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FINANCIAL FLOWS: RECENT PATTERNS AND PROBLEMS

It is widely accepted that the adjustment in economic activity has been largely completed, and that the economy is now moving forward at a relatively brisk pace. This interpretation is confirmed by the general strength of most major economic time series: industrial production, nonfarm employment, manufacturers' backlogs, retail sales, and housing starts, among others. The expected behavior of these areas, as well as that of the major spending sectors, such as the government sector, adds a favorable tone to most economic forecasts.

While there are always major uncertainties in forecasting the economic outlook (at the present time, the uncertain length and extent of the automobile strike as well as the uncertain dimensions and timing of the proposed surtax), many observers believe that the economy may be on a path that could lead to substantial, and possibly excessive, increases in economic activity. Following a nominal increase in Gross National Product in the first quarter of 1967, there was moderate improvement in the second quarter (\$8.8 billion), and acceleration in the third quarter (\$15.0 billion). According to the majority of

forecasts, the pace of GNP could quicken further in the current quarter, with the pace carrying over into the first half of 1968.

It is precisely the anticipated quickening of GNP that provides the rationale for imposition of a surtax, as recommended by the Administration. It is felt in many quarters that the failure to impose an appropriate surtax would allow excessive aggregate demand to intensify inflationary pressures in the economy, which in effect would superimpose demand-pull pressures on the cost-push pressures already apparent in recent widespread cost and price increases. In the absence of an appropriate surtax—both in terms of timing and magnitude—it is not inconceivable that the burden of restraining the economy in the period ahead could be forced on monetary policy, as in 1966. If this were the case, it would not be unlikely that economic events could once again lead to the types of problems and pressures that characterized the economy in 1966, in particular, uneven and distorted flows of funds through financial markets and financial institutions. This article discusses financial flows in recent years, with emphasis on the period

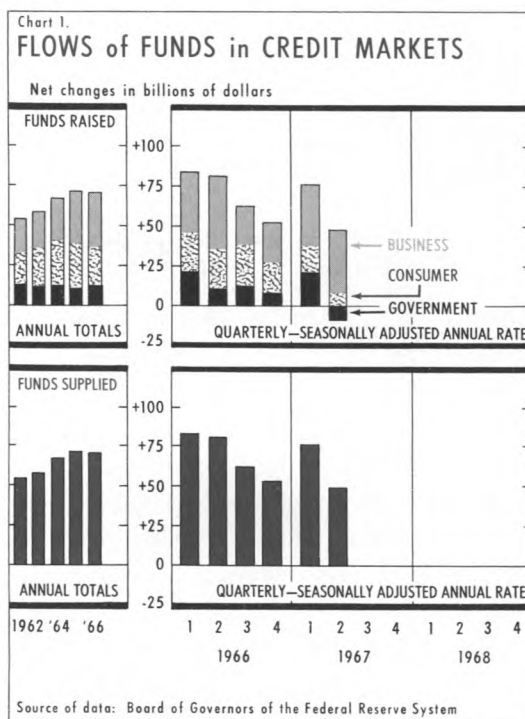
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since 1965 when unusually wide swings in demands for and supplies of funds occurred.

DEMANDS FOR FUNDS

As shown in the upper left-hand portion of Chart 1, the volume of funds raised annually in credit markets increased steadily from 1962 to a record high in 1965, and then declined very slightly in 1966. During this five-year period, the volume of funds raised by the various levels of government in the nation remained relatively steady, and thus accounted for a decreasing proportion of the total. Consumer borrowings were noticeably large in 1964 and 1965, but fell back in 1966, to slightly less than the amount raised in 1963. In contrast, business demands for funds increased steadily, and substantially, as the period progressed.

Developments in 1966-1967 can be best evaluated by the use of quarterly data. As shown in the upper right-hand portion of Chart 1, in the first quarter of 1966, demands for funds peaked at an all-time high of \$84 billion. However, after being virtually unchanged in the second quarter, the total volume of funds raised was reduced markedly in the second half of 1966, due in large part to declines in the supply of funds available to potential borrowers. In the first quarter of 1967, borrowings once again increased substantially, reflecting some easing in the supply situation as well as a large increase in the Federal Government's demands for funds. In contrast, in the second quarter of 1967 total borrowings were the smallest in several years, as a result of Treasury debt repayments and the general slowing in economic activity.



Demands for funds by the three major sectors of the economy also changed markedly after midyear 1966. As shown in the upper right-hand portion of Chart 1, there were large fluctuations in the volume of funds raised by governments and businesses, with more moderate shifts by the consumer sector. An examination of the demands for funds by each major sector provides some indication of the factors responsible for changes in demands.

CONSUMER SECTOR

On balance, the consumer sector is a net supplier of funds to the economy. At times, consumers supply a large portion of their savings directly to financial markets, as in the fourth quarter of 1966; usually, however, a greater proportion of consumer savings flows through financial intermediaries, as in

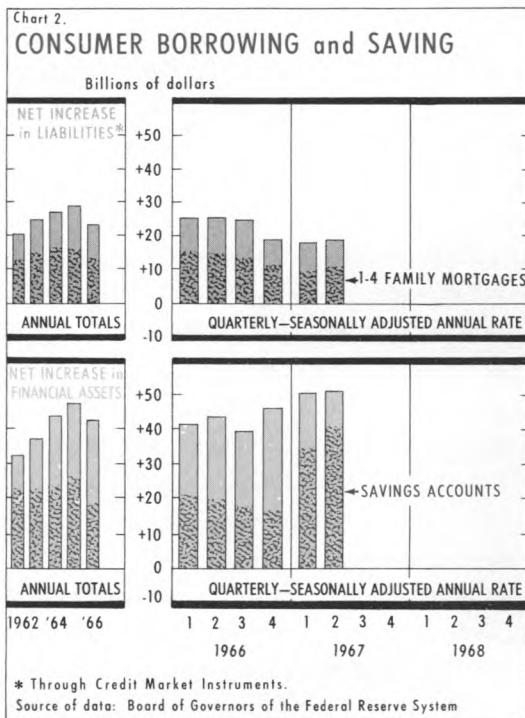
the second quarter of 1967 and in most years shown in the left-hand portion of the bottom panel of Chart 2.

Nevertheless, the consumer sector includes many individual borrowers who obtain funds primarily in the form of long-term mortgage credit and short-term consumer credit. As shown in the top panel of Chart 2, the volume of consumer borrowing declined from peak levels during the first three quarters of 1966, and stabilized around quarterly increases at an annual rate of \$18 billion. Chart 2 also shows that successively larger annual increases in mortgage credit were recorded from 1962 through 1964. In 1965, the increase in mortgage indebtedness was about the same as in 1964; however, in 1966, the increase in mortgage indebtedness returned to about the 1962 volume. (For these and

other similar data, see Table I.) The peak in mortgage borrowing was reached in late 1965, and then successive quarterly declines occurred until a recent low was recorded in the first quarter of 1967.

The impact of the change in monetary policy in 1966 on mortgage credit, which normally accounts for considerably more than half of consumer borrowing, is well known. But, as the year progressed, the credit squeeze also had some impact on consumer credit. The net effect was that by the first quarter of 1967 consumer borrowing accounted for the smallest proportion of total funds raised in several years.

The rapid increase in consumer liquidity beginning in late 1966 was reflected in substantial gains in financial assets (see bottom panel of Chart 2). The extent to which the rebuilding of consumer liquidity will have an impact on consumer spending is still unclear at this time. For one thing, in the consumer sector as well as elsewhere, the savers are not necessarily the borrowers. Moreover, consumer spending and consumer demands for funds are heavily dependent upon overall income and decisions about savings. Although retail sales and homebuying have been increasing recently, there is little evidence at this time of a major consumer spending boom, particularly in real terms, that is, after adjustments for higher prices. Moreover, tightening residential mortgage terms, rising prices for consumer goods and services, and uncertainties associated with the auto strike may dampen consumer buying plans, at least temporarily. In any event, rebuilt consumer liquidity does provide a foundation for possible strength in consumer spending.



