled into the economic sector it serves. Most of these agencies make issues for terms shorter than 5 years, but in any case the interest rate ceiling on Treasury issues does not apply to them. Moreover, a number of these issues are made in denominations that are small enough to tempt the small saver to buy.

The arrangements made to finance the carrying of an inventory of bills, securities, and agencies vary from one dealing house to another. They also depend to some extent on conditions in the money market itself. When money is easy, for example, dealers are more likely to borrow, for the most part at call, from certain of the major commercial banks for the purpose of financing inventory. But when money is tight, which over a period of some years has been the much more common experience, it will be unprofitable to carry more than a minimum amount of inventory and such funds as are required will be obtained (so far as possible) outside New York banks either from non-bank sources (e.g. State and local government treasurers or non-financial corporations) or from out-of-town banks, though in recent years there has probably been much less of the latter type of money, as commercial banks have come to make more extensive use of the Federal funds market as a basis of adjustment. The same is true of the savings banks. (22) Rates for non-bank money are still related to money market rates, but they tend to be lower than the banks' dealer rate. (23) Much of this money will be raised against Government and Federal agencies on the basis of sale and repurchase agreements (R.Ps. or Repos) or "buy-backs", where a dealer sells securities

(21) The Export-Import Bank also issues participation certificates based upon loans supporting transactions in foreign trade.

(22) Nevertheless, in the late 1960's, it was officially reported that "Nonfinancial corporations continued to finance about half of dealer positions, and banks both inside and outside of New York City financed much of the remainder". *Joint Report*, p. 15.

(23) E.g. the rate on money from nonfinancial corporations will be related to the commercial paper rate. Also dealers may pick up relatively cheap money from a mutual fund, which may not know how much money it is likely to have available at the end of the day and is therefore prepared to accept less for it rather than leave it uninvested.

subject to an agreement to repurchase them. The advantage of this system to the lender is that there is no risk of price fluctuations (as there would be if he had bought securities outright). Also he can choose the maturity date he requires and is not tied to a Thursday maturity as he would be if he invested in Treasury bills. The dealer for his part knows that he has the funds for a specified period (24) (though sometimes repurchase agreements are done with no fixed maturity and just run on) and usually at rates below those charged on call loans by the money market banks. By resorting to repurchase agreements, the dealer is in effect providing an outlet for funds that might otherwise have been invested in securities or other money market instruments and he may thus lose a certain amount of outright trading business. Nevertheless, if he sells securities that are subject to a repurchase agreement, he will sometimes be allowed to substitute under the repurchase agreement other securities in exchange for those sold.

In these circumstances, the large commercial banks that lend to the dealers have become a kind of "lender-of-last-resort". (25) If money cannot be obtained from cheaper sources, the dealers know that they can obtain dealer loans from certain of the large New York banks. Technically, these loans are made for one day with the privilege of renewing. In effect, they are similar to call loans as the rates are reviewed each day and can be raised to prohibitive levels on any particular day. Dealers will then be forced to seek out funds right across the country from State treasurers and local governments, large corporations, out-of-town banks, and so on. In the final analysis, however, the dealers know that they can get from the banks the balance of the money they need. Normally, the rate will be about ¼ per cent. above the Federal funds rate, but it may go to ¾ per cent. above for "reluctant money". (26) Hence, if the dealers can beat the Federal funds

(24) It may be two days or a week or more.

(25) Only certain large banks in New York do this, including banks that provide facilities for clearing the dealers' securities.

(26) Practice seems to vary with regard to fixing the rate. Formerly, the rate was posted each morning (sometimes at a fairly high level in order to discourage such loans) and remained unchanged during that day. This is still the practice with one or two banks, but even they are prepared to be flexible if conditions change markedly later in the day. For the rest, banks operate a rate which changes with the Federal funds rate. At these rates, dealers can get almost any amount up to known limits.

rate by going outside New York, they are in a good competitive position.

In any event, the raising of money is not all one way. In a tight money situation, commercial banks have themselves become highly active in buying money. Often when they need money they are unwilling to reduce their own holdings of Government securities, which they either need to keep in order to maintain liquidity or which they wish to hold over statement dates. At the same time, their securities could be used as a basis for borrowing money — by doing a reverse R.P., whereby the banks in effect borrow from the dealers, who find the money from non-bank sources. The banks prefer to employ a specialist to perform this task, because he can put the transaction together so much more quickly. And from the dealer's point of view, it is profitable, because he gets a spread of about ½ per cent. for his services.

Although certain of the New York banks are in effect the dealers' lender-of-last-resort, assistance may also be provided at its discretion by the Federal Reserve. If a dealer wishes to lighten his portfolio, he may, at times and if his prices are right, make an outright sale in the open market to the System's Account. Periodically, too, the Fed has a "go-around". This takes place when the Fed is either bidding or offering bills for cash — they "go-around" to get the best price. This is usually done in bills, but occasionally the Fed will also do it in coupon issues as well. Alternatively, the Federal Reserve Bank in New York (the arrangements do not apply in other centres) may make temporary accommodation available to a non-bank dealer under a repurchase agreement. (27) These agreements are made only at the initiative of the Fed with non-bank dealers for purposes of supplying reserves to the banking system, but from the dealers' standpoint they are

