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NEGOTIABLE CERTIFICATES OF DEPOSIT

Negotiable certificates of deposit (CDs) emerged as a major money market instrument during the 1960's. CDs are not really a new instrument, since many banks had issued certificates as early as 1900 to attract consumer and business savings deposits. Before 1960, however, certificates of deposit were rarely issued in negotiable form, and those that were negotiable generally could not be traded. Therefore, the emergence of a secondary market for CDs was an innovation that contributed importantly to the growth of CDs in the 1960's. This article examines major developments in both the primary and secondary market for CDs, as well as their relationship to monetary policy. The analysis is confined to the 1960-1968 period, with only a brief discussion of the decline in the outstanding volume of CDs thus far in 1969.

In essence, a negotiable time certificate of deposit is a receipt issued by a bank in exchange for the deposit of funds. The bank agrees to pay the amount deposited, plus interest, to the bearer of the receipt on the date specified on the certificate. Because the certificate is negotiable, it could be traded in the secondary market before maturity.

The introduction of negotiable CDs reflected an attempt by some banks to overcome the deterioration of their competitive position *vis à vis* nonbank financial institutions and the steady reduction in the proportion of total deposits accounted for by large banks. This problem was especially acute for banks located in major metropolitan areas, such as New York City and Chicago. The volume of demand deposits at New York banks, for example, remained virtually unchanged during the 1950's. Throughout the post-World War II period, corporate treasurers adapted their cash management by placing increasing amounts of cash assets into short-term, highly liquid investments. The slow but steady rise during the 1950's in short-term market rates of interest served as an incentive for corporate treasurers to keep demand deposits at a minimum and instead to invest temporary funds at higher rates of interest. Thus, the rise in short-term market rates contributed appreciably to the relative decline in corporate demand deposits held at "money market banks."

Nevertheless, these same money market banks were called upon to provide a larger share of total bank loans in the post-World War II period. This

situation reflects, in part, the increased size of the loans required by large business firms that were growing internally, as well as through mergers. Because the maximum size of a loan that a bank may make to a single customer is limited by law and is determined by the size of the bank's capital and surplus account, many businesses in need of large loans can be accommodated only at larger banks.

In addition to the absence of a secondary market for CDs, the failure of banks to issue CDs on a large scale before 1960 also reflected the common belief that funds attracted to time deposits would, in effect, reduce demand deposits, and thereby increase bank costs (in the form of interest payments) without increasing total deposits. Nevertheless, larger banks, caught in the dilemma of increasing demands for credit and little prospect for increased deposits, chose to issue CDs in the hope that they would be able to retain some of the corporate funds that otherwise might have been invested in money market instruments, such as Treasury bills or commercial paper.

In retrospect, it appears that the bankers' fears about funds being drained away from demand deposits were largely unfounded. Time deposits at large Chicago and New York City banks increased nearly fivefold during 1961-1968; at the same time, demand deposits remained virtually unchanged in dollar volume during this period.

Denominations and Offering Rates. There are no legal limitations *per se* on the size in which negotiable CDs can be issued. The denomination primarily depends on the needs of the original buyer and the size of the issuing bank. Large metropolitan banks dealing with large corporations can and do sell CDs in larger denominations, while smaller banks can place their CDs only in smaller denominations and usually concentrate on offering CDs to smaller firms or institutions. Although negotiable CDs have been issued for amounts ranging from $25 thousand to $10 million or more, in general, denominations in amounts greater than $1 million are unusual. The development of the secondary market for CDs has led to some standardization of sizes, and as a result, most CDs are issued in amounts of $100 thousand, $500 thousand, or $1 million.

In contrast to Treasury bills, commercial paper, and bankers' acceptances, all of which are sold on a *discount basis,* CDs are issued and traded on a *bond-yield equivalent.* In the discount method of measuring the return on an investment, the return is calculated for a *360-day* year. For coupon issues, such as Treasury bonds, the return is figured on a *365-day* year. Thus, when two different issues with the same maturity are to be compared, and the rate for one is expressed on a discount basis, while the rate on the other is expressed on a bond-yield equivalent basis, the former rate must be adjusted upward. For example, a three-month Treasury bill yielding 3.00 percent is the equivalent of a coupon issue yielding 3.06 percent; the same bill discounted at 6.00 percent has a bond-yield equivalent of 6.18 percent.

DEVELOPMENT OF THE SECONDARY MARKET

In February 1961, when a leading commercial bank in New York City announced it would issue negotiable CDs on a large scale, the dollar volume of outstanding CDs amounted to considerably less than $1 billion. Shortly after negotiable CDs began to be issued in substantial amounts, a U. S. Government securities dealer decided to trade in outstanding CDs. Thus, the secondary market for CDs was instituted. At yearend 1968, outstanding

CDs with denominations of $100,000 and over amounted to nearly $23 billion. The growth in the dollar volume of CDs during the 1960's clearly demonstrates the success individual banks had in attracting funds to supplement bank reserves. Moreover, CDs emerged from a relatively insignificant position—in terms of volume—in the money market to a position second only to that of Treasury bills (of which $75 billion were outstanding at yearend 1968).

Geographical Distribution. The geographical origin of negotiable CDs also changed during the 1960's. At the end of 1960, more than one-half of the volume of outstanding CDs had originated in banks located in the West or Southwest. In fact, the Eleventh Federal Reserve District (Dallas) accounted for nearly one-third of the original issues of outstanding CDs, while the Second Federal Reserve District (New York) accounted for slightly less than 15 percent. After the introduction of negotiable CDs and the development of the secondary market, the distribution of CDs changed heavily in favor of the East Coast. By yearend 1961, the proportion of outstanding CDs issued by banks in the Second Federal Reserve District had increased to more than one-third of the total (see Chart 1). The Second District's share of CDs continued to rise, reaching a peak in 1965, when nearly one-half of all outstanding CDs had been issued by banks in that District. Until that time, the increase in the New York District's share of CDs offset a relative decline in issues in the Dallas and San Francisco Districts. After 1965, these trends reversed, with New York's relative share declining and that of the San Francisco District increasing. On the other hand, the share of negotiable CDs accounted for by banks in the Dallas District remained fairly constant after 1965. Thus, the distribution of CDs according to place of issue, on balance, changed only slightly between 1961 and 1968, with two exceptions. The share of CDs accounted for by the Dallas District declined to about half of its 1961 level, while the Chicago District's share of CDs increased from 11.8 percent in 1961 to 14.0 percent in 1968.

