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CORPORATE BONDS, 1960–1968

Corporations first issued bonds in the United States early in the Nineteenth Century. The popularity of these debt instruments as a source of capital increased rapidly, particularly with railroads. In 1900, corporate bonds outstanding amounted to \$5.9 billion (par amount).¹ By yearend 1968, the volume of outstandings had increased to nearly \$167 billion. Currently, corporate bonds play an integral role in the capital markets by representing a major source of funds for businesses, as well as an important media for investors.

This article examines the nature and use of corporate bonds during the 1960-1968 period. The article describes some basic characteristics of corporate bonds, and then discusses the demand for funds and the issuers of bonds, as well as the suppliers of funds or investors. With the exception of a mild recession in 1960-1961, this article was written against a background of economic expansion. Since 1961, the United States has

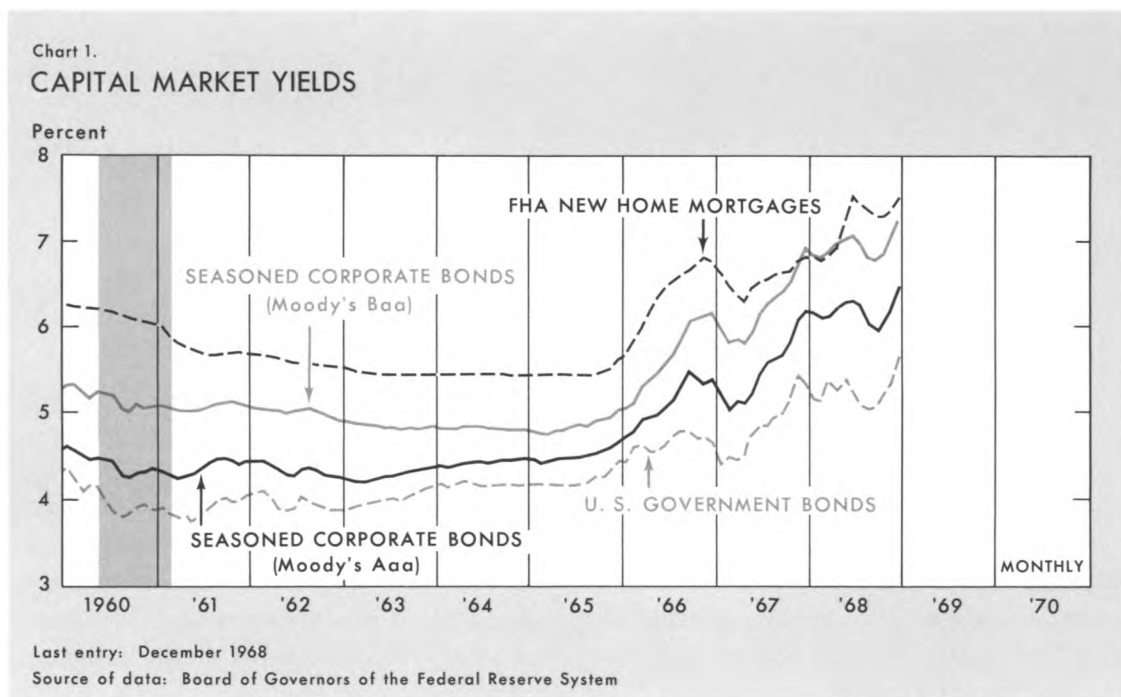
experienced its longest economic expansion in history, with the Gross National Product increasing more than 70 percent. Nevertheless, about seven years of price stability ended in inflation in late 1965. Throughout the article, reference is made to the preinflationary period and the 1965-1968 inflationary period, because the behavior of the corporate bond market differed noticeably during the two periods. As shown in Charts 1 and 2, during the inflationary period, market rates of interest soared to postwar high levels, and borrowers demanded record volumes of funds.

BASIC CHARACTERISTICS OF CORPORATE BONDS

Bonds are credit instruments that represent a promise by the issuer to repay a specified amount of money on a stated date, as well as a promise to pay interest at fixed intervals. Although the term "corporate bond" is generic, the form and nature of corporate bonds vary widely. Denominations, for example, range from \$100 to \$10,000 or more, with \$1,000 being the most common face value.

Security. Corporate bonds may be secured by specific collateral or unsecured. The types of

¹W. Braddock Hickman, *The Volume of Corporate Bond Financing Since 1900* (Princeton, N. J.: Princeton University Press for the National Bureau of Economic Research, 1953).



property pledged for security include real estate, rolling stock (i.e., freight cars), and marketable securities. Bonds backed by these assets are called mortgage bonds, equipment obligations, and collateral trust bonds, respectively.² Bonds that are unsecured by property are called debentures. Debentures are generally issued by high quality industrial companies and public utilities and are backed by the general credit of the issuing corporation. Care should be used when comparing the "quality" of a bond with the security behind it. For example, the quality of a debenture issued by a corporation with a high credit rating may be better than that of a first mortgage bond issued by a corporation with a low credit rating. In fact,

²Detailed definitions of the various types of corporate bonds may be found in a standard textbook on corporation finance.

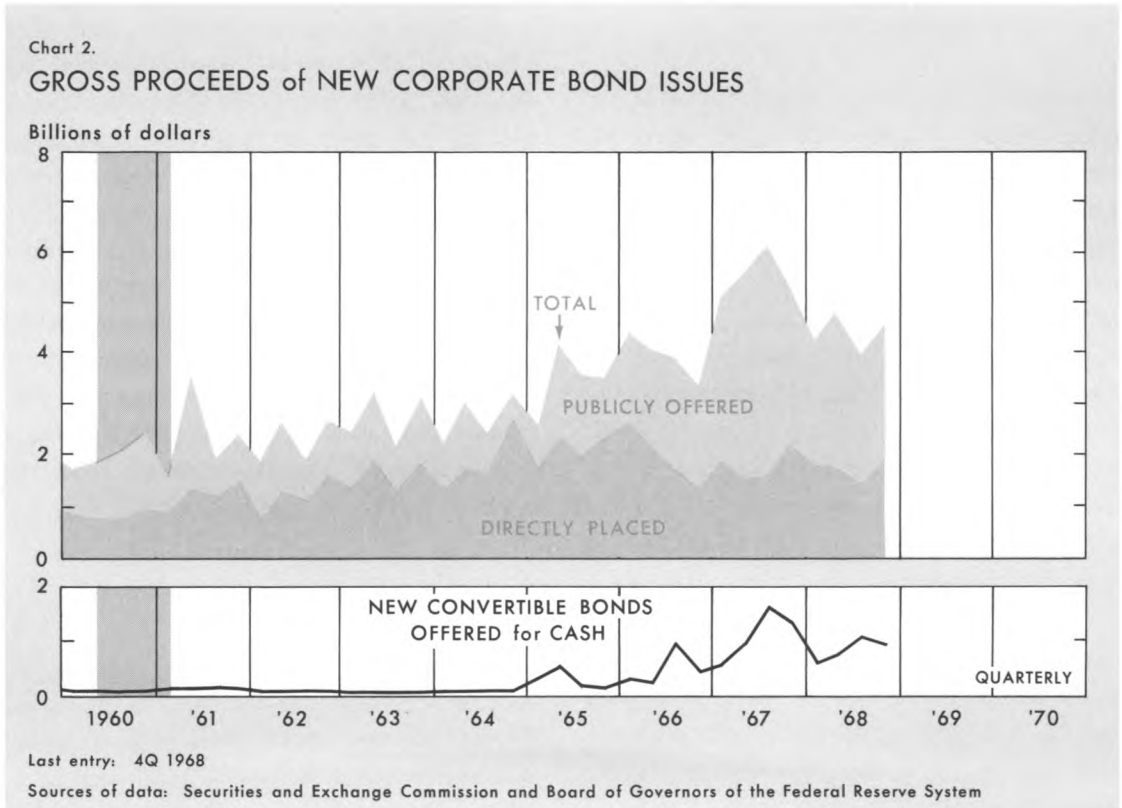
during the 1900-1943 period, secured issues generally had higher default rates than unsecured issues.³

There are some hybrid bonds that are usually the result of bankruptcies and railroad reorganizations. For example, "income" bonds promise to pay the principal, but not the interest unless it is earned by the borrowing corporation. Income bonds are sometimes called "adjustment" bonds. Two additional hybrids are "assumed" and "guaranteed" bonds. Typically, these bonds are outgrowths of railroad mergers where the acquiring company assumes or guarantees the obligations of the acquired company.

