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GENERAL ACCOUNTING OFFICE UNITED STATES  
**REPORT TO THE CONGRESS**

APR 16 1976

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**BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES**



**The Congress Should  
Consider Repealing The  
4-1/4-Percent Interest  
Rate Limitation On  
Long-Term Public Debt**

Department of the Treasury

The U.S. Treasury has been generally prohibited from selling long-term bonds with interest rates over 4-1/4 percent since World War I. In recent years, this limitation has prevented the Treasury from selling a large volume of long-term bonds.

GAO analyzed the history and economic impact of the 4-1/4-percent limitation and concluded that the limitation no longer serves its original purpose of reducing Federal borrowing costs and may have increased those costs.

The Congress should consider either repealing the limitation immediately or phasing it out through annual redefinition of maturities exempt from the ceiling or through annual increases in the dollar volume of securities that may be floated without regard to the ceiling.

*Office of Program Analysis  
GAO 00091*

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COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

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To the President of the Senate and the  
Speaker of the House of Representatives

The 4-1/4-percent interest limitation on long-term Treasury debt constrains Government borrowing operations because it prevents the Federal Government from financing deficit expenditures or refinancing its outstanding maturing debt with issues whose maturity exceeds 7 years. Market yields are expected to exceed 4-1/4 percent for the foreseeable future. In addition, Federal deficits of the last 2 years have reached unprecedented levels. The inability to at least partially finance these deficits with long-term debt means that the Federal Government will become an increasingly active participant, and a potentially disruptive influence, in private capital markets and in the short segment of the capital market. Because of the magnitude of this problem, we made this review to provide information to the Congress concerning the advantages and disadvantages of the 4-1/4-percent interest rate limitation.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Secretary of the Treasury; the Chairman of the Council of Economic Advisors; and the Director, Office of Management and Budget.

A handwritten signature in black ink, appearing to read "Thomas A. Steeds".

Comptroller General  
of the United States

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COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

THE CONGRESS SHOULD CONSIDER  
REPEALING THE 4-1/4-PERCENT  
INTEREST RATE LIMITATION  
ON LONG-TERM PUBLIC DEBT  
Department of the Treasury

D I G E S T

The 4-1/4-percent limitation on interest that can be paid on long-term public debt hampers Federal Government borrowing operations. It prevents the Government from financing deficit expenditures or refinancing its outstanding maturing debt with issues that have maturities exceeding 7 years.

As long as outstanding long-term securities continue to yield more than 4-1/4 percent, the Treasury cannot float long-term debt in its financing and refinancing operations.

The Federal deficit was \$72.5 billion during 1975. According to the Wharton Annual and Industry Forecasting Model, the deficit is expected to be approximately \$69.0 billion in 1976. The Treasury's inability to at least partially finance these deficits with long-term debt means that the Federal Government will become an increasingly active participant, and a potentially disruptive influence, in private capital markets.

The 4-1/4-percent interest limitation was established during World War I, in 1917-1918. (See ch. 1.) In those days, bonds were sold in an atmosphere of national crisis. Availability of bonds in small denominations insured a sellout of issues at yields below those then prevailing in the market. The U.S. is not now experiencing a national emergency, and suppliers of long-term funds to the capital markets today are very responsive to the rate of interest.

Clearly, the 4-1/4-percent limitation was imposed in special circumstances that no longer prevail. The limitation was set at a 0.25 percent discount from yields then prevailing in the market. Current and foreseeable market yields are considerably higher than 4-1/4 percent.

Has the interest rate limitation benefited or hampered Treasury borrowing operations and the credit markets in which the Treasury borrows funds? The limitation may currently have economic effects not foreseen by the originators of the legislation that are beneficial, thus tending to support its retention. By the same token, it may have economic effects that are harmful.

The following three economic questions are associated with the 4-1/4-percent interest limitation:

- What effect has the limitation had on the average maturity of public debt outstanding?
- What are the implications of the limitation for the management of the public debt?
- Does the limitation presently distort credit markets? Would removing the ceiling have any unfavorable implications for the allocation of credit in money and capital markets?

GAO reached the following conclusions regarding these issues:

- The 4-1/4-percent interest limitation and the exhaustion of the \$10 billion exclusion encourage a shortening of the maturity of the national debt. This shortening tendency may, in turn, place the Treasury (1) in a more vulnerable position with respect to its borrowing operations and (2) in the position of being a potentially destabilizing influence on money and capital markets.
- There are three basic philosophies regarding what the objectives of debt management ought to be: avoiding timing disruptions through more systematized securities flotations, fostering the stabilization of aggregate economic activity, and minimizing interest costs. Given contemporary and foreseeable levels of interest rates, achieving any of these objectives will not be possible as long as the 4-1/4-percent interest limitation remains in effect.

--A theoretical basis and some supporting practical experience indicate that the limitation has at times distorted the term structure of interest rates and raised Government and private sector borrowing costs. On the other hand, relevant evidence suggests that repealing the limitation would not cause much distortion in the term structure of interest rates and, hence, would not affect the relative costs of borrowing in various maturity sectors. At best, the ceiling is neutral in its effects on relative costs of borrowing in credit markets. At worst, it may have unfavorable costs effects.

The Congress should consider immediately repealing the 4-1/4-percent interest limitation. Alternatives which would have essentially the same long-term effects are systematically phasing out the limitation through

--annual redefinition of the maximum maturity of securities whose flotation is subject to the ceiling and/or

--annual increases in the dollar volume of long-term securities which may be floated without regard to the ceiling.

The Treasury Department agrees with the conclusions and recommendations of this report. (See app. I.)

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## CHAPTER 1

### BACKGROUND

The 4-1/4-percent interest limitation on long-term public debt constrains Federal Government borrowing operations because it prevents the Government from financing deficit expenditures or refinancing its outstanding maturing debt with issues that have maturities exceeding 7 years. As long as market yields on outstanding long-term securities continue to exceed 4-1/4 percent, the Treasury cannot float long-term debt in its financing and refinancing operations. The Federal deficit was \$72.5 billion during 1975 and, according to the Wharton Annual and Industry Forecasting Model, will be approximately \$69.0 billion during 1976. The inability to at least partially finance these deficits with long-term debt means that the Federal Government will become an increasingly active participant, and a potentially disruptive influence, in private capital markets. The greater the reliance upon short-term debt, the more often the Government will have to enter the market to refinance its debt and, therefore, the more often it will actively compete for the available supply of loanable funds in private capital markets. Because of the increasing magnitude of this problem, we made this study to provide information to the Congress concerning the advantages and disadvantages of the 4-1/4-percent interest rate limitation.

The Second Liberty Bond Act of September 24, 1917 (40 Stat. 288), provided for a maximum 4-percent interest rate on long-term bond flotations. It was amended by the Third Liberty Bond Act of April 4, 1918 (40 Stat. 502), which provided the current 4-1/4-percent limitation (31 U.S.C. 752). Since that time, the Liberty Bond Acts have been modified three times:

- On June 30, 1967, the maximum maturity of notes excluded from the 4-1/4-percent interest limitation was extended from 5 to 7 years (81 Stat. 99, 31 U.S.C. 753(a)).
- On March 17, 1971, \$10 billion worth of long-term bonds were authorized for issuance without regard to the ceiling (85 Stat. 5, 31 U.S.C. 752)(this exclusion has since been virtually exhausted).
- On July 1, 1973, all issues sold to the Federal Reserve and to Government accounts were exempted from the ceiling (87 Stat. 134, 31 U.S.C. 752).

The rationale for imposing the ceiling was reasonably clear. In 1917, the costs of World War I were producing deficits of unprecedented size. The Treasury had to request legislation each time it wished to fund these deficit expenditures. Financing during this period was carried out systematically--interim financing was obtained by issuing short-term certificates of indebtedness and funding by selling long-term Liberty Bonds. In selling its short-term instruments, the Treasury wanted to provide banks with advance information regarding financing requirements and to finance deficit expenditures as systematically as possible. Liberty Bonds, on the other hand, were sold through massive advertising campaigns appealing to the patriotism of all Americans.