CERTIFICATES OF DEPOSIT AND BANK SIZE

Nearly two-thirds of the CDs outstanding at yearend 1968 were issued by banks with total deposits of $1 billion or more[1] (see Table I). In contrast, banks with total deposits of less than $200 million accounted for only 4.8 percent of the outstanding large CDs. As mentioned earlier, large banks have an advantage in selling large denomination CDs because these banks are located in leading financial centers and have on deposit working balances of many of the major corporations that buy large CDs. Nevertheless, banks with less than $1 billion in deposits have experienced a slight increase in their share of large CDs (see Table I).

On the demand side, business corporations account for the bulk of CD purchases in the primary (or when-issued) market. Based on a Federal Reserve System survey, businesses were the original buyers of 69 percent of the large CDs outstanding at yearend 1962. A more recent survey revealed that this figure had increased to 80.1 percent as of January 31, 1967.[2] State and local governments, foreign governments and central banks, and individuals accounted for the remaining CD purchases at issue.

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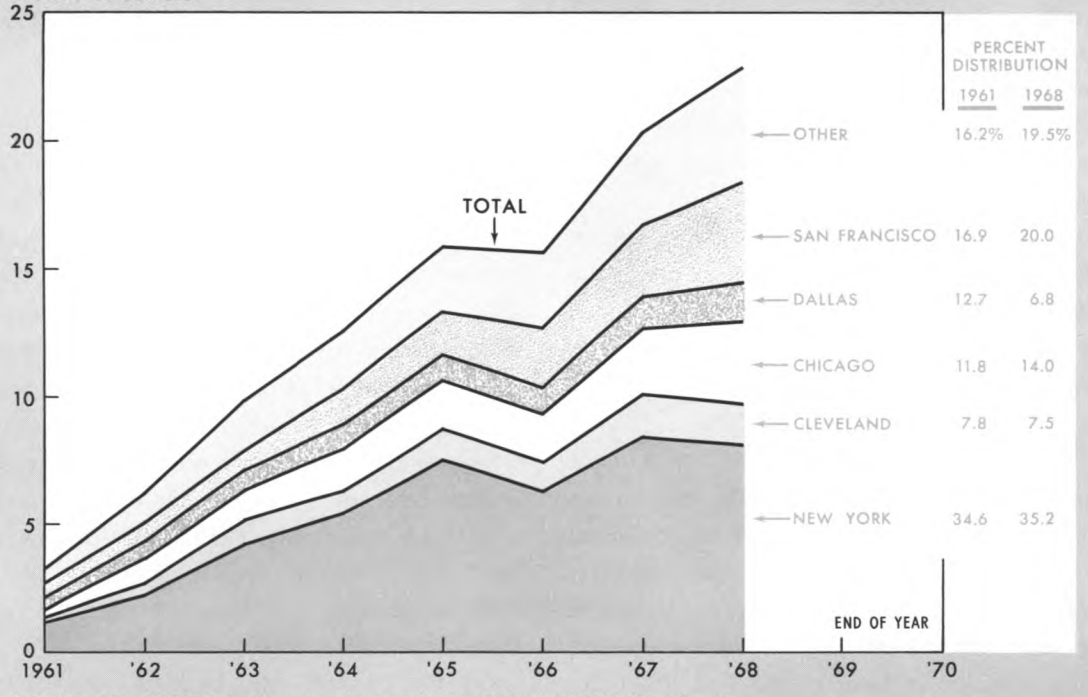
[1] A special survey by the Federal Reserve System of 410 member banks found that at yearend 1961 nearly 50 percent of the negotiable CDs of all denominations had been issued by banks with deposits of over $1 billion. See *Federal Reserve Bulletin,* April 1963, p. 460.

[2] *Federal Reserve Bulletin,* April 1967, p. 519.

Chart 1.

DISTRIBUTION of OUTSTANDING NEGOTIABLE CERTIFICATES of DEPOSIT

By Federal Reserve District



NOTE: Data for 1963-1968 include outstanding certificates of deposit of $100,000 and over. Data for 1961 and 1962 include all denominations.

Last entry: 1968

Sources of data: *Federal Reserve Bulletin* and Board of Governors of the Federal Reserve System

MATURITIES AND PRIMARY RATES

Regulation Q, which sets the ceiling rate that banks can pay on new issues of CDs, has an important bearing on both the actual rates paid and the maturity distribution of outstanding CDs. In the early 1960's, it was extremely difficult to issue CDs with maturities of less than six months because of the structure of Regulation Q ceilings. For example, until mid-1963, the maximum permissible rate for CDs with maturities of three to six months was 2.5 percent; until November 1964, the maximum rate payable for maturities of less than three months was only 1 percent (see Table II). Beginning in 1962, however, rates on other three- to six-month money market instruments, such as Treasury bills and commercial paper, generally rose above the 2.5 percent ceiling on new issues of CDs. Thus, CDs with original maturities of less than six months were relatively unattractive as a short-term investment, and banks were forced to issue most CDs with longer maturities. The permissible rates payable on such issues were higher and more in line with yields on alternative money market instruments.

TABLE I

Outstanding Negotiable Certificates of Deposit
In Denominations of $100,000 and Over
By Deposit Size of Bank
Selected Dates

Date	Deposit Size of Bank (Mil. of $)								Average Maturity of Outstanding Certificates of Deposit
	Under $200		$200 to $500		$500 to $1,000		Over $1,000		
	Amount Outstanding (mil. of $)	Percent of Total	Amount Outstanding (mil. of $)	Percent of Total	Amount Outstanding (mil. of $)	Percent of Total	Amount Outstanding (mil. of $)	Percent of Total	
August 19, 1964	$ 486	4.0%	$1,634	13.4%	$2,026	16.6%	$ 8,084	66.0%	3.8 months
December 28, 1966	628	4.0	1,691	10.8	2,404	15.4	10,911	69.8	3.0 months
December 27, 1967	855	4.2	2,252	11.1	3,195	15.7	14,026	69.0	2.9 months
December 25, 1968	1,131	4.8	2,957	12.6	4,204	17.9	15,207	64.7	3.1 months

Source: Board of Governors of the Federal Reserve System

TABLE II

Maximum Interest Rates Payable Under Regulation Q
On Certain Time Deposits

Maturity	Effective Date							
	January 1, 1957	January 1, 1962	July 17, 1963	November 24, 1964	December 6, 1965	July 20, 1966	September 26, 1966	April 19, 1968
1 year and over	3.0%	4.0%	4.0%	4.5%	5.5%			
6 to 12 months	3.0	3.5	4.0	4.5	5.5			
90 days to 6 months	2.5	2.5	4.0	4.5	5.5			
Less than 90 days	1.0	1.0	1.0	4.0	5.5			
Denominations of $100,000 and over								
180 days and over						5.5%	5.5%	6.25%
90 to 179 days						5.5	5.5	6.0
60 to 89 days						5.5	5.5	5.75
Less than 60 days						5.5	5.5	5.5
Denominations of less than $100,000						5.5	5.0	5.0

Source: *Federal Reserve Bulletin*

In December 1965, Regulation Q ceilings were set at the same level (5.5 percent) for all maturities of CDs. The 5.5 percent ceiling remained in effect until April 1968 for CDs of $100,000 and over, regardless of maturity length. This ceiling enabled banks to issue shorter maturities of CDs during much of the December 1965-April 1968 period (except, of course, in the summer and fall of 1966, when most short-term market yields surpassed the 5.5 percent level). Following the 1965 changes in Regulation Q, the average maturity of outstanding CDs declined steadily in succeeding months, as more new issues were sold with maturities of three months or less. At yearend 1968, the average maturity of outstanding CDs was about three months, compared with nearly four months in August 1964[3] (see Table I).