³W. Braddock Hickman, *Corporate Bond Quality and Investor Experience* (Princeton, N. J.: Princeton Research, 1958), pp. 431-465.

Retirement. Although corporate bonds are generally issued with maturities of 10 to 30 years or longer, many bonds are redeemed before maturity. Bonds can be retired in several ways. The basic method is the lump-sum payment, whereby the bond is paid off in its entirety at final maturity. A second method uses a "sinking fund," that is, the corporation sets aside a certain amount of money each year to be invested in or to repurchase some of its outstanding bonds. Another method is through serial retirement, whereby a specified series of bonds covered under the same indenture or borrowing agreement are retired each year.

As suggested above, many corporate bonds contain a "call" feature that allows the issuing corporation to call for the redemption of bonds before final maturity. The corporation may call either all or part of a bond issue to eliminate some unfavorable provision in the indenture, or to be able to refund the issue at lower coupon rates if market interest rates have declined. Many bonds cannot be called for 5 years, 10 years, or longer. This noncallable feature protects investors by enabling them to hold bonds with high coupon yields when market rates decline. When bonds are called, the bondholders or investors receive a modest premium above the par value of the bond



for their inconvenience. The value of the premium generally diminishes as the bonds move closer to maturity.

Finally, some bonds can be converted at the option of the bondholder into other types of securities, typically common stock. The conversion rate is based on a formula stated in the indenture. For example, a \$1,000 par value bond may be convertible into 10 or 20 shares of the common stock of the issuing corporation. Convertible bonds are popular with investors because such issues offer the security of a bond as well as some of the benefits of common stock ownership. Moreover, the coupon rates paid on convertible bonds, while lower than equivalent nonconvertible bond yields, are frequently higher than the dividend yields on the common stocks into which the bonds are convertible.

As shown in the lower panel of Chart 2, the dollar volume of convertible bond issues has increased appreciably in recent years and has accounted for a larger proportion of total bond offerings. The dollar volume of convertible bond offerings reached a peak in 1967 and accounted for 20 percent of total bond offerings, in contrast to an annual average of 5 percent during the 1960-1966 period. In 1968, the dollar volume of convertible bond offerings contracted somewhat, but still amounted to about 19 percent of total bond offerings. The increases in dollar volume of convertible bond offerings that have occurred since 1964 represent an attempt by issuing corporations to hold down interest costs and may have the ultimate effect of raising additional equity capital. Because of potential capital gains opportunities, convertible bonds generally carry lower interest rates than equivalent nonconvertible issues. In addition, as some of the bonds are

converted, the amount of the corporations' outstanding debt and interest costs are reduced.

Quality. Basically, the quality of corporate bonds depends on the earning power of the issuing corporation. Several advisory services and government agencies provide quality ratings of bonds based on their appraisals of the issuer's ability to pay off the debt, among other factors. The ratings range from Aaa rated "gilt edge" bonds to DDD-D rated defaulted bonds, and "legal" to "nonlegal" investments in some states. Some corporate bonds are not assigned ratings; however, the absence of a rating may or may not reflect the quality of a bond. For example, one advisory service does not rate corporate bonds when the outstanding issue is less than \$600,000, regardless of the issuer. This truncation excludes some high quality bonds issued by small corporations. In any case, bond ratings are meant to be investment guides, not absolutes. A study of the 1900-1943 period revealed that some high quality corporate bonds went into default, but significantly less often than lower rated corporate bonds.⁴ A study of the post-war period (1944-1965) revealed that corporate bond defaults amounted to about 0.1 percent of the volume of outstandings, compared with 1.7 percent in the 1900-1943 period.⁵ Bond defaults were generally at their lowest level near peak years of business cycles. However, the largest number of defaults occurred in bonds offered about one year before the peak of business cycles.⁶

⁴*Ibid.*, pp. 141-197.

⁵Thomas R. Atkinson, *Trends in Corporate Bond Quality* (New York: Columbia University Press for the National Bureau of Economic Research, 1967), p. 43.

⁶*Ibid.*, p. 47.

Investors' appraisal of the quality of corporate bonds is reflected in the bonds' prices, or in their market yields. As shown in Chart 1, market yields on Aaa rated corporate bonds were substantially higher than market yields on U. S. Government bonds, which are considered virtually default free, but much lower than market yields on mortgages. In addition, Aaa rated corporate bonds had lower yields than Baa rated corporate bonds, which have a higher default risk. As shown in the chart, the yield spread between Aaa and Baa rated bonds was not constant from 1960 through 1968. During periods of uncertainty in the economy, for example, during the 1960-1961 recession and during 1967-1968, a period of inflation, yield spreads tended to be wider than during periods of relatively stable economic growth such as 1964-1965. For example, in 1968, the yield spread between Aaa and Baa rated bonds averaged 76 basis points, more than double the spread in 1965. In addition, the yield spreads between corporate bonds and U. S. Government long-term bonds and mortgages moved in roughly the same fashion. This movement suggests that investors may have believed that the risk of holding lower quality securities was greater during periods of rising prices and economic uncertainty than during periods of stable economic growth.

DEMAND FOR FUNDS

In 1968, governments, corporations, individuals, and foreigners raised \$98 billion, net, in the United States credit markets, nearly triple the volume in 1960. Corporate securities, principally bonds of nonfinancial corporations, on average accounted for 8 percent of total funds raised in credit markets during the 1960-1964 period, and 13 percent during 1965-1968. As mentioned earlier, the 1965-1968 period was marked by

inflation, rising interest rates, and sharp changes in credit availability.

Sources of Funds. During the 1960-1968 period, internal sources of funds (i.e., depreciation and retained earnings) increased sharply and accounted for the bulk of total funds raised by corporations. Nevertheless, corporations increased their use of external sources of funds during this time (see Table I), borrowing through stocks, bonds, mortgages, bank and other loans, trade debt, profits tax liabilities, and other liabilities. It is beyond the scope of this article to discuss the advantages and disadvantages of the various sources of funds. Instead, the focus will be on the relationship between corporate bonds and both external and total sources of corporate funds.

The data in Table I reveal that bonds accounted for a substantially larger share of the *total* sources of funds raised by nonfinancial corporations after 1965 than during the earlier years under review, reflecting an increased use of external funds in general. In addition, corporate bonds' share of all *external* sources of funds increased sharply in 1966-1967, and then contracted again in the following year. On the whole, corporations have financed a small, but increasing share of their credit needs through bonds in recent years.

By issuing bonds, corporations have obtained long-term funds at nominally high interest costs in recent years. However, interest payments on bonds are paid before taxes and because of inflation, both principal and interest are currently paid back in depreciated dollars. Consequently, the "real" cost to a borrowing corporation is substantially reduced. Moreover, if interest rates decline sufficiently, issuing corporations can "call" the bonds with that privilege and refund them at lower rates. There is some evidence that when long-term interest rates were high in previous periods,

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TABLE I

Net Sources of Funds for Nonfinancial Corporations
1960–1968

	Total Sources*	External Sources†	Bonds	Bonds As Percent of Total Sources	Bonds As Percent of External Sources
	(bil. of \$)	(bil. of \$)	(bil. of \$)		
1960	\$ 47.3	\$12.9	\$ 3.5	7.4%	27.1%
1961	54.7	19.1	4.6	8.4	24.1
1962	63.3	21.5	4.6	7.3	21.4
1963	65.9	22.0	3.9	5.9	17.7
1964	70.2	19.7	4.0	5.7	20.3
1965	88.4	32.7	5.4	6.1	16.5
1966	99.2	38.1	10.2	10.3	26.8
1967	94.1	32.5	15.1	16.0	46.5
1968p	111.1	47.0	13.0	11.7	27.7

* External and internal sources of funds.

† External sources of funds include: stocks, bonds, mortgages, bank and other loans, trade debt, profits tax liability, and other liabilities.

Source: Board of Governors of the Federal Reserve System, Flow of Funds Accounts

corporations increased their short-term financing and then refunded with long-term debt when interest rates declined.⁷

As shown in Chart 2, there was a gradual increase in the gross dollar volume of new corporate bond offerings (SEC data) until 1964. After 1964, total bond offerings accelerated, reaching a peak in 1967 after the severe credit restraint of 1966. Despite some moderation in the rate of increase, new bond offerings remained at a high level in 1968.

