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U. S. TREASURY BILLS: TRENDS AND NEW DEVELOPMENTS 1959—1969

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The U. S. Treasury bill is probably the best known, most popular short-term investment medium and accounts for the largest dollar volume outstanding among the various types of money market instruments. Nevertheless, the Treasury bill does not offer the highest yield among alternative short-term investments. Instead, much of the prominence and prestige of Treasury bills stems from liquidity considerations. It is widely accepted that an asset possesses liquidity when it can be converted into cash quickly without serious risk of capital loss. Because few financial assets can be sold in the market as easily and as promptly as Treasury bills, and because no borrower has a higher credit rating than that of the Government, these instruments are highly liquid.

This article describes the development of U. S. Treasury bills, their use in Treasury debt financing, the different types of bills currently outstanding, recent trends in market yields and ownership distribution, and the role of Treasury bills in public policy.

In both the United States and Great Britain, the Treasury bill is the principal instrument used by the government to borrow short-term funds; in both countries, Treasury bills comprise the bulk of the "floating debt."¹ The British Treasury bill—upon which the United States bill was patterned—was initiated in 1887. During the 1870's, the British government had an unusual need for short-term funds because it had made large loans to local authorities and to build the Suez Canal. In developing a method to raise short-term money, the British government sought the advice of the economist and financier Walter Bagehot, who recommended that a security be issued "...resembling as nearly as possible a commercial bill of exchange—that is, a bill under discount, and falling due at certain intervals..."² Bagehot believed that with such a security the government could take advantage of the well-developed market for private short-term debt.

The Treasury bill was not used in the United States until 1929. Because the United States public debt was fairly small until World War I, there was little need for this money market instrument. At that time, the Treasury began to sell certificates of indebtedness maturing in three to twelve months directly to commercial banks. Banks paid for the certificates by means of book credits to special deposit accounts that were similar to the tax and loan accounts that are used

now. This method of borrowing was continued after the war, despite the inherent weakness in the method. For example, Treasury certificates carried a fixed coupon rate, the amount of which had to be set by the Treasury. The coupon rate had to be adjusted continuously from one new issue to another to be in accordance with prevailing market conditions. Moreover, because payments were made by credits to special accounts, the Treasury was often paying interest on money lying idle in commercial banks. Thus, Treasury bills were instituted for two main reasons:³

- (a) To eliminate the necessity of pricing each issue separately with the risk of misjudging market conditions (and under- or over-pricing the issue).
- (b) To enable the debt managers to match more closely sales of bills with Treasury needs for cash and to remove the need to pay interest on idle balances.

In June 1929, Congress enacted legislation to authorize the issue of Treasury bills. The first public offering of U. S. Treasury bills occurred in December 1929. The offering amounted to \$100 million and was sold at an average discount of 3.30 percent.

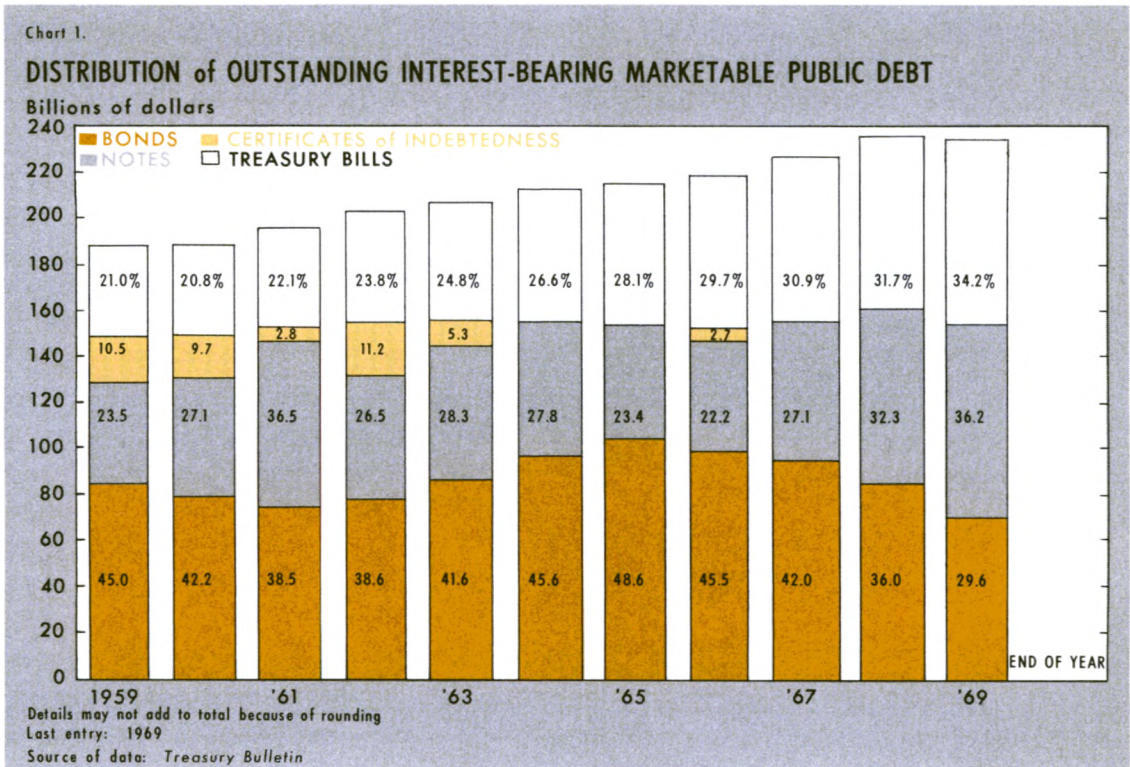
TREASURY BILLS AND THE PUBLIC DEBT

The role and significance of Treasury bills in debt management in the United States can be probably best perceived by an examination of the composition of the national debt. At the end of 1969, the U. S. Treasury listed \$371 billion in outstanding debt subject to statutory limitation. Nearly all (\$366 billion) carried interest and consisted of marketable as well as nonmarketable

³See *Annual Report of the Secretary of the Treasury, Fiscal Year 1929* (Washington, D. C.: Government Printing Office, 1930), p. 41.

¹Floating debt refers to the volume of marketable Government securities that mature within one year. At present, in the United States, the term includes Treasury bills and Treasury notes and bonds that are due to mature in less than one year.

²From a letter by Lord Welby to the *Economist*, November 20, 1909, as quoted in "The Treasury Bill; the Story of an Economist's Invention," *Midland Bank Review*, February 1961, p. 4.



issues. Nonmarketable issues were about evenly divided between those held by individuals or private institutions and those held by U. S. Government agencies and trust funds. At the end of December, \$130 billion of nonmarketable debt was outstanding. Marketable public debt amounted to \$236 billion, including \$80.6 billion in Treasury bills. Treasury bonds and Treasury notes accounted for the remainder of the marketable, interest-bearing public debt. (At present, however, only Treasury bills and Treasury notes are being issued. The 4¼ percent statutory interest ceiling on Treasury bonds renders them unsalable in a market with current rates of interest nearly twice the ceiling.)

The composition of the marketable Treasury debt during the 1959-1969 period is shown in

Chart 1. At the end of 1959, Treasury bills accounted for 21 percent of the outstanding marketable debt—a proportion that was about the same as that represented by Treasury notes. The remaining portions represented Treasury certificates of indebtedness (10 percent) and Treasury bonds (45 percent).⁴ The amount of Treasury bonds outstanding declined steadily, and at year-end 1969, the marketable debt was nearly evenly

⁴Marketable Treasury certificates of indebtedness are issued with maturities up to one year and carry coupons. Currently, there are no outstanding marketable certificates of indebtedness. To a large extent, certificates of indebtedness became less useful after tax anticipation and one-year Treasury bills were introduced. On rare occasions, such as when the Treasury borrows directly from the Federal Reserve banks, the Treasury may still issue certificates of indebtedness, but such certificates are not marketable.

