

# NEGOTIABLE CERTIFICATES OF DEPOSIT

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Negotiable certificates of deposit (negotiable CDs) are the most important source of purchased funds to U. S. banks that are practitioners of liabilities management. Moreover, they have become one of the major types of liquid assets in the portfolios of many investors. Recent financial market developments, including increased competition among financial institutions, high and sometimes volatile patterns of interest rates, and regulatory changes have all led to significant changes in the money markets generally, and in the market for negotiable CDs in particular. This article describes the market for negotiable CDs, placing particular emphasis on developments that have occurred over the past decade or so.

**Types of Issuers** It is possible to distinguish between four general classes of negotiable CDs based on the type of issuer, because the characteristics of these four types of CDs, including rates paid, risk, and depth of market, can vary considerably. The most important, and the oldest of the four groups, consists of negotiable CDs, called domestic CDs, issued by U. S. banks domestically. Dollar denominated negotiable CDs issued by banks abroad are called Eurodollar CDs or Euro CDs,<sup>1</sup> while negotiable CDs issued by the U. S. branches of foreign banks are known as Yankee CDs. Finally, some nonbank depository institutions, particularly savings and loan associations, have begun to issue negotiable CDs. These are referred to as thrift CDs.

**Domestic CDs** Negotiable CDs issued by U. S. banks domestically are large denomination (greater than \$100,000) time deposit liabilities evidenced by a written instrument or certificate. The certificate specifies the amount of the deposit, the maturity date, the rate of interest, and the terms under which interest is calculated. While banks are free to offer market determined interest rates on time deposits in amounts above \$100,000, negotiable CDs included, the mini-

imum denomination acceptable for secondary market trading in domestic CDs is \$1 million. The term to maturity on newly issued domestic CDs is the outcome of negotiation between a bank and its customers, the individual instrument usually tailored to fit the liquidity requirements of the purchaser. Regulations limit the minimum maturity on deposits of U. S. banks to 30 days.<sup>2</sup> Newly issued domestic CDs typically have maturities that run from 30 days to 12 months. The average maturity of outstanding negotiable CDs is about three months.

Interest rates on newly issued negotiable CDs, called primary market rates, are determined by market forces and sometimes are directly negotiated between the issuer and the depositor. Domestic CD rates are quoted on an interest-bearing basis; rates on most other money market instruments, such as Treasury bills, bankers acceptances, and commercial paper are calculated on a discount basis. Interest is computed for the actual number of days to maturity on a 360-day year basis and can be either fixed for the term of the instrument or variable. Interest on fixed-rate negotiable CDs with original terms to maturity of up to one year is normally paid at maturity; on longer-dated instruments, interest is normally paid semiannually. If variable, the rate usually changes every month or three months and is tied to the secondary market rate on domestic CDs having maturities equal to the variable term of the contract.

Domestic CDs may be issued in either registered or bearer form. The great majority of negotiable CDs, however, are bearer instruments. In fact, most banks automatically classify bearer CDs as negotiable instruments and classify registered CDs along with large time deposits open account as nonnegotiable instruments.

Domestic CDs are paid for in immediately available funds on the day of purchase. They are redeemed for immediately available funds on the maturity date. Many investors in domestic CDs prefer to purchase and settle in New York. For this reason, regional banks that are active in the CD market issue

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<sup>1</sup> Some dollar denominated CDs are issued in foreign locations other than Europe. For example, banks in Hong Kong have issued Asian CDs, while the branches of at least two U. S. banks have issued Nassau CDs. Markets for these instruments are just developing, however.

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<sup>2</sup> The Federal Reserve Board has recently proposed, however, that the minimum maturity of time deposits be reduced to 14 days.

and redeem their CDs sold to national customers through a New York correspondent bank acting as a clearing agent.

*Early History*<sup>3</sup> As corporations became more adept at cash management during the 1950's, they were able to economize on their holdings of demand deposits. Since few banks offered corporations interest-bearing deposits as alternatives to checking balances, businesses turned to other investment sources, particularly commercial paper, Treasury bills, and repurchase agreements with securities dealers. Consequently, there was a sharp decline in the importance of corporate deposits on the banking system's balance sheet. Large money center banks especially felt this loss of funds since they relied on corporate demand deposits to a greater extent than other, smaller banks. This situation prompted First National City Bank of New York to introduce negotiable CDs, which were offered first to the bank's foreign customers in August 1960. Investor response to this move was only modest, however, due in part to the lack of a secondary market for the certificates. In February 1961 First National City Bank began to offer negotiable CDs not only to foreign investors, but to domestic investors as well. A simultaneous development crucial to the success of the new instrument was the announcement by the Discount Corporation of New York, a large Government securities dealer, that it would make a secondary market for the negotiable CDs of money center banks.

The new negotiable CD was specifically designed to attract corporate deposits, and to serve as a source of funds flexible enough to accommodate changes in short-term loan demand. Other major New York banks quickly followed the lead of First National City Bank in offering negotiable CDs, and most of the leading U. S. Government securities dealers quickly became active in the secondary market. Within two months, negotiable CDs outstanding at New York City banks reached \$400 million, and by September 1961 the figure rose to almost \$1,100 million.

It should be noted that commercial banks, primarily the large regional banks located outside New York, had years of experience issuing interest-bearing certificates of deposit and large time deposits open account prior to 1961. Time deposits open account had been offered to the foreign depositors of banks since the 1930's. Also, banks would sometimes pay

interest on "link certificates" arranged by their loan customers to fulfill compensating balance requirements. Finally, a number of regional banks outside New York and Chicago routinely issued negotiable CDs at the request of their corporate customers. Although legally negotiable, these CDs issued by large regional banks lacked an organized secondary market, a factor that limited their use as true money market instruments. Large regional banks that had been active issuers of negotiable CDs promptly established themselves as competitors with the New York money center banks in 1961.

*The Importance of Regulation* Unlike most other participants in the domestic money market, commercial banks are heavily regulated. Government regulation has had an important influence on the development of the market for negotiable CDs since its inception. Two Federal Reserve regulations in particular have had an influence on the negotiable CD market, namely Regulation Q, which governs interest paid on deposits by member banks, and Regulation D, which prescribes reserve requirements that must be held against deposits.