(27) Since the return to a flexible monetary policy following the "accord" between the Federal Reserve and the Treasury in March 1951, repurchase agreements based on Government securities have been resorted to much more frequently (during the 1920's the Fed put money out in this way on the basis of bankers' acceptances, and the practice was revived for occasional use in this market in March 1955). The technique is essentially similar to the ordinary R.P., except that repurchase agreements made with the Fed are not subject to the right of substitution. The contract is generally written for a specified period, subject to a maximum of 15 days with the right of partial or complete withdrawal prior to maturity. The facilities are provided for any Treasury or Federal agency securities and the rate charged is usually the same as the Fed's rediscount rate in New York.

helpful in financing portfolios. (28) The technique has the advantage of placing funds where they are most needed. At the same time, such accommodation is of limited duration and is automatically self-liquidating. Unlike an outright purchase (or sale) of securities, the R.P. (or its reverse) usually has little impact upon prices. It is indeed a very flexible and effective instrument.

Latterly (the first was done early in 1966), the Fed has also been prepared to mop up money by undertaking reverse R.Ps. The non-bank dealers act as intermediaries. They establish which of the large commercial banks have temporarily surplus money and whether the Fed has a bill it is willing to sell, subject to repurchase tomorrow or a few days later. The commercial bank concerned will then lend the dealer the money to finance the holding of the bill. By way of recompense, the dealer gets a turn that may be in the neighbourhood of $5 per million. Reverse R.Ps. are also done direct with bank dealers.

As indicated earlier, the Fed may now also deal in Federal agencies. It began to do so after September 1966, but so far all such transactions have been limited to repurchase agreements. Although the agency market has grown considerably in size and activity in recent years, it is made up of many more individual issues and these are generally smaller in size than issues of Governments. Hence, large market transactions in particular issues would often be more difficult to execute than in the Treasury coupon area. Indeed, a good deal of the trading activity in the agency market is accounted for by the frequency of new offerings and, if the Fed were to become involved in outright purchases and sales, this might well result in a significant impact on prices. It might also be viewed as an attempt to influence market conditions and such an interpretation the Fed is concerned to deny. These problems can be largely avoided by resorting to R.Ps., which — except to the extent that they affect the volume of reserves — are neutral in their effects. Quite apart from these considerations, as a result of outright purchases, the Fed would be faced with

(28) The Fed will consider the monetary situation as a whole and especially the extent of the need for money. It would prefer the dealers to go out and find all the money they require, but when appropriate the Fed will let the dealers know that it is willing to do R.Ps. The dealers will then make offerings and the Fed will decide how in fact it will distribute the relevant funds to the several dealing houses. In total, such R.Ps. could amount to 30 per cent (or more) of the dealers' financing requirement.

frequent maturities. Treasury bills can be rolled over in the weekly auctions, but this could not be done with agencies. Hence, there was again a preference for R.Ps., which can be carried out quite impersonally — whether they are done or not and in what items depends on what dealers are holding in inventory.

Although the emphasis has so far been very much on the activities of the non-bank Government securities dealers, it must not be forgotten that the inventories of the bank dealers also require to be financed. Moreover, because of the increase in the relative importance of bank dealers and also the tightness of money in recent years, which has meant that commercial banks have become much more aggressive in seeking funds, this has now become a matter of some significance. Although bank dealers "generally financed their positions through use of bank funds, and these funds are costed in a variety of ways", (29) they do go into the markets specifically to finance at least a proportion of their dealing portfolio. Thus, in the case of one of the big New York dealing banks, the emphasis is on R.Ps. with customers — non-financial corporations, State Governments and municipalities, (30) occasionally an out-of town bank — who when they wish to place temporarily available surplus funds are educated to do R.Ps. in Treasury bills (or other Government securities) rather than to make outright purchases. (31) Only secondarily do they finance their dealing portfolio from their own resources and, since these dealings will have a direct impact on the overall money position, this bank deals through its money desk. In any event, there must be a close liaison between the dealing room and the money managers, who will also have links with those in charge of the investment portfolio as such. The money desk both employs money and obtains it. It is concerned with the general availability of money to the bank. (32) It has to find

(29) See *Joint Report*, p. 15. Usually, dealers are charged the average cost of the money they use, i.e. the average cost of borrowed funds. By and large, the cost appears to be related to the Federal funds rate.

(30) Since July 27, 1969, banks have been permitted to make repurchases with non-banks only on the basis of direct obligations of the United States or Federal agencies which are guaranteed as to principal and interest. This exception was made in order not to disrupt bank dealers' financing of inventory.

(31) Such repurchase agreements always relate to Government securities, not Municipals.

(32) This is estimated on the basis of all money movements throughout the bank. The "money man" will also seek the advice of the "chart man", who studies the seasonal movements and, on this basis, makes the judgement as to where money will be by the

money for the dealer department as for the other departments within the bank, though the dealer department's needs may be more urgent because the deals have to be settled in Federal funds, i.e., on the same day, and, indeed, the money position of the bank is very largely adjusted by means of transactions in Federal funds, in which these banks would also deal. The needs of the dealer department not only change from day to day but they can vary quite a lot within one day (e.g. within this period, for a large New York bank, there may be a $50 million rise or fall in R.Ps.). For this reason, policy limitations will be set for how much the trading position should be. If the dealer wishes to go over, he must get special approval. But on the whole, he must take positions within the limits set down. In all other respects, however, the dealer department enjoys quite a high degree of autonomy.