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divided among Treasury bills, Treasury notes, and Treasury bonds (see Chart 1). The increased share of public debt in the form of Treasury bills is largely the result of deficits in the Federal Budget that have led to increased reliance on sales of bills as a means of Treasury financing.

Through the fiscal year that ended in June 1963, Treasury bills were the cheapest source of borrowing for the U. S. Treasury. The computed annual interest rate charge for the different types of marketable issues during fiscal years 1960-1969 was:⁵

Average for Fiscal Year	Bills	Certificates	Notes	Bonds
1960	3.815%	4.721%	4.058%	2.639%
1961	2.584	3.073	3.704	2.829
1962	2.926	3.377	3.680	3.122
1963	3.081	3.283	3.921	3.344
1964	3.729	—	3.854	3.471
1965	4.064	—	3.842	3.642
1966	4.845	4.851	4.321	3.655
1967	4.360	5.250	4.764	3.686
1968	5.711	—	5.294	3.681
1969	6.508	—	5.668	3.722

Source: U. S. Treasury

⁵As defined in the *U. S. Treasury Bulletin*, "The computed annual interest charge represents the amount of interest that would be paid if each interest-bearing issue outstanding at the end of each month or year should remain outstanding for a year at the applicable annual rate of interest. The charge is computed for each issue by applying the appropriate annual interest rate to the amount outstanding on that date (the amount actually borrowed in the case of securities sold at a premium or discount, beginning with May 1960). The aggregate charge for all interest-bearing issues constitutes the total computed annual interest charge. The average annual interest rate is computed by dividing the computed annual interest charge for the total, or for any group of issues, by the corresponding principal amount. Beginning with data for December 31, 1958, the computation is based on the rate of effective yield for issues sold at premium or discount. Prior to that date it was based on the coupon rate for all issues."

After 1963, the portion of debt represented by Treasury bonds was clearly the least expensive to service. However, as suggested earlier, the outstanding Treasury bonds were issued when interest rates were generally lower.

TYPES OF TREASURY BILLS OUTSTANDING

In England, the Treasury Bill Act provided for the issuance of bills with maturities for any period up to one year. This feature was incorporated in the U. S. Treasury bill in 1929; today, United States bills are issued for a variety of maturities within the full limit of the law. In the 1960's, the Treasury introduced new maturities and changed the size and frequency of individual offerings. At the end of 1959 and 1969, maturities and amounts of Treasury bill offerings were as follows:

Maturity	Amount Offered 1959 (bil. of \$)	Amount Offered 1969 (bil. of \$)
Three-month	\$1.1 per week	\$1.8 per week
Six-month	\$0.5 per week	\$1.2 per week
Nine-month	none offered	\$0.5 per month
Twelve-month	\$2.0 per quarter	\$1.0 per month

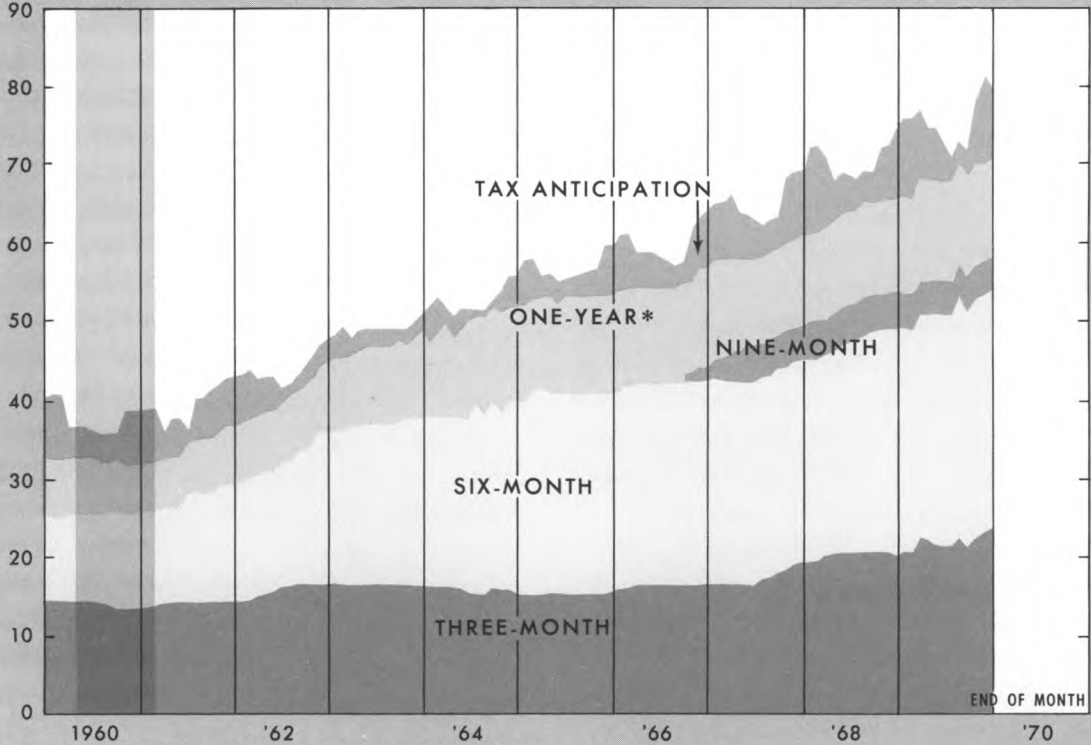
These maturities are usually referred to as "regular" series because they are offered regularly on a weekly or monthly basis. In addition, there have been periodic offerings of two other types of Treasury bills—tax-anticipation and "strip" offerings.

Three-Month Bills. The three-month bill is the oldest type of bill used by the U. S. Treasury and the best known among the bill issues, particularly for small investors. The three-month bill is currently offered on a 13-week cycle, with \$1.8 billion maturing and being issued every week. Therefore, \$23.4 billion of bills with original maturities of three months are outstanding at any

Chart 2.

OUTSTANDING TREASURY BILLS by TYPE

Billions of dollars



*From December 1959 through September 1960, one-year bills include ten- and eleven-month bills
 Last entry: December 1969
 Source of data: Treasury Bulletin

one time. Through increases in the amount of weekly offerings, the total volume of outstanding bills rose steadily during 1959-1969. As shown in Chart 2, at the beginning of this period, outstanding 13-week bills amounted to slightly less than \$15 billion.

Six-Month Bills. Six-month bills were introduced on a regular weekly basis in December 1958, with an initial offering of \$400 million. Until then, apart from tax-anticipation issues, the Treasury had relied almost exclusively on three-month bills. An attempt was made in 1934 and

1935 to sell six- and nine-month maturities, but "...the Treasury found, as did the British Government previously, that the longer maturities were less attractive to the market than three-months' bills."⁶ The Treasury abandoned any further efforts to issue longer bills until 1958.

⁶Silas Miller, *The Origin, Procedure, Development, and Economic Value of United States Treasury Bills Preceded by an Historical Review of British Treasury Bills*. (Thesis prepared for the Graduate School of Banking of the American Institute of Banking, New Brunswick, New Jersey, 1938), p. 91.

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The growing acceptance of the six-month bill by the market is demonstrated by the fact that at yearend 1969 there were \$30.7 billion of six-month bills outstanding, in contrast to \$10.8 billion outstanding in 1959 (see Chart 2). Moreover, six-month bills presently provide the Treasury with more borrowed funds than any other type of bills.