There is a substantial difference between the gross proceeds from new corporate bond offerings and the net change in outstanding corporate bonds

(see Table II) because many bonds that are redeemed at maturity or called are not replaced, while others are converted into stocks. Thus, the dollar volume of gross proceeds of new corporate bond issues exaggerates the impact of these offerings on the bond market. For convenience, the difference between gross proceeds and the net change in outstandings is called "attrition" and is expressed as a percent of gross proceeds (see Table III). The data show that the attrition tends to vary inversely with the level of corporate bond yields. That is, attrition was largest in 1963, when bond yields were at their lowest level, and debt retirement was high, and smallest in 1968, when bond yields were at their highest level.

Uses of Funds. Data on the proposed uses of funds raised through corporate debt and equity securities show that only a small fraction of the net proceeds was used to retire existing securities (see Table IV). Moreover, the volume of funds

⁷See, Hyman P. Minsky, "Financial Crisis, Financial Systems, and The Performance of the Economy," *Private Capital Markets*, Prepared for the Commission on Money and Credit (Englewood Cliffs, N. J.: Prentice Hall, Inc., 1964), pp. 311-314.

TABLE II

Net Change in Outstanding
Corporate Bonds
1960–1968*
(Bil. of \$)

1960	\$ 5.0
1961	5.2
1962	4.9
1963	5.6
1964	6.6
1965	8.1
1966	11.1
1967	16.0
1968	14.0

* Totals in this table are not strictly comparable with totals in Table VII.

Source: Securities and Exchange Commission

TABLE III

Attrition as a Percent of Gross
Proceeds and Corporate Bond Yields*
1960–1968

	<u>Attrition</u>	<u>Bond Yields</u>
1960	38.27%	4.41%
1961	44.68	4.35
1962	46.15	4.33
1963	48.14	4.26
1964	38.88	4.40
1965	41.30	4.49
1966	28.84	5.13
1967	18.18	5.51
1968	17.24	6.18

* Moody's Aaa rated corporate bonds.

Sources: Moody's Investor Service and Federal Reserve Bank of Cleveland

TABLE IV

Proposed Uses of Corporate Funds
1960–1968
(Bil. of \$)

	<u>Total Net Proceeds*</u>	<u>New Money</u>		<u>Retirement of Securities</u>	<u>Other Purposes</u>
		<u>Plant and Equipment</u>	<u>Working Capital</u>		
1960	\$ 9.9	\$ 5.7	\$3.1	\$0.3	\$0.9
1961	12.9	7.4	3.3	0.9	1.3
1962	10.5	5.7	2.6	0.8	1.5
1963	12.0	5.3	3.6	1.5	1.6
1964	13.8	7.0	4.2	0.8	1.8
1965	15.8	7.7	5.4	1.0	1.7
1966	17.8	12.4	3.4	0.2	1.8
1967	24.4	16.2	6.1	0.3	1.9
1968	n.a.				

n.a. Not available.

* Gross proceeds of stocks, bonds, and notes issued less compensation to distributors and other costs of flotation.

Source: Securities and Exchange Commission

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used for that purpose tended to vary inversely with the level of interest rates. Thus, when interest rates were relatively high, as in 1960 and 1967-1968, corporations retained their lower rate coupon issues as long as possible. Conversely, relatively low interest periods gave corporations an opportunity to refinance outstanding debt and thus to reduce their interest costs.

The bulk of the total net proceeds raised (primarily from the sale of bonds) was used for plant and equipment, particularly in recent years. Working capital absorbed the next largest share of funds. During the period under review, the amount of funds used for working capital increased at a much slower rate than the amount used for plant and equipment.

Public Offerings and Direct Placements. Total bond offerings consist of both publicly offered and privately or directly placed issues. Public offerings of securities (debt and equity) are arranged by investment bankers who act as intermediaries between issuing corporations and investors. Specifically, offerings are handled by a syndicate of underwriters that, either through competitive bidding or negotiation, purchases securities from a borrowing company and, in turn, sells the securities to individual and institutional investors. Underwriters assume all of the marketing risk in return for a fee, which is represented by the spread between the price paid to the borrowing corporation and the price paid by the investor, minus underwriting expenses.

The alternative to a public offering is the direct placement of securities with large institutional investors that involves direct negotiation between borrower and lender and eliminates the underwriting function. In a direct placement, a prospective borrower, often with the aid of an agent, investigates the possible sale of securities to

one or a small group of institutional investors.⁸ Borrower and lender negotiate terms and conditions of the offering, with the exchange of funds and securities taking place directly.

As shown in Chart 2, the dollar volume of directly placed corporate bonds expanded irregularly through the first quarter of 1966 and then dropped off to a level that was maintained through 1968. Directly placed corporate bonds accounted for 67 percent of total corporate bond offerings in 1964 but only 38 percent in 1968.

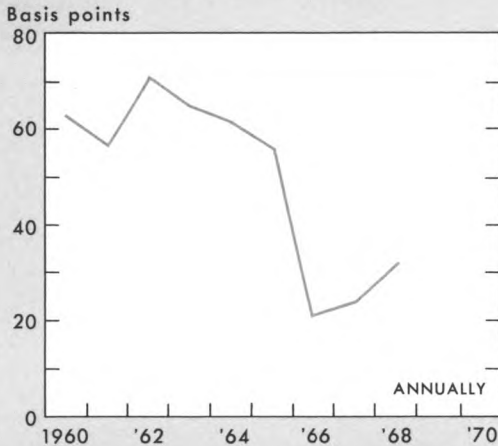
There are several explanations for the reduced dollar volume of directly placed corporate bonds in recent years. Because of monetary restraint and reduced liquidity at financial institutions in 1966, some institutional investors, such as life insurance companies (principal buyers of directly placed issues), cut back sharply on their volume of new commitments to acquire corporate securities. To some extent, the cutback in commitments in 1966 contributed to the reduced volume of corporate bonds directly placed in 1966, 1967, and possibly 1968. Moreover, institutional investors put a larger share of their funds into publicly offered corporate bonds because they are more readily marketable than directly placed issues.

In addition, yields on directly placed corporate bonds have been less attractive to investors than yields on publicly offered bonds. As shown in Chart 3, the spread between the yields on directly placed corporate bonds and new Baa rated

⁸An agent (usually a securities underwriter) will often bring borrower and lender together and assist in negotiating terms and conditions of the offering. The agent receives a fee for these services (usually paid by the borrower). For a detailed examination of direct placements, see "Direct Placement of Corporate Debt," *Economic Review*, Federal Reserve Bank of Cleveland, March 1965.

Chart 3.

SPREAD BETWEEN AVERAGE YIELD on DIRECTLY-PLACED BONDS and AVERAGE YIELD on NEW Baa PUBLICLY-OFFERED BONDS



Last entry: 1968

Sources of data: Moody's Investors Service, Inc. and Federal Reserve Bank of Cleveland

publicly offered bonds declined sharply in 1966 and remained relatively narrow for the next two years.

ISSUERS

In broad terms, the composition of corporate bond issuers reflects different phases of economic development. As an industry's financial needs exceed its capacity to generate internal funds, or its willingness or ability to issue capital stock, debt financing becomes more important. Thus, the railroads in the 1800's and the utilities in the early part of this century turned to the bond markets for capital to help finance their growth.⁹ Today,

⁹For more information on the changed composition of corporate bond issuers, see W. Braddock Hickman, *The Volume of Corporate Bond Financing Since 1900*, *op. cit.*

rapidly growing industrial firms have been accounting for an increasing share of capital market borrowing.

As shown in Table V, during the 1960-1968 period, manufacturing corporations issued the largest dollar volume of bonds. At the peak in 1967, for example, manufacturing corporations accounted for 45 percent of the total bond offerings, or 20 percentage points more than public utilities—the second largest issuer. In the last four years, the dollar volume of bonds issued by manufacturing corporations increased sharply. The data in Table IV suggest that the strong demand for funds stemmed from plant and equipment expenditures, as well as the desire to replenish liquidity after the extreme credit tightness in 1966. In addition, borrowers probably anticipated rising borrowing costs and wanted to obtain long-term funds at what they believed to be favorable terms.

Public utilities issued the second largest dollar volume of corporate bonds. From 1960 through 1965, the annual dollar volume of bond offerings by public utilities remained virtually unchanged, reflecting the relatively mild growth in capital spending programs of the utilities industries. In the next three years, however, the dollar volume of their bond offerings increased in response to stepped-up investment in plant and equipment. Nevertheless, during the period as a whole, the public utilities' share of total bond offerings declined noticeably.

