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DEBT MANAGEMENT IN THE  
UNITED STATES

BY

WARREN L. SMITH

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MATERIALS PREPARED IN CONNECTION WITH THE  
STUDY OF EMPLOYMENT, GROWTH, AND  
PRICE LEVELS

FOR CONSIDERATION BY THE  
JOINT ECONOMIC COMMITTEE  
CONGRESS OF THE UNITED STATES



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## STUDY OF EMPLOYMENT, GROWTH, AND PRICE LEVELS

(Pursuant to S. Con. Res. 13, 86th Cong., 1st sess.)

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**This is one of a series of papers being prepared for consideration by the Joint Economic Committee in connection with their Study of Employment, Growth, and Price Levels. The committee and the committee staff neither approve nor disapprove of the findings of the individual authors.**

## LETTERS OF TRANSMITTAL

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JANUARY 18, 1960.

*To Members of the Joint Economic Committee:*

Submitted herewith for the consideration of the members of the Joint Economic Committee and others is a paper on "Debt Management in the United States."

This is one of a number of subjects which the Joint Economic Committee requested individual scholars to examine and report on in connection with the committee's study of "Employment, Growth, and Price Levels."

The findings are entirely those of the author, and the committee and the committee staff indicate neither approval nor disapproval of this publication.

PAUL H. DOUGLAS,  
*Chairman, Joint Economic Committee.*

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JANUARY 15, 1960.

HON. PAUL H. DOUGLAS,  
*Chairman, Joint Economic Committee,  
U.S. Senate, Washington, D.C.*

DEAR SENATOR DOUGLAS: Transmitted herewith is one of a series of papers prepared for the study of "Employment, Growth, and Price Levels" by outside consultants and members of the staff. The author of this paper is Warren L. Smith of the University of Michigan.

All papers are presented as prepared by the authors.

OTTO ECKSTEIN,  
*Technical Director,  
Study of Employment, Growth, and Price Levels.*



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## STUDY PAPER NO. 19

# DEBT MANAGEMENT IN THE UNITED STATES<sup>1</sup>

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### SUMMARY

The Treasury's problems in managing the public debt have been the subject of much attention and concern recently. "Debt management," as we shall define the term, is different from both fiscal policy and monetary policy, although it is closely related to both. To a considerable extent, fiscal policy sets the framework within which debt management is conducted, while the kind of monetary policy being followed affects the Treasury's problems of debt management. At the same time, the debt management policies of the Treasury may interfere with the freedom of the Federal Reserve in conducting monetary policy, and the structure of the debt may significantly influence the way in which monetary controls function. Moreover, under our definition, the Federal Reserve has some powers and responsibilities which come under the heading of debt management.

#### I. THE FEDERAL DEBT IN PERSPECTIVE

##### *The size of the debt*

There are several concepts of the public debt which are employed in discussions of debt management. On June 30, 1959, the "total gross debt" or "total Federal securities outstanding" amounted to \$284.8 billion. The gross debt reached a level of \$279 billion in February 1946 at the zenith of borrowing connected with the financing of World War II, then declined to \$252.4 billion in June 1948 as a result of the immediate postwar budget surpluses and debt retirement. From mid-1948 to mid-1949 the gross debt grew by \$32.4 billion.

However, the gross public debt does not represent the true debt of the Federal Government. At the end of the fiscal year 1959, \$54.6 billion of Treasury securities was held by Government agencies and trust funds, i.e., within the Federal Government itself. A further \$26 billion was held by the Federal Reserve System. Since purchases and sales of Government securities by the Federal Reserve are made for the purpose of controlling bank reserves and the money supply in the interest of maintaining financial and economic stability and since approximately 90 percent of the interest payments made to the Federal Reserve are returned to the Treasury at the end of each year, this portion of the debt is also essentially intragovernmental. The debt that is significant for most aspects of economic analysis is the publicly held debt—that is, debt held by households, business firms, commercial banks, and other financial institutions of the country. Changes in the amount and composition of the publicly held debt affect interest rates and the liquidity of spending units, and these effects may influence

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<sup>1</sup> I am indebted to Messrs. James E. Sutton and Kyung Mo Huh for research help in the preparation of this paper. I have also benefited from discussions with Prof. David I. Fand.

the level and composition of private expenditures. The publicly held debt amounted to \$204.2 billion on June 30, 1959, and increased by only \$9 billion between mid-1948 and mid-1959, compared with the \$32.4 billion increase in the gross public debt.

#### *Definition of debt management*

We shall define debt management to include all actions of the Government, including both the Treasury and the Federal Reserve, which affect the composition of the publicly held debt. When defined in this way, debt management includes: (1) decisions by the Treasury concerning the types of debt to be issued to raise new money, (2) decisions by the Treasury concerning the types of debt to be issued in connection with the refunding of maturing securities, (3) decisions by the Federal Reserve concerning the types of debt to be purchased and sold in the conduct of open market operations.

It should be noted that under this definition of debt management, the amount of new securities to be sold by the Treasury to cover budget deficits or to be retired with the proceeds of budget surpluses is not a matter of debt management but of fiscal policy. Moreover, decisions by the Federal Reserve which change the publicly held money supply, including changes in reserve requirements and the amount (but not the composition) of open market purchases and sales, fall under the heading of monetary policy.

#### *The debt in relation to other economic magnitudes*

Not only has the publicly held debt not grown greatly in absolute amount in the last decade, but it has actually declined substantially in relation to other relevant economic magnitudes. The publicly held debt was equal to 86.9 percent of GNP at the end of 1947; by 1958, due to the rise in GNP, the percentage had fallen to 44.2. Of course a substantial part of this decline in the percentage is the result of inflation, but the fact remains that the debt is much smaller relative to our productive capacity than formerly, and to the extent that this is a measure of our ability to carry the debt, it should sit much more lightly on our shoulders than it did a decade ago. Furthermore, between 1947 and 1958 total net public and private debt outstanding rose from \$394.8 billion to \$743.9 billion. As a result of this large increase, the publicly held Federal debt declined from 50.8 percent of the total in 1947 to 27.7 percent in 1958. Thus, the relative importance of the Federal debt in our debt structure has declined very substantially.

#### *Interest on the debt*

Net interest paid by the Federal Government as shown in the national income accounts is the best measure of the interest cost to the Treasury, since it excludes the intragovernmental transfers involved in payments of interest to the trust funds. Net interest paid increased from \$4.2 billion in 1947 to \$5.5 billion in 1958 as a result of a steady upward trend in interest rates; however, due to rising incomes, net interest payments fell from 2.1 percent of national income in 1947 to 1.5 percent in 1958. Increases in interest payments have weak effects on the level of income, because the marginal propensity to spend out of interest receipts is relatively low and because such payments are subject to rather high marginal rates of taxation.

Nevertheless, interest costs on the public debt do represent a sizable sum and are a matter for concern. And since the administrative budget is frequently used as a tool of fiscal policy, for some purposes the interest included in this budget is the important thing. For fiscal 1960, interest payments in this budget are estimated at \$9 billion, more than 11 percent of total budget expenditures, nearly three times the estimated expenditures of the Department of Health, Education, and Welfare, and nearly 40 percent larger than those of the Department of Agriculture.

With the present emphasis on balancing the budget without raising taxes, a rise in the interest burden tends to cut into other badly needed types of Federal expenditures. Thus, there is good reason for trying to avoid unnecessarily heavy interest costs on the public debt. That is, unless the increased interest payments serve some useful economic function, we should try to reduce them.

#### *Volume of debt operations*

In addition to exaggerating the size of the debt itself and of the interest payments on it, the statistics commonly used overstate the magnitude of current debt operations. For example, in the calendar year 1958, the total amount of certificates, notes, and bonds issued by the Treasury both for cash and in exchange for maturing securities amounted to \$61.2 billion. However, out of this total, \$22 billion represented securities issued to the Treasury trust accounts and Federal Reserve banks—almost entirely automatic (and fictitious) transactions involving no problems of debt management—so that the amount of securities issued to the public amounted to only \$39.2 billion. Similar large differences are present in other years. Proper evaluation of the current problems of managing the debt requires that the transactions within the Government be eliminated from the calculations.

#### *Ownership of the debt*

Holdings of Treasury securities by various investor groups have undergone substantial changes in recent years. With respect to debt ownership, investors may be divided into three broad categories.

1. *Investors whose holdings have declined steadily.*—This category includes insurance companies and mutual savings banks. Holdings of mutual savings banks declined by \$4.7 billion from 1948 to 1959, while holdings of insurance companies declined by \$10.8 billion during the same period. As a result of the prosperous conditions and heavy savings of the war period, these institutions grew rapidly during the war, and due to the limited private demand for funds, as well as pressures to assist the Treasury in war financing, most of the inflow of funds was invested in Government securities. In response to the heavy demands for funds which have characterized the postwar period, both of these types of institutions have steadily liquidated Government securities in order to shift their funds into more lucrative private investments—chiefly mortgages in the case of mutual savings banks and corporate bonds and mortgages in the case of life insurance companies. Liquidation of governments by these institutions has not shown any particularly strong tendency to speed up during periods of tight credit. The rate of liquidation appears to have slowed down somewhat as total portfolios have become smaller.

2. *Investors whose holdings have increased steadily.*—Several classes of investors have steadily added to their holdings of Government securities in recent years. These include State and local governments, savings and loan associations, and foreign accounts and international agencies.

3. *Investors whose holdings have fluctuated substantially.*—Investments in Government securities by commercial banks and by nonfinancial corporations have exhibited substantial fluctuations from year to year with no discernible trend during the last decade. Fluctuations in the holdings of these two groups have shown a systematic pattern related to changes in monetary policy and credit conditions, which has made the task of conducting monetary policy more difficult for the Federal Reserve.

#### *Composition of the debt*

In June 1959, out of a total publicly held debt of \$204.2 billion, \$5 billion represented convertible bonds and \$54.2 billion represented all other nonmarketable and miscellaneous debt, chiefly savings bonds. The remaining \$145 billion was marketable securities including Treasury bills, certificates of indebtedness, notes, and bonds. While there are problems connected with the savings bond program, our main concern is the management of the marketable portion of the debt. The percentage of the debt maturing in 1 year had risen from 24.6 in 1946 to 35.4 in 1959, while at the other end of the scale the percentage maturing beyond 10 years had fallen from 33.9 to 17.7. The maturity composition tends to shorten if nothing is done merely due to the passage of time, while debt operations in the form of cash borrowing, refunding operations, and debt retirement, introduce elements of irregularity into the behavior of the composition. Each time the Treasury refunds a maturing security by offering a new issue in exchange, the average maturity of the debt increases at least a little because securities having a maturity of zero are removed from the debt and replaced by other securities. Cash borrowings may increase or decrease the average maturity of the debt, depending on whether the securities being issued have a maturity longer or shorter than the existing average. Cash retirement of maturing securities lengthens the average maturity, because the securities removed from the debt have a maturity of zero. Consequently, the irregular pattern of debt operations makes the maturity structure and the average maturity behave in somewhat unpredictable fashion. Nevertheless, it is quite clear that the maturity of the debt, however measured, has declined substantially in recent years.

## II. PRESENT DEBT MANAGEMENT TECHNIQUES

### *Bill financing*

The Treasury bill, which may have a maturity up to 1 year, has proved to be a very effective and useful debt instrument. Bills are sold at auction on a discount basis, and the bill auctions seem to interfere very little with the Federal Reserve's freedom of action. Until recently regular bill offerings were made only with maturity of 3 months. The Treasury has within the last year extended bill maturities first to 6 months and then to 1 year. At the present time, the Treasury has outstanding 13 issues of 3-month bills, 13 issues of 6-month bills, these 2 sets forming a pattern in which 1 issue matures

and is replaced by a new bill offering each week. In addition, there are now four issues of 1-year bills maturing once each quarter in January, April, July, and October. The total amount of these regular bills was \$31 billion at the end of July 1959, and this portion of the debt has been placed on a periodic rollover basis, which is efficient and economical and minimizes interference with Federal Reserve monetary policies. In addition to regular bill issues, the Treasury has recently been relying mainly on bills in its tax anticipation financing to meet seasonal gaps between receipts and expenditures.

#### *Fixed price issues*

The Treasury also borrows by issuing certificates of indebtedness, notes, and bonds, both to raise new cash to cover budgetary deficits and to refund maturing securities. Although refunding could be handled by selling new securities for cash and using the cash to retire the maturing securities, in practice refunding is almost always handled by means of exchange offerings. Certificates, notes, and bonds are sold on a fixed-price basis.

Several decisions must be made before a fixed-price issue can be offered to the public. These include the choice of a maturity, other provisions such as call or redemption options, and the selection of the coupon rate to be placed on the securities. In deciding upon the maturity and terms of a particular offering, the Treasury is guided by the advice from market experts—particularly the advisory committees of the American Bankers Association and the Investment Bankers Association—by potential investors, and by its own independent study of market conditions. The choice of the coupon rate is made by examining the yield curve at the time of the offering. However, it is necessary to set the interest rate on the new security somewhat above the yield on outstanding debt of the same maturity in order to induce the market to absorb a substantial offering.

#### *Underwriting of short-term cash offerings*

The Treasury does not make use of formal underwriting in marketing its issues, such as is provided by investment banking syndicates in the case of corporate offerings. However, it is customary in the case of short-term cash offerings, such as certificates and shorter term notes, to permit commercial bank subscribers to pay for the issue by means of credits to Treasury tax and loan accounts, which means that banks are, in effect, able to obtain the securities by paying only a portion of the price equal to their reserve requirements until such time (commonly 2 to 3 weeks later) as the Treasury transfers the funds to its accounts at the Federal Reserve banks. The use of Treasury tax and loan account credits provides a kind of indirect underwriting.

The banks serve essentially as underwriters, reselling or distributing securities to other investors. The Treasury limits or discourages bank subscriptions on longer term issues apparently on the ground that such securities are unsuitable investments for banks. In restricting bank subscriptions to longer term issues, the Treasury is probably denying itself important support that could be of great help at times. The main underwriting device used by the Treasury to market long-term debt is to offer a rate sufficiently attractive to achieve the required sales.

*Refunding operations*

Maturing securities are short-term liquid instruments and are likely to be in the possession of investors who are holding them for liquidity reasons. The securities being issued in exchange, on the other hand, if they are of intermediate or long maturity, are more likely to appeal to investors who want either permanent investments or prospective short-term speculative gains. The success of a refunding operation often depends, therefore, on the extent to which maturing securities have been shifted from their normal owners to investors desiring to obtain the new securities. This may require that the terms of the new security be sufficiently attractive to create a premium on the "rights" (i.e., the maturing issue) in order to induce the transactions in these "rights" that are needed to put them in the hands of investors who want the new issue.

Government security dealers buy and sell "rights," thus facilitating their distribution, and as soon as the subscription books open, the securities begin to trade on a "when issued" basis. During the subscription period dealers buy "rights" and sell "when issued" securities. These dealer operations, which contribute to the success of the exchange and the proper placement of the new offering, are the closest thing there is to systematic underwriting in connection with refunding operations.

## III. RECENT DEBT MANAGEMENT PROBLEMS

*Shortening of debt maturities*

The shortening of debt maturities has been a matter of concern to Treasury officials, and debt management policy in the last few years has concentrated on trying to lengthen maturities. The orthodox theory of debt management calls for the issuance of long-term securities during periods of inflation in order to preempt funds from the capital market and reduce liquidity, and the issuance of short-term securities in recession periods in order to increase liquidity and leave the maximum amount of funds available for long-term investment. However, the Treasury has had little success in following the precepts of orthodox debt management theory and has been forced—or induced—to sell long-term securities in recessions. Thus, such debt lengthening as has occurred in the last few years has taken place largely in the recession or early recovery periods of 1953–55 and 1957–58.

*The competitive position of Government securities*

In recent years, the Treasury has had considerable difficulty in selling long-term bonds. During the period of nearly 7 years since the present administration came into office with the intention of extending debt maturities, only \$9.4 billion of bonds with a maturity of more than 10 years has been sold to the public altogether, both for cash and in exchange operations. Thus, the average is less than \$1.5 billion per year. Nearly all the investor groups—including savings banks, life insurance companies, pension funds, etc.—who have traditionally shown an interest in Treasury bonds, have been reducing their holdings steadily or at most increasing them only very slowly. Certainly one important aspect of our debt management difficulties appears to be the declining popularity of Government securities, particularly of the longer term variety.



There are several possible explanations of the apparent deterioration of the competitive position of long-term Treasury securities. One is the greatly increased variability in the prices of Government securities as monetary policy has been employed more vigorously. This increased variability has lowered the liquidity, particularly of longer term Treasury securities, and reduced their attractiveness to many investors. Another reason is the increased attractiveness of corporate securities as investors' assessments of the risks associated with these securities have been reduced as a result of continued relatively prosperous business conditions. The increased importance of FHA-insured and VA-guaranteed mortgages has also cut into the market for longer term Government securities, since these mortgages are about as safe investments as Governments and yield the investor higher net returns. The fact that yields on Government securities have risen relative to those on private debt during the last decade, at the same time that the size of the publicly held Federal debt has been declining relative to the amount of private debt outstanding, appears to corroborate the view that Government securities have become less attractive to investors.

#### *Other problems*

Interest rates have shown an increasing tendency to undergo rapid changes at turning points in business activity, as investors have become more aware of the implications of flexible monetary policy. This is rather troublesome to the Treasury, particularly at times when an improvement in business activity begins while the Treasury is still operating at a large deficit requiring heavy cash borrowing, as in mid-1958. In addition, speculation in Government securities has had a disorganizing effect on the Government securities market, especially in the case of the 2½-percent bonds of February 1965, which were issued in exchange for maturing securities in June 1958, at approximately the time that the outlook for business activity and monetary policy was changing from recession to recovery.

### IV. PRINCIPLES OF DEBT MANAGEMENT

#### *Economic effects of debt operations*

As indicated earlier, we define debt management to include all operations which affect the composition of publicly held debt. On this definition, all debt management operations are reduced, in effect, to the sale of one type of security and the use of the proceeds to retire another type. Intelligent debt management requires that operations of this kind be conducted with a view to their effects on the economy. Suppose, for example, that the Treasury sells long-term bonds and uses the proceeds to retire short-term debt. According to the orthodox and widely accepted theory of debt management, such an operation would have restrictive or anti-inflationary effects, which may be classified under two headings: interest-rate effects and liquidity effects.

1. *Interest-rate effects.*—A sale of long-term bonds and use of the proceeds to retire short-term debt would force up long-term interest rates and lower short-term interest rates. There would be secondary readjustments in the rate structure which would depend upon the nature of investors' expectations, but the net result would very likely be somewhat higher long-term rates and somewhat lower short-term

rates. Whatever restrictive effect such an operation might have by way of interest rates would depend upon the restrictive effects of rising long-term interest rates exceeding the stimulative effects of falling short-term interest rates. Such evidence as is available suggests that interest sensitivity of expenditures is rather low. Since it is doubtful whether within moderate limits an increase in the general level of interest rates has strong effects, it becomes even more dubious whether the net effect of raising one rate and lowering another would amount to much. In fact, the presence of a net restrictive effect assumes that the interest elasticity of expenditures with respect to long-term interest rates is greater than the elasticity with respect to short-term interest rates, and, while one might suspect that this is true, there is really little evidence to support it. As far as the interest-rate effects are concerned, debt management involves second-order adjustments of variables whose first-order importance is open to question.

2. *Liquidity effects.*—Since the liquidity of an asset depends upon the variability of its price and since prices of short-term securities ordinarily fluctuate less than prices of long-term securities, an operation of the type we are considering would decrease liquidity somewhat by reducing the liquidity of the buyers of long-term securities and increasing the liquidity of sellers of short-term securities by a lesser amount. Apart from the interest-rate effects referred to above, however, it is not entirely clear why such changes in liquidity would produce changes in income-generating expenditures. Moreover, the importance of such restrictive effects as may be present is doubtful, since the total volume of liquid assets in the economy, as ordinarily defined, is not changed. It is merely the degree of the liquidity of assets that is affected. Empirical studies that have been made of the determinants of expenditures, including consumption and investment, have not produced clear evidence that the stock of liquid assets is an important variable affecting spending under normal conditions. This being the case, it is even more doubtful whether changes in the degree of liquidity of a given stock of assets are likely to have important effects. Again, as in the case of interest rates, the liquidity effects produced by debt management are of the second order of importance.

Thus, neither the interest rate nor the liquidity effects of marginal changes in the debt structure appear to be very important. Moreover, to the extent that such changes do have a net effect on the public's aggregate spending, it would appear that similar effects could be produced by the use of monetary policy. For this reason, it is difficult to see what can be accomplished by contracyclical debt management policy that cannot be accomplished more efficiently by Federal Reserve monetary policy. Debt management is a cumbersome instrument of stabilization policy, because it is difficult to time in a flexible way, and because the Treasury is almost unavoidably concerned about its success in raising money.

#### *Debt management as a form of selective control*

It seems better to think of marginal changes in the debt structure as a species of selective controls, since a change in the structure of interest rates (and also the structure of liquidity) probably has some effects on the pattern of expenditures; that is, the expenditures stimulated by a fall in short-term interest rates are likely to be different from those

discouraged by a rise in long-term interest rates. Unfortunately, however, our knowledge concerning the effects on the expenditure pattern of changes in the interest rate structure is quite unsatisfactory. Moreover, to the extent that we may desire to use changes in the rate structure as a selective control, it is much more sensible to leave such operations to the Federal Reserve. It may be noted that under our definition, to the extent that the Federal Reserve departs from the prevailing bills-only policy and engages in operations which change the maturity structure of its portfolio in order to produce selective effects, it is engaging in debt management.

*The existing debt as an automatic stabilizer*

It is useful to distinguish between the debt structure at any particular time and marginal changes in the debt structure. The above discussion deals entirely with marginal changes and suggests that their importance may not be particularly great. However, the debt structure at any particular time conditions the way in which the economy and particularly the financial system react to external disturbances. For example, if the public debt consists entirely of short-term securities, monetary controls may not take effect very strongly, because it is easy for financial institutions and other economic units to mobilize funds for spending through transactions in short-term securities. Since these securities are close substitutes for money, it is likely to be possible to find buyers for them among holders of idle cash balances without producing sufficient changes in interest rates to have a strong restrictive effect on expenditures.

If investors hold predominantly long-term securities, their ability to shift their holdings to someone else when they need funds to lend or spend is likely to be somewhat less. The fact that long-term securities fluctuate in price more than short-term securities as interest rates change means that there is somewhat more friction set up to slow down this process of shifting. Thus, a debt consisting predominantly of long-term securities may act as a kind of automatic stabilizer, contributing to the stability of the economy and the effectiveness of monetary policy.

This suggests that those responsible for debt management should concentrate more on trying to maintain a debt structure which contributes to economic stability without worrying so much about the timing of the marginal adjustments necessary to achieve and maintain this structure. It is impossible, however, in our present state of knowledge, to specify a principle which would help us determine the optimum debt structure. But at the present time it is quite clear that we have too much short-term debt and that the debt should be lengthened.

While the structure of the debt is a matter of some importance, its influence should not be exaggerated. As suggested above, long-term debt may make the economy more resistant to external disturbances because it is more resistant to shifting, but we must remember that long-term debt can be shifted also. If expenditures are insensitive to interest rate changes, capital losses on sales of long-term debt by financial institutions can be compensated for by charging a higher interest rate on private debt. There is probably something to the "locked-in" effect, and the likelihood that investors will be

locked in will be somewhat greater if they hold long-term debt. But it is a matter of degree.

*Interest cost of the debt as a policy consideration*

As indicated earlier, the interest cost on the public debt is a matter of some importance, and unless the economic effects produced by the debt are worth the cost, there is no reason why interest has to be paid since it is always possible to turn debt into money. Consequently, debt management policy must in some sense measure the interest cost on the debt against its economic effects.

The problem of selecting the techniques for debt management which would reduce the Treasury's interest cost to a minimum is a difficult one, because it is necessary for the Treasury in this connection to look ahead and try to foresee future changes in interest rates. For example, from the point of view of minimizing interest costs, it would not necessarily be wise for the Treasury to engage in long-term borrowing at a particular time merely because long-term interest rates were below short-term interest rates. If the interest rate level was expected to fall shortly, it would be better to postpone long-term borrowing until the level had fallen, because long-term borrowing fixes interest cost for many years into the future.

The interest rate structure in periods of recession and easy money tends to be one in which the short-term interest rate is substantially below the long-term. As business conditions improve, credit tightens and interest rates rise, short-term interest rates normally rise substantially more than long-term interest rates so that in times of prosperity and tight credit it often happens, as has been the case recently, that short-term interest rates are higher than long-term. Although the movements of the interest rate structure are quite complex and difficult to predict in detail, when interest rates move in this way one thing is reasonably clear, namely, that from the standpoint of minimizing interest costs the Treasury should attempt to sell long-term securities and lengthen the debt in periods of recession when interest rates are low. Strictly speaking, of course, it should probably be raising some funds in many maturity sectors at most times since cost minimization requires the equalization of marginal costs of raising funds in all sectors, but minimization of interest costs would appear to require an increased emphasis on long-term borrowing when interest rates are low.

*Combining economic stabilization and cost minimization*

While our knowledge of the economic effects of the debt and of the costs associated with various time patterns of debt operations is not sufficient to permit the promulgation of highly specific rules governing debt management, the above considerations suggest that it would be desirable to lengthen debt maturities in order to achieve and maintain a more satisfactory structure and that the timing of marginal changes in the debt structure is not of major importance. There is something to be said for emphasizing debt lengthening operations in periods of recession when interest rates are low in order to keep down the Treasury's interest costs. Moreover, there would be advantages in reducing the emphasis on long-term borrowing in periods of prosperity and inflation in order to minimize interference with Federal Reserve policy, since short-term borrowing is less likely to require support from the Federal Reserve or relaxation of a restrictive monetary policy.

