

The Market for Large Negotiable CDs

During the last fifteen years "liability management" has become accepted by large banks as a principal strategy for adjusting their lending capabilities. In tapping the domestic pool of short-term investable funds for the purposes of liability management, large negotiable certificates of deposit (CDs) are even more important to banks than trading in Federal funds or engaging in repurchase agreements (RPs) for Treasury bills. Because of the heavy bank reliance on the CD market, the monetary authorities have on numerous occasions used a wide variety of policy measures to influence bank use of CDs. In fact, since its introduction in 1961 no other vehicle for liability management has been subject to as many changes in regulations.

The mechanics of CDs

As its name suggests, a certificate of deposit is simply a receipt certifying that a certain amount of money has been deposited at the bank issuing the certificate. The certificate also specifies the rate of interest to be paid and the date on which the principal and interest may be withdrawn (the maturity date). Large-denomination CDs, those in amounts of at least \$100,000, are the ones used in liability management. They are generally negotiable, *i.e.*, the owner may sell title to the deposit to another investor prior to the maturity date.

Because CDs are time deposits, they are subject to Federal Reserve Regulation D, which requires time deposits to have a minimum maturity of thirty days. Time deposits are covered by deposit insurance up to the first \$40,000 of principal, and this is usually

only a small fraction of the face value of large-denomination certificates. Therefore, investors must evaluate the likelihood of default by the issuing bank when considering purchase of a CD.

Since deposits cannot be accepted by a bank on a discount basis, CDs are issued at par and are traded on an interest-bearing basis. (Most other money market instruments, such as bankers' acceptances, commercial paper, and Treasury bills, are traded on a discount basis.) Should a CD be sold prior to maturity, the seller receives payment from the buyer for the principal—adjusted to current market value—and for all interest accrued from the original issue date to the date of the sale. If the buyer holds the CD to maturity, he of course receives both the principal and the full amount of interest indicated on the certificate.

Interest on CDs is computed on the basis of a 360-day year instead of the 365-day year used for bond yields. Issuing banks post rates for CDs of various maturities—30 days, 60 days, 90 days, etc.—but the actual rate is often negotiated between the issuer and the buyer (*i.e.*, the depositor) and is affected by the reputation of the issuing bank, the amount of funds it needs, the size of the CD, as well as its term to maturity. The new-issue market is called the primary CD market, and interest rates paid on newly issued CDs are primary rates. Transactions involving outstanding CDs take place in the secondary (dealer) market at what are termed secondary rates.

CDs are normally paid for in immediately available funds on the day of purchase, and they are redeemed in immediately available funds on the day they ma-

ture.¹ To facilitate settlement, CDs of many non-New York banks are often issued and redeemed through the issuer's correspondent bank in New York.

CDs are an attractive short-term, liquid investment for individuals, business firms, municipalities, and other organizations with large amounts of temporarily investable cash balances. Since CDs—unlike Treasury bills—are subject to at least some risk of default, they typically yield more than do bills of the same maturity. Thus, they are a tempting alternative for an investor willing to accept slightly more risk in return for a higher yield. Another advantage of CDs is that they may be issued for any desired maturity (of at least thirty days), whereas a Treasury bill maturing on a specific day, e.g., a tax-payment day, may be difficult if not impossible to locate. Also, legal restrictions on the investment powers of state and local governments force many to hold their temporarily investable funds in either government obligations or deposits in local commercial banks. Thus, these restrictions often make CDs the only instrument on which municipalities can obtain returns on short-term investments that are greater than those available on Treasury bills or other time deposits.

The present distribution of CDs among different types of investors is known only in broad outline. Some detailed information is available from surveys conducted in the early 1960's when there was only about \$10 billion of large CDs outstanding, compared with about \$70 billion at present. The results of those surveys, summarized in the table, showed that, as one would expect, business corporations were by far the largest original purchasers of CDs, while the remainder was bought, in about equal amounts by state and local governments, foreigners, and "others". The surveys also showed that smaller banks tended to sell relatively more of their negotiable CDs to individuals and to state and local governments and that these CDs were smaller on average than those issued to other types of investors.

The only recent source of information on the distribution of CD holdings is the breakdown of weekly reporting banks' outstanding CDs into those issued to individuals, partnerships, and corporations (IPC) and those issued to all others. In most recent years, the share of CDs issued to IPC holders has been about two thirds. This suggests that the proportion of CDs originally purchased by businesses and individuals has not changed much from that shown in the table.

In liability management, banks actively seek more

Original Purchasers of Large Negotiable CDs

In percentage of total

Type of purchaser	December 5, 1962	June 30, 1964
Business	69	67
State and local governments	16	11
Foreign official institutions	6	} 12
All other foreign	1	
Individuals	3	2
Others	6	9
Total	100	100

Numbers may not add to totals because of rounding

Sources: 1962 Board of Governors of the Federal Reserve System, 1964 American Bankers Association

flexibility in expanding their lending capability in line with their profitable lending opportunities instead of adjusting their lending to deposits received more or less passively. Banks can do this by increasing their CDs when loan demand is strong and by allowing them to run off when loan demand turns sluggish. Only money-center and large regional banks have the ability to market their CDs effectively. The one hundred largest commercial banks with deposits in excess of \$1 billion account for about 90 percent of all large-denomination CDs issued.

On occasion, even a large bank may not issue all of its CDs directly to investors. For example, when a bank's liability management strategy requires it to market a large amount of CDs quickly, it may attempt to issue the CDs to dealers who are willing to purchase them for later sale or who are able to reach a broad array of potential investors quickly. When banks issue CDs into the secondary market in this way, the distinction between the primary (new-issue) and secondary (dealer) market becomes rather blurred.

CDs resemble other short-term money market instruments such as Treasury bills and bankers' acceptances in that they may be traded in a secondary market. The existence of such a market enhances their liquidity and makes them attractive relative to both non-negotiable instruments and negotiable instruments having poorly developed secondary markets. However, the secondary market rate generally exceeds the interest rate at which CDs are originally issued. The reason is that the CDs available in the secondary market may not match the maturities or be issued by the banks desired by investors, and investors have the option of buying CDs of any desired maturity of at least 30 days from preferred issuing banks. As a result,

¹ See "Federal Funds and Repurchase Agreements", this Review (Summer 1977), pages 33-48, for a description of immediately available funds

yields in the secondary market must often be increased relative to primary yields to induce investors to purchase them.