One important difference between the bank and non-bank Government securities dealers is that the Fed does *not* do repurchase agreements (except for reverse R.Ps.) with bank dealers. It is felt that such dealers have more assured sources of financing than the non-bank dealers. It is recognised that the bank dealer departments must compete for funds with other departments of the bank and "this may well result in constraints on their ability to take positions" On the other hand, the banks as institutions, though not bank dealer departments as such, have the advantage of paying for some new Treasury issues by directly crediting their Treasury tax and loan accounts. They also have direct access to the Federal funds market, and may on the Federal Reserve's terms borrow at the discount window.

One of the chief purposes of a money market is to facilitate monetary adjustment by banks and other financial institutions. To the extent that banks lend to the non-bank Government securities dealers, they can adjust their cash positions by varying the amounts put out either on the basis of repurchase agreements or (if they are large New York banks) as call loans. In addition, they can adjust

end of the day. For example, there is usually a definite weekly pattern and often a seasonal movement as well. One such influence is the low point that follows a tax date — in fact, such points come about half-way between tax dates. It need hardly be added that a much more accurate picture of these movements can now be obtained with the assistance of the computer.

their cash reserves by resort to what is in effect an inter-bank market for Federal funds, which are entitlements to balances with Federal Reserve Banks. (33) Historically, this market goes back to 1921, but it is only since World War Two that it has become a national market, which was formerly used by the majority of the larger banks and which is now used by banks large and small in the United States both as an outlet for surplus funds and as a source of borrowings. Federal funds, it should be noted, are immediately available to the purchaser — unlike Clearing House funds, which become available only the next day.

The development of the Federal funds market during the 1950's owed much to the initiative of a New York Stock Exchange firm which acted as a broker. This was Garvin, Bantel and Co., (34) which set up a clearing desk to maintain regular contact both with banks having funds to sell and with prospective buyers. Until December 1958, when the Irving Trust Company established a Federal funds desk (which is run separately from transactions in Federal funds for its own account or for the accommodation of correspondents), they were the only broker in the market. They were later joined by other brokers — Mabon, Nugent and Co., another member of the New York Stock Exchange in the fall of 1963, and George Palumbo and Co., a money broker (November 1964). All the big banks use the brokers, because only they are aware of what is going on in the market as a whole. Hence, it is much quicker to do business through the brokers and also easier

(33) Only commercial banks which are members of the Federal Reserve System hold such balances, but, until April 1, 1970, other parties could come into possession of cheques or drafts drawn on Federal Reserve Banks. These cheques or drafts became immediately available credit items upon presentation at a Federal Reserve Bank and were therefore saleable as Federal funds. However, all Federal funds transactions between banks are now settled by book entries at a Federal Reserve Bank. The bulk of such transactions arose from the need of Government securities dealers to finance their positions and reflected the fact that payment in immediately available funds was (and is) required for most transactions in Government securities. For a more detailed description of the way participants other than commercial banks were drawn into the market, see *The Federal Funds Market - A Study by a Federal Reserve System Committee*, Board of Governors of the Federal Reserve System, May 1959, pp. 17 and 43 ff. Also Dorothy M. Nichols, *Trading in Federal Funds* (Findings of a Three-Year Survey), Board of Governors of the Federal Reserve System, September 1965, pp. 20-23; and Parker B. Willis, *A Study of the Market for Federal Funds*, prepared for the Steering Committee for the Fundamental Reappraisal of the Discount Mechanism appointed by the Board of Governors of the Federal Reserve System, March 1967.

(34) Now The Garvin, Bantel Corporation.

to pick up volume. The brokers do not charge fees for their services, though they expect to be recompensed by attracting other types of business. (35) With the considerable growth in the volume of transactions that took place in the 1950's, banks in New York and other key cities also became active as dealers in Federal funds. These are sometimes referred to as "accommodating banks". A recent survey showed that there were eight such banks in New York City and another 30 or more commercial banks in other parts of the country — at least two in each Federal Reserve District — that perform an accommodating business for correspondents. These banks deal as principals and often trade on both sides of the market. This group of about 40 banks constituted the major accommodators, while perhaps another 40 or so offered this service on a more limited basis. (36)

In earlier years, the use made of the Federal funds market not only varied considerably between one institution and another, but also between different parts of the country. This was attributed largely to time differences. When it is noon in New York, it is 11.00 a.m. in Chicago, 10.00 a.m. in Denver, and 9.00 a.m. in San Francisco. It was always the case that some banks would follow the clock, buying or selling Federal funds successively in New York, Chicago, (in the early days) occasionally in St. Louis or Kansas City and, finally, in San Francisco or Los Angeles on the West Coast. But, during the earlier years, the attitudes of banks in different centres were interesting. Thus, during the mid-1950's banks in Denver argued that being caught as it were in a "neutral" time zone it was not worth their while to go into the Federal funds market at all. On the basis of local time, New York closed too early in the day and San Francisco was not able to do business until too late. The banks in New Orleans made little use of the market, allegedly because of the time element, but those in Dallas (in the same time zone) usually did manage to get into New York, when they wished to use these facilities.

(35) In the case of Irving Trust, correspondent bank business. Although the volume of transactions handled by brokers has increased since 1950 as the number of banks seeking funds has risen, most of the increase is the result of increased trading by the larger banks. The number of banks using brokers has failed to grow proportionately. (See Parker B. Willis, *loc. cit.*, p. 12).