Financial and real estate corporations, principally finance companies, were the third most important issuers of corporate bonds. The dollar volume of their offerings was influenced by the level of consumer instalment debt and credit market conditions. During the 1960-1968 period, the level of instalment credit at financial

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TABLE V

Gross Proceeds of New Corporate Bond Issues*
By Type of Issuer
1960–1968
(Bil. of \$)

	Total	Manufacturing	Commercial and Other	Transportation	Public Utilities	Communication	Financial and Real Estate†
1960	\$ 8.1	\$1.5	\$0.6	\$0.7	\$2.3	\$1.0	\$2.0
1961	9.4	3.4	0.8	0.7	2.3	0.7	1.5
1962	9.1	2.9	0.6	0.6	2.3	1.3	1.4
1963	10.8	3.2	0.7	1.0	2.2	0.9	2.8
1964	10.8	2.8	0.9	0.9	2.1	0.7	3.4
1965	13.8	4.7	1.2	1.0	2.3	0.8	3.8
1966	15.6	5.9	1.2	1.9	3.1	1.8	1.7
1967	22.0	9.9	1.9	2.0	4.2	1.8	2.2
1968	17.4	5.7	1.7	1.8	4.4	1.7	2.2

* Offered for cash in the United States.

† Excludes investment companies.

Source: Securities and Exchange Commission

institutions more than doubled.¹⁰ The dollar volume of bonds issued by financial and real estate companies expanded from 1963 until 1966, when high interest rates and a decline in stock prices dampened their straight and convertible bond offerings.¹¹

Three other groups of issuers—the communications, commercial, and transportation industries—accounted for about equal shares of the remainder of the bond offerings. The dollar volume of bonds offered by the communications and transportation industries advanced sharply in 1966 and remained

at relatively high levels for the next two years, reflecting the boom in capital spending.

SUPPLY OF FUNDS

During the 1960-1968 period, the composition of ownership of corporate bonds changed considerably. The identity of purchasers of new bond issues is not known, and so an analysis of ownership must be confined to outstanding issues.¹² Some of the recent ownership changes reflect the interest rate developments mentioned earlier. Perhaps more important is the fact that some investors chose to invest a larger share of assets in corporate stocks. For example, during the period under review, corporate stock holdings of private pension funds rose from about one-third to over one-half of total financial assets.¹³ State and

¹⁰The dollar volume of consumer instalment credit outstanding at financial institutions amounted to \$77.5 billion in December 1968, compared with \$37.2 billion in December 1960.

¹¹The volume of convertible bonds offered by financial and real estate companies amounted to \$355 million in 1965, \$34 million in 1966, \$100 million in 1967, and \$598 million in 1968.

¹²Data are from the Flow of Funds accounts of the Federal Reserve System, although these data have limitations for this analysis, particularly in the valuation of outstanding financial assets.

¹³"A Note on Private Pension Funds," *Economic Review*, Federal Reserve Bank of Cleveland, November 1968.

local governments, insurance companies, and mutual savings banks also increased their corporate stock holdings. Underlying the trend toward equities rather than fixed interest investments is the concern about inflation: Investors want to hedge against inflation by holding securities that may appreciate in value, instead of holding investments such as bonds, with a market value that generally declines when the price level rises.

Share of Outstandings. The bulk of corporate bonds are held by institutional investors that have legal restrictions on equity holdings or prefer long-term securities with fixed coupon yields. It is not surprising, therefore, that, during the 1960-1968 period, life insurance companies held the largest dollar volume of corporate and foreign bonds (see Table VI). Although life insurance companies increased the dollar volume of their holdings of bonds over the period, the data in Table VI show that they reduced their share of total outstanding corporate and foreign bonds appreciably (from 54 percent to 43 percent). Private pension funds held the second largest dollar volume of corporate and foreign bonds before 1964 and the third largest volume in subsequent years. Nevertheless, their relative share of total outstandings showed little net change. Thus, in recent years, private pension funds acquired bonds at a faster rate than life insurance companies, but at a slower rate than state and local governments. These differences reflect the relative rates of growth of the investing institutions as well as legal restrictions regarding investment outlets and alternative investment opportunities.

During the period under review, the dollar amount of corporate and foreign bonds held by state and local governments increased more than threefold. Moreover, the proportion of total

outstandings held by state and local governments increased appreciably (from 11 percent to 21 percent). The strong demand for corporate bonds on the part of state and local governments stems from the rapid growth of state retirement systems. Most states *require* their retirement systems to invest a substantial part of their assets in bonds. In 1967, 51 percent of the assets of major state retirement systems was invested in corporate bonds, compared with 38 percent in 1961.¹⁴

In 1968, life insurance companies, state and local governments, and private pension plans together accounted for nearly 80 percent of the dollar volume of outstanding corporate and foreign bonds. Households accounted for the largest fraction of the remaining outstanding volume until 1968, when other investors more than doubled their bond holdings.

Annual Net Purchases. The data in Table VII reveal some additional information about the suppliers of funds through net purchases of corporate bonds. State and local governments and life insurance companies made the largest annual net purchases of corporate and foreign bonds in the period under review. Both types of institutions increased their holdings of bonds by nearly equal amounts from 1960 through 1962. Thereafter, the dollar volume of annual net purchases by state and local governments substantially exceeded those by life insurance companies. In comparison, the dollar volume of annual net purchases by private pension funds varied somewhat during 1960-1966 and then dropped off sharply as the funds shifted to purchases of equity issues.

Equally important, mutual savings banks, households, and commercial banks generally

¹⁴*State and Local Pension Funds 1968* (Washington, D. C.: Investment Bankers Association of America, 1968), p. 7.

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TABLE VI

Distribution of Ownership of Outstanding Corporate and Foreign Bonds
Yearend Levels 1960–1968

Owners	Amount (Bil. of \$)									
	1960	1961	1962	1963	1964	1965	1966	1967	1968	
State and local governments	\$ 10.2	\$ 12.6	\$ 15.3	\$ 18.4	\$ 21.7	\$ 24.8	\$ 29.2	\$ 36.0	\$ 35.4	
Commercial banks	1.0	0.9	0.8	0.8	0.9	0.8	0.9	1.6	1.8	
Mutual savings banks	3.8	3.6	3.5	3.2	3.1	2.9	3.2	5.2	6.6	
Life insurance companies	48.2	50.7	53.2	56.0	58.3	61.1	63.3	67.1	71.2	
Other insurance companies	1.7	1.7	1.8	2.0	2.4	3.4	3.6	3.9	4.1	
Private pension funds	15.7	16.9	18.1	19.6	21.2	22.7	24.6	25.6	26.5	
Households	6.7	6.5	5.8	4.8	4.4	4.6	5.7	6.8	9.2	
Others	2.8	2.2	2.3	2.5	3.0	3.5	4.9	5.8	11.8	
Total	\$ 90.1	\$ 95.8	\$101.6	\$108.1	\$115.7	\$124.7	\$136.1	\$152.0	\$166.6	
	Percent Distribution									
	1960	1961	1962	1963	1964	1965	1966	1967	1968	
State and local governments	11.3%	13.2%	15.1%	17.0%	18.8%	19.9%	21.5%	23.7%	21.2%	
Commercial banks	1.1	0.9	0.8	0.7	0.8	0.6	0.6	1.1	1.1	
Mutual savings banks	4.2	3.8	3.4	3.0	2.7	2.3	2.4	3.4	4.0	
Life insurance companies	53.5	52.9	52.4	51.8	50.4	49.0	46.5	44.1	42.7	
Other insurance companies	1.9	1.8	1.8	1.9	2.1	2.7	2.6	2.6	2.5	
Private pension funds	17.4	17.6	17.8	18.1	18.3	18.2	18.1	16.8	15.9	
Households	7.4	6.8	5.7	4.4	3.8	3.7	4.2	4.5	5.5	
Others	2.0	2.3	2.3	2.3	1.6	2.8	2.6	3.8	7.1	
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

NOTE: Details may not add to totals because of rounding.

Source: Board of Governors of the Federal Reserve System, Flow of Funds Accounts

liquidated corporate and foreign bonds when market yields were relatively flat during the 1960-1965 period (see Chart 1). However, these investors were attracted by rising coupon yields in recent years and showed net purchases of bonds.