Nine-Month Bills. The nine-month bill is a relatively new development in debt management. The monthly cycle of nine-month bills was initiated in September 1966 (see Chart 2). The monthly offering of \$500 million of nine-month bills is at present the smallest dollar amount of any of the regular series and has been constant since the series was introduced. At yearend 1969, \$4.5 billion of nine-month bills were outstanding.

Twelve-Month Bills. This maturity of Treasury bills is also a fairly new development in debt management. The cycle started in September 1963, when the monthly issue was set at \$1.0 billion. Treasury bills with one-year maturities had been sold before 1963, but on a quarterly, rather than monthly, basis. In three separate auctions during 1959, the Treasury sold bills with maturities of 9½ to 12 months. During 1960, the one-year series was "regularized" on a quarterly basis, with \$1.5 billion of bills issued in January, April, July, and October.

Tax Anticipation Bills. "Tax-bills," which were initiated in October 1951, are designed specifically to attract funds that corporations accrue for income tax payments. Therefore, maturity dates on tax-bills are set a week after quarterly corporate tax-payment dates. For example, bills that can be turned in to pay for taxes due on June 15 will be scheduled to mature on June 22. Holders can surrender tax-bills in payment of taxes, or they can redeem them for cash on the maturity date.

Because tax-bills are accepted for tax payments at the full maturity value of the bills, only a small portion of investors exercise the second option.

The bulk of tax-bills—especially before 1966—were scheduled to mature in March and June and were usually sold between August and December of each year. Treasury cash receipts traditionally exceed cash payments during the January-June period. Thus, the sale of tax-bills in the second half of the year fits well in the pattern of Treasury cash management.

In 1966, tax legislation changed the pattern of corporate tax payments and, as a result, the scheduled maturity distribution of tax-bills. Thus, tax-bills maturing in April and September (in addition to those maturing in March and June) have become more common. Nevertheless, most tax-bills run off in the first half of the calendar year (see Chart 2), and most sales of such bills occur in the second half.

As shown in Chart 2, the average dollar volume of outstanding tax-bills during the 1960-1966 period was relatively unchanged, although there were wide seasonal fluctuations in volume. However, between December 1966 and December 1969, outstanding tax-bills increased by \$2.0 billion, from \$7.3 billion to \$9.3 billion. Thus, the contribution of tax-bills to Treasury financing operations has become more significant in recent years.

THE PRIMARY MARKET FOR TREASURY BILLS

Securities are issued initially in their "primary" markets. If a security is to be highly liquid, however, there must be a secondary market where the security can be traded after being issued.

The Federal Reserve banks, as fiscal agents of the U. S. Treasury, conduct the primary Treasury

bill sales. Bills are sold initially through auctions in seven different denominations ranging from \$1,000 to \$1,000,000. Unlike Treasury notes and bonds, Treasury bills are issued in bearer form only; bills are not registered in the name of the buyer. Bills are sold on a discount basis.⁷ That is, the difference between the purchase price and the maturity value (or the resale price, if they are sold before maturity) constitutes the interest income for the investor.

Auctions. Three- and six-month bills are auctioned each week on Mondays. If Monday is a holiday, the auction takes place on the previous Friday. Tenders or bids can be submitted to the Federal Reserve banks or their branches up to 1:30 P.M. Eastern Standard Time on the day of the auction. Competitive as well as noncompetitive

tenders can be submitted. Investors who are willing to accept the average auction price can submit tenders on a noncompetitive basis. Such tenders in amounts up to \$200,000 are usually allotted in full. (Tenders in amounts over \$200,000 must be submitted on a competitive basis.) The noncompetitive bids are summed up first, and their dollar value is subtracted from the total amount of the offering. The remainder is allocated to competitive bidders on a "highest-price-first" basis. Thus, a competitive tender with a bid of 98.060 (per \$100 of maturity value) will be accepted ahead of a tender with a bid of 98.059. The average price of the offering is established within the range of the competitive bids accepted, with the actual rate depending on the dollar amount of each bid that is accepted. The noncompetitive bidders are then charged this average price.

⁷A Treasury bill yield based on the discount method is not exactly comparable to yields on long-term bonds or interest rates paid by banks on savings deposits. The formula for the discount rate or the price on Treasury bills with maturities up to six months is:

$$d = \frac{360}{n} (100 - P), \text{ where}$$

d = the discount rate in percent, per annum,
 P = the price paid for \$100 of maturity value of Treasury bills, and
 n = the number of days before maturity of the bill issued.

This formula uses a 360-day year for a base; interest rates on bonds are calculated on the basis of a 365-day year. The formula for finding the bond-yield equivalent on bills with maturities up to six months is:

$$i = \left(\frac{100}{P} - 1 \right) \frac{365}{n}, \text{ where}$$

P and n are as defined above, and
 i = the bond-yield equivalent in percent.

Thus, for any given values of P and n , i will always be greater than d .

Payment for initial issues of the regular series of Treasury bills may be made in cash, or through an exchange of maturing issues. For tax-anticipation bills, banks are usually allowed to pay some portion of their bill allotments by a credit to their Treasury tax and loan accounts.

In 1961, another method of auctioning Treasury bills was introduced that involves the sale of "strips" of bills. Strip bills did not involve a new maturity, as was the case with the nine-months bills, but rather a new marketing technique. Strip bills are sold as a package consisting of equal additions to outstanding Treasury bill series. In August 1969, for example, the Treasury raised \$2.1 billion of additional cash through the sale of a strip package consisting of \$300 million additions to each of the seven weekly bill series maturing between September 18 and October 30, 1969. Tenders for a strip offering must be submitted for the entire series; i.e., for all seven

TABLE I

Distribution of Treasury Bill Subscriptions
(Mil. of \$)

	Final Auction													
	1961		1963		1965		1967		1969					
	January	July	January	July	January	July	January	July	January	March	May	July	September	November
<u>Three-month Bills</u>														
Competitive	\$ 893	\$ 898	\$1,067	\$1,052	\$978	\$958	\$1,034	\$1,150	\$1,270	\$1,261	\$1,403	\$1,209	\$1,407	\$1,454
Noncompetitive	207	202	233	248	225	243	269	250	330	339	298	393	394	346
Noncompetitive as percent of competitive	23%	22%	22%	24%	23%	25%	26%	22%	26%	27%	21%	32%	28%	24%
<u>Six-month Bills</u>														
Competitive	457	464	751	741	905	916	883	881	921	943	1,157	837	987	940
Noncompetitive	43	36	49	59	98	85	117	120	182	158	144	263	214	260
Noncompetitive as percent of competitive	9%	8%	7%	8%	11%	9%	13%	14%	20%	17%	12%	31%	22%	28%
<u>Nine-month Bills</u>														
Competitive	0	0	0	0	0	0	485	482	476	483	486	486	484	481
Noncompetitive	0	0	0	0	0	0	17	19	24	18	14	14	16	19
Noncompetitive as percent of competitive	--	--	--	--	--	--	4%	4%	5%	4%	3%	3%	3%	4%
<u>Twelve-month Bills</u>														
Competitive	1,353	1,793	2,253	1,783	973	969	861	953	935	956	961	1,158	949	941
Noncompetitive	148	211	243	215	28	31	40	47	65	45	39	44	57	60
Noncompetitive as percent of competitive	11%	12%	11%	12%	3%	3%	5%	5%	7%	5%	4%	4%	6%	6%
<u>Tax Anticipation Bills</u>														
Competitive	0	2,989	0	0	0	0	0	3,509	1,553	0	0	3,229	0	0
Noncompetitive	0	514	0	0	0	0	0	496	206	0	0	287	0	0
Noncompetitive as percent of competitive	--	17%	--	--	--	--	--	14%	13%	--	--	9%	--	--

Source: *Treasury Bulletin*

maturities in the example described.⁸ Because more than one maturity is involved, it is more difficult to price a tender in a strip auction than it is to determine bids in a regular offering.