(36) Willis, *ibid.*

By the early 1960's, banks in New Orleans and in Denver that had stood aloof from the market were now a regular part of it and even quite small banks were able to use its facilities as a result of their city correspondents resorting to a collateralized loan technique. At that time, Federal funds transactions were technically in the character of a loan and therefore were subject to legal limits. (37) However, these limits did not apply to loans secured by short-term Government securities. Hence, sales on a secured basis were made by many smaller banks to bigger banks, which were then able to sell in larger blocks. Latterly (in June 1963), the Comptroller of the Currency ruled that Federal funds transactions were no longer subject to the borrowing and lending limits applicable to national banks, (38) though State statutes were not generally given a similar interpretation. This opened the door to the much more widespread participation by banks of all sizes (39) in the Federal funds market. As a result, the market has become truly nationwide.

Small banks now sell their Federal funds to a City correspondent in their area. These banks collect funds and add them to their own positions (to some extent, the selling of Federal funds by country banks has taken the place of keeping correspondent balances with a City bank or holding Treasury bills; alternatively, they

(37) For example, subject to certain exceptions, a national bank may not lend to any one borrower more than 10 per cent of its unimpaired capital and surplus. Again, national banks are generally restricted in their aggregate *borrowings* to the amount of their capital stock, plus half their surplus. Many State statutes have similar limitations that apply to State chartered banks.

(38) See Nichols, *op. cit.*, pp. 4 n. and 28.

(39) The savings banks likewise now use the Federal funds market to quite a significant extent. Indeed, in New York, the Savings Bank Trust buys as a principal the excess Federal funds balances of some of the savings banks both in New York as well as upstate. The Savings Bank Trust does not seek this business, which first developed in mid-1969, when New York statutes "legalised" Federal funds transactions, and even attempts to discourage it. They pay a rate of interest equivalent to what the Trust Company receives at the opening of the Federal funds market on the first sale that it makes for its own account, less 1/8 per cent, which is its charge for "putting the package together". Other savings banks in New York City, however, deal directly with the big commercial banks that deal in Federal funds, as do those elsewhere in the State with their correspondents. Before mid-1969, Federal funds were sold by savings banks in New York on a repurchase basis; also in Massachusetts, where unsecured transactions were "legalised" in August 1969. Savings and loan associations (at least in Massachusetts, if not elsewhere) have sold Federal funds for several years now both unsecured and on a repurchase basis, although the regulation of the Federal Home Loan Bank did not permit the transactions.

held excess balances with the Fed; entry into the Federal funds market had the obvious advantage that the country bank earned interest on its money and at a good rate). Indeed, on this basis, regional areas have developed their own markets — e.g. at Philadelphia, Pittsburg, and Denver — and banks in these centres then feed funds into the major markets in New York and Chicago. Quite obviously, the amounts in which relatively small country banks will deal will themselves be small and, for this reason, City banks in regional centres operate on a spread between buying and selling rates of at least ½ per cent., (40) whereas on the big amounts dealt in in New York and Chicago (many of these trades would be for $1 million up to $50 million) the spread would be 1/8 per cent. to ¼ per cent. Not only are small trades less economic (much the same overheads apply), but there is the risk of rate fluctuations and these are more likely to hit a City bank in a smaller centre that bulks together a number of small trades in order to sell to New York or Chicago in a much larger block and which may not therefore be so continuously in the market as the big banks of New York and Chicago. Even a large bank that is operating regularly will have to watch the market with care. Its first objective will be to sell off a surplus or to make good a deficit. Its second will be, if possible, to trade the market at a profit. Moreover, if the Federal funds market becomes jumpy, a large bank, too, will widen its spread from ¼ per cent. to ½ per cent. For example, rates may go down from 10½ per cent. to 2 per cent. on the closing day of a reserve period, when nobody may need money, having made adequate provision earlier in the period. Indeed, rates may go as low as 1 per cent. with everybody holding back either to see how things will go or because they do not wish to show borrowings at the end of a statement period. If rates are likely to fluctuate, the banks will widen the spread to protect themselves

(40) Regional City banks would buy Federal funds in amounts of $100,000 to $500,000 ($25,000 or even $10,000 are not unknown) and sell them in blocks of $20 to $25 million. However, sales of Federal funds by country banks to their City correspondents do not necessarily involve a movement of funds to the City bank; often it is no more than a bookeeping transfer from correspondent deposits to Federal funds purchased. This is now done by many City banks as a correspondent service, interest being paid at the going Federal funds rate. While it does not represent a net gain in reserves to the City bank, it forestalls an outflow of funds that might otherwise occur as a result of a sale to some other bank of funds on deposit with the City correspondent.

against loss. This is fairly generally accepted today, largely because the market has become so much more volatile. (41) Another way in which City banks protect themselves is by applying lines of credit to country correspondents, whereby trades are restricted in size to whatever is appropriate for a particular bank.