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TABLE I
Funds Raised Through Credit Market Instruments
By Sectors
 (billions of dollars)

Category	Annually					Seasonally Adjusted Annual Rates					
						1966				1967	
	1962	1963	1964	1965	1966	1Q	2Q	3Q	4Q	1Q	2Q
Consumer	20.4	24.1	27.2	28.5	23.3	25.0	25.1	24.4	18.6	17.9	18.3
Mortgages	13.8	15.7	16.9	17.0	14.7	16.3	15.7	14.7	12.4	11.0	11.7
Consumer credit	5.5	7.3	8.0	9.4	6.9	9.2	7.0	6.9	4.6	4.3	4.4
Other	1.1	1.1	2.3	2.1	1.7	—	0.5	2.4	1.6	2.6	2.2
Government	13.5	12.0	13.3	11.3	13.3	20.7	10.6	13.3	8.8	20.9	— 9.6
Federal securities	7.9	5.0	7.1	3.5	6.7	14.9	2.8	7.0	2.2	10.8	—21.7
State and local	5.0	6.7	5.9	7.4	5.9	5.4	7.2	4.8	6.2	9.8	11.7
Other	0.6	0.3	0.3	0.4	0.7	0.4	0.6	1.5	0.4	0.3	0.4
Business	18.2	19.1	22.2	29.6	33.0	36.2	44.9	25.6	25.3	31.5	35.0
Securities	5.1	3.6	5.4	5.4	11.4	11.9	15.2	11.7	6.9	14.0	14.9
Mortgages	7.1	8.8	8.7	8.6	6.3	9.0	7.9	5.0	3.1	5.3	6.7
Bank loans	4.3	5.0	5.1	12.3	11.0	10.5	16.5	7.6	9.2	6.5	8.9
Other	1.7	1.7	3.0	3.3	4.3	4.8	5.3	1.3	6.1	5.7	4.5
All other	2.1	3.3	4.3	2.7	1.5	2.2	2.3	0.2	1.0	5.5	4.3
TOTAL	54.2	58.5	67.0	72.1	71.1	84.1	82.9	63.5	53.7	75.8	48.0

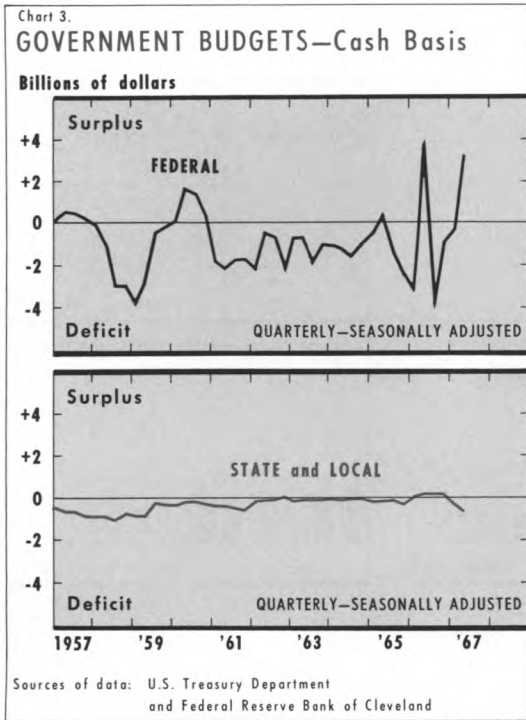
Source: Board of Governors of the Federal Reserve System

GOVERNMENT SECTOR

Clearly, there have been sharp swings in the position of the Federal cash budget in recent years (see Chart 3). In part, the unusually wide fluctuations have been the result of administrative and legislative changes in tax payments schedules that, if nothing else, have disrupted the usual seasonal patterns. These changes were associated with rapidly rising Federal spending and produced very large Federal deficits, such as the one in 1966. Abrupt changes in receipts and expenditures apparently have made it difficult for the Treasury to project budget figures, as well as to even out the borrowing conducted in the open market. This situation offers some explanation of the Treasury's predicament in handling its financing operations in the

past year or so, particularly the attempt to help maintain a stable securities market. In this connection, there have been some problems that are unique to the Treasury. For example, legal restraints on maximum interest rates payable on long-term issues have prevented the Treasury from borrowing in that maturity area, while budget difficulties encouraged the debt managers to raise some funds through the sale of participation certificates. The unfavorable market results of participation certificates last year are well known.

The budget position of the Federal Government is transmitted into borrowing demands in the open market. Thus, when the U.S. Government recorded small cash surpluses in 1957 and 1960 (see Chart 3), the debt man-



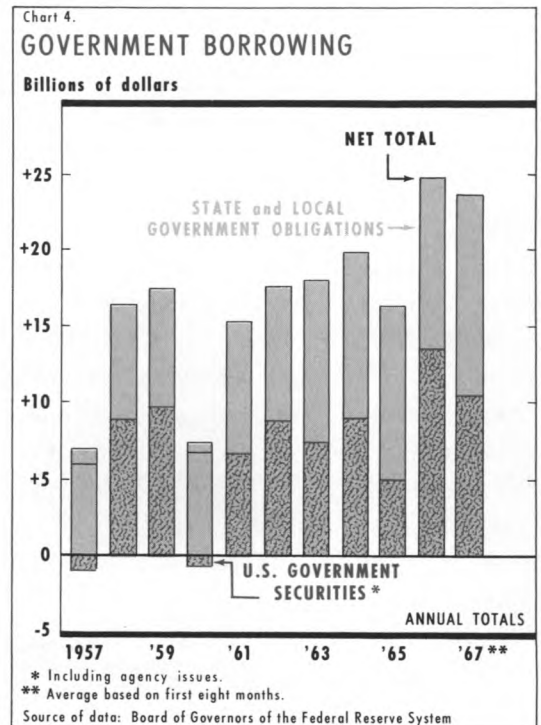
agers, on balance, were able to repay U.S. Government securities (see Chart 4). In the other years shown in Chart 4, the Federal budget was in a deficit position and funds had to be borrowed in the credit markets. In 1966, borrowing amounted to nearly \$7 billion and led to the market problems referred to earlier.

According to official pronouncements, the near-term outlook for Treasury needs for funds suggests no lessening of demand, even with an increase in personal and corporate income taxes. As yet, Congress has not given the debt managers authority to sell more FNMA participation certificates, which in effect could postpone some direct Treasury borrowing into the first half of 1968.

The line for state and local governments in Chart 3 is an estimate of the quarterly cash

budget position. With Federal grants-in-aid, excluded, the cash budget appears to have been reasonably close to balance during the last decade. In recent years, municipal governments have been faced with the problem of raising greater funds to meet increasing demands for services. In coping with this problem, it appears that, especially since 1961, municipal governments have been able to utilize additional sources of both tax and nontax revenues. However, there was a rather abrupt change from a small net surplus in 1966 to a deficit in 1967.

It is not surprising that municipal governments have relied more heavily on the capital market as a source of funds. As shown in Chart 4, state and local government obligations increased by about \$7 billion a year



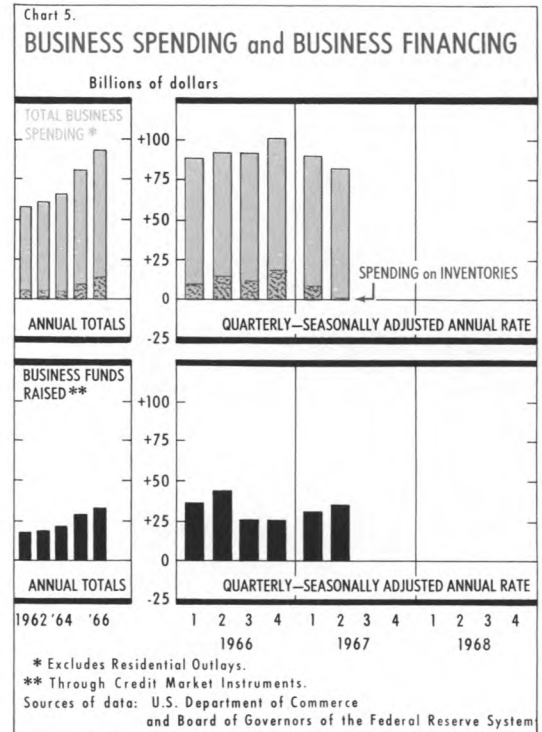
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from 1957 through 1960. After 1960, there were significant annual increases, and by 1966, the gross volume of new issues increased by more than \$11 billion. While the gain reflects the growing need for additional funds by state and local governments, it is also likely that a wider market for these debt issues encouraged capital market borrowing. It is estimated that in the first nine months of 1967 total new issues of state and local governments surpassed the total for either 1964 or 1965 as a whole, and that the previous annual record set in 1966 will be exceeded before the end of this year.

BUSINESS SECTOR

The volume of funds raised in credit markets by corporations — the largest borrower of the three major sectors of the economy — is shown in the bottom panel of Chart 5; total business spending is shown in the top panel. The difference between business spending and business funds raised is accounted for by internal sources of funds — retained earnings and depreciation allowances. The high level of production and capacity utilization rates of above 90 percent were important factors contributing to the surge in total business spending in 1966. Generally, sharp fluctuations in total business spending tend to be caused primarily by changes in inventory outlays, and 1966 was no exception. From the first to the fourth quarters of last year, total business spending increased by \$13 billion, with spending on inventories accounting for \$8.5 billion of the change.

In conjunction with the general expansion of the economy, total business demands for external funds have increased in recent



years, reaching a high point in the second quarter of 1966. The credit squeeze pulled down the net change in total business borrowings in the succeeding six months, while the general sluggishness of business in the first half of 1967 discouraged business borrowing from rising by earlier amounts (for example, compare the first half of 1966 with that of 1967), although borrowing was larger than in the second half of 1966. With business spending increasing markedly in 1966, a wide gap developed between funds used and funds raised externally. In the first half of 1967, however, the gap narrowed substantially.

Within the business sector, corporate demands for funds, which account for the bulk of business borrowing, frequently reflect changes in corporate cash flow. For example, in the first quarter of 1967, before-tax profits

dropped nearly \$5 billion from the preceding quarter, producing large declines in both after-tax profits and internal funds — shown in Table II at an annual rate. (Table II shows year-to-year changes in cash flow for 1962-1966 and quarter-to-quarter changes at annual rates for 1966-1967.) The sharp reduction in corporate profits in the first quarter of 1967 was accompanied by stepped-up dividend payments, which intensified the shortfall in internal funds. Although depreciation allowances continued to show some growth, the general picture for 1966-1967 is one of wide swings in the availability of internal corporate funds. At the same time, corporate liquidity continued to decline in 1966, due in part to changes in tax schedules and liabilities. As a result, corporations turned increasingly to external sources of funds. Early in 1966, corporations emphasized short- and intermediate-term external financing, relying mainly

on the commercial paper market and bank borrowing. By the third quarter of 1966, bank borrowing began to moderate, and corporations turned increasingly to the long-term capital markets. Throughout the period, the use of trade credit increased, largely taking the form of slower repayment schedules.