Circumstances surrounding the Third Liberty Loan flotation, described in the 1918 Annual Report of the Secretary of the Treasury, illustrate the rationale for the 4-1/4-percent interest limitation:

"With the bonds of previous loans [First and Second Liberty Loans] selling below par and industrial and other securities yielding a return much in excess of the interest rate on government bonds, the question of the rate of interest on new bonds became acute. It was the general banking opinion that the rate should be 4-1/2 percent, and few believed that it would be possible to sell the necessary large amount of bonds at a lesser rate. The Treasury, on the other hand, stood firm in the belief that the rate of interest would not of itself maintain Liberty Bonds at par in the financial markets; that the price of Liberty Bonds, even though quoted at less than par on the exchanges, would not deter the American people from buying at par the same bonds when offered by their government to secure the necessary funds to carry on the war; that the patriotism of the American people was not measured by interest rates nor determined by fluctuations in the market price of government bonds on stock exchanges.

"The Treasury felt, however, that to raise the interest rate to 4-1/2 percent would mean a corresponding increase in the cost of the war and force still higher interest rates on future issues of industrial and other securities, as well as further depress the price of existing long-term bonds. On the other hand, it seemed clear that the time had arrived when every effort should be made to stabilize the interest rate

on government bonds and to reach a point where there would no longer be expectation of further increases in rates."

Thus, the principal reason for establishing a ceiling rate of 4-1/4 percent on long-term Government bonds was the desire to minimize costs associated with U.S. participation in World War I. The ceiling was established at what was, even then, a low level because of the belief that the American public would purchase Liberty Bond issues for reasons other than comparative yield. The Third and Fourth Liberty Bond issues had 18.4 and 21 million subscribers, respectively, representing significant fractions of the total U.S. population, which was only 105 million in 1920. These securities were available in small enough denominations to attract buyers from all sectors of the economy.

Circumstances are different today. The Third and Fourth Liberty Bond issues sold out at prices greater than those prevailing in the market because bonds were available in small denominations, which were attractive to small investors. Thus, convenience compensated for low yield. In addition, patriotic motivations undoubtedly played some part. Today, Treasury bonds (other than savings bonds) are no longer available in denominations sufficiently small to attract many small-scale investors who are relatively insensitive to interest rates. Suppliers of long-term funds to the capital markets are very responsive to such rates. Patriotic motivations will probably not be sufficiently strong to outweigh interest income considerations.

Thus, the 4-1/4-percent interest limitation on long-term Treasury bonds was established to reduce the costs of financing World War I and was set at a level only marginally below the interest rate that would have been charged in its absence. For the next 40 years, interest rates in long-term bond markets never reached levels high enough for the limitation to be relevant. Interest rates in the 1930s were reflective of the great depression and the low demand for money balances; in the 1940s, an easy monetary policy during and after World War II kept yields low. During the 1950s, yields crept upward, and only in late 1959 did they surpass the ceiling. For the first time in 40 years, the ceiling became a relevant constraint on debt management policy.

It appears that the 4-1/4-percent interest limitation was established to minimize the costs of World War I without regard to future borrowing activities. This is consistent with the fact that the limitation was set 0.25 percent below the yields then prevailing in the market. That difference was rationalized on the grounds that a national emergency existed and patriotic motives could be relied upon to insure a sellout of the issues. Were the same sort of legislation enacted in November 1975 under the same philosophy, a ceiling would be set at about 8 percent--about 0.25 percent below the yields then prevailing on the three long-term Treasury issues of 1995 to 2005.

We are not now in a national emergency. Under current circumstances, it is not likely that the Treasury can borrow at interest rates greatly below yields on currently outstanding long-term public debt. Unless one argues that long-term financing should take place only during periods of emergency, when patriotic considerations may override normal investor motivations, to expect that any ceiling should differ from the marginal yield on long-term Treasury debt is unreasonable. Considering the initial intent for imposing the 4-1/4-percent ceiling--to minimize the costs of Treasury borrowing given market conditions in a national emergency--one cannot argue for either the current level or the continued existence of the 4-1/4-percent interest limitation on long-term Treasury debt. It no longer serves to reduce the cost of borrowing; instead, it simply keeps the Treasury from any further borrowing in the long-term securities market.

## CHAPTER 2

### OVERVIEW OF ECONOMIC ISSUES

Clearly, the limitation was imposed in special circumstances that no longer prevail. Nevertheless, we should question whether it has benefited or hampered Treasury borrowing operations and the credit markets in which the Treasury borrows funds. It may have economic effects not foreseen by the originators of the legislation that are beneficial, thus tending to support its retention. By the same token, it may have economic effects that are harmful. The following chapters discuss the economic effects of the 4-1/4-percent interest limitation on long-term Treasury debt. This chapter presents an overview of the economic implications of the limitation. Chapters 3, 4, and 5 deal with each implication in detail.

### THEORIES OF THE TERM STRUCTURE OF INTEREST RATES

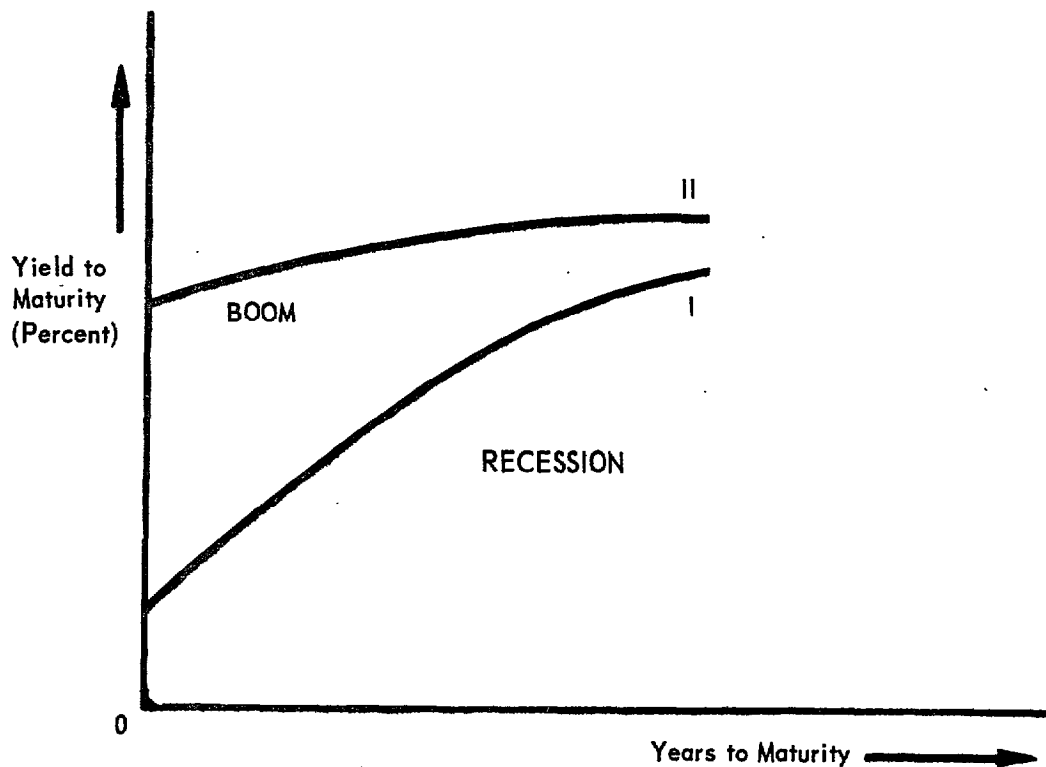
The analysis of the 4-1/4-percent interest rate limitation on long-term Treasury debt is largely concerned with its effects upon the term structure of interest rates and the economic implications of those effects. The "term structure of interest rates" is the relation between the yields to maturity of a group of otherwise similar securities and the time to maturity of those securities. We will briefly describe the working of relationships thought to most adequately explain the term structure of interest rates before discussing the specific economic implications of the ceiling for credit markets.