Regulation Q, however, is not the only determinant of the average maturity of outstanding CDs. At times, banks attempt to lengthen or shorten the maturities of their CDs in accordance with their needs for funds and their evaluation of future interest rate trends. For example, if banks expect interest rates to fall in the near future, they will try to raise funds by issuing CDs with very short maturities—in the hope that they can renew the maturing issues at lower rates in the future. On the other hand, investors in CDs would prefer long maturities if they expect interest rates to fall.

Detailed information for issuing rates on new CDs is not readily available. In general, primary CD rates are negotiated between the issuing bank and the buyer. Moreover, issuing rates may vary according to the size and reputation of the issuing bank and according to the denomination of the CD. Therefore, published rates in the primary market for CDs are usually described as approximations or guides to the actual rates. Nevertheless, the data in Table III confirm that when Regulation Q ceilings permit, CD rates on new issues are higher than rates on comparable issues of new Treasury bills. The actual difference or spread depends on the basis of the rates compared. As mentioned earlier, CDs are issued on a bond-yield equivalent basis, while Treasury bills are auctioned on a discount basis. Using this unlike comparison, issuing rates on three-month CDs averaged 35-60 basis points higher than rates on three-month Treasury bills during selected periods in recent years when Regulation Q did not act as a constraint on CD issuing rates. On the other hand, when Treasury bill rates are adjusted to a bond-yield basis—as should be done for an unbiased comparison—the differences are considerably smaller, in a range of 23-49 basis points for the periods shown in Table III.

THE SECONDARY MARKET

Although Regulation Q ceilings may, at times, eliminate certain CD maturities from the primary market, it is generally possible to obtain almost any maturity in the secondary market. As of 1968, virtually all the nonbank dealers and many of the bank dealers in U. S. Government securities bought and sold CDs and maintained inventory positions in these issues.

Trading volume, an important measure of activity in any market, is an indicator of the breadth of the CD market. During 1968, the volume of dealer transactions in CDs (purchases plus sales) averaged $59 million a day, compared with average dealer transactions of $1.9 billion a day in Treasury bills.

[3] It has been estimated that the average maturity of large CDs outstanding before 1964 was much longer—more than 5 months in mid-1963 and 7.5 months in November 1962. See Parker B. Willis, *The Secondary Market for Negotiable Certificates of Deposit,* Board of Governors of the Federal Reserve System, 1967, p. 26.

TABLE III

Primary Rates for Three-month Certificates of Deposit,
Compared with Auction Discount Rates for Three-month Treasury Bills
Selected Dates
(monthly average)

Month	Three-month Certificates of Deposit	Three-month Treasury Bills (Discount)	Three-month Treasury Bills (Bond-yield equivalent)	Rate on Certificates of Deposit Less: Three-month Treasury Bill Rate (Discount)	Rate on Certificates of Deposit Less: Three-month Treasury Bill Rate (Bond-yield equivalent)
				(basis points)	(basis points)
January 1966	4.95%	4.60%	4.72%	0.35	0.23
February 1966	5.03	4.67	4.79	0.36	0.24
July 1967	4.77	4.31	4.42	0.46	0.35
August 1967	4.88	4.28	4.39	0.60	0.49
September 1968	5.62	5.20	5.34	0.42	0.28
October 1968	5.83	5.33	5.48	0.50	0.35

Sources: *Weekly Bond Buyer* and *Federal Reserve Bulletin*

The secondary market for CDs appears to be considerably thinner than the Treasury bill market, more so than would be indicated by the ratio of the outstanding volume of Treasury bills to that of CDs. One factor explaining the thinner market might be the tendency of original corporate buyers to hold their CDs until maturity.[4]

As shown in Chart 2, dealer transactions and inventory positions in CDs varied widely in the 1963-1968 period,[5] but monthly fluctuations in the two series tended to be in the same direction. During the period under review, average daily transactions per year ranged from a low of $33 million in 1966 to a high of $60 million in 1968, while dealer positions on an average day varied from a low of $102 million in 1966 to a high of $363 million in 1967.[6]

Dealers are reluctant to carry large CD inventories when interest rates are rising (prices are falling) because of the risk of capital losses on inventories that might have to be sold before maturity. Rising interest rates explain in part the decline in both dealer positions and transactions in the summer and fall of 1966 and in the spring of 1968 (see Chart 2). The relative cost of carrying CD inventories, virtually all of which are financed through borrowed funds (short-term loans) rather than equity capital, also influences dealer positions and transactions. If the interest costs of financing inventory positions exceed the interest proceeds obtained from the inventory, dealers are likely to express their reluctance to acquire additional holdings by widening the difference between

[4] See, for example, A. Gilbert Heebner, *Negotiable Certificates of Deposit: The Development of a Money Market Instrument* (New York: New York University, 1967), p. 39.

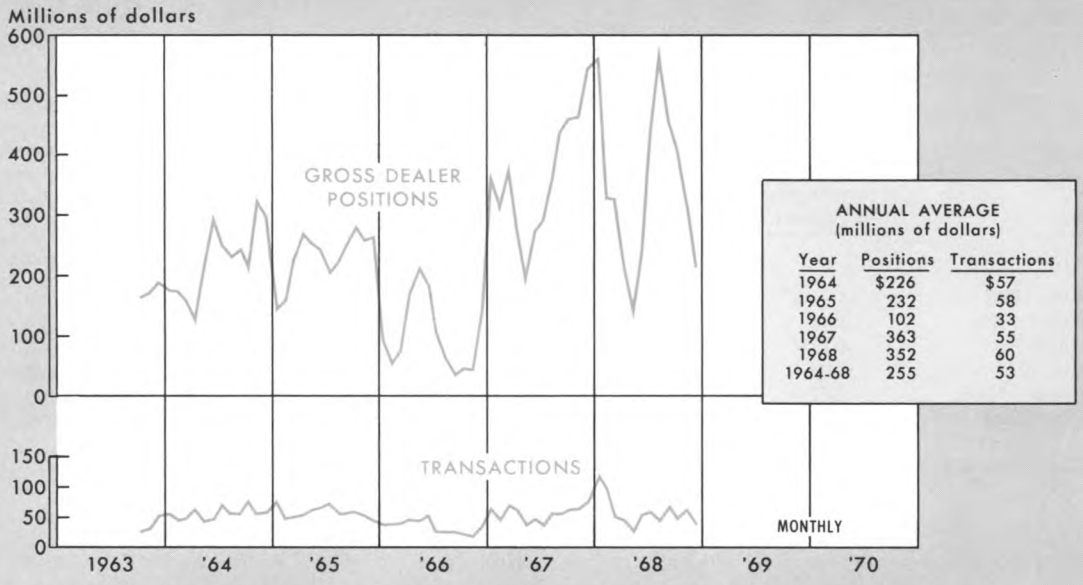
[5] Data for the period prior to 1963 are not available.