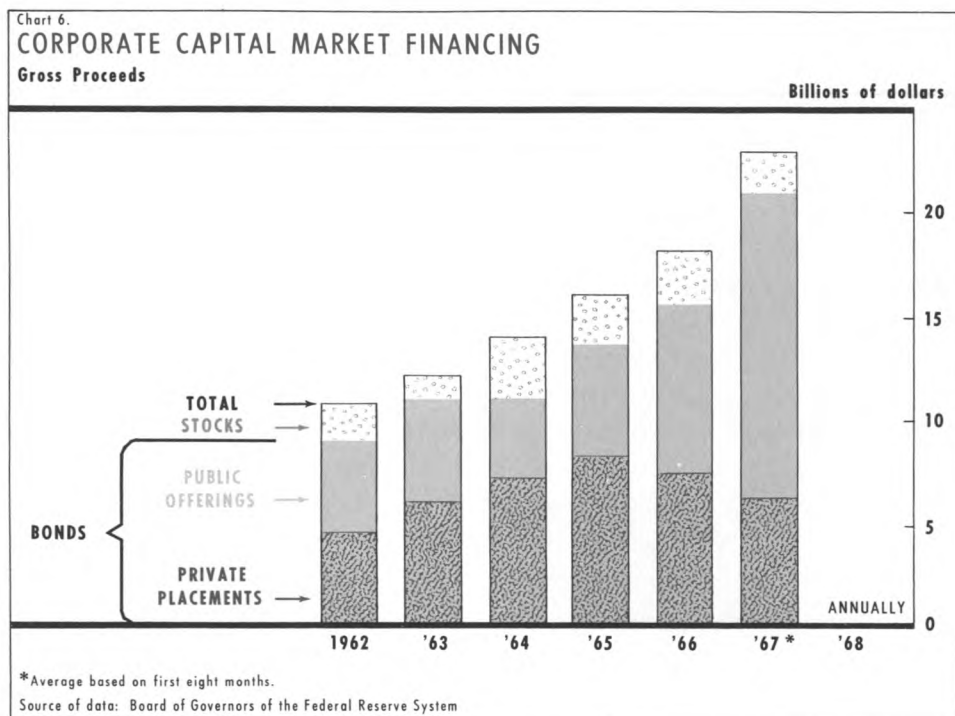
The massive shift by corporations into the long-term capital markets occurred even though capital spending declined in the first half of 1967. As shown in Chart 6, capital market financing has increased steadily in recent years, with a much larger increase than usual indicated for 1967. The dollar volume of new corporate issues in the first nine months of 1967 already surpassed the record for any 12-month period. Public offerings of bonds (in many cases, convertible debentures) accounted for most of the increased volume, as the volume of new stock issues and private placements of bonds was lower

TABLE II
Corporate Cash Flow
Nonfinancial Corporations
(billions of dollars)

Category	Annual Changes					Changes at Seasonally Adjusted Annual Rate					
						1966				1967	
	1962	1963	1964	1965	1966	1Q	2Q	3Q	4Q	1Q	2Q
Corporate profits	+4.4	+4.4	+6.7	+ 9.1	+6.4	+10.0	- 1.6	-0-	-2.0	-18.8	+2.8
Minus: Taxes	+1.1	+2.0	+1.4	+ 3.3	+2.7	+ 4.4	- 0.4	-0-	-0.4	- 8.4	+0.8
After tax profits	+3.4	+2.3	+5.2	+ 5.9	+3.7	+ 5.6	- 1.2	-0-	-1.6	-10.4	+2.0
Minus: Dividends	+1.2	+1.5	+0.7	+ 1.9	+1.6	+ 1.6	+ 0.4	-0-	-1.6	+ 4.0	+3.6
Plus: Depreciation Allowances	+3.7	+1.7	+1.9	+ 2.6	+2.4	+ 1.6	+ 1.6	+ 2.0	+2.0	+ 2.0	+2.8
Net change in internal funds	+5.9	+2.4	+6.6	+ 6.5	+4.5	+ 5.6	-0-	+ 2.0	+2.4	-12.8	+1.2
Net change in external funds	+2.5	+0.1	-1.7	+11.9	+7.1	+ 5.5	+15.9	-25.0	+2.0	- 6.1	+8.0

Sources: U. S. Department of Commerce and Securities and Exchange Commission

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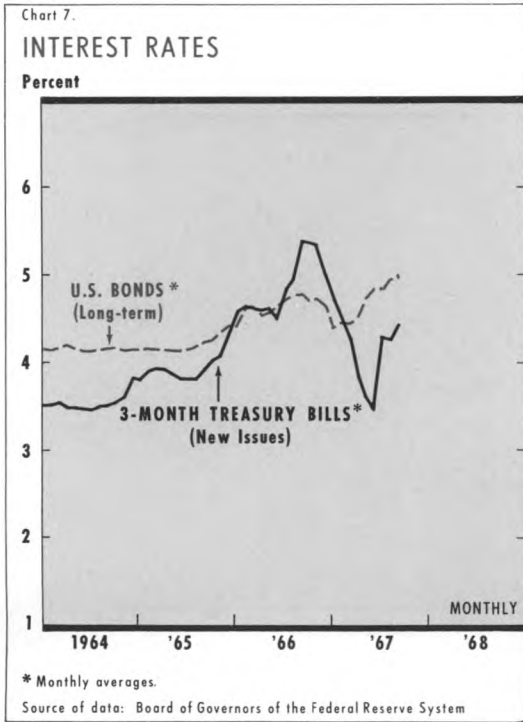
than in several previous years. The greater volume of public offerings of bonds has at times produced market congestion and has had an appreciable effect on interest rates.

INTEREST RATES

The recent wide swings in demands for funds have resulted in some atypical interest rate movements, which are illustrated by the behavior of short- and long-term yields on U.S. Government securities. While long rates were fairly stable throughout 1964 and the first half of 1965, short rates were rising gradually (see Chart 7). In mid-1965, greater involvement in Vietnam on the part of the United States altered expectations of investors and borrowers and increased credit demands, which in turn were reflected in sharply rising

long- and short-term rates. The rapid rise in interest rates was temporarily interrupted during the first half of 1966, but the upward movement was resumed around midyear as a restrictive monetary policy became effective. Interest rates subsequently reached the highest levels in over 40 years.

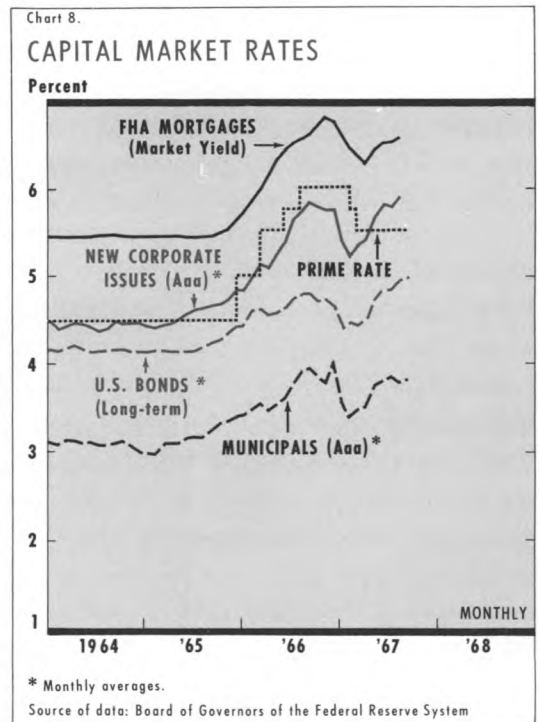
In the latter months of 1966, rates began to ease from their highs as the economy showed signs of weakening. The Federal Reserve System quickly recognized these signs and changed from a restrictive policy to a policy that provided substantial reserve growth. Interest rates declined further in response to the increased reserve growth. After dropping to a low early in 1967, long-term rates began to move up again as strong demands for



funds were reinforced by fears in some quarters of a return to a restrictive monetary policy. By June, yields on long-term securities had surpassed their 1966 high; long-term yields rose further after June. While the Treasury bill rate continued to decline through June, it has moved up sharply since then.¹

As shown in Chart 8, selected long-term interest rates rapidly fell from their August-September 1966 highs and reached lows in January-February of 1967. The January-February lows in long-term rates, however, were

still considerably above rates prevailing in mid-1965. Long-term rates subsequently edged upward, and by late summer-early fall had either approached or surpassed 1966 highs. The recent rise in long-term rates mainly reflects the pressures in the capital markets due to huge credit demands of corporations and state and local governments, as well as of the Federal Government. While business credit demands represent an attempt on the part of corporations to rebuild liquidity positions as well as to maintain a high, if not rising, level of capital spending, it is perhaps even more significant that borrowers have been concerned with a possible repetition of the 1966 credit squeeze. This concern is prompted largely by the feeling that heavy Federal Government demands for funds could be

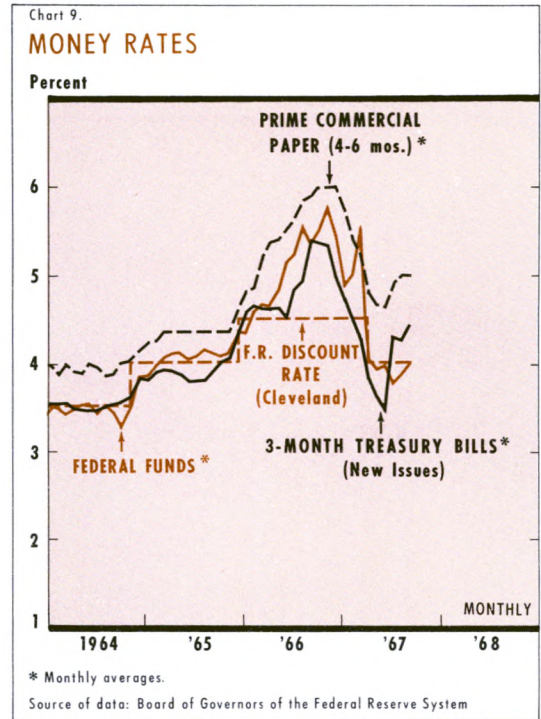


¹ For a more detailed discussion of the level of interest rates and the relationship of short- and long-term rates, see "Trends and Recent Relationships in Yields on U.S. Government Securities," Economic Review, October 1967.