Recently, it was estimated that at least 3,000 country banks, which are members of the Federal Reserve System, now participate in the Federal funds market either as buyers or sellers, or both. (42) This has been due to the increasing awareness of the opportunities afforded by trading in Federal funds (in this context, correspondent relationships have undoubtedly contributed to increased country bank participation in the Federal funds market); it has also been encouraged by the rise in interest rates. (43) Participation rates ranged from about 17 per cent. in the Minneapolis District to 83 per cent. in the Boston District. Five Districts reported a range of 40 to 50 per cent. Similarly, virtually all of the Reserve City and larger country banks were now active in the market, the number of country banks using the market having increased more than four-fold between 1960 and 1967. As a rule, country banks are more often sellers than buyers and they sell substantially more than they buy. The typical movement of Federal funds is from smaller country banks to smaller City banks to major City banks. It is now possible for all but the very small banks to keep most of their funds fully invested. Indeed, there is no concrete evidence to suggest that small banks now find it difficult to gain access to this market. As needs have grown, the market mechanism has been modified to facilitate transactions. At the same time, it must be remembered that New York City still occupies the most prominent position and is the central market " since half of all transactions originate in, or are handled by, that City and the brokers and principal accommodating banks are located there. Local selling

(41) A number of the relevant factors are discussed in NICHOLS, *loc. cit.*, pp. 33-36.

(42) In this context, see WILLIS, *loc. cit.*, pp. 3-4. Other studies relating to country bank participation include "Federal Funds and the Profits Squeeze - A New Awareness at Country Banks", Federal Reserve Bank of Philadelphia *Business Review*, March 1965; "The Federal Funds Market in the Southeast", Federal Reserve Bank of Atlanta *Monthly Review*, January 1968; and "Federal Funds and Country Bank Reserve Management", Federal Reserve Bank of Philadelphia *Business Review*, September 1968.

(43) See "The Federal Funds Market Revisited", Federal Reserve Bank of Cleveland *Economic Review*, February 1970, pp. 5-6.

points are intimately connected with the central market and with one another. They are " linked " in the sense that price differences can bring transactions from one market to another and that some of the competing buyers and competing sellers carry out transactions in more than one market within a district or in several districts. In a real sense the market is national ". (44) One final point that should be made. The operations of the Federal funds market in no way increase or decrease total member bank reserves. What the market does do is to increase their availability by redistributing them and this makes possible a fuller use of bank reserves and resources.

Although much less important than the markets in Government securities and Federal funds, those in bankers' acceptances, commercial paper, and Negotiable Certificates of Deposit also deserve mention, as does the external extension of the New York market into Euro-dollars.

The authorities first gave active support to the establishment of a market in bankers' acceptances in the 1920's, but the dealings never developed into a major market. After World War II, there was a revival in dollar volume and latterly bankers' dollar acceptances outstanding have been over $5 billion, of which more than $2 billion was in respect of goods stored in or shipped between foreign countries. Most of the acceptances relate to the finance of foreign trade, though there have been times (e.g. in 1954) when acceptances have been used to a significant extent to finance domestic storage of readily marketable staples, largely cotton. This is still done, but the amounts are small. Two-thirds of the total volume of acceptances are generated in the New York Federal Reserve District and over half the remainder in San Francisco. Next in order of importance is Chicago. An appreciable proportion of the acceptances is discounted by the acceptors themselves and does not come on to the market, where in the past (especially in the early 1960's) much of the activity was confined to " swap " transactions between accepting banks. This is still done (through dealers), but less frequently than

(44) WILLIS, *loc. cit.*, p. 8. Most trading takes place between 10.30 a.m. and 3.00 p.m. New York time, but because of the 3-hour time difference between the West Coast and New York, a substantial amount of trading takes place among the Western and Pacific Coast banks after the central money market in New York has closed. Rates on such trading are obviously affected by local conditions and bank relationships. See NICHOLS, *loc. cit.*, p. 35.

used to be the case. Accepting banks are now holding 26 per cent. of the total. The rest are largely held abroad (often by foreign central banks with surplus funds to invest). Some are held by business corporations as a means of absorbing temporarily idle funds.

Several of the non-bank Government securities dealers (and one other dealer) are major dealers in bankers' acceptances and try to run positions of some magnitude. What governs position size is the cost of money. When rates are high, the cost of carry will limit the size of the position they can afford to run, whereas in a period of declining rates holdings of bankers' acceptances will be run up to somewhat higher levels. There have also been other difficulties. The dealer market has been drying up to some extent, because of the tendency of the banks to sell their acceptances to their own customers (foreign accounts and corporate treasurers). Of itself, this has made it harder for dealers to carry inventory and to meet the needs of their own customers. For this reason, dealers are now varying their quotes much more and business is done at more flexible rates. Latterly, the banks have been creating "ineligible" acceptances, which by definition cannot be bought by the Federal Reserve Banks. Indeed, some banks have begun to accept "finance" paper, i.e., paper not based on a commercial transaction, which is marketable at least to some extent (even though not "eligible"), because it has a good bank name on it.

Much larger than the market in bankers' acceptances is that in commercial paper. This paper consists of short-term unsecured notes often for large amounts with specified maturities, which is placed on the market by leading corporations through dealers. Finance paper is somewhat similar and is usually placed direct by the large finance companies and latterly also by some of the conglomerates. (45) However, the statistics do not distinguish between the two types of paper. The division there is between paper that is placed through dealers and that which is placed directly. (46)

(45) In the case of finance paper, the purchaser can usually specify the amount he will purchase and the date on which he wishes it to mature.