*Federal Reserve open-market policy*

If debt management conducted along the above lines should interfere with the achievement of economic growth and stability, the Federal Reserve should be prepared to intervene by means of open-market purchases or sales in whatever maturity sector seemed most appropriate. Since 1953, the Federal Reserve has adhered to the so-called "bills-only" policy under which it has confined its open-market operations to short-term securities. This policy was adopted partly to minimize the extent of interference with market forces and partly to encourage the development of a stronger Government securities market. The philosophy of minimum intervention is inappropriate under present conditions, and the "bills-only" policy has not succeeded in strengthening the Government securities market. Accordingly, it would appear desirable for the Federal Reserve to abandon the "bills-only" policy and be prepared to intervene in any maturity sector of the market when such intervention would help to minimize undesirable speculative activity, prevent meaningless short-run fluctuations in Government security prices, or help to achieve economic growth and stability. Most of the Federal Reserve's open-market operations which are merely designed to keep the money market on an even keel would, of course, continue to involve purchases and sales of short-term securities.

## V. SUGGESTIONS FOR IMPROVING DEBT MANAGEMENT

The analysis presented herein suggests (1) that the Treasury seek to extend the maturity of the public debt, (2) that efforts in this regard be conducted with a view to keeping down interest costs, which means emphasizing long-term borrowing in periods of recession and low interest rates, (3) that the Federal Reserve be prepared to intervene in a flexible and effective manner if the effects of Treasury debt operations along these lines should prove undesirable, and (4) that the Federal Reserve be assigned full responsibility for managing the interest rate structure for the purposes of achieving economic stability and a smoothly functioning capital market. This does not mean that the Treasury should make no effort to borrow at long term during prosperous periods. It is merely suggested that if other policies are properly coordinated with debt management, long-term borrowing in recessions is likely to do little harm and will save the Treasury interest money.

*Relation of debt management to other policies*

The magnitude of the Treasury's debt management problems depends to a considerable extent upon the kinds of monetary and fiscal policies that are being followed. Three aspects of this relationship are worthy of consideration.

1. *The mix of monetary and fiscal policies.*—Within limits, monetary policy and fiscal policy are substitutes for purposes of economic stabilization. However, the allocation of resources between consumption, private investment, and the production of Government services will be affected by the combination of monetary and fiscal policies chosen. For example, if we want to achieve a more rapid rate of growth, reduction in interest rates to encourage investment, compensated for by increases in taxes which reduce consumption, will

contribute to our objectives. Consequently, under present conditions, there is much to be said for an easier monetary policy and a tighter fiscal policy. In addition to encouraging growth, such a change in our policies would reduce the magnitude of our debt problems in two ways: (1) larger surpluses and/or smaller deficits in the cash budget would result in a lower rate of growth (or perhaps even a decline) in the size of the publicly held debt, and (2) lower interest rates resulting from easier monetary policies would save interest costs to the Treasury and would make effective debt management easier to achieve.

2. *General versus selective monetary controls.*—Under present conditions, there is much to be said for greater reliance on selective credit controls directed at some of the sectors of the economy which have exhibited excessive instability. For example, serious consideration should be given to selective controls in the area of consumer credit including housing, and perhaps more effective control over bank lending to stabilize inventory fluctuations. In addition to helping us to maintain stability of growth and employment, these controls might mitigate the inflation problem by reducing the magnitude of shifts in demand. In addition, more reliance on selective controls should simplify our debt management, since most types of selective controls exert their impact by reducing the demand for credit directly, rather than through interest rates. That is to say, a monetary policy relying more on selective controls would presumably require smaller increases in interest rates to achieve a given restrictive effect than would a policy relying entirely on general controls. If this should prove to be the case, there would be some saving in interest costs to the Treasury.

It is very important to emphasize, however, that we should not adopt policies of the kinds just discussed merely because they save the Treasury interest money, reduce the public debt, and simplify the problems of debt management. We should select the proper combination of fiscal and monetary policies, on the one hand, and the proper mix of selective and general monetary controls, on the other, on the basis of the impact these policies have upon the economy. Debt management, while a matter of some importance, is distinctly subsidiary to the selection of proper monetary and fiscal policies. It just happens that under present conditions, the adjustments in the policy mix that seem to be called for would incidentally reduce interest costs and simplify our debt management problems somewhat.

3. *Open-market operations versus reserve requirement changes.*—In the conduct of its general monetary policy directed at control of the money supply, the Federal Reserve has a choice between the use of open-market operations and changes in reserve requirements. In recent years, the System has relied on open-market operations for short-run stabilization of the economy, but appears to be engaged in a program of secular reduction of member bank reserve requirements. Reserve requirements have been lowered several times during the recessions of 1953–54 and 1957–58, while they have not been increased since 1951. Thus, reserve requirements have been adjusted downward particularly during recession periods, apparently for the purpose of supplying the reserves needed to support economic growth.

The use of open-market purchases of Government securities to supply reserves to the banking system has an advantage, from the standpoint of the Treasury, over reductions in reserve requirements,

since open-market purchases absorb securities into the Federal Reserve System's portfolio and since most of the interest on that portfolio is returned to the Treasury at the end of the year. There are, of course, other differences between open-market purchases and lowering of reserve requirements. Lower reserve requirements tend to result in larger profits for the commercial banking system. In addition, lower reserve requirements increase the amount of money and credit that can be created per dollar of additional reserves and thereby increase the leverage of Federal Reserve policy somewhat. Aside from these factors, it is difficult to see that there are any significant observable differences in the impact of these two credit control weapons. On the other hand, it appears that there would be significant savings in interest to the Treasury if the Federal Reserve would desist from further lowering of reserve requirements and supply the reserves needed to support growth by open-market operations. Unless it can be demonstrated that the other effects on bank earnings or on the leverage of monetary policy would be unduly harmful, there is much to be said for relying on open-market operations to supply reserves in future years, leaving reserve requirements at their present levels.

*Possible improvements in debt management technique*

The techniques used in debt management should be, insofar as possible, the ones which permit the Treasury to sell the desired securities at minimum cost under any given circumstances. Several changes in technique which might be worthy of consideration can be suggested.

1. *Auctioning of longer term securities.*—The auction technique has proved to be highly successful in connection with the sale of Treasury bills, and there might be some advantages in extending it to long-term securities. One possible advantage would be that each block of securities would presumably be sold at the highest price its buyer would be willing to pay, and as a result the Treasury's interest cost might be reduced. There are other advantages and some disadvantages, one of which might be the greater risk imposed on the investor, which might mean that the auctions would be dominated by skilled market professionals so that the market would be narrowed and collusive bidding might develop. Despite difficulties, the device seems promising enough to be worth extending to securities of longer maturity than bills, at least on an experimental basis.

2. *Frequent small offerings.*—It is possible that small offerings of longer term securities made at frequent intervals would help the Treasury to secure a larger share of the current flow of saving. There are difficulties related to the fact that, in order to keep the number of issues from multiplying inordinately, it would be necessary to reopen existing issues, but there should be ways of solving this problem. At first glance, it might appear that such an approach to debt management would mean that the Treasury would be interfering with the Federal Reserve's freedom of action most of the time. However, the opposite might well be true—that the smallness of the offerings would result in a minimum of interference.

3. *More effective underwriting.*—One of the Treasury's difficulties has been that it has had inadequate underwriting support, much less than is used in private financing. One possibility deserving of consideration would be to have the Federal Reserve banks perform the

underwriting function for the Treasury, buying up part of a Treasury issue of long-term securities and reselling it to the public over a period of time. A procedure along these lines has been used successfully in England, where the amounts of long-term issues not subscribed by the public are subscribed by the Issue Department of the Bank of England and then gradually resold to the public. In the event it is felt that the Federal Reserve should confine itself primarily to economic stabilization, perhaps some other institutional arrangement could be made.

4. *Advance refunding.*—Advance refunding means offering to holders of an existing security the option of turning it in for a newly issued security before maturity. As longer term securities approach maturity, they frequently fall into the hands of investors who are interested in them as liquidity instruments, and when they mature it is difficult to interest such investors in exchanging them for long-term securities. Judicious advance refunding would catch these securities before they left the hands of those who were holding them as investments and offer a new longer-term security in exchange at that point. Legislation passed in the last session of Congress eliminated technical obstacles and paved the way for the introduction of advance refunding. The Treasury has expressed strong interest in advance refunding as a means of dealing with a large volume of intermediate-term debt scheduled to mature in a few years. Used carefully and in moderation, advance refunding could be a useful way of attaining a more viable debt structure.

5. *Call features.*—The presence of a call feature in a Treasury security gives the Treasury greater possibilities of being able to take advantage of favorable movements of interest rates in future years. The Treasury has issued no callable securities in the last few years. In view of the fact that call features are commonly included in corporate securities, it seems quite possible that inclusion of such a feature might frequently be well worth the extra immediate cost involved.

6. *Better selling organization.*—A more vigorous program for promoting the sale of Government securities by the Treasury might pay big dividends in broadening the market and reducing the Treasury's interest cost. The recent spectacular success of the 5 percent note maturing in August 1964, which attracted over 100,000 subscriptions of less than \$25,000 each, aggregating nearly \$1 billion, suggests that there is a market that has not been adequately tapped. The development of a more extensive selling organization by the Treasury to attract the interest of small investors as well as of smaller financial institutions far removed from the main centers of finance, would probably be well worth the cost. The facilities of the Federal Reserve banks might also be used.

7. *Purchasing-power bonds.*—It has been suggested recently that the Government might issue bonds whose redemption value (and interest payments, if any) are tied to the Consumer Price Index. The best candidate for this would be savings bonds, which have been a source of substantial cash drains to the Treasury in the last few years. The issue here is not one of saving interest cost, since there is no assurance that savings would result. Rather, it is a question of balancing equity considerations against the dangers of setting up expectations which might intensify the problem of inflation. On balance, there is much to be said for the view that it is a proper func-



tion of the Government to provide the small, unsophisticated investor with a form of investment which contains protection against the erosion of his wealth through inflation.

#### VI. THE INTEREST-RATE CEILING

In recent months there has been much discussion of the desirability of raising or eliminating entirely the interest-rate ceiling of  $4\frac{1}{4}$  percent applicable to marketable Treasury securities having a maturity of more than 5 years. The controversy concerning the interest-rate ceiling is the culmination of a period of nearly 10 years during which interest rates have drifted steadily upward with only brief interruptions. The tight-money periods of early 1953, 1955-57, and 1958-59 have greatly overbalanced the effects of easier money in the intervening periods. Even during 1958, while the economy was still in the midst of a recession, speculative activity in the Government securities market at midyear was permitted to drive interest rates up sharply, and restrictive monetary policy has driven them even higher in recent months. Clearly, tight money has not been effective in achieving its objective of stopping inflation. At the same time, even in such prosperous years as 1956 and 1957, growth has been slow or nonexistent.

There has been a tendency recently to view high and rising interest rates as a result of the working of inexorable economic laws. There is insufficient recognition of the fact that there are other methods besides general monetary policy which can be used to control inflation; for example, we could place more reliance on fiscal policy and selective credit controls, a combination which would achieve a given restrictive effect with lower interest rates. Nor is enough attention given to the contention that general monetary controls have an uneven impact and that under present conditions such controls may slow down economic growth without stopping inflation.

The interest-rate ceiling is an arbitrary limitation with no analytical justification, and it should accordingly be repealed in order to give the Treasury more freedom to manage the debt effectively. At the same time, however, it is very important that our present stabilization policies be thoroughly reexamined.

## CHAPTER I

### THE FEDERAL DEBT IN PERSPECTIVE

#### INTRODUCTION

There are several different concepts of the public debt which are employed in discussions of debt management. On June 30, 1959, the "total gross debt" or "total Federal securities outstanding," amounted to \$284.8 billion.<sup>1</sup> The gross debt reached a peak level of \$279.8 billion in February 1946 at the zenith of borrowing connected with the financing of World War II, then declined to \$252.4 billion in June 1948, as a result of the immediate postwar budget surpluses and debt retirement.<sup>2</sup> From mid-1948 to mid-1959, the gross debt grew by \$32.4 billion.

However, the gross public debt does not represent the net debt of the Federal Government. As shown in table I-1, at the end of the fiscal year 1959, out of the gross public debt of \$284.8 billion, \$54.6 billion was held by Government agencies and trust funds, i.e., within the Federal Government itself. The debt that is significant for most aspects of economic analysis is the amount of debt held by the public—that is, by the households, business firms, commercial banks, and other financial institutions of the country.<sup>3</sup> Changes in the amount and composition of the debt held by the public affect interest rates, credit availability, and the liquidity of spending units in ways to be discussed at length later on, and these effects may influence the level and composition of private expenditures.<sup>4</sup> On the other hand, debt held by Government agencies and trust funds is really fictitious debt; not only is it not a part of the asset structure of the private sector of the economy, but in addition, the interest on such debt represents merely a transfer within the Federal Government.<sup>5</sup>

<sup>1</sup> On this date, the total gross debt of \$284,817 million included public debt of \$284,706 million and guaranteed securities of \$111 million. The Second Liberty Bond Act (31 U.S.C. 757b), as amended by an act passed June 30, 1959, provides that the face amount of securities issued under authority of that act and the face amount of obligations guaranteed as to principal and interest by the United States shall not exceed a total of \$285 billion outstanding at any one time, except that under the act of June 30, 1959, the total was temporarily increased to \$295 billion for the period beginning July 1, 1959, and ending June 30, 1960. Obligations issued on a discount basis and subject to redemption prior to maturity at the option of the owner (e.g., U.S. savings bonds) are included in the statutory debt limitation at current redemption value. On June 30, 1959, the total amount of debt subject to the statutory debt limitation was \$284,398 million. (Treasury Bulletin, September 1959, p. 1 and p. 24.)

<sup>2</sup> In February 1946, the Treasury held a total of \$24.4 billion in war-loan deposits at commercial banks. Most of this represented borrowing in excess of the needs of war finance, and by the end of 1946, the Treasury had drawn down its war-loan deposits to \$2.6 billion. Nearly all of this reduction was used to retire debt held by commercial banks, such retirement amounting to \$18.8 billion. In a sense, this was fictitious debt retirement, since the Treasury had overborrowed from commercial banks and used its excess balances in the banks to retire excess debt. (See Henry C. Murphy, "The National Debt in War and Transition" (New York: McGraw-Hill, 1950), pp. 227-229). However, in the fiscal years 47 and 48 1948, the Treasury had substantial budget surpluses which it devoted to debt retirement.

<sup>3</sup> It is customary to include State and local government units in the private sector of the economy on the grounds that their economic decisions, unlike those of the Federal Government, are affected by many of the same factors that influence private economic units.

<sup>4</sup> See ch. IV.

<sup>5</sup> See the discussion of the trust funds in the appendix to this chapter.

TABLE I-1.—Ownership of U.S. Government securities, fiscal years 1946-59

[Billions of dollars]

End of fiscal year	Total gross debt <sup>1</sup>	Less: Held by U.S. Government agencies and trust funds	Equals: Held outside Federal Government	Less: Held by Federal Reserve System <sup>2</sup>	Equals: Held by public <sup>3</sup>
1946.....	269.9	29.1	240.8	23.8	217.0
1947.....	258.4	32.8	225.6	21.9	203.7
1948.....	252.4	35.8	216.6	21.4	195.2
1949.....	252.8	38.3	214.5	19.3	195.2
1950.....	257.4	37.8	219.6	18.3	201.3
1951.....	255.3	41.0	214.3	23.0	191.3
1952.....	259.2	44.3	214.9	22.9	192.0
1953.....	266.1	47.6	218.5	24.7	193.8
1954.....	271.3	49.3	222.0	25.0	197.0
1955.....	274.4	50.5	223.9	23.6	200.3
1956.....	272.8	53.5	219.3	23.8	195.5
1957.....	270.6	55.6	215.0	23.0	192.0
1958.....	276.4	55.9	220.5	25.4	195.1
1959.....	284.8	54.6	230.2	26.0	204.2
Net change 1946-59.....	14.9	25.5	-10.6	2.2	-12.8

<sup>1</sup> Includes guaranteed securities.

<sup>2</sup> Includes securities owned outright and held under repurchase agreements.

<sup>3</sup> Includes State and local governments.

Source: Treasury Department.

The consolidated accounts of trust funds and other government agencies have consistently had current operating surpluses—excesses of current receipts over current expenditures—in every fiscal year since World War II up to 1959. In fiscal 1959, Government agencies and trust funds (including Government-sponsored enterprises) had a deficit on current account of \$2.6 billion. The trust account deficit of \$1.5 billion was the result of temporary factors. The accounts are expected to show a small surplus in fiscal 1960, and the expectation over the next decade is for the reappearance of substantial surpluses in these accounts.<sup>6</sup> Government agencies and trust funds invest the excess of their current receipts over current expenditures in Government securities. As a result of such surpluses, these units increased their holdings of Government securities by \$25.5 billion in the 13-year period from mid-1946 to mid-1959, as shown in table I-1. In consequence, the amount of Federal securities held by investors other than the Federal Government itself declined by \$10.6 billion despite the fact that the gross public debt increased by \$14.9 billion.

#### BUDGET AND DEBT ACCOUNTS

When the Government operates at a deficit—i.e., with expenditures in excess of tax collections—the deficit must, in general, be financed either by drawing down existing cash balances or by borrowing. On the other hand, when there is a budget surplus, the surplus must be used either to build up cash balances or to retire debt. Thus, there is

<sup>6</sup> The deficit in the consolidated accounts of the trust funds in fiscal 1959 was partly due to the liberalization of old-age and survivors and disability insurance benefits under the Social Security Act amendments of 1958. This deficit in the old-age and survivors and disability insurance program is expected to be eliminated and replaced by surpluses in future years as contribution income increases. The temporary deficit in the old-age and survivors insurance trust fund happened to coincide with the decline in unemployment tax collections and the increase in unemployment benefit payments caused by the recession. Thus in fiscal 1959 the old-age and survivors insurance trust fund incurred a deficit of \$1.3 billion and the unemployment trust fund a deficit of \$1.1 billion. (Treasury Bulletin, September 1959, pp. 8-9.) For projections of trust fund receipts and expenditures, see Otto Eckstein, "Trends in Public Expenditures in the Next Decade" (Committee for Economic Development, 1959), pp. 42-43.

a necessary interlocking relationship between the budget surplus or deficit, the change in the Treasury's cash balance, and the change in debt. However, there are various concepts of budget and debt that may be employed.

#### *Administrative budget and gross public debt*

In the thirteen fiscal years from 1947 through 1959, the Treasury has had a cumulative administrative budget deficit of \$25.2 billion, as shown in Table I-2. Of this deficit, \$15.3 billion was financed by borrowing—an increase in the public debt—while \$9.9 billion was financed by drawing down cash balances from the swollen levels reached in the immediate postwar period. The budget situation has ranged from a surplus of \$8.4 billion in 1948 to a deficit of \$12.5 billion in 1959. The administrative budget does not include receipts and expenditures of Government agencies and trust funds; accordingly, it ties in with the change in the gross public debt which reflects borrowing from agencies and trust funds as well as from nongovernmental sources.

TABLE I-2.—*Administrative budget, public debt change, and resulting change in Treasury's cash balance, fiscal years 1947-59*

[Billions of dollars]

Fiscal year	Administrative budget surplus (+) or deficit (-)	Increase (+) or decrease (-) in public debt <sup>1</sup>	Increase (+) or decrease (-) in Treasury cash balance, due to administrative budget and public debt transactions <sup>2</sup>
1947.....	0.8	-11.1	-10.4
1948.....	8.4	-6.0	2.4
1949.....	-1.8	.5	-1.3
1950.....	-3.1	4.6	1.5
1951.....	3.5	-2.1	1.4
1952.....	-4.0	3.9	-1
1953.....	-9.4	7.0	-2.5
1954.....	-3.1	5.2	2.1
1955.....	-4.2	3.1	-1.1
1956.....	1.6	-1.6	( <sup>3</sup> )
1957.....	1.6	-2.2	-.6
1958.....	-2.8	5.8	3.0
1959.....	-12.5	8.4	-4.2
Total.....	-25.2	15.3	-9.9

<sup>1</sup> Does not include guaranteed securities.

<sup>2</sup> Does not include effects on cash balance of Government agency, and trust fund transactions clearing through the Treasurer's account.

<sup>3</sup> Less than \$50,000,000.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department.

#### *Cash budget and net cash borrowing*

Just as the gross public debt overstates the true size of the debt of the Federal Government, the administrative budget ordinarily gives a somewhat distorted picture of receipts and expenditures. The reason for this is that the tax and other current receipts and the expenditures of the trust funds and other Government agencies are not included in the administrative budget. As shown in table I-3, during the 13-year period from 1946 to 1959, the cumulative current

surplus of Government agencies and trust funds amounted to \$21.7 billion. Since the administrative budget deficit amounted to \$25.2 billion during this period, the combined deficit in the administrative budget and Government agencies and trust funds amounted to only \$3.5 billion during this 13-year period. To get the cash budget surplus or deficit, which is a commonly-used measure of the economic impact of Government activity, it is necessary to adjust the total receipts and expenditures of the administrative budget and trust funds combined for certain noncash transactions. These adjustments include the excess of the accrued discount on savings bonds and Treasury bills, which is included in the administrative budget, over the actual cash payments of interest on maturing bonds and bills, which is included in the cash budget, together with certain payments or receipts which are made directly in securities rather than in cash. For the 13-year period covered by table I-3, there was a cumulative noncash deficit of \$9.8 billion. Since there was a deficit on all transactions of \$3.5 billion, and a deficit of \$9.8 billion on noncash transactions, the difference between the two, or the balance for cash transactions, comes to a surplus of \$6.3 billion.<sup>7</sup>

TABLE I-3.—*Relations between surplus or deficit in administrative budget and surplus or deficit in cash budget, fiscal years 1947-59*

(Billions of dollars)

Fiscal year	Administrative budget surplus or deficit (-)	Plus: Government agency or trust fund surplus or deficit (-) <sup>1</sup>	Less: non-cash transaction surplus or deficit (-) <sup>2</sup>	Equals: cash surplus or deficit (-) <sup>3</sup>
1947.....	0.8	0.9	-5.0	6.6
1948.....	8.4	2.6	2.1	8.9
1949.....	-1.8	2.2	- .7	1.1
1950.....	-3.1	- .2	-1.2	-2.2
1951.....	3.5	3.9	- .3	7.6
1952.....	-4.0	3.9	- .3	.1
1953.....	-9.4	3.8	- .5	-5.2
1954.....	-3.1	2.4	- .6	- .2
1955.....	-4.2	.9	- .6	-2.7
1956.....	1.6	1.9	- .9	4.5
1957.....	1.6	1.4	.8	2.1
1958.....	-2.8	.9	- .5	-1.5
1959.....	-12.5	-2.6	-2.2	-13.0
Total.....	-25.2	21.7	-9.8	6.3

<sup>1</sup> Includes operations of Government-sponsored enterprises.

<sup>2</sup> Includes (a) excess of accrued discount on savings bonds and Treasury bills over cash payments of interest on savings bonds and bills redeemed; (b) net issuance of securities to cover expenditures or refunds of receipts, including adjusted service bonds, Armed Forces leave bonds, special notes issued to the International Bank and the International Monetary Fund, and excess profits tax refund bonds, and (c) adjustment for checks in transit, etc., to put receipts and payments on a cash basis.

<sup>3</sup> Reflects cash receipts and payments in budget accounts, trust and deposit fund accounts, and Government-sponsored enterprises. Also includes receipts from exercise of monetary authority, chiefly seigniorage on silver.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department.

<sup>7</sup> In addition to cash receipts from taxes and cash payments to the public reflecting Government expenditures, the cash budget as presented in tables I-3 and I-4 includes a small amount (\$600,000,000 for the 13-year period) of receipts from the exercise of monetary authority (chiefly seigniorage on silver purchases).

TABLE I-4.—Federal Government cash transactions with public, fiscal years 1947-59

(Millions of dollars)

Fiscal year	Cash surplus or deficit (-) <sup>1</sup>	Plus: net cash borrowing from the public, or repayment (-) <sup>2</sup>	Equals: increase or decrease (-) Treasury cash balance <sup>3</sup>
1947.....	6.6	-19.4	4-12.7
1948.....	8.9	-7.3	1.6
1949.....	1.1	-2.5	-1.5
1950.....	-2.2	4.2	2.0
1951.....	7.6	-5.8	1.8
1952.....	.1	-.5	-.4
1953.....	-5.2	2.9	-2.3
1954.....	-.2	2.5	2.4
1955.....	-2.7	1.8	-.9
1956.....	4.5	-4.4	.1
1957.....	2.1	-3.1	-1.0
1958.....	-1.5	5.8	4.3
1959.....	-13.0	8.6	-4.4
Total.....	6.3	-17.1	4-10.8

<sup>1</sup> Reflects cash receipts and payments in budget accounts, trust and deposits fund accounts, and Government-sponsored enterprises. Also includes receipts from exercise of monetary authority, chiefly seigniorage on silver.

<sup>2</sup> Includes net borrowing by Treasury through public debt transactions and net borrowing by Government agencies and Government-sponsored enterprises through sales of their own securities. Excludes changes in public debt that do not represent direct cash borrowing from the public.

<sup>3</sup> Reflects changes in balance in Treasurer's account and in cash held outside Treasury.

<sup>4</sup> Includes withdrawal of \$1,800,000,000 from Exchange Stabilization Fund in 1947 to pay subscription to capital of International Monetary Fund.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department.

A cash deficit must be covered by cash borrowing from the public or by drawing down the Treasury's cash balance, while a cash surplus must be used to retire debt for cash or to build up the Treasury's cash balance. Table I-4 indicates that for the period 1947-59, the Treasury used its cash surplus of \$6.3 billion, together with a reduction of \$10.8 billion in its cash balances to retire debt for cash in the amount of \$17.1 billion.