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superimposed on the credit demands generated by the resumption of strong economic activity. This sentiment conceivably persuaded some borrowers to enter the market in anticipation of future needs. As a result, despite the large-scale availability of funds, all credit demands thus far in 1967 could not be satisfied at prevailing interest rates, and consequently, rates moved upward. The upward drift in other long-term rates was transmitted to mortgage yields, which have gradually moved upward since May.

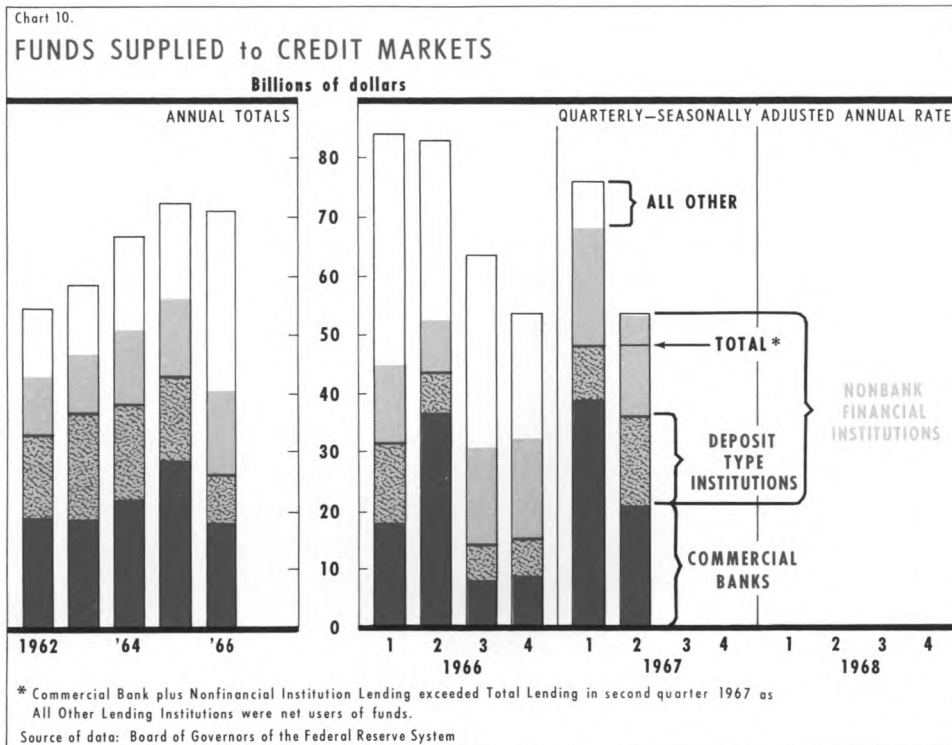
As suggested in Chart 9, short-term rates were perhaps much more responsive to economic conditions and the change in monetary policy in late 1966. The rate on new issues of 3-month Treasury bills fell almost 2 percentage points from a peak in October 1966 to June 1967; bill rates subsequently turned up sharply after June. Although other short-term rates exhibited similar patterns, these rates did not turn up as sharply as did the bill rate, or did not increase at all. The response of short-term rates to monetary ease in late 1966 and early 1967 was reflected in and reinforced by the attempt of financial and nonfinancial institutions to restore liquidity positions. The growth in deposits and share capital of deposit-type financial institutions was utilized to a large extent to acquire short-term investments and to pay off debts, thereby exerting downward pressure on short-term rates. At the same time, loan demand at banks continued relatively weak, partly as a result of reduced inventory accumulation. Nonfinancial corporations, on the other hand, sought to clear their credit lines at banks, while corporations also attempted to assure themselves of an adequate supply



of funds by issuing commercial paper and long-term securities.

FUNDS SUPPLIED

For 1966 as a whole, the total flow of funds into credit markets was slightly less than in 1965, but substantially exceeded the 1964 flow (see Chart 10). During 1966, as discussed earlier, flows of funds decreased from an annual rate of \$84 billion in the first quarter to \$54 billion in the fourth quarter. In response to the change in monetary policy, total funds supplied increased sharply in the first quarter of 1967. However, in the second quarter, total funds supplied again declined. As indicated earlier, the second quarter slowdown in funds raised and funds supplied was centered almost entirely in the Federal Government sector, where accelerated corporate profit



tax payments coupled with a run-off of cash balances permitted the Government to retire debt at a nearly \$22 billion annual rate.

In addition to changes in the contour of total funds supplied, there were significant changes in the composition of funds supplied. Funds supplied by deposit-type financial institutions for 1966 as a whole were only 60 percent of the amount supplied in 1965, due to the fact that flows were severely reduced in the second half of the year. As shown in Chart 10, funds supplied by commercial banks declined from an annual rate of \$28 billion in the first half of 1966 to \$9 billion in the second half; funds supplied by nonbank deposit-type financial institutions declined from an annual rate of \$13.5 billion in the first

quarter to an average of slightly more than \$6 billion during the next three quarters. As a result, deposit-type financial institutions (bank and nonbank) suffered a substantial reduction in their share of total funds supplied.

Funds supplied by insurance companies and pension funds, as shown in Chart 10, were fairly stable during 1966, and in fact actually increased for the year as a whole. A significant change occurred in the "all other" category, however. For 1966 as a whole, this category supplied almost twice the amount of funds as in each of the previous two years. The major sources of funds in the "all other" category were the Federal Government and domestic nonfinancial sources

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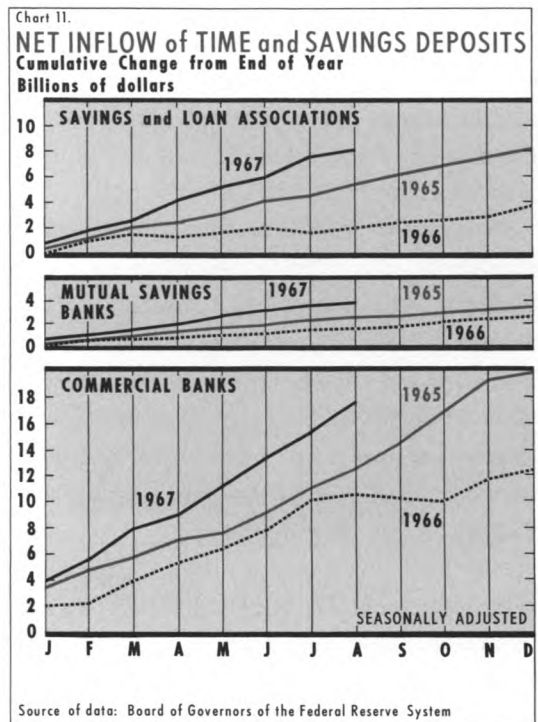
— households, businesses, and state and local governments. While each of these sources increased the supply of funds to credit markets in 1966, the major change in the domestic nonfinancial category occurred in the household sector.

Households, influenced by high interest rates, bypassed deposit-type financial institutions and invested funds directly in financial markets—acquiring substantial amounts of U.S. Government and municipal securities—in what came to be known as “disintermediation.” Thus, while total flows of funds on the supply side were not significantly less in 1966 than in 1965, both the intrayear pattern and the composition of flows were substantially altered. In the first half of 1967, a semblance of normality on the supply side was restored, as consumers saved a greater proportion of current income, liquidated security holdings, and transferred substantial funds to deposit-type institutions.

DEPOSIT-TYPE FINANCIAL INSTITUTIONS

The shortfall of deposit inflows at all deposit-type institutions in 1966 is revealed in Chart 11. Savings and loan associations experienced a slowdown in net inflows in both the second and third quarters. In the fourth quarter, while inflows increased, the gain was not large enough to compensate for the earlier shortfall. By the end of 1966, cumulative net inflows at savings and loan associations were less than half of the 1965 inflows. Net deposit inflows at mutual savings banks were approximately one-third less in 1966 than in 1965. At commercial banks, accelerated growth of certificates of deposit (CDs)

during the first half of 1966 more than compensated for the drop in savings inflows that occurred in the second quarter. By late August, however, market rates of interest had risen above maximum permissible offering rates on CDs and banks experienced a sizable run-off, which amounted to approximately \$3 billion by mid-December. Thus, a significant deterioration in deposit growth at commercial banks did not materialize until the third and fourth quarters. With individuals withholding funds from deposit-type institutions and investing directly in higher-yielding market investments, the pressure on deposit-type institutions led to a marked drop in mortgage credit.