[6] In comparison, dealer positions in Treasury bills fluctuated around a daily average of $2.8 billion during 1968.

Chart 2.

DEALER ACTIVITY in NEGOTIABLE CERTIFICATES of DEPOSIT

Par Value



NOTE: Positions and transactions data are daily averages of monthly figures and are based on number of trading days.

Last entry: December 1968

Source of data: Federal Reserve Bank of New York

buying and selling prices; that is, by increasing the spread between bid and offered rates from the usual 4-5 basis points to 15 or more basis points.

Dealer financing to carry CD inventories can be obtained from several sources. Repurchase agreements are preferred, since ordinarily this method of financing involves the lowest costs. Most repurchase agreements are consummated with corporate investors, although insurance companies, state governments, and foreign banks also enter into such agreements. The procedures are quite similar to repurchase agreements involving U. S. Government securities: dealers sell CDs, at the same time agreeing to buy them back at a stated price on a specific date in the future.

For any additional financing needs, dealers turn to bank loans that usually must be renewed daily.[7] In many instances, CDs held in dealers' inventories are used as collateral for the bank loans. As a rule, CDs originally issued by the lending bank are not used for collateral, because in the event of dealer default, the bank would be redeeming its own CDs before maturity. In addition, when a CD is used as collateral at the issuing bank, Regulation Q requires a 2-percent charge above the rate at which it was originally issued.

[7] Nonbank dealers can often finance positions in Treasury bills and, to a lesser extent, bankers' acceptances through repurchase agreements with the Federal Reserve Open Market Account at the Federal Reserve Bank of New York. However, CDs have not been eligible for Federal Reserve repurchase agreements.

SECONDARY MARKET RATES

The fact that dealers stand ready to quote bid and offer rates for existing CDs suggests that there should be greater uniformity in interest rates in the secondary market than in the primary market. In the secondary market, the most common trading unit is $1 million, and dealers very rarely handle denominations of less than $500 thousand. Since most of the smaller denomination CDs are issued by smaller banks and have a greater range of interest rates, the absence of such denominations from the secondary market removes an important cause of rate variability.

The relative standing of CDs in the money market, insofar as interest returns are concerned, lies somewhere above Treasury bills and Federal Agency issues and slightly below finance company paper and bankers' acceptances. For example, a comparison of rates (for three-month maturities on a bond-yield equivalent basis) for the 1966-1968 period reveals that CD rates in the secondary market averaged:

46 basis points above rates on Treasury bills,

26 basis points above rates on Federal Agency issues,

7 basis points below rates on bankers' acceptances, and

11 basis points below rates on finance paper.

The relative standing of CD rates was essentially the same before 1966, although yield differentials were somewhat smaller.[8]

[8]For a more thorough discussion of rate spreads on money market instruments, see "Money Market Instruments: Characteristics and Interest Rate Patterns in the Current Economic Expansion," *Economic Review,* Federal Reserve Bank of Cleveland, February 1969.

CERTIFICATES OF DEPOSIT AND MONETARY POLICY

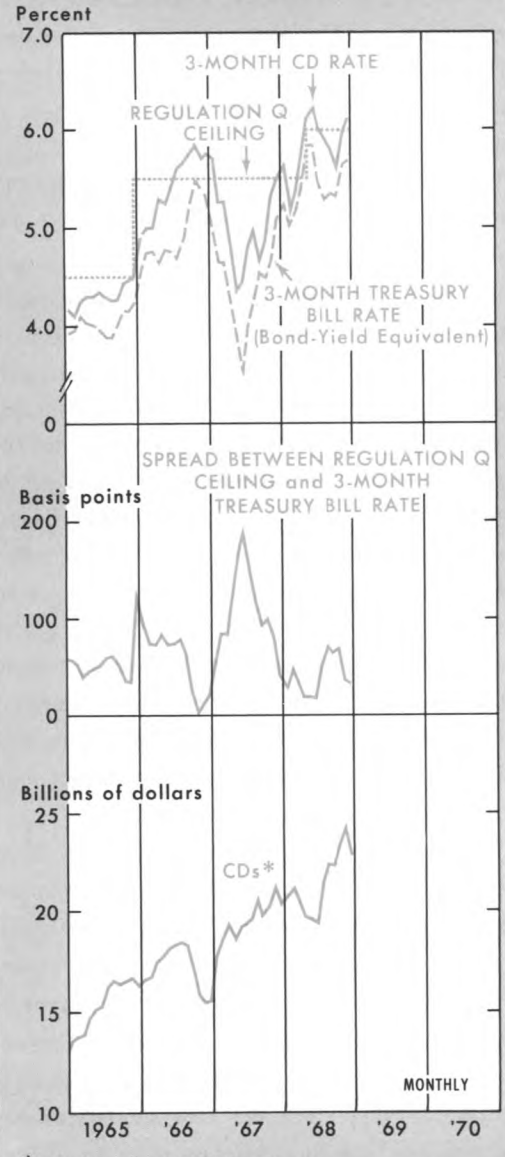
There is agreement that the rapid emergence of CDs and the development of the secondary market constitute highly significant innovations in commercial banking. The growth of CDs as a money market instrument has also had an important bearing on monetary policy, at times resulting in some controversy.

The role of Federal Reserve policy in the CD market stems largely from the authority of the Board of Governors to change (or not to change) the maximum interest rates payable on new issues under Regulation Q and the ability of the Federal Reserve System to influence other interest rates relative to the CD ceiling. The relationship between the Regulation Q ceiling and money market rates is very important. If the Regulation Q ceiling is below rates on other money market issues, banks may experience serious difficulties when offering new CDs or attempting to renew maturing CDs. That is, holders of maturing CDs may prefer to divert their funds into higher yielding money market instruments. In turn, when banks are faced with a loss of CD funds, they are apt to restrict their lending and investing activity, or increase efforts to obtain funds from other sources.