The contrast between table I-2, covering the administrative budget and change in the public debt, and table I-4, setting forth the Treasury's cash operations, is especially notable. While the administrative budget for the period 1947-59 shows a deficit of \$25.2 billion, the cash budget shows a surplus of \$6.3 billion. Similarly, while the public debt increased by \$15.3 billion, the Treasury actually engaged in net debt retirement for cash in the amount of \$17.1 billion. The cash budget is probably a considerably better measure of the short-run economic impact of Federal Government activities than is the administrative budget.<sup>8</sup> And net cash borrowing or debt retirement is even more certainly the best available measure of net impact of Federal borrowing and debt retirement activities on the capital markets,

<sup>8</sup> The budget as shown in the national income accounts differs from the administrative budget and the cash budget with respect to both coverage and timing; this budget is probably the best measure available of the fiscal impact of Government activities. Actually, however, there is no single entirely satisfactory measure of this impact. The fiscal impact of some types of Government expenditures may come shortly after orders are placed with private business concerns for the production of goods and services, rather than at the time payment is made (which is the point at which the expenditures would be reflected in the administrative or cash budgets) or at the time the goods are shipped (when the expenditures would be entered in the national income and product budget). On the problem of measuring the fiscal impact of Government activity, see Murray L. Weldenbaum, "The Federal Government Spending Process," in "Federal Expenditure Policy for Economic Growth and Stability," papers submitted by panelists appearing before the Subcommittee on Fiscal Policy of the Joint Economic Committee (Washington: U.S. Government Printing Office, 1957), pp. 493-506.

although, of course, the volume of refunding operations is also very important in this connection, as we shall see.

Examination of the statistics covering Government operations on a cash basis does not lend support to the view that the Government constantly engages in deficit spending and that continuous Government borrowing that has expanded the Federal debt is responsible for serious problems of debt management. On a cash basis, the Treasury has had surpluses in 7 of the 13 fiscal years since 1946, and, as we have seen, has a modest net cash surplus for the entire period. Prior to the fiscal year 1959, when the working of the automatic fiscal stabilizers and the discretionary increases in Federal spending to counteract the recession resulted in an unprecedented peacetime cash deficit of \$13 billion, the cash budget showed a substantial surplus of nearly \$20 billion for the postwar period beginning in mid-1946. Similarly, much of the \$15 billion growth in the public debt since 1946 is fictitious, representing growth in holdings of public debt securities within the Federal Government itself resulting from large cash surpluses of Government agencies and trust funds. On a cash basis, the Federal Government has retired debt in 7 of the 13 years we are considering. Total net cash debt retirement has amounted to \$17 billion, and for the period prior to the heavy deficit of fiscal 1959, such debt retirement amounted to nearly \$26 billion.

#### *Cash borrowing and debt held outside the Federal Government*

Although the Treasury retired debt to the extent of \$17.1 billion between 1946 and 1959, table I-1 indicates that the amount of Federal securities held outside the Government itself declined by only \$10.6 billion. Table I-5 presents a reconciliation between cash borrowing or debt retirement on the one hand and the change in nongovernmental holdings of Federal securities on the other. Transactions in Government securities not involving cash payment between the public and the Government resulted in an increase in outstanding debt of \$9.1 billion. Part of this is accounted for by an excess of interest accruals on savings bonds and Treasury bills over actual cash interest payments on such securities. These two classes of securities are sold on a discount basis; that is, the interest earned by investors on these securities takes the form of an excess of the amount paid to the holder when the securities mature or are redeemed (in the case of savings bonds) over the amount paid by the investor to the Government at the time the securities were originally sold. The actual cash payments of interest at the time the securities mature or are redeemed by the Government are included as an expenditure in the cash budget, and correspondingly, net cash borrowing or retirement of securities reflects only the amount of interest actually paid. However, the debt outstanding also grows as interest accrues on these securities, and the excess of interest accruals over cash interest payments must be added to net cash borrowing in order to arrive at the change in the nominal value of Federal securities outstanding. The remaining amount of noncash transactions affecting the size of nongovernmental holdings of Federal securities is accounted for by expenditures paid through the direct issuance of securities rather than in cash. The two main components were the issuance of special notes to the International Monetary Fund in payment of a portion of the U.S. subscription of capital to that institution and the payment of terminal leave

to members of the Armed Forces through the issuance of Armed Forces leave bonds.<sup>9</sup>

TABLE I-5.—Summary of operations affecting public holdings of Federal securities, fiscal years 1947-59

[Billions of dollars]

Fiscal year	Net cash borrowing from the public, or repayment (-)	Plus: Non-cash transactions increasing or decreasing (-) debt <sup>1</sup>	Equals: Increase or decrease (-) in securities held outside Federal government <sup>2</sup>	Less: Increase or decrease (-) in Government agency securities held outside Federal Government <sup>3</sup>	Equals: Increase or decrease (-) in public debt securities held outside Federal Government <sup>4</sup>
	(1)	(2)	(3)	(4)	(5)
1947.....	-19.4	4.4	-15.0	0.2	-15.2
1948.....	-7.3	-1.6	-8.9	.1	-9.0
1949.....	-2.5	.3	-2.2	-.1	-2.1
1950.....	4.2	.6	4.9	-.2	5.1
1951.....	-5.8	.5	-5.3	.....	-5.3
1952.....	-.5	.7	.2	-.4	.6
1953.....	2.9	.7	3.6	.....	3.6
1954.....	2.5	.6	3.1	-.4	3.5
1955.....	1.8	.6	2.5	.6	1.9
1956.....	-4.4	.6	-3.7	.9	-4.6
1957.....	-3.1	-.3	-3.4	.9	-4.3
1958.....	5.8	-.2	5.6	.1	5.5
1959.....	8.6	2.2	10.7	1.0	9.7
Total.....	-17.1	9.1	-8.0	2.6	-10.6

<sup>1</sup> Includes excess of accrued discount on savings bonds and Treasury bills over cash payments of interest on savings bonds and bills redeemed; also includes net issuance of securities to cover expenditures or refunds of receipts, including adjusted service bonds, Armed Forces leave bonds, special notes issued to the International Bank and the International Monetary Fund, and excess profits tax refund bonds.

<sup>2</sup> Includes public debt securities and securities issued by Government agencies and Government-sponsored enterprises.

<sup>3</sup> Estimated as a residual by subtracting amounts shown in column (5) from column (3).

<sup>4</sup> Changes in holdings of public debt (including guaranteed) securities by the public (including State and local governments) and the Federal Reserve System.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department.

When the increase in outstanding debt due to noncash transactions of \$9.1 billion is added to the \$17.1 billion of net cash debt retirement, the net result is a decline of \$8 billion in securities held outside the Government. However, the statistics on cash borrowing and on noncash debt transactions include security issues of Government agencies, which are not included in the public debt. Net borrowing from the public by Government agencies during the 13-year period is estimated at \$2.6 billion. Thus, there was a reduction of non-governmental holdings of public debt securities of \$10.6 billion, as shown by the Treasury surveys of ownership as reflected in table I-1, and an increase of \$2.6 billion in nongovernmental holdings of Government agency securities, resulting in a net reduction in holdings of public debt and Government agency securities of \$8 billion, as shown in table I-5.

A comparison of columns (1) and (5) of table I-5 indicates that there is a rough correspondence between net cash borrowing or debt retirement and changes in nongovernmental holdings of Government securities. We shall be concerned chiefly in this study with changes

<sup>9</sup> When these securities are redeemed for cash, the amounts appear as expenditures in the cash budget.



in the size and composition of the publicly held direct Federal debt. We will give little attention to security issues of Government agencies.

#### THE FEDERAL RESERVE AND DEBT MANAGEMENT

While there may be some question about the appropriate statistical concepts of the budget and the Federal debt, the above discussion makes clear that the budget does set the basic framework for debt management. That is, except to the extent that the Treasury's cash balances may be varied, the amount of net borrowing or debt retirement that the Treasury must engage in is determined by the budget deficit or surplus.<sup>10</sup> Thus, the net change in the nominal value of securities held outside the Federal Government during most periods is at least a rough reflection of the budgetary situation.

The economic effects of the public debt depend upon the size and composition of the debt held by the private sector of the economy. A change in either the size or the maturity composition of the stock of Federal securities held by households, firms, or financial institutions produces changes in the liquidity position of such spending units, as well as in the level and structure of interest rates. These changes in turn may cause revisions in the volume or composition of income-generating expenditures by such economic units. These economic effects of debt management are the main subject of our study. Changes in the volume and composition of the debt, through the changes they may produce in the level and structure of interest rates also affect the interest cost to the Treasury of servicing the debt. In addition to the economic effects, the interest cost to the Treasury is a factor to be taken into account in deciding what is the proper debt management policy to be followed by the Treasury.

As shown in table I-1, as of mid-1959, the Federal Reserve System held \$26 billion of Federal securities in its portfolio. Open market operations by the Federal Reserve, which constitute the chief means used by the System in effectuating monetary policy, produce changes in the size and composition of this portfolio. Although the Federal Reserve banks are privately owned, the System functions as an agent of the Federal Government and is therefore motivated differently from other private economic units. Consequently, debt held by the Federal Reserve should not be regarded in the same light as debt held by other private investors. Changes in the Federal Reserve portfolio are made deliberately for the purpose of influencing the behavior of the private sector of the economy in order to maintain economic stability and growth or to promote other desiderata of public policy. Moreover, interest paid by the Treasury on securities held in the Federal Reserve portfolio is not really a net burden on the Treasury and the taxpayers except to a minor extent. This is because under prevailing practice, 90 percent of any additional interest payments made by the Treasury to the Federal Reserve is returned to

<sup>10</sup> Changes in cash balances are large enough to be a significant factor at times, however. For example, as indicated in table I-4, in the fiscal year 1959, the Treasury needed to borrow for cash only \$8.6 billion to finance a cash deficit of \$13 billion, because it was able to reduce its cash balances by \$4.4 billion to finance the remainder of the deficit. This was possible because, in the previous fiscal year 1958, the Treasury borrowed \$5.8 billion for cash while the cash deficit was only \$1.5 billion, permitting cash balances to be built up by \$4.3 billion.

the Treasury at the end of the year in the form of a pseudo-franchise-tax payment by the Federal Reserve.<sup>11</sup>

The last column of table I-1 shows the amounts of Federal securities held by the public, including household, business firms, financial institutions, nonprofit institutions, and State and local governments. This concept of the public debt is obtained by subtracting from the total gross debt, the amounts held by U.S. Government agencies and trusts funds and by the Federal Reserve banks. This is the amount of debt that must find lodgment with private investors, which may influence economic behavior through its effects on liquidity and on interest rates, and which involves a significant net interest burden on the Treasury.

We shall refer to the amount of the debt held outside the Government agencies and trust funds and the Federal Reserve System as the publicly held debt. In principle at least, both the size and the composition of the publicly held debt can be changed just as effectively by Federal Reserve operations as by Treasury operations. The Treasury can affect the composition of the debt by the choice of the types of securities it issues to finance a deficit or in connection with the refunding of maturing securities. The Federal Reserve can exercise similar effects when it decides what maturities of securities to buy or sell when its policy criteria indicate that a change in bank reserves is called for the interest of economic growth and stability; also it can change the maturity composition of the publicly held debt without changing the size of that debt or the money supply by simultaneously selling securities of one maturity and buying securities of another maturity.<sup>12</sup>

While the responsibility for managing the size and composition of the publicly held debt is divided between the Treasury and the Federal Reserve, there are differences in the powers of the two agencies. The Treasury collects taxes and serves as the agent for the Federal Government in spending money on goods and services, making transfer payments to households and the foreign sector, and making subsidy payments to the business sector of the economy. Since the Federal Reserve's expenditures on goods and services are of trivial importance, the Treasury possesses an effective monopoly at the Federal level in conducting fiscal operations. On the other hand, the Federal Reserve has a virtual monopoly on the creation of money and the control of the supply of money, under its delegation of authority from Congress. It is true that the Treasury has some powers of money creation as a byproduct of its authority to buy and sell gold and silver. However, gold and silver operations are ordinarily of limited importance and are, for the most part, passive rather than active in nature—that is, the Treasury responds to the impulses of private buyers and sellers of gold and silver and does not normally attempt to encourage or discourage such activities by, for example, changing

<sup>11</sup> The System pays into the Treasury each year an amount equal to 90 percent of the net earnings of the Federal Reserve banks after payment of a 6-percent dividend on capital stock and an allowance designed to build up surplus to 100 percent of subscribed capital. This payment takes the form of interest on that portion of outstanding Federal Reserve notes not secured by gold certificates. See "Investigation of the Financial Condition of the United States," hearings before the Committee on Finance, U.S. Senate (Washington: Government Printing Office, 1957), pt. 3, pp. 1580, 1582-1585.

<sup>12</sup> There are, of course, practical limits, under present institutional arrangements, to the ability of the Federal Reserve to change the size and composition of the publicly held debt, since the System is not able to issue its own securities and is therefore limited in its sales of securities of various maturities to the amounts contained in its portfolio. However, the existence of practical limitations does not alter the principles involved, and, if desirable, there are various ways in which the limitations could be removed.

the prices at which it buys or sells these commodities. The Federal Reserve deliberately produces changes in the money supply of the economy through the use of open market operations, supplemented by changes in reserve requirements and discount rates.

Although both Treasury and Federal Reserve operations may change the size and composition of the publicly held debt, the differences in the authority of the two agencies mean that the side effects of their operations may be somewhat different. Leaving aside for the moment changes in Treasury cash balances, the Treasury can change the size of the publicly held debt only by borrowing from the public to finance a budget deficit or by retiring publicly held debt out of a cash surplus. Such operations leave the money supply unchanged. On the other hand, when the Federal Reserve changes the size of the publicly held debt by buying or selling Government securities in the open market, it necessarily changes the volume of bank reserves by an amount equal to its purchases or sales, and, due to the existence of a fractional reserve banking system, tends to produce an even larger increase or decrease in the money supply through the multiple expansion of bank credit. The Treasury can produce these same effects if it uses existing balances on deposit at the Federal Reserve banks to pay for expenditures or collects excess taxes and uses them to build up its balances at Federal Reserve banks. However, its ability to engage in such operations is limited in one direction by the amount of deposits it holds and in the other by its willingness to use tax proceeds to add to its cash balances. While such operations by the Treasury affecting the money supply may be important at times, it is nevertheless true that the chief authority and responsibility for controlling the money supply rests with the Federal Reserve.

An examination of table I-1 indicates that the behavior of the publicly held debt during the postwar period has been considerably different from the behavior of the total Federal debt. Between mid-1946 and mid-1959, the total gross debt increased by \$14.9 billion, but as a result of increased holdings of Federal securities by Government agencies and trust funds and the Federal Reserve, the publicly held debt actually declined by \$12.8 billion. Between the end of fiscal 1948, when the heavy immediate postwar debt retirement had been completed, and the end of fiscal 1959, the total gross debt increased by \$32.4 billion. However, due primarily to large and consistent trust fund surpluses, holdings of Federal securities by Government agencies and trust funds increased during this period by \$18.8 billion, while the Federal Reserve, in its role as monetary manager, increased its holdings of Government securities by \$4.6 billion. Thus, the publicly held debt increased by only \$9 billion during this period. At the end of fiscal 1958, before the large deficit of 1959, the publicly held debt was practically the same as at the end of fiscal 1948. That is, while there were changes from year to year, the net change in the publicly held debt over the decade 1948 to 1958 was practically zero. Moreover, as we will see later in this chapter, the size of the publicly held Government debt in relation to other relevant economic variables, such as national income and product and the stock of private debt, is actually substantially lower than it was a decade ago.

#### NET CLAIMS AGAINST THE FEDERAL GOVERNMENT

We may define the net claims of the nonbank public against the Government as the public's holdings of Government securities plus its holdings of deposits and currency minus its indebtedness to the banking system. A budget deficit will increase the net claims of the nonbank public against the Government by exactly the amount of the deficit; similarly a budget surplus will reduce net claims. If the Treasury sells Government securities to the public to finance a deficit, the public's holdings of Government securities are increased directly, and when the Treasury spends the funds so raised, the public's money holdings are restored to their original level without any change in the public's indebtedness to the banking system. If the deficit is financed by borrowing from the banking system, which creates new deposits in buying the securities, the expenditure of the funds so raised adds to the public's money holdings without changing its indebtedness to the banks. If the banks have to contract private

lending in order to accommodate the Treasury, the money supply is not increased, since the reduction of deposits involved in the contraction of private lending exactly matches the expansion of deposits to accommodate the Treasury; however, net claims are nevertheless increased as a result of the reduction of the public's indebtedness to the banks. If the Treasury finances the deficit by drawing down its existing cash balances, the public's deposits are increased directly and nothing else is changed, thus increasing net claims. If the Treasury borrows from the Federal Reserve, which creates new reserve bank credit by buying the securities, the money supply is increased directly; moreover, in this case bank reserves are increased permitting multiple-credit expansion, although this expansion has no effect on net claims because the expansion of the money supply is balanced by either an increase in the public's indebtedness to the banks or a reduction in the public's holdings of Government securities.

Thus it is apparent that no matter how a budget deficit is financed, it produces an equivalent increase in net claims. Similarly, it can easily be shown that a budget surplus must necessarily reduce net claims. Thus, the main factor determining the change in the nominal value of the stock of net claims during any period is ordinarily the budget. On the other hand, the composition and the market value of the stock of net claims are influenced by a great many factors other than the budget.

#### DEBT MANAGEMENT AND MONETARY POLICY

It is not easy to draw a sharp line of distinction between debt management and monetary policy. One way to define debt management would be to say that it includes all measures that affect the size and composition of the stock of outstanding claims against the Federal Government (including the Federal Reserve System). On this definition, debt management would encompass all cash borrowing, debt retirement, and refunding operations of the Treasury, and also all open market operations of the Federal Reserve System. Under our present arrangements, the only measures left under the heading of monetary policy would be changes in member bank reserve requirements and in the discount rate.

It is possible to define debt management somewhat more narrowly, however, as including all measures which affect the composition of the publicly held debt. Under this definition, measures which affect the size of the publicly held debt are included under the headings of monetary or fiscal policy. Thus, borrowing to finance a budget deficit and the use of a budget surplus to retire debt are regarded as by-products of fiscal policy, while decisions by the Federal Reserve concerning the scale of open market purchases and sales are treated as part of monetary policy. Thus, debt management includes the following kinds of decisions:

1. Decisions concerning the types of securities the Treasury should sell to finance budget deficits (or to build up cash balances).
2. Decisions concerning the types of securities the Treasury should retire out of the proceeds of budget surpluses (or by drawing down existing cash balances).<sup>13</sup>

<sup>13</sup> In practice, the Treasury ordinarily retires securities which are maturing at the time (i.e., securities having a zero maturity). However, there is no reason why this need be the case; cash surpluses could be used to buy up debt of various maturities in the market.

3. Decisions concerning the types of securities the Treasury should issue in refunding operations.

4. Decisions concerning the types of securities the Federal Reserve should buy or sell to effect such changes in member bank reserves as are called for by monetary policy.

5. Decisions concerning such swapping operations—that is, simultaneous purchase of one type of security and sale of another—as the Federal Reserve may engage in.

We shall adhere pretty much to this definition of debt management. Occasionally, however, we shall find it necessary to deal with subjects which are not covered by it, as when we discuss the possibility that the Treasury might at times accumulate or decumulate cash balances and when we take up the relative merits of open market operations and changes in reserve requirements as means by which the Federal Reserve might effect changes in member bank reserves.

#### CHANGES IN THE PUBLIC DEBT SINCE WORLD WAR II

It was pointed out earlier that the gross public debt, which is the most commonly used debt concept, contains important elements of fictitious debt and that exclusive attention to it gives an exaggerated impression of the size of the debt, its tendency to grow continuously, and the problems of managing it. We argued that for most purposes the publicly held debt is the appropriate concept to use, since this is the debt which must find lodgment with private investors and on which the Treasury must pay interest.

In studying problems of debt management, it is important not only to employ the proper debt concept but also to consider the debt in proper perspective—that is, in relation to other relevant economic variables. Accordingly, we shall consider in this section the size of the publicly held Federal debt in relation to gross national product (GNP) and in relation to other kinds of debt, as well as the interest cost of carrying the debt in relation to the national income. We shall also study the behavior of these relationships since World War II and offer some comments on their probable future behavior. In addition, we shall examine in a general way the changes that have occurred in the ownership of the debt and in its composition during the same period.

TABLE I-6.—*Publicly held debt and gross national product, 1947-58*

Calendar year	Gross national product	Publicly held debt at mid-year <sup>1</sup>	Ratio of debt to GNP	Calendar year	Gross national product	Publicly held debt at mid-year <sup>1</sup>	Ratio of debt to GNP
	<i>Billions</i>	<i>Billions</i>	<i>Percent</i>		<i>Billions</i>	<i>Billions</i>	<i>Percent</i>
1947.....	\$234.3	\$203.7	86.9	1953.....	\$365.4	\$193.8	53.0
1948.....	259.4	195.2	75.3	1954.....	363.1	197.0	54.3
1949.....	258.1	195.2	75.6	1955.....	397.5	200.3	50.4
1950.....	284.6	201.3	70.7	1956.....	419.2	195.5	46.6
1951.....	329.0	191.3	58.1	1957.....	442.5	192.0	43.4
1952.....	347.0	192.0	55.3	1958.....	441.7	195.1	44.2

<sup>1</sup> Federal securities held outside U.S. Government agencies and trust funds and the Federal Reserve System.

Source: Department of Commerce and Treasury Department.

*Debt in relation to GNP*

The publicly held debt is much smaller today relative to the gross national product than was the case right after World War II. This is shown in table I-6, which indicates that in 1947, the midyear value of the debt was about 87 percent of the GNP for the year, whereas by 1958 the debt was only about 44 percent of GNP. Except in the 3 recession years 1949, 1954, and 1958, the debt has fallen relative to GNP in each year. The decline has been almost entirely due to the rise in GNP; the publicly held debt at the end of fiscal 1958 was almost exactly the same as it was a decade earlier.

Thus, to the extent that the GNP measures the capacity of the economy to carry the debt, these relations suggest that the debt should set somewhat more easily on our shoulders today than it did a decade ago. However, it should be noted that nearly half of the growth of GNP between 1947 and 1958 is accounted for by rising prices. The GNP for 1958 valued at 1947 prices is estimated at \$331.2 billion.<sup>14</sup> The 1958 debt of \$195.1 billion is 59 percent of this figure. Thus, when GNP is valued at constant prices, the ratio of debt to GNP has fallen only from 87 percent to 59 percent, so that more than a third of the decline in the ratio of debt to income since 1947 is due to the rise in prices.

TABLE I-7.—*Net public and private debt outstanding, 1947-58*

[Billions of dollars]

End of year	Total public and private debt <sup>1</sup>	Publicly held <sup>1</sup>			State and local government	Corporate	Individual and noncorporate	Ratio of Federal to total debt (percent)
		Total Federal	Federal Government	Federal agency				
1947.....	394.8	200.7	200.0	0.7	14.4	108.9	70.8	50.8
1948.....	410.3	183.2	182.2	1.0	16.2	117.8	83.1	47.1
1949.....	429.5	199.7	188.9	.8	18.1	118.0	93.7	46.5
1950.....	469.5	187.9	186.7	1.2	20.7	142.1	108.8	42.2
1951.....	500.2	184.7	183.4	1.3	23.3	162.5	119.7	38.9
1952.....	530.5	198.2	196.9	1.3	25.8	171.0	135.5	37.4
1953.....	560.5	202.2	201.0	1.2	28.6	179.5	150.2	36.1
1954.....	586.9	205.3	204.3	1.0	33.4	182.8	165.4	35.0
1955.....	647.4	206.7	204.3	2.4	38.4	212.1	190.2	31.9
1956.....	682.3	200.5	197.8	2.7	42.7	231.8	207.3	29.4
1957.....	711.8	200.2	195.6	4.6	46.7	243.9	221.0	28.1
1958.....	743.9	206.4	202.3	4.1	50.9	246.9	239.7	27.7

<sup>1</sup> Federal securities held by Government agencies and trust funds and by the Federal Reserve System not included.

NOTE.—Detail may not add to totals due to rounding.

Source: Department of Commerce and Treasury Department.

*Public debt in relation to total debt*

As indicated in table I-7, the publicly held Federal debt has declined substantially during the postwar period in relation to total public and private debt. Federal debt—including debt of Federal agencies—was 51 percent of total net public and private debt in 1947; by 1958 this ratio had fallen to 28 percent. The decline in the ratio was due almost entirely to a tremendous growth of private debt and debt of State and local governments. With prosperity

<sup>14</sup> This estimate is based on data taken from U.S. Income and Output: A Supplement to the Survey of Current Business (Washington: Government Printing Office, 1958), and Survey of Current Business, July 1959.

broken only by three relatively mild and brief recessions, the demand for funds to finance spending by individuals, by businesses, and by State and local governments was very strong during this period, and the result was an unprecedented growth of indebtedness of all kinds.

The heavy demands for funds that have been responsible for the rapid growth of debt have complicated considerably the Treasury's problems in managing the debt, since the Treasury has in its refunding and cash borrowing operations had to compete most of the time with heavy demands for funds on the part of other borrowers. However, if the trend of the postwar period continues, it may presage a considerable lessening of the burdens of debt management on the Treasury. If prosperous conditions continue to predominate, a continued rapid growth of non-Federal debt seems very likely. And if the cash budget is approximately balanced on the average over the years or if surpluses predominate over deficits, the Federal debt will remain approximately constant in size or perhaps even decline.<sup>15</sup> Since Treasury securities have advantages over private debt with respect to liquidity and safety, continued growth of non-Federal relative to Federal debt should in the course of time make it progressively easier for the Treasury to find investors who are willing to hold its securities. This suggests that the difficulties that have been experienced in managing the debt in the last few years may be associated with the process of absorbing into the financial structure the swollen debt inherited from World War II. If healthy growth continues, debt management should become a less serious problem.