(46) With directly placed paper, it is usual for the maturities to be tailor-made, but the issuer is also "willing to pick it up at any time", i.e., it is redeemable. In addition, there is a three-day "rate protection" arrangement, such that if there is an increase in the rate within three days of purchase the purchaser benefits. There is also an "automatic roll-over feature" whereby the existing rate will be continued for a period longer than the original maturity of the paper, if the holder should specifically request it. Another way in which the issue of paper is tailored to suit the needs of the purchaser is the "hole in the middle" arrangement. In some States, short-term investments are taxed if they appear in the balance sheet at a statement date; in other cases, a business corporation may wish to avoid showing commercial paper in its statement. Issuers accommodate these requirements, by permitting the investor to trade in his holdings of such paper (say) for three days in the middle of the period.

Some finance paper is placed through dealers and some commercial paper (including that which is "bank-related") is placed directly. At the end of 1969, the total volume of commercial paper outstanding (seasonally adjusted) was $33.2 billion, which was 53 per cent. higher than a year before. Of this, $12.7 billion was placed through dealers and $20.5 billion was placed directly. "Bank-related" paper, which is not seasonally adjusted, stood at $4.2 billion. (47) It should perhaps be explained that "bank-related" paper consists of commercial paper issued by bank holding companies, affiliates of bank holding companies, or affiliates of banks, in order to obtain access to additional resources at a time when the interest rate ceilings applied under Regulation Q made it virtually impossible to attract a sufficient volume of funds in the form of negotiable time deposits. With the funds so raised the holding company will then buy loans from the bank in the group. (48)

Some of the reasons for the increased resort to the commercial paper market, especially by non-financial corporations, include the borrower's desire to have available a number of financing alternatives (this has always been one reason for the popularity of commercial paper, but the interest of business corporations was further stimulated by the "credit crunch" of 1966; in any case they were

(47) Over $1.2 billion of this paper was placed through dealers.

(48) The issue of bank-related paper was never liked by the authorities. Indeed, with respect to the issue of paper by subsidiaries of member banks (not parent holding companies or collateral affiliates) the Federal Reserve Board ruled on October 29, 1969 that such paper had the same status as obligations issued directly by banks and was subject to interest rate limitations and reserve requirements specified under Regulations Q and D respectively. In early November, the Board outlined measures that described how member banks might adjust to this ruling. Later in the month, it gave banks further time to make adjustments before the ruling became fully effective. The Board also indicated that it was appropriate for Reserve Banks to permit members to make use of the discount window in order to adjust to the ruling. In addition, the Federal Reserve Board announced (also on October 29, 1969) that it was considering an amendment to its Regulation Q to apply to funds obtained by member banks through the issue of commercial paper by a one-bank holding company as well as by a parent company registered under the *Bank Holding Company Act* or a collateral affiliate of a member bank. After consultations with member banks, it was decided in early 1970 to defer action for the time being.

now more inclined to borrow and to favour a greater resort to debt-finance); also the existence of such markets provides the means of arbitraging interest cost differentials with a view to seeking out the cheapest forms of finance; and it affords greater financing flexibility, e.g. a corporation is able to finance its activities on a short-term basis (and to continue to revolve this finance) until a time comes when it is appropriate to seek a longer term financing arrangement (in other words, it can choose its own time for approaching the capital market). One of the big changes that has taken place is the move away from the small seasonal issuers towards the really big corporations that issue regularly (especially to finance accounts receivable). This began in the 1950's and has continued. In addition, in 1963, it became possible for public utilities to issue commercial paper to finance current needs (such as accounts receivable; instalment accounts receivable; reserve fuel storage — gas companies, for example, either have underground storage to finance, or they may build up gas in a pressurised line; and a provision to finance depreciation on plant up to one year). Latterly, it also became possible to issue commercial paper on the basis of a current revenue concept. Of the 225 public utilities that are eligible, about 100 are now using the commercial paper market. Reference has already been made to bank-related paper, the issue of which is now quite significant, the institutions concerned being based mainly on New York, the West Coast, Chicago, and Texas. Much of this business is done direct, mainly through the money desks of the related banks.

There are ten dealers in commercial paper, two of them with regional interests only (one in Minneapolis and the other in San Francisco), (49) which is the same number as existed immediately after World War II, but some have gone and others have come in. A lot of the specialists have disappeared and commercial paper business has now tended to become part of a diversified dealing operation. New York and Chicago are the big centres (two of the dealers are Chicago-based and have New York offices, while the New York houses have branches in Chicago — and elsewhere). The present dealing houses include Goldman Sachs, which is

(49) There were 28 dealers in the 1920's, but the business almost dried up during the Depression of the 1930's, when some dealers were closed and others were bought up.

easily the largest in commercial paper, A.G. Becker, Lehman Brothers, Salomon Brothers and Hutzler, Merrill Lynch, First Boston Corporation, and Eastman Dillon. The dealers buy paper as principals and then sell it to clients. The dealer carries his inventory against a line of credit with his bankers, financing inventory on a repurchase agreement basis (one to five days, which is the normal life of paper in inventory). Only in the case of "finance" paper, which is sometimes placed through dealers, is there an informal understanding that if a purchaser wants his money back before due date the issuer will "pick it up" or redeem it. Occasionally, a dealer may himself buy back commercial paper (e.g. if an insurance company needs money urgently), but again he would act as principal and would take a turn of 1/8 per cent. Another way in which the customer's needs are accommodated relates to the Master Note Agreement entered into with banks, a common arrangement with many of the direct issuers. This enables a bank with fluctuating requirements for commercial paper (primarily to satisfy the short-term investment needs of Trust Departments) to move in and out. This is done under a Master Note and no charge is made. When the bank wishes to withdraw, the Master Note is endorsed to this effect and re-endorsed when the bank wants to resume its investment, the necessary cash adjustment being made in the usual way. When a Master Note is employed, a customer by the terms of the Agreement gets the 90-, 180-, or 270-day rate on commercial paper, because the money is in effect being lent on a continuing basis.