The situation shifted in 1967, and net inflows of time and savings deposits and share capital have expanded considerably, with the expansion even greater than in 1965 (see Chart 11). The improvement of deposit inflows, however, did not immediately result in increased mortgage or other lending. For example, savings and loan associations utilized a substantial proportion of the enlarged deposit inflow to retire indebtedness to the Federal Home Loan Bank. During the first half of 1967, for example, savings and loan associations reduced such indebtedness at an annual rate of nearly \$4.5 billion. In addition, savings and loan associations have attempted to rebuild liquidity positions by purchasing U.S. Government securities. Thus, although mortgage financing by savings and loan associations picked up rapidly, the amount of mortgage credit extended has remained below 1965 levels. The situation was somewhat similar at mutual savings banks, which became substantial purchasers of corporate bonds (at an annual rate of nearly \$3 billion in the first half of 1967).

Time and savings deposit inflows into commercial banks were also considerable during the first half of 1967. Much of the initial increase in time and savings deposits reflected the growth of CDs, as short-term market rates of interest fell below CD offering rates. During the second quarter, however, there was virtually no growth in CDs. In the third quarter, CDs at large commercial banks again increased. The recent strength of time and savings deposit inflows at commercial banks has been supported by the growth of other time deposits, particularly savings accounts, which earlier this year had shown little increase.

COMMERCIAL BANK CREDIT

The uses of deposit inflows in 1967 by commercial banks reflect the attempt to rebuild liquidity positions as well as the influence of the sluggish performance of the economy in the first half of the year. In the first quarter of 1967, total loans and investments grew substantially in response to sharply accelerated reserve expansion, although most of the growth represented the acquisition of U.S. Government securities and state and local obligations (see Chart 12). The inventory adjustment, the decline of plant and equipment expenditures, and increased corporate use of the open market were important influences on the moderate growth of total loans (including business loans). In the second quarter, bank credit growth was more restrained as total loan growth eased even further. Banks continued, however, to acquire state and local obligations even though maturing tax anticipation bills resulted in a sharp decline in holdings of U.S. Government securities. Thus, the portfolios of commercial banks were clearly influenced by the attempt to rebuild liquidity as well as by moderate loan demand. In the third quarter, bank credit expansion virtually exploded, being larger than in the first quarter, as banks continued to add to investment portfolios while accommodating stronger total loan demand (business loan demand, however, hardly increased).

The sharp expansion of bank credit thus far in 1967 was made possible by the rapid growth of bank reserves after the change in monetary policy last fall. The buildup of non-borrowed reserves during the first quarter of 1967 was one of the greatest on record (see

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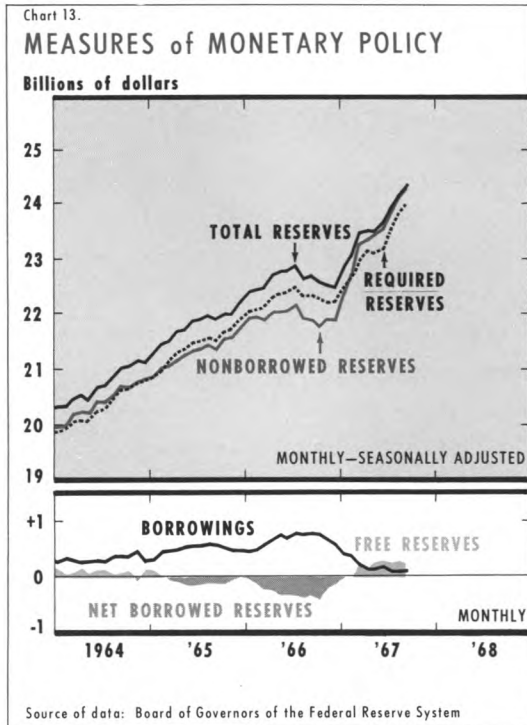
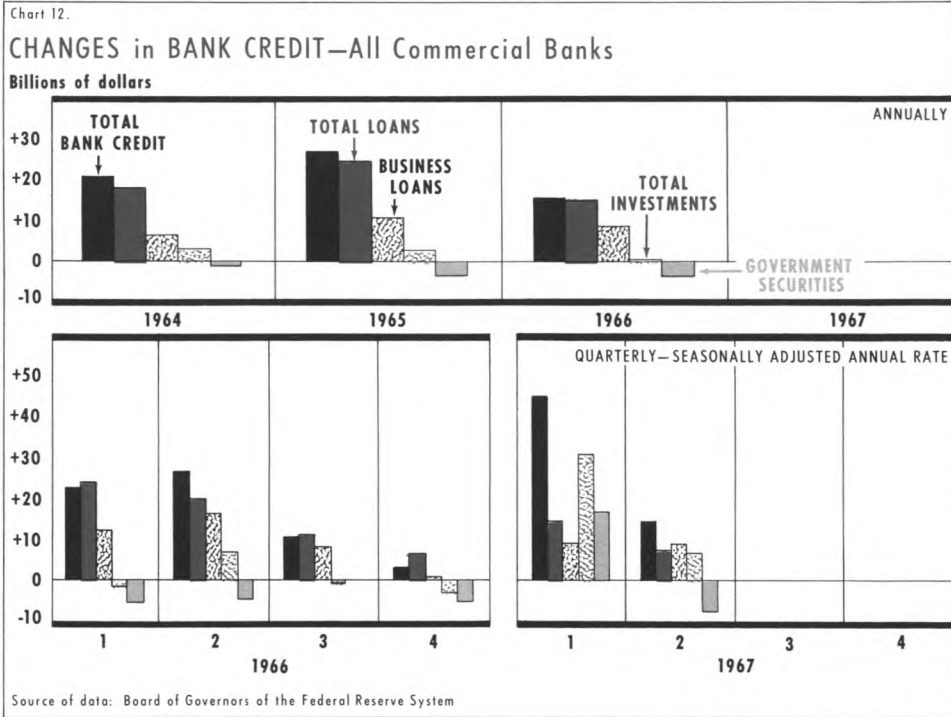


Chart 13). While growth moderated somewhat in the April-June period, it again accelerated in the third quarter. Chart 13 shows that not all of the growth in nonborrowed reserves was transferred into total reserve growth, however, as member banks reduced their indebtedness to the Federal Reserve System (particularly during the first half of the year). The expansionary posture of monetary policy is clearly indicated by the much more rapid growth of nonborrowed reserves relative to required reserves.

CONCLUDING COMMENTS

Financial developments similar to those in 1966 could reoccur in the period ahead if the economy does not have the benefit of an appropriate public policy. As things developed, public policy — both fiscal and monetary policy — certainly deserves much

credit for aiding the economy to weather the inventory adjustment during the first half of 1967 with only "minimum hurt." Nevertheless, expansionary public policy has enabled the economy to restock its liquidity to a degree that may make the economy vulnerable in the period ahead, particularly in view of the business expansion that is now underway.

Conceivably, the proposed surcharge on personal and corporate income taxes could provide sufficient restraint on the economy so that monetary policy could continue to provide moderate reserve growth, which is necessary to achieve balanced and orderly economic expansion. However, if the expansion were to become excessively vigorous or if the surcharge were too small, or not passed at all, then monetary policy might be faced with a situation that could regenerate the types of financial pressures and problems that characterized the second half of 1966.



TRENDS AND RECENT RELATIONSHIPS IN YIELDS ON U. S. GOVERNMENT SECURITIES

The economic expansion that began in early 1961 has been characterized by a trend marked by irregularly rising yields on U.S. Government securities. This trend reached what appeared at the time to be a peak during August-September 1966, when interest rates on U.S. Government securities were at their highest levels since before the Great Depression. After September, interest rates began to decline and continued on a downward course into 1967. Long-term interest rates turned upward in February followed by intermediate-term rates in May and short-term rates in July. By early fall, short- and intermediate-term interest rates had moved considerably above previous lows and long-term rates had surpassed 1966 peak levels.

This article describes the recent behavior of yields on U.S. Government securities against the background of major factors determining the levels and patterns of interest rates during any given period. There are at least two considerations in an analysis of interest rate relationships: (1) the trend over

time in absolute levels of interest rates in various maturity sectors; and (2) the term structure of interest rates — the relationship between rates in one maturity sector against those prevailing in other maturity sectors.¹

YIELD CHANGES FROM 1961 TO 1966

The trend in interest rates from 1961 to 1966 for issues in three representative maturity classifications is shown in Table I. Although yields in all three categories registered gains during this period, the increases were not uniform. The market yield on 3-month Treasury bills, for example, increased

¹ U. S. Government securities are usually classified as short-, intermediate-, and long-term, although within each category there are issues with widely varying original maturities. The short-term sector, for example, contains issues with original maturities varying from three months to one year. In general, however, securities maturing within one year are referred to as short-term, with the 3-month Treasury bill the best known issue in this class. Issues that mature between one and five years are designated as intermediate-term, while issues with maturities of more than five years are in the long-term category.

nearly 250 basis points — from an annual average of 2.36 percent in 1961 to 4.85 percent in 1966. In comparison, the increases in yields on intermediate- and long-term securities were more moderate. The former increased 156 basis points — from 3.60 percent in 1961 to 5.16 percent in 1966 — while the latter increased only 76 basis points — from 3.90 percent to 4.66 percent — over the same period. As a result, the interest rate differential or spread between short- and longer-term issues decreased steadily during the 1961-1966 period. In fact, during 1966 the average yield on 3-month Treasury bills was moderately higher than that on long-term issues, while the average yield on intermediate-term issues was substantially higher.²

It is significant that, during the first five years of the current expansion, the updrift in interest rates was relatively moderate. In late 1965 and 1966, however, interest rates rose markedly (see Table I and Chart 1), reflecting increased supply-demand pressures in the real and financial sectors of the economy.