Until May 1973, Regulation Q specified an interest ceiling that could not be exceeded on newly issued negotiable CDs of at least some maturities. At times, these ceilings were binding, i.e., they limited banks to paying rates below open market rates. In the early period of the development of the market for negotiable CDs, for example, there was a 1 percent ceiling rate on time deposits of less than three months' maturity. Since market interest rates on competing instruments were greater than 1 percent, this ceiling effectively prohibited banks from issuing short-dated CDs. Then in late 1961, the rate on 3-month Treasury bills edged upward and exceeded the 2½ percent Regulation Q ceiling rate in effect for 3- to 6-month CDs. Within the first year in which they were offered, therefore, banks were forced into a noncompetitive position vis-à-vis the money market alternatives to negotiable CDs in the maturity range out to six months.

In July 1963 the Regulation Q ceiling for CDs maturing in three months or longer was raised to a competitive 4 percent. The artificially low rate ceiling on CDs of less than three months' maturity was raised in November 1964, so that banks were finally able to compete with other money market instruments. In subsequent periods, however, Regulation Q ceilings again became binding, with important consequences for the negotiable CD market. These episodes will be examined later when growth in domestic CDs is discussed.

<sup>3</sup> This discussion of the early history of domestic CDs relies heavily on the work of Brewer [2] and Fieldhouse [4].

Both Regulations D and Q require that time deposits have a minimum maturity of thirty days. This effectively restricts the minimum maturity of newly issued negotiable CDs to one month. Moreover, Regulation Q prohibits commercial banks from purchasing their own outstanding negotiable CDs, an action that would be interpreted under the regulation as payment of a deposit before maturity. Some investors have horizons much shorter than 30 days and might prefer to avoid having to routinely enter the secondary market to raise cash by selling negotiable CDs. Consequently, banks have had an incentive to develop alternative instruments to negotiable CDs to meet these investors' demands. The 30-day minimum maturity requirement on negotiable CDs is likely an important factor explaining the rapid growth in bank repurchase agreements, which are considered nondeposit liabilities and are therefore not subject to the 30-day minimum maturity requirement on interest-bearing deposits.

Member banks of the Federal Reserve System, a group that accounts for the largest share of negotiable CDs outstanding, have always been required to hold noninterest-bearing reserves against deposits as prescribed by Regulation D. Beginning September 1, 1980, all depository institutions having either transactions accounts or nonpersonal time deposits (which include virtually all negotiable CDs) will be required to hold reserves as specified in Regulation D. Reserve requirements increase the cost of funds to depository institutions since a portion of total assets must be set aside in noninterest-earning reserve accounts. Reserve requirements against negotiable CDs have varied over the years and have at times been graduated by both the maturity of the deposit and the amount of total balances held. The Federal Reserve varies reserve requirements primarily as an aid in achieving the objectives of monetary and credit policy. In the case of CDs, however, Regulation D has also been used to achieve a bank regulatory goal, namely the lengthening of the maturity structure of the commercial banking system's liabilities. Thus, the size of reserve requirements on CDs has at times been inversely related to maturity.

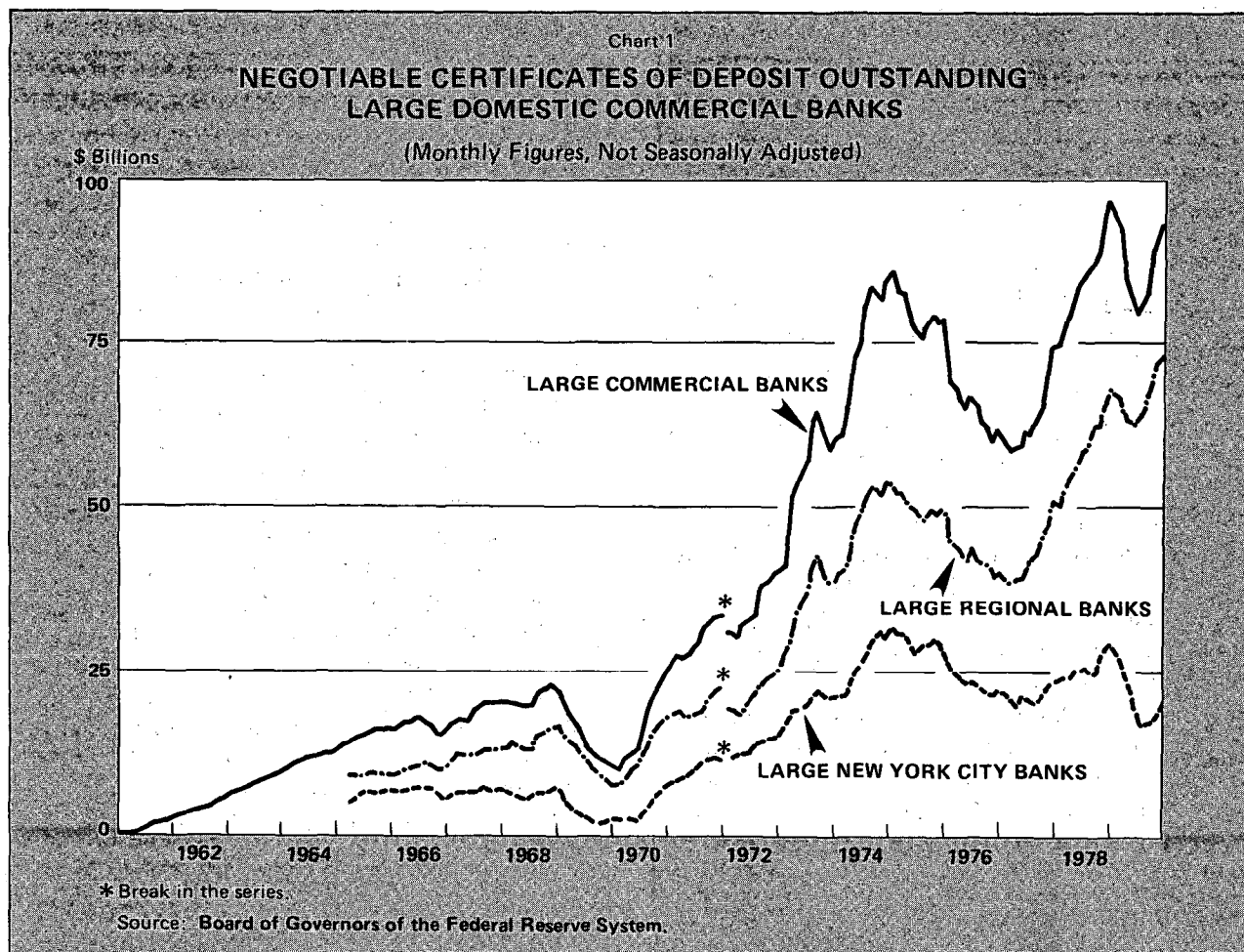
*Growth in Domestic CDs* There is, unfortunately, no precise measure of the total amount of domestic negotiable CDs outstanding. This is primarily because not all reporting banks classify their large time deposits consistently. The best measure of the volume of domestic CDs outstanding is the series comprising the CDs of all large banks that report to the Federal Reserve on a weekly basis (the large weekly reporting banks). Negotiable CDs outstand-