Of course, if another war or defense emergency should require a large amount of borrowing, this would accentuate the problem. And, if a run of hard times should necessitate heavy deficits to maintain full employment, with the debt growing from year to year, this would also serve to complicate the problems of debt management at a later time, since it would mean a slowing down of the growth of non-Federal debt and an acceleration of the growth of Federal debt.<sup>16</sup>

### *Interest on the debt*

Table I-8 indicates that net interest paid by the Federal Government has increased from \$4.2 billion in 1947 to \$5.5 billion in 1958, an increase of 33 percent.<sup>17</sup> This increase in the interest burden has occurred in spite of the reduction in the size of the publicly held debt between 1947 and 1958 and is the result of a relatively steady upward trend of interest rates. The rise in interest payments has not kept pace with the growth of national income, and, as a result, net interest payments were only 1.5 percent of national income in 1958, as compared with 2.1 percent in 1947. Interest payments have also grown much less rapidly than most other types of Govern-

<sup>15</sup> If the Federal Reserve buys Government securities in the process of supplying reserves to support the growth of the economy, this will also help to reduce the size of the publicly held debt.

<sup>16</sup> For a discussion of the situation in which the debt grows because continuing deficits are necessary to sustain high-level employment, see E. D. Domar, "The 'Burden of the Debt' and the National Income," *American Economic Review*, XXXIV (December 1944), pp. 798-827, reprinted in E. D. Domar, "Essays in the Theory of Economic Growth" (New York: Oxford University Press, 1957), pp. 35-69.

<sup>17</sup> Net interest payments by the Federal Government as recorded in the national income accounts contain some other Government interest receipts and payments besides those associated with the public debt, although these elements are relatively unimportant. On the composition of this item, see "National Income," a supplement to the Survey of Current Business, 1954 edition (Washington: Government Printing Office, 1954), p. 103, and "U.S. Income and Output," a supplement to the Survey of Current Business (Washington: Government Printing Office, 1958), pp. 94-95.

ment expenditures; in 1947 interest payments were 33.8 percent of total Federal Government expenditures of \$31.1 billion as shown in the national income accounts, whereas in 1958 they were only 6.3 percent of total expenditures of \$87.5 billion. Thus, the interest on the debt, like the debt itself, has fallen relative to other relevant economic magnitudes.

TABLE I-8.—*Net interest paid by the Federal Government in relation to national income, 1947-58*

Calendar year	National income	Net interest paid by Federal Government	Ratio of net interest to national income	Payment by Federal Reserve to Treasury <sup>1</sup>	Computed interest rate on Federal debt <sup>2</sup>
	<i>Millions</i>	<i>Millions</i>	<i>Percent</i>	<i>Millions</i>	<i>Percent</i>
1947	\$198,177	\$4,167	2.1	\$75	2.107
1948	223,487	4,264	1.9	167	2.182
1949	217,690	4,400	2.0	193	2.236
1950	241,876	4,509	1.9	197	2.200
1951	279,313	4,709	1.7	255	2.270
1952	292,155	4,729	1.6	292	2.329
1953	305,573	4,846	1.6	343	2.438
1954	301,794	5,006	1.7	276	2.342
1955	330,206	4,920	1.5	252	2.351
1956	350,836	5,238	1.5	402	2.576
1957	366,503	5,632	1.5	543	2.730
1958	366,183	5,545	1.5	524	2.638

<sup>1</sup> Payments of interest on Federal Reserve notes.

<sup>2</sup> Derived by calculating interest that would be paid if each interest-bearing issue outstanding at end of year should remain outstanding for a year at the applicable interest rate and dividing the interest charge so computed by corresponding principal amount of debt outstanding.

Source: Department of Commerce and Treasury Department.

The payments by the Federal Reserve to the Treasury, which take the form of interest on Federal Reserve notes and which are established at such a level as to channel into the Treasury 90 percent of earnings after deduction of dividend payments and a modest contribution to the System's surplus account, are also shown in table I-8. These payments have increased greatly since 1947 and constitute a significant offset against interest payments by the Treasury. The last column of the table shows the computed interest rate on the debt.

Movements in total interest payments over the business cycle are a result of several forces. For example, in a boom period, rising demands for credit will tend to raise interest rates generally, and this tendency will be accentuated if the central bank follows a restrictive monetary policy. Rising interest rates will tend to increase the interest burden to the extent that refunding of debt is necessary. However, if a restrictive fiscal policy results in budget surpluses which are used for debt retirement, this will tend to reduce the interest burden. Finally, since short-term interest rates usually rise more sharply than long-term interest rates during boom periods and since short-term debt turns over more rapidly than long-term debt, a policy of shifting toward short-term borrowing will tend to raise interest payments. Similar factors are at work in the opposite direction during recessions.<sup>18</sup>

During the period of rising GNP from the second quarter of 1954 to the third quarter of 1957, net interest paid by the Federal Govern-

<sup>18</sup> For a more extended discussion, see ch. IV.



ment (seasonally adjusted annual rate) increased from \$5 billion to \$5.7 billion, an increase of \$700 million. This increase was due to the fact that the cost-increasing effects of generally rising interest rates and of a shift toward shorter term borrowing more than outweighed the effects of debt retirement.

Government interest payments are not included in national income in the national income accounts but are included in personal income.<sup>19</sup> Interest on Federal securities is subject to the Federal income tax. Accordingly, interest payments represent a form of taxable transfer payment, and, as such, an increase in these payments has an expansionary effect on the level of income, employment, and prices. The following expression derived from a simple static expenditure model of the Keynesian type gives an approximation of the effect on the level of income that would be produced by an autonomous increase in Government interest payments:

$$\Delta Y = \frac{c_r(1-t_r)}{1-c_o(1-t_o)} \Delta R,$$

where  $\Delta Y$  is the change in national income or product,  $\Delta R$  is the change in interest payments,  $c_r$  is the marginal propensity to consume (spend) of interest recipients,  $t_r$  is the marginal propensity to be taxed of interest recipients,  $c_o$  is the marginal propensity to consume (spend) of income recipients in general, and  $t_o$  is the marginal propensity to be taxed of income recipients in general. For example, if  $c_r$  is 60 percent,  $t_r$  30 percent,  $c_o$  80 percent, and  $t_o$  25 percent, a rise in the rate at which the Government pays out interest of \$100 per year would eventually, after all repercussions had worked themselves out, raise the level of income by about \$105, that is, the multiplier applicable to such payments would be just slightly larger than one.

Although a multiplier calculated from a simple static model of this kind should not be taken very seriously, it does suggest that the income effects of increased interest payments are not very important. Treasury estimates of the distribution of interest payments included in budget expenditures in fiscal 1958, indicate that of the total payments (other than to Federal Reserve banks and Government investment accounts) of \$5.3 billion, \$1.9 billion went to individuals, \$0.4 billion went to State and local governments, and the remaining \$3 billion went to other types of investors, most of whom are subject to the 52 percent corporation income tax on their investment income.<sup>20</sup> Since holdings of Government securities appear to be somewhat concentrated in the hands of persons of relatively high income, and since a good deal of the income filters through institutions so that it is taxed at both the corporate and personal level, the marginal propensity to be taxed is probably quite high and the marginal propensity to consume quite low for such interest payments. Thus, the static multiplier is probably scarcely equal to one if that large. Moreover, the lags involved in the flow of this income through intermediaries are probably so long that such effects as are felt are likely to be very long delayed. For these reasons, while a rise in Government interest

<sup>19</sup> For an explanation of the treatment of Government interest payments in the national income accounts, see "National Income," a supplement to the Survey of Current Business, 1954 edition, op. cit., p. 54.

<sup>20</sup> See "Public Debt Ceiling and Interest Rate Ceiling on Bonds," hearings before the Committee on Ways and Means, House of Representatives, 86th Cong., 1st sess., June 10, 11, and 12, 1959 (Washington: Government Printing Office, 1959), p. 44.

payments which is induced by a tightening of credit during a period of inflation is itself an inflationary factor, its effects are likely to be so small as to be insignificant.<sup>20a</sup>

The fact that Government interest payments are probably, in general, subject to rather high marginal tax rates also means that a significant portion of the potential drain on the budget produced by a rise in such payments is offset by increased tax collections. Thus, if the marginal tax rate is in the neighborhood of 40 percent, a rise of \$700 million per year in interest payments such as occurred in the 1954-57 period would have a net budgetary impact of perhaps \$400 million to \$450 million.

To summarize, (1) interest payments are only about 1.5 percent of national income, (2) increases in such payments have rather weak effects on the level of income, and (3) the budgetary impact of such increases is considerably weakened by the fact that they are subject to relatively high marginal tax rates. Nevertheless, interest costs on the public debt do represent a sizable sum and are a matter for some concern. And since the administrative budget is frequently used as a tool of fiscal policy, for some purposes the interest included in this budget (which includes interest payments to Government agencies and trust funds) is the important thing. For fiscal 1960, interest payments in the administrative budget are estimated at \$9 billion, more than 11 percent of total budget expenditures, nearly three times the estimated expenditures of the Department of Health, Education, and Welfare, and nearly 40 percent larger than those of the Department of Agriculture. With the present emphasis on balancing the budget without raising taxes, a rise in the interest burden tends to cut into other badly needed types of Federal expenditures. Thus, there is good reason for trying to avoid unnecessarily heavy interest costs on the public debt. That is, unless the increased interest payments serve some useful economic function, we should try to reduce them.

<sup>20a</sup> In addition to the income effect of increased Government interest payments, rising interest rates may have further inflationary effects to the extent that industries which experience increases in interest costs pass these increases through into prices. However, this effect is also likely to be rather weak, because interest commonly is not an important element of cost.

TABLE I-9.—Ownership of the publicly held Federal debt, fiscal years 1946-59

[Billions of dollars]

Fiscal year	Total Publicly held debt	Held by								Miscellaneous investors <sup>2</sup>
		Commercial banks	Mutual savings banks	Insurance companies	Other corporations	State and local governments	Individuals <sup>1</sup>			
							Total	Savings bonds	Other securities	
1946.....	217.0	84.4	11.5	24.9	17.8	6.5	63.3	43.5	19.9	8.6
1947.....	203.7	70.0	12.1	24.6	13.7	7.1	66.6	45.5	21.1	9.6
1948.....	195.2	64.6	12.0	22.8	13.6	7.8	65.8	47.1	18.6	8.7
1949.....	195.2	63.0	11.6	20.5	15.8	8.0	66.6	48.8	17.8	9.6
1950.....	201.3	65.6	11.6	19.8	18.4	8.7	67.4	49.9	17.6	9.7
1951.....	191.3	58.4	10.2	17.1	20.1	9.4	65.4	49.1	16.3	10.7
1952.....	192.0	61.1	9.6	15.7	18.8	10.4	64.8	49.0	15.7	11.6
1953.....	193.8	58.8	9.5	16.0	18.6	12.0	66.1	49.3	16.9	12.8
1954.....	197.0	63.6	9.1	15.3	16.6	13.9	64.8	49.5	15.3	13.7
1955.....	200.3	63.5	8.7	14.8	18.8	14.7	65.3	50.2	15.1	14.4
1956.....	195.5	57.3	8.4	13.3	17.7	15.7	66.9	50.3	16.6	16.3
1957.....	192.0	56.2	7.9	12.3	16.1	16.9	66.7	49.1	17.7	16.0
1958.....	195.1	65.3	7.4	11.7	13.9	16.9	64.7	48.0	16.7	15.2
1959.....	204.2	61.3	7.3	12.0	20.0	18.3	65.8	47.0	18.7	19.4
Changes:										
1946-59.....	-12.8	-23.1	-4.2	-12.9	2.2	11.8	2.5	3.5	-1.2	10.8
1948-58.....	-0.1	0.7	-4.6	-11.1	0.3	9.1	-1.1	0.9	-1.9	6.5

<sup>1</sup> Includes partnerships and personal trust accounts.<sup>2</sup> Includes savings and loan associations, nonprofit institutions, corporate pension trust funds, dealers and brokers, and investments of foreign balances and international accounts in this country. Beginning in 1947, includes investments by the International Bank for Reconstruction and Development and the International Monetary Fund in special noninterest-bearing notes.NOTE.—Detail may not add to totals due to rounding.  
Source: Treasury Department.

### Changes in ownership of the debt

Table I-9 shows the pattern of ownership of the publicly held Federal debt, as estimated by the Treasury, at the end of each fiscal year since 1946. Although debt ownership changes continually and some features of the pattern of change are obscured by taking only one observation each year, the main changes in the distribution of securities among investor classes are brought out by the table.

For convenience, let us consider the decade from mid-1948 to mid-1958. The total publicly held debt was almost exactly the same at the end of that decade as at the beginning. The investor groups shown in table I-9 can be divided into three categories—those whose holdings have been declining steadily, those whose holdings have been increasing steadily, and those whose holdings have exhibited substantial fluctuations. Let us consider each of these groups in turn.<sup>21</sup>

1. *Investors whose holdings have declined steadily.*—This category includes insurance companies and mutual savings banks. Both of these groups have reduced the size of their portfolios of Treasury securities in almost every year since the war, the total reduction during the decade 1948-58 being \$11.1 billion for insurance companies and \$4.6 billion for mutual savings banks. As a result of the prosperous conditions and heavy savings of the war period, these institutions grew rapidly during the war, and, due to the limited private demand for funds as well as pressures to assist the Treasury in war financing, most of the inflow of funds was invested in Government securities.

<sup>21</sup> For an excellent discussion of the investment practices of various types of investors as they relate to Treasury securities, see T. C. Gaines, "Techniques of Treasury Debt Management" (unpublished Ph. D. dissertation, Columbia University, 1959), chs. VII and VIII.

At the end of 1947, 39 percent of the assets of life insurance companies were in the form of Government securities, and mutual savings banks held governments to the extent of 64 percent of their total loans and investments. In response to the heavy private demands for funds which have characterized the postwar period, both of these types of institutions have steadily liquidated Government securities in order to shift their funds into more lucrative private investments—chiefly mortgages in the case of mutual savings banks and corporate bonds and mortgages in the case of life insurance companies. As a result of the liquidations, together with a rapid growth of these institutions, Government securities made up, by mid-1958, only 6.8 percent of total assets of life insurance companies, while mutual savings banks had reduced their holdings of governments to 21 percent of total loans and investments.

Liquidation of governments by these institutions has not shown any particularly strong tendency to speed up during periods of tight credit. The rate of liquidation appears to have slowed down somewhat as total portfolios have become smaller. Nevertheless, in the case of life insurance companies particularly, further liquidation of governments seems quite possible, in view of the fact that, following a substantial buildup of holdings during World War I, life insurance company investments in Government securities were reduced to less than 2 percent of total assets by 1930.<sup>22</sup>

2. *Investors whose holdings have increased steadily.*—As can be seen from table I-9, State and local governments and miscellaneous investors fall in this category. During the decade 1948-58, the net increase in holdings of Government securities by State and local governments was \$9.1 billion, and they held a total of \$16.9 billion at the end of the period. Part of this represents investment of pension funds for State and local government employees, and the remainder probably reflects temporary investment of excess working cash balances, the proceeds of bond issues awaiting expenditure, etc.<sup>23</sup> Legal restrictions, which in the past have required the investment of most pension funds in Government securities, have been modified by many States, and while holdings of governments by these funds continue to increase absolutely, their share in total assets of the funds is declining.<sup>24</sup>

Among the investors included in the miscellaneous group, savings and loan associations have regularly added to their investments in Government securities, their holdings (at book value) having increased from \$1.7 billion at the end of 1947 to \$3.4 billion at mid-1958. During this period total assets of savings and loan associations increased by nearly 350 percent, from \$11.7 billion to \$51.4 billion. As a result of this rapid growth, their holdings of Government securities, while increasing absolutely, declined as a proportion of total assets from 14.9 to 6.6 percent.

Corporate pension trust funds appear to have maintained their investment in Government securities approximately constant in recent years. However, they have grown rapidly, and most of the current inflow of funds has been invested in corporate securities,

<sup>22</sup> "Life Insurance Fact Book, 1959" (New York: Institute of Life Insurance, 1959), p. 66.

<sup>23</sup> Gaines, *op. cit.*, pp. 358-363 and 368-370.

<sup>24</sup> *Ibid.*, pp. 358-363.

including equities, and Government security holdings have consequently been declining as a percent of total portfolio.<sup>25</sup>

Investments in Government securities by foreign accounts and international agencies totaled \$9.9 billion as of mid-1959 and have increased substantially in recent years as foreign countries have been building up their dollar reserves.<sup>26</sup> Although no satisfactory data on positions of dealers in Government securities for any extended period are available, it seems likely that these positions fluctuate over a considerable range depending upon interest rate expectations but that they have grown in recent years with the increased volume of trading in Government securities.<sup>27</sup>

3. *Investors whose holdings have fluctuated substantially.*—Table I-9 indicates that investment in Government securities by commercial banks and nonfinancial corporations showed only a small net change over the decade 1948-58 but that holdings of these two groups underwent substantial fluctuations from year to year. Holdings of securities other than savings bonds by individual investors have also shown rather large year-to-year fluctuations at times.

As flexible monetary policy has come to be used with increasing vigor, changes in portfolios of Government securities of commercial banks and nonfinancial corporations have taken on a fairly distinct cyclical pattern. Commercial banks increase their holdings in periods of easy money when reserves are ample and loan demand light. Thus, they built up their portfolios of Government securities substantially during the fiscal years 1954 and 1958, when recessions and easy money prevailed. Then in 1955-57 they liquidated governments to meet a rising loan demand in the face of a restrictive Federal Reserve policy. Corporations, on the other hand, tend to build up their holdings in the early phases of boom periods, as they did in fiscal 1955 and fiscal 1959, as profits and tax accruals rise ahead of investments in inventories and fixed capital, thus resulting in increasing liquid reserves that are available for investment in governments. Then, in the latter stages of the boom when real investment picks up and credit gets tight, as in 1956-58, they sell off governments in order to obtain funds for spending.

Holdings of governments by individual investors showed no net change over the decade 1948-58, as indicated in table I-9. Holdings of savings bonds increased rather steadily during the postwar period up to 1956 and have since been declining. This decline has probably been due mainly to the increases that have occurred in rates of return available on savings deposits and savings and loan shares, which are very close substitutes for savings bonds.<sup>28</sup> Individual investors' holdings of Government securities other than savings bonds—chiefly marketable issues—have shown fairly substantial year-to-year fluctuations but no discernible trend since the war. During the fiscal years 1956 and 1957 when, as we have seen, commercial banks were selling governments to obtain funds for lending, individual investors increased their holdings of marketable issues by some \$2.6 billion.

<sup>25</sup> *Ibid.*, pp. 356-358.

<sup>26</sup> On June 30, 1959, foreign holdings consisted of \$8.2 billion of bills and certificates and \$1.2 billion of bonds and notes. This indicates that foreign accounts hold chiefly short-term securities. On June 30, 1953, total foreign holdings were \$5.7 billion; thus they showed an increase of \$4.2 billion in the 6-year period ending in mid-1959. However, the changes were rather uneven: Holdings rose to \$7.9 billion at mid-1956, fell to \$6.4 billion at mid-1958, then rose very sharply (by \$3.5 billion) in the ensuing year. (Data from various issues of the Treasury Bulletin.)

<sup>27</sup> For a further discussion of dealer positions, see ch. V.

<sup>28</sup> See the discussion of the savings bond program in ch. III.

*Conclusions* —The changes that have occurred in the ownership of the publicly-held Federal debt in the postwar period are related to the changes in the maturity structure of the debt which are discussed in the next section of this chapter. The investor groups whose holdings of Treasury securities have been steadily declining (insurance companies and mutual savings banks) were the largest holders of long-term securities at the end of the war. On the other hand, the investor groups whose holdings have been increasing (State and local governments, savings and loan associations, and foreign accounts and international agencies), and those whose portfolios of governments, though fluctuating substantially, have remained relatively large (commercial banks and nonfinancial corporations) are interested chiefly in short- and intermediate-term securities as a temporary resting place for excess cash balances or as liquid assets to contribute flexibility to their portfolios.

The relation between the changes in ownership and the changes in maturity structure is not a simple one, however. In part, the shift in ownership of the debt from those who might be interested in it as a long-term investment (such as life insurance companies) to those who are interested in governments as liquid assets (such as nonfinancial corporations and State and local governments) may be due to the failure of the Treasury to work hard enough at the sale of long-term bonds. That is, the shortening of maturities that has been permitted to take place has made the debt unattractive to long-term investors and attractive to those who want liquid assets.<sup>29</sup> On the other hand, to some extent at least, the shifting interest of investors is responsible for the changes that have taken place in the maturity structure. It should be borne in mind that under the policy of Federal Reserve support of long-term Treasury securities that prevailed during the war and immediate postwar period, long-term Government securities were highly liquid assets and were probably regarded as such by life insurance companies and mutual savings banks who invested heavily in them during the war under the pressure of patriotic motives and for lack of any other place to put their funds. In the face of the heavy demands for private funds that developed during the postwar period, it would certainly have required very aggressive debt management policies on the part of the Treasury and considerably higher yields on Treasury securities to have maintained this market.

#### *Changes in maturity structure of the debt*

Table I-10 gives the composition of the debt by types and maturities of securities at the end of each fiscal year since 1946. Considering again the decade 1948-58, we find that the amount of marketable debt changed only slightly over this period, and that the issuance of convertible bonds approximately offset the decline in nonmarketable debt.<sup>30</sup>

<sup>29</sup> Gaines, *op. cit.*, pp. 301-309.

<sup>30</sup> The convertible bonds consist of a single issue, the investment series B 2½-percent bonds of 1975-80, of which \$13.6 billion was issued in an optional conversion offering to holders of 2 issues of marketable long-term bonds at the time of the Treasury-Federal Reserve accord in the spring of 1951. Although not marketable, the bonds can be exchanged at the investor's option for a marketable 5-year, 1½-percent note. By June 30, 1959, nearly \$6 billion of the bonds had been converted, leaving \$7.7 billion outstanding, of which \$2.7 billion was held by Government agencies and trust funds and the remaining \$5 billion by the public.

TABLE I-10.—Composition of the publicly held Federal debt, fiscal years 1946-59

[Billions of dollars]

End of fiscal year	Total publicly held debt	Marketable debt			Marketable debt		Convertible bonds <sup>1</sup>	Nonmarketable and miscellaneous debt <sup>2</sup>
		Total	Due within 1 year	Due in 1 to 5 years	Due in 5 to 10 years	Due after 10 years		
1946.....	217.0	158.9	39.2	33.8	32.0	53.9	58.1	
1947.....	203.7	141.4	31.2	41.4	18.5	50.3	62.3	
1948.....	195.2	133.6	34.4	43.2	9.6	46.2	61.6	
1949.....	195.2	130.4	39.9	36.8	13.9	39.6	64.8	
1950.....	201.3	131.6	32.5	46.4	14.4	38.2	69.7	
1951.....	191.3	114.4	46.7	27.0	14.6	26.0	68.9	
1952.....	192.0	115.2	33.3	37.7	14.0	30.0	67.9	
1953.....	193.8	119.1	48.9	25.7	16.9	27.6	65.8	
1954.....	197.0	121.8	43.7	21.4	29.0	27.6	66.8	
1955.....	200.3	127.9	32.2	34.2	32.2	29.3	64.2	
1956.....	195.5	126.3	37.5	30.4	29.9	28.5	7.8	
1957.....	192.0	127.2	49.6	37.3	13.7	26.6	7.2	
1958.....	195.1	134.6	43.9	38.5	22.0	30.2	6.1	
1959.....	204.2	145.0	51.3	51.3	16.7	25.7	54.2	
Changes:								
1946-59.....	-12.8	-13.9	12.1	17.5	-15.3	-28.2	-3.9	
1948-58.....	-0.1	1.0	9.5	-4.7	12.4	-16.0	-7.2	

<sup>1</sup> 234-percent investment series B convertible bonds of 1975-80.<sup>2</sup> Nonmarketable debt includes savings bonds, Series A investment bonds, depository bonds, Armed Forces leave bonds, and adjusted service bonds. Item also includes guaranteed securities and non-interest-bearing debt.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department and Federal Reserve System.

The chief questions of debt management concern the changes in the maturity structure of the marketable debt. The changes in maturity structure are much more difficult to categorize in a simple way than are the changes in ownership discussed in the last section. This is because the maturity structure is subject to a number of influences that are capable of making it change rather sharply at times. If we observe the behavior of the average maturity of the debt, computed by weighting each issue according to its importance in the total debt, we find that the average is continually tending to shorten due to the passage of time. On the other hand, every refunding operation tends to lengthen the average at least a little, since every maturing issue necessarily has a maturity of zero. One substantial refunding operation involving moderately long-term securities can raise the average rather substantially.<sup>31</sup> Sales of securities for cash will shorten or lengthen the average maturity according to whether the new securities have a maturity shorter or longer than the existing average. In any case, there is real doubt whether the maturity structure of the debt can be satisfactorily expressed by the use of a single number such as the average maturity. On the other hand, when discrete maturity categories are used to depict the maturity structure, as in table I-10 and chart I-1, erratic changes can take place as an existing issue changes suddenly from one category to another due to the passage of time.

<sup>31</sup> For example, if the marketable debt were \$150 billion with an average maturity of 4 years, the issuance of \$2 billion of 30-year bonds in a refunding operation would raise the average maturity by 4.8 months, a 10 percent increase.