Generally, the spread between rates bid and asked in the secondary market averages about 10 basis points for maturities in the three- to six-month range and is somewhat greater for shorter maturities. These spreads, however, are representative only for CDs of the top twelve to fifteen banks whose certificates are traded regularly by the handful of dealers who maintain markets in CDs; bid-asked spreads for CDs issued by banks whose CDs are less frequently traded are naturally somewhat wider.

Moreover, there is generally a tiering (differentiation) of market rates according to market perception of the strength of the issuing bank and of the liquidity of its CDs. Less favored banks must pay somewhat higher rates on their CDs than the most favored money market banks.

In addition to issuing CDs in the domestic market, United States banks with foreign branches have the ability to secure time deposits from holders of offshore dollar balances—Eurodollars. Funds deposited in branches can then be re-lent by them to their United States head offices or lent abroad. Like the CD market, the Eurodollar market is a wholesale market in which the average denomination of deposits is quite large. A further similarity between the Eurodollar and CD markets is that some London branches of United States banks issue London dollar CDs (*i.e.*, dollar-denominated CDs redeemable only at the London branch of the issuing bank), which trade in a secondary market much as domestic CDs do. Since large banks have the option of selling CDs or similar liabilities in either the United States domestic money market or in the Eurodollar market, they change their relative reliance on the two markets according to where effective costs are lowest.²

Beginnings of the CD market

The negotiable CD came into prominence only seventeen years ago. The conditions that fostered a large market for CDs were the gradual rising trend of interest rates during the 1950's and 1960's as well as the related development of sophisticated money management techniques by corporate treasurers. Since banks were prohibited from paying interest on demand deposits and since most were unwilling to pay interest on corporate

time deposits, corporate treasurers actively began to use their temporarily investable balances to purchase short-term money market instruments. This investment strategy inhibited the growth of corporate deposits at large money market banks. In addition, the unavailability to banks of a flexible instrument with which to augment their conventional deposit sources meant that, in periods of monetary restraint, the share of bank credit in total credit flows to nonfinancial sectors (business, state and local governments, housing, and consumers) declined

Responding to this state of affairs, the First National City Bank of New York (now Citibank) began to offer CDs to domestic business corporations, public bodies, and foreign investors in February 1961. The primary objectives were to increase corporate deposits and to allow banks greater discretion over their sources of funds, so that in a period of rising loan demand and increasing interest rates they could accommodate increases in short-term credit demands by expanding their CDs. Otherwise, they would have to turn down profitable loan applications or sell some of their investments, possibly at a substantial loss. The ability of banks to "buy" funds by paying market rates of interest added greatly to their flexibility and was the key element in their ability to shift to liability management.

CDs had existed in negotiable form for years prior to 1961, but they could not become an important source of funds for banks until they could compete with other short-term money market instruments. To do so, they had to be readily marketable and to pay a market rate of return. The crucial innovation in February 1961 was the secondary market for large negotiable CDs (provided initially by the Discount Corporation of New York, a dealer in United States Government securities). The secondary market made CDs a truly liquid money market instrument by establishing a means through which an investor could sell his holdings quickly and at low cost prior to maturity. Other large banks promptly began to issue CDs, and other dealers soon entered the secondary CD market.

The expansion of CDs in the early 1960's was rapid and steady (Chart 1). The smooth and impressive growth of outstandings from February 1961 through the middle of 1966 reflected increasing acceptance of this new money market instrument. However, the CD rates which member banks—virtually the only banks issuing CDs—could pay were subject to the interest ceilings of the Federal Reserve's Regulation Q. The 1 percent ceiling rate on time deposits of less than three months' maturity prevented CDs in this range from being issued. Moreover, the market for longer term CDs was affected in late 1961, when three-month

² Two important differences between Eurodollars and CDs are (1) Eurodollar deposits have no minimum term to maturity, while CDs have a minimum of 30 days, and (2) net Eurodollar borrowings of head offices of United States banks from their foreign branches currently are subject to a 4 percent reserve requirement, while CDs are subject to reserve requirements of 1 to 6 percent, depending on their original term to maturity

Treasury bill rates edged upward and exceeded the 2½ percent ceiling rate in effect for three- to six-month CDs. At that point, only CDs of six-month or longer maturities on which the ceiling rate was 3 percent could be sold by banks, and these also became difficult to sell as the six-month Treasury bill rate approached 3 percent.

At the beginning of 1962, the Federal Reserve raised the ceiling rate for CDs of six- to twelve-month maturity to 3½ percent and that for CDs of twelve-month or greater maturity to 4 percent.³ As a result of this change, banks were able once more to market CDs in the longer maturity range but were effectively prevented from issuing shorter maturities. A year and a half later, in July 1963, ceiling rates for CD maturities of three months and longer were fixed at 4 percent.