The situation during the late summer of 1966 illustrates the effect on CD volume of Regulation Q ceilings that are out of line with rates prevailing on other money market instruments. As stated earlier and as Chart 3 shows, rates on three-month CDs in the secondary market and rates on three-month Treasury bills are closely associated. During the 1960-1968 period, the rate spread favored CDs. However, the spread between the Regulation Q ceiling and yields on other money market instruments, especially Treasury bills, is a more important indicator of the ability of banks to

Chart 3.

INTEREST RATE RELATIONSHIPS and OUTSTANDING NEGOTIABLE CERTIFICATES of DEPOSIT



*Denominations of $100,000 and over.

Last entry: December 1968

Sources of data: Salomon Brothers & Hutzler and Board of Governors of the Federal Reserve System

renew maturing CDs than is the secondary market rate. When the maximum rate on CDs of all maturities was raised to 5.5 percent on December 6, 1965, the Treasury bill rate was within 25 basis points of the Regulation Q ceiling (see Chart 3). The 1965 increase placed the ceiling rate substantially above other money market yields, thus enabling banks to compete more effectively for CD funds.

Between December 1965 and June 1966, however, money market yields advanced sharply. In the last week of June, three-month CD rates in the secondary market reached the Regulation Q ceiling and in early July exceeded that level. Thus, buyers of new CDs at ceiling rates could expect capital losses, because the price would move below par in the secondary market if the buyers sold before maturity. Banks experienced difficulties in renewing outstanding CDs, and the volume of outstandings began to decline in mid-August. At that time, the Regulation Q ceiling was about 30 basis points above the three-month bond-yield equivalent Treasury bill rate and about 15 basis points below the secondary market rate on three-month CDs. Between the week ended August 13 and the week ended December 10, the dollar volume of outstanding CDs dropped from $18.6 billion to $15.4 billion. In several weeks during this period, the market rate on three-month bills exceeded the Regulation Q ceiling. Late in December 1966, the spread between the ceiling rate and the Treasury bill rate began to widen slowly, and by January, the spread was more than 50 basis points in favor of CDs. Banks then sold CDs in greater amounts; as a result, by mid-February 1967, the dollar volume of outstanding CDs approached the levels prevailing in mid-August 1966.

Banks were again faced with a loss of CD funds in the spring of 1968. In comparison with the

1966 experience, however, CD attrition was much smaller in 1968, due in part to the course of monetary policy. The decline in outstandings began in early March, when Treasury bill rates and CD market rates were close to the Regulation Q ceiling. Within five weeks, outstanding CDs decreased by $1.5 billion—a decline comparable in magnitude to that in the first five weeks of the 1966 runoff. Unlike 1966, however, the Board of Governors of the Federal Reserve System acted on April 19, 1968, to raise the maximum rate payable on most maturities of CDs with denominations of $100,000 and over (see Table II). Following this action, CD drains stopped; in fact, CD outstandings actually increased, although it was mid-July before the dollar volume regained the level prevailing in early March ($21 billion).

Significance of CD Losses. Other things being equal, the inability of individual commercial banks to renew maturing CDs weakens their ability to meet demands for new credit. Whether bank credit actually will be curtailed, however, depends on several other factors. For example, the decline in bank funds resulting from the CD drain can be offset by using other sources of funds (usually nondeposit sources). To the extent that banks are unsuccessful in tapping other sources, they have to sell assets or cut back lending.

For example, banks, at their own initiative, have attempted to offset CD losses by borrowing from the Eurodollar market through their overseas branches. This was, by far, the primary source used to balance CD losses in 1966 and 1968. As Table IV indicates, between the end of July and the end of November 1966, banks increased their liabilities to their foreign branches by $1.0 billion, thereby partially offsetting the decline of over $2.7 billion in CDs during the period. Over the period of four months from February through June 1968, the additions to United States banks' liabilities to their foreign branches amounted to more than the CD runoff for the period (see Table IV).

TABLE IV

Liabilities of United States Banks to Their Foreign Branches and Outstanding Certificates of Deposit

Selected Dates
1966 and 1968

	Borrowings from Foreign Branches	Outstanding Certificates of Deposit
1966	(mil. of $)	(mil. of $)
July	$2,786	$18,294
August	3,134	18,194
September	3,472	16,996
October	3,671	15,738
November	3,786	15,498
Change for Period	+1,000	−2,752
1968		
February	$4,530	$21,094
March	4,930	20,196
April	5,020	19,708
May	5,888	19,543
June	6,241	19,538
Change for Period	+1,711	−1,556

NOTE: Data are as of the last Wednesday of the month.

Source: *Federal Reserve Bulletin*

Bank borrowings from their foreign branches have been sporadic, increasing substantially during periods of CD attrition since 1965. Over the long run, however, banks have relied increasingly on all new sources of funds. Therefore, the increased use of Eurodollars in 1966 and 1968 should not be considered solely as a substitute for withdrawn CDs. In all likelihood, Eurodollar borrowings would have increased as part of the trend in recent years. However, in the absence of Eurodollar availability, the impact of CD drains in recent years on United States banks would probably have been more severe.

TABLE V

Average Monthly "Bid" Rates* on Certificates of Deposit
In the Secondary Market
January–June 1969

	Three-month Maturities	Six-month Maturities	Nine-month Maturities	Twelve-month Maturities
January	6.65%	6.64%	6.72%	6.78%
February	6.61	6.70	6.81	6.86
March	6.73	6.84	6.91	6.95
April	6.90	7.58	7.08	7.14
May	7.36	7.51	7.61	7.67
June	8.25	8.45	8.54	8.55

* Based on daily figures.

Source: *Weekly Bond Buyer*

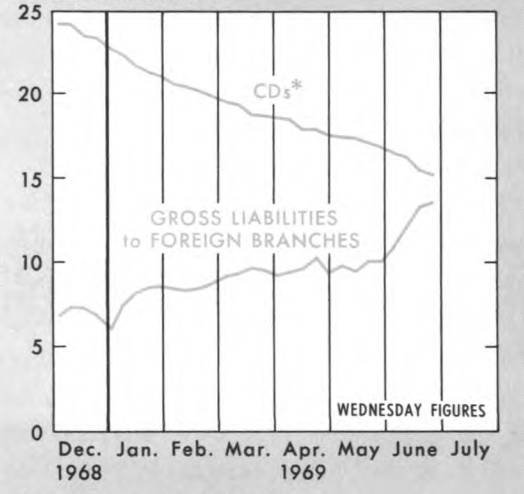
RECENT EXPERIENCE

Between early December 1968 and June 1969, the outstanding volume of large CDs declined by about one-third, from $24.3 billion to about $15 billion. The implications of this recent decline for commercial banks, as well as for the financial markets, are beyond the scope of this article, because the decline has not ended. Thus, any evaluation of the effects of recent CD runoffs must be qualified. The current relationship between Regulation Q ceilings and interest rates on other money market instruments makes it extremely difficult for banks to renew maturing CDs and, needless to say, virtually impossible to attract new CDs at this writing. For example, the maximum rate now payable under Regulation Q on three-month CDs is 6 percent—a rate below that at which three-month Treasury bills were sold in most weekly auctions this year. Similarly, CD rates in the secondary market have generally been well above Regulation Q ceilings in most maturity categories (see Table V). Thus, the price of a new CD generally falls below par immediately after issuance.