THE EVIDENCE FROM YIELD CURVES

Although time series data are helpful for analyzing trends in the absolute levels of interest rates, the yield curve is the most

² The yield spread between short- and longer-term issues was of considerable concern to monetary policy particularly in the earlier years of the current expansion. The concern arose primarily because of efforts to improve the United States balance of payments position without inhibiting domestic economic growth. It was believed that by keeping short-term rates high relative to long-term rates, short-term capital outflows from the United States would be reduced without depressing the level of domestic investment.

useful device for examining yield relationships at a given time between securities with various maturities. Yield curves are defined as graphical statements of the term structure of interest rates as of a particular point in time. The time period can vary from an instant to one year or more. In other words, a yield curve can be drawn from closing quotations at the end of the trading day, or from daily, weekly, monthly, or annual averages.

Changes in the shape of the yield curve are not always gradual. A curve may change shape markedly several times during the course of a year, reflecting frequent price changes when market forces are given free expression. Yield curves become immune to change only when security yields are rigidly controlled. Empirical evidence points to the existence of four basic types of yield curves, which are shown in Chart 2; the curves are drawn on the basis of average annual yields on U.S. Government securities with terms to maturity varying from three months to 20 years.

The most frequently occurring curve — at least since 1945 — exhibits relatively low yields on short-term maturities with gradually rising yields as the term to maturity increases. The yield curve for 1961 in Chart 2 is an approximation of such an "ascending" curve. Two other types — which rarely occur — include a "flat" curve where yields for all maturity issues are approximately equal; and a "humped" curve in which intermediate-term yields are above both short- and long-term yields. The yield curves for 1965 and 1966 in Chart 2 conform reasonably well to the flat and humped types. A descending yield curve (sometimes called a "reverse"

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TABLE I
Yields on U.S. Government Securities
 (Percent)

Year	3-Month Bills		3-5 Years		Bonds Over 10 Years		Rate Spread Between:		
	Annual Average	Change During Year	Annual Average	Change During Year	Annual Average	Change During Year	Bills & 3-5 Yrs.	Bills & Over 10 Yrs.	3-5 Yrs. and Over 10-Yrs.
1961	2.36		3.60		3.90		1.24	1.54	0.30
1962	2.77	+0.41	3.57	-0.03	3.95	+0.05	0.80	1.18	0.38
1963	3.16	+0.39	3.72	+0.15	4.00	+0.05	0.56	0.84	0.28
1964	3.54	+0.38	4.06	+0.34	4.15	+0.15	0.52	0.61	0.09
1965	3.95	+0.41	4.22	+0.16	4.21	+0.06	0.27	0.26	-0.01*
1966	4.85	+0.90	5.16	+0.94	4.66	+0.45	0.31	-0.19*	-0.50*
Average for Period	3.44		4.06		4.15		0.62	0.71	0.09

*Minus signs indicate differentials in favor of shorter-term issues.

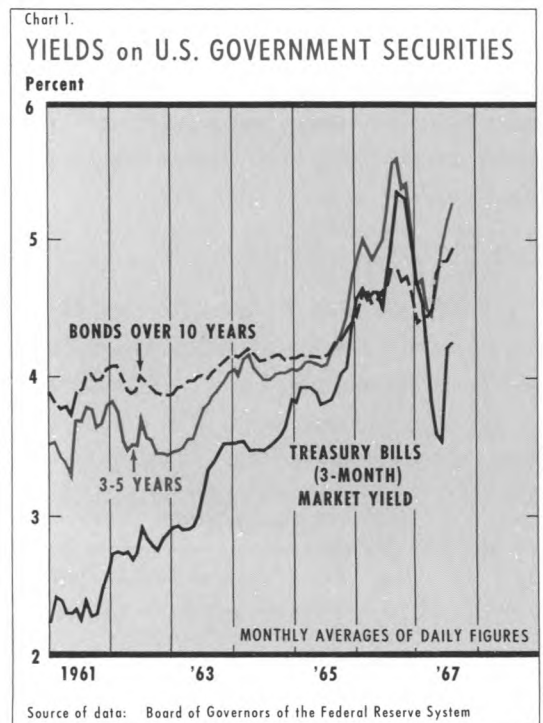
Source: Board of Governors of the Federal Reserve System

curve) such as the one dated October 1966 in Chart 3 is another basic, but less commonly observed, curve. The changing term structure of interest rates during the 1961-1966 period is illustrated by the yield curves in Chart 2.

FACTORS DETERMINING INTEREST RATES

The behavior of interest rates over time, as shown in Chart 1, suggests that interest rates along the entire maturity spectrum generally tend to move together. That is, in periods when long-term rates are "high" in absolute terms, short- and intermediate-term rates also are likely to be "high." There is little controversy about the causes of high or low absolute levels of interest rates. In the absence of any actions by the monetary authorities, the absolute levels of interest rates are established basically by market conditions reflecting supply and demand relationships for loanable funds. In periods of expanding economic activity, the need to finance current produc-

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1965	3.95	+0.41	4.22	+0.16	4.21	+0.06	0.27	0.26	-0.01*
1966	4.85	+0.90	5.16	+0.94	4.66	+0.45	0.31	-0.19*	-0.50*
Average for Period	3.44		4.06		4.15		0.62	0.71	0.09

*Minus signs indicate differentials in favor of shorter-term issues.

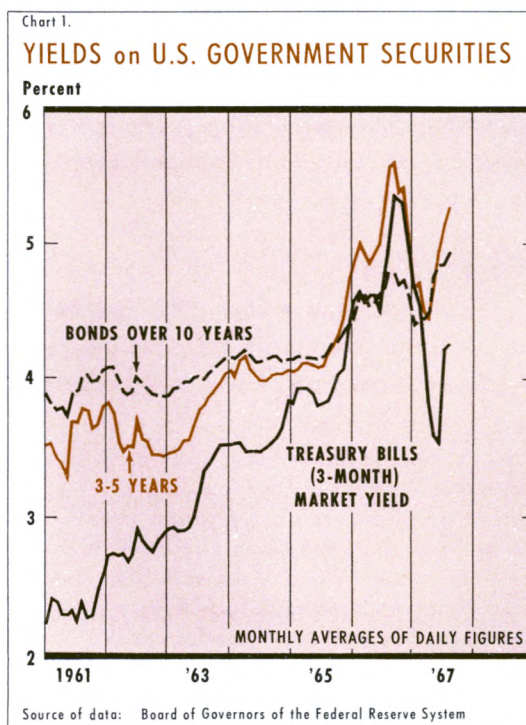
Source: Board of Governors of the Federal Reserve System

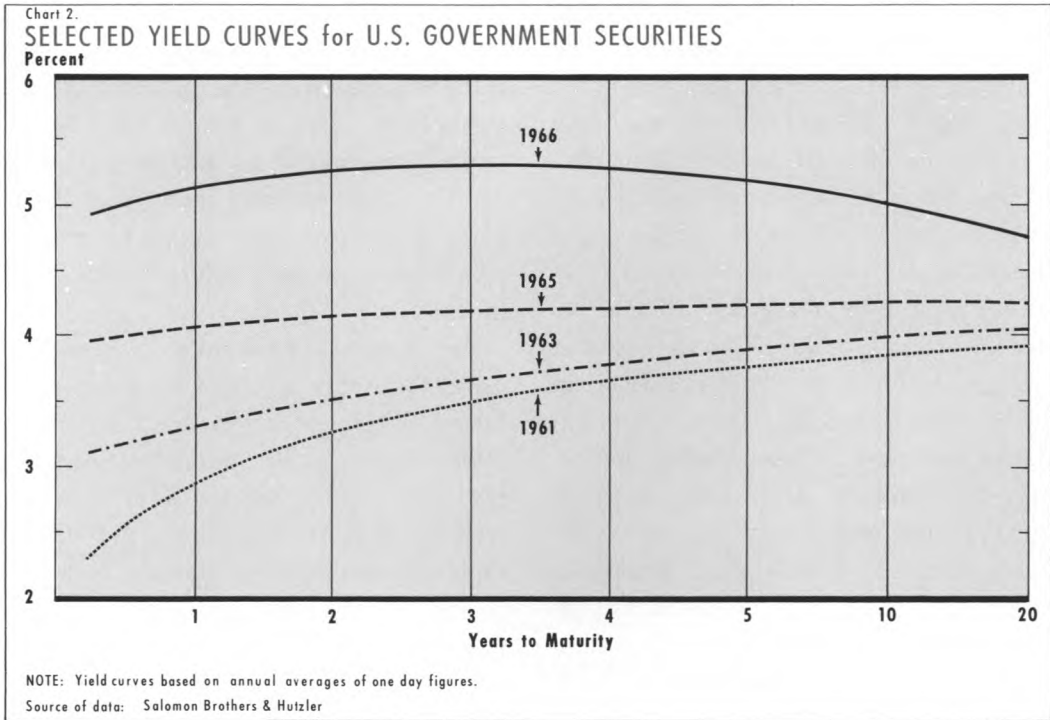
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tion and increased capacity for future production is likely to result in enlarged demands for loanable funds. The supply of loanable





funds, on the other hand, is primarily a function of saving habits and the level of current income. Monetary policy also influences the supply of loanable funds through the extent to which the Federal Reserve System is willing to provide reserves to commercial banks to expand the volume of money and credit. Thus, actions on the part of borrowers, savers, lenders, and monetary authorities determine the level of interest rates that will emerge during a period of time.