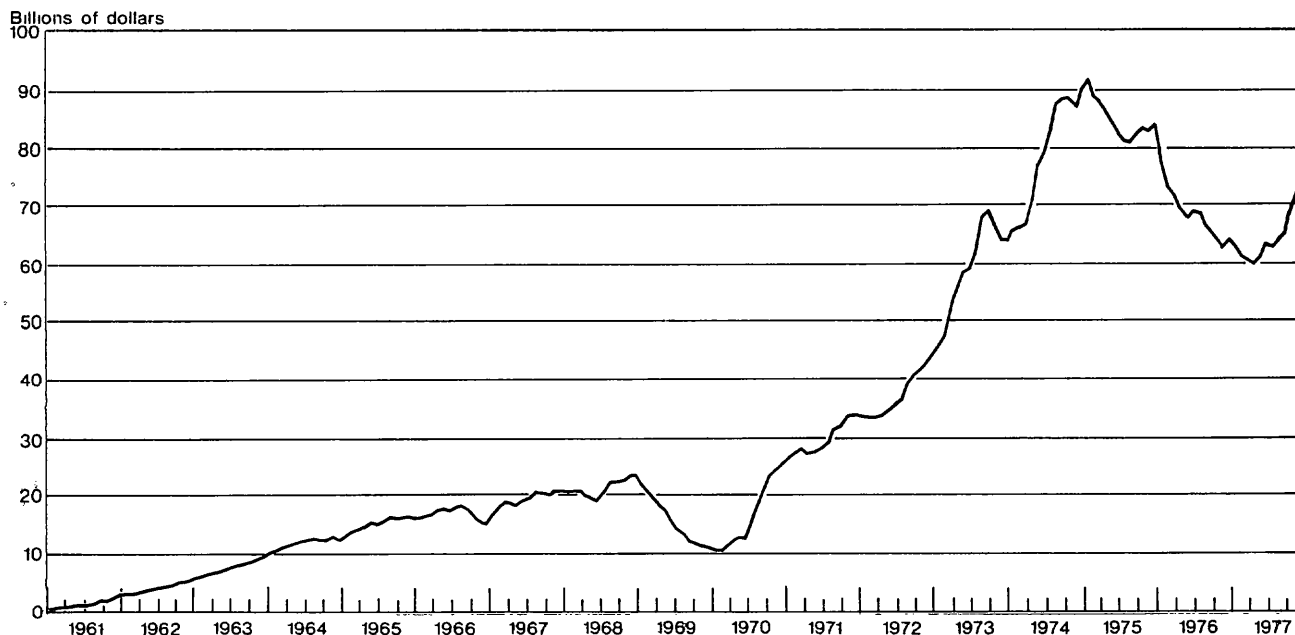
Meanwhile, the ceiling on one- to three-month CDs was deliberately held at an uncompetitive 1 percent level. This stimulated the growth of the secondary market which was then still in its infancy. The large

spread between ceiling rates on long- and short-term CDs allowed dealers and corporations to buy long-term CDs, to hold them until only a short term to maturity remained, and then to sell them in the secondary market without fear of being undercut by banks offering competitive rates on newly issued short-term CDs. In addition, since long-term CD rates generally exceeded short-term CD rates, while both remained relatively stable, dealers profited during the first half of the 1960's by buying long-term CDs, holding them in inventory, and then selling them as short-term CDs. As long as rates were stable, this investment strategy—called “riding the yield curve”—increased their total interest return by an amount depending on the spread of the long-term CD rate over the short-term CD rate.

The artificially low Regulation Q ceiling on short-term CDs remained in effect until November 1964, when the maximum rate on CDs of 30- to 89-day maturities was raised to 4 percent, and the rate on longer term CDs was raised to 4½ percent. This change allowed banks to make competitive rate offers on CDs in the 30- to 89-day range for the first time. It thus put an end to the artificial stimulus to the growth

³ In addition, time deposits of foreign official institutions were made exempt from Regulation Q interest rate ceilings in October 1962.

Chart I
Large Negotiable Certificates of Deposit Outstanding at All Commercial Banks
 Not seasonally adjusted



Source. Board of Governors of the Federal Reserve System

of the secondary market. From the end of 1963 to the middle of 1966, the value of CDs outstanding nearly doubled, reaching \$17.8 billion, while the daily average of gross dealer transactions changed little and remained at a modest level (Chart 2).

First crisis: 1966

In response to rising interest rates, the existing Regulation Q ceiling rates were raised to a uniform 5½ percent for all CD maturities in December 1965 (Chart 3) in order to prevent banks from encountering difficulty when renewing (rolling over) their existing CDs. However, other market rates soon exceeded the new ceiling, and the CD market reacted immediately. Issuance of CDs began to slow, and outstandings started to fall.

Rates on CDs with longer maturities ran up against the ceiling in about the middle of 1966. Consequently, new issues of such maturities were greatly reduced, and the average maturity of outstanding CDs began a sharp decline (Chart 4). Shortly afterward rates on short-term CDs ran up against the ceiling, and new issues of short-term CDs also started to decline. The runoff of CDs from August to December 1966 reached a sizable \$2.9 billion (Chart 1), a decrease of about 16 percent from the August level. In the five years since the introduction of negotiable CDs, banks had never undergone a comparable experience.

The effects were also significant in the secondary market, where a rapid rise in rates—to which Regulation Q, of course, did not apply—resulted in considerable book losses for holders of outstanding CDs. Investors reacted by cutting back purchases of new CDs and holding to maturity the CDs already in their portfolios; thus market transactions as well as dealer positions were greatly reduced. Gross transactions in the secondary market declined to a level even lower than that observed in 1963, when data first began to be collected.

The pressures in the CD market caused by Regulation Q ceilings abated in December 1966, when interest rates started to decline rapidly. Pressures resumed in 1967 as rates on longer maturities again rose to the ceiling rate and made the average maturity of outstandings contract sharply. Early in 1968, when other market rates declined and the Regulation Q ceiling for longer term CDs was raised to 6¼ percent, pressures on the CD market were relieved once more.

During the 1966 “credit crunch”, banks found that CDs were a potentially unreliable source of funds. In reaction, some large banks began to develop alternative sources of funds, particularly Eurodollars, on which rates were not subject to regulation. A few United States banks had used Eurodollars prior to

1966, but in that year gross borrowings from foreign branches rose to about \$2 billion for the first time. It was also in the same year that the London dollar CD was introduced by the London branch of Citibank. The establishment of facilities for tapping the Eurodollar market during the 1966 credit crunch proved to be important during the 1969-70 crunch, when banks faced an even greater runoff of CDs.