Participation in primary offerings of Treasury bills largely depends on the type of bills being sold. Noncompetitive bidders generally concentrate on the three- and six-month bill issues. Noncompetitive allotments of six-month bills usually range from 10 to 20 percent of the competitive allotments; noncompetitive allotments of one-year bills are much lower, averaging 7 percent. In the three-month bill issues, the noncompetitive bids that are accepted account for about one-fourth of the competitive allotments (see Table I). In 1969, as bill rates moved to record levels, Treasury bill auctions apparently attracted some individuals who traditionally place their savings with deposit-type financial institutions.⁹ As shown in Table I, the ratio of noncompetitive to competitive allotments for both the three- and six-month maturities increased markedly in 1969.

A recent study indicated that commercial banks, securities dealers, and Federal Reserve and U. S. Government trust accounts are the principal subscribers to initial bill issues.¹⁰ The extent of

⁸An award of \$70 million in the August strip bill would have consisted of \$10 million of bills maturing on September 18, another \$10 million maturing on September 25, plus five more bills of \$10 million, maturing successively on October 2, 9, 16, 23, and 30.

⁹The Fiscal Agency Department of the Federal Reserve Bank of Cleveland reports that in the second half of 1969 sales of Treasury bills to individuals in the Fourth Federal Reserve District more than doubled.

¹⁰Lawrence Banyas, *New Techniques in Debt Management Since the Late 1950's, Report of the Joint Treasury-Federal Reserve Study of the U. S. Government Securities Market* (Washington, D. C.: Board of Governors of the Federal Reserve System, 1969), pp. A-3-A-10.

each group's subscriptions varies according to the maturity of the bill. Banks bid for their own accounts as well as for their customers, and some large banks that act as dealers in U. S. Government securities also bid for additional amounts of bills to maintain adequate trading inventories. Similarly, nonbank dealers also bid heavily for bills in the auctions. The Federal Reserve Bank of New York also participates in the auctions on behalf of U. S. Government trust funds, foreign central banks, and the Federal Open Market Account.

MARKET YIELDS AND SOME COMPARISONS

Because there is an active secondary market for Treasury bills, they can be bought or sold many times after they have been issued. That is, U. S. Government securities dealers stand ready to quote terms at which they would buy or sell every outstanding bill issue.¹¹ The highly developed secondary market for Treasury bills largely explains their high degree of liquidity.

In line with general interest rate trends, bill yields in the secondary market rose sharply during the 1960's. Toward the end of the decade, the average yield on three-month bills was about two and a half times higher than the average yield in 1960. The largest advance in yields on all maturities occurred after 1965, when yields nearly doubled (see Table II). In 1969, Treasury bill yields were at a record high. Nevertheless, during the 1960's, yields on Treasury bills did not rise as high nor as fast as yields on short-term securities issued by private firms.

¹¹For a description of the dealer market, see "Repurchase Agreements: Their Role in Dealer Financing and in Monetary Policy," *Economic Review*, Federal Reserve Bank of Cleveland, November-December 1969.

TABLE II

Yields on Treasury Bills and Other Selected Money Market Instruments
1960–1969

Year or Month	Three-Month Bills	Four to Six Month Commercial Paper	Three-Month Prime Bankers' Acceptances	Three-Month Certificates of Deposit	Yield Spreads over Treasury Bills		
					Commercial Paper	Bankers' Acceptances	Certificates of Deposit
	(percent)	(percent)	(percent)	(percent)	(basis points)	(basis points)	(basis points)
1960	2.87%	3.85%	3.51%	n.a.	+ 98	+ 64	n.a.
1961	2.36	2.97	2.81	n.a.	+ 61	+ 45	n.a.
1962	2.77	3.26	3.01	n.a.	+ 49	+ 24	n.a.
1963	3.16	3.55	3.36	3.40%	+ 39	+ 20	+ 24
1964	3.54	3.97	3.77	3.87	+ 43	+ 23	+ 33
1965	3.95	4.38	4.22	4.31	+ 43	+ 27	+ 36
1966	4.85	5.55	5.36	5.43	+ 70	+ 51	+ 58
1967	4.30	5.10	4.75	4.67	+ 80	+ 45	+ 37
1968	5.33	5.90	5.75	5.84	+ 57	+ 42	+ 51
1969							
January	6.13	6.53	6.46	6.53	+ 40	+ 33	+ 40
February	6.12	6.62	6.47	6.58	+ 50	+ 35	+ 46
March	6.01	6.82	6.66	6.65	+ 81	+ 65	+ 64
April	6.11	7.04	6.86	6.78	+ 93	+ 75	+ 67
May	6.03	7.35	7.38	7.27	+132	+135	+124
June	6.43	8.23	7.99	8.16	+180	+156	+173
July	6.98	8.65	8.41	8.75	+167	+143	+177
August	6.97	8.33	8.04	8.40	+136	+107	+143
September	7.08	8.48	8.14	8.50	+140	+106	+142
October	6.99	8.57	8.17	8.65	+158	+118	+166
November	7.24	8.46	8.18	8.66	+122	+ 94	+142
December	7.81	8.84	8.57	8.85	+103	+ 76	+104

n.a. Not available.

NOTE: Monthly yields are averages of daily figures except for CD rates, which are figures for the first of each month; annual data represent monthly averages.

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

As the spreads shown in Table II indicate, market yields on commercial paper, bankers' acceptances, and certificates of deposit were consistently above yields on Treasury bills. Moreover, the spreads over bills have generally widened since 1965, particularly in 1969. Before 1969, average spreads above Treasury bills had generally been within a range of 40 to 60 basis points. In May 1969, however, spreads surpassed 100 basis points and in some succeeding months exceeded 150 basis points. In part, this phenomenon reflects the stringency in credit markets during 1969. As the

monetary authorities restricted the total supply of credit, all interest rates rose. However, because Treasury bills are better known and more widely held, they attracted enough investors so that the rate increases in Treasury bills were smaller than the rate increases in lesser known securities. Thus, in relative terms, bill yields advanced the least.

Yield spreads (on a discount basis) among different maturities of Treasury bills also changed during the 1960's. As a general rule, bill yields tend to rise as maturities increase; there are, however, exceptions. For example, market yields

on six-month and nine- to twelve-month bill issues were, on average, higher than yields on three-month bills in each year in the 1960-1969 period. On the other hand, in 1968 and 1969, yields on six-month bills were, on average, higher than yields on nine- to twelve-month issues. Yield spreads among the three maturity categories were as follows:

Year	Six-Month Over Three-Month (basis points)	Nine- to Twelve-Month Over Three-Month (basis points)	Nine- to Twelve-Month Over Six-Month (basis points)
1960	+33	+54	+21
1961	+23	+45	+22
1962	+13	+24	+11
1963	+ 9	+14	+ 5
1964	+14	+20	+ 6
1965	+10	+11	+ 1
1966	+21	+22	+ 1
1967	+31	+41	+10
1968	+15	+12	- 3
1969	+20	+13	- 7

There appears to be no stable pattern in rate spreads over the ten-year period—a phenomenon that is subject to varied interpretations.¹² In 1960, the yield curve for Treasury bills clearly sloped upward. After 1960, however, the degree of slope diminished steadily, and by 1968, the yield curve had acquired a hump. That is, yields on nine- to twelve-month issues were, on average, below yields on six-month issues.