Share of Assets. One measure of the relative importance of bonds is the share of the buyers' financial assets accounted for by corporate and foreign bonds. In essence, the dollar volume of corporate and foreign bonds is compared with the dollar volume of all financial assets for each type of buyer. An increase in the ratio indicates that bonds assumed a larger or more important role in

the buyers' portfolios; a decline means the opposite.

Three important trends stand out from the data in Table VIII: (1) At life insurance companies, the share of financial assets accounted for by corporate and foreign bonds declined only slightly year over year. In 1968, bonds accounted for 39.1 percent of total financial assets, only 2.5 percentage points less than in 1960. (2) Among state and local governments, however, corporate and foreign bonds assumed a substantially more important role. For example, in 1968, corporate and foreign bonds accounted for nearly one-third

TABLE VII

Annual Net Changes in Ownership of Corporate
and Foreign Bonds

1960–1968

(Bil. of \$)

Type of Buyer	1960	1961	1962	1963	1964	1965	1966	1967	1968
State and local governments	\$1.9	\$2.4	\$2.7	\$3.2	\$3.2	\$3.2	\$ 4.4	\$ 6.5	\$ 4.7
Commercial banks	– 0.2	– 0.2	*	*	0.1	– 0.1	0.1	0.8	0.2
Mutual savings banks	0.2	– 0.1	– 0.1	– 0.3	– 0.2	– 0.1	0.3	2.1	1.4
Life insurance companies	1.8	2.5	2.5	2.8	2.3	2.8	2.2	4.3	3.6
Other insurance companies	0.1	*	0.1	0.1	0.3	1.1	0.1	0.8	0.1
Private pension funds	1.6	1.2	1.2	1.5	1.6	1.5	1.9	1.0	1.0
Households	*	– 0.4	– 0.7	– 1.0	– 0.8	– 0.3	1.2	1.6	2.9
Others	0.2	0.3	0.1	0.4	0.4	0.5	1.6	0.3	0.5
Total †	\$5.6	\$5.6	\$5.9	\$6.6	\$7.1	\$8.6	\$11.8	\$17.2	\$14.6

NOTE: Details may not add to totals because of rounding.

* Less than ± 50 million.

† Totals in this table are not strictly comparable with totals in Table II.

Source: Board of Governors of the Federal Reserve System, Flow of Funds
Accounts

TABLE VIII

Corporate and Foreign Bonds as a Percent of the
Buyers' Financial Assets
Yearend Levels 1960–1968

Type of Buyer	1960	1961	1962	1963	1964	1965	1966	1967	1968
State and local governments	20.6%	23.3%	25.5%	27.3%	29.0%	30.0%	32.0%	35.7%	32.1%
Commercial banks	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.4	0.4
Mutual savings banks	9.4	8.4	7.5	6.4	5.7	5.0	5.2	7.8	9.3
Life insurance companies	41.6	41.3	41.2	40.9	40.2	39.6	39.1	38.8	39.1
Other insurance companies	6.0	5.4	5.6	5.7	6.3	8.5	9.0	8.7	8.6
Private pension funds	42.7	37.7	39.6	36.5	34.1	32.3	34.4	29.5	28.1
Households	0.7	0.6	0.6	0.4	0.3	0.3	0.4	0.4	0.6
Others	8.1	7.9	7.5	8.1	8.3	8.5	10.9	9.7	18.9

Source: Board of Governors of the Federal Reserve System, Flow of Funds
Accounts

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of financial assets of state and local governments, compared with one-fifth of such assets in 1960. (3) Finally, corporate and foreign bonds became considerably less important in the portfolios of private pension funds. In 1968, corporate and foreign bonds amounted to 28 percent of the financial assets of private pension funds, in contrast to nearly 43 percent in 1960. This decline in the relative importance of corporate and foreign bonds reflects the fact that private pension funds have become more "equity" oriented than in the past.

SUMMARY

During the 1960-1968 period, the dollar volume of corporate bond financing increased markedly, particularly in the last four years which were marked by inflation and sharply rising

interest rates. The influence of the inflationary period on the corporate bond market is reflected in (1) the reduced attrition ratio, (2) the increased dollar volume of publicly offered corporate bonds in contrast to the smaller dollar volume of directly placed issues, and (3) the rise in the dollar volume of convertible bond offerings.

During the period studied, manufacturing corporations and public utilities issued the largest dollar volume of corporate bonds, with most of the funds spent on plant and equipment.

Finally, the composition of the ownership of corporate bonds, or alternatively the suppliers of funds, also changed considerably during the period. The changed composition of ownership and relative importance of corporate bonds to the holders reflect interest rate developments, legal restrictions, and the trend toward equities.



THE MUNICIPAL BOND MARKET, 1960–1968

In recent years, state and local governments have accounted for about one-fourth of gross new issues of capital market securities in the United States. Although the demand for funds by state and local governments has grown steadily in the postwar period, the supply of funds has been subject to sharp and frequent swings that reflect a complex structure of investment policies and decisions. This article examines the market for state and local government securities (commonly referred to as "municipals") during the 1960-1968 period, with emphasis on the demand for and supply of funds and the impact of credit conditions on the municipal bond market.

TYPES OF INSTRUMENTS

Most state and local government obligations are "full faith and credit," or general credit, obligations of the issuing body. Payment of interest and principal on such obligations is based upon the taxing authority of the issuer, rather than on any assets pledged as security. As shown in Table I, general obligation bonds accounted for about 60 percent of all new state and local government issues during the 1960-1968 period.

Revenue bonds comprise the other major group of state and local government obligations. In contrast to general obligation bonds, the full faith

and credit of the issuing body is not pledged to support revenue bonds. Instead, revenue to pay interest and principal is derived from the sale of public services, such as water, or based on a lease with a public agency, such as a school district. After World War II, the relative importance of revenue bonds rose markedly, from 17 percent of new issues of state and local debt in 1946 to 30 percent in 1960.¹ Since 1960, about one-third of new state and local government debt issues has been in the form of revenue bonds (see Table I). The postwar rise in revenue issues largely reflects a broadened concept of public purpose to include toll roads, port authorities, transit facilities, and so on.

DEVELOPMENT OF THE MARKET

Before World War II, practically all state and local long-term borrowing was financed through general obligation bonds, with the dollar volume of new issues increasing each year. The first serious reduction in state and local government borrowing

¹See Frank E. Curley, "Patterns of Revenue Bond Financing," in U. S. Congress, Joint Economic Committee, *State and Local Public Facility Needs and Financing*, Vol. II, 89th Cong. 2nd Sess., (Washington: U. S. Government Printing Office, 1966), pp. 156-161.

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TABLE I

New Issues of State and Local Government Securities By Type of Issue 1960-1968

	Amount (mil. of \$)	Percent
General Obligation Revenue	\$ 60,584	60.5%
Public Housing Authority	33,830	33.8
U. S. Government Loans	3,739	3.7
	1,945	1.9
TOTAL	\$100,184	100.0%

NOTE: Details may not add to totals because of rounding.

Source: Board of Governors of the Federal Reserve System

occurred during the depression of the 1930's, when about \$2 billion, or approximately 9 percent of all outstanding municipal bonds, went into default.² Although the Public Works Administration loaned funds to local governments after 1933, during the 1930's the dollar volume of outstanding issues never surpassed the level attained in 1929.

After World War II, state and local government borrowing mushroomed with outstanding debt, rising from \$13 billion in 1946 to \$125 billion in 1968—a tenfold increase. In contrast, the Federal debt rose only 30 percent during this period (from \$270 billion in 1946 to about \$360 billion in 1968).

Nature of the Market. The exemption of interest from Federal income taxation has distinguished state and local government obligations from all other capital market instruments.³ Munic-

²John B. Dawson, "Patterns of General Obligation Bonds," in *State and Local Public Facility Needs and Financing, op. cit.*, p. 148.

³The present tax exempt status of municipal bonds may be substantially altered, or even removed, by the tax reform bill that is currently being considered in Congress.

ipal bonds have had this unique privilege since 1941, when the Federal Government elected to tax interest on its own obligations.⁴ Consequently, investors who are subject to high income tax rates find municipal bonds an extremely attractive investment.⁵ Because of the tax exempt feature, interest rates on municipal bonds are generally lower than rates on other securities of comparable maturity and security (see Chart 1).