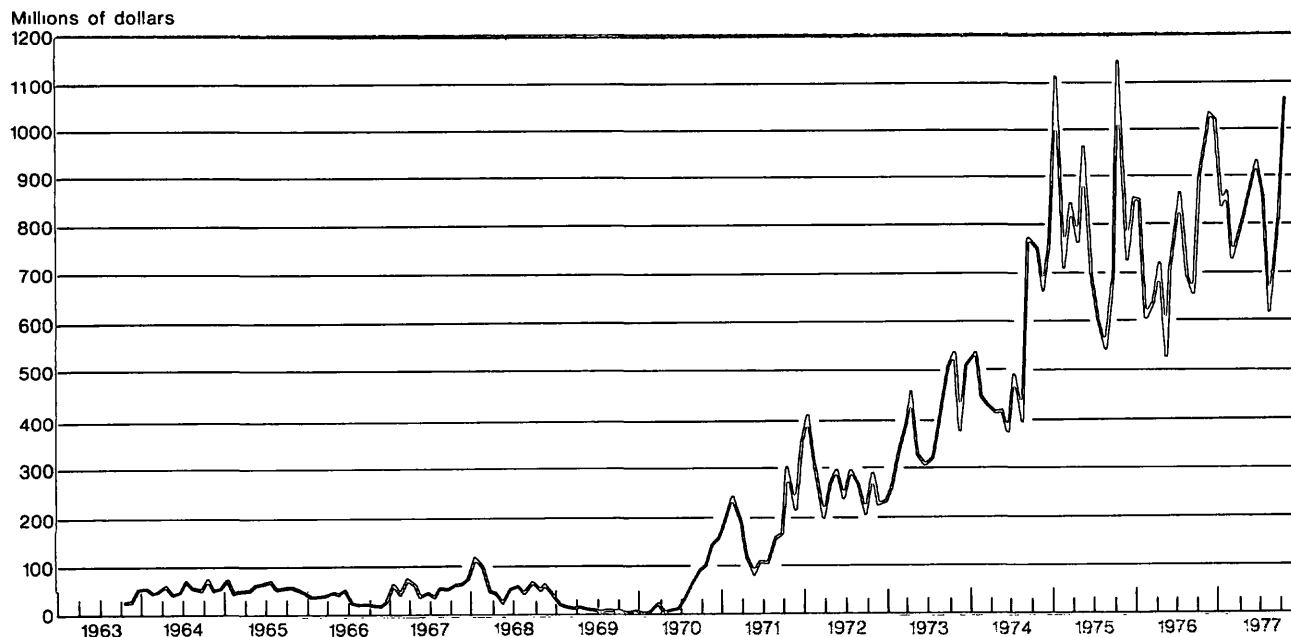
In much of the postwar period, Regulation Q interest rate ceilings for member banks were set below the rates that thrift institutions specializing in housing finance were paying. In this way, *cross-intermediation*, *—i.e.*, the shift of deposits from thrift institutions to commercial banks—was prevented. It was widely thought that preventing such a shift would encourage home building.

The increase in time deposit rates paid by commercial banks after the December 1965 adjustment of Regulation Q ceiling rates appeared to observers to have contributed to outflows of deposits from thrift institutions in 1966. Accordingly, the monetary authorities were in part blamed for the difficulties of the housing market in that year. In response, the authorities requested, and the Congress promptly passed, legislation permitting different ceiling rates for time and savings deposits according to their size and, for the first time, also extending ceilings to rates paid on time and savings deposits by thrift institutions. In September 1966, the ceiling rate on commercial bank time deposits smaller than \$100,000 was reduced to 5 percent while the ceiling rates for savings deposits and large negotiable CDs were left unchanged at 4 percent and 5½ percent, respectively. Although these actions may have reduced the threat of cross-intermediation, later events showed that rigid reliance on interest rate ceilings made both commercial banks and thrift institutions more susceptible to serious *disintermediation*—*i.e.*, the withdrawal of time and savings deposits to purchase higher yielding money market instruments.

Second crisis: 1969-70

Early in 1968, in response to rising market interest rates, Regulation Q ceiling rates were set at 5½ to 6¼ percent, according to maturity. However, despite the change in the ceilings, rates on new issues of CDs with shorter maturities were uncompetitive throughout most of 1968, and toward the end of that year the same happened to longer term CDs. In 1969, as monetary policy attempted to dampen inflationary pressures, market rates rose rapidly to the vicinity of 8 percent, which far exceeded Regulation Q rates. The ceilings were left unchanged, for the monetary authorities hoped that restriction of bank access to the CD market would both reduce the

Chart 2
Dealer Transactions in Large Negotiable Certificates of Deposit
 Monthly averages of daily figures, not seasonally adjusted



Source Federal Reserve Bank of New York

overall expansion of credit and cause banks to reduce the rate of their expansion of credit to business and thereby to lessen the financial squeeze on other sectors, such as housing and state and local governments. Consequently, between December 1968 and December 1969, banks were buffeted by the largest involuntary runoff of CDs ever, as investors sought more attractive returns available on other money market instruments. Outstandings declined by \$12.6 billion, a loss of more than 50 percent from December 1968. Thereafter, outstandings stabilized at a depressed level during the first half of 1970.

The CD runoff during 1969-70 would have been even larger had not banks begun to take advantage of the exemption of deposits of foreign official institutions from Regulation Q ceilings. During the second half of 1969 and the first quarter of 1970, banks were able to increase CDs issued to foreign official institutions by about \$2 billion, which offset some of the decline of CDs held by other investors.

The composition as well as the level of CDs was affected by the runoff. With the severe fall in new issues of CDs, the average maturity of outstandings actually rose sharply in the first half of 1970 (Chart 4)

as large amounts of short-term CDs matured without being rolled over. (Because of the large proportion of short-term CDs, a runoff increases the average maturity of outstandings.)

While banks faced an unprecedented drop in outstanding CDs, the secondary market virtually dried up. Average daily gross dealer transactions dropped to the lowest levels since the inception of the market and were practically zero during the second half of 1969 and the first part of 1970. At the same time, dealer positions were almost completely eliminated. Hence, any potential investors in CDs were doubly deterred: the interest rates on alternative money market instruments substantially exceeded rates permitted on primary CDs, and the liquidity that had contributed to the earlier attractiveness of CDs no longer existed.

To compensate for the heavy loss of CDs, banks sold government securities, restricted lending to business, and sharply cut back purchases of municipal obligations (large banks were actually net sellers of municipals during the second half of 1969). Although the rate of expansion of bank lending to business was substantially reduced, business spending was not commensurately curtailed because many large firms were

able to obtain funds by selling liquid assets and by utilizing sources of nonbank funds, e.g., by selling commercial paper.

Eurodollars—a substitute for CDs

In addition to restraining lending and liquidating investments, banks also greatly increased their reliance on borrowings from their foreign branches. In fact, large New York banks, which had the best developed access to the Eurodollar market, were able to replace their CD losses almost dollar for dollar with such borrowings. As a result, Eurodollar borrowings from foreign branches soared in late 1968 and 1969; they reached an all-time high of \$15 billion in October 1969.