The term structure of interest rates is generally explained as a reflection of the expectations of borrowers and lenders regarding the future course of interest rates. During recessionary periods, all interest rates are usually low, and investors and borrowers expect them to rise. Consequently, lenders supply funds to short-term markets to avoid capital losses on securities with longer maturities. As interest rates rise, security prices decline; the longer the maturity, the greater the decline in price. Borrowers demand relatively more long-term funds so they can be locked in for a long time at low interest rates. Thus, during recessionary periods, a larger supply of loanable funds is available in the short-term

markets and a larger demand for loanable funds exists in the long-term markets. This imbalance, which implies relatively lower short-term interest rates and relatively higher long-term rates, is reflected in the sharply upward sloping yield curve I in Figure 1.

During boom periods, the level of all interest rates is high, and lenders and borrowers expect them to fall; lenders supply funds to long-term markets to reap potential capital gains, and borrowers finance expenditures more often with short-term borrowing because they believe that borrowing costs in long-term markets will decrease. This imbalance, which implies relatively higher short-term interest rates and relatively lower long-term rates, is sometimes reflected in a downward sloping yield curve, but more often in a curve such as curve II, which has a less steep slope than curve I.

FIGURE I



Yields to maturity may not generally assume a downward slope during boom periods because lenders inherently prefer shorter maturities and borrowers inherently prefer longer maturities. This tends to dampen increases in short-term rates and decreases in long-term rates regardless of expectations. Borrower and lender preferences for liquidity and for certain maturities diminish the "expectations" theory as a completely valid explanation of the term structure of interest rates. Because of lender preferences for liquidity, short-term rates are lower than they would be if expectations were the sole determinant of interest rates. In addition, borrower and lender preferences for certain maturities may sometimes result in short-term irregularities, which cause the term structure of interest rates to vary from the structure that would exist under the expectations hypothesis. These exceptions to the expectations theory of interest rates provide the basis for concerns regarding the economic effects of the 4-1/4-percent interest limitation on credit markets.

#### ECONOMIC IMPLICATIONS OF THE LIMITATION

During recessionary periods, demand for liquidity is relatively high. Yields on short-term instruments are relatively low, reflecting, among other things, the fact that investors will sacrifice income to gain the security of liquidity during periods of uncertainty. If the Treasury or other borrowers do not supply the necessary liquidity in the form of short-term instruments (for example, Treasury 90-day bills), but instead choose to float long-term debt, then yields on short-term instruments may be lower (and long-term yields higher) than if debt financing were concentrated in the short end of the market. The higher long-term yields may tend to discourage investment at a time when it would be helpful to the economy, though during recessions investment is characteristically insensitive to interest rates.

During boom periods, on the other hand, yields on short-term securities rise, reflecting, among other things, a reduced demand for liquidity and a decline in the demand for short-term debt. If the Treasury relies more heavily on short-term instruments during these periods, yields on short-term securities may be higher (and long-term yields lower) than otherwise. The lower long-term rates may tend to encourage investment at a time when the economy needs to be cooled off, and the greater supply of short-term debt, which tends

to increase the liquidity of the economy, may cause the rate of expenditures to accelerate.

This pattern of financing is characteristic of the way the Treasury carries out its financing operations. That is, the Treasury tends to rely more heavily on long-term borrowing during recessionary periods, when interest rates are considered low, and to rely more heavily on short-term financing when interest rates are considered high.

If the 4-1/4-percent interest limitation is a constraint during boom periods, then the Treasury, even if it so desires, cannot float long-term securities and must instead rely exclusively upon the short end of the market. This tends to create excess liquidity. Yields on short-term securities are presumably higher than they would be in the absence of the interest rate limitation.

If the ceiling is a constraint during recessionary periods (when the demand for liquidity is high), then yields on short-term debt rise more than in the absence of the ceiling. If the ceiling were not a constraint, then some long-term financing would probably take place, the supply of short-term debt would be correspondingly reduced, and yields on long-term credit market instruments would presumably be higher.

Thus, when the ceiling is a constraint during recessions, the increased demand for liquidity is probably more nearly satisfied, while the reduced demand for long-term securities would be more nearly matched by a reduced presence of the Treasury in that end of the market. When the ceiling is a constraint during boom periods (as it is more likely to be), it may aggravate a situation of excess liquidity. The imbalance created by borrowers' preference for supplying short-term securities and investors' reduced demand for these instruments is reinforced by the Treasury's presence in the short end of the market. From a stabilization point of view, the ceiling apparently poses a more severe burden during rising economic activity than during a decline. On the other hand, given the borrowers' inherent desire for debt lengthening, the ceiling poses a more severe cost burden during recessionary periods, when that desire is probably strongest. That is, Treasury is effectively precluded from borrowing long when interest rates are at their low point. It must continue to borrow short,



even when it believes that rates will rise. It cannot reap the potential savings of lengthening its debt when rates are low.

Regarding allocation of credit, the crucial factor is changes in short-term yields relative to long-term yields during periods when the limitation is a constraint. Arguably, if the ceiling forces the Treasury into the short end of the market, short-term rates will increase and long-term rates will experience an offsetting decline. Costs to short-term borrowers may, therefore, be artificially higher and costs to long-term borrowers artificially lower than they would be if the ceiling did not force the Treasury to seek all its funds in a narrow portion of the market. The ceiling may thus cause a market distortion. "Distortion" is a deviation from a free market supply-demand solution caused by a phenomenon outside the set of free market forces.

The empirical question is: Does this in fact occur? If it does, the question becomes (1) whether the offset is actually equal or (2) whether because of differing elasticities of demand for securities (supply of funds) and/or because borrowing requirements must be totally concentrated in a single sector of the market, cost increases in short-term markets exceed the cost increases that would have occurred in short and long-term markets were the ceiling not a constraint on borrowing operations. If the latter is the case, then a more serious market distortion would result because the total cost of borrowing in credit markets would be raised.

In light of the above discussion, the 4-1/4-percent interest limitation raised three basic but interrelated economic issues:

- What effect has the limitation had on the average maturity of the public debt outstanding?
- What are the implications of the ceiling for the management of the public debt? There are three conflicting potential objectives of debt management: (1) minimize interest costs, (2) aid in economic stabilization, and (3) minimize money and capital market disruptions associated with ill-timed securities flotations. What are the implications of the ceiling for achieving any of these goals?
- Does the ceiling presently cause a distortion in credit markets? Would removing the ceiling

have any unfavorable implications for the allocation of credit in money and capital markets?

Since World War II, the limitation has been a constraining factor (that is, it prevented Treasury from borrowing in the long-term market) on two occasions: between about the second quarter of 1959 and the second quarter of 1960, and between about the third quarter of 1965 and the present. The limitation is a constraining factor when an issue cannot be initially sold to yield 4-1/4 percent or less. When this occurs, the Treasury is forced to seek all its funds in a considerably more narrow market. This obviously restricts efforts to lengthen the debt and may increase Government borrowing costs and the relative costs of private borrowing and, hence, the allocation of funds in credit markets. It may also affect the manner in which the Treasury manages the composition of the public debt.

## CHAPTER 3

### IMPLICATIONS OF THE CEILING FOR DEBT LENGTHENING

The average maturity of the public debt has shortened substantially since 1946, when disaggregated data on maturities first became available. The average length of marketable, interest-bearing Treasury debt outstanding has declined from more than 9 years at that time to only 3 years as of June 30, 1974. As illustrated in Figure 2, total marketable, interest-bearing debt outstanding has grown from a total of \$189.6 billion in 1946 to \$266.6 billion in 1974. Meanwhile, debt maturing within 5 years has increased from \$86.7 billion (45.7 percent of the total debt) to \$217.1 billion (81.5 percent of the total).