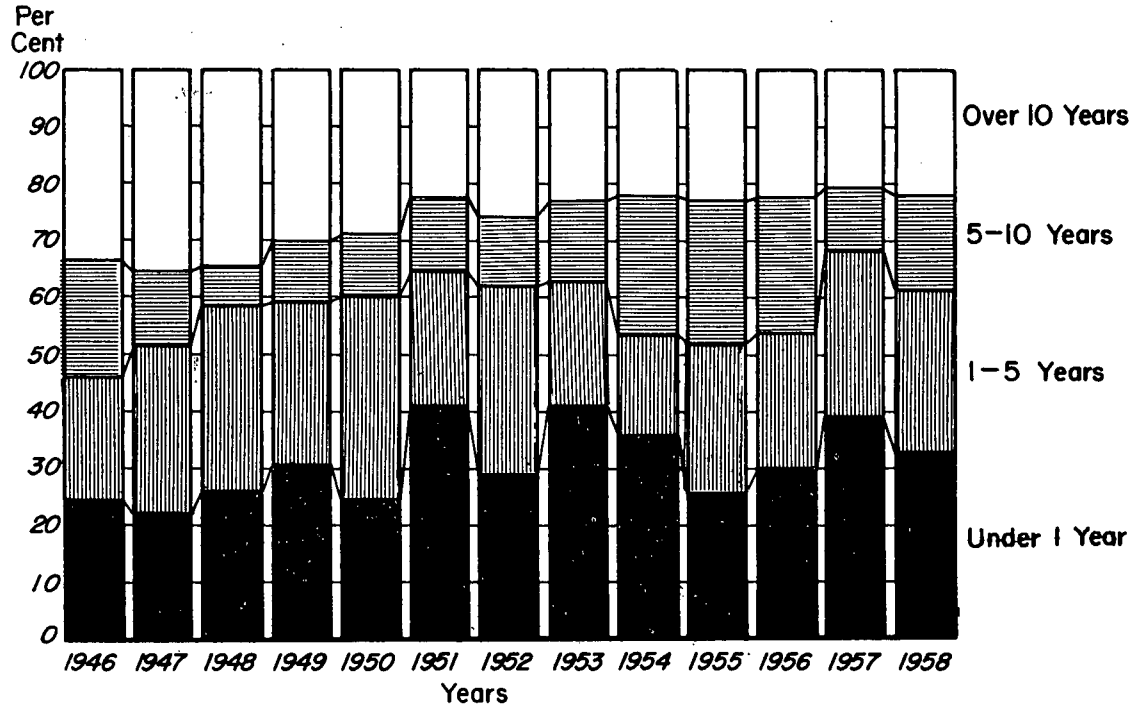


Chart I-1. Percentage distribution of publicly-held marketable debt, fiscal years 1946-1958

Source: Treasury Department



Nevertheless, it is quite apparent from chart I-1, which shows the percentage distribution of the marketable debt by maturity classifications, that there has been a gradual shortening of maturities since the war. The portion of the debt in the over-10-year category has been declining, while the portion in the under-1-year category has been increasing. However, there have also been fairly systematic changes associated with the business cycle, particularly during the period since flexible monetary policy was inaugurated with the Treasury-Federal Reserve accord of March 1951. In particular, some debt lengthening occurred during the period when credit conditions were relatively easy in the fiscal years 1954 and 1955. During the period of credit stringency of 1956-57, on the other hand, the debt shortened materially, while in 1958, when credit conditions were again relatively easy, some lengthening occurred. In other words, in recessions when credit has been easy the Treasury has taken advantage of the opportunity to sell longer term securities, while in boom periods, when the long-term market has been congested with private issues, the Treasury has been forced—or persuaded—to rely on short-term financing. However, under the generally buoyant economic conditions of the last few years, the booms have considerably overbalanced the recessions in both length and intensity, and there has been a secular drift toward a shortened maturity structure. The economic significance of this tendency will be discussed later.

#### APPENDIX TO CHAPTER I

##### THE ECONOMIC SIGNIFICANCE OF THE TRUST FUNDS

It was suggested above that the portion of the debt held by Government agencies and trust funds is "fictitious" debt which should be eliminated for purposes of the study of the economic problems of debt management. Having taken this position, we should give brief attention to the role of trust funds in Government finance.

There are now roughly a dozen trust funds operated by the Federal Government, and in the fiscal year 1959, their total current receipts (insurance contributions and interest earnings) were \$17.1 billion, and their total current expenditures were \$18.5 billion. The largest and most important of the funds are the old-age and survivors insurance trust fund, the unemployment trust fund, Government employees' retirement funds, the national service life insurance fund, the railroad retirement account, and the Federal disability insurance trust fund. For purposes of analysis, we shall take the largest single fund, the old-age and survivors insurance trust fund, which as of June 30, 1958, had total assets of \$22.8 billion, of which \$21.8 billion was in the form of Government securities.

Under the present method of financing the old-age and survivors insurance program, funds to finance benefits payable under the program come from contributions paid by employers and employees and from interest earned on Government securities held in the trust funds. If receipts from these sources are insufficient to pay the benefits required, the trust fund sells a portion of its holdings of Government securities to raise additional funds, or if, as has in fact usually been the case up to the present time, the contribution receipts and interest earnings are more than sufficient to cover benefit payments, the excess is invested in Government securities. These securities may be special securities issued directly to the trust fund by the Treasury or they may be regular marketable issues which the trust fund buys in the market.

In principle, the financing provisions are designed to place the system in "actuarial balance" in the sense that as the program matures, receipts from current contributions, together with interest earnings on accumulated investments in

Government securities are supposed approximately to cover benefit payments.<sup>1</sup> Cost estimates, particularly for the long-range future, are subject to considerable uncertainty, since they depend upon trends in such factors as fertility, mortality, retirement practices, and family size and composition. The cost estimates developed therefore take the form of ranges, and in practice, actuarial balance is said to be achieved if contribution rates are established at levels such that if future costs follow the average of the high- and low-cost estimates, contribution and interest income can be expected to meet the costs of the program as they fall due from the present into the long-range future.<sup>2</sup>

There has been much discussion concerning the significance of the trust fund in the financing of social security. Actually, the trust fund per se is a matter of very little consequence. When contributions plus interest receipts exceed benefit payments, the excess is either paid back into the Treasury in exchange for more securities or is used to buy up Treasury securities in the market. The interest rate paid on the securities held in the fund is completely arbitrary and meaningless, since if we assume that other Government receipts and expenditures are unaffected by the arrangements for financing social security, a higher interest rate means that the fund can accumulate more securities but the Treasury itself, as a result of the higher interest payments, will be able to retire less debt (or will have to borrow more in the market) than would have been the case had the interest rate paid to the fund been lower. For instance, if other Government receipts and expenditures are in balance and contribution rates are not high enough to cover benefits, the Government as a whole must borrow the difference. The interest rate paid by the Treasury on securities held in the trust fund merely determines the way in which the necessary borrowing will be divided between the Treasury proper and the trust fund. Similarly, if contributions exceed benefits, the interest rate paid merely determines how the resulting amount of potential debt retirement will be divided between the Treasury proper and the trust fund.<sup>3</sup>

As far as the impact of the social security system on the economy is concerned, the important thing is the way in which the existence of the system alters the monetary-fiscal policy of the Government as a whole. If, for example, the system is operating at a surplus, as it has most of the time up to now, the economic effects of this surplus are largely eliminated if the inflow of net receipts from the social security system is used to reduce other types of taxes or to increase other expenditures.<sup>4</sup> On the other hand, if other taxes and expenditures are left as they would have been in the absence of the system and the funds are used to retire privately held Government debt, the financing may have an economic impact. The reason is that, in this case, the Government has a larger surplus (or smaller deficit) in its total operations than it would have had in the absence of the social security system, and through the additional debt retirement, the amount of funds supplied to the capital market by the Government is increased (or the net amount of funds taken from the market by the Government is reduced). The volume of saving in the economy is increased, and if measures are taken to see to it that private investment (or, for that matter, productive Government investment in schools, highways, and so on) is correspondingly expanded, the rate of growth of the economy is increased. Since in an economy characterized by price rigidities and liquidity preference, the flow of additional saving into additional

<sup>1</sup> It may be noted that this principle of actuarial balance as it has been applied to the old-age and survivors insurance system differs substantially from the principle of actuarial soundness applicable to a private insurance program. A private insurance company, if it is to be sound, must have sufficient assets on hand so that if its operations are terminated it can meet all of its liabilities. However, in the case of a social insurance system, it can be assumed that the program will continue and that there will accordingly continue to be an inflow of funds from current contributions. Thus, the system is said to be in actuarial balance if receipts from contributions, together with interest earnings on accumulated assets are sufficient over the long run to cover the benefits and administrative expenses associated with the program. For a fuller explanation, see "Financing Old-Age, Survivors, and Disability Insurance," A Report of the Advisory Council on Social Security Financing (Washington: Government Printing Office, 1959) and "Actuarial Cost Estimates and Summary of Provisions of the Old-Age, Survivors, and Disability Insurance System as Modified by the Social Security Amendments of 1958" (Washington: Government Printing Office, 1958).

<sup>2</sup> On this basis, recent projections indicate that the old-age, survivors, and disability insurance system is approximately in actuarial balance at the present time. See "Actuarial Cost Estimates and Summary of Provisions of the Old-Age, Survivors, and Disability Insurance System as Modified by the Social Security Amendments of 1958," op. cit. It may be noted that the estimates are based upon the assumption that the present benefit scale will continue to prevail in the future, to counterbalance this assumption, it is assumed that average annual earnings will remain at their current level. If benefits are in fact adjusted upward in step with increases in earnings (and therefore contribution receipts) the two adjustments will approximately offset each other.

<sup>3</sup> When the matter is viewed in this way, the concept of "actuarial balance" referred to above is seen to be quite meaningless, since with any set of contribution rates and benefit provisions a balance of this kind can be achieved by choosing an appropriate rate of interest.

<sup>4</sup> This statement must be qualified if the expenditures that are increased are in the nature of Government investment—such as schools, highways, etc.—which increase the future productive capacity of the economy.

real private investment is not automatic, it may be necessary to follow an easier monetary policy in order to assure the proper adjustments—otherwise, the increased saving through the Government may result in unemployment and underutilization of capacity rather than more investment.

Since the real goods and services necessary for the support of the aged in any generation must be produced at the time these people are being supported, the only way that advance provision can be made for their support is by taking measures to increase investment so that real economic capacity is built up above what it would otherwise have been. The present generation can pay during its working lifetime for its future social security benefits, if through the application of higher taxes (or by other means, conceivably) its consumption is reduced, total savings increased, and through the application of proper overall policies this additional saving is channeled into investment, so that when this generation retires, there will be a larger economic capacity from which to produce goods to meet its needs during retirement.<sup>5</sup>

Thus, the only way we can make advance provision for future burdens of supporting the aged is to take measures to stimulate a higher level of real investment—which may be done, at least within limits by following a generally tighter fiscal policy, with higher taxes and/or lower expenditures than would otherwise have been adopted, together with an easier monetary policy. It makes no difference whether there is a trust fund or not; nor does it matter for the present purpose whether the taxes employed are payroll taxes or some other kind of taxes. What really matters is the additional volume of saving that is generated—including both saving through the Government budget and private saving—and the adoption of appropriate ancillary measures to see that this saving is balanced by an appropriate amount of investment spending.

There may be some merit in having, in some sense, a separate budget for operations of the social security type which impose a measurable future burden upon the Nation for which we want to make advance provision through an increase in the rate of growth of capacity. This may help to assure that we will, in fact, have larger budget surpluses or smaller budget deficits than would otherwise be the case. However, a meaningful separation is possible only if we assume that monetary policy and fiscal policy are good substitutes for stabilization purposes, particularly for the purpose of stimulating recovery from recessions.

In any case, the important point for our present purposes is that Government securities held in the trust funds are really fictitious debt. It is not necessary to find lodgment for this part of the debt in the private sector of the economy, changes in its composition do not affect economic behavior, and interest paid on it is fictitious transfer of funds within the Government itself which imposes no burden on taxpayers.

<sup>5</sup> Thus, it is the amount of additional real capital accumulated (rather than the stock of financial assets) that is significant in assessing the extent to which advance provision is made for covering the future burdens that will be imposed on the economy. Similarly, in principle at least, it is the expected marginal net social productivity of capital (rather than some arbitrary financial interest rate) which should be used in carrying out the necessary compounding.

## CHAPTER II

### PRESENT DEBT MANAGEMENT TECHNIQUES

This chapter describes the methods or techniques that are currently (mid-1959) being used by the Treasury in managing the public debt, together with some aspects of the market for Government securities which have significance for debt management.

#### REGULAR BILL FINANCING

Treasury bills may have a maturity not exceeding 1 year and are issued on a discount basis. When bills are to be sold, the Treasury announces the offering and invites tenders under competitive bidding. The bills pay the holder face value without interest at maturity, and the return on his investment is simply the difference between the original purchase price and the maturity value. Bids are collected through the Federal Reserve banks, and the Treasury accept bids, starting with the highest price (lowest yield) and going down the scale as far as is necessary to obtain the desired amount of funds.<sup>1</sup> Thus, bills are sold through the use of an auction technique.<sup>2</sup>

For many years until recently, the Treasury issued regular bills of only 3-month (usually 91-day) maturity.<sup>3</sup> There were 13 issues of 3-month bills outstanding at all times, with one issue maturing each week and being replaced by a new issue. If the Treasury wished to raise new money or retire bills, it might increase or decrease the size of the weekly bill offerings, but essentially the 3-month bills were "rolled over" every 13 weeks, i.e., there was a 13-week "bill cycle."

The weekly bill auctions interfere very little with the freedom of action of the Federal Reserve System, even during periods when a restrictive monetary policy is being applied, and the bill has proven to be an efficient and economical instrument of Treasury financing. Accordingly, the Treasury has recently been extending its use of the bill. Beginning in December 1958, it introduced a new 26-week "cycle" of 6-month (usually 182-day) bills. It now sells at auction each week one issue of 91-day bills and one issue of 182-day bills.<sup>4</sup> The first "round" of the 26-week cycle was completed in June 1959. At the present time, therefore, there are outstanding at all times 26 evenly spaced bill issues, one maturing each week for 26 weeks into the future.<sup>5</sup> Up to now (mid-1959), the 13-week issues have been

<sup>1</sup> Provision is made for noncompetitive tenders (usually for \$200,000 or less) from small investors. These bids do not specify a price and are accepted in full at the average price of the accepted bids. Noncompetitive bids commonly account for 20 to 30 percent of the bills sold.

<sup>2</sup> It may be noted that the Internal Revenue Code provides that Treasury bills shall not be regarded as capital assets, so that the difference between the original purchase price and the sale price (if sold before maturity) or maturity value is an ordinary gain or loss, not a capital gain or loss, for tax purposes.

<sup>3</sup> In addition to the regular bills, tax anticipation bills were—and are—also used. These are discussed in the next section.

<sup>4</sup> The auction is held on Monday of each week (after a preliminary announcement of the offering on the preceding Thursday), and the bills are issued on the following Thursday to replace bills maturing at that time.

<sup>5</sup> The issues of 13- and 26 week bills are synchronized so that each Thursday when a new 13-week (91-day) bill is issued, there is an issue of 26-week (182-day) bills that has been outstanding for exactly 13 weeks and has 13 more weeks to run. From then until they mature 13 weeks later, these two issues are identical and are treated as a single issue. Thus, there are 26 (rather than 39) issues outstanding at all times.

considerably larger than the 26-week issues, the former averaging \$1.0 to \$1.2 billion and the latter \$0.4 or \$0.5 billion.<sup>6</sup>

TABLE II-1.—Regular Treasury bills outstanding July 31, 1959

Number of issues	Maturity range (weeks)	Maturity date	Amount outstanding (in billions of dollars)
13.....	1-13	-----	19.4
13.....	14-26	-----	5.6
1.....	-----	Jan. 15, 1960	2.0
1.....	-----	Apr. 15, 1960	2.0
1.....	-----	July 15, 1960	2.0
29.....	-----	-----	31.0

Source: Treasury Department.

The Treasury has also taken further steps to expand its use of the Treasury bill. In March 1959, it auctioned \$2 billion of 289-day bills to mature on January 15, 1960; in May it auctioned \$2 billion of 340-day bills to mature on April 15, 1960; and in July it auctioned \$2 billion of 1-year bills to mature on July 15, 1960. Thus, it is now in the process of establishing an annual cycle of four issues of 1-year bills which will mature each year at quarterly intervals in the months of January, April, July, and October. At the end of July 1959, the total amount of regular bills outstanding was \$31 billion; table II-1 shows the structure of outstanding bill offerings at that time.

The auction technique that is used in selling bills has some apparent advantages over the fixed-price method that is employed in selling other kinds of Treasury securities. For example, the auction technique minimizes interference with the freedom of action of the Federal Reserve and may result in lower interest cost to the Treasury.<sup>7</sup> Accordingly, some observers have suggested that it might be desirable for the Treasury to extend the use of the auction technique to the marketing of longer term issues. The probable advantages and disadvantages of such an innovation will be discussed at length in a later chapter.<sup>8</sup>

#### TAX ANTICIPATION FINANCING

Tax anticipation issues are used to smooth out the uneven flow of tax revenues. Under present arrangements for the payment of taxes, Treasury's tax receipts tend to be heavily concentrated in the second half of the fiscal year (especially in the months of March and June),

<sup>6</sup> During the first cycle from December 1958, to June 1959, while the new bills were being introduced, the Treasury took advantage of the opportunity to raise \$1.6 billion of new money by expanding its total bill issues.

<sup>7</sup> The saving in interest cost could arise from the fact that, under the auction method, the Treasury acts as a discriminating monopolist, selling each block of securities at the highest price (presumably) that the particular investor is willing to pay for it.

<sup>8</sup> See ch. VI.

whereas expenditures are spread much more evenly over time.<sup>9</sup> Thus, even if the cash budget is balanced or shows a moderate surplus for the fiscal year as a whole, there is likely to be a substantial deficit in the first half of the fiscal year (the July-to-December period).<sup>10</sup>

TABLE II-2. *Sales and redemptions of tax anticipation bills and certificates, fiscal years 1953-59*

[Billions of dollars]

Fiscal year	Issued			Redeemed			Net change in bills and certificates outstanding
	Total	Bills	Certificates	Total	Bills	Certificates	
1953—1st half	0.8	0.8					0.8
2d half	5.9		5.9	0.8	0.8		5.1
1954—1st half	2.6	2.6		3.5	2.6	5.9	-5.9
2d half	3.7		3.7				3.7
1955—1st half	3.2		3.2	6.9		6.9	-3.7
2d half	8.2	1.5	6.7				8.2
1956—1st half				8.2	1.5	6.7	-8.2
2d half	5.5	1.0	4.5				5.5
1957—1st half	4.9	4.9		8.9	4.4	4.5	-4.0
2d half	3.0	3.0		1.5	1.5		1.5
1958—1st half				3.0	3.0		-3.0
2d half	6.6	3.0	3.6				6.6
1959—1st half	3.0	3.0		6.6	3.0	3.6	-3.6

Source: Treasury Department.

These seasonal discrepancies between cash receipts and expenditures create the need for a substantial amount of temporary borrowing, as indicated in table II-2. In large part, this borrowing takes the form of the sale of securities in the first half of the fiscal year (the July-December period), with the securities maturing around the time when heavy taxpayments are due in March and June of the following calendar year.

Until fairly recently, the bulk of the tax anticipation borrowing was accomplished through the issuance of certificates of indebtedness, as indicated in table II-2, although bills were used to some extent.<sup>11</sup> Certificates bear a specified coupon rate of interest and are sold on a fixed-price basis, whereas bills, as indicated in the previous section, are sold at auction. Prior to the recent successful experience with an extended use of the auction technique in the sale of regular bills, there was often considerable hesitancy about using tax anticipation bills when there was need to raise relatively large sums on rather extended

<sup>9</sup> The timing of corporation income tax payments has been gradually shifting since 1950, passing through two 5-year phases in the process. In 1950, a corporation whose fiscal year corresponded with the calendar year paid its taxes in four equal quarterly installments in March, June, September, and December of the following year. During the next 5 years, the portions payable in March and June were each increased by 5 percent each year and those payable in September and December correspondingly reduced, so that by 1955 the tax was payable 50 percent in March and 50 percent in June. Then in 1956, 5 percent of the tax became payable in September and 5 percent in December of the current year, the installments payable in March and June of the next year being correspondingly reduced. Each year since 1955 the payments due in September and December have been increased by 5 percent and those due in March and June of the following year reduced by 5 percent. In 1960 the second phase will be completed, and thereafter the tax will be payable in four installments of 25 percent in September and December of the current year and March and June of the following year. The first phase (through 1955) increased the seasonal variability of tax receipts by concentrating payments in the first half of the year, while the second phase has reversed this tendency. However, some seasonal variability in corporate income tax receipts will remain after the process is completed. Moreover, there is considerable seasonal variability in receipts from the personal income and other taxes.

<sup>10</sup> For example, in the fiscal year 1956 there was a cash surplus of \$4.5 billion which was the net result of a deficit of \$7 billion in July-December 1955, and a surplus of \$11.5 billion in January-June 1956.

<sup>11</sup> From 1941 to 1953, the Treasury sold nonmarketable Treasury savings notes to all types of investors to provide a medium for the payment of taxes, as well as the investment of short-term funds. However, after the Federal Reserve began to implement a flexible monetary policy following the accord of March 1951, it became difficult to adjust the interest rates on savings notes to changing market yields, and sales were suspended in 1953. No savings notes have been outstanding since 1955.

maturities.<sup>12</sup> However, the success of the 6-month and 1-year bills has apparently created greater readiness to use tax anticipation bills, since bills have been used entirely for this purpose in recent months.<sup>13</sup>

#### OTHER CASH OFFERINGS

In addition to its regular bill financing and essentially seasonal borrowing through the issuance of tax anticipation securities, the Treasury borrows through the issuance of certificates of indebtedness, notes, and bonds both to raise new cash to cover excesses of expenditures over receipts and to refund maturing securities. Although refunding operations could be handled by selling new securities for cash and using the cash to retire the maturing securities, in practice refunding is almost always handled by means of exchange offerings, which we will discuss in the next section.

#### *The timing of cash borrowing*

In the case of a private business concern, proper timing of its borrowing operations in order to take advantage of favorable market situations or to avoid unfavorable ones is usually regarded as the essence of sound financial management. However, the Treasury is subject to certain handicaps, real or alleged, with respect to the timing of its debt operations. Flexibility in the timing of cash borrowing operations would mean borrowing in advance of requirements and building up cash balances at times and drawing down cash balances below normal levels in order to postpone borrowing at other times. Flexibility might also be achieved at times by borrowing directly from the Federal Reserve System under the provision which permits the Federal Reserve to hold up to \$5 billion of Government securities purchased directly from the Treasury.<sup>14</sup>

To some extent, the debt limit has imposed a real constraint upon the flexibility of Treasury financing. In order to achieve greater flexibility in timing through management of its cash balances, the Treasury would have to permit these balances to vary over a wider range and probably carry a larger cash balance on the average than is its present practice.<sup>15</sup> With given levels of expenditures and tax receipts, the carrying of larger cash balances would necessarily lead to some increase in the debt. There have been times in the last few years when the Treasury has been operating so close to the statutory debt limit that it would have been virtually impossible to have achieved much more leeway in debt management by this method.<sup>16</sup> Carrying larger cash balances would, of course, cost something since

<sup>12</sup> See T. C. Gaines, "Techniques of Treasury Debt Management" (unpublished Ph.D. dissertation, Columbia University, 1959), pp. 419-425.

<sup>13</sup> As of July 31, 1959, there were three issues of tax anticipation bills outstanding: An issue of \$1.5 billion sold in February to mature on September 21; an issue of \$1.5 billion sold in May to mature on December 22; and an issue of \$3 billion sold in July to mature on March 22, 1960. It will be noted that the first two of these issues were sold in the last half of fiscal 1959 and will mature in the first half of fiscal 1960—which is contrary to what we indicated above is the usual practice. However, this borrowing was a product of the heavy deficit which prevailed in the fiscal year 1959, and further borrowing will be needed to cover these securities when they mature in September and December. In a sense, this was not really borrowing in anticipation of taxes, since at the time the securities were issued there was no prospect that excess tax revenues would be available to retire them at maturity.

<sup>14</sup> Sec. 14(b) of the Federal Reserve Act.

<sup>15</sup> In the last few years, the Treasury has typically carried working balances (on which it writes checks) in the Federal Reserve banks of \$700-\$800 million. In addition, it has carried contingency balances in tax and loan accounts in commercial banks which usually amount to around \$4 billion. With cash outlays at present levels of roughly \$95 billion a year, the combined balances in Federal Reserve and commercial banks are thus equal to only about 3 weeks' expenditures.

<sup>16</sup> See "Public Debt Ceiling and Interest Rate Ceiling on Bonds," hearings before the Committee on Ways and Means, House of Representatives, 86th Cong., 1st sess., June 10, 11, and 12, 1959 (Washington: Government Printing Office, 1959), pp. 24-29.

interest would have to be paid on a larger debt. However, it seems certain that, within limits, interest savings achieved through better timing of borrowings would more than make up for this additional cost and net savings would result. To the extent that the debt limit hamstrings the Treasury in this way, it is obviously not serving a useful function and should be raised to permit the needed flexibility. In fact, since the Congress controls the Government's receipts and expenditures, the logic of attempting to apply an independent (and not necessarily consistent) control over the difference between receipts and expenditures is open to question.<sup>17</sup>

However, not all of the inflexibility in the timing of cash offerings can be blamed on the debt limit. Much of the time the debt has been sufficiently below the statutory limit to have permitted the Treasury to hold larger cash balances than it has. Moreover, the debt limit should not prevent the Treasury from making use of its available line of credit at the Federal Reserve banks in order to tide itself over until a propitious time for borrowing from the public. This line of credit has been used only very sparingly and apparently not at all for the purpose of introducing greater flexibility into debt management.<sup>18</sup> Of course, Treasury borrowing from the Federal Reserve and expenditure of the proceeds would add to bank reserves and money supply, but, within reasonable limits, the Federal Reserve could act to offset these effects through sales of Government securities in the open market.<sup>19</sup>

It would appear that some easing of the problems of debt management at critical times as well as some—probably rather moderate—saving in interest costs could be achieved by more flexible management of the Treasury's cash balances, as well as more frequent use of the power to borrow directly from the Federal Reserve.