Eurodollar borrowings were a highly attractive source of funds just then. In contrast to CDs, which were subject to Regulation Q ceilings, Eurodollar rates were unregulated. United States banks could therefore secure funds to offset their CD losses if they were willing to pay high interest rates, and their access to funds was potentially more reliable for the same reason. In addition—and again in contrast to CDs—the cost of Eurodollar borrowings was reduced somewhat because they were not subject to reserve requirements.

In October 1969, a 10 percent reserve requirement was imposed on net borrowings of United States banks from their foreign branches that were above a reserve-free base, defined in a rather complicated way. In essence, the base was equal to at least 3 percent of a bank's total deposits less its deposits due to foreign banks in any current four-week period. For banks that had average Eurodollar borrowings in excess of the 3 percent formula in the four-week period ended May 16, 1969, the base was raised to the May average. However, the base was automatically reduced if average borrowings fell below the May average in any subsequent four-week period. But in no case could the base be lower than that given by the 3 percent formula. The 3 percent formula was intended to avoid discriminating against banks which had been slow to enter the Eurodollar market and consequently did not have large levels of borrowings. The reserve-free base was adopted in order to motivate banks to refrain from reducing Eurodollar borrowings abruptly. Some banks were thus undoubtedly induced to maintain their borrowings for longer than they would have otherwise, and the net liability of United States banks to their foreign branches remained flat in the latter part of 1969 and declined only gradually in early 1970.

Because reserve requirements now applied to borrowings from foreign branches, banks turned to other sources of funds. The most important of these was outright sales of loans to bank affiliates, which in turn gen-

erally sold commercial paper to pay for the loans. Loan sales to affiliates at large weekly reporting banks increased from about \$2.1 billion in May 1969 to \$3.0 billion by the year-end. In the first six months of 1970, loan sales doubled, and they reached an all-time high level of \$8.1 billion at the end of July.

Meanwhile, in January 1970, the Board of Governors of the Federal Reserve System raised Regulation Q ceilings somewhat. The action was designed to limit outflows of CDs and other time deposits from commercial banks, but its impact was very modest. Even though market rates declined slightly around that time, they were still well above the new ceilings.

Effects of the Penn Central crisis

On Friday, June 19, 1970, efforts to induce the United States Government to grant emergency credits to the Penn Central Transportation Company collapsed. Two days later, on Sunday, June 21, Penn Central filed its bankruptcy petition. The railroad then had in excess of \$80 million of commercial paper outstanding, and the prospect of imminent default on this paper generated fears of a general liquidity crisis. For this reason, on Tuesday, June 23, the Federal Reserve took a variety of supportive actions, among which was suspension of the Regulation Q ceiling rate on CDs maturing in 30 to 89 days. The effect was to allow banks to reenter the short-term CD market, which they did with great alacrity. The massive acquisition of funds through new issues of CDs was crucial to banks' efforts to meet the financial needs of business. Many firms were unable to issue commercial paper during the weeks immediately after the Penn Central bankruptcy petition, and total commercial paper outstanding promptly contracted by about \$3 billion.

Restoration of banks' access to the CD market also reduced their need to sell loans to affiliates and to raise funds indirectly through commercial paper. Accordingly, loan sales declined slightly in August, and they began to fall sharply after September, when reserve requirements were placed on bank-related commercial paper used to fund bank lending. By the end of 1970, outstandings of loans sold amounted to only \$2.7 billion, well below the peak of \$8.1 billion.

As banks resumed issuing CDs, the average maturity of outstandings declined rapidly from the all-time high of more than four months in early 1970 to a more normal range of about three months. In addition, the secondary market recovered almost immediately, and daily average transactions and dealer positions soon attained levels far exceeding all previous ones. A significant longer term effect was that participants in the financial markets assumed that the suspension of Regulation Q ceilings on the shortest

Chart 3
Interest Rates on Large Negotiable Certificates of Deposit

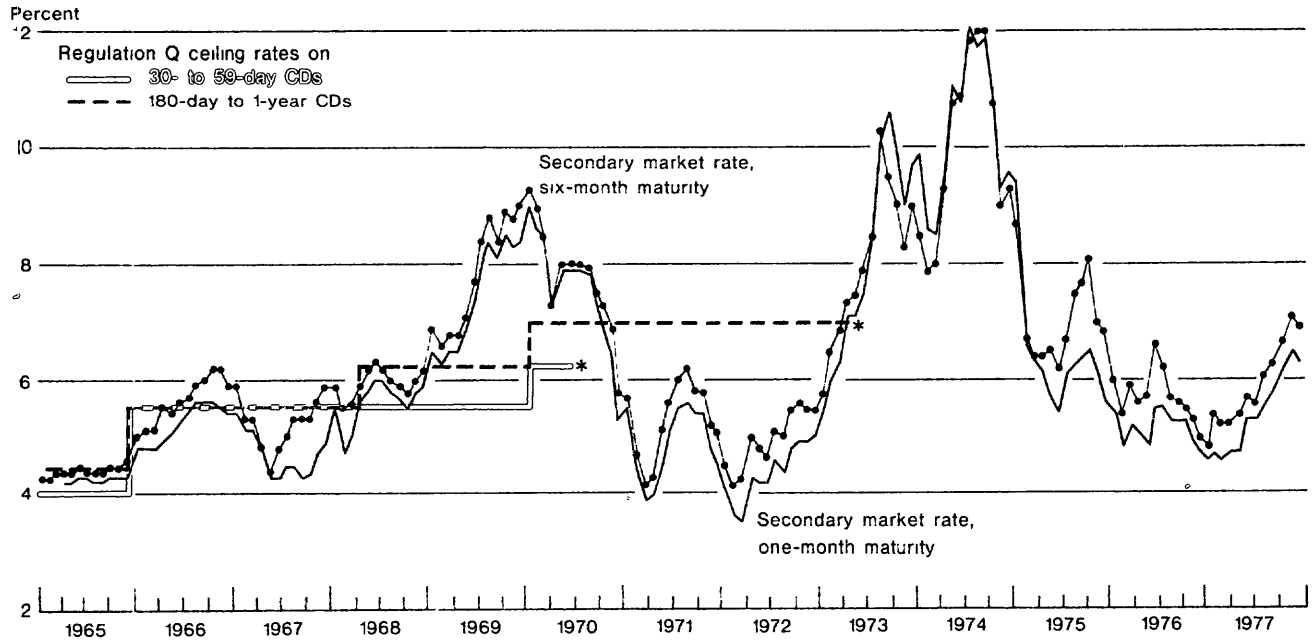


Chart 4
Average Maturity of Outstanding Large Negotiable Certificates of Deposit

Weekly reporting banks, not seasonally adjusted



Source: Board of Governors of the Federal Reserve System

maturities meant that the Federal Reserve would no longer employ rigid ceilings on CD rates as a tool of quantitative credit control.