Treasury officials have expressed concern regarding debt shortening on a number of occasions. Secretary Fowler, in testimony before the House Ways and Means Committee on May 15, 1967, said:

"This shortening tendency is unwelcome. It presents a problem that should be dealt with in an orderly and systematic way, so that we do not face an excessive pile up of maturing debt. Such a pile up, if it came at a time of tight money and high rates would mean that the Treasury had to compete for investment funds on most unfavorable terms--bidding against itself and against other borrowers for the favor of investors. It is this kind of frantic competition that could send short-term rates up sharply and push long-term rates much higher, too, with disruptive effects throughout capital markets."<sup>1/</sup>

Thus, according to Fowler, shortening the debt structure places the Treasury not only in a more vulnerable position with respect to the terms that it accepts on borrowings but also in the position of being a potentially destabilizing influence on money and capital markets.

The statutory 4-1/4-percent interest limitation has obvious implications for debt shortening when it becomes a constraining factor. However, until relatively recently (about the third quarter of 1965), the ceiling has imposed

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<sup>1/</sup> Annual Report of the Secretary of the Treasury on the State of the Finances, FY ended June 30, 1967, p. 14.

no sustained constraint. Since the ceiling has become a constraining factor, the Congress has made three changes in the law to facilitate debt lengthening. In 1967 the maximum maturity to which the ceiling does not apply was extended from 5 to 7 years.<sup>1/</sup> In 1971 \$10 billion of long-term securities were authorized for issuance without regard to the ceiling. In 1973 bonds purchased by Government Accounts and by the Federal Reserve were exempted.<sup>2/</sup>

Though the ceiling obviously impedes debt-lengthening operations, it is questionable whether debt lengthening has, historically, been accorded a high priority. The ceiling was not a sustained constraint before 1965, but the Treasury generally confined its financing operations to issues with maturities of 5 years or less. The average length of the public debt declined from more than 9 years in 1946 to 5-1/3 years in 1965. One thing is clear. This decline in average maturity was not caused by the ceiling because market yields were less than 4-1/4 percent.

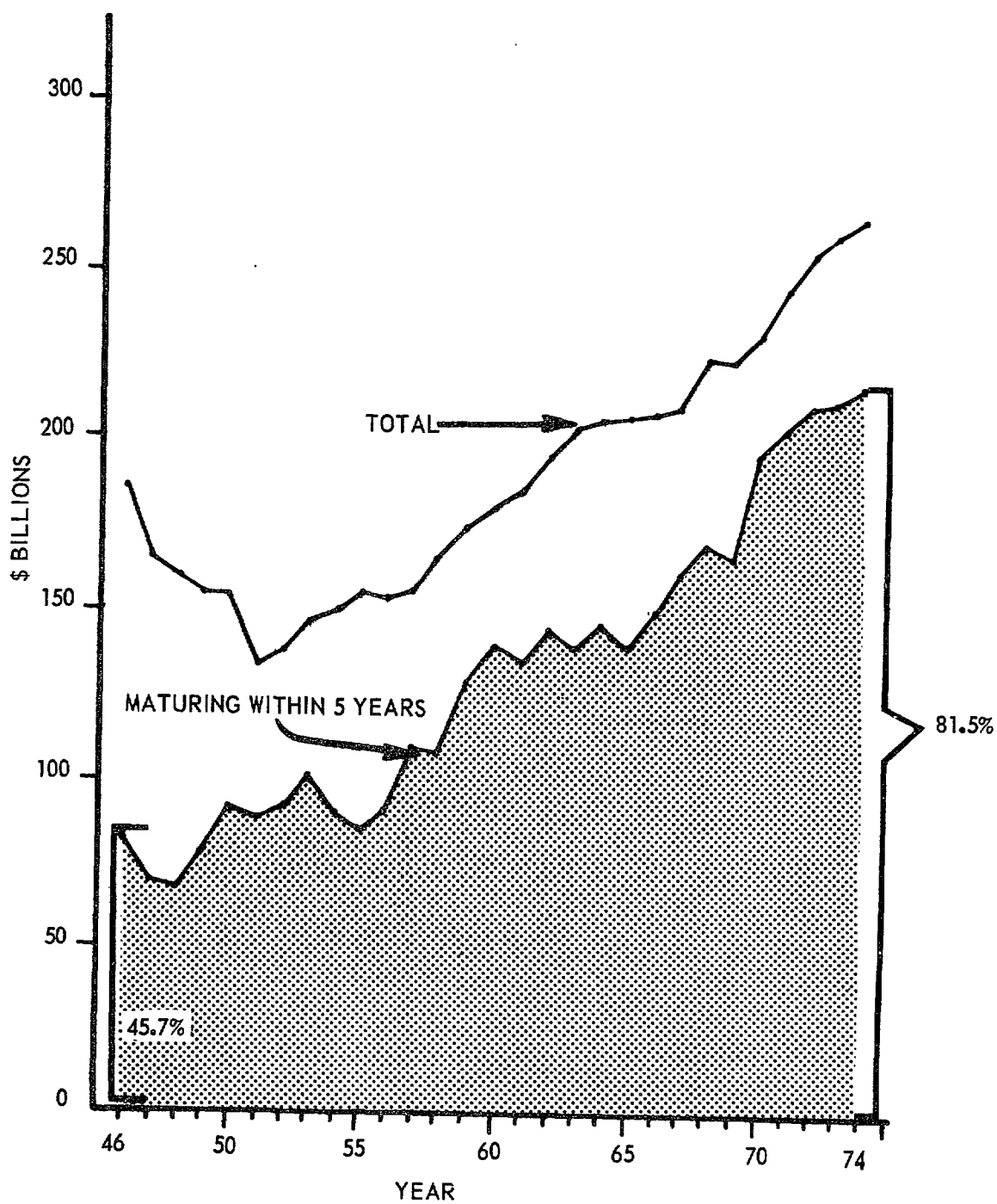
Only during recessions have sales of long-term securities been substantial. Even then, however, such sales were not nearly sufficient to finance current deficits and to refinance maturing short-term debt. During the 1953-55

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<sup>1/</sup>The original request was for an extension of maximum maturities from 5 to 10 years and for authority to sell up to \$2 billion of longer term bonds without regard to the ceiling.

<sup>2/</sup>This change could be viewed as eliminating the ceiling's constraint. Sales to the Federal Reserve may occur at any interest rate and the Federal Reserve could, in turn, resell the securities to the public. There would be no monetary effects from this operation. However, if the law was intended to minimize interest rates, this operation would clearly violate its intent. Interest cost considerations are unimportant as long as the Federal Reserve holds securities with yields exceeding the 4-1/4-percent limitation since the Federal Reserve repays virtually all interest earnings to the Treasury. On the other hand, if the public becomes the holder of record, interest costs once again become an important consideration. The 1973 exclusion probably reflected the assumption that the Federal Reserve would not resell the exempted securities and, thus, that only very minor interest cost ramifications would result.

**FIGURE 2**  
**RELATIONSHIP BETWEEN TOTAL INTEREST-BEARING**  
**MARKETABLE PUBLIC DEBT OUTSTANDING AND THAT**  
**MATURING WITHIN 5 YEARS: 1946-1974**



recession, there was a net increase in long-term issues (over 5 years to maturity) totaling \$20.5 billion and a reduction in short-term issues of \$10.1 billion. Similarly, during the recession of 1957-59, long-term issues increased \$13.3 billion between July 1, 1957, and June 30, 1958. In a period which included the 1960-61 business slump (July 1, 1960-June 30, 1962), \$10.1 billion of long-term issues were floated. Sales of long-term issues were less systematic following the 1960-61 recession. Long-term debt increased during the 1969-71 recession but also increased between 1967 and 1968 and in the 1972-73 period. All increases in long-term debt since 1965 have been under the three exclusions to the 4-1/4-percent limitation mentioned above.

Whether the exemptions granted to the limitation since 1965 have been sufficient to negate the effects of the constraint is a matter of speculation. If more long-term securities would have been floated had no constraint existed, then the limitation did prevent the achievement of the desired amount of debt lengthening.

It should be recognized that under an alternative debt management policy, the desire for debt lengthening might have been stronger and, thus, the ceiling might have been more of a constraint.