ing of all large weekly reporting banks are shown on Chart 1. Negotiable CDs of the large New York City banks and large regional banks are shown separately on the same chart.

It is clear from Chart 1 that domestic CDs have grown rapidly but unevenly, especially after 1968. The chart also shows that there is a close but imperfect relationship between changes in the volume of outstanding negotiable CDs for large regional banks and for the large New York banks. The rate of growth in negotiable CDs issued by New York banks generally lags the rate of growth experienced by the regional banks during periods when outstandings are increasing rapidly. During the 1975-77 runoff in negotiable CDs, the percentage decline was less for the New York banks than for the regional banks; the shallower trough for the New York banks suggests that these institutions are more reliant on such deposits as a primary source of funds. Comparing the trends for the two series suggests that large regional banks have been expanding their negotiable CD positions faster than the New York money center institutions, a situation explained by the spread of liabilities management practices outside the money centers and by the generally faster rate of increase in business lending at regional banks during the last decade. The share of total negotiable CDs attributable to the New York banks has trended downward since 1975, falling from nearly 60 percent to less than one-third by late 1979.

Within the first decade of its existence, the market for negotiable CDs suffered two major setbacks from an otherwise rapid growth trend. These episodes, which occurred in 1966 and 1969-70, both were a result of binding Regulation Q ceilings. The Regulation Q ceiling on negotiable CDs of all maturities was raised to 5½ percent in December 1965, following the pattern set by short-term open market rates. When market rates moved above this level in early 1966, however, the Federal Reserve took no further action to keep banks competitive in the money markets; this was a departure from previous practice and reflected the System's desire to slow growth in bank loans. Consequently, new issues of domestic CDs declined and outstandings dropped by about \$3 billion or 16 percent in the last quarter of 1966. Secondary market activity also slumped during this period. When short-term rates dropped sharply in early 1967, however, new issue and secondary market activity quickly recovered.

This interest rate decline was short-lived, however, and by late 1967 open market rates again began to push up against the Regulation Q ceiling. The ceiling



rate on 6-month to 1-year CDs was raised by one percentage point to 6½ percent in 1968, but by later in the year even longer term negotiable CDs lost competitiveness with other money market instruments. A wide gap opened between Regulation Q ceiling rates and open market rates in 1969, and this gap was not eliminated when the ceilings were raised on CDs of all maturities in January 1970. Outstanding negotiable CDs declined by over \$13 billion, or more than half of the total amount outstanding, between December 1968 and February 1970. The decline would have been even greater had it not been for a special exemption that allowed banks to sell CDs to foreign official institutions (i.e., governments and central banks) without regard to the regulatory ceiling. During the runoff, banks issued about \$2 billion in negotiable CDs to such investors. The secondary market in negotiable CDs almost completely disappeared during this period as dealers eliminated their positions and trading declined to almost zero. This, of course, greatly reduced the liquidity of the remaining negotiable CDs outstanding.

In June 1970, the collapse of the Penn Central Transportation Company gave rise to fears of a general liquidity crisis, as businesses found themselves unable to issue commercial paper. One very important action taken in response to this crisis was removal of the Regulation Q ceiling on short-term CDs, i.e., those with maturities from 30 to 89 days. Bank new issue rates on 1- to 3-month CDs quickly rose to competitive levels and the volume of outstanding CDs resumed rapid growth. The ceiling on longer term negotiable CDs was removed three years later in May 1973. Since the early 1970's, therefore, the market for domestic CDs has been conducted in an atmosphere free of constraints on interest rates.

Strong demand for bank credit, particularly for business loans, led to a boom in the issuance of domestic CDs between 1972 and 1974. During this period the Federal Reserve attempted to dampen credit expansion by raising reserve requirements on, and thus increasing the cost of, negotiable CDs. In June 1973, for example, a 3 percent supplemental reserve requirement was added to the existing 5 per-

cent requirement, and applied to increases in CDs above the amount outstanding on May 16, 1973 (a 20 percent supplemental requirement on Eurodollar borrowings had been in effect since January 1971). Simultaneous changes were made to lower reserve requirements on Eurodollars in an attempt to equalize the reserve costs for these two sources of funds. In September 1973 the supplemental reserve requirement on CDs was raised to 6 percent while reserve requirements on Eurodollars remained unchanged. The CD requirement was lowered back to 3 percent in December, however. This temporary inequality of reserve requirements between domestic CDs and Eurodollars explains the temporary decline in CD volume appearing in Chart 1 for the second half of 1973.