After the Regulation Q ceiling on short-term CDs was suspended, deposits at foreign branches were 2 to 3 percentage points more expensive than domestic CDs. Thus, it was no longer attractive to maintain existing levels of Eurodollar borrowings, and banks began to pay them down rapidly. The Federal Reserve Board raised the reserve requirement applying to net borrowings from foreign branches to 20 percent in January 1971. In addition, it announced that, if a bank defining its reserve-free base of Eurodollar borrowings as 3 percent of deposits reduced its borrowings below the reserve-free level, its base would be reduced accordingly. The intention was that the threat of higher reserve requirements on future borrowings would stimulate banks to maintain their current borrowings, thus counteracting the abrupt turnaround in international capital flows resulting from the reduction of borrowings from foreign branches. However, the inducement offered was evidently inadequate, since banks continued to repay them.

The boom of 1973-74

Credit demand began to revive in 1972, particularly demand for bank loans. Business loans increased rapidly during late 1972 and early 1973, in part because the prime rate was being held to a relatively low level under the influence of the Committee on Interest and Dividends in line with the price and wage control apparatus then in force. In May 1973, as interest rates on CDs with maturities of 90 days and more approached Regulation Q ceilings, these ceilings were suspended, an act that terminated Regulation Q ceilings on all large negotiable CDs. Thus the market's earlier assumption that, after the 1969-70 credit crunch, ceilings on CDs were no longer to be used as instruments of monetary policy turned out to be right. Had the ceiling on longer term CDs not been removed, the average maturity of CDs would have declined—an outcome that the authorities wished to avoid. As a result of their continued access to the CD market in 1973-74, banks were able—for the first time in the postwar period—to maintain their share in total credit flows to non-financial sectors during a period of monetary restraint.

In June 1973, the Federal Reserve attempted to slow the rapid rate of expansion of bank credit by introducing a marginal reserve requirement on CDs similar to the one applied earlier to Eurodollar borrowings. The existing 5 percent reserve requirement on a bank's base of CDs (defined as the amount of CDs outstanding on May 16, 1973) was continued. For CDs in excess of this base amount, the marginal reserve requirement

was increased to 8 percent by addition of a supplementary reserve requirement of 3 percent.⁴ At the same time, the authorities reduced the reserve requirement on Eurodollar borrowings by head offices of United States banks to 8 percent and announced a gradual elimination of the reserve-free base. This put reserve requirements for CDs and Eurodollars on a roughly equal basis. In September 1973 the Federal Reserve attempted to counteract expectations of an imminent easing of monetary policy by announcing an increase in the marginal reserve requirement on CDs to 11 percent beginning October 4. The new reserve requirement, whatever its effect on market expectations, had little obvious effect on banks' utilization of CDs, for the volume of outstandings continued to increase. When strains on the credit markets temporarily eased in December 1973, the marginal reserve requirement was reduced to 8 percent again.

In September 1974, shortly after money market rates began to decline from their record highs, the authorities restructured CD reserve requirements by removing the 3 percent supplementary reserve requirement for CDs with an original maturity of four months or more. Thus, CDs in excess of the base amount that had an original maturity of less than four months continued to be subject to an 8 percent reserve requirement, while longer term CDs became subject to a reserve requirement of only 5 percent. This was the first time reserve requirements had been related to the maturity of CDs. The Federal Reserve wanted to induce banks to lengthen the average maturity of their CDs—by now reduced to an all-time low of slightly more than two months—by lowering somewhat the effective cost to banks of longer term CDs.

Other modifications to the reserve requirements came in December 1974. The marginal reserve requirement for CDs was eliminated, and reserve requirements were set at 6 percent for CDs with an original maturity of less than six months and at 3 percent for those with an original maturity of six months (180 days) or more. One problem with such a structure of reserve requirements is that banks may find themselves able to reduce their required reserves with adjustments of their CD maturities that leave the average maturity of CDs essentially unchanged. For example, issues of six-month CDs—which have a low reserve requirement—might be increased while issues of five-month CDs are reduced. This sort of change will reduce required reserves but will increase maturity only very slightly.

It is difficult to assess with precision the effect of these new reserve requirements on the maturity struc-

⁴ This supplementary reserve requirement did not apply to banks with less than \$10 million of CDs outstanding

ture of CDs. However, the timing of changes in the average maturity of CDs sheds some light on the question. The average maturity of CDs actually declined slightly following the September revision and increased rapidly beginning in early 1975. Since the December revision in fact weakened the incentive banks had to lengthen CD maturities, the abrupt increase in the average maturity in early 1975 seems primarily attributable to the sharp runoff of CDs which began at that time.

Moreover, the actual changes in the spread of the six-month CD rate over the one-month rate were far greater than could have been produced by the modifications to reserve requirements. Simple calculations show that, all other things being equal, the change should have been an increase of 25-30 basis points in the spread of the six-month rate over the one-month rate. However, the spread increased by about 125 basis points from late 1974 to the end of 1975 and then was in large part reversed by the end of 1976 (Chart 3). This roughly followed the pattern of changes in the structure of interest rates in other markets. The actual behavior of the spreads thus suggests that market forces have a determining influence on the structure of interest rates in the CD market, while the influence of the differential reserve requirements is difficult to isolate.