The effect of the ceiling upon debt shortening assumes considerably more importance today than it has in the past for two reasons: (1) the average age of the national debt is much shorter than in previous years and (2) the unprecedented peacetime deficit of this year and that anticipated for next year will have to be financed entirely with short- and intermediate-term issues. This implies that the shortening tendency will probably continue or, at best, that the age of the debt will remain unchanged, and the Treasury will become an even more active competitor in private money and capital markets.

## CHAPTER 4

### IMPLICATIONS OF THE LIMITATION

#### FOR THE GOALS OF DEBT MANAGEMENT POLICY

In this chapter, we examine the implications of the limitation for three contrasting points of view on debt management policy. Arguably, debt management may serve as a useful tool for stabilization purposes in coordination with fiscal and monetary policy. This is called the "countercyclical approach." A second approach, which advocates minimization of interest costs, is called the "procyclical approach." In the procyclical case, stabilization objectives are considered less important than interest cost considerations. A third possibility, called the "neutral" approach, argues that Treasury financing operations should be as regular as possible in order to minimize market disruptions associated with ill-timed securities flotations. Milton Friedman, a major proponent of this view, argues that the goal of aggregate economic stabilization should be left largely to monetary policy. Regardless of which approach to debt management one agrees with, achieving a lengthened maturity for the public debt is a goal which transcends all three. For this reason debt lengthening was treated separately in the preceding chapter.

The "countercyclical approach" to debt management is based on the premise that shortening the maturity of the debt will, by increasing the volume of short-term debt, increase the liquidity of the economy, reduce the demand for money balances, and increase private expenditures. Shifts toward longer maturities will have the opposite result. Thus, for stabilization purposes, the Treasury should vary the composition of its debt in a manner to increase liquidity by financing with short-term securities during recessionary periods and to reduce liquidity by financing with longer maturities during boom periods. In the countercyclical approach, the objective of interest cost minimization is sacrificed in favor of economic stabilization. That is, moderation of inflation and recession is given higher priority than reducing the Government's interest payments.

The "procyclical approach" attempts to reduce debt servicing costs by (1) issuing relatively large amounts of long-term securities during recessionary periods, when interest rates tend to be relatively low, and (2) relying principally on shorter term securities during boom periods,

when rates tend to be higher. Interest cost minimization is a very real and understandable concern; however, advocates of the countercyclical approach would argue that such a reduction of interest costs might be achieved only at the expense of having more rapid rates of inflation during boom periods. Procyclical advocates, on the other hand, argue that their approach to debt management is also effective as a stabilization tool (as well as for reducing interest costs) because (1) it lessens the amount of Treasury interference in the market with monetary policy--a more direct and probably far more important stabilization device--and (2) it avoids a buildup of excess liquidity in the form of short-term debt before recovery and expansion of the economy.<sup>1/</sup>

Regarding monetary policy, it is presumed that, the more often the Treasury is in the market with short-term refinancings, the less the Federal Reserve is able to take effective monetary action "without always having to be concerned with a new issue of securities which is still in the process of being lodged with the eventual holders of the securities."<sup>2/</sup> The Treasury's continued presence in the market "might bias the Federal Reserve toward an easier monetary policy than it would otherwise follow."<sup>3/</sup>

Milton Friedman argues against both forms of cyclical debt management policy because they have caused financing which

"instead of proceeding at a regular pace and in a standard way to which the market could adjust \* \* \* operations have been jerky, full of expedients and surprises and unpredictable in their impact and outcome."<sup>4/</sup>

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<sup>1/</sup>See Robert B. Anderson, "Financial Policies for Sustainable Growth," Journal of Finance, XV, May 1960, p. 135.

<sup>2/</sup>Remarks by Secretary of the Treasury Anderson in Annual Report of the Secretary of the Treasury For the Fiscal Year Ended June 30, 1958 (Washington, D.C.: U.S. Government Printing Office, 1959), p. 263, in Money, National Income, and Stabilization Policy, eds., W. L. Smith and R. L. Teigen (Richard D. Irwin, Inc., Homewood, Illinois, 1965), p. 412.

<sup>3/</sup>Ibid.

<sup>4/</sup>Milton Friedman, A Program for Monetary Stability (Fordham University Press, New York City, 1959), p. 60.



He argues that the influence of alterations in the debt structure on liquidity and the demand for money balances is probably very marginal and, irrespective of whether this is true or not:

"conversion of interest-bearing debt into non-interest-bearing is surely the same kind of device for promoting liquidity as the shortening of maturities and conversely, but one that is sharper and seems likely to be more consistent and predictable in its impact. And this is what is done by [Federal Reserve] open market operations."<sup>1/</sup>

Thus, Friedman concedes that countercyclical debt management policy might, in theory, have some stabilization efficacy (which implies that procyclical policy might, in theory, have some destabilizing attributes). However, since countercyclical policy is not rigidly adhered to by Treasury officials in their financing operations and since such a policy would, based on the available evidence, at best only marginally change the demand for money balances, Friedman argues that the usual instruments of monetary policy (Federal Reserve open market operations), which act directly on the supply and demand for money balances, are preferable. To avoid the uncertainty created in financial markets by Treasury financing operations, Friedman proposes that three basic types of Treasury securities be issued: savings bonds, a 90-day bill for meeting interim financing requirements, and a group of securities with maturities of 8 to 10 years. These securities should be marketed at

"regular and frequent intervals--if feasible, weekly; if not, bi-weekly, or monthly. The amount to be sold each week or each month should be specified well in advance and should vary smoothly from one sale to the next."<sup>2/</sup>

This would avoid "timing" disruptions.

One need not choose among these three approaches to debt management in order to analyze the efficacy of the 4-1/4-percent interest limitation. The limitation poses

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<sup>1/</sup>Ibid., p. 61.

<sup>2/</sup>Ibid., p. 64.

serious problems for implementing any of the approaches. In fact, present and anticipated long-term credit shortages and the widely held belief that the general level of interest rates will considerably exceed levels which prevailed during the 1930s, 1940s, and 1950s probably make arguing over debt management philosophies pointless as long as the limitation remains in effect.

Unless interest rates fall below 4-1/4 percent and remain there, the ceiling is removed, or great numbers of securities are excluded from the ceiling, Friedman's notion of a dual securities system composed of short-term securities for interim financing and long-term securities for funding is out of the question. Treasury financing operations will continue to be confined to the short- and medium-term markets, to be somewhat irregular, to be somewhat unpredictable, and therefore to be disruptive.

Even if the Treasury intended to fully pursue a countercyclical approach to debt management, it could not sell long-term securities under recovery or boom conditions in the presence of the 4-1/4-percent limitation. Assuming that yields in long-term securities markets continue to exceed 4-1/4 percent during periods of prosperity, reducing liquidity during these periods by issuing long-term debt is prevented by the ceiling and the near-exhaustion of the \$10 billion exclusion. In fact, the ceiling assures that only during recessions will it be even remotely feasible to sell longer maturities. From a stabilization point of view, that is the worst possible time to sell long-term securities.

The procyclical approach and its rationale are also effectively thwarted by the ceiling. If rates do not fall below 4-1/4 percent during any phase of the business cycle (the experience during the current recession and the anticipation for the future because of inflation), the desire for substantive debt lengthening and consequent reduction of overall interest costs cannot be met.

The above discussion has briefly outlined the three ideological points of view on how the Treasury should manage the composition of the public debt. The goals to be optimized under the three approaches are as follows:

Countercyclical--Maximize economic stabilization effects.

Procyclical --Minimize interest costs.

Neutral

--Achieve regularity and predictability in Treasury financing operations to minimize the extent of market disruption.

All these objectives are important, but achieving them all at once is clearly impossible. Most importantly, as long as the 4-1/4-percent limitation on long-term Treasury debt remains in effect, none of these objectives is likely to be achieved. Unless the limitation is repealed or large-scale exclusions from the ceiling are granted, debt financing operations will continue to be potentially disruptive to credit markets and destabilizing to the economy. All Treasury borrowing will have to be relatively short term.