A recession-induced decline in business loan demand of unprecedented proportions occurred at large banks between 1975 and 1977. Domestic CDs followed this decline, falling by over \$28 billion in the approximately two year period from January 1975 to April 1977. Rapid growth resumed in mid-1977 and continued through 1978, after which a six-month decline totaling over \$16 billion occurred. This decline was prompted by a surge in the growth of small time deposits, spurred by large increases in Money Market Certificates, combined with softening in the demand for total bank credit. Accelerating credit demand by businesses, however, led to renewed growth in domestic CDs after mid-1979.

*Money Center versus Regional* About one-third of domestic CDs are issued by a handful of large money center banks in New York City, while the remainder are issued by about two hundred large regional banks located around the U. S. Although both the money center and regional institutions sell their newly issued instruments primarily to large national and multinational investors, the former group of banks is much more heavily involved in this market. Banks issuing negotiable CDs usually post a list of base rates, with spreads expressed in increments of five basis points, for the various maturities they are writing. These rates are adjusted upward or downward depending on the particular bank's need for funds and on market conditions. Regional banks located in cities that serve as headquarters for major corporations are often able to book a large portion of their CDs directly through the main office, without having to work through a New York correspondent. The regional issuers that are most active in the CD market, however, keep a supply of blank but signed certificates in New York so that investors not located in their area and wishing

to purchase their CDs can do so conveniently. Regional banks that issue large amounts of domestic CDs but that depend heavily on purchases by investors located outside their geographic area typically employ a sales force to actively market their certificates.

Although almost all banks on occasion sell their newly issued certificates to securities dealers, most prefer to sell directly to investors. The advantages of selling directly to retail include paying a lower rate on the new issues, since the dealer intermediary is eliminated, and having more information over where certificates are ending up. Banks would prefer that their CDs be held as investments and not sold before maturity, since secondary market sales could compete with attempts to market new offerings in the future. Although dealers sometimes hold CDs for investment purposes, most of their purchases are passed through to retail investors in the secondary or resale market. Regional banks that are attempting to build a name in the domestic CD market, or that are trying to reestablish a name after a period of inactivity, generally must operate through dealers. In these cases, the dealers accept marketing responsibility for the newly issued certificates. When particularly large offerings come to market most banks, even the money center institutions, rely on dealers to help distribute the issue. A new offering of several hundred million dollars, for example, may be difficult to place directly even for a bank with a large base of regular customers.

Over the years, investors have developed preferences for the CDs of certain issuers, or groups of issuers, that are reflected in the rate structure on CDs. The rate required on the CD of a top name bank may be 5 to 25 basis points lower than that required on the CD of a lesser known institution. Historically, the rate spread on domestic CDs of the top and lesser name issuers has fluctuated with the level of interest rates, the spread widening in high interest rate periods. Prior to 1974, investors distinguished roughly between two groups of issuing banks in the domestic CD market, prime and nonprime. The prime banks included the large and well-known major money-center institutions, while the nonprime category included the smaller, lesser known regional banks. In 1974, as concerns about the liquidity of the banking system were aroused by problems at Franklin National Bank and Herstatt Bank of West Germany, investor tiering of domestic CDs by issuer became more flexible and complicated. Size remained important, but investors' perceptions of financial strength began to be formed more spe-

cifically, so that the top tier of preferred banks dropped in number and tended to vary over time. Nonetheless, investors still place the greatest emphasis in assessing risk on bank size, so that New York City banks continue to dominate the top tier. The more conventional factors used to assess risk, for example, capital ratios, asset growth rates, and earnings variability, remain of secondary importance in determining which banks are classified in the top tier. An implication of this is that portfolio managers have the opportunity to improve yield, without taking a commensurate increase in risk, by investing in the domestic CDs of regional banks that meet the traditional tests of financial soundness but that do not fall within the top tier.<sup>4</sup>

**Eurodollar CDs** Like a domestic CD, a Eurodollar CD is a dollar denominated instrument evidencing a time deposit placed with a bank at an agreed upon rate of interest for a specific period of time. Unlike a domestic CD, however, a Euro CD is issued abroad, either by the foreign branch of a U. S. bank or by a foreign bank. The market for Euro CDs is centered in London and is therefore frequently called the London dollar CD market.

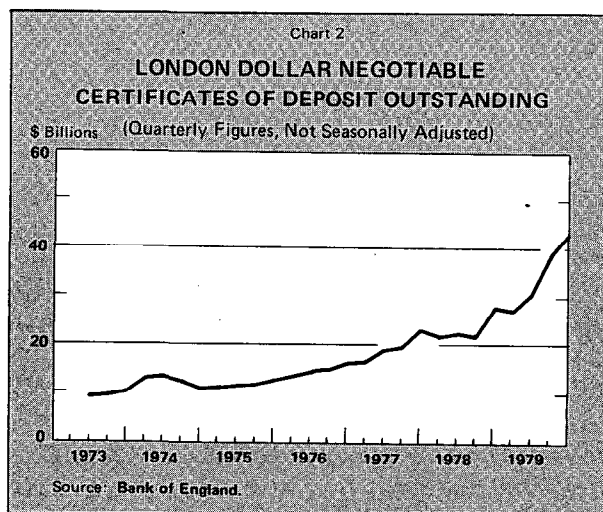
This market originated in 1966 with a Eurodollar CD issue by the London branch of Citibank. The incentive to U. S. banks to start issuing CDs abroad was provided by regulations restricting their ability to raise funds in the domestic money market, especially Regulation Q. Since it is free of interest rate regulation, the Eurodollar market provides banks the opportunity to raise funds for domestic lending even when their ability to issue domestic CDs is restricted. The Euro CD market has grown rapidly since 1966. As shown on Chart 2, Euro CD outstandings at London banks totaled over \$43 billion at year-end 1979. The foreign branches of U. S. banks dominate the London dollar CD market, accounting for about 60 percent of all CDs issued by banks located in London. Japanese banks rank second in importance, their share of the market having increased from 9 percent in 1976 to 17 percent in 1979.