### *Designing offerings*

The first step in the borrowing process is to decide the nature of the securities to be offered. This includes the choice of maturity and other provisions such as call options<sup>20</sup> and the selection of the coupon rate to be placed on the securities. In deciding what maturities to issue, the Treasury proceeds almost entirely on an ad hoc basis, deciding each case as it arises. Beginning several weeks before the offering is to be made, discussions are held with Federal Reserve officials and with various market professionals, including the debt management

<sup>17</sup> For critical analyses of the debt ceiling, see M. A. Robinson, "The National Debt Ceiling: An Experiment in Fiscal Policy" (Washington: The Brookings Institution, 1959); also W. W. Heller, "Why a Federal Debt Limit?" Paper delivered at the 51st Annual Conference on Taxation of the National Tax Association, Oct. 28, 1958, and reprinted in "Public Debt Ceiling and Interest Rate Ceiling on Bonds," op. cit. pp. 274-281.

<sup>18</sup> See "Investigation of the Financial Condition of the United States," hearings before the Committee on Finance, U.S. Senate, 85th Cong., 1st sess., July 29, 30, 31, Aug. 1, 2, 3, 6, 7, 8, and 9, 1957 (Washington: Government Printing Office, 1957), pt. 2, pp. 894-895, for an explanation and record of use of direct borrowing from Federal Reserve banks. This record shows that the power was not used at all from March 1954 through July 1957 and that such use as has been made of it in the past has been chiefly to smooth out the financial effects of tax collections at quarterly tax dates.

<sup>19</sup> Of course, this would mean that the Federal Reserve rather than the Treasury would be selling securities. However, the flexibility of open market operations is greater than that of debt management, and the System would have to sell only enough securities to offset the immediate impact of Treasury expenditures, whereas the Treasury would presumably be borrowing enough to meet expenditures for some time ahead as well as currently.

<sup>20</sup> Actually, only 2 issues of callable securities have been sold since 1945. The first was a 2½-percent bond issued on March 1, 1952, callable on March 15, 1957, and maturing March 15, 1959. This issue was called and redeemed in 1958. The second was the 3¼-percent bond issued in May 1953, which becomes callable on June 15, 1978, and matures on June 15, 1983. One issue, a 4-percent note issued in August 1957, and maturing in August 1961, became redeemable at the option of the holder on August 1, 1959, on 3 months' advance notice. Of the \$2,509 million originally issued, \$473 million was redeemed on that date. Another 4-percent note issued in September 1957, and maturing in August 1962, becomes redeemable at the option of the holder on February 15, 1960, on 3 months' advance notice. The advisability of making greater use of call provisions exercisable at the option of the Treasury is discussed in ch. VI below.



advisory committees of the American Bankers Association and the Investment Bankers Association. Representatives of the life insurance and savings banking industries are frequently called in if a long-term issue is contemplated in order to find out the receptiveness of these investors. On the basis of the advice received, together with independent study of market conditions, the Treasury decides "where the money is" and accordingly comes to a decision concerning the maturity of its offering.<sup>21</sup>

The terms of Treasury offerings frequently coincide rather closely with the advice it receives from market professionals and potential investors. The practice of seeking advice from these groups has been criticized on the ground that they have a vested interest and consequently may give the Treasury advice that is biased in their favor. While it appears that these groups approach their responsibilities seriously and honestly, and no evidence of any wrongdoing has been uncovered, there is something to be said for more extensive investigations of the market by the Treasury itself and less reliance on the advice of these groups.<sup>22</sup>

Another and more sophisticated criticism of the Treasury's methods of arriving at decisions about financing has been advanced. It is said that the Treasury suffers from the lack of well-formulated principles governing its debt management operations—its only principle being the vague one that it wants to "lengthen the debt" whenever possible. This lack of a "principle" or "rule" governing debt management means that each operation is approached on an ad hoc basis with the result that uncertainty about what the Treasury is going to do often disrupts the market and sometimes virtually paralyzes it for some time before the decision is made. The Treasury's indecisiveness also means that, instead of playing an active role in influencing the market the Treasury is itself frequently dominated by market opinion.<sup>23</sup> While there is undoubtedly some truth in this criticism, it may be noted that the question involved is not "principles" versus "lack of principles" but rather "rules" versus "authorities." That is, even if the principles guiding debt management policy were as clearly formulated as those governing any other aspect of economic policy (including monetary policy), there would be a great deal of uncertainty about how they were to be applied in a particular situation. The only way to avoid the uncertainty would be to adopt a clear-cut (and probably arbitrary) rule. And, in fact, this is precisely what the author of this criticism advocates.<sup>24</sup>

Having decided the maturity sector in which it will make its offering, the next problem is to choose the coupon rate of interest to be placed on the offering. This must be done carefully since the Treasury follows the practice (except in the case of bills) of selling its securities at a fixed price.<sup>25</sup> Thus, the interest rate must be set in such a relation to yields prevailing in the market as to attract enough demand to

<sup>21</sup> On the Treasury consultations with various advisory groups, see "Debt Management Advisory Groups," hearings before a subcommittee of the Committee on Government Operations, House of Representatives, 84th Cong., 2d sess., June 5 and 7, 1956 (Washington, Government Printing Office, 1956).

<sup>22</sup> This criticism is advanced in the questioning of former Under Secretary of the Treasury W. Randolph Burgess by Senator Kerr in "Investigation of the Financial Condition of the United States," op. cit., pt. 2, pp. 942-950. For a further discussion, see ch. VI below.

<sup>23</sup> This criticism is advanced with considerable vigor by Gaines, op. cit., pp. 391-396.

<sup>24</sup> *Ibid.*, ch. XII. We will discuss Gaines's proposal later (see ch. VI).

<sup>25</sup> Formerly it was standard practice to offer securities at par. Beginning in 1958, however, the Treasury has several times offered securities at a premium or discount (but still at a fixed price). For example, in June 1958, a 3¼ percent bond maturing in 1985 was priced at 100½ to yield 3.22 percent. Since coupon rates are varied only by units of ¼ percent, the practice of offering securities at a premium or discount permits a more accurate adaptation of the yields on new securities to those on outstanding issues.

raise the desired sum of money. If the interest rate is too low, the offering may be a failure; on the other hand if it is too high, the new security may rise quickly to a premium after it is sold with resulting windfall gains to holders of it.<sup>26</sup>

The Treasury uses the yield curve on existing securities at the time the offering is being designed as a starting point for pricing its issues.<sup>27</sup> However, if the market is to be induced to absorb a sizable new issue, the issue must normally be priced to yield more than existing issues. Thus, the coupon rate must be set above the corresponding point on the yield curve, with the necessary differential being a matter of judgment that varies with the state of the market. In the case of corporate bonds, there is a similar tendency for the yields on new issues to be higher than yields prevailing on existing bonds of similar quality. In the corporate market, differentials in yield between new and existing issues tend to grow larger in periods when interest rates are rising and credit is tightening, and one would expect a similar pattern in the case of Treasury issues, although the evidence on this is by no means clear.<sup>28</sup>

It is difficult to judge whether the Treasury commonly underprices its issues, as is often alleged.<sup>29</sup> Given the rather inflexible attitude toward financing that prevails, the temptation is obviously to add a little to the coupon rate to "sweeten" the issue so that it will sell successfully. In the case of cash offerings, the fact that issues are almost invariably heavily oversubscribed might normally be thought to suggest underpricing. However, in the course of time heavy oversubscriptions and fractional allotments have come to be so common as to have little meaning. Perhaps more suggestive of underpricing is the fact that new issues almost always rise to a premium when first quoted on the market.<sup>30</sup>

Underpricing is objectionable because it results in unwarranted windfall gains on the part of successful subscribers and tends to result in a form of speculative activity known as "free riding." However, for several reasons these phenomena are less likely in the case of cash offerings than in that of exchange operations. Accordingly, we will postpone further discussion of them until later.

#### *Underwriting of cash offerings*

The Treasury does not make use of formal underwriting in marketing its issues, such as is provided by investment banking syndicates in the case of corporate offerings. However, it is customary in the case of cash offerings to permit commercial bank subscribers to pay for issues by means of credits to Treasury tax and loan accounts, and this practice provides a kind of indirect underwriting.<sup>31</sup>

<sup>26</sup> If a new issue is priced too attractively (i.e., with a coupon rate that is too high relative to the fixed offering price), the result might be either a rise in its price after issuance or a fall in the price (rise in the yield) of other securities in the same maturity sector, as investors sell these securities in order to subscribe to the new security. However, the fact that the new offering is likely to be small relative to the volume of similar securities already outstanding probably makes a rise in its price after issuance somewhat more likely.

<sup>27</sup> The process of selecting the coupon rate (and the price if different from par) is often referred to as "pricing the issue."

<sup>28</sup> Gaines (op cit., pp. 425-433) argues that the opposite is true; i.e., that in the case of Treasury issues the differentials are smaller when credit is tight than when it is easy. However, it is not clear that the comparisons he makes are the relevant ones. For a comparison between Treasury and corporate issues in this respect, see the charts and accompanying discussion in "Investigation of the Financial Condition of the United States," op. cit., pp. 716-717.

<sup>29</sup> The case most commonly cited as a flagrant example of underpricing is the 3½ percent bond of 1978-83 issued in May 1953.

<sup>30</sup> For evidence on this point, see the table entitled "Appendix B" in "Investigation of the Financial Condition of the United States," op. cit., pp. 691-692. The tendency for the price to rise to a premium on first quotation seems to be less pronounced for cash than for exchange offerings, for several reasons discussed below.

<sup>31</sup> In the case of Treasury bills, banks may not pay for their subscriptions to the regular 13-week and 26-week bills by means of tax and loan account credits. For tax anticipation bills and the longer term "regular" bills that have recently been issued, such credits are sometimes but not always allowed.

When a bank buys newly issued Treasury securities and pays by means of a credit to the Treasury's tax and loan account at the bank, the amount of bank reserves tied up is only a fraction of the amount of securities purchased, whereas in the case of other loans or investments it might make, it will normally lose reserves equal approximately to the full amount it lends or invests. Since the bank can ordinarily expect to keep the new Treasury deposits for perhaps 2 or 3 weeks before they are withdrawn and transferred to a Federal Reserve bank, there is a rather important gain to the bank from obtaining the securities and the accompanying deposits. For example, if a bank subject to a reserve requirement of 20 percent, buys \$1 million of a new 3 percent Treasury issue, and the Treasury leaves the funds on deposit for 18 days, the bank earns \$1,500 interest (assuming it holds the securities for the full 18 days) on an investment of \$200,000 for 18 days or a rate of 15 percent per annum, provided it can sell the securities for the same price it paid for them.<sup>32</sup>

Under this arrangement, it becomes worthwhile for banks, particularly at times when credit is tight and customer loan demand heavy, to subscribe for new Treasury issues, resell them at a discount, and reinvest the proceeds in loans or other types of securities.<sup>33</sup> Thus, banks are heavy subscribers to Treasury cash offerings, and a high proportion of such securities are commonly allotted to banks.<sup>34</sup> The banks serve essentially as underwriters, reselling—or distributing—the securities to other investors. Since securities sold in this way tend to fall to a discount shortly after issuance, other investors may fail to place subscriptions, preferring to wait and buy in the secondary market at a more favorable price. It should be noted that when the whole operation has been completed and the Treasury has transferred the deposits to the Federal Reserve bank, there has been no net increase in bank credit outstanding or in the money supply.

Since the size of Treasury cash is often large relative to the flow of freshly available funds in the market, underwriting through commercial banks undoubtedly facilitates Treasury financing and results in a gradual and orderly secondary distribution of new issues into the hands of nonbank investors. It is especially important in the marketing of short-term securities, such as certificates and shorter term notes. In the case of longer term cash offerings, the Treasury has commonly used various devices to limit or discourage bank subscriptions, apparently on the ground that such securities are unsuitable investments for banks.<sup>35</sup> In thus restricting bank subscriptions to longer term issues, the Treasury is probably denying itself important underwriting support that could be of great help at times.

<sup>32</sup> If the securities fall to a discount, the returns are correspondingly reduced. In the above example, disregarding transaction costs, the bank will break even if it can sell the securities at a price of 99.85. It may be noted that the rise in yield that can occur without wiping out the profit on the transaction depends on the maturity of the securities. For a 3 percent bond, a price of 99.85 corresponds to a yield of 3.575 percent for a security with 3 months to run to maturity, 3.150 percent for a 1-year security, 3.033 percent for a 5-year security, 3.017 percent for a 10-year security, and 3.010 percent for a 20-year security.

<sup>33</sup> That is, in the above example, if the bank was short of funds to meet loan demands, it could sell the full amount of its allotment (\$1 million), keep \$200,000 of the proceeds as reserve for the Treasury deposits, and have the remainder available to lend to customers for 18 days. The discount at which it could sell the securities and still gain from the transaction would depend upon the cost of obtaining the funds from an alternative source.

<sup>34</sup> Allotments to commercial banks have averaged 59 percent of total allotments to all investors other than Government investment accounts and the Federal Reserve for all cash offerings of certificates, notes, and bonds since Jan. 1, 1953. For specific issues the percentage has ranged from 97 to 12 percent.

<sup>35</sup> For example, bank subscriptions to the 3¼-percent bond of 1978-83, issued in May 1953, were restricted to an amount not exceeding 5 percent of their time deposits as of Dec. 31, 1952.

*Allotments of cash offerings*

Cash offerings are almost always heavily oversubscribed.<sup>36</sup> Thus, the Treasury is regularly faced with circumstances where there is excess demand so that it must ration or "allot" securities. The procedure followed is usually to allot small subscriptions—up to, say, \$10,000, \$25,000, or in some cases, \$100,000—in full, and to allot the remainder on a proportional basis in such a way as to achieve the desired volume of total sales. In the case of long-term bonds—that is, those with a maturity of perhaps 15 years or more—the practice has usually been to grant preferential allotments (that is, a higher percentage) to savings-type investors, such as life insurance companies and savings banks. These preferential allotments have been designed particularly to discriminate against commercial banks. Thus, commercial bank participation in long-term cash offerings has been doubly discouraged—first, by placing limitations on their ability to subscribe, as indicated above, and, second, by discriminating against them at the stage of allotting securities.<sup>37</sup> Apparently the feeling is that there is something reprehensible in the holding of long-term bonds by commercial banks. However, even if this were true (and it is difficult to see how much of a case could be made for it as a generalization), preferential allotments can hardly serve to prevent it, since there is nothing to stop banks from buying the securities in the secondary market. The Treasury's attitude probably also reflects the view that sales of securities to commercial banks are inflationary because they result in an increase in the money supply. This notion had some validity in the war and immediate postwar period when the Federal Reserve was supporting bond prices. However, under present conditions in which the Federal Reserve exerts reasonably effective control over the supply of bank credit, it makes little sense. From the Treasury's point of view, preferential allotments serve chiefly to discourage commercial banks from participating in long-term cash offerings and deprive the Treasury of underwriting support for such offerings which might be helpful at times.<sup>38</sup>

The great uncertainty concerning allotments is the source of much irritation among investors and probably has the effect of discouraging a certain amount of participation. Allotments vary over such a wide range and are so unpredictable that it is very difficult to tell in advance how many securities one is going to get. Life insurance companies and savings banks are particularly inclined to complain about these uncertainties.<sup>39</sup> However, it is doubtful how meaningful these complaints are. As pointed out in the previous chapter, savings institutions have been steadily reducing their holdings of Government securities in recent years. This suggests that when they purchase new Treasury securities they typically offset these purchases by sales of governments from their existing portfolios—although, admittedly, the sales may be in shorter maturity ranges than the purchases. In addition, if they really want to purchase new issues, there is nothing to

<sup>36</sup> The typical cash offering of certificates, notes, or bonds during the period since Jan. 1, 1953, has been oversubscribed about three times (subscriptions three times actual sales). Subscriptions have never been less than about 1½ times sales, and the ratio has risen as high as six or seven times on a few occasions.

<sup>37</sup> Since Jan. 1, 1953, allotments to commercial banks on cash offerings have averaged 73 percent of total allotments to all investors other than Government investment accounts and the Federal Reserve for certificates, 70 percent for notes, and only 37 percent for bonds. For bonds with maturities of over 15 years, bank allotments have averaged only 23 percent of the total.

<sup>38</sup> See the excellent discussion of this matter in Gaines, *loc. cit.*, pp. 443-447.

<sup>39</sup> See the testimony of George T. Conklin before the Joint Economic Committee, July 28, 1959.

prevent them from buying in the secondary market after issuance. Nevertheless, it would undoubtedly be desirable to do something to lessen the uncertainty about allotments. Under present operating techniques, however, it is difficult to give any advance assurance concerning allotments without having the Treasury lose, at least partially, its control over the total size of its offerings. One of the advantages of the extension of the auction technique to cash offerings of long-term securities is that it would eliminate the allotment problem entirely.<sup>40</sup>

#### REFUNDING OPERATIONS

At first glance, refunding operations appear to be considerably different from sales of securities to raise new money because refundings involve the exchange of new securities for old securities, whereas new borrowing involves the exchange of securities for cash. However, while there is something to this distinction, it is easy to exaggerate it. It must be borne in mind that maturing securities—no matter what their maturities might have been when originally issued—have a very short maturity at the time they are refunded. In fact, strictly speaking, their maturity at that time is zero, which means that they are virtually identical with money. However, the maturing securities do represent funds that are at least momentarily committed to investment in Government securities and consequently are potentially somewhat more readily enticed into investment in the newly issued securities than mere uncommitted cash would be. On the other hand, the maturing securities may be quite different instruments from the securities being newly issued—especially if the new securities are of the longer-term variety—and therefore may not be in the hands of the kind of investors who would be interested in the new security. The special difficulties that are associated with refunding operations are largely related to this problem.

#### *Designing offerings*

The problems of selecting the maturities to offer and establishing the appropriate coupon rate on the new securities are not greatly different from the similar problems arising in connection with cash offerings. Recently, the Treasury has commonly followed the practice of offering more than one option to holders of the maturing securities. Thus, it frequently offers an intermediate or long-term bond and also a certificate or short note having a maturity in the neighborhood of 1 year. The purpose in this practice is to give interested investors an opportunity to invest in a longer term security with a view to achieving as much debt lengthening as possible, while at the same time making a short-term instrument available in order to keep down the attrition (i.e., cash turn-ins) and insure the success of the operation.<sup>41</sup> In addition, it is common practice to consolidate several securities maturing around the same time into a single refunding operation. The combined result of these two practices is to produce, at times, quite complex refundings, with three or four new issues being

<sup>40</sup> See the discussion in ch. VI.

<sup>41</sup> Gaines (op. cit., p. 403) criticizes this practice on the grounds that it "has delegated control over the maturity structure of the debt to the investors in the exercise of their exchange options" and reflects the absence of "a debt management policy, in the sense of an orderly and conscious program with intended effects upon economic liquidity, the availability of funds at different maturities, and other significant economic variables." The present writer feels, however, that our lack of concrete knowledge about the economic effects of debt management makes it very difficult to establish a meaningful debt management program along the indicated lines, so that the criticism is somewhat misdirected. See ch. IV for a fuller discussion.

offered in exchange for a similar number of maturing issues in a single operation.<sup>42</sup>

*Trading in "rights" and "when-issued" securities*

Maturing securities, as pointed out above, are short-term liquid instruments and, as such, are likely to be in the possession of investors who are holding them for liquidity reasons. On the other hand, the securities being issued in exchange, if they are of intermediate or long maturity, are more likely to appeal to investors who want them either as more or less permanent investments or, under some circumstances, for prospective short-term speculative gains. Since investors can obtain the new security at the time of its original issuance only by presenting a maturing security in exchange, the success of a refunding operation often hinges on the prior consummation of a considerable volume of transactions which shift maturing securities from their normal owners to investors desiring to obtain the new securities.

The maturing securities possess value both as "rights"—i.e., options to buy the new securities being offered in exchange—and also as short-term investments. If the new securities being offered are attractive, the rights value of the maturing securities will exceed their value as short-term investments, and they will rise to a premium relative to other outstanding short-term securities. On the other hand, if the new securities are relatively unattractive, the maturing securities will sell on a yield basis similar to other similar securities. If the rights do not sell at a premium, there will be no incentive for their holders to sell them—they would be as well off to hold onto the rights and turn them in for cash when they mature. For this reason, the success of an exchange, especially if it involves the offering of a longer term issue, may require that the terms of the new offering be sufficiently attractive to create a rights premium in order to induce the required transactions in rights in advance of the offering.

The rights may go to a premium and a considerable amount of preliminary trading occur even before the terms of the offering are announced, provided the market has some confidence that an attractive security will be offered. Such a development is especially likely to occur if market opinion feels that a longer term bond, subject to substantial potential price appreciation, will be offered at a time when the Federal Reserve is following an easy money policy and interest rates are expected to fall, since under these conditions attractive speculative profits on the new offering are in prospect.<sup>43</sup> In addition, trading in rights continues after formal announcement of the offering is made for a period of 4 or 5 days until the subscription books close.

Government security dealers play an important role in the process of trading in rights. Dealers buy and sell rights, thus facilitating their redistribution; moreover, as soon as the subscription books

<sup>42</sup> The refunding of Feb. 14, 1958, is a good example of a complex operation. In this case, holders of five issues (a bill, two certificates, a note, and a bond) maturing between February and April 1958, and aggregating \$16.8 billion (including amounts held by Treasury investment accounts and the Federal Reserve) were offered a choice of three new issues in exchange, including a 1-year certificate, a 6-year bond, and a 32-year bond. Of the \$10.9 billion of maturing securities held by the public, \$4.0 billion were exchanged for the certificate, \$3.8 billion were exchanged for the short bond, \$1.6 billion were exchanged for the long bond, and \$1.4 billion were redeemed for cash.

<sup>43</sup> This was the situation at the time the 2½ percent bonds of 1965 were offered in an exchange in June 1958. In this case, there was a large volume of trading in rights prior to the announcement of terms. See "Treasury-Federal Reserve Study of the Government-Securities Market," pt. II (preliminary mimeographed edition), ch. III. In this speculative episode, the market's anticipations concerning future movements of interest rates turned out to be wrong. This episode is discussed at some length in ch. III.

open (normally they remain open for 3 days) the securities begin to trade on a "when-issued" basis. During the subscription period, dealers buy rights and sell when-issued securities; however, their purchases of rights ordinarily exceed their sales of when-issued securities, as they make some net purchases of the securities for their own account. These dealer operations, which contribute to the success of the exchange and to the proper placement of the new offering, are the closest thing there is to systematic underwriting in connection with refunding operations.<sup>44</sup> One recent observer has suggested that, while the preliminary trading in rights and when-issued securities helps to prepare the market for exchange offerings, the amount of actual redistribution of rights is of marginal significance. The basis for this contention is the fact that allotments of exchange offerings to dealers—representing their net accumulation of rights, partially offset by sales of when-issued securities—is typically a rather small portion of total allotments in refunding operations.<sup>45</sup> At times when the Federal Reserve is following an easy money policy, further underwriting support may be provided by commercial banks which typically receive large allotments of long-term exchange offerings under such conditions, in part for their own account and in part for redistribution to other investors. In times when credit conditions are tight, bank participation in long-term exchange offerings tends to dry up, however.<sup>46</sup>

### *Speculative activity*

While extensive speculative interest may develop in connection with cash offerings at times,<sup>47</sup> there are several reasons why speculators are more likely to be attracted by exchange operations. In the first place, quick speculative profits of the "free riding" type—i.e., due to underpricing of an issue and a consequent jump in its price to a premium when trading opens—are somewhat more likely in refunding than in cash offerings.<sup>48</sup> The reason for this is that underwriting by commercial banks through the use of Treasury tax and loan accounts tends to cause cash offerings to go to a discount immediately after issuance, as explained above, whereas exchange offerings are somewhat more likely to rise to a premium.<sup>49</sup> Another reason is that the preliminary trading in rights which occurs in the case of refunding operations, as discussed above, provides an opportunity for speculative fever to rise and for speculative commitments to become established in advance of the actual offering. Finally, although the Treasury typically requires a cash payment at the time of the subscription for cash offerings by nonbank investors of only 5, 10, or sometimes

<sup>44</sup> For an excellent description of these operations, see Gaines, *op. cit.*, pp. 396-403.

<sup>45</sup> Dealer allotments have averaged 7 percent of total allotments to investors other than Treasury investment accounts and the Federal Reserve on exchange offerings during the period since Jan. 1, 1953. For bond offerings dealer allotments have been somewhat larger, averaging about 11.5 percent of the total and exceeding 15 percent on several occasions.

<sup>46</sup> Gaines, *op. cit.*, pp. 437-39. For the period since Jan. 1, 1953, allotments to commercial banks on exchange offerings have averaged 42 percent of total allotments (excluding Treasury investment accounts and the Federal Reserve) for certificates, 53 percent for notes, and 66 percent for bonds. Thus it is clear that commercial banks play a major role as investors in and distributors of exchange offerings.

<sup>47</sup> For example, there was considerable speculative interest in the cash offering of the 3¼ percent bonds of 1978-83 in April 1953, due to the apparent underpricing of this issue and the prospect of "free riding" profits.

<sup>48</sup> Free riding was a serious problem during World War II—and one that became more and more serious as the war progressed; on this, see H. C. Murphy, "The National Debt in War and Transition," *op. cit.*, ch. XIV. For a prewar discussion of free riding, see Sylvia Porter, "How to Make Money in Government Bonds" (New York, Harper & Bros., 1939), ch. III.

<sup>49</sup> During the period 1953-57, 7 out of 14 issues sold for cash went to a discount on first quotation, whereas for exchange operations, such discounts made their appearance in only 4 of 35 cases. See table entitled "Appendix B" in "Investigation of the Financial Condition of the United States," *op. cit.*, pp. 691-692.