Formerly, there was an active secondary market in Negotiable Certificates of Deposit. Certificates of Deposit had in fact been issued for many years by banks in the United States as paper evidence of the lodgment of time money but these were largely non-negotiable and, as such, had no special value as a monetary instrument. But in February 1961, the First National City Bank of New York introduced its "Negotiable" Time Certificate of Deposit. This was offered to corporate customers and was intended to appeal especially to them because of its marketability. The other major money market banks in New York and elsewhere soon followed suit, and a thriving market quickly developed. But the rates that might be paid on CDs were subject to the ceilings that were applied by the Federal Reserve under Regulation Q. As

interest rates rose (especially after 1965) the ceilings became increasingly unrealistic and, at the rates that could be paid, CDs were no longer a competitive means of raising funds. Gradually, a number of the existing CDs ran off and there was a significant fall in the supply of CDs to the market. (50) Nevertheless, this is such a convenient instrument that, when the Federal Reserve finds it appropriate (as a matter of policy) to raise the ceiling (51) or, alternatively, interest rates again come down to levels that can be accommodated within the ceiling, it will no doubt be revived and once more form part of the range of market instruments available for purchase and sale.

It was the difficulty of attracting funds by issuing CDs that forced certain of the banks into the commercial paper market (see above) and the large banks as well as a number of others) into the Euro-dollar market. (52) The rise in outstanding Euro-dollar liabilities of United States banks may be measured approximately

(50) Even with rates at uncompetitive levels, CDs occasionally came on to the market and continued to be quoted in the secondary market. For example, a customer might approach a bank for a loan at the prime rate (much importance is attached by corporations to being able to borrow at prime). In effect, the bank might want a higher rate and insist upon a compensating balance (part of the loan has to be re-deposited), plus a CD at 6¼ per cent. (at a time when prime was — say — 8½ per cent.). The customer would then have to sell the CD at a discount in order to obtain the money he needed and would in effect be paying much more than 8½ per cent. The amounts involved would be in blocks of $5 to $10 million. Such transactions would be negotiable and a dealer would be approached and asked to find a buyer before the transaction was proceeded with. Alternatively, a non-interest bearing CD might be issued in place of the compensating balance and, again, this CD would have to be sold by the customer at a discount. (The practice is known as "link financing"). In this context, it was said that during 1969 banks would frequently lend at prime five times the compensating balance and charge the Euro-dollar rate on the rest.

(51) For the longest maturity deposits, it was in fact raised to 7½ per cent. in January 1970, but this was not a major concession and was only likely to ensure that some of the money that derives from maturing CDs will in future stay with the banks and not be lost to markets with higher interest rates. In the words of the Fed: "The revisions in the Board regulations of ceiling rates were held to moderate size. This was to prevent sudden and large movements of funds into the banking system that could cause distortions in traditional financial flows or lead to an upsurge in bank lending". As reported in *The Times*, London, 22 January 1970.

(52) Another experiment that was launched in early 1970 by the First Pennsylvania Banking and Trust Company in Philadelphia was the offer of 7¼ per cent. on small denomination subordinated notes of 30 months maturity. These were to be issued in denominations as low as $100 and in multiples of $100 in order to be attractive to the small saver who normally uses the traditional savings institutions. Regulation Q did not apply to bank sales of capital notes provided the notes were subordinate to the claims of

by the rise in the banks' total liabilities to their foreign branches. (53) Such liabilities rose from $4.2 billion on December 27, 1967 to $6.9 billion on December 25, 1968. During 1969, the increase was much more rapid, liabilities to branches reaching $14.4 billion on July 30, after which the further net increase was small, (54) this being due at least in part to the application by the Fed of a reserve requirement of 10 per cent. on any increase in net liabilities to foreign branches beyond the daily-average outstanding amounts in the four weeks ending May 28, 1969 (this involved amendments to Regulations D and M). Indeed, latterly, this item began to decline and, at end-1969, it totalled about $13 billion.

This growth in the use made of Euro-dollars reflected the interaction of rising demand for bank credit in the United States, the reduced availability of bank reserves after late 1968, and the maintenance of ceilings on time deposit interest rates under the Federal Reserve Board's Regulation Q. Interest rates on newly issued Negotiable Certificates of Deposit reached the permissible ceiling under Regulation Q during the final weeks of 1968. (55) From then until about the end of July 1969, banks increased their borrowings of Euro-dollars with particular rapidity in an effort

depositors in the event of liquidation and had a maturity of more than two years. At end-June 1970, the Board of Governors of the Federal Reserve System announced new conditions that must henceforth be met for a subordinated note or debenture issued by a member bank to be exempt from interest rate controls (Regulation Q) and reserve requirements (Regulation D). In particular, the new conditions were designed to distinguish clearly between capital-type funds and deposit-type funds. In order that a subordinated note now be exempt from the Regulations (and subject to certain limited qualifications), it must be unsecured, have an original maturity of 7 years or more and be in an amount of at least $500. It must also be approved by the authorities as an addition to the bank's capital structure.