The determination of yield relationships among different maturities is a subject of lively debate among economists. Some analysts believe that expectations are the crucial factor in term-structure relationships. In the case of Treasury bills, the role of expectations is probably relevant.

¹²For a summary of the debate on this subject, see L. G. Telser, "A Critique of Some Recent Empirical Research on the Explanation of the Term Structure of Interest Rates," *Journal of Political Economy*, August 1967, pp. 546-561.

However, as suggested earlier, there is a strong demand for three- and six-month bill maturities by large and small investors that may also be a factor in yield-relationships for the various bill maturities. In addition, Federal Reserve open market operations in bills as well as changes in the supply of Treasury bills are also believed to affect the term-structure of yields on bills.

TREASURY BILL OWNERSHIP

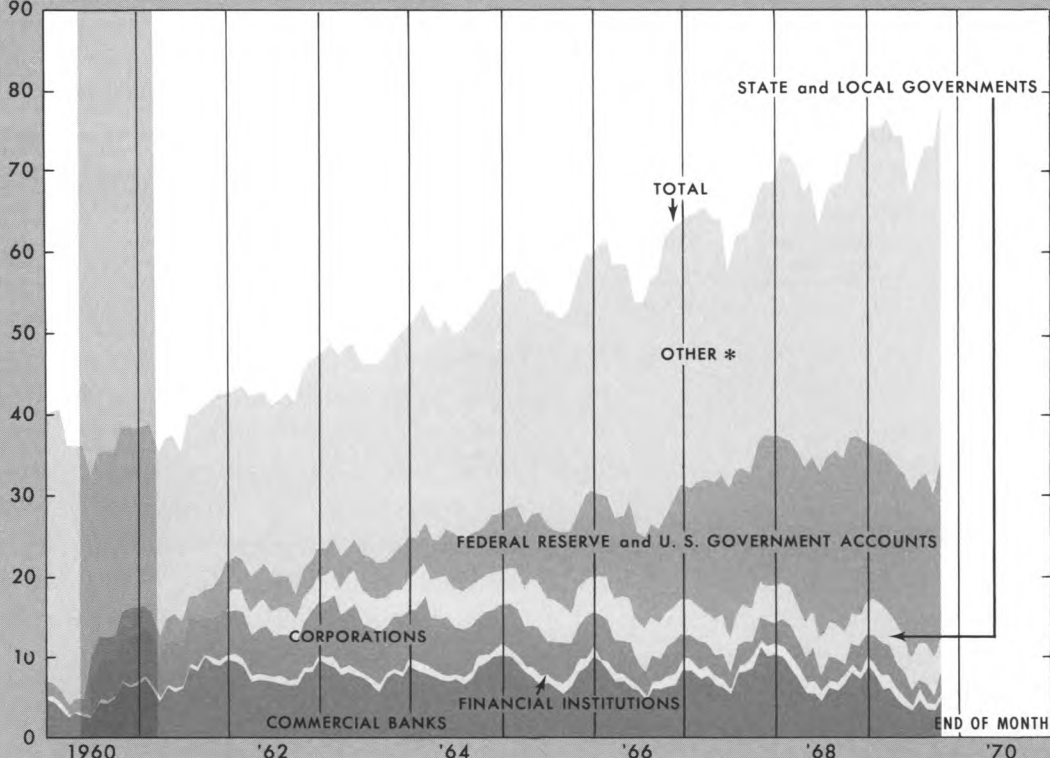
The high degree of liquidity of Treasury bills makes them exceptionally desirable to a wide spectrum of investors. According to the monthly survey of ownership conducted by the U. S. Treasury Department, the principal holders (among those reporting) of outstanding bills are commercial banks, corporations, state and local governments, and Federal Reserve and U. S. Government trust accounts (see Chart 3). In the Treasury survey, the ownership of more than half of the outstanding bills is not reported; an omission that certainly poses a serious problem in determining Treasury bill ownership.

Commercial banks were among the earliest investors in Treasury bills. Liquidity is crucial to the operations of a commercial bank, in terms of both deposit management and portfolio adjustment, and Treasury bills are an ideal means of holding secondary reserves. In addition, in many bank transactions where collateral is required (for example, in member bank borrowing from the Federal Reserve), Treasury bills have been widely used. Commercial bank holdings of Treasury bills varied considerably during the 1959-1969 period, but within each year they tended to follow a clear pattern: bank holdings declined in the first half of the year and rose in the second half. As indicated earlier, the supply of bills, especially tax-bills, tends to increase in the second half of the year. In

Chart 3.

OWNERSHIP of TREASURY BILLS

Billions of dollars



*Includes all other investors plus those banks, insurance companies, savings and loan associations, corporations, and state and local governments not reporting in the Treasury survey
 Last entry: October 1969
 Source of data: Treasury Bulletin

In addition, banks also tend to increase their holdings of bills toward the end of the year when income statements and balance sheets are prepared. Although Treasury bill holdings by banks varied widely between 1959 and 1969, the supply of outstanding bills rose sharply; therefore, the relative share held by banks declined.

For many years, corporations have attempted to reduce their cash balances, especially in the face of rising interest rates. Instead, temporarily idle funds have been invested in the money market,

often in Treasury bills. Treasury bills have been used extensively to invest corporate funds set aside for tax liabilities. The bulk of repurchase agreements between securities dealers and corporations involves Treasury bills. Nevertheless, the corporate share of outstanding Treasury bills has been declining in recent years, both in absolute and relative terms (see Chart 3). After reaching a peak of \$8.2 billion in May 1963, holdings of Treasury bills by reporting corporations declined to \$2.2 billion in October 1969. Admittedly, corporate

liquidity has declined in recent years, but the development of the CD market, as well as the generally lower level of Treasury bill yields relative to yields on alternative investments, may also have contributed to decreased corporate holdings of bills.¹³

State and local governments are also important investors in Treasury bills. Funds are usually accumulated by these units during tax-payment periods and, in turn, are invested in Treasury bills and other short-term securities until needed for expenditures throughout the year. State and local government holdings of Treasury bills have increased steadily since the Treasury began to report such data, rising from \$2.7 billion in December 1961 to \$4.9 billion in October 1969.

The ownership group that has absorbed the bulk of the increased supply of Treasury bills since 1963 is the accounts of Federal Reserve banks and U. S. Government trust funds. Holdings of Treasury bills by these accounts increased from \$3.6 billion to \$21.5 billion between December 1962 and October 1969. At the same time, the total of Treasury bills outstanding increased by \$30.8 billion. Thus, on balance, these accounts absorbed about 70 percent of the net increase in the supply of Treasury bills during this period.

During the 1960's, the distribution of the ownership of Treasury bills shifted away from corporations (and to a lesser extent from commercial banks) to the Federal Reserve banks and U. S. Government trust fund accounts. In part, this shift may reflect the fact that private investors have found that yields on other types of short-term issues, such as CDs or commercial paper, are more attractive.

¹³For an extensive discussion of the role of Treasury bills in corporate liquidity, see Edward J. Geng, *United States Treasury Bills*. (Thesis prepared for the Stonier Graduate School of Banking, Rutgers University, 1966), pp. 64-79.