20 percent of the subscription,<sup>50</sup> speculative positions can usually be financed on even thinner margins in the case of exchange offerings, by borrowing from banks or, directly or indirectly, from nonfinancial corporations through the use of repurchase agreements.<sup>51</sup>

#### *Attrition*

The term "attrition" is used to refer to the portion of the maturing securities turned in for cash rather than exchanged in a refunding operation. The amount of attrition should be related to the amount of maturing securities held by the public—i.e., excluding those held by Federal agencies and trust funds and the Federal Reserve System—since these securities are ordinarily "rolled over" into new issues without change. From January 1, 1953, through August 1, 1959, the amount of maturing publicly held securities for which new securities were offered in exchange was \$173.5 billion. Holders of \$155.2 billion of these securities accepted the exchange offerings, and the remaining \$18.3 billion was turned in for cash. Thus cash turn-ins have averaged 10.6 percent of the amounts maturing. The percentage of cash attrition has ranged between 1.4 percent and 32.4 percent for specific refunding operations. In general, the attrition tends to be small when credit conditions are easy and to increase when the money market tightens.

The amount of attrition is commonly regarded—particularly by the Treasury and the financial community—as an index of the success of a refunding operation; that is, the smaller the attrition the more successful the operation. Actually, if the Treasury were to take a more flexible attitude toward the management of its cash balances, attrition, within reasonable limits, would become a matter of relatively little importance. In that case, the success of a refunding operation could be judged, as it should be, in terms of its effects on the maturity structure of the debt. The amount of attrition is a very poor index of the success of a debt management operation.

It may be noted, however, that the amount of attrition has been large enough to account for a considerable portion of the need for cash borrowing. During the period from January 1, 1953, to August 1, 1959, the attrition of \$18.3 billion on exchange offerings amounted to nearly 35 percent of the \$53.3 billion of cash sales of certificates, notes, and bonds to the public.

#### CONCLUDING COMMENT

In this chapter the purpose has been to explain, with appropriate comment and, in some cases, criticism, the techniques that are now being employed by the Treasury in the management of the public debt. At a later point, some possible major changes in technique, which might produce improved results, will be considered.<sup>52</sup>

<sup>50</sup> Commercial banks, of course, need not put up any cash, since they can pay through credit to Treasury tax and loan accounts.

<sup>51</sup> These points are discussed further in the next chapter, where the 1958 speculative buildup and collapse associated with the June offering of the 2½ percent bonds of 1965 is taken up.

<sup>52</sup> See ch. VI.



## CHAPTER III

### RECENT DEBT MANAGEMENT EXPERIENCE AND PROBLEMS

In this chapter we shall first review the highlights of Treasury debt management since 1951 and then consider some of the more obvious problems that emerge from this experience.

#### SURVEY OF RECENT DEBT OPERATIONS

Table III-1 summarizes the debt management operations of the Treasury since 1951. Since we are interested only in the size and composition of the publicly held portion of the debt, transactions involving Government agencies and trust funds and the Federal Reserve System have been eliminated. It may be noted that this adjustment makes a considerable difference in the totals of certificates, notes, and bonds issued, since a rather large portion, particularly of refunding operations, is frequently accounted for by the more or less automatic "rollover" of maturing securities held in the portfolios of the Federal Reserve System and Government agencies and trust funds.<sup>1</sup> Just as the statistics on the gross public debt exaggerate the true size and growth of the debt, so the unadjusted data on the issuance of securities exaggerate the true size of current debt operations.

Table III-1 covers approximately the period since the Treasury-Federal Reserve accord of March 1951. During 1951, no effort was made to extend the maturity of the debt, and, as indicated in the last column, the average maturity declined steadily during the year. All exchange offerings during the year were in the under-1-year category, and such cash financing as was necessary was accomplished by means of changes in bill offerings. Even so, the Federal Reserve continued the preaccord practice of giving direct support to the Treasury refunding operations through the purchase of rights (maturing securities). During this period, the authorities were uncertain as to how the market would react to a more flexible Federal Reserve policy, and caution was the predominant attitude. In 1952, the first tentative steps of the postwar period were taken to lengthen the maturity of the debt. In March, the Treasury issued \$600 million of 2½ percent 5 to 7-year bonds as an optional exchange offering, and in July \$4.1 billion of 2½ percent 6-year bonds were sold to the public for cash. However, as shown in the last column of table III-1, these cautious steps were not sufficient to prevent the average maturity of the debt from declining steadily during the year as a result of the passage of time. Late in 1952, in accordance with recommendations submitted by an ad hoc subcommittee of the Federal Open Market Committee, the Federal Reserve abandoned the practice of lending direct support to Treasury refunding operations.<sup>2</sup> Since that time, with few exceptions, it has limited its assistance to the Treasury to the maintenance of generally stable conditions in the money market at times when the Treasury has been engaged in debt operations.

<sup>1</sup> See footnote 15 below.

<sup>2</sup> The ad hoc subcommittee report was published in "U.S. Monetary Policy: Recent Thinking and Experience," hearings before the Subcommittee on Economic Stabilization of the Joint Committee on the Economic Report, December 1954 (Washington: Government Printing Office, 1954), pp. 257-331.

TABLE III-1.—Summary of operations affecting the publicly held debt by quarters, 1951-59

[Dollars amounts in millions]

Calendar year and quarter	Certificates, notes, and bonds issued <sup>1</sup>				Maturing issues redeemed for cash (attrition)		Certificates, notes, and bonds retired for cash	Increase or decrease (-) in bills outstanding	Average maturity of debt at end of period <sup>6</sup> (months)
	Number of operations	Total	For cash	In exchange <sup>2</sup>	Average maturity <sup>3</sup> (months)	Amount <sup>4</sup>			
1951—1st	—	—	—	—	—	—	—	—	—
2d	1	\$6,298	—	\$6,298	9.5	\$548	8.0	—	(?)
3d	2	4,112	—	4,112	11.0	307	6.9	—	(?)
4th	3	5,778	—	5,778	11.4	473	7.6	—	80
Total	6	16,188	—	16,188	10.5	1,328	7.6	5,160	80
1952—1st	1	5,590	—	5,590	19.1	753	11.8	—	78
2d	—	—	—	—	—	—	—	-652	75
3d	2	10,580	\$4,142	6,438	34.9	667	9.4	-12	73
4th	1	3,042	—	3,042	14.0	509	14.3	3,501	69
Total	4	19,212	4,142	15,070	26.9	1,929	11.3	2,830	69
1953—1st	1	14,252	—	14,252	75.5	2,612	15.5	\$5,902	74
2d	2	5,192	1,070	4,122	112.1	829	16.7	-1,860	72
3d	3	15,373	5,902	9,471	16.3	359	3.6	-665	67
4th	2	5,110	2,239	2,921	64.1	118	3.9	-1,065	67
Total	8	30,708	9,211	21,547	40.9	1,440	6.6	-3,870	67
1954—1st	1	14,252	—	14,252	75.5	2,612	15.5	\$5,902	74
2d	1	7,276	2,179	5,097	43.4	502	8.9	-1,860	72
3d	2	10,092	3,733	6,359	34.0	148	2.2	765	74
4th	2	13,893	4,143	9,750	62.5	315	3.1	-667	74
Total	6	45,513	10,055	35,458	59.8	3,577	9.1	835	74
1955—1st	1	10,174	—	10,174	107.6	795	7.2	3,734	82
2d	2	7,230	5,742	1,488	9.4	712	32.3	3,210	77
3d	3	5,571	2,998	2,573	102.0	149	5.4	1,080	78
4th	2	8,378	2,970	5,608	15.4	847	13.1	584	74
Total	8	31,553	11,710	19,843	59.0	2,503	11.2	6,944	74
1956—1st	1	4,282	—	4,282	20.5	151	3.4	-539	73
2d	—	—	—	—	—	—	—	-33	73
3d	2	7,199	3,221	3,978	10.0	882	18.1	209	70
4th	1	2,433	—	2,433	8.1	500	17.0	3,230	66
Total	4	13,914	3,221	10,693	12.8	1,533	12.5	7,799	66
1957—1st	2	7,318	3,279	4,039	19.4	870	17.7	3,221	65
2d	2	2,521	—	2,521	16.6	2,234	46.9	1,312	-1,755
3d	2	10,816	3,233	7,583	62.1	—	—	—	65
4th	3	4,049	2,154	1,895	68.5	138	6.7	-427	61
Total	10	24,704	8,666	16,038	45.8	3,242	16.8	4,533	61
1958—1st	2	10,853	1,384	9,469	70.5	1,433	13.1	—	-3,619
2d	3	13,662	4,904	8,758	83.4	351	38.5	9105	-2,358
3d	2	9,849	3,567	6,282	10.6	2,764	30.5	9387	2,034
4th	2	104,859	101,079	3,780	12.8	412	9.8	121	5,821
Total	9	39,223	10,934	28,289	52.8	4,960	11.8	612	1,778
1959—1st	2	10,715	3,572	7,143	35.0	2,075	22.5	3,567	64
2d	2	3,326	2,212	1,114	50.0	547	32.9	5,851	-641

<sup>1</sup> Excluding the exchange of \$13,500,000,000 of marketable issues for 234-percent nonmarketable Treasury bonds, investment series, in May 1951, and a further \$1,000,000,000 in June 1952.

<sup>2</sup> Excludes periodic issues of 1½-percent 5-year notes in exchange for nonmarketable 234-percent Treasury bonds, investment series B, 1975-80.

<sup>3</sup> Weighted average maturity of securities issued during the quarter or year.

<sup>4</sup> Amount of maturing securities turned in for cash by investors other than Federal Reserve banks.

<sup>5</sup> Securities turned in for cash as a percent of maturing debt held by investors other than Treasury investment accounts and Federal Reserve.

<sup>6</sup> Average maturity of marketable debt excluding Federal Reserve holdings but including holdings of Government agencies and trust funds (which amounted to \$7,256,000,000 on July 31, 1959). All issues classified to final maturity except partially tax exempt bonds, which are classified to earliest call date.

<sup>7</sup> Not available.

<sup>8</sup> Includes \$417,000,000 of 3¼-percent bonds of 1978-83 accepted in exchange by holders of series F and G savings bonds maturing from May 1 through Dec. 1, 1953.

<sup>9</sup> Purchases of 238-percent Treasury bonds of 1965 for retirement under sec. 19 of Second Liberty Bond Act, as amended (31 U.S.C. 754a).

<sup>10</sup> Includes \$2,735,000,000 of special 219-day 3¼-percent bill issued at a fixed price of 98.023 in October 1958.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department.

The new administration which took office at the beginning of 1953 promptly expressed its concern about the continual shortening of maturities and announced its intention of working to lengthen them by selling more long-term securities. The first major step in implementing the new policy was taken at the beginning of May with the sale for cash of \$1.1 billion of 3¼ percent 30-year bonds. This was the first offering of a long-term bond since 1946, and coming at a time when the economy was feeling the pinch of a restrictive Federal Reserve policy, it was widely criticized for contributing to the congestion in the capital market that developed at midyear. In order to relieve the congestion, the Federal Reserve relaxed its restrictive policy just at the time when a downturn in business activity began. With the recession of 1953-54 underway, the Treasury desisted from further attempts to sell long-term bonds. However, some intermediate-term bonds were issued in the fourth quarter, and for the year as a whole there was only a slight decline in the average maturity of the debt.

Although the avowed policy of the administration called for concentrating on lengthening the debt during times of inflation in order to absorb funds from the long-term sector and damp down private spending, thus reinforcing the effects of a restrictive monetary policy, the Treasury continued to struggle with the problem during the recession. In February 1954, it succeeded in issuing to the public \$11.2 billion of 2½-percent bonds with a maturity of 7 years and 9 months in an exchange offering. As a result of this and other operations, the average maturity of the publicly held debt was raised by 7 months during the first quarter of 1954. The issuance of several smaller intermediate-term issues of notes and bonds during the remainder of 1954 permitted the Treasury to hold its own and prevent the debt from shortening. In the first quarter of 1955, when business recovery had developed to the point where inflation was beginning to be a problem and the Federal Reserve was turning once again toward a cautiously restrictive policy, another forward step in the policy of lengthening maturities was taken. In an exchange offering in February 1955, the Treasury succeeded in issuing \$11.2 billion of securities having an average maturity of approximately 9 years. Actually, the lengthening of maturities that was accomplished in this operation was chiefly due to the issuance of \$1.9 billion of 3 percent 40-year bonds. In any case, however, the average maturity of the publicly held debt increased by 8 months during the first quarter.

Thus, between December 1953 and March 1955, the average maturity of the publicly held debt increased by 15 months—from 67 months to 82 months. Another \$800 million of 3-percent bonds was sold for cash in July 1955, when the 40-year bond originally offered in February was reopened. Aside from this, however, after the first quarter of 1955, the tightening of credit conditions produced by the boom itself and reinforced by the Federal Reserve's increasingly restrictive policy forced—or at least persuaded—the Treasury to confine its financing to the short-term sector. As a result, the average maturity of the debt declined steadily from 82 months in March 1955 to 61 months in December 1957. Relatively little effort was made to lengthen maturities until September 1957, when some \$2.5 billion of 5-year notes and 12-year bonds were sold for cash.

When credit conditions began to ease and interest rates fell with the onset of recession in late 1957, the Treasury moved quickly to exploit the situation. Its offerings either for cash or in exchange during the last quarter of 1957 and the first half of 1958 included: \$550 million of 17-year bonds in November, \$3.8 billion of 6-year bonds, \$1.6 billion of 32-year bonds, and \$1.4 billion of 8½-year bonds in February 1958, and \$1.0 billion of 27-year bonds, and \$7.0 billion of 6½-year bonds in June 1958.<sup>3</sup> These operations, particularly in the first and second quarters of 1958, resulted in an increase in the average maturity of the publicly held debt from 61 months in December 1957, to 72 months in June 1958.

By mid-1958, it became apparent that recovery was underway. As a result, expectations of declining business activity and falling interest rates quickly gave way to expectations of inflation and rising interest rates. Long-term interest rates reacted violently to the sudden change in expectations and rose sharply in the second half of the year. Due to the resulting congestion in the capital market, the Treasury confined its financing in the last two quarters of 1958 to the short end of the market. By early 1959, the financial markets had stabilized, and it was possible to sell small amounts of bonds for cash on two occasions during the first half of the year, thus checking to some extent the shortening of debt maturities which had occurred in the last half of 1958.<sup>4</sup>

Despite the original intention of the present administration to press measures to lengthen the debt during periods of inflation in order to lend support to the Federal Reserve's anti-inflationary policies, it is clear from table III-1 that, in practice, the Treasury has been successful in lengthening the debt only in recession periods. Such increases in the average maturity of the publicly held debt as have been accomplished in the last 6 years have occurred during the period of recession and early recovery in 1954 and the first quarter of 1955 and during the recession of 1957-58.

The magnitude of the debt management problem has varied greatly from year to year. The net amount of certificates, notes, and bonds issued in both cash and refunding operations—i.e., the total amount issued less the amount retired for cash—was \$39.6 billion in 1954, \$24.6 billion in 1955, \$6.1 billion in 1956, \$20.2 billion in 1957, and \$38.6 billion in 1958. In part, these variations reflect changes in the budgetary situation: the Treasury had small cash deficits in 1954 and 1955, moderate cash surpluses in 1956 and 1957, and a rather large cash deficit in 1958.<sup>5</sup> To some extent also, the variations result from changes in the amount of borrowing through the issuance of Treasury bills—for example, in 1956 and 1957 when the money and capital market was tight, the Treasury increased the extent of its reliance on the bill market. In addition, however, changes from year to year in the magnitude of the debt management problem

<sup>3</sup> The speculative tendencies that developed during this period, particularly in connection with the June financing, are discussed later in this chapter.

<sup>4</sup> The Treasury sold \$884 million of 4-percent 21-year bonds (\$834 million to the public) in January 1959, and \$619 million of 4-percent 10½-year bonds (\$569 million to the public) in March. The later offering was carried out by reopening the 12-year bond originally offered in October 1957.

<sup>5</sup> The cash budget showed a deficit of \$1.1 billion in the calendar year 1954, a deficit of \$0.7 billion in 1955 a surplus of \$5.5 billion in 1956, a surplus of \$1.2 billion in 1957, and a deficit of \$7.3 billion in 1958. Actually cash deficits and surpluses can be related to the statistics in table III-1 only in a rather loose way, since the table does not take into account changes in the Treasury's cash balances and since the cash budget includes receipts and expenditures of Government agencies and Government-sponsored enterprises whose debt operations are not included in the table. Moreover, the savings bond program, which may affect the Treasury's cash position, is not included.

are due to the unevenness with which debt matures. This is evidenced by the fact that maturing publicly held certificates, notes, and bonds amounted to \$44.9 billion in 1954, \$29.3 billion in 1955, \$20.0 billion in 1956, \$23.8 billion in 1957, and \$33.8 billion in 1958.<sup>6</sup> It may be noted that the concentration of maturities in 1958 is in considerable due to the fact that the Treasury relied heavily on short-term securities in 1957, thus necessitating a large amount of reborrowing in 1958.<sup>7</sup>

The present prospect is that the debt management problem will be less troublesome during the remainder of 1959 and through the year 1960 than it has been in the past couple of years. In July, the Treasury refunded \$5.4 billion of publicly held certificates and notes, issuing in exchange \$3.9 billion of 4¾-percent short-term notes maturing in August 1960, and \$1.5 billion of 4¾-percent longer-term notes maturing in May 1964. Between the end of June and the end of October \$10.8 billion of cash was borrowed as follows:

\$4 billion in July and August by means of tax anticipation bills due in March 1960.

\$2 billion in July through sale of a special 1-year bill.

\$600 million in August through an increase in regular 91- and 182-day bill issues.

\$2 billion in October by means of tax anticipation bills due in June 1960.

\$2,200 million in October through sale of 5-percent 4-year and 10-month notes.<sup>8</sup>

As this is being written, the Treasury has announced that it will offer holders of \$2.6 billion (publicly held portion) of certificates and \$1.2 billion (publicly held portion) of notes maturing in November 1959, an option consisting of a 4¾-percent 1-year certificate or a 4¾-percent 4-year note.<sup>9</sup>

The heavy cash borrowing by the Treasury since June has been necessitated partly by a seasonal cash deficit which amounted to about \$7 billion through the end of October. In addition, however, the Treasury has experienced a substantial cash drain in connection with the savings bond program (cash payments for redemption exceeded cash sales by nearly \$800 million in July and August).<sup>10</sup> Attrition on the August refunding amounted to about \$200 million, and due to the seasonal deficit, it was necessary, in effect, to retire for cash \$1,500 million of tax anticipation bills which matured in September. A further \$1,500 million of tax anticipation bills will mature in December. Some further cash borrowing may be necessary before the end of 1959, although the amount should not be large. Since the cash budget will probably be in balance, with perhaps a small surplus, in fiscal 1960 as a whole, most of the short-term securities issued for cash in the second half of calendar 1959 can presumably be retired out of excess tax revenues in the first half of calendar 1960.

Taking account of debt operations through October 1959, and assuming that the \$2.6 billion of publicly held certificates maturing

<sup>6</sup> These totals are obtained by adding together total securities issued in exchange operations, maturing securities redeemed for cash, and maturing securities retired for cash.

<sup>7</sup> Of the \$33.8 billion maturing in 1958, \$14.1 billion were securities that had been issued in 1957.

<sup>8</sup> This 5-percent note elicited an unusual amount of interest among individual investors. It is discussed at length in ch. VI.

<sup>9</sup> The Treasury has also offered to exchange the new 4¾-percent notes for the 4-percent notes of August 1962, which become redeemable at the option of the holder in February 1960, on 3 months' notice.

<sup>10</sup> See the discussion of the savings bond program later in this chapter.

in November are rolled over into an equal amount maturing a year later, the amount of certificates, notes, and bonds that will mature in 1960 comes to \$22.6 billion. Assuming prosperous conditions continue, the budgetary situation should be favorable and require no cash borrowing except on a seasonal basis (through tax anticipation bills) in the second half of the year. If redemptions of savings bonds continue to exceed sales, some cash borrowing may be necessary to cover this. However, it seems likely that the necessary amount of financing, other than through sale of bills, will not be in excess of \$24 billion or so—about the same as in 1957, a little less than in 1959, and about 60 percent of the volume of debt operations that were conducted in 1958. In addition, there are three bond issues aggregating \$8.9 billion (publicly held portion) that are subject to call which might be refunded before the end of 1960 if conditions are favorable.<sup>11</sup>

Thus the immediate pressures of debt management should not be as serious during the remainder of 1959 and in 1960 as they were in 1958 and the first half of 1959. However, the publicly held portions of issues of notes and bonds already scheduled to mature in 1961 amount to \$16.8 billion. In addition, the public holds a total of about \$13 billion of certificates, representing the four issues maturing at quarterly intervals in the months of November, February, May, and August. If the publicly held aggregate of these four issues remains constant as they are rolled over into 1961, this will run the total amount of certificates, notes, and bonds maturing in that year to approximately \$30 billion. If further tightening of credit in the next year induces the Treasury to conduct more financing in the short-term sector of the market, the total for 1961 could be run up still further. Looking beyond 1961, maturities already scheduled for 1962 and 1963 are heavy, amounting to \$13.3 billion and \$13.2 billion, respectively.

#### THE COMPETITIVE POSITION OF GOVERNMENT SECURITIES

In recent years, the Treasury has had great difficulty in selling long-term bonds. During the period of nearly 7 years since the present administration came into office with the intention of extending debt maturities, only \$9.4 billion of bonds with a maturity of more than 10 years have been sold altogether, both for cash and in exchange offerings. Thus the average is less than \$1.5 billion per year. Moreover, such sales as have been made have been entirely in periods of recession or the fairly early stages of recovery. As we saw in chapter I, nearly all the investor groups—including savings banks, life insurance companies, pension funds, etc.—who have traditionally shown an interest in Treasury bonds—have either been reducing their holdings of Government securities steadily or, at most, increasing them only very slowly. Certainly one important aspect of debt management is the declining popularity of Government securities, particularly of the longer-term variety. Let us now consider some possible explanations of the apparent deterioration of the competitive position of long-term Treasury securities.

<sup>11</sup> These include \$4.7 billion of 2½-percent bonds of 1959-62, which reached first call on June 15, \$2.7 billion of 2½-percent bonds of 1959-62, which become callable on Dec. 15, and \$1.5 billion of 2½-percent partially tax-exempt bonds of 1960-65 which become callable on Dec. 15, 1960.

*Some common misconceptions*

One explanation of the Treasury's debt management problems that seems to have a fairly wide acceptance is that the Federal Government is fiscally irresponsible—that it keeps piling deficit on deficit, virtually never having a budget surplus, and that in consequence the debt grows each year by leaps and bounds. While there is certainly plenty of room for improvement in the fiscal policies of the Federal Government, it is the opinion of the present writer that this charge, as usually presented, is not only unfounded but recklessly irresponsible.<sup>12</sup> Those who make this charge are almost invariably careless in their use of statistics. To support their claims, they refer to the administrative budget, changes in the gross public debt, and data relating to total offerings of Treasury securities. As we saw in chapter I, the administrative budget has been, in most years, strongly biased toward a deficit because it does not include the transactions of the trust funds, which have consistently shown surpluses. Similarly, the gross public debt greatly exaggerates both the true size of the debt at any particular time and its rate of growth over time, due to the fact that it includes a large and, during most periods, rapidly growing portion of essentially fictitious debt held by Government agencies and trust funds and the Federal Reserve System. Thus, for the 13 fiscal years 1947 through 1959, the administrative budget showed a cumulative deficit of \$25.2 billion, while the cash budget, which is a much better measure of the fiscal impact of the Government, had a cumulative surplus of \$6.3 billion. There were cash surpluses in 7 of the 13 years and cash deficits in 6.<sup>13</sup> During the same 13-year period, the gross debt increased by \$14.9 billion from \$269.9 billion to \$284.8, while the publicly held debt (i.e., excluding securities held by Government agencies and trust funds and the Federal Reserve) declined by \$12.8 billion from \$217 billion to \$204.2 billion.<sup>14</sup> Moreover, as was also explained in chapter I, both the level of national income and product and the amount of private debt have grown greatly in recent years, so that, in relation to other relevant variables, the public debt has declined even more than the above statistics suggest.

Reference to gross figures on debt operations can be equally misleading. For example, in the calendar year, 1958, total offerings of certificates, notes, and bonds for cash and in exchange for maturing securities amounted to \$61.2 billion. However, when sales or exchanges involving Government agencies and trust funds and the Federal Reserve—which are almost entirely automatic (and fictitious) transactions involving no problems of debt management—are eliminated, the total is reduced to the \$39.2 billion shown in table III-1. Similar large differences are present in other years.<sup>15</sup>

These exaggerated charges of fiscal irresponsibility are frequently couched in terms which seem designed to increase the public's fear of inflation and to undermine public confidence in Treasury securities on the part of the uninformed. Of course, both of these results tend

<sup>12</sup> For a particularly flagrant example of this kind of distortion and misrepresentation, see the "scare" story headed "Fiscal Crisis," *Wall Street Journal*, Sept. 10, 1959, p. 1.

<sup>13</sup> See table I-3.

<sup>14</sup> See table I-1.

<sup>15</sup> The gross offerings of certificates, notes, and bonds, including amounts taken by Government agencies and trust funds and the Federal Reserve, in other years, for comparison with the amounts shown in table III-1, are as follows: \$43.8 billion in 1953, \$59.5 billion in 1954, \$48.4 billion in 1955, \$33.2 billion in 1956, and \$54.6 billion in 1957.

to make the Treasury's debt management difficulties even greater. The exaggeration and confusion is partly the fault of the Treasury itself, since in its own presentations of budget and debt statistics it tends to place undue emphasis on the administrative budget and the gross public debt. Surely the problems of fiscal policy and debt management are sufficiently acute without exaggerating them by using the wrong statistics.