(53) Balances payable at overseas branches were not subject to interest rate ceilings under Regulation Q and branch balances placed in head offices were not subject to member bank reserve requirements (these are different from the special requirement that was later applied), nor to the fees of the Federal Deposit Insurance Corporation.

(54) See "Euro-dollars: A Changing Market" in *Federal Reserve Bulletin*, October 1969, pp. 765 ff. See also "Euro-dollars - An Important Source of Funds for American Banks", Federal Reserve Bank of Chicago *Business Conditions*, June 1969, pp. 9 ff. Also Fred H. Klopstock, "Euro-dollars in the Liquidity and Reserve Management of United States Banks", Federal Reserve Bank of New York *Monthly Review*, July 1968; and "Impact of Euro Markets on the United States Balance of Payments", *Law and Contemporary Problems*, Winter 1969.

(55) Of itself, this Regulation provided a powerful incentive for holding dollar deposits abroad.

to meet both the rising customer demand for credit and the run-off of maturing CDs. At times in 1968-69, United States banks' borrowings of Euro-dollars were also increased by speculative flows of funds out of certain European currencies.

Euro-dollars are interest-earning dollar deposits (56) in banks outside the United States; they include deposits in foreign branches of United States banks. (57) A bank accepting a Euro-dollar deposit receives, in settlement of the transaction, a dollar balance with a bank in the United States, whereas a bank making a Euro-dollar deposit or loan (other than an advance by a United States bank branch to its own head office) completes the transaction with a transfer from its United States bank balance. A bank abroad may take Euro-dollar deposits from non-banks (i.e., from individuals, corporations, or other non banking institutions) in its own country or elsewhere. The depositor may have obtained dollars through a current or capital account transaction settled in dollars, or by purchase on the exchange market. A bank may take Euro-dollars also by deposit or by loan from other commercial banks. The lending bank may be re-depositing funds which it has itself obtained through Euro-dollar transactions; or it may be using dollars purchased on the foreign exchange market (or by special arrangement directly from its central bank) because it wished to switch out of assets in its domestic currency or in some third currency. A bank that acquires Euro-dollar deposits may lend dollars to business enterprises in its own country or another country, either to finance dollar payments or for conversion into another currency. A bank may itself switch out of dollars into another currency via foreign exchange market transactions (generally covered by forward purchases of dollars). Or it may lend dollars to other banks (including foreign branches of United States banks, which in turn may lend either outside the United States or to head offices in the United States). It was in this last

(56) The most common initial maturity of such deposits, other than call, are for overnight and for 7, 30, 90, and 180 days. Very few are for longer periods. (A survey of maturities of dollar deposits at foreign branches of United States banks showed that at the end of July 1969, one-quarter were call and overnight deposits and that the average maturity of their deposits outstanding was 2.7 months. Euro-dollar loans to non-banks were believed to be of somewhat longer average maturity). (*Federal Reserve Bulletin*, October 1969, p. 769).

(57) About 80 per cent. of the dollar deposits in foreign branches of United States banks are in London.

context that funds were sucked in from the Euro-dollar market to finance domestic lending by United States banks. Euro-dollar deposits were used as a substitute for other financial resources and particularly for time deposits in domestic currency.

Nor was it necessary for an American bank to have a branch abroad. It was possible for a bank to approach one of the dealers, who would act as an intermediary in obtaining Euro-dollars through a broker in London. This facility, which is not an important part of the dealers' activity, is nevertheless availed of by banks (e.g. in the Western States) without representation in London and permits them to have access to similar sources of funds.

Despite the growth of some of these new markets, the main markets remain those in Government securities and Federal funds, and it is through these that idle money in the United States is mobilised and distributed across the country as a whole. In this context, full use is made of correspondent relationships and both the banks and the dealers attempt to tap every possible source of funds. The intensity of this search for new sources of money has had the effect of binding together much more closely the various parts of the financial mechanism and has made it much more sensitive to Federal Reserve action.

Within the narrower confines of the central money market in New York, the fact that both the dealers and the commercial banks operate in more than one market has provided the necessary links for a well-integrated structure. Most of the Government securities dealers have important interests in a number of markets — e.g. Treasury bills, medium- and long-term United States Governments, the issues of Federal agencies, Municipals, bankers' acceptances, and commercial paper. Certain of these dealers also underwrite corporate security issues. The commercial banks, too, are active in most of these markets (with the exception of dealing in and underwriting corporate securities), and in addition in the Federal funds market. Finally, certain of the larger banks (mainly in New York) make call loans against stock exchange collateral, though the rate on such loans is not now nearly as influential as it was in the past. Whether they actively participate in all these markets or not, both these two main groups of institutions must also be influenced by the dealings of their customers in other related markets.

By switching their activities from one market to another in response to changing rate relationships, the operations of the banks, the dealers, and their customers tend to produce a rate structure consistent with the available supply of money, the credit "climate" and the current preferences of investors. By these means, also, the money market is effectively integrated both at the centre, over the country as a whole, and, indeed, with the European markets as well.

J. S. G. Wilson

Hull