Despite intensive research in recent years, there are still widely divergent views regarding the determination of relative, as opposed to absolute, levels of interest rates. Although yields in the various maturity categories tend to move in the same direction over the long run, not all of these yields move by the same

magnitude. On the other hand, when the time span is short, yields in different maturity sectors may move in opposite directions. To explain this rather complex behavior, several theories have been advanced in the past 40 years. The discussion that follows attempts to summarize these theories.

Supply and Demand Conditions. It would appear that supply and demand conditions for securities of a particular maturity determine yields in that maturity category. For example, all things being equal, if the demand for long-term funds increased while the demand for short-term funds decreased, long-term interest rates would be expected to rise and short-term rates to fall, thereby altering the relationship between short- and long-term yields (until market conditions

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changed). This outcome, however, presupposes that short- and long-term securities are essentially two different goods and that the change in the price of one does not affect the price of the other. If, on the other hand, short- and long-term securities were perfect substitutes, increased yields on long-term securities would induce investors to withdraw funds from short-term securities to invest in long-term securities. The net result of the switch, which is in effect a change in demand, would be to raise rates on short-term securities and lower long-term rates, thus restoring the original relationship between short- and long-term yields. Therefore, the influence of supply and demand changes in the various maturity sectors on the term structure of interest rates depends to an important extent upon whether or not securities with different maturity dates are considered substitutes by investors and borrowers.

The Role of Institutions. Because of institutional considerations and constraints, some observers have concluded that the securities market is "segmented" and that each different investor group concentrates its transactions in a particular maturity sector of the market, rather than along the whole maturity range. Insurance companies, for example, invest a large part of their assets in long-term securities, because the nature of their liabilities enables them to predict the size of their future payments. By investing in long-term issues, insurance companies avoid the cost and fluctuation in yields that would arise from continuous reinvestment in short-term securities. In contrast, commercial banks, whose liabilities are subject to wide and frequent fluctuations, and business firms, with

a large amount of "temporary" funds, usually prefer to invest in short-term securities. If the segmented market approach is correct, the term structure of interest rates would be mainly determined by supply and demand conditions within each segment of the market, and yield changes in one market sector would not necessarily induce similar changes in another.

The Role of Expectations. Expectations about the future levels of rates are also believed to influence the term structure of interest rates. In its "purest" form, the "expectations theory" of the term structure of interest rates³ views short- and long-term securities as perfect substitutes. Institutional constraints are not overlooked, but speculation and arbitrage in the securities markets are assumed to be strong enough to overcome institutional preferences for specific maturity categories.⁴ Under the expectations theory, longer-term rates of interest are conceived to be averages of current short-term rates and

³ Besides several journal articles, three books on this subject have received attention recently: David Meiselman, *The Term Structure of Interest Rates* (Englewood Cliffs: Prentice-Hall, 1962); Reuben Kessel, *The Cyclical Behavior of the Term Structure of Interest Rates*, Occasional Paper 91 (New York: National Bureau of Economic Research, 1965); and Burton G. Malkiel, *The Term Structure of Interest Rates: Expectations and Behavior Patterns* (Princeton: Princeton University Press, 1966).

⁴ For example, if certain financial institutions by heavy purchases could force down short-term rates without altering long-term rates, professional traders and other specialists would react by selling short-term securities and buying long-term until the original relationship between short- and long-term yields would be largely restored. Therefore, any *lasting* changes in interest rate relationships could not be explained by supply and demand in particular market sectors, but by changes in expectations about future rates.

those expected in the future. Thus, changes in expectations about future short-term interest rates will tend to change the whole structure of interest rates.

To illustrate, assume that yields on securities with maturities of one and two years are approximately 4.00 and 4.50 percent, respectively. The relationship implies that the expected yield on one-year securities will be approximately 5.00 percent one year in the future. Thus, if \$100 were invested in a two-year security, interest for the period would be \$9.00 ($\$4.50 + \4.50). The same amount would be realized if \$100 were invested in a one-year security at 4.00 percent and at the end of the year reinvested for another year at 5.00 percent. In this example, the "long-term" rate (4.50 percent for two-year securities) is the average of the present one-year rate (4.00 percent) and the expected one-year rate (5.00 percent).

If developments caused an upward revision in the expected future one-year rate, for example, to 5.50 percent instead of 5.00 percent, the two-year rate (according to the expectations theory) would then move to 4.75 percent (the average of the present 4.00 percent plus the expected 5.50 percent one-year rate). The relationship in the yield curve between the one- and two-year rates would then change from 4.00 percent and 4.50 percent to 4.00 percent and 4.75 percent. As a result, the yield curve would become steeper in the intermediate-maturity area.

Generally, when interest rates are expected to rise, investors are likely to refrain from buying long-term securities, in order to avoid future capital losses (due to a decline in securities prices). Long-term borrowers, on

the other hand, faced with the possibility of higher rates in the future, would probably decide to issue long-term bonds before rates rose. The combination of decreased demand for long-term securities and increased supply of long-term securities would tend to produce higher long-term rates relative to short-term rates, and thus the slope of the yield curve would increase.

If market expectations point toward lower interest rates in the future, the flow of funds would tend to reverse course. Lenders would switch to the long-term sector, hoping to realize capital gains, while borrowers would postpone long-term borrowing in anticipation of lower interest costs in the future. The combined actions of lenders and borrowers would tend to depress the long-term sector of the yield curve.⁵

⁵ The empirical evidence regarding the validity of the expectations hypothesis is mixed. W. Braddock Hickman, in *The Term Structure of Interest Rates: An Exploratory Analysis* (New York: National Bureau of Economic Research, November 16, 1942, unpublished), found very little correspondence between the expected rates implied by the expectations theory and the actual rates that materialized a year later. J. M. Culbertson in "The Term Structure of Interest Rates," *Quarterly Journal of Economics*, 71 (November 1957), pp. 485-517, also found the expectations theory unsatisfactory on the basis of empirical evidence indicating that, contrary to the expectations hypothesis, realized yields for bonds and bills during the sample holding period were not equal. Meiselman, *op. cit.*, on the other hand, by utilizing a mathematical model asserting that expectations are revised when previously held expectations turn out to be erroneous, found the theory consistent with annual interest rate data of the 1900-1954 period. Meiselman's results and conclusions have been partially questioned and in some cases subsequently modified, among others, by Kessel, *op. cit.*, Malkiel, *op. cit.*, and J. H. Wood, "Expectations, Errors, and the Term Structure of Interest Rates," *Journal of Political Economy*, 71 (April 1963), pp. 160-171.

Liquidity Considerations. Because prices on long-term securities fluctuate more than prices on short-term securities, given the same interest rate change in both maturity areas, any potential capital loss is greater for the long-term investor. In other words, short-term securities are more liquid (or closer to money) than long-term securities; therefore, in order to compensate the purchaser of a long-term security for loss of liquidity and risk of capital loss, the long-term interest rate would have to be higher than the short-term rate.⁶ Thus, when liquidity is considered, most long-term rates should be higher than short-term rates. Under these circumstances, the yield curve generally would have a slightly ascending slope. In exceptional situations, when current short-term rates are believed to be "too high" and are expected to fall sharply in the future, the yield curve would have a descending slope. Finally, when short-term rates are expected to fall only slightly, the yield curve would appear flat.

Policy Factors. The levels and maturity relationships of interest rates can also be influenced by Federal Reserve and U.S. Treasury policies and actions. For example, if the securities market were actually "segmented," the Treasury could affect the yield curve by changing the maturity composition of the public debt. As an illustration, if the Treasury refinanced maturing short-term issues with long-term securities and thereby increased

the supply of long-term relative to short-term debt, the yield relationship would be changed toward higher long-term and lower short-term yields. Similarly, through open market operations, the Federal Reserve System can change relative supplies of short- and long-term debt. Open market purchases that reduce the outstanding supply in a particular maturity sector would tend to lower yields in that sector. In the case of open market sales, the reverse would occur.

If the expectations theory were correct, the ability of both the Treasury and the Federal Reserve to influence the term structure of interest rates would be questionable. Since, according to that theory, the relationship between short- and long-term rates is determined mainly by expectations regarding future levels of short-term rates, *changes in relative supplies* of securities brought about by debt management or monetary policy would only have a transitory effect on the term structure of interest rates. In fact, however, open market operations of Treasury financing operations often cause the market *to revise previously held expectations* about future rates, so that the term structure of interest rates does change. In other words, as long as the monetary or Treasury authorities can influence market expectations about future rates, they are also able to have some influence over the term structure of interest rates.

RECENT INTEREST RATE PATTERNS

Since the beginning of 1966, yields in three maturity categories of U.S. Government securities have fluctuated over a wide range. Data regarding the behavior of interest rates during 1966-1967 are presented in Table II.