Euro CD maturities run from 30 days out to 5 years, but shorter terms ranging from one month to one year are most common. By and large, the customer base is the same as that for domestic CDs, i.e., most Euro CDs are placed with the same large cor-

porations that are active purchasers of domestic CDs in the U. S. In fact, some of the largest CD dealers in the U. S. are represented in London, where they make an active market in Euro CDs. These dealers, and many large investors as well, view their investment activity as essentially one worldwide position and manage their Euro CD and domestic CD portfolios in an integrated fashion.

Inasmuch as there is a five-hour time zone difference between London and New York, perfect synchronization of delivery and payment on Euro CDs is very difficult. Therefore, settlement for Euro CDs is normally two working days forward, which is the value date, and payment is made in clearing house funds. Dollar settlement is made in New York, even though the certificates themselves are issued and held in safekeeping in London. The First National Bank of Chicago has set up a Euro CD clearing center in London to smooth payment and delivery on these instruments. The clearing center, which is open to banks, dealers, and investors, operates on the clearinghouse concept, where debits and credits are cancelled by computer and only net settlement is made.

**Yankee CDs** Yankee CDs are negotiable CDs issued and payable in dollars to bearer in the U. S. (more specifically, in New York) by the branch offices of major foreign banks. They are sometimes referred to as foreign-domestic CDs. The foreign issuers of Yankee CDs are well-known international banks headquartered primarily in Western Europe, England, and Japan. Investors in Yankee CDs look to the creditworthiness of the parent organization in assessing their risk, since the obligation of a branch of a foreign bank is in actuality an obligation of the



<sup>4</sup> This conclusion is reached by Crane [3]. It should be pointed out, however, that investors may be willing to accept somewhat lower yields on the CDs of money center banks if these instruments have greater marketability than CDs issued by regional banks.

parent bank. The Yankee CD market is primarily a shorter term market; most newly issued instruments have maturities of three months or less.

Foreign banks have operated branches in the U. S. for many years, most being located in New York City. These banks were initially established to provide credit services to their parent banks' multinational business customers. Their number increased greatly during the 1970's, and the U. S. branches became more aggressive competitors for the loan business of U. S. corporations. Their major sources of funds have included borrowings from foreign parent organizations, purchases in the Federal funds market, and more recently the issuance of large time deposits to U. S. investors. At year-end 1979 the time deposits of U. S. branches of foreign banks due to private investors and public bodies totaled about \$25 billion. It is estimated that about \$20 billion of this amount was in the form of negotiable CDs. Some individual foreign branches have Yankee CDs outstanding well in excess of \$1 billion.

The U. S. branches of foreign banks at first placed most of their Yankee CDs directly with their established loan customers, who through experience were familiar with the reputations of the issuers. Since their names were not well known outside this small group, the U. S. branches of foreign banks were forced to rely on dealers to market their CDs as reliance on this source of funds grew. The largest part of their offerings have until recently been placed through dealers, several of which are now active market makers for Yankee CDs. Foreign bank names have become much better known and acceptable in the U. S., however, so that today it is much more commonplace for foreign branches to sell their negotiable CDs directly at retail. Secondary market trading in Yankee CDs has increased greatly in just the last several years so that the liquidity of such instruments now rivals that of better rated domestic CDs.

An important institutional feature of foreign banking operations in the U. S. is that, until recently, foreign branches have been state-licensed and not subject to Federal Reserve regulations. Thus, until recently Yankee CDs have not been subject to reserve requirements under Regulation D. This exemption from regulation probably helped establish the market for Yankee CDs, because the U. S. branches of foreign banks could pay higher rates on their certificates than could domestic banks but still not incur higher costs than their U. S. banking competitors as a result of savings on reserve requirements. *The International Banking Act of 1978* provides that large foreign banks doing business in

the U. S. should be subject to the same Federal Reserve regulations as domestic banks. The U. S. branches of large foreign banks become subject to Regulations D and Q as of September 4, 1980.

Yankee CDs, along with certain other managed liabilities of the U. S. branches of foreign banks, became subject to reserve requirements for the first time in October 1979. This change subjected certain managed liabilities above a base amount to an 8 percent reserve requirement, which was subsequently increased to 10 percent in March 1980, and then reduced to 5 percent in May 1980. The imposition of marginal reserve requirements on the managed liabilities of the U. S. branches of foreign banks may have had the effect of slowing the growth of Yankee CDs. This is because the market is still young, with new issuing banks entering regularly. These new banks entering the Yankee CD market typically market their negotiable CDs aggressively in an attempt to build volume and goodwill quickly. Starting from a low or zero reserve exempt base, however, the newly entering banks bear a reserve cost on all of their negotiable CDs, not just a fractional amount like established issuers. This higher cost has likely discouraged new entries into the Yankee CD market.

**Thrift Institution CDs** Thrift institutions, particularly savings and loan associations (SLAs), have become active competitors for large time deposits not subject to Regulation Q ceilings. Most of their large domestic time deposits are practically if not legally nonnegotiable, i.e., there is very little secondary market activity in thrift CDs. The large denomination CDs of FSLIC insured SLAs totaled nearly \$30 billion at year-end 1979.

Recent changes in Federal Home Loan Bank Board regulations grant Federally insured savings and loans considerably broadened authority to market Euro CDs. At least one large California SLA has placed a \$10 million package of unsecured CDs in the Eurodollar market. The success of such placements depends on the size and financial strength of the issuing thrift. Other thrifts have taken steps to place Euro CDs that are backed by mortgage loan collateral. Part of this process involves obtaining a credit rating from Standard & Poor's Corporation, which is now making such ratings. So far, these mortgage-backed offerings have been for longer terms, i.e., five years.

**Nonnegotiable CDs** Nonnegotiable CDs are an important part of total large time deposits issued by commercial banks. In fact, nonnegotiable CDs of U. S. banks have grown faster than domestic negotiable CDs in recent years and now are more impor-

tant than domestic negotiable CDs as a source of funds. It is important to understand what nonnegotiable CDs are, because many investors active in the market for negotiable CDs are willing to substitute between the two types of instruments.