Chart 4.

OUTSTANDING NEGOTIABLE CERTIFICATES of DEPOSIT and EURODOLLAR BORROWINGS

Weekly Reporting Banks



*Denominations of $100,000 and over.

Last entry: June 25

Source of data: Board of Governors of the Federal Reserve System

Predictably, commercial banks reacted to the recent CD drains by attempting to borrow from their foreign branches, as well as by tapping other sources of funds; for example, the sale of commercial paper by bank affiliates and the sale of loan participation certificates; data on the extent of these transactions are not available. Thus far, however, Eurodollar borrowings have offset the bulk of the CD losses, as can be observed in Chart 4. Borrowings of United States banks from their foreign branches have increased by about $6 billion, from a total of $7 billion in early December to slightly more than $13 billion at the end of June.

The current CD attrition is much greater than that experienced in the summer and fall of 1966, when outstandings declined by about $2.7 billion. In evaluating the CD losses, it must be recognized that the two time periods involve several important differences associated with, among other things, the liquidity positions of corporations and banks, the Federal fiscal program, monetary policy, and relative levels of Eurodollar rates. Thus, the impact of a CD drain on credit markets is probably different today from what it was in 1966.

JOINT VENTURE ACTIVITY, 1960—1968

In recent years, there has been a marked increase in the movement toward industrial concentration, highlighted in many cases by mergers resulting in conglomerate corporations.[1] *At the same time, there has been a less noticeable, but significant, resurgence of another means of combining economic resources—the joint venture. This article examines the extent and characteristics of joint venture activity during the period 1960-1968. The analysis in this article should be considered tentative because of the nature of the underlying data. Statistical information related to joint ventures is extremely limited, and the data presented in this article are, to a considerable extent, the result of original work with basic sources.*[2] *Despite the limitations of such tentative analysis, the materials should contribute to the discussions and research efforts connected with joint ventures.*

Joint ventures are business entities formed by the collective participation of two or more existing companies that have common interests. The most frequently cited purposes of joint participation are: (1) to spread the risks of new industrial developments; (2) to establish joint or combined facilities for greater economy; (3) to accumulate large amounts of needed capital; and (4) to undertake programs that are too extensive for individual companies to handle.[3] Joint ventures may also be formed to share technological knowledge, managerial skills, experience in production and distribution, as well as for numerous other reasons.

Joint ventures can generally be classified as either domestic or foreign, depending on the location of the new business entities (progenies) created by the ventures (see Chart 1). In both types of ventures, one or more of the participants may be a foreign firm. In the case of a foreign venture, one of the participants may even be a foreign government. The underlying material for

[1] For a discussion of recent merger activity, see "Corporate Merger Activity in the Fourth Federal Reserve District, 1950-1967," *Economic Review,* Federal Reserve Bank of Cleveland, October 1968, and other articles contained in the *Economic Review*, January, March, and May 1969.

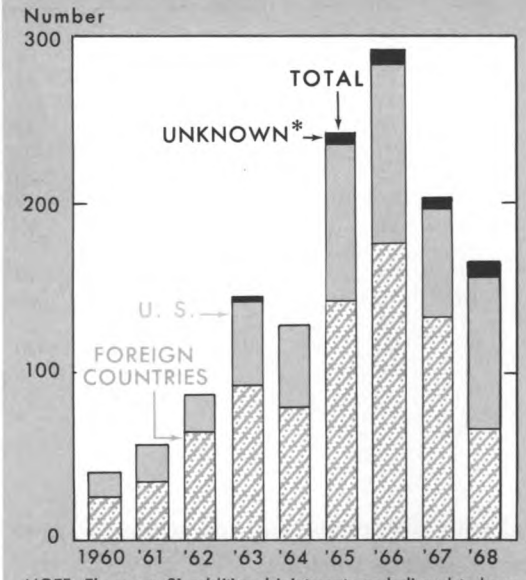
[2] Some of the data for the period 1965-1968 were obtained from the Federal Trade Commission. Supplemental information was obtained from various sources including newspapers, trade journals, and reports; in some cases the information was confirmed by personal inquiry.

[3] See, among others, Paul R. Dixon, "Joint Ventures: What is Their Impact on Competition?," *Antitrust Bulletin,* Vol. 7, 1962, p. 399.

Chart 1.

JOINT VENTURES ESTABLISHED with the PARTICIPATION of AMERICAN FIRMS

By Location of Joint Venture



NOTE: There are 21 additional joint ventures believed to have been consummated but not included in the table due to lack of specific information.

*It is not known whether progenies are foreign or domestic.

Last entry: 1968

Sources of data: Federal Trade Commission and Federal Reserve Bank of Cleveland

this study incorporated foreign joint ventures only to the extent that the arrangements involved the participation of American firms;[4] this article, however, is primarily concerned with domestic joint ventures.

Joint ventures can be an effective means of introducing new products in domestic or foreign markets, and the arrangement can result in a more efficient allocation of resources. On the other hand, the very nature of the arrangement creates a situation that could afford opportunities for reciprocity, restraints upon existing competition, and the suppression of potential competition. Thus, the potential anti-competitive effects posed by a multi-firm domestic joint venture could be as serious as any combination of restraints resulting from a bilateral merger. Therefore, the problem of balancing the potential benefits of joint ventures against the competitive threats posed by these arrangements presents a perplexing task for anti-trust policy.

INDUSTRIAL CLASSIFICATION AND FUNCTIONAL CHARACTERISTICS OF DOMESTIC PROGENIES

During the period 1960-1968, 520 new domestic joint ventures were established, but the pace at which the new ventures were formed was uneven. As shown in Chart 1, there was a marked increase in the total number of new joint ventures consummated in 1962, 1963, 1965, and 1966. The number of newly formed domestic ventures increased sharply in 1963 and 1965 and reached a high in 1966. The number of domestic ventures fell in 1967, while the number of conglomerate mergers increased by more than 48 percent.[5]

The areas of activity of these new firms range from exploration and research to distribution and sales. Joint ventures involved products as heterogeneous as movable bank buildings and synthetic human hearts. Despite the diverse nature of joint ventures, they can be grouped into broad classifications based on the primary area of industrial involvement of the progeny. These classifications are presented in Table I. More than half of all new

[4] For a study of foreign joint ventures, see Karen K. Bivens and Enid B. Lovell, *Joint Ventures with Foreign Partners* (New York: National Industrial Conference Board, 1966).