New issues of state and local government obligations are generally sold first to investment bankers⁶ who purchase the bonds and then distribute them to a large number of investors, including

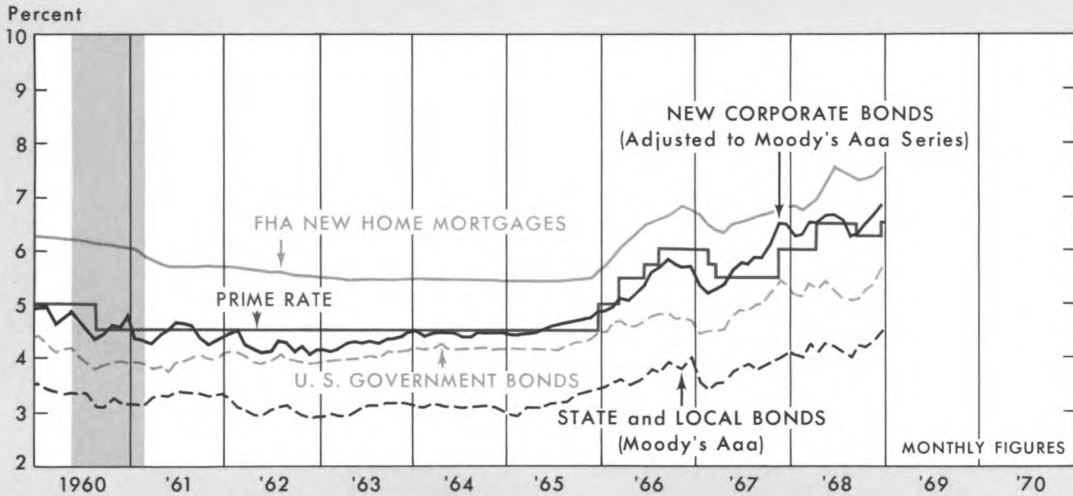
⁴For a discussion of the tax exemption of municipal bonds see, Roland I. Robinson, *Postwar Market for State and Local Government Securities* (Princeton, New Jersey: National Bureau of Economic Research, 1960); David J. Ott and Allan H. Meltzer, *Federal Tax Treatment of State and Local Securities* (Washington: The Brookings Institution, 1963); and "Comparison of the Interest Cost Saving and Revenue Loss on Tax-Exempt Securities," in *State and Local Public Facility Needs and Financing, op. cit.*, pp. 327-333.

⁵For example, the taxable equivalent yields of a tax-free municipal bond yielding 5 percent for selected tax brackets are:

20 percent tax bracket	6.28 percent
30 percent tax bracket	7.15 percent
45 percent tax bracket	9.12 percent
65 percent tax bracket	14.08 percent
75 percent tax bracket	20.20 percent

⁶Investment banker is a term applied to a security dealer or a dealer bank that underwrites securities. Commercial banks that are members of the Federal Reserve System may underwrite general obligation municipal issues but are not permitted to underwrite revenue bonds. For a discussion of the function of the investment banker, see John E. Walker, "Municipal Bond Underwriting," in *State and Local Public Facility Needs and Financing, op. cit.*, pp. 173-202.

Chart 1.
CAPITAL MARKET YIELDS



Last entry: December 1968

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

individuals, commercial banks, and insurance companies. The bonds may be sold either by negotiation or by advertisement leading to open bids by prospective purchasers. Generally, the proportion of negotiated sales is higher for revenue bonds than general obligation bonds.⁷

Secondary marketing of municipal securities consists of the sale of such securities by one investor to another, usually through a security dealer. Secondary markets exist because borrowers generally need undisturbed use of funds for a longer period than investors, on average, are willing or able to grant. The secondary market for municipal bonds is an "over-the-counter" market

and is almost wholly contained in the organizational structure of the new issues market. The investment bankers that underwrite new issues are usually the same firms that maintain continuing secondary markets in the securities.⁸

DEMAND FOR FUNDS BY STATE AND LOCAL GOVERNMENTS

State and local governments borrow in the capital markets principally to finance large capital expenditures. Although these governments are usually constrained by tradition or law to balance their current budgets, borrowing for capital purposes is widely sanctioned.

Purposes of Borrowing. Approximately 60 percent of all state and local borrowing is used to finance capital expenditures for education, roads,

⁸For a detailed discussion of the secondary market for municipal bonds, see Robinson, *op. cit.*, Chapter 5.

⁷Investment Bankers Association of America, "Public Sale Versus Negotiation in the Marketing of Municipal Bonds," *IBA Statistical Bulletin*, Occasional Paper No. 2 (September 1962).

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TABLE II

Use of Proceeds of New Issues of State and Local Government Securities
1946-1955 and 1960-1968

	1946-1955		1960-1968	
	Amount (mil. of \$)	Percent	Amount (mil. of \$)	Percent
Education	\$ 7,863	19.9%	\$ 31,260	31.2%
Roads and bridges	8,428	21.4	9,944	9.9
Utilities	6,494	16.5	18,547	18.5
Housing	2,868	7.3	5,248	5.2
Other purposes	12,437	31.5	31,530	31.5
Total new capital	\$38,090	96.6%	\$ 96,529	96.5%
Refunding	1,341	3.4	3,635	3.6
TOTAL	\$39,430	100.0%	\$100,184	100.0%

NOTE: Details may not add to totals because of rounding.

Sources: Roland I. Robinson, *Postwar Market for State and Local Government Securities* (Princeton: Princeton University Press, 1960) and Board of Governors of the Federal Reserve System

and utilities. Significant shifts in financing these three governmental functions occurred between the early postwar period and the 1960-1968 period. As shown in Table II, during the first postwar decade, spending for roads and bridges accounted for slightly more than one-fifth of the proceeds of state and local government borrowing, compared with only one-tenth during the 1960-1968 period. The decline in the proportion of borrowed funds devoted to highways reflects the adoption of the Interstate Highway Act in 1956 that provided for a nationwide highway system financed by gasoline taxes and paid for through Federal grants-in-aid to the states.

Borrowing for educational purposes jumped from about 20 percent of the total during the 1946-1955 decade to more than 30 percent during the 1960's. The increase in the school-age population between the two periods and the demand for increased and better educational facilities caused

the significant rise in both the volume and proportion of borrowed funds for education.

Between the two periods, borrowing for utilities increased slightly as a share of total borrowing, while borrowing for housing decreased slightly. There was no change in the proportion of total borrowing for all other governmental functions (slightly more than 30 percent for both periods).

Borrowing by Level of Government. State and local governmental units that borrow in the capital market vary widely in both size and nature. In fact, no other capital market covers such a wide range of borrowers. Virtually every state and local governmental unit is a potential borrower in the capital market, and there are about 90,000 state and local governments in the United States. It is estimated that roughly 25,000 state and local units have tapped the capital market for funds.⁹

⁹*Ibid.*, p. 54.

TABLE III

State and Local Government Debt
By Level of Government
Amount Outstanding June 30, 1960 and New Issues 1960-1968

	Amount Outstanding June 30, 1960		New Issues 1960-1968	
	Amount (bil. of \$)	Percent	Amount (bil. of \$)	Percent
State governments	\$18.5	26.5%	\$ 18.3	18.3%
Local governments	51.4	73.4	81.8	81.8
Counties	5.1	7.3	7.3	7.3
Municipalities and Townships	24.3	34.7	26.3	26.3
School districts	12.1	17.3	15.7	15.7
Special districts	9.9	14.1	32.8	32.8
TOTAL	\$70.0	100.0%	\$100.2	100.0%

NOTE: Details may not add to totals because of rounding.

Sources: U. S. Department of Commerce, Bureau of the Census and Board of Governors of the Federal Reserve System

Local government borrowing exceeded state government borrowing both in terms of the volume of debt outstanding as of June 30, 1960, and the volume of new issues during the 1960-1968 period (see Table III). Municipalities and townships had the largest proportion of outstanding debt in 1960, accounting for over one-third of the total. State governments ranked second in the amount of outstanding debt—over one-fourth of the total. School districts and special districts each accounted for about one-seventh of the outstanding debt in 1960.

During the 1960-1968 period, however, borrowing activity in the new issues market did not conform to the distribution of outstanding debt as of mid-1960. Special districts (such as water, sewer, and irrigation districts) accounted for almost one-third of the total funds raised by all levels of state and local government during the 1960's and thus dominated the new issues market

during the period. Municipalities and townships ranked second in the volume of new issues, with about one-fourth of the total. Special districts and municipalities and townships combined accounted for almost 60 percent of the total volume of new issues. Although state governments raised over \$18 billion in new issues during the 1960-1968 period, an amount equivalent to their outstanding debt in mid-1960, they accounted for less than one-fifth of the total volume of new issues.