Nonnegotiable CDs are not considered money market instruments because they lack the liquidity of negotiable certificates. Some nonnegotiable instruments, such as time deposits open account, are legally nonnegotiable. Others, such as registered CDs, are technically negotiable but are in practice nonnegotiable because of the administrative difficulty involved in changing ownership. Some banks have ceased issuing certificates and have instead instituted book-entry accounting procedures for registered CDs. This practice seems to confirm that liquidity is a secondary consideration to investors purchasing such instruments.

Among the largest investors in nonnegotiable CDs are public bodies, e.g., state and municipal governments. Often, state law requires that public bodies invest their funds locally, that all investments be registered in the name of the governmental unit, and that investments be secured. A large share of banks' total large time deposits are secured CDs issued in registered form to state and local governments. As might be expected, regional banks are more heavily dependent upon such funds than are the money center banks.

It is not just public bodies that invest in nonnegotiable certificates, however. Some corporate investors are willing to sacrifice the liquidity provided by an instrument that can be traded in the secondary market for a small increase in yield. Also, some banks have gentleman's agreements with customers who take their registered or book-entry CDs which provide that, in the event cash is needed on an emergency basis, the bank will exchange the registered CD for a bearer CD. In addition to nonfinancial corporations, some money market funds have invested in nonnegotiable CDs.

**Risk and Return** Negotiable CDs subject investors to two major types of risk, credit risk and marketability risk. Credit risk is the risk of default on the part of the bank issuing the CD. This is relevant even for U. S. banks which are insured by the FDIC, since domestic CDs are issued in large denominations and deposit insurance only covers up to \$100,000 of a depositor's funds. Marketability risk reflects the fact that a ready buyer for a CD might not be available when the owner is ready to sell. Although the secondary market in CDs is well developed, it does not possess the depth of the U. S. Government se-

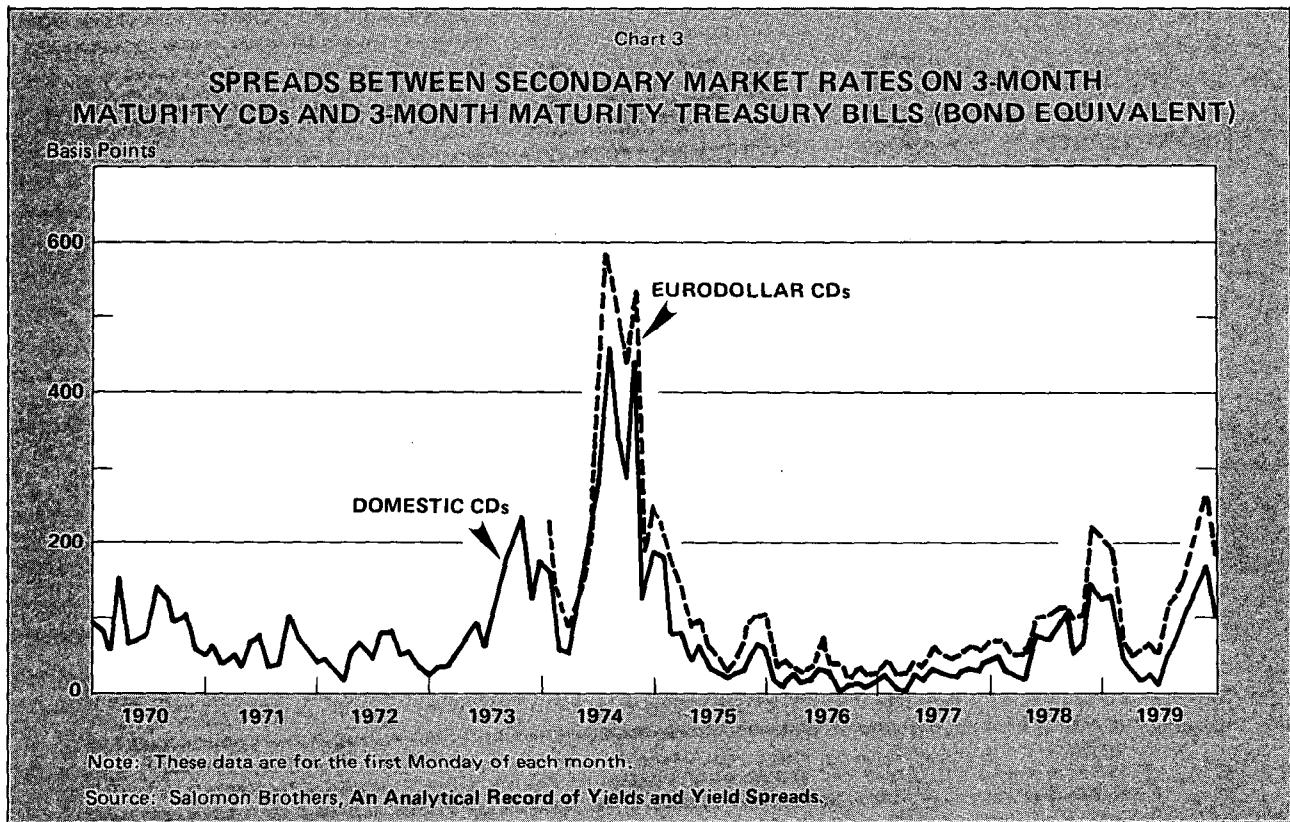
curities market. These risks are reflected in the yields on negotiable CDs. It should be noted, however, that yields on money market instruments may vary for reasons other than differences in risk, e.g., due to changes in their relative supplies.

Chart 3 plots the spread between the secondary market yields on two types of 3-month CDs, domestic and Euro, and the secondary market rate on 3-month Treasury bills. The spread is positive and tends to widen in periods of high interest rates. For example, the domestic CD-Treasury bill spread was generally below 100 basis points for the periods 1971-72 and 1976-78, but widened greatly in 1973-74. The spread peaked at 458 basis points in August 1974. The chart shows that rates on Euro CDs are almost always above those on domestic CDs, typically by about 20-30 basis points, and that the Euro-domestic CD rate spread tends to widen in periods of high interest rates. The higher rate on Euro CDs in part reflects the credit risk premium required by investors in these instruments; this premium tends to increase in periods of stress in the financial markets. There is no reserve requirement against such deposits, and therefore the total cost to the issuing institution is not necessarily greater than the total cost to a domestic bank issuing a CD. In fact, the reserve adjusted costs of domestic and Euro CDs tend to be very close in times of financial market normalcy [6].