TREASURY BILLS AND PUBLIC POLICY

Although analysis of Treasury debt management is beyond the scope of this discussion,¹⁴ the liquidity effects of Treasury bills in the economy should be mentioned. Some economists believe that an increase in the supply of Treasury bills held by the public increases the liquidity of the economy and thus stimulates spending. In the early 1960's, the economy was operating below its potential, and public policy was directed toward stimulating growth in employment and output. Therefore, borrowing funds for the U. S. Government through an increase in the volume of Treasury bills was consistent with achieving the economic objective of moving toward full employment. In addition, balance of payments considerations at that time suggested the need to maintain short-term interest rates in the United States at levels that were competitive with the higher short-term rates prevailing abroad. Thus, to the extent that the enlarged Treasury bill offerings raised domestic short-term interest rates, the emphasis on Treasury bill offerings was justifiable. After 1966, however, the increased reliance on Treasury bills to raise new cash for the Government was caused in large part by interest rate ceilings on Treasury bonds rather than by economic stabilization goals. The economy in this period was faced with inflation and, therefore, needed less, not more, liquidity. The stepped-up pace of Government expenditures and the resulting deficits in the United States Budget increased borrowing needs at the same time that the Treasury was in effect limited to using Treasury bills and/or Treasury notes to raise funds.

¹⁴For an analysis of Treasury operations during 1960-1968, see Michael Prell, "Managing the Debt of the '60's," *Monthly Review*, Federal Reserve Bank of San Francisco, January 1969, pp. 11-18.

In monetary policy, Treasury bills play a dual role. First, because the Treasury bill is widely used in the money market, the Treasury bill rate and dealer positions and transactions in Treasury bills are often considered indicators of the state of the market. Therefore, prevailing conditions in the Treasury bill market are among the factors that are considered in monetary policy decisions. Second, Treasury bills are important in the conduct of Federal Reserve open market operations. A large part of open market purchases and virtually all open market sales are effectuated through Treasury bills. As mentioned earlier, the Treasury bill market encompasses a wide range of investors and has a well-organized dealer network. Moreover, yields in this market are highly responsive to changes in supply and demand. These characteristics make the bill market well-suited for Federal Reserve transactions, particularly transactions involving large dollar volumes that in all likelihood could not be accommodated in markets that did not have such characteristics.

In fact, during the 1950's, Federal open market operations were entirely restricted to Treasury bills under normal conditions. This policy was

popularly known as the "bills-only doctrine," although the Federal Reserve System referred to it as "bills preferably" or "bills usually" policy.¹⁵ The policy was abandoned in early 1961. Balance of payments considerations, among other factors, were probably the decisive development that led to the policy change.¹⁶ Specifically, in the early 1960's, public policy was directed toward keeping short-term interest rates in line with rates abroad, while monetary policy attempted to provide credit to accommodate economic expansion. The extension of open market purchases to longer term Treasury issues made credit expansion possible with a minimum of downward pressure on short-term interest rates in the United States.

¹⁵Actually, the name used to describe that policy depended on whether one was an advocate or a critic. The latter generally referred to it as "bills-only." For the Federal Reserve rationale behind the policy see Winfield W. Riefler, "Open Market Operations in Long-Term Securities," *Federal Reserve Bulletin*, November 1958, pp. 1260-1274. For criticisms, see Dudley G. Lockett, "Bills Only: A Critical Appraisal," *Review of Economics and Statistics*, August 1960, pp. 301-306.

¹⁶See *48th Annual Report of the Board of Governors of the Federal Reserve System* (1961), pp. 39-42.

CAPITAL SPENDING IN MAJOR AREAS OF THE FOURTH DISTRICT

Surveys of capital spending plans of manufacturing and other business firms in several major areas of the Fourth District that were undertaken by the Federal Reserve Bank of Cleveland in October 1969 confirmed the findings of the preceding surveys conducted in April 1969.¹ At that time, firms participating in the surveys reported sizable increases in spending for 1969 and cutbacks for 1970. The latest surveys still indicated that total spending in 1969 would exceed the total for 1968 and that spending in 1970 will drop below the level of spending in 1969. However, the latest margins of increase in 1969 were generally smaller than those reported in the spring, as many firms revised their earlier plans and scaled down total spending for 1969. This, in turn, had the effect of reducing the relative size of cutbacks in spending for 1970, aside from any revisions in spending plans for 1970 that responding firms made between April and October 1969.

NORTHEASTERN OHIO

Manufacturing concerns in eight northeastern Ohio counties² participating in the fall survey

¹The surveys in northeastern Ohio (including Cleveland) and Cincinnati were undertaken with the cooperation of the Greater Cleveland Growth Association and the Greater Cincinnati Chamber of Commerce, respectively; the Pittsburgh survey was conducted for the Federal Reserve Bank of Cleveland by the University of Pittsburgh.

²Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, and Summit counties.

reported that planned outlays for new plant and equipment would be 7 percent higher in 1969 than actual outlays in 1968. For more than two out of every five participating manufacturing firms, the 1969 plans reported in the fall survey were smaller than those reported in the spring survey, when total spending by the group was expected to be 14 percent higher than actual spending in 1968. The overall downward revision was, however, confined to the durable goods group, where it affected all major industries. In contrast, in the nondurables group, only the chemical industry scaled down its spending plans for 1969 between the spring and fall survey.

As shown in Table I, the 7-percent increase in spending by manufacturing firms in 1969 reflects a rise of only 3 percent in the durable goods sector and an increase of 23 percent for the nondurable goods group. All but two of the major industries in the area—primary metals and fabricated metals—expected total spending in 1969 to exceed the level of actual spending in 1968. Despite the downward revision in spending plans between April and October, nearly two-thirds of all firms participating in the fall survey reported that spending would be greater in 1969 than in 1968, the same proportion as in the spring survey.

For 1970, capital spending by all manufacturing firms is expected to be 14 percent less than in 1969 in both the durable and nondurable goods industries. More than half of all participating manufacturing firms plan to spend less in 1970 than in 1969. In fact, reduced spending is indi-

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TABLE I

Capital Spending by Manufacturing Firms
and Public Utilities
Eight Northeastern Ohio Counties*
(Fall 1969 Survey)
Year-to-Year Percent Change

	1968 (actual) to 1969 (planned)	1969 (planned) to 1970 (planned)
MANUFACTURING	+ 7%	-14%
Durable goods	+ 3	-14
Ordnance	- 7	-43
Primary metals	- 8	-35
Fabricated		
metals	-23	- 1
Machinery	+39	-10
Electrical		
equipment	+ 2	+61
Transportation		
equipment	+20	- 5
Nondurable goods	+23	-14
Food	+92	+27
Printing and		
publishing	+33	-43
Chemicals	+16	-48
Rubber and		
plastics	+12	-10
PUBLIC UTILITIES	+ 8	+12
TOTAL	+ 7%	- 6%

* Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, and Summit counties.

Source: Federal Reserve Bank of Cleveland

cated for all but two of the industries listed in Table I, as spending for some large expansion projects underway in 1969 (in the primary metals, machinery, and chemicals industries) is scheduled for completion in 1970.

Public utilities operating in the eight-county area expected to spend 8 percent more for new plant and equipment in 1969 than in 1968 and expected to raise their outlays further by 12 percent in 1970. Both figures represent upward revisions of spending plans reported in the spring.

CLEVELAND AREA

Capital spending in the four counties that are included in the Cleveland metropolitan area determines the general spending pattern for the larger eight-county area in northeastern Ohio, but not necessarily the pattern in each industry; this is particularly true for those industries that are entirely or partly concentrated outside metropolitan Cleveland, such as rubber and plastics, or chemicals. Cleveland area manufacturers expected that total outlays for new plant and equipment in 1969 would exceed actual spending in 1968 by 6 percent. This represents a fairly sharp downward revision of the 16-percent rise in spending that was indicated in the spring survey. Revisions of spending plans caused a net reduction of total outlays only in the durable goods group.