SUPPLY OF FUNDS BY INVESTORS

As mentioned earlier, one principal feature that sets state and local government securities apart from other capital market instruments is that interest earned on such securities is exempt from Federal income taxation. Another distinguishing feature of the market for municipal securities is the pronounced and frequent changes in ownership. As shown in Table IV, no group of investors

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TABLE IV

Distribution of New Issues of State and Local Government Securities
Purchased by Private Investors
1960–1968

	1960	1961	1962	1963	1964	1965	1966	1967	1968
Households	51.4%	25.5%	14.0%	9.5%	34.9%	27.3%	34.9%	*	12.2%
Commercial banks	17.1	54.9	77.2	70.2	57.1	66.2	38.1	34.9%	70.4
Insurance companies	34.3	25.5	15.8	9.5	4.8	1.3	15.9	7.5	16.5
Life insurance companies	11.4	5.9	1.8	— 2.7	— 1.6	— 3.9	— 6.3	— 1.9	*
Other insurance companies	22.9	19.6	14.0	10.8	6.3	5.2	22.2	9.4	16.5
Corporate nonfinancial business	— 5.7	— 3.9	— 7.0	12.2	3.2	9.1	12.7	6.6	1.0
Mutual savings banks	*	*	— 3.5	— 1.4	*	— 1.3	— 1.6	*	*
Security brokers and dealers	2.9	3.9	3.5	*	3.2	— 2.6	*	0.9	1.0
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

NOTE: Details may not add to totals because of rounding.

* Less than 0.05 percent.

Source: Board of Governors of the Federal Reserve System, *Flow of Funds Accounts*

has had a stable participation record. For example, commercial banks' purchases of new issues ranged from 17 percent (in 1960) to 77 percent (in 1962), while households ranged from zero (in 1967) to 51 percent (in 1960).

Households. In 1946, households held 60 percent of all privately held municipal securities.¹⁰ Since then, however, the proportion of municipal issues held by households has dropped sharply. Although households still held the largest single proportion of outstanding state and local securities in 1960, their share had dropped to about 47 percent of the total (see Table V). Moreover, by the end of 1968, their share had fallen to about one-third of the total, while commercial banks had become the largest holders, accounting for slightly less than one-half the total.

In addition to the decline in the share of municipal securities held in recent years, households have been irregular purchasers of new issues of state and local securities (see Table IV). Such buyers, who are mostly wealthy individuals, absorbed about one-half of all new issues of municipal bonds in 1960, but virtually withdrew from the market in 1967. The irregularity of the acquisition of state and local securities by households or individuals suggests that municipal securities are not primarily bought out of current savings, but are acquired in portfolio rearrangement. Thus, the market potential, at least over the short run, is more a matter of relative yields than current savings. These factors led one observer to view the level of equity prices as a market factor of considerable significance: "When individuals are bullish on equities, their tax-exempt security buying suffers, but when the equity outlook grows

¹⁰ *Ibid.*, p. 70.

TABLE V

Ownership of State and Local Government Securities
By Private Investors
1960 and 1968

	1960		1968	
	Amount (bil. of \$)	Percent	Amount (bil. of \$)	Percent
Households*	\$28.7	46.7%	\$ 42.0	33.7%
Commercial banks	17.6	28.6	58.1	46.6
Insurance companies	11.7	19.0	18.5	14.8
Life insurance companies	3.6	5.9	2.9	2.3
Other insurance companies†	8.1	13.1	15.6	12.5
Corporate nonfinancial business‡	2.4	3.9	5.3	4.2
Mutual savings banks	0.7	1.1	0.3	0.2
Security brokers and dealers	0.4	0.7	0.7	0.6
TOTAL	\$61.5	100.0%	\$124.8	100.0%

NOTE: Details may not add to totals because of rounding.

* Includes nonprofit organizations serving individuals.

† Includes fire and casualty insurance companies and insurance activities of fraternal orders.

‡ Includes holding companies and closed end investment companies.

Source: Board of Governors of the Federal Reserve System, *Flow of Funds Accounts*

dim, tax-exempt buying by individuals becomes more important."¹¹

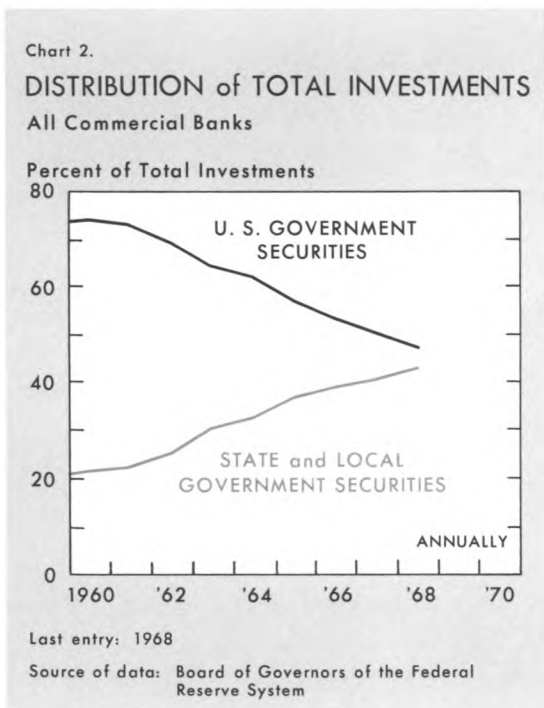
The tax-exempt status of state and local government securities is clearly one of the most important influences on individual participation in the market. For example, a recent study found that investment in state and local securities was generally not attractive to families with an annual income of less than \$25,000.¹² In contrast, 7 percent of the families in the \$25,000 to \$50,000 income bracket held municipal securities; 24 percent in the \$50,000 to \$100,000 income bracket,

and 67 percent in the income bracket for \$100,000 and over.

Furthermore, the study found that the importance of state and local government securities, as a component of the total financial portfolio of an individual, rose as income increased. The proportion reached a peak of 12.8 percent for the \$50,000 to \$100,000 income group. For the group with income over \$100,000, however, the share of state and local obligations declined to 8 percent of the total portfolio. The highest income class invested a much larger share of their total portfolio in common stocks than any other income group and showed decidedly less preference for all types of fixed income securities. On balance, it is apparent that individual participation in the market for state and local government securities is

¹¹ *Ibid.*, pp. 79-80.

¹² Helmut Wendel, "Individuals as a Source of Funds for State and Local Governments," in *State and Local Public Facility Needs and Financing*, *op. cit.*, pp. 444-453.



largely limited to households with high incomes that stand to benefit from the tax-exempt feature of municipal bonds.

Commercial Banks. During the 1960-1968 period, commercial banks became the holders of the largest proportion of municipal bonds, increasing their share of total private holdings from about one-fourth in 1960 to almost one-half in 1968 (see Table V). Commercial banks also have been irregular buyers, dominating the market in periods of reduced loan demand and relaxed credit conditions and withdrawing from the market in periods of credit restraint (see Table IV). For example, commercial banks acquired less than 40 percent of the new municipal issues in 1966, compared with about 70 percent in 1968.

Despite year-to-year variation in the acquisition of new issues of state and local securities by commercial banks, municipals became an increasingly important investment outlet for banks during the 1960-1968 period. In contrast, U. S. Government securities declined sharply as a percent of total bank investments (see Chart 2). This shift reflects the expansion of economic activity during the 1960's with subsequent heavy demands for funds from businesses, households, and governments. In addition, the shift reflects an attempt to increase bank earnings by switching from relatively low-yielding U. S. Government securities to higher yielding loans and tax-exempt municipal securities.¹³ Moreover, the banking community has developed more sophisticated portfolio management techniques in recent years that have reduced the reliance on U. S. Government securities to offset short-run fluctuations in reserves. For example, the development of the Federal funds market in the 1950's and the Eurodollar market during the 1960's has provided important alternative sources of short-term funds to adjust bank reserve positions. The marked improvement in the secondary market for municipal obligations in recent years has also increased the liquidity of bank holdings of tax-exempt issues. Consequently, the importance of U. S. Government securities in providing a margin of liquidity in bank portfolios has been significantly reduced.