[5] See "Corporate Merger Activity in the Fourth Federal Reserve District, 1950-1967," *op. cit.*, p. 5.

TABLE I

Industrial Classification of Domestic Joint Ventures
1960–1968

Industry	1960	1961	1962	1963	1964	1965	1966	1967	1968	Unknown*	Total
Agriculture, forestry, and fisheries							1				1
Mining		3	6	1	2	9	12	4	4		41
Contract construction	1	3		4		5	1	3	7		24
Manufacturing	13	11	10	27	34	55	59	29	37	3	278
Transportation and communications		1	2	9	3	6	8	9	10		48
Wholesale and retail trade		2			1	3	5	1	1		13
Finance, insurance, and real estate				1	1	1	1	7	8		19
Services	1	2	4	7	7	15	13	9	10	1	69
Unclassified			1	3		1	5	2	14	1	27
Totals	15	22	23	52	48	95	105	64	91	5	520

* Date of establishment unknown.

Source: Federal Reserve Bank of Cleveland

domestic joint ventures formed during the period under review were involved in manufacturing, with the service, transportation, and mining industries largely accounting for the remainder.

More than one-half of the new ventures resulted in joint or combined facilities (see Chart 2). On the basis of available information, it appears that a majority of the new manufacturing progenies were formed to produce conventional products for well-established markets rather than truly new products. These products included, among others, beer cans, corrugated containers, window shades, automotive trim moldings, and metal fasteners for footwear.

In the service industries, joint ventures were formed to develop resort areas and to construct and operate hotels, motels, and parking lots. A significant number of these arrangements involved communications networks and film and recording companies. In recent years, some automobile manufacturers and credit card companies have used joint venture arrangements to lease automobiles to credit card holders.

PARTICIPATING FIRMS

Further insight into the nature of joint ventures may be gained from an examination of the characteristics of the firms that participated in these arrangements. During the period under review, 1,131 domestic firms were involved in the formation of 520 domestic joint ventures (see Table II). The number of companies that participated in the formation of any single domestic joint venture ranged from 1 to 11 firms.

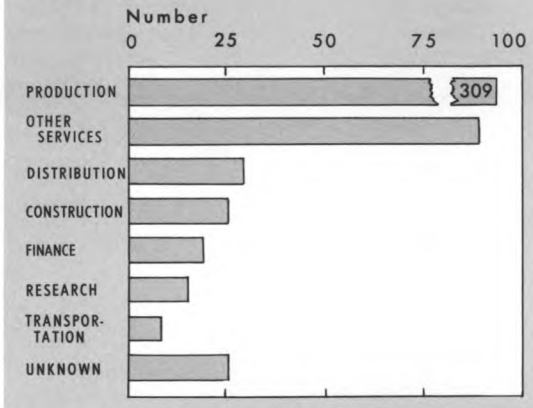
As Table III indicates, the participants in domestic joint ventures were primarily United States manufacturing firms. Since 1963, however, joint ventures have also become popular among firms in the transportation, mining, finance, and other service industries.

During the period 1960-1968, participants in joint ventures were, in general, large firms. In fact,

Chart 2.

FUNCTIONAL CLASSIFICATION of DOMESTIC JOINT VENTURES

1960-1968



Source of data: Federal Reserve Bank of Cleveland

more than three-fourths of the participating firms had assets of $100 million and over, and nearly one-half had assets of over $250 million (see Table IV).[6]

COMPETITIVE RELATIONSHIPS

The competitive effects of joint venture arrangements depend primarily upon the competitive relationships among the participating firms before the venture, as well as on the relationships between the participants and the new venture that is established. The competitive relationships may be generally classified as horizontal, vertical, a combination of horizontal and vertical, or unrelated. A horizontal relationship exists when one or more of the participating firms and/or at least one participant and the progeny are engaged in the same stage of producing essentially identical products. A vertical relationship exists when one or more of the participating firms and/or at least one participant and the progeny serve as a source of supply, a fabricator, or a distributor of the same product.

The precise determination of these relationships requires considerably more information than is currently available. Nevertheless, some limited insights into the nature of these relationships may be obtained from a classification of the participating firms on the basis of their major function and primary area of industrial involvement. This classification was made by comparing the firms' standard industrial classification codes.[7]

The pre-venture competitive relationships among participating United States firms involved in domestic joint ventures during the period 1960-1968 are summarized in Table V. Nearly one-half of all participating firms were horizontally related on the basis of this classification, with more than 80 percent having some horizontal or vertical relationship.

The relationships between participating firms and their progenies are summarized in Table VI. More than one-half of all domestic joint ventures resulted in a vertical relationship between one or more of the participants and their progeny, and more than 80 percent of the arrangements resulted in horizontal and/or vertical relationships.

Thus, it appears that a majority of the domestic joint ventures consummated during the period 1960-1968 involved horizontally related firms and resulted in progenies that involved some vertical

[6] The same pattern of asset size applies to domestic firms that participated in foreign joint ventures.

[7] The primary sources used for the classification of firms were *15,000 Leading U. S. Corporations* (New York: Year Inc., 1967) and *Standard Industrial Classification Manual* (Washington, D. C.: U. S. Government Printing Office, 1967).

TABLE II

Number of United States Firms Participating in Domestic Joint Ventures
1960–1968

Year	Number of Domestic Joint Ventures	Number of Domestic Participating Firms	Average Number of Domestic Participating Firms per Domestic Joint Venture
1960	15	34	2.3
1961	22	51	2.3
1962	23	48	2.1
1963	52	110	2.1
1964	48	102	2.1
1965	95	195	2.1
1966	105	230	2.2
1967	64	133	2.1
1968	91	216	2.4
Unknown*	5	12	–
Totals	520	1,131	–

* Date of consummation unknown.

Sources: Federal Trade Commission and Federal Reserve Bank of Cleveland

TABLE III

Industrial Classification of United States Firms Participating in Domestic Joint Ventures
1960–1968

Industry	1960	1961	1962	1963	1964	1965	1966	1967	1968	Unknown*	Total
Agriculture, forestry, and fisheries		1					2				3
Mining	2	4	3	8	5	10	18	7	6		65
Contract construction				3		2	5	3	6	1	19
Manufacturing	30	36	37	69	86	148	164	87	123	9	797
Transportation and communications	1	1	2	18	4	12	14	12	37		96
Wholesale and retail trade		4	1		1	3	8	1	1		20
Finance, insurance, and real estate	1	3	2	5	2	4	5	9	21		49
Services		1	3	4	2	10	10	7	10	2	48
Unclassified		1		3	2	6	4	7	14		34
Totals	34	51	48	110	102	195	230	133	216	12	1,131

* Year of participation unknown.