## CHAPTER 5

### ECONOMIC IMPLICATIONS OF THE CEILING

#### FOR CREDIT MARKETS

This chapter reviews the theoretical implications of the 4-1/4-percent interest limitation for credit markets and examines the relevant empirical work.

#### THEORY AND IMPLICATIONS

The extent to which Treasury borrowing operations affect the term structure of interest rates has been much debated. When the ceiling becomes a constraint, it forces the Treasury to seek all its funds in a more narrow portion of the credit market. This concentration of borrowing should raise interest rates above those which would otherwise exist in the short- and intermediate-term Government markets. If Treasury borrowing were spread over a wider range of maturities, this, in turn, would cause interest rates to fall for other short- and intermediate-term borrowers.

In 1960, Secretary of the Treasury Anderson said:

"We in the Treasury have attempted to cope with this situation [the constraint imposed by the ceiling] by relying as much as possible on new issues in the four-to-five year maturity range; \$10 billion of these issues have been sold in the last six months. But there is a limit to the amount of funds that can be raised in this sector without driving interest rates on such maturities to very high levels. Moreover, the rates that we have had to pay on such issues--ranging as high as 5 percent--are, in our judgment higher than the rates that would have been necessary to market a moderate amount of longer term securities. In our opinion, the shift of even a moderate amount of debt from the one-to-five year area to longer term status, because of its marginal impact, would have significantly dampened the sharp rise in short-term rates that occurred in 1959."<sup>1/</sup>

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<sup>1/</sup>Robert B. Anderson, "Financial Policies for Sustainable Growth," Journal of Finance, XV, May 1960, p. 137.

Beryl W. Sprinkel, in discussing the constraint that the ceiling was imposing during 1960, said:

"In fact, at present a twenty-year government [bond] can be sold to yield less than the yield on recent five-year issues and probably as low as last week's approximate 4-3/4 percent 90-day Treasury bill rate."<sup>1/</sup>

The implications of these statements are clear. Because heavier concentration of borrowing places upward pressure on short- and intermediate-term interest rates, if the ceiling were removed, total interest costs to the Government (and possibly to other borrowers) could in some circumstances be reduced--provided that the Treasury took advantage of its greater flexibility by spreading its borrowing over a wider maturity range. This argument assumes that markets for short- and intermediate-term securities are segmentable from longer term markets.

A principal factor that is assumed in order for the market to be considered "segmented" is that different sectors of the market match assets and liabilities so as to anticipate cash needs as much as possible. In this regard Culbertson says:

"No investor has perfect foresight, and it is doubtful that many act as if they thought they did. However, for some investors such as active speculators in debt markets, liquidity is a quite minor consideration in choices. For some others, such as life insurance companies, the proportion of investment assets that needs to be in liquid form is very small. However, most investors must be sensitive to liquidity considerations when considering the disposition of a significant portion of their debt-invested funds.

"The possible cash needs with which lenders are concerned arise from a variety of situations: the bank's concern is with withdrawals of deposits; businesses provide reserves for taxes and contingencies; individuals may have in mind a variety of possible opportunities and calamities in considering the need of ready availability of their savings. The concern of many financial

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<sup>1/</sup>Beryl W. Sprinkel, "Outlook for the Government Bond Market," Journal of Finance, XV, May 1960, p. 300.

institutions with their ability to meet possible liquidation needs is reinforced by a variety of legal and customary requirements intended to insure that they will hold assets of adequate liquidity."<sup>1/</sup>

This preference for a matching of asset holdings with contingent liabilities gives rise to the assertion that funds are not perfectly mobile among debts of differing maturities. Investors have preferred maturity ranges based upon their perceived liabilities. If lenders have preferred maturity ranges and the supply of securities exceeds the demand for securities within a given maturity range, it is reasonable to expect that yields within that range will have to rise in order to induce lenders with other maturity preferences to invest in that maturity range. Thus, according to Modigliani and Sutch, the rates for securities with different maturities tend to be determined by their separate markets; that is, by their individual supply and demand schedules.<sup>2/</sup> If investors prefer one maturity to another, interest premiums will always be associated with excess supplies of securities in various maturity sectors. Therefore, changes in the maturity composition of the public debt occurring either voluntarily or involuntarily as a result of the 4-1/4-percent interest limitation potentially create imbalances and may affect the yield structure and, hence, relative costs of borrowing.

A hypothetical example illustrates the implications of the segmentation argument for the costs to the Government that could result from the ceiling. Assume that the Government wishes to borrow \$1 billion and that interest rates average 4.5 percent in intermediate- and short-term markets and 5 percent in long-term markets. If the Treasury attempts to raise the entire \$1 billion in intermediate markets (as in a situation in which the ceiling is a constraining factor), competitive pressures might bid interest rates to 5.5 percent. If the ceiling were removed and the Treasury allowed to finance in all maturity sectors (for purposes of this example, \$500 million in the long-term sector and \$500 million in the intermediate-term sector), yields in the intermediate-term sector might rise to only

<sup>1/</sup>J. M. Culbertson, "The Term Structure of Interest Rates," Quarterly Journal of Economics, LXXI, Nov. 1957, p. 492.

<sup>2/</sup>Modigliani and Sutch, "Debt Management and the Term Structure of Interest Rates: An Empirical Analysis of Recent Experience," Journal of Political Economy, Vol. 75, Supplement, August 1967, p. 570.

5 percent due to lessened borrowing pressure in that sector. Yields in the long-term sector might rise to 5.5 percent. Total annual debt servicing costs with the ceiling would be \$55 million until the short-term issues matured and later would be more or less than that when the issues were refinanced. Total annual interest charges without the ceiling would be \$52.5 million for the period that the short-term securities were outstanding. In this example, an annual savings of \$2.5 million in interest costs would accrue until the shorter term issues mature. Subsequent savings cannot be determined; however, in calculating them, one would have to include transactions costs associated with refinancing of shorter maturities.

The "segmentation" theory of the term structure of interest rates is usually viewed as supplemental to the more widely accepted "expectations" theory of yield structure. The expectations theory, with certain qualifications, states that

"all debt instruments outstanding must have identical total returns over any given holding period, independently of their final maturity \* \* \*. At any point in time, the yield of an instrument having [for example, 10 years] to maturity is uniquely related to the [annual] yield that is expected to prevail in each of the following [10 years]."<sup>1/</sup>

If, for example, the yield on 3-month Treasury bills is 3 percent and is expected to rise 0.5 percent in each of the next eight quarters, then the yield on a 2-year note, ignoring compounding, will be approximately 5 percent in order that total anticipated returns be identical irrespective of maturity. The reason is that the 3-month Treasury bills will have an expected average yield of 5 percent during the 2 years. According to the expectations hypothesis, if the yield on a 2-year note is below the anticipated average yield for the next 2 years on Treasury bills, then some investors will buy the short-term securities. This increased demand will reduce yields on Treasury bills to the point that the average return on bills is equal to that on notes. Thus, according to the expectations hypothesis, there is perfect mobility of funds across the maturity spectrum and, thus, there is no significant market segmentation based on maturity.

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<sup>1/</sup>Ibid., p. 570.

If the expectations hypothesis accurately describes the term structure of interest rates, interest costs in credit markets are not affected by a concentration of securities in any particular maturity sector. They are determined by the total financing requirement, regardless of whether borrowing takes place in a narrow maturity sector or across the full spectrum of maturities.

#### THE EMPIRICAL EVIDENCE

Empirical analysis relevant to the effects of removing or retaining the 4-1/4-percent interest limitation has tried to demonstrate that changing the maturity structure of the Federal debt (supply effects) affects the yield structure.

A review of the literature indicates that two basic approaches have been used to test the validity of the market segmentation hypothesis. Both involve a statistical estimation of how the yield structure would behave under the expectations hypothesis and a comparison of this with the actual behavior of yields. The difference between estimated and actual yields (the "unexplained behavior") is then examined in conjunction with changes in the maturity composition of the debt. Other things being equal, the market segmentation hypothesis suggests that, if the maturity composition of the debt is lengthened, the differential between short- and long-term yields should widen, and vice versa. If the analysis has been properly structured and this sort of change does not appear to have taken place, one can reasonably presume that the clustering of flotations in shorter maturities (and the interest rate limitation which could cause it) does not greatly affect the structure of yields.