There is no published rate series for Yankee CDs. Dealers indicate, however, that Yankee CD rates move very closely, within plus or minus 10 basis points, of Euro CD rates. These two types of CDs are good substitutes and their rates should be expected to move close together except due to technical factors, such as relative supply. On average, though, Yankee CD rates average somewhat lower than Euro CD rates. There are two reasons for this. First, Yankee CDs, unlike Euro CDs are subject to U. S. laws and regulations and therefore do not bear sovereign or foreign country risk. Second, it is easier and less costly for dealers to engage in Yankee CD transactions than in Euro CD transactions. Yankee CDs are purchased in the U. S. and positions are financed with RPs or Federal funds, while Euro CDs are purchased abroad and entail international money transfers.

*Quality Ratings* One major rating firm, Moody's Investors Service, Inc., has begun to rate the CDs of banks. So far, only a small number of regional U. S. banks have received ratings and a handful of applications are in process. Foreign banks issuing Yankee CDs, however, have more actively sought formal ratings than have U. S. banks. This is understand-





able, since they are still attempting to establish their names with U. S. investors. The rating process used by Moody's for CDs is virtually identical to that used for rating commercial paper. It is not the particular issue that is rated but rather the issuing organization itself. The CD ratings, like those for commercial paper, are designated P-1, P-2, and P-3. Because of the closeness of the rating processes, one should never expect to see a divergence between a bank's CD rating and its commercial paper rating. It is possible, however, for a bank's CD rating to differ somewhat from the commercial paper rating of its parent holding company.

Standard & Poor's Corporation has begun rating the CDs of SLAs. Like Moody's, S&P has experience rating commercial paper issued by SLAs, but has so far applied bond rating methods to thrift CDs because of their longer terms. If asked to rate short-term thrift CDs, S&P will likely apply a variant of its commercial paper rating system.

**Rates and Maturities** During the first decade of their existence, negotiable CDs were written exclusively under fixed interest coupon contracts. Certificates were written specifying a particular rate of interest that would be paid for a given term to maturity. This pricing arrangement suited investors

quite well, at least during the relatively stable interest rate environment of the 1960's. Those seeking a compromise between return and liquidity could invest in short-dated negotiable CDs, while those seeking extra yield could extend the maturity of their investments out to six months or perhaps even longer. So long as the upward sloping yield curve remained the norm, banks and investors had a reasonable basis for trading off higher yield against longer term.

In the latter part of the 1960's interest rate conditions changed dramatically. Interest rate fluctuations increased, and the general level of rates began to trend upward. Under such circumstances, investors can be expected to shift their preferences to shorter term instruments, and this happened in the CD market; by 1974 the average maturity of outstanding domestic CDs fell dramatically to about two months from the three-and-one-half-month length more common in the 1960's. In September 1974 the Federal Reserve provided banks an incentive to lengthen their negotiable CD maturities by restructuring reserve requirements in such a way as to raise the reserve cost of shorter term certificates. This incentive was reinforced in December 1974 when reserve requirements were set at 6 percent for negotiable CDs with an original maturity of less than six months and at 3 percent for negotiable CDs with an original ma-

turity of six months or more. In October 1975 the reserve requirement was further lowered to 1 percent for CDs with original maturities of four years or more, and finally in January 1976 the requirement was lowered to 2½ percent on certificates with original maturities of from six months to four years. In keeping with this pattern, the marginal reserve program introduced in October 1979 exempts CDs with original maturities of one year and greater. In addition to these changes in reserve requirements, domestic banks had an incentive to increase CD maturities as a result of the deteriorating liquidity positions of their balance sheets. By the mid-1970's, therefore, the time was ripe for a fundamental change in the terms under which negotiable CDs had traditionally been offered.

*Fixed-Rate Rollover CDs* Early in 1977 a large New York bank, Morgan Guaranty Trust Company, introduced to its customers on a selective basis fixed-rate rollover CDs, or "roly poly" CDs, in minimum amounts of \$5 million. These instruments had full terms to maturity of from two to five years, but consisted of a series of 6-month maturity instruments. Investors would sign a contract to leave a deposit with the bank for, say, four years, but instead of receiving a CD maturing in four years would receive a 6-month CD. The contract obligated the investor to renew, or roll over, the 6-month instrument eight consecutive times at the rate negotiated at the inception of the contract. Although the bank hoped to qualify for the four year CD reserve requirement with these deposits, a ruling by the Federal Reserve made the rollover CDs reservable at the higher 6-month maturity reserve requirement.

These instruments bore rates somewhat above the rate on Treasury notes of equal maturity, but below the rate offered on a straight two to five year CD. The feeling was that an investor would earn the long-term rate but get enhanced liquidity since a single 6-month issue in the series could be sold in the secondary market. This fixed-rate type of instrument proved more attractive to the issuing banks than to the investing public during a period of rising interest rates. Consequently, a sizable market in fixed-rate rollover CDs never developed.

*Variable Rate CDs* Variable rate or variable coupon CDs (VRCDs or VCCDs) have the rollover feature described above but also entail periodic re-settings of the coupon rate and periodic payment of interest. Interest on each component or "leg" of a VRCD is calculated according to the same rules as on conventional CDs. The dated date is the original dated date for the first leg, and for subsequent legs

it is the date of the interest payment on the preceding leg. VRCDs were first offered in the Euro CD market, where floating rate instruments were an accepted method of doing business long before they were in the U. S. The VRCD was initially introduced in the domestic and Yankee CD markets by those large banks having Euro CD experience, but the new method of writing certificates was quickly adopted by the major regional banks as well. VRCDs were introduced domestically in 1975, grew in popularity in the latter 1970's, and have now become a major innovation in the market for negotiable CDs.