The fall survey indicated that total spending in 1969 by durable goods firms would be only 1 percent more than in 1968 (see Table II). Only the machinery and transportation equipment industries expected spending increases in 1969—for both construction and equipment—while the other four industries listed in the table indicated reduced spending. The nondurable goods group, which represents a much smaller portion of the entire manufacturing sector than the durable goods groups in terms of employment and particularly in terms of the total dollar amounts involved, anticipated that spending in 1969 would be 56 percent greater than in 1968, reflecting substantial increases in spending for new structures and new equipment in the printing and publishing industry as well as in the chemical industry.

Cleveland area manufacturers, as a group, plan to cut back spending in 1970 by 15 percent. However, the reduction again will be limited to the durable goods group, where spending is expected to drop by 17 percent. Some of the durable goods

TABLE II
Capital Spending by Manufacturing Firms
Cleveland Metropolitan Area
(Fall 1969 Survey)
Year-to-Year Percent Change

	1968 (actual) to 1969 (planned)	1969 (planned) to 1970 (planned)
Durable goods	+ 1%	-17%
Ordnance	-30	-63
Primary metals	- 8	-36
Fabricated metals	-41	+16
Machinery	+45	-17
Electrical equipment	-19	+69
Transportation equipment	+22	- 8
Nondurable goods	+56	+ 5
TOTAL	+ 6%	-15%

Source: Federal Reserve Bank of Cleveland

industries that reduced their outlays in 1969 plan further spending cuts for 1970. (This group includes the primary metal industries, where unusually large sums were spent in 1968 as part of an extended investment program to improve steel-finishing facilities.) In contrast, a 5-percent increase in spending is expected for the nondurable goods sector, and cutbacks in outlays by some nondurable goods industries will be more than offset by large increases in spending by other industries in the group.

The fall survey indicated that spending for new structures by Cleveland area manufacturers would rise to nearly \$1 out of every \$4 of total spending in 1969 but should drop back to less than \$1 out of every \$6 in 1970 (see Table III). In contrast, a slight rise in the relative amount of spending for construction in 1970 had been indicated in the spring survey.

For the manufacturing group, spending for expansion of facilities was expected to account for

nearly two-thirds of total spending in 1969, with an even greater proportion anticipated for the nondurable goods industries. Spending for expansion should drop back in 1970. Shortage of existing manufacturing capacity does not appear to have played an important role in decisions to expand, as only 20 percent of respondents to the question concerning adequacy of present facilities replied that their capacity was insufficient.

Manufacturing firms that supplied information on methods of financing capital investments expected to finance 80 percent of their spending from internal sources and to raise that share to more than 90 percent in 1970. In contrast, in 1968, less than 75 percent of capital spending was

TABLE III
Capital Spending by Manufacturing Firms
Cleveland Metropolitan Area
(Fall 1969 Survey)
Percent Distribution of Total Spending by Type*
(Between Structures and Equipment and
Between Expansion and Replacement)

	Structures†			Expansion‡		
	1968	1969	1970	1968	1969	1970
Durable goods	20%	22%	16%	55%	61%	60%
Ordnance	22	29	0	88	97	25
Primary metals	8	9	9	68	70	67
Fabricated metals	70	38	9	12	16	21
Machinery	34	40	21	56	62	57
Electrical equipment	22	6	26	68	71	79
Transportation equipment	16	31	18	57	47	39
Nondurable goods	34	25	17	59	79	67
TOTAL	21%	23%	16%	55%	65%	61%

* Based only upon returns in which these breakdowns were supplied.

† Spending for equipment equals 100 percent less the percent shown for structures.

‡ Spending for replacement equals 100 percent less the percent shown for expansion.

Source: Federal Reserve Bank of Cleveland

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financed internally. Four out of every five firms replying to the question indicated that they relied solely on internal financing in 1968 and 1969 and planned to do so again in 1970.

CINCINNATI AREA

Similar to the patterns in the other areas of the Fourth District that were surveyed, manufacturing firms in the Cincinnati metropolitan area indicated that their capital investment plans for 1969 were scaled down between the spring and fall surveys. In the spring, the manufacturing group had expected to spend 15 percent more in 1969 than in 1968. In October, their revised plans represented a rise of only 1 percent in 1969 (see Table IV). Downward revisions reported by individual firms outnumbered upward revisions. In the durable goods industries, spending plans of the electrical equipment and the transportation equipment industries were substantially lowered. Expectations were that spending in all durable goods industries in 1969 would only be 8 percent higher than in 1968. In contrast, a 30-percent rise had been indicated in the April survey. Revisions for the nondurable goods sector were smaller.

The most recently reported spending increase for 1969 in the manufacturing group was due primarily to the substantial rise in spending by the transportation equipment industry, where outlays for a large construction project and sizable purchases of machinery and equipment, even after the downward revision between the surveys in April and October, continued to offset spending cuts by other industries. All other durable goods industries, and most of the nondurable goods industries listed in Table IV, reported reduced spending in 1969. These results were generally similar to those of the spring survey.

In 1970, Cincinnati area manufacturing firms plan to spend 15 percent less than in 1969.

TABLE IV

Capital Spending by Cincinnati Area Firms
(Fall 1969 Survey)

Year-to-Year Percent Change

	1968 (actual) to 1969 (planned)	1969 (planned) to 1970 (planned)
MANUFACTURING	+ 1%	-15%
Durable goods	+ 8	-18
Primary and fabricated metals*	-33	+65
Machinery	-33	-23
Electrical equipment	-19	+43
Transportation equipment	+76	-30
Nondurable goods	- 7	-10
Food	+ 5	+ 4
Paper	-47	-13
Printing and publishing	-35	-42
Chemicals	- 7	- 1
PUBLIC UTILITIES	+23	- 3
TOTAL	+10%	- 9%

* Combined in order to preclude disclosure of individual establishment data.

Source: Federal Reserve Bank of Cleveland

Spending will be reduced by 18 percent in the durable goods and by 10 percent in the nondurable goods industries. The largest reductions, both in total dollars and in percent, are expected in the transportation equipment and the machinery industries, where multimillion dollar construction projects are nearing completion. Another sharp relative reduction in spending in 1970 is indicated in the printing and publishing industry, following a steep drop in 1969 from the high 1968 level.

Capital investments by public utilities firms were anticipated in October to be 23 percent greater in 1969 than in 1968 but 3 percent lower in 1970 than in 1969. An increase of 34 percent for 1969 had been indicated in the spring survey.

TABLE V

Capital Spending by Cincinnati Area Firms
(Fall 1969 Survey)
Percent Distribution of Total Spending by Type*
(Between Structures and Equipment and
Between Expansion and Replacement)

	Structures†			Expansion‡		
	1968	1969	1970	1968	1969	1970
MANUFACTURING	38%	31%	22%	71%	74%	64%
Durable goods	37	38	19	57	67	47
Primary and fabricated metals§	28	6	26	41	19	8
Machinery	55	38	18	53	80	54
Electrical equipment	27	23	6	46	47	21
Transportation equipment	13	43	19	70	68	61
Nondurable goods	39	24	25	82	78	76
Food	44	31	41	56	60	41
Paper	42	11	7	84	38	48
Printing and publishing	50	22	6	72	74	86
Chemicals	33	18	21	94	91	91
PUBLIC UTILITIES	37	36	41	71	73	76
TOTAL	38%	32%	28%	71%	73%	68%

* Based only upon returns in which these breakdowns were supplied.

† Spending for equipment equals 100 percent less the percent shown for structures.

‡ Spending for replacement equals 100 percent less the percent shown for expansion.

§ Combined in order to preclude disclosure of individual establishment data.