A multitier market emerges

Though the CD market underwent a variety of shocks during the 1973-74 boom, it performed quite well. Unlike earlier booms, when Regulation Q ceilings precipitated a runoff of CDs and a severe thinning of the secondary market, in 1973-74 banks were generally able to market their CDs successfully—though they had to pay quite costly interest rates—and no discernible transactions decline occurred in the secondary market. The principal change was the advent of a "multitier" market, in which the rates paid by banks on CDs were tailored according to investors' perception of the riskiness of the issuing banks.

The collapse of the United States National Bank of San Diego in October 1973, followed by Herstatt in Germany and the Franklin National Bank in New York in 1974, had significant ramifications. For the first time since the 1930's, the specter of possible failure of even major financial institutions arose, making investors more sensitive to relative risk in evaluating CDs issued by different banks. Accordingly, investors did demand noticeably higher rates on the CDs of banks viewed as less stable. Since the early years of the CD market, distinctions had typically existed between rates paid by banks then classified as prime and nonprime, but the multitier market introduced a rather more refined differentiation. For the most part, in the new tier struc-

ture, the larger banks pay lower rates.

Bank size affected rates paid on CDs in two ways. Liquidity considerations favored the CDs of the large money market banks, since the secondary market for them is the most developed. And banks that attempted to place issues of their CDs beyond the circle of regular customers who knew them well had to pay a premium. For both reasons, regional banks trying to tap new sources of funds with their CDs in 1974 generally had to pay higher rates than did large money market banks. In 1975, when public attention began to focus on the financial crisis in New York City, even some large New York City banks found their CDs being less favorably received by investors than before. That change in the structure of CD rate tiers has since moderated significantly.

The development of a tiered market in CDs may betoken the maturation of the CD as a money market instrument. The earlier, relatively crude differentiation between prime and nonprime CDs was a rather peculiar feature of the CD market. A refined structure of tiered borrowing rates has, for example, long been a standard feature of the bond and commercial paper markets. In response to the development of tiering in the CD market, some banks may very well have changed their approach to lending or investing funds obtained through CDs, thus giving more emphasis to asset management relative to liability management. It is probably safe to conclude that banks are now far more conscious of the impact of their incremental CD exposure on their total cost of purchased funds than they were prior to 1974.

Another indication of the maturation of the CD market is that, as banks on the whole faced sluggish loan demand from the beginning of 1975 until relatively recently, they allowed their CDs to run down. At the same time, they restructured their balance sheets by expanding their investment portfolios considerably. This is the first time since 1961 that banks in the aggregate voluntarily reduced their CDs to any significant extent; earlier contractions had occurred when market rates exceeded Regulation Q ceilings. At other times CDs were always growing, even when loan demand was sluggish. This altered behavior may mean that the rapid growth stage of CDs has ended. From now on CDs will probably expand and contract in step with the movements of loan demand.

Developments in borrowings of United States banks from their foreign branches were less dramatic during 1973-74 than in 1969. Such borrowings were subject to reserve requirements during 1973-74 and, since Eurodollar rates typically exceeded CD rates, Eurodollars were generally a more expensive source of funds for United States banks than were CDs. Equally

important, since the last remaining Regulation Q ceiling on CD rates was suspended in May 1973, CDs remained available—though they were extremely expensive—even during the tightest money market conditions in 1973-74.

Under these circumstances, banks relied very little on Eurodollars for domestic lending. In 1973, net borrowings from foreign branches remained in the neighborhood of \$1.5 billion-\$2 billion, far below the peak of over \$15 billion in 1969. An unexpected tightening of the money market in early 1974 led to a rapid increase to about \$3 billion, a level maintained through the summer. But a general weakening of demand for credit then became apparent, and starting in October net Eurodollar borrowings were rapidly repaid. Since February 1975, United States banks on balance have been net lenders to their foreign branches.

Lessons of the past and new developments

The lessons of the seventeen-year history of CDs primarily concern experience with the two means employed by the monetary authorities to influence the CD market. Regulation Q interest rate ceilings and reserve requirements.

While Regulation Q interest rate ceilings did restrict bank lending to business somewhat during the 1969-70 period, overall credit extended to business was affected much less. The rigidly maintained CD rate ceilings succeeded in preventing deposits from flowing from thrift institutions to commercial banks, but as a result both suffered severe deposit losses which greatly increased uncertainty in domestic financial markets. The further evolution of the financial system since that time and the increased ability of borrowers to secure funds from outside the banking system make it even more doubtful that Regulation Q can be used constructively as a means of monetary control in the future.

As to the various forms of reserve requirements applied to CDs, there is little evidence that they have had any appreciable effect on the market. This holds true for the marginal reserve requirements as well as for the current reserve requirements that are differentiated according to original maturity.

Further alterations of reserve requirements do not appear to be a promising means of increasing the average maturity of CDs. The demand for long-term CDs is mainly affected by three factors: the short period of time for which many investors have funds available, the thinness of the secondary market for long-term CDs, and the spread of the long-term CD rate over the short-term CD rate. Current reserve requirements influence the latter factor by penalizing short-term CDs. Given the tendency of the other factors to favor the purchase of short-term CDs, it seems

likely that reserve requirements would have to incorporate a considerably greater differential to stimulate the issuance of long-term CDs. The legal limit on the range of reserve requirements that may be applied to time deposits, 3-10 percent, does not appear to allow much scope for creating such a differential.⁵

Of course, given the increased use of term loans in bank lending to business, there is a presumption that banks should lengthen the maturities of their deposits so as to maintain something of a balance between the maturities of their assets and their liabilities. In fact, the average maturity of CDs has recently tended to vary directly with the cyclical increase in the proportion of term loans in the portfolios of large banks. But, judging by the timing of maturity changes, very little of this variation appears to be attributable to the lowering of reserve requirements for long-term CDs in September and December 1974. The balancing of asset and liability maturities thus appears to take place over the business cycle independently of changes in reserve requirements.