Modigliani and Sutch produced several analyses using weighted averages of short-term rates. Long-term securities yields were compared to a weighted average of short-term yields in order to estimate the effects that expectations have on long-term rates. Then, using various measures of the maturity composition of the debt, they attempted to relate variance in maturity composition to variance in yield differentials not attributable to expectations. They concluded that the evidence from their tests

"suggest that the responsiveness of the rate structure to variations in the age composition of the national debt outstanding was at best weak, even in a period in which the national debt was large, both in absolute and relative size."<sup>1/</sup>

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<sup>1/</sup>Ibid., p. 587.



Okun and Scott took an alternative approach. Their analyses used a Keynesian model of interest rate determination in which a measure of the money stock and income are assumed to be the two principal determinants of interest rate differentials. Additional variables included a measure of the "posture" of monetary policy and total wealth. Implicit in this formulation is the assumption that these four variables are equally relevant and, thus, may be used in lieu of weighted short-term rates as proxies for "expectations." After abstracting from these influences, Okun attempted to explain remaining variations in yield differentials by the volume and composition of the national debt.

Okun's findings did not support the notion that alterations in the maturity structure of the debt significantly affect yield differentials in credit markets. In conclusion, he noted:

"According to the empirical findings of this study, the long rate, the short rate, and the differential between them are all determined principally by the balance sheet of the monetary authorities, the legal reserve ratio, and the level of income. When the demand debt [reserves, other deposits and currency outside of Government] of the federal government is large relative to interest-bearing government debt and to the level of income, financial markets reflect the ease of monetary policy in low rates of interest for both short-term and long-term Government securities and in a large excess of the long rate over the short rate. A smaller volume of demand debt, more interest-bearing debt or higher income raises the yields of all Government securities, but has a particularly strong effect on the short rate. Thus, greater tightness reduces the excess of the [long] over [the short rate]."1/

Thus, Okun was convinced that monetary policy plays the major role in determining the differential between the long and short rate and presumably in allocating credit between

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1/Financial Markets and Economic Activity, eds., D.D. Hester and J. Tobin, "Monetary Policy, Debt, and Interest Rates," Arthur M. Okun, (John Wiley and Sons, Inc., New York, 1967), p. 177.

these two sectors. The slight importance attributed to relative supplies suggests that changes in the maturity structure of the Federal debt will not dramatically affect the rate structure. At most, the managers of the debt will reduce only very slightly the differential between long- and short-term rates if they retire bonds and issue bills.<sup>1/</sup>

Of all the literature reviewed, the work of Scott most strongly supports the hypothesis that changing maturity composition affects yield differentials, though even in Scott's work such effects are minor. After abstracting from the effects of monetary policy and the general level of economic activity, Scott finds that a shortening of the debt by 1 month coincides with a reduction in the differential between long and short rates of 0.035 percent.<sup>2/</sup>

Certain problems are endemic to all the work reviewed above. Those problems (discussed below) are sufficiently important that the results should be viewed with some skepticism. However, aside from those problems, Scott's formulation has the weakness that his measure of change in maturity composition is quite primitive. Scott uses average months to maturity. Other authors used a more sensitive and comprehensive measure: the frequency distributions of various classes of debt. This shortcoming aside, even Scott's results do not depict debt management as greatly influencing the determination of yield differentials. Even granting his results, an enormous volume of long-term securities would have to be floated to alter the age of the debt enough to cause even a 1-percent change in the yield differential.

#### SHORTCOMINGS OF THE EMPIRICAL WORK

The empirical work summarized above leads to the conclusion that altering the maturity composition of the debt (either voluntarily or involuntarily as a result of such constraints as that imposed by the ceiling) has either no effect or an extremely small effect on the structure of interest rates. On their face, these results do not support the market segmentation hypothesis and instead suggest that the 4-1/4-percent interest limitation does not significantly

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<sup>1/</sup>Ibid., p. 179.

<sup>2/</sup>Robert Haney Scott, "Liquidity and the Term Structure of Interest Rates," Quarterly Journal of Economics, Vol. 79, February 1965, p. 138.

distort the term structure of interest rates and, hence, does not affect the relative costs of borrowing in various maturity sectors. By the same token, removing the limitation would not cause distortions.

However, the analyses of the term structure of interest rates outlined above have several problems which render the results less than conclusive. The first involves measurement error with respect to the long-term rates used in calculating the yield differentials--a central element in all the formulations. A second, more fundamental, problem has to do with the fact that debt management policy (altering the maturity composition of the debt) is influenced by (and not just a determinant of) yield differentials. A third problem relates to the adequacy of monthly or quarterly observations as measures of the supply of securities and their related yields.

Yields on long-term securities vary during the business cycle for reasons not strictly related to expectations regarding future rates or alteration in the maturity composition of the debt. During the periods covered by the analyses reviewed above, long-term securities were entirely of the "flower bond" variety (that is, redeemable at par to pay estate taxes). During periods when secondary market yields exceed the coupon rates on flower bond issues (which ranged up to 4-1/4 percent), demand for these securities increases because of potential short-term capital gains. Thus, yields on the only long-term securities available fall below those that would have existed in the absence of the estate tax provision.

How this might affect the analysis can be seen in the following example. Assume that interest rates are rising and that yields in long-term markets rise above the interest rate ceiling on Treasury bonds and, thus, above coupon rates on long-term flower bond securities. At this point, the flower bonds would trade at a discount. Their yields would be somewhat depressed, however, because of their attractiveness in terms of potential capital gains. One concerned with the yield differential between long- and short-term securities would observe a narrowing of that differential. At the same time, the observer would note a shortening of the maturity structure of the debt because the Treasury could not float long-term bonds within the ceiling and, thus, would be forced to market securities of shorter duration. Under these circumstances a narrowing of the yield differential might mistakenly be attributed entirely to the shortening of the maturity structure of the debt. In fact, preference for long-term securities has increased because

of the tax advantages associated with these securities when they can be purchased at a discount. All the studies cited above assumed in one way or another that there were no structural shifts in the demand for securities. Clearly, the flower bond phenomenon contradicts this assumption. Its existence may cause a bias in estimates of the impact of changes in the supply of securities on yield differentials. To some extent, therefore, the existence of the flower bond supports the market segmentation hypothesis. A group of lenders (wealthy individuals) has a preference for long-term securities. But the strength of that preference depends upon the variation in the price at which these securities trade. Specifically, the preference increases greatly when these securities trade at a discount.

The second major shortcoming of the above analyses is their failure to recognize that the maturity structure is not predetermined, but at least partly influenced by the structure of rates. Indeed, the interest rate ceiling itself (within recent years) has greatly affected the maturity structure of the debt. This provides ample evidence that the maturity structure may not only affect, but also be affected by, the structure of interest rates.

Even more relevant to this analytical weakness is the generally procyclical manner in which the Treasury has handled its debt management operations. For purposes of illustration, assume that the Treasury were to conduct a consistently procyclical debt management policy without an interest rate ceiling. The issuance of long-term debt would be emphasized during recessions when interest rates are relatively low and the differential between short- and long-term rates is generally large. The analytical approaches reviewed previously would tend to view the debt lengthening as causing the widening of yield differentials when, in fact, such other factors as cyclical trends were at least partially responsible.