⁶ This argument also assumes that most investors are risk-averse rather than risk-takers. The holder of a long-term bond not only takes the risk of capital loss, but the chance for capital gains as well. If most lenders were risk-takers, there would be no reason to pay them a higher rate for investing in long-term securities.

TABLE II
Yields on U.S. Government Securities
Monthly Average of Daily Figures

(Percent)

Month	3-Month Bills			3-5 Years			Bonds Over 10 Years		
	1966	1967	Change	1966	1967	Change	1966	1967	Change
January	4.58	4.72	+0.14	4.89	4.71	-0.18	4.43	4.40	-0.03
February	4.65	4.56	-0.09	5.02	4.73	-0.29	4.61	4.47	-0.14
March	4.58	4.26	-0.32	4.94	4.52	-0.42	4.63	4.45	-0.18
April	4.61	3.84	-0.77	4.86	4.46	-0.40	4.55	4.51	-0.04
May	4.63	3.60	-1.03	4.94	4.68	-0.26	4.57	4.76	+0.19
June	4.50	3.53	-0.97	5.01	4.93	-0.08	4.63	4.86	+0.23
July	4.72	4.20	-0.52	5.22	5.17	-0.05	4.74	4.86	+0.12
August	4.94	4.26	-0.68	5.57	5.28	-0.29	4.80	4.95	+0.15
September	5.36	4.42	-0.94	5.62	5.40	-0.22	4.79	4.99	+0.20
October	5.33	—	—	5.38	—	—	4.70	—	—
November	5.31	—	—	5.43	—	—	4.74	—	—
December	4.96	—	—	5.07	—	—	4.65	—	—
Average	4.85	4.15*	-0.70	5.16	4.88*	-0.28	4.66	4.69*	+0.03
High	5.36	4.72	-0.64	5.62	5.40	-0.22	4.79	4.99	+0.20
Low	4.50	3.53	-0.97	4.86	4.46	-0.40	4.43	4.40	-0.03

*For the first nine months.

Source: Board of Governors of the Federal Reserve System

Generally, yields during the first nine months of 1967 were on average lower than for 1966 as a whole. But that situation conceals some relatively wide movements that have occurred in interest rates during 1966-1967. After reaching a peak of 5.36 percent in September 1966, yields on 3-month Treasury bills declined steadily through June 1967 to a level of 3.53 percent. A reversal in the downward trend occurred in the last week of June, and by September the average yield had risen to 4.42 percent.

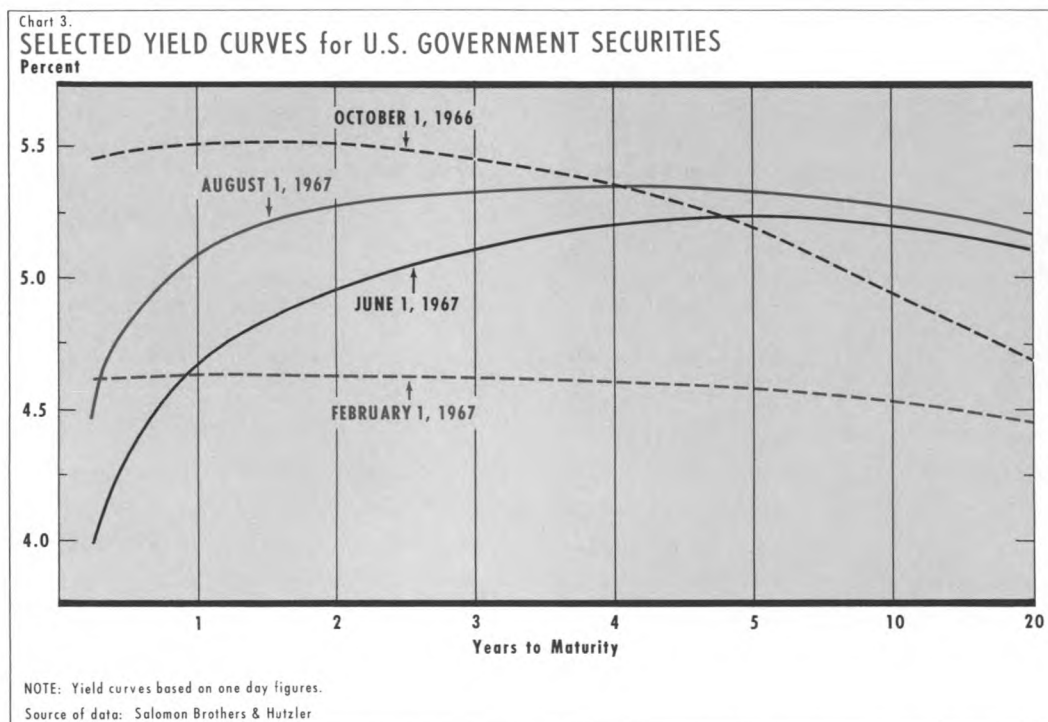
Rates on 3-5 year issues began to rise in May 1967, somewhat earlier than Treasury bills, and by September the average yield had climbed to 5.40 percent. The spread between yields on 3-month and 3-5 year maturities widened consistently during the first half of 1967. As shown in Table II, there was only one basis point difference in the average yields of the two maturity classes in January.

In June, however, the average yield on 3-5 year maturities was 140 basis points higher than that on 3-month bills. The spread narrowed somewhat in July, and then remained about the same in August.

Long-term yields set a record high of 4.99 percent during September 1967. The previous high (4.87 percent) had been established in the week ended September 2, 1966. During the early months of 1967, the average yield on 3-month issues was higher than that on long-term issues. As bill rates declined and long-term yields rose, the differential was first reduced and then reversed when yields on long-term issues moved above those on short-term issues. The subsequent rise in bill rates during the summer months narrowed the spread between short- and long-term issues.

Recent changes in interest rate relationships are shown by the yield curves in Chart 3. Generally, over the months from October

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1966 to August 1967, the yield curve changed from a descending type in October 1966, to a relatively flat curve in February 1967, to a rapidly ascending type in June, and to a more gradually ascending curve in August. This pattern is certainly not unusual in light of the marked changes in financial and business conditions during the period. During most of 1966, the goal of monetary policy was to restrain aggregate demand and inflationary pressures that had developed in the economy as a result of increased activity in the private and public sectors. Interest rates reached record levels during that summer; but as loan demand slackened in the fall, interest rates began to decline. Historically, yield curves of the type shown for October 1966 in Chart 3 tend to emerge during periods of a relatively high level of economic activity when

the general feeling in financial markets is that interest rates are too high relative to their likely future levels.

From October 1966 through February 1967, interest rates — especially for short- and intermediate-maturities — fell considerably and, as shown in the curve for February 1967, the yield differential between short- and long-term securities virtually disappeared. Several factors could have contributed to this development. For one thing, there was a slowdown in the pace of economic activity. In addition, the change to an expansionary monetary policy in November 1966 helped to remove reserve pressures from commercial banks, as the Federal Reserve System supplied reserves to the banks rather liberally, which in turn had a moderating influence on interest

rates. Reduced demand for business loans had a similar influence. At the same time, the heavy demand for liquidity, that is, the demand for short-term investments by individuals and institutions, that developed late in 1966 may explain in part the larger decline in short-term relative to long-term yields. The President's message to Congress in January 1967, with its reference to plans for a tax increase because of an anticipated surge in economic activity later in the year, and the subsequent apprehension expressed by certain Congressional leaders about the advisability of the proposed tax plans may have had a mixed influence on investors' attitudes about future prospects for interest rates.

During March and April, short- and intermediate-term interest rates fell further, while long-term rates turned upward. Among the factors that brought about this development were the continuation of monetary ease by the Federal Reserve, the strong demand for short-term assets (liquidity), and expectations of higher rates in the months ahead, as reflected, for example, in the surge of borrowing in the long-term market. It also became increasingly clear during this period that the size of the deficit in the Federal budget would be larger than that announced in the January budget message and that the fear of a recession (in view of the evidence in the first quarter's GNP data released in April) may have been exaggerated. At least to investors and borrowers, these seemed to be signs suggesting higher interest rates in the future; consequently, many investors decided to invest temporarily in short-term securities and many borrowers attempted to obtain long-term funds at what seemed to be favor-

able rates. A factor that may have prevented long-term rates from moving higher was the decision by the Federal Open Market Committee during the spring of 1967 to acquire coupon issues, when appropriate, to provide additional reserves to member banks.

As shown in Chart 3, the yield curve for June indicated that intermediate- and long-term yields had moved appreciably higher than in February (intermediate-term yields on average had turned up in May). In addition to expectations of higher interest rates, this change probably can be attributed in part to the record volume of security offerings by business corporations, as well as by state and local governments, that continued into the summer at an unabated pace.

Typically, however, and as an example of the rapidly changing nature of yield curves, the curve for June 1967 proved to be short-lived. Treasury bill rates increased sharply in late June and early July. In part, an impetus to this rise was provided by the announcement that the Treasury had made plans to auction over \$4 billion of tax anticipation bills early in July for the purpose of raising additional cash for the current fiscal year. During the rest of July and in August, yields on short- and intermediate-term securities on balance gradually worked higher, while yields on long-term issues edged above levels reached in June. As a result, the yield curve for August took on the shape depicted in Chart 3.

With interest rates continuing to move higher in September, and with short- and intermediate-term rates increasing more than long-term rates, the yield curve for September was generally both higher and flatter than the yield curve for August.