The most interesting developments in the CD market in the last few years have been the innovations introduced by banks to extend the maturities of CDs. During early 1975 the variable-rate CD was introduced. It has a minimum maturity of 360 days, and its interest rate, pegged at a specified spread over the issuing bank's current rate on 90-day CDs, is adjusted every 90 days. With such an instrument an investor can increase his total interest return over that obtainable by successively renewing short-term CDs without being committed to a fixed rate. The attraction to the issuing bank is that, on average, the total interest paid on a variable-rate CD will be less than that on a conventional (fixed-rate) CD of the same maturity. The reason is that the investor and the bank in effect split the risk premium included in the spread of the long-term conventional CD rate over the short-term CD rate. It is impossible to determine how many variable-rate CDs have been sold. The amount cannot be very large, since demand for long-term CDs is restricted by the scarcity of long-term investable funds and the relative illiquidity of long-term CDs.

Another recent innovation has the potential of altering somewhat the character of the market as well as lengthening maturities. It is the rollover CD introduced by Morgan Guaranty Trust in late 1976. The rollover CD was designed to overcome the limitation on a bank's ability to issue long-term CDs, due to six months being about the maximum maturity traded regu-

⁵ Reserve requirements for specific kinds of time deposits have recently been set below 3 percent, but a bank's reserve requirement for all of its time deposits must nevertheless be at least 3 percent.

larly in the secondary market. Investors are naturally reluctant to purchase long-term CDs if they in large part lack the liquidity provided for short-term CDs by the secondary market. The rollover CD attempts to deal with the problem by packaging a series of six-month CDs into a commitment to roll them over for a longer period of time, e.g., three years. Any one of the six-month CDs may be sold in the secondary market if the investor needs liquidity but, if he does so, he is nevertheless committed to roll over the CD by re-depositing equivalent funds at each maturity date.

The rollover CD allows long-term CDs to be structured so as to be able to take advantage of the existing secondary market. Still, it is not so liquid as a conventional six-month CD, since the investor cannot at present sell his rollover commitment in the secondary market and since the rate of interest is fixed for the entire term of the commitment. Even so, the innovation could enhance considerably the liquidity of long-term CDs. A disadvantage to the issuing bank of the rollover CD, compared with a conventional long-term, single-maturity CD, is that the bank takes the risk, however small, that an investor may default on his future commitment to roll over the six-month CD. The additional risk may well limit the attractiveness of rollover CDs to banks until experience indicates that the risk is negligible or that it can be reduced to reasonable levels through careful management. The future of the rollover CD is still uncertain, and only a moderate amount has been sold by Morgan Guaranty.

The Federal Reserve has continued to encourage banks to lengthen the average maturity of their CDs by lowering reserve requirements for time deposits (including CDs) with long original terms to maturity. For example, in October 1975 the reserve requirement applying to CDs with original terms to maturity of four years or longer was reduced to 1 percent from 3 percent.⁶ Since only a minute fraction of CDs outstanding at present have this long an original maturity, the effect of the change on the average maturity of CDs was probably nil. In January 1976 the reserve requirement applying to time deposits with an original maturity of at least 180 days up to four years was lowered to 2.5 percent from 3 percent. It seems unlikely that this small change had any appreciable effect on the average maturity of CDs.

It appears that the structure of reserve requirements on time deposits could well be simplified by

eliminating different requirements for different maturities. As noted, it seems unlikely that these reserve requirements have had any significant effect on the average maturity of CDs, and they complicate considerably the calculation of banks' required reserves. There is also reason to question whether influencing the maturity structure of CDs is a desirable policy objective. If it is, consideration should be given to ways to encourage innovations such as the rollover CD; liquidity is likely to be more important to potential investors than the small extra return that might be created by low reserve requirements on long-term CDs.

Another possible policy initiative would be to eliminate the 30-day minimum maturity of CDs. It is difficult to point to any important purpose served by this requirement, and its removal would probably contribute modestly to the smooth functioning of the market. Although removal would require a change in the legislation governing time deposits, such action is not inconceivable in light of recent trends toward payment of interest on demand deposits (NOW accounts, telephone transfers, etc.).

The availability of very short-term CDs would make CDs more attractive in investors' portfolios relative to finance company commercial paper, which often has only a few days' maturity. Most investors would probably find very short-term CDs attractive at only a modest spread over the RP rate. Very short-term CDs would also give banks a somewhat more flexible instrument for short-term adjustment of reserve positions than RPs, which must be backed by Treasury securities if they are to be exempt from demand deposit reserve requirements. Elimination of the 30-day minimum maturity would thus remove the artificial stimulus to secondary market trading in CDs of less than 30 days remaining maturity, much as was done for 30- to 89-day maturities by the November 1964 increase in the applicable Regulation Q ceiling from its earlier uncompetitive level. Finally, the availability of very short-term CDs would considerably simplify the cash management policies of municipalities, whose legal investment alternatives tend to be few.

Prospects for CDs

An assessment of prospects must recognize that the CD market probably has reached maturity. Rates have become tiered to reflect investor perception of the relative riskiness of issuing banks—a standard feature of other financial markets. Perhaps more revealing of market maturity is the banks' voluntary reduction of outstanding CDs beginning in 1975, the first sustained voluntary retrenchment ever. There is thus little likelihood that bank reliance on CDs will increase at anything like the steady rate observed during much of the

⁶ Morgan Guaranty initially hoped that rollover CDs of four years and longer maturity would be subject to the 1 percent reserve requirement applying to conventional CDs of such a maturity. But a recent Federal Reserve ruling held that, for calculation of required reserves, a rollover CD is equivalent to a six-month CD and thus is subject to a higher reserve requirement.

1960's, when Regulation Q ceilings were not binding. The outlook, rather, is for CDs to behave much as they did in 1973-76; in that period, issues expanded in line with increased loan demand and contracted as loan demand declined.

Without a return to Regulation Q ceilings on CD rates or some other quantitative constraint on banks' liability management, United States banks' reliance on borrowings from their foreign branches as a source of funds will probably reflect primarily the relative cost of funds in the CD market and the Eurodollar market.

Unless Eurodollar rates should at times get to be abnormally low relative to United States CD rates, such borrowings from now on should chiefly provide a source of funds with maturities of less than 30 days. Substitution between domestic CDs and Eurodollar time deposits at foreign branches will most likely be of appreciably smaller importance than it was in the past. For this reason, borrowings from foreign branches will probably grow much less than CDs whenever banks seek to expand their discretionary liabilities in response to growing loan demand.

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