Source: Federal Reserve Bank of Cleveland

The share of total spending in the Cincinnati area that was earmarked for new structures in 1969 was expected to remain below the high figure for 1968 (see Table V), despite sizable industrial construction projects underway during 1969. In view of the expected completion of most of those projects in 1970, the share of spending for construction was projected to decline further.

Almost three-fourths of spending in 1969 was to be for expansion of manufacturing facilities, a larger proportion than for both 1968 and 1970

(see Table V). Because only one-fourth of the manufacturing firms supplying information on capacity reported "less than adequate" facilities, while over 60 percent described their facilities as "adequate," factors other than lack of capacity account for the large share of spending for expansion.

Over four out of every five manufacturing firms expected to use only internal financing for capital investments in 1969 and 1970, the same proportion as in 1968. In actual dollars, the survey indicated that nearly 90 percent of capital spending would be internally financed in 1969 and 1970, a slight rise over 1968.

PITTSBURGH AREA

In the Pittsburgh metropolitan area, capital spending in 1969 by business firms participating in the fall survey was expected to exceed spending in 1968 by 14 percent (see Table VI). The figure reflects sizable increases in spending by public utilities firms, but only a 2-percent increase in new capital investment by manufacturing firms in the reporting group. The findings of the most recent survey are similar to the results of the survey conducted in the spring of 1969, when spending for 1969 was expected to exceed the respective totals for 1968 by 12 percent for all business firms and by 5 percent for the manufacturing group.

Despite increased spending by most major manufacturing industries in 1969—notably the fabricated metals industry and the machinery industry—the average increase for the entire manufacturing group apparently remained small, because a large portion of the 9-percent rise in spending by durable goods manufacturers was offset by a 33-percent reduction in spending by the nondurable goods group. Reduced spending in the nondurable goods group mainly reflected a

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TABLE VI

Capital Spending by Pittsburgh Area Firms
(Fall 1969 Survey)
Year-to-Year Percent Change

	1968 (actual) to 1969 (planned)	1969 (planned) to 1970 (planned)
MANUFACTURING	+ 2%	- 6%
Durable goods	+ 9	- 9
Stone, clay, and glass	-16	+ 35
Primary metals	+ 9	- 15
Fabricated metals	+36	- 16
Machinery	+31	+ 13
Electrical equipment	+ 6	- 6
Nondurable goods	-33	+ 17
Food	+ 4	- 48
Chemicals	-62	+118
TRANSPORTATION AND PUBLIC UTILITIES*	+28	+ 10
RETAIL TRADE	- 9	- 52
TOTAL	+14%	+ 1%

* Combined in order to preclude disclosure of individual establishment data.

Sources: University of Pittsburgh and Federal Reserve Bank of Cleveland

sizable cutback in capital outlays by the chemical industry from the high level in 1968.

For 1970, the spending plans of Pittsburgh area business firms show a small further rise in outlays above the 1969 total, despite a 6-percent reduction in spending planned by the manufacturing firms in the group. Reduced spending by the latter reflects a cutback in the durable goods industries that more than outweighs an increase in spending in the nondurable goods group, notably in the chemical industry. In contrast to the reduced spending by manufacturing firms, the combined outlays of the public utilities and the transportation industry are expected to be 10 percent greater in 1970 than in 1969, although spending by the

utilities in 1970 will remain slightly below the total for 1969.

About one-fifth of spending by all business firms has been designated for new structures (see Table VII). The share of spending for structures tends to be slightly larger and to fluctuate more from year-to-year for the manufacturing group than for the entire group of business firms surveyed. More than one-fourth of outlays by all

TABLE VII

Capital Spending by Pittsburgh Area Firms
(Fall 1969 Survey)
Percent Distribution of Total Spending by Type*
(Between Structures and Equipment and
Between Expansion and Replacement)

	Structures†			Expansion‡		
	1968	1969	1970	1968	1969	1970
MANUFACTURING	24%	15%	22%	33%	29%	32%
Durable goods	19	17	22	34	28	29
Stone, clay, and glass	5	6	0	8	6	6
Primary metals	21	19	28	35	28	32
Fabricated metals	14	20	25	27	24	24
Machinery	12	10	1	36	51	35
Electrical equipment	7	11	19	41	29	31
Nondurable goods	51	7	23	28	37	50
Food	3	2	0	48	59	48
Chemicals	67	3	30	25	28	54
TRANSPORTATION AND PUBLIC UTILITIES§	17	20	21	18	29	21
RETAIL TRADE	28	28	1	28	18	0
TOTAL	21%	19%	21%	27%	28%	26%

* Based only upon returns in which these breakdowns were supplied.

† Spending for equipment equals 100 percent less the percent shown for structures.

‡ Spending for replacement equals 100 percent less the percent shown for expansion.

§ Combined in order to preclude disclosure of individual establishment data.

Sources: University of Pittsburgh and Federal Reserve Bank of Cleveland

participating firms and close to one-third of outlays by manufacturers has been for expansion of facilities, a noticeably smaller proportion than in the Cleveland or Cincinnati area. About 70 percent of the Pittsburgh area firms answering the question concerning the adequacy of present facilities reported "adequate" capacity, four times as many as the number of firms indicating "less than required" facilities.

Eighty percent of the capital investments by Pittsburgh area manufacturers that supplied information on financing was to be financed internally in 1969, the same proportion as in 1968 but a smaller share than had been expected in the spring survey. In 1970, 90 percent of all capital spending by that group is expected to come from internal sources. More than four out of every five responding manufacturing firms expected to rely entirely on internal sources of funds to finance capital investments in 1969 and 1970, a slightly greater proportion than in 1968.

CONCLUDING COMMENTS

At the beginning of 1969, the quarterly Commerce-SEC survey of capital spending had indicated that manufacturing concerns in the nation planned to spend 16 percent more for new plant and equipment in 1969 than in 1968, following a 1-percent decline in such spending in 1968. The news was disturbing in the light of public policies aimed at cooling the economy in order to curb inflation. It also raised doubts with many observers whether spending would actually materialize at the predicted high margin of increase in view of declining sales and profit expectations, severe credit restraint, and diminishing rates of capacity utilization. The most recent Commerce-SEC survey shows that capital invest-

ments by manufacturers in 1969 would exceed the 1968 total by only 12 percent.

From the latest area surveys, it is obvious that capital spending plans of manufacturers in the Fourth District were also revised downward between the spring and fall of 1969. The revisions, in fact, were considerably sharper in the District than in the nation as a whole. Spending for 1969 is now expected to exceed actual 1968 spending by 6 percent in Cleveland and by only 1 or 2 percent in Cincinnati and Pittsburgh. In view of rising prices of capital goods, a spending increase of only 2 percent in current dollars represents, in fact, a decline in the "real" level of capital investments.

For 1970, recent nationwide surveys predict a continued rise in capital investments. Spending in the manufacturing sector in the United States is expected to increase in 1970 at the rate of 9 percent according to a private survey or at a rate of over 6 percent according to a special annual Commerce-SEC forecast. In contrast, the three District surveys indicate that manufacturing firms will reduce spending in 1970 by 6 percent in Pittsburgh and by 14-15 percent in Cleveland and Cincinnati. A portion of the cutback may merely reflect the completion of large one-time spending projects that frequently tend to magnify year-to-year percent changes in local spending but are hidden in nationwide totals. To the extent that the spending reductions are the result of a general scaling down of new investment by manufacturers in the three areas, rather than the results of disaggregation, they could be viewed either as a desirable step in the battle against inflation, or—depending on one's premise—as a less desirable indication that the investment sector of the economy is showing signs of weakening, at least on the local heavy-industry level.