Source: Federal Reserve Bank of Cleveland

TABLE IV

Asset Size of Domestic Firms that Participate in Establishing Domestic Joint Ventures
1960–1968

Asset Size (mil. of $)	Number of Firms
Under $10	71
$ 10 – $ 25	62
$ 25 – $ 50	69
$ 50 – $100	80
$100 – $250	169
Over $250	507
Unknown	173
Total	1,131

Sources: Federal Trade Commission and Federal Reserve Bank of Cleveland

extensions of existing markets. The added fact that most of the participating firms had assets in excess of $100 million would seem to raise some question regarding the vulnerability of these arrangements to antitrust laws.

PUBLIC POLICY AND JOINT VENTURES

The growth of joint ventures reflects to some extent the unsettled state of the law applicable to these arrangements. Antitrust laws refer only to "combinations" and leave to the courts the determination of which combinations are unlawful and under what conditions. However, the courts have never established standards of legality for joint ventures. The Supreme Court did, in 1951, make it clear that restraints incidental to joint arrangements could not escape consideration by merely labeling an arrangement a "joint venture."[8] However, the legality of the joint venture arrangement itself, aside from consideration of its practices, has been established only in the vague sense that the courts have repeatedly noted that joint ventures are not illegal *per se* under the Sherman Act.[9] Thus, joint ventures became a reasonable alternative to mergers when the courts, in a series of cases beginning in 1962, expressed their determination to carry out the "mandate of Congress" and to halt concentration through *mergers* in its "incipiency."[10]

The slight decrease in the number of newly formed joint ventures in 1964 may be partially explained by the Supreme Court's decision in the Penn-Olin Chemical case in that year.[11] This was the only case to reach the Supreme Court that involved the consideration of a joint venture under the Celler-Kefauver Act.[12] In this case, the Supreme Court ruled on June 22, 1964, that joint ventures are subject to the proscriptions of amended Section 7, but are subject to different criteria than those applicable to straightforward acquisitions. This ruling undoubtedly caused some firms to reconsider joint arrangements. The significance of the ruling, however, was short lived. The

[8] Timken Roller Bearing Company v. United States, 341 U. S. 593 (1951).

[9] United States v. Imperial Chemical Co., 100 F. Supp. 504, S.D.N.Y. (1951), and Pan American World Airways, Inc., 193 F. Supp. 18, S.D.N.Y. (1961).

[10] Brown Shoe Company v. United States, 370 U. S. 294 (1962). Also, see United States v. El Paso Natural Gas Company, 376 U. S. 651 (1964), and United States v. Aluminum Company of America, 377 U. S. 538 (1964).

[11] United States v. Penn-Olin Chemical Company 378 U.S. 538 (1964).

[12] The Celler-Kefauver Act that amends Section 7 of the Clayton Act reads in relevant part as follows: That no corporation...shall acquire, directly or indirectly the whole or any part of the stock or...assets of another corporation...where in any line of commerce, in any section of the country, the effect of such acquisition may be substantially to lessen competition, or tend to create a monopoly.

TABLE V

Competitive Relationships Among United States Firms Participating in Domestic Joint Ventures*
1960–1968

Industry of Participating Firms	Horizontal	Vertical	Horizontal and Vertical	Unrelated	Unclassified	Total
Agriculture, forestry, and fisheries					1	1
Mining	15	26	1	2	1	45
Contract construction	6	4		2		12
Manufacturing	175	115	5	76	7	378
Transportation and communications	47	4		2		53
Wholesale and retail trade	4	2				6
Finance, insurance, and real estate	19	4	1	4	3	31
Services	12	11	2	13	2	40
Totals	278	166	9	99	14	566

* Includes only domestic joint ventures involving the participation of two or more United States firms.

Source: Federal Reserve Bank of Cleveland

TABLE VI

Competitive Relationships Between United States Participating Firms and Their Domestic Progenies*
1960-1968

Industry	Horizontal	Vertical	Horizontal and Vertical	Unrelated	Unclassified	Total
Agriculture, forestry, and fisheries		1				1
Mining	25	7				32
Contract construction	9	2				11
Manufacturing	98	164	25	28	29	344
Transportation and communications	11	37	1	5	2	56
Wholesale and retail trade	7					7
Finance, insurance, and real estate	11	8	2	3	4	27
Services	11	12	6	5	8	42
Totals	172	231	34	40	43	520

* Includes only domestic joint ventures involving at least one United States participant.

Source: Federal Reserve Bank of Cleveland

case was remanded to the District Court, which, after consideration of the question of potential competition, ruled that the joint venture arrangement did not violate Section 7.[13] The case was again appealed to the Supreme Court, which allowed the District Court's decision to stand as the result of a 4-4 vote in December 1967.[14] Thus, the standards of legality that apply to joint venture arrangements are still unclear.

CONCLUDING COMMENTS

Two general conclusions emerge from an examination of the nature and characteristics of joint ventures formed during the period from 1960 to 1968. First, the arrangements consummated generally involved large firms that were, in most cases, horizontally related. Second, a majority of the progenies represented vertical extensions into the manufacture of products for existing markets.

During the period 1960-1968, it appears that many firms achieved through joint ventures some of the benefits normally associated with horizontal or vertical expansion—benefits that, for a variety of reasons, were not available, under prevailing conditions, through the more traditional merger approach. It is not surprising, therefore, that the growth in the number of joint ventures reflects, to some extent, the aggressiveness of antitrust enforcement in the area of horizontal and vertical mergers. These developments point up the difficulty of formulating antitrust policy toward conglomerate combinations in general and joint ventures in particular.

[13] United States v. Penn-Olin Chemical Company, D. C. Del. (1965).

[14] United States v. Penn-Olin Chemical Company, 389 U.S. 308 (1967).

CORRECTION

ECONOMIC REVIEW, June 1969

Page 5, lines 12-21 should read as follows:

Banks are divided into three call classifications based upon the amount of deposits credited to tax and loan accounts over a specific survey period, as determined by the Treasury Department. Banks are then ranked into A, B, or C groups according to the deposits made into these accounts during the stated time period. The Group A commercial banks are those with the least amount of activity in terms of amounts credited to these accounts and the Group C banks are those with the greatest degree of activity. The classifications are then reviewed periodically, to keep the groupings current.

Fourth Federal Reserve District