¹³For a discussion of the changing composition of commercial banks' investment portfolios, see Jack C. Rothwell, "The Move to Municipals," *Business Review*, Federal Reserve Bank of Philadelphia (September 1966); William F. Staats, "Commercial Banks and the Municipal Bond Market," *Business Review*, Federal Reserve Bank of Philadelphia (February 1967); and Peter S. Rose, "U. S. Government and Municipal Securities at Member Banks," *Business Review*, Federal Reserve Bank of Dallas (March 1969).

The appeal of municipal bonds to commercial banks is based on a combination of factors, including the tax-exempt privilege, the availability of short maturities, and the fact that banks may underwrite general obligations (based on the full faith and credit of the issuer). In addition, many banks are committed to the welfare of their communities by civic sentiment and the pressure of their customers. That is, banks are usually under pressure to support the financing of local governmental units. In fact, in order to obtain the deposit balances of nearby local governments, banks must often be willing to bid on and hold the securities of such governments.

Insurance Companies. Insurance companies make up the third major group of holders of state and local government securities. In 1968, insurance companies accounted for about 15 percent of all private holdings (see Table V). Fire and casualty insurance companies are more important than life insurance companies in the volume of securities held, due largely to their greater exposure to Federal tax liabilities. In fact, a survey of mutual fire and casualty insurance companies found that the most important factor in the variation of holdings of municipal securities was the individual company's tax situation.¹⁴ Both types of insurance companies showed swings in the volume of new issues of municipal obligations purchased during the 1960-1968 period (see Table IV), but it is significant that life insurance companies have virtually withdrawn from the new issues market since 1962.

¹⁴"Fire and Casualty Insurance Companies," in *State and Local Public Facility Needs and Financing*, *op. cit.*, pp. 382-397.

CREDIT CONDITIONS AND THE MUNICIPAL BOND MARKET

It is generally conceded that state and local governments are sensitive to financial conditions and monetary policy. However, a number of recent studies have demonstrated that: (1) changing credit conditions have a greater impact on the timing and the nature (short-term—long-term) of municipal financing than on the volume; and (2) the response to changing credit conditions is largely a function of the size of the governmental unit involved.

A study of the pattern of municipal bond sales during the 1952-1959 period, found that state and local bond sales were moderately sensitive to monetary policy.¹⁵ The sale of state and local securities reached the highest levels during the troughs of the two recessions during the period studied as state and local governments shifted about 10 percent of their bond offerings from the final stages of the expansion periods to recession and recovery periods. However, the sale of bonds for projects that are difficult to postpone, such as schools and water and sewer projects, was relatively insensitive to changing credit conditions.

Another analysis found that interest rates had a significant impact on state and local borrowing during the 1952-1965 period, although the effect was greater on timing than on volume.¹⁶ The borrowing decisions of state and local governments were found to be influenced by the spread

¹⁵Frank E. Morris, "Impact of Monetary Policy on State and Local Governments: An Empirical Study," *The Journal of Finance*, XV (May 1960), pp. 232-249.

¹⁶Paul F. McGouldrick, "The Effect of Credit Conditions on State and Local Bond Sales and Capital Outlays Since World War II," in *State and Local Public Facility Needs and Financing*, *op. cit.*, pp. 299-321.

between actual and expected interest rates. In contrast, lenders were found to be more concerned with the existing spread between yields on municipals and other securities. Furthermore, the findings suggested that the positive effects of rising municipal bond rates on the willingness of lenders to purchase municipal bonds more than offset the negative effects of such increases on the willingness of state and local governments to offer new debt issues. The interaction of these forces may explain, in part, the observed limited impact of monetary policy on the municipal bond market.

The impact, however, was found to differ at various levels of government because most of the interest rate sensitivity displayed by aggregate state and local bond sales was found to be due to the high interest elasticity of new debt issues of states.¹⁷ Local debt issues showed very little interest elasticity. The differences were found to lie in the following factors that differentiate the two levels of government: (1) the larger scale of operations at the state level; (2) the greater frequency with which state governments use capital markets; (3) the higher ratio of liquid assets to capital expenditures at the state level; and (4) the larger proportion of interest sensitive revenue bonds among all state issues.

The Federal Reserve System's surveys of state and local government borrowing in the 1966 credit markets largely support the above study.¹⁸ Although the surveys covered a discrete period of

time surrounded by special circumstances, the findings suggest that changing credit conditions have a greater impact on large governmental units than on small units.

The survey revealed that large governmental units postponed or reduced planned long-term borrowing in 1966 by about \$1.4 billion, or 20 percent of planned levels, largely because of high interest rates. Actual spending, however, was only reduced by about \$250 million in 1966 and 1967 (roughly 1.0 to 1.5 percent of actual spending), because most units substituted short-term borrowing or used liquid assets. Because large governmental units usually borrow well in advance of cash needs, capital spending in those years was insulated from the impact of restrictive credit conditions. In short, the survey revealed that large state and local governments adjusted their financing requirements rather quickly to changing credit conditions, with virtually no effect on contract awards or capital spending.

In contrast, the concurrent survey of small governments revealed that these units were relatively insensitive to changing credit conditions.¹⁹ The sample of small governments indicated that planned borrowing was reduced by about \$2.6 billion during 1966. Most of this reduction (about 40 percent of the dollar volume of actual spending) resulted from defeats of bond referendums. High borrowing costs, the major cause of borrowing reductions for large units, accounted for only about one-third (\$900 million) of the reduction in borrowing by small units. Although small governmental units had relatively less borrowing difficulty due to restrictive credit conditions than large

¹⁷Michael D. Tanzer, "State and Local Government Debt in the Postwar Period," *Review of Economics and Statistics* (August 1964), pp. 237-244.

¹⁸Paul F. McGouldrick and John E. Peterson, "Monetary Restraint and Borrowing and Capital Spending by Large State and Local Governments in 1966," *Federal Reserve Bulletin* (July 1968), pp. 552-571.

¹⁹John E. Peterson and Paul F. McGouldrick, "Monetary Restraint, Borrowing, and Capital Spending by Small Local Governments and State Colleges in 1966," *Federal Reserve Bulletin* (December 1968), pp. 953-973.

units, such difficulties as did develop led to the cancellation of a higher volume of planned contract awards (\$400 million compared with \$250 million). This difference between large and small units was due largely to the fact that the small units did not have sufficient liquid assets to finance the projects and because the lead time between borrowing and cash needs was shorter. Those small units that proceeded with planned projects in spite of borrowing difficulties did so by resorting to short-term borrowing, reducing current expenditures, or postponing cash disbursements. On balance, the findings indicated that once small governmental units received permission to borrow, they were less apt to change their financing plans than large units; where borrowing plans were changed, they were more likely to abandon the projects than to obtain financing from alternative sources.

In general, the Federal Reserve survey indicated that high interest rates and severe credit restraint during 1966 did have some impact on state and local government borrowing plans, but only a marginal impact on actual capital spending. Large governmental units were often able to postpone borrowing by reducing the lead time between financing and cash needs and utilizing liquid assets. In contrast, small governmental units were less inclined to speculate on interest rate fluctuations and were more inclined to see borrowing plans through. Finally, the results of the survey suggest that causation runs not only from changes in borrowing plans to changes in liquid asset holdings, but in the reverse direction also. The rela-

tively high liquidity positions of many large governmental units enabled them to postpone long-term borrowing plans with little effect on their spending plans. In fact, withdrawal of large governmental units from the capital markets during a period of high interest rates was an indication of their financial strength.

SUMMARY

Both demands and supplies in the municipal bond market changed markedly during the 1960's. Local governments in general, and special districts and municipalities in particular, were the heaviest borrowers in the capital markets from 1960 through 1968. Commercial banks replaced households as the largest holders of state and local government securities. In addition, the total volume of funds supplied changed frequently, reflecting a growing complexity of investment policies due largely to the tax exempt feature of municipal bonds. In fact, many of the sharp swings in the municipal bond market thus far in 1969 have been due to changing credit conditions and the tax reform bill under discussion in Congress.

Finally, a number of recent studies have found that state and local governments are sensitive to financial conditions and monetary policy. The bulk of the evidence for the 1960-1968 period seems to suggest that changing credit conditions had a greater impact on the timing and nature of municipal financing than on the dollar volume, and that the response to changing credit conditions was largely a function of the size of the governmental unit involved.