Thus, a serious "identification" problem appears to exist because variables intended to measure alterations in the supply of Government debt of various maturities are themselves influenced by the structure of interest rates. That is, Government policy is not independent of market conditions. This introduces a statistical problem that may bias the empirical findings. Because of this problem, determining the effect of debt management on the rate structure may be impossible without incorporating an additional analysis which fully describes how Treasury debt management

policies change in the face of changing economic and capital market conditions.<sup>1/</sup>

A third, perhaps equally important, difficulty associated with the empirical work reviewed above is that, except for Scott, who used monthly observations, all analyses used quarterly observations in estimating relationships. This observation interval may not be short enough to detect the impact of changes in supply if those effects dissipate within a month or a quarter. If supply effects are short lived, relative costs of borrowing are probably unchanged over the course of a single month, quarter, or longer. But long-run costs to the Government are determined not over the period following the offering, but at the time the offering is made. In other words, if short-lived supply effects are associated with alterations in the maturity composition of the debt, they will affect Government borrowing costs over the long run. But these changes in supply may not affect private sector relative borrowing costs in the longer run (if the studies are valid) and, if this is the case, could not be expected to be "captured" by using quarterly or monthly observations.

#### CONCLUSION

The empirical analyses cited above fail to confirm the market segmentation hypothesis. Thus, they support the view that Treasury debt management policy (and the interest rate limitation) has no great impact on the term structure of

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<sup>1/</sup>Both Modigliani and Sutch and Scott appear to recognize the problem that this phenomenon poses. Modigliani and Sutch note "Indeed, it is even conceivable that the Treasury in its endeavor to hold down interest costs could have been led to vary the supply of governments in a fashion tending to offset movements in these other components [of debt]." They go on to note that "this is a shortcoming which cannot be readily remedied with presently available data and might be hard to remedy even if one were prepared to make a large investment in new data collection and estimation." (M-S, p. 588.) Scott attempted a simultaneous equation approach to the problem and found that when this approach was used the average maturity of the debt had an insignificant effect on the long-term rate, thus considerably diluting the results described earlier. (See Scott, Robert Haney, "An Empirical Look at Debt Management," 1961 Proceedings of the Business and Economic Section of the American Statistical Association, pp. 133 and 137.)

interest rates. However, because of the shortcomings of these analyses, this result should be viewed with some skepticism, particularly in view of the previously cited opinions of Treasury officials and market practitioners. Weighing their experience against the available empirical evidence (and its shortcomings), we can reasonably conclude that:

- At worst (if market segmentation exists and the studies cited are wrong), the ceiling should be repealed because it disrupts credit markets and raises the costs of Government borrowing.
- At best (if market segmentation does not exist and the studies are right), the ceiling can be repealed because it has no impact. It is neither harmful nor beneficial to credit market stability and does not affect Government borrowing costs.
- There is no evidence that the 4-1/4-percent interest limitation is beneficial under the criteria of either credit market stability or Government borrowing costs.

It is logical to question what the effect on long-term borrowing costs would be if the ceiling were repealed. If the studies cited above are valid, there would be little or no effect. Long-term rates would rise, but by no more than they rise when borrowing is totally concentrated in short- and intermediate-term markets. If credit markets are somewhat segmented, long-term rates would rise somewhat while short-term rates would fall. Precisely estimating these effects is impossible. But one thing is clear. Repeal of the ceiling would not result in Treasury borrowing being completely concentrated in long-term markets, but instead in securities offerings being spread over a wider range of maturities. It is hard to envision a situation in which the disequilibrium in long-term markets that would result from the securities flotations could possibly be as large as the disequilibrium that occurs in short- and intermediate-term markets from the total concentration of borrowing in those sectors.

## CHAPTER 6

### SUMMARY, CONCLUSIONS, MATTERS FOR CONSIDERATION

#### BY THE CONGRESS, AND AGENCY COMMENTS

This report reviews the history and background of the 4-1/4-percent interest limitation on long-term Treasury debt and analyzes its implications for debt management policy goals and the stability of credit markets. Four major interrelated conclusions emerge from the analysis.

1. Considering the apparent rationale for the original legislation--that is, to minimize the costs of Treasury borrowing operations, given market conditions, in a national emergency--one cannot argue for either the current level or the continued existence of the 4-1/4-percent interest limitation. It no longer serves to reduce the cost of borrowing; instead, it simply keeps the Treasury from any further borrowing in the long-term securities market.

2. The limitation (and the exhaustion of the \$10 billion exclusion) encourages a shortening of the maturity of the national debt. This shortening tendency may, in turn, place the Treasury in a more vulnerable position with respect to the interest rate terms that it accepts on borrowings. That is, the Treasury may find itself in the unfavorable position (1) of having to refinance massive amounts of short-term debt at very high interest rates and (2) of being a potentially destabilizing influence on money and capital markets.

3. Aside from an overriding concern with lengthening the maturity of the public debt, there are three differing philosophies regarding the objectives of debt management: avoiding disruption through more systematized securities flotations, stabilizing economic activity, and minimizing interest costs. Given contemporary and foreseeable levels of interest rates, achieving any of these objectives will not be possible as long as the 4-1/4-percent interest limitation on long-term Treasury debt remains in effect.

4. A theoretical basis and some supporting practical experience indicate that the limitation has at times distorted the term structure of interest rates, thus causing a reallocation of credit among various sectors of the economy and increased costs of servicing the Government debt. On the other hand, the relevant empirical evidence suggests that neither the current existence nor the repeal

of the limitation causes, or would cause, much distortion in the term structure of interest rates and, hence, would not affect the relative costs of borrowing in various maturity sectors. Weighing theory and the experience of Treasury officials and market practitioners against the available empirical evidence (and its shortcomings), we can reasonably conclude that (1) at worst, the ceiling should be repealed because it may disrupt credit markets and raise the costs of Government borrowing, (2) at best, it is neither harmful nor beneficial to credit market stability and borrowing costs and is therefore unnecessary, and (3) it does not reduce the costs of Government borrowing and may in fact raise those costs.

#### MATTERS FOR CONSIDERATION BY THE CONGRESS

In view of our conclusions, the Congress should consider immediately repealing the 4-1/4-percent interest limitation. Alternatives which would have essentially the same long-term effects are systematically phasing out the limitation through

- annual redefinition of the maximum maturity of securities whose flotation is subject to the ceiling and/or
- annual increases in the dollar volume of long-term securities which may be floated without regard to the ceiling.

#### AGENCY COMMENTS

The Department of the Treasury reviewed this report and agrees with its conclusions and recommendations. (See app. I.)





THE UNDER SECRETARY OF THE TREASURY  
FOR MONETARY AFFAIRS

WASHINGTON, D.C. 20220

March 1, 1976

Dear Mr. Havens:

Thank you for your letter of January 27 and the copy of a draft GAO Report to the Congress entitled, "An Analysis of the 4-1/4 Percent Interest Rate Limitation on Long-Term Treasury Debt."

We agree completely with the conclusion in the draft report that "The 4-1/4 percent interest limitation does not reduce the cost of government borrowing and may in fact raise those costs." In fact, the cost of government borrowing would have been significantly lower over the past decade if the Treasury had not been restrained from issuing long-term securities.

In addition, precluding Treasury from borrowing in all sectors of the market imposes unmeasurable, but certainly large, costs on the economy. Those costs are discussed in detail in Secretary Simon's statement before the House Ways and Means Committee on February 17. A copy of that statement is enclosed for your convenience.

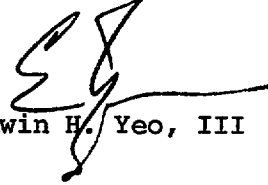
We are pleased to note that your report suggests that the Congress may wish to consider:

- A systematic phasing out of the 4-1/4 percent interest limitation through annual redefinition of the maximum maturity of securities whose flotation is subject to the ceiling; and/or
- Annual \$10 billion increases in the dollar volume of long-term securities which may be floated without regard to the ceiling; or
- Immediate repeal of the 4-1/4 percent interest limitation.

In this regard, the Treasury proposed to the Congress in 1975 that the amount of long-term debt exempted from the 4-1/4 percent ceiling be increased by \$10 billion and that the authorized maturity of Treasury notes be increased from seven years to

ten years. Those proposals were renewed this year in the Secretary's statement on February 17, and we welcome your support of them.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'E. Yeo, III', written over a horizontal line.

Edwin H. Yeo, III

Attachment

Mr. Harry S. Havens, Director  
Office of Program Analysis  
General Accounting Office  
Washington, D. C. 20548

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