VRCDs range in full maturity from six months to four years, the most common full maturities being six months and one year. The rollover period for these instruments varies. For example, from 1975 to 1977, three- and six-month rollovers were common. The higher short-term interest rates of 1979 and 1980, however, have resulted in the three-month and one-month rollovers becoming standard. Investor preferences for full maturity and rollover frequency are directly related to expected interest rate patterns, periods of stable or declining rates leading to preferences for longer full maturities and longer rolls, and periods of rising rates and upward sloping yield curves leading to preferences for shorter maturities and shorter rolls. The four VRCD issues having the greatest popularity at present are (1) six-month (full maturity)/three-month (roll), (2) six-month/one-month, (3) one-year/three-month, and (4) one-year/one-month.

Coupon rates set on each new leg of VRCDs are based on the preceding day's secondary market CD rates reported daily by the Federal Reserve Bank of New York. These are averages of offered rates quoted by major dealers. Collection of interest payments, and of principal at final maturity, is made by presenting the VRCD to the issuing bank or the issuing bank's agent. When presented for collection of interest, the certificate is stamped with the amount of the previous period's interest and the new coupon rate. Payment of interest and principal is made in immediately available funds. VRCDs normally carry an interest premium over the rate one would expect to receive on a conventional CD. This premium, which compensates investors for the credit risk entailed by tying funds up for longer periods, increases with the maturity of the VRCD. The premium has usually been about 15 basis points for six-month full maturities, 20 basis points for one-year full maturities, and 25 basis points for eighteen-month full maturities. As in the case of conventional CDs, VRCDs issued by the top tier banks carry somewhat

lower rates than those issued by the lesser name institutions.

The typical size of a VRCD issue ranges from \$50-\$200 million for large banks and \$25-\$100 million for smaller banks, but issues as large as \$400 million are not uncommon. The largest portion of VRCD issues is underwritten by dealers, who usually charge the issuing bank a small commission for underwriting and distribution services. Dealers have been willing to take larger positions in VRCDs than in longer term conventional CDs since there is less market risk involved and because retail demand has proved quite strong. So far, retail demand has been so strong that dealers have placed a major portion of newly issued VRCDs on an order basis.

Investors treat VRCDs as a conventional CD once the coupon has been set for the last time and the certificate is on its last leg. Since VRCDs carry an interest premium over the rate paid on a conventional CD, a VRCD on its last leg offers the potential for trading profits.

Estimates by market participants place the total amount of VRCDs outstanding in early 1980 at \$12 billion, about double the amount outstanding only six months earlier. Most of these are domestic CDs. Thus, in the short time since they have become popular, VRCDs have grown to equal over 10 percent of the total volume of domestic CDs outstanding. To date, money market funds have been the most active investors in VRCDs.

**Dealers** There are currently about 25 dealers in CDs, all of which are active in the domestic CDs of top tier banks and some of which specialize in regional names or Yankee CDs. The center of the dealer market is New York City, but the larger dealers have branches in major U. S. cities and in London. Two main functions of the CD dealers are to distribute CDs at retail, either after first taking new issues into their own positions or by acting as brokers, and to support a secondary market in negotiable CDs. In accomplishing the latter, dealers must stand ready to make a market, i.e., buy and sell CDs. Bid and offering prices are constantly maintained and the typical spread is between 5 and 10 basis points, but narrower spreads on good names with short remaining terms to maturity are common.

The normal round-lot trade in negotiable CDs between dealers and retail customers is \$1 million, but increases to \$5 million for interdealer trades. There is, of course, a great deal of variety among the CDs being traded at any given time with respect to issuer, maturity, and other contractual terms. Consequently, dealers post bid and asked prices for certificates

issued by a particular tier bank, with maturity identified as early or late in a particular month. For example, the bid and ask price for a top trading name might be for "early December" or "late January."

Financing of dealer CD positions is largely done using RPs. Since CD collateral is more risky than U. S. Government security collateral, RPs against CDs are usually slightly more expensive than RPs against, say, Treasury bills. For the same reason, it is more difficult to get term RP financing for CDs. Normal practice in the RP market is to finance the face value of a money market instrument. Since CDs bear interest, dealers must finance any accrued interest on CDs held in position from some source other than RP, e.g., from capital.

Growth in dealer activity has paralleled growth in the market for negotiable CDs. As the market expanded in the 1960's daily average dealer transactions were in the \$50-\$60 million range, and the daily average dealer positions ranged from \$200-\$300 million. As mentioned, the secondary market nearly dried up in 1969, daily average dealer transactions falling to only \$9 million and daily average positions falling to only \$27 million during that year. Dealer activity burgeoned in the 1970's, when trading opportunities increased due to the more aggressive marketing of negotiable CDs by regional banks and with the development of the Yankee CD. By 1975, for example, daily average dealer positions increased about five-fold to \$1.4 billion and transactions increased sixteen times to \$800 million. By 1979, positions further expanded to \$2.7 billion and transactions to \$1.7 billion.

**Summary** The market for negotiable CDs issued domestically by U. S. banks grew rapidly but, due to the effects of interest rate regulation, unevenly during the 1960's. Regulation Q restrictions on rates that could be paid on domestic CDs led to the introduction of the Euro CD in 1966. After interest rate ceilings on domestic CDs were removed in the early 1970's the market grew dramatically. Regional banks became particularly active issuers during this period, and the U. S. branches of foreign banks began issuing Yankee CDs. Most recently, savings and loan associations have also begun issuing CDs. Investors can now choose among a number of issuers in selecting CDs, i.e., domestic, Euro, Yankee, and thrift.

Not only have the types of issuers multiplied, but the character of CD contracts has changed as well. The conventional fixed-rate CD, which is primarily a short-term instrument, has been modified to extend

the term and float the rate. The resulting instrument, the variable rate CD, has quickly gained popularity among investors. The terms under which VRCDs are offered, however, change constantly in response to investor preferences.

The rate of change in the market for negotiable CDs has been particularly rapid in recent years. This change is the outcome of competitive forces working to redesign a financial market to better suit the needs of its major participants.

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