It may be noted that there is a perfectly respectable argument that bears a certain superficial similarity to these distortions. This is the argument that the acuteness of the debt management problem is in large part a byproduct of an excessive reliance on monetary as compared with fiscal policy as a means of controlling inflation during prosperous times. A good case can certainly be made for greater reliance on fiscal policy—cash budget surpluses—during inflationary periods. This would lessen the debt management problem in two ways: (1) by making it possible to retire more debt, and (2) by keeping down the level of private credit demands, thus making it unnecessary for credit to tighten and interest rates to rise as much as would otherwise be the case. We shall return to this argument at a later point.<sup>16</sup>

#### *Declining attractiveness of Government securities*

There can be little doubt that the Treasury's debt management difficulties are partly due to a number of developments in recent years which have made Government securities—particularly longer-term securities—less attractive to investors than they used to be relative to other types of investments. Let us consider some of these developments.

1. *Increased price variability.*—During the Second World War, the Federal Reserve used its powers to buy Government securities in the open market to maintain a fixed pattern of interest rates and security prices. While somewhat greater flexibility in short-term interest rates was permitted beginning in 1947, the basic policy of preventing the prices of long-term Government bonds from falling below par was continued until the Treasury-Federal Reserve accord in March 1951. At the time of the accord, the rigid policy of supporting bond prices was abandoned, and as increased reliance came to be placed on monetary policy as a means of maintaining economic stability, interest rates and security prices began to fluctuate over a wider range.

In the preaccord period, long-term Treasury bonds were really liquid assets, since the holder of these securities could rely upon being able to sell them at any time at a price very close to par, with the Federal Reserve buying them if necessary to prevent their prices from falling. In fact, bonds were practically as liquid as Treasury bills under these conditions, but with a yield curve sloping steeply upward as maturities increased, the returns from bonds greatly exceeded those from shorter-term securities.<sup>17</sup> For this reason, particularly during the war itself, many investors were attracted to purchase Treasury bonds essentially due to their liquidity.<sup>18</sup> This was even true of many

<sup>16</sup> See ch. VI.

<sup>17</sup> During the war itself, the Federal Reserve maintained a pattern of interest rates on Government securities running from three-eighths percent on 3-month Treasury bills up to 2½ percent on the longest-term bonds. In the postwar period, some flexibility was gradually introduced in the short-term sector, but short-term interest rates continued to be considerably below long-term rates.

<sup>18</sup> One of the problems that plagued the authorities during the late war and early postwar periods was a tendency for investors to sell Treasury bills and other short-term Government securities in order to shift their funds into long-term bonds, which were equally liquid as long as bond prices were supported but offered a considerably better return.



basically long-term investors such as insurance companies. During the war, the lack of other available outlets for funds, together with pressures to assist the Treasury to finance the war, led these investors to buy Treasury bonds which offered a relatively attractive rate of return and promised to be salable at a fixed price at a later time if more attractive investment opportunities became available.

When market forces are able to exert important effects on the structure of interest rates, as has been increasingly the case since the accord, the prices of long-term securities fluctuate much more than those of short-term securities.<sup>19</sup> In fact, in the last 4 or 5 years, as flexible monetary policy has been used with increasing vigor, the prices of long-term Treasury bonds have shown very substantial fluctuations. Under these conditions, long-term bonds are not attractive to investors desiring liquidity—these investors now hold bills, certificates, and notes or bonds that are nearing maturity. Moreover, even to the more stable long-term investors, such as insurance companies and mutual savings banks, liquidity is of some significance, and since institutions of this kind are undoubtedly averse to risk and have to be paid for assuming it, the increased liquidity risk means that such investors are now prepared to hold Treasury bonds only at higher yields than formerly relative to other investments. Of course, Government securities are still free from risk of default of principal and interest and therefore possess an element of superiority over corporate bonds. But the superiority of long-term Governments has been reduced as their liquidity has declined. This development has almost certainly tended to reduce the differential between yields on Government securities and private securities of various kinds and thus to make it necessary for the Treasury to pay higher interest rates relative to other borrowers in order to attract funds.

2. *Changing attitudes toward corporate securities.*—At the end of World War II, it seems very likely that, in their evaluation of the risks involved in corporate bonds, investors were strongly influenced by their experiences in the great depression of the 1930's. There was widespread fear that after the war ended the economy might revert to its former state of stagnation and unemployment. Defaults of interest and principal on corporate bonds had been fairly common in the 1930's, and this doubtless led investors to place relatively high risk premiums on corporate bonds, thus making Treasury securities, which are completely free of default risk, quite attractive and making it possible for the Government to borrow at interest rates substantially lower than those paid by corporate borrowers.

However, as the years have passed since the end of the war and prosperity has been sustained with only occasional brief and relatively mild recessions and as the conviction has spread that secular inflation rather than secular stagnation is the problem with which we shall be struggling for some time into the future, the attitude toward corporate securities has undoubtedly undergone a substantial change. As a result, the risk premiums on corporate bonds—particularly those of relatively lower quality—have been reduced. This factor has tended to narrow the yield differentials between corporate bonds and Treasury bonds and thus weaken the competitive position of the Treasury as a borrower.

<sup>19</sup> See the discussion of the interest rate structure in ch. IV.

3. *The rise of Government-supported mortgages.*—Another development that has probably served to undercut to some extent the competitive position of Treasury securities is the tremendous growth during the postwar period of amortized mortgages insured by the Federal Housing Administration and guaranteed by the Veterans' Administration. The amount of outstanding FHA-insured mortgages on nonfarm one- to four-family properties rose from \$4.1 billion at the end of 1945 to \$19.7 billion at the end of 1958, an increase of 380 percent, while the amount of outstanding VA-guaranteed mortgages on the same class of properties grew from practically zero to \$30.4 billion during the same period.

FHA-insured and VA-guaranteed mortgages have some of the same investment properties as Treasury securities. While these mortgages are not completely free from risk, they are very low-risk investments and in this respect are very close substitutes for Government securities. While the acquisition and management of these investments involves some costs that are not present in the case of Treasury securities, the interest rates on them have been above those on Government bonds in recent years by a large enough margin to make the net returns to the investor higher. While they are typically long-term investments, having maturities in many cases of 20 to 30 years, the amortization feature greatly reduces their effective maturity, and it is further reduced by the pronounced tendency of borrowers to pay the mortgages off in full substantially before maturity. Finally, the market support activities of the Federal National Mortgage Association have helped to develop an increasingly active secondary market in Government-supported mortgages, thus greatly increasing their liquidity. There seems to be little doubt that the rapid expansion of these housing programs has absorbed a considerable volume of funds that might otherwise have gone into—or at least remained invested in—long-term Treasury securities.

4. *Continued tax exemption of State and municipal securities.*—In 1941, the interest on Treasury securities was made fully subject to Federal taxes. While there was some discussion at the same time of repealing the exemption applicable to interest on State and municipal securities, such action was not taken. As a result, Treasury securities are substantially less attractive to investors in high tax brackets today than was the case before the war. The strength of this factor is, of course, reinforced by the fact that tax rates are substantially higher today. The consequence of this situation is that yields on higher quality State and municipal securities are substantially lower than yields on Treasury bonds of equivalent maturity, even though the State and municipal securities are subject to some risk of default.

If we look at developments during the postwar period, however, some qualification of the above statement is necessary. State and local governments have found it necessary to borrow tremendous sums during the postwar period to finance the construction of schools, roads, and other public facilities. As a result the net indebtedness of State and local governments grew from \$13.7 billion in 1945 to \$50.9 billion in 1958, an increase of 272 percent.<sup>20</sup> In order to raise such large amounts of money, it has been necessary for State and local governments to tap the savings of investors in intermediate tax brackets, for

<sup>20</sup> Survey of Current Business, May 1957, p. 17; May 1959, p. 12. Net indebtedness of State and local governments is defined as total debt less State and local government securities held by State and local governments.

whom the tax exemption is considerably less valuable than it is to investors in the very highest brackets who used to be almost the sole investor in State and municipal securities. Thus, while States and municipalities—at least those with high credit ratings—can still borrow at lower interest rates than the Treasury, the differential has narrowed somewhat in recent years.

5. *Summary.*—All of the factors just discussed, to the extent that they have been present, have presumably weakened the Treasury's position relative to other borrowers and increased the Treasury's difficulties in borrowing, particularly in the long-term market. Other things remaining the same, they would presumably result in an increase in the yields on Treasury securities relative to other kinds of debt. On this basis, one might expect to find a tendency for yields on Treasury bonds to rise relative to yields on corporate bonds, particularly lower grade corporate bonds. Yields on State and municipal bonds should be lower in relation to Treasury bonds than before the war, but for reasons suggested above, one might expect the differential between the two to have narrowed somewhat since the early postwar period. In a general way, the movements of interest rates during the postwar period do indicate these tendencies, as indicated in chart III-1, which compares movements of yields on long-term Treasury securities, high-grade State and local government bonds, and intermediate grade corporate bonds. The differential between Treasury bonds and intermediate grade corporate bonds was roughly 100 basis points in 1947, and it has been about the same recently. However, due to the general rise in the level of yields, in relative terms corporate yields are only about 25 percent higher than yields on Treasury bonds at the present time, whereas in 1947 they were about 40 percent higher. Yields on high-grade State and local government bonds have been lower than yields on Treasury bonds throughout the postwar period, but since 1951 the differential has declined considerably, presumably reflecting the need to tap the savings of persons and institutions in lower marginal income tax brackets, as suggested above.<sup>21</sup>

While there is thus some indication that yields on Government securities have risen relative to yields on other kinds of debt, it must be admitted that the changes have been rather ragged and irregular and the interpretation is not entirely clear cut. However, there is another factor that must be taken into account. Between the end of 1947 and the end of 1958, the total amount of net corporate debt having an original maturity of over 1 year rose from \$46.1 billion to \$119.5 billion, an increase of 159 percent, while net State and local government debt grew from \$14.4 billion to \$50.9 billion, an increase of 253 percent. Total outstanding mortgage debt rose from \$48.9 billion at the end of 1947 to \$171.4 billion at the end of 1958, an increase of 251 percent. During the same period, the total publicly held marketable Federal debt having an original maturity of more than 1 year (i.e., notes and bonds) fell from \$119.7 billion to \$98.1 billion, a decline of 18 percent.<sup>22</sup> With the volume of outstanding Treasury securities

<sup>21</sup> Chart III-1 also shows that yields on State and municipal securities are subject to unusually wide fluctuations and seem to be especially sensitive to changes in general credit conditions—rising sharply in periods such as early 1953 and 1955-57 when credit was tightening and falling sharply in easy credit periods such as 1953-54 and 1957-58. Part of the explanation for this is probably that banks, which are most directly affected by monetary policy changes, are heavy investors in State and municipal bonds.

<sup>22</sup> Data are taken from various issues of the Survey of Current Business and the Federal Reserve Bulletin

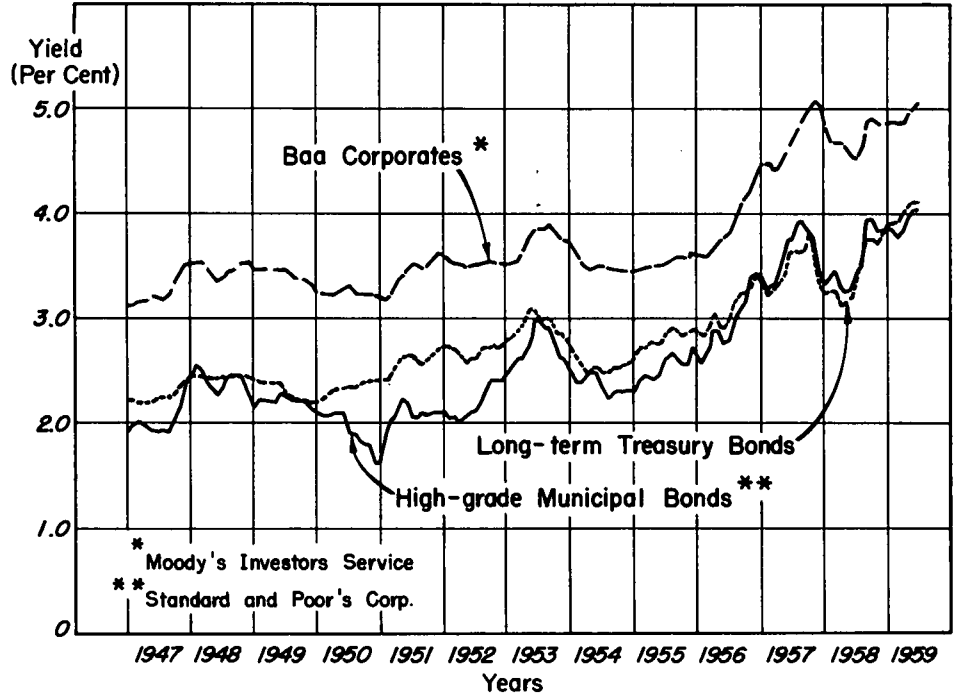


Chart III-1. Yields on Treasury, corporate, and municipal bonds, 1947-1959

Source: Federal Reserve and Department of Commerce

declining somewhat at the same time that virtually all other kinds of debt were registering huge increases, one might expect that the increased relative scarcity of Treasury securities might have produced some decline in their yields relative to yields on other kinds of debt. If anything, however, as we have seen, the reverse seems to have been the case—yields on Treasury bonds appear to have risen somewhat compared to yields on corporate bonds and have declined only a little relative to yields on State and municipal bonds, despite the fact that there has probably been a substantial decline in the interest saving to State and local government units resulting from the exemption from Federal income taxes. All of this indicates that there has indeed been a decline in the attractiveness to investors of long-term Federal securities relative to other kinds of debt. Probably the chief reasons for this development are the reduced liquidity of Government debt under a flexible monetary policy, the tremendous increase in the outstanding volume of Government-backed mortgages with investment properties somewhat similar to Federal securities and paying higher net yields, and, to a lesser extent, the development of more optimistic views concerning the safety of corporate securities.<sup>23</sup>

These considerations suggest that the Treasury would have been able to sell a substantial amount of additional long-term bonds in recent years only if it had been willing to pay substantially higher interest rates to overcome the decreasing attractiveness of Government securities. Moreover, to have sold bonds in boom periods such as 1955-57 would have been particularly difficult since, in the case of corporate securities with which the Treasury would have been competing, yields on newly issued securities have shown a tendency to rise sharply above those on outstanding securities. Similarly, it seems certain that the Treasury would have found it necessary to have priced its new issues so as to give the prospective investor a yield substantially higher than the yields on outstanding issues of the same maturity. Thus, an aggressive program of selling long-term bonds would have pushed up the yield curve, especially in the longer maturity range, and also it would have been necessary to pay interest rates on new issues considerably above the yield curve

#### *Suggested remedies*

One hears various suggestions that are designed to restore the Treasury's competitive position and make it easier for the Government to borrow. One possibility might be to restore the tax exemption—that is, to make the interest on Treasury securities exempt from the Federal personal and corporate income taxes, as it was before 1941. However, it is virtually certain that restoration of the exemption would hurt rather than help the Treasury, since it would almost certainly reduce tax receipts more—and probably very much more—than it would reduce interest costs. If the amount of Federal borrowing (together with State and local borrowing which is now tax exempt) were so small that all of the funds could be borrowed from investors in the very highest tax brackets, the savings in interest cost could be expected to be just about equal to the loss of tax revenues.

<sup>23</sup> Another factor sometimes mentioned as partly responsible for the Treasury's difficulties is the growing fear of secular inflation. It is true that an increase in the price level of, say, 2 percent per year means that a 4-percent money rate of interest is in reality only a 2-percent "real" rate of interest. For this reason, prospective inflation may raise the money rates of interest at which given amounts of funds are forthcoming for investment in debt contracts. To the extent that this factor is at work, however, it would affect the cost of funds to all issuers of debt instruments and not merely to the Treasury.

This is because the yield that would have to be paid to the lender would tend to be reduced enough to compensate for the tax loss.<sup>24</sup> However, if, as is obviously the case, the necessary volume of borrowing were large enough to require the Treasury to tap the savings of investors in tax brackets below the highest, the tax losses would tend to exceed the reduction in interest cost. This is because the value of the tax exemption to an investor is lower the lower his marginal tax rate, while the interest rate that must be paid to all investors will be the rate necessary to attract the marginal lender. Consequently, the Treasury will lose more in tax revenues than it will gain through reduced interest cost on the securities it sells to all investors except the marginal ones.<sup>25</sup>

Thus, it is clear that it would be foolish and costly to the Treasury to restore the tax exemption on Federal securities; moreover, it would tend to create a large loophole through which wealthy taxpayers could escape taxation. In fact, a more sensible proposal which would tend to improve the competitive position of Treasury securities would be to remove the exemption from the Federal personal and corporate income tax that is now applicable to State and municipal securities. This exemption is presumably meant to be a subsidy to State and local governments. However, it is a costly and inefficient kind of subsidy. By the same reasoning employed above, if State and local governments borrowed such small amounts that they could obtain the full amount from investors in the highest Federal tax brackets, the reduction in interest cost to States and municipalities would tend to be equal to the loss of tax revenues to the Federal Government. However, as State and local governments increase the scale of their borrowings, they have to appeal to investors in lower Federal tax brackets, and the loss in tax revenues to the Federal Government exceeds the interest savings to States and municipalities. Thus, part of the subsidy, in effect, goes to taxpayers in the higher tax brackets rather than to the State and local governments, who are its intended recipients. It is quite clear that as State and local governments have greatly increased the scale of their borrowings in recent years, they have had to tap the savings of investors in lower tax brackets, with the result that the interest saving to them has been reduced while the benefits of tax exemption have increasingly accrued to wealthy investors.<sup>26</sup> Although there are some problems involved in the removal of the exemption for State and local government borrowing, there are strong arguments for

<sup>24</sup> For example, if the Treasury borrowed \$1 billion entirely from investors in the 90 percent tax bracket and if the yield required to induce these investors to buy \$1 billion of bonds in the absence of the tax exemption was 3 percent, the required yield should fall to 0.3 percent if the interest were exempted from tax. In the case in which the interest was taxable, the investors would receive \$30 million per year in interest and pay back \$27 million in taxes on it—the after-tax income of the investors would be \$3 million and so would be the net cost to the Government. If the interest were exempted from tax, the Government would pay the investors \$3 million in interest and receive no taxes on it.

<sup>25</sup> To take a somewhat oversimplified example, suppose that, in the absence of a tax exemption, the Treasury can sell at a 3 percent interest rate \$1 billion of securities to investors in the 90 percent income tax bracket and \$1 billion more to investors in the 40 percent tax bracket. If interest is exempted from taxes, it will be necessary to pay an interest rate of 1.8 percent to sell the \$1 billion to investors in the 40 percent bracket, since this is the after-tax yield they would have received in the absence of the exemption. By the same reasoning employed in footnote 24, the net cost per year on the \$1 billion borrowed from these investors will be \$18 million whether interest is tax-exempt or not. However, in the absence of the exemption, the Treasury would have had to pay \$30 million in interest on the \$1 billion borrowed from investors in the 90 percent bracket but would have received in return \$27 million in taxes, reducing the net cost to \$3 million. With the tax exemption, however, it would have to pay these investors \$18 million and would receive no taxes from them on this interest, so that the net cost would be \$18 million. Thus the tax exemption would cost the Treasury \$15 million.

<sup>26</sup> It may be noted that if the tax exemption were restored to Federal securities, the result would be a further large increase in the supply of tax-exempt securities. In order to get investors to hold these additional securities, it would be necessary to reach still further down into lower income tax brackets, thus reducing the benefits to State and local governments from tax exemption and providing substantial additional gains to investors in high income tax brackets.

such a step.<sup>27</sup> If it were desired to continue subsidizing State and local government borrowing or capital expenditures, some other more efficient and equitable subsidy could be introduced.<sup>28</sup>

Another possible way of offsetting the attrition that appears to have taken place in the market for Treasury securities would be to establish a captive market for such securities by imposing requirements on some class or classes of investors that a certain portion of their assets must take the form of specified types of Government securities or that they must hold such securities to the extent of a specified proportion of their outstanding claims. For example, commercial banks and perhaps other financial institutions, such as savings and loan associations and mutual savings banks, could be required to hold Government securities to the extent of a certain proportion of their deposit liabilities. Numerous proposals of this kind have been made since World War II. Since, in addition to adding a compulsory element to the demand for Government securities, these proposals have significance in connection with the effectiveness of credit controls, we will postpone our discussion of them until a later point.<sup>29</sup>

A third possible way of increasing the attractiveness of Government securities that has sometimes been suggested is the issuance of purchasing power bonds—i.e., bonds on which the periodic interest payments are tied to an index of the general price level. Such bonds might prove to be very attractive to many investors, since they would combine complete freedom from risk of default with a guaranteed rate of return in real terms. Thus, they would be an ideal hedge against inflation for many types of investors. The merits of the device from the standpoint of Treasury debt management are somewhat more problematical. Presumably to the extent that it is the fear of inflation that has impeded the Treasury's success in selling bonds, the reluctance of the public to invest in its securities could be overcome either by simply paying a sufficiently high contractual rate of interest to compensate the public for the expected inflation or by the institution of a purchasing-power guarantee. Essentially, which of these alternatives would cost the Treasury less would depend upon whether the actual realized rate of inflation was higher or lower than the ex ante rate of inflation expected by investors: If the actual rate turned out to be greater than the ex ante rate, the purchasing power guarantee would be more expensive, while if the ex ante rate were higher than the realized rate, the guarantee would be less expensive. However, there is another consideration. If the Treasury's problem arises, as we suggested above, not chiefly as a result of the fear of inflation which makes it necessary for all borrowers to pay higher interest rates, but from a shift in the preferences of investors from Treasury securities to other forms of debt instruments, a purchasing power guarantee might help the Treasury, since it is the only economic entity which is in a position to issue securities which behave like equities but possess

<sup>27</sup> The problems have to do mainly with treatment of present holders of outstanding bonds and future buyers of these bonds. For an excellent analysis of the whole problem, see L. C. Fitch, "Taxing Municipal Bond Income" (University of California Press, 1950). See also H. E. Brazer, "Interest on State and Local Bonds and the Federal Income Tax," in "Tax Revision Compendium," Committee on Ways and Means, House of Representatives, (Washington: Government Printing Office, 1959), vol. I, pp. 721-728.

<sup>28</sup> The problem of devising an appropriate form of subsidy involves many thorny questions of Federal-State relations. It is probably chiefly the difficulties involved in devising an acceptable substitute that have been responsible for the defeat of numerous efforts to remove the tax exemption.

<sup>29</sup> See ch. VI.

no risk of default.<sup>30</sup> By issuing such securities, the Treasury might be able to take advantage of its preferred position as compared with other borrowers to attract funds away from them at an interest saving to itself. Moreover, to the extent that this process restrained private spending by inducing financial institutions to buy—or at least hold onto—Government securities rather than private debt, it would presumably permit a relaxation of the degree of general credit restriction and might thereby allow the Treasury to sell further conventional securities without a purchasing power guarantee at lower interest rates than would otherwise be necessary.

Although a purchasing power guarantee might help the Treasury in its debt management problems by permitting it to sell securities at lower interest cost than would otherwise be possible, the real issues concerning the desirability of purchasing power bonds lie entirely outside the area of debt management. These issues are concerned with the desirability of the Government's providing investors with protection in the form of a hedge against inflation and what the effects of such action would be upon expectations. The opinion appears to be rather widespread that such a policy would be widely interpreted as a sign that the Government had given up on the possibility of controlling inflation and had decided to adapt its policies to the assumption that inflation was inevitable.<sup>31</sup> The present writer is inclined to the view that it would be advantageous to experiment with escalator provisions in savings bonds designed for small investors, but that as a major contribution to the solution of the Treasury's debt management problems, escalation has little to recommend it.<sup>32</sup>

#### *Paying the necessary price*

In addition to "gimmicks" or special devices to broaden the market for Federal bonds, such as tax exemptions, captive markets, purchasing power bonds, etc., there is a simple, straightforward way to sell more bonds; namely, pay a sufficiently high interest rate to induce investors to buy them. While, as indicated, it would probably have been necessary to pay considerably higher interest rates, especially during periods of tightening credit conditions, in order to have sold significantly larger amounts of long-term bonds in the last few years, there can be little doubt that if the Treasury is in fact prepared to pay the necessary price it can obtain—at least within reason—any amount of long-term funds it wants. In fact, the "gimmick" approach sometimes seems to miss the whole point about debt management. The proper purpose of debt management is not merely to sell bonds or any other kind of Federal securities—or even to raise money, for that matter. The Government can always create money to finance its expenditures, and this method of financing has the advantage that it involves no interest cost at all. Money can be created not only to meet a current budget deficit but to pay off maturing securities as

<sup>30</sup> Corporations are deterred from issuing equities in any case due to the fact that interest is deductible in computing the corporation income tax while dividends are not and also by the fact that many of the important financial institutions have a strong aversion for risk and therefore prefer to invest in debt instruments.

<sup>31</sup> For a discussion of the alleged evil effects of escalation, see the article entitled "Creeping Inflation," Federal Reserve Bank of New York Monthly Review (June 1959), pp. 88-94.

<sup>32</sup> The introduction of escalator clauses in savings bonds is advocated in H. S. Houtthaker, "Protection Against Inflation," Study Paper No. 8.



well.<sup>33</sup> The purpose served by borrowing is therefore not the raising of funds but the production of desirable economic effects—such as the achievement of a more satisfactory level or pattern of private expenditures. Once this point is made clear, it becomes apparent that keeping down the interest rates that the Treasury has to pay for its borrowing is not necessarily a desirable objective. If interest rate variations are an efficient means of controlling the level or the pattern of private expenditures in pursuit of desirable economic objectives, changes in interest rates—for example, increases in time of inflation—may be the very thing that debt management should seek to accomplish. On the other hand, when debt management is considered in terms of its economic effects, the use of “gimmicks” to sell bonds is not necessarily ruled out. However, the test applied in evaluating such devices is not whether they save interest to the Treasury but whether they produce desirable economic effects. For example, in time of inflation, requiring commercial banks to hold government securities may be a more effective way of restraining inflation than offering high interest rates to sell more bonds in a free market. This might be the case if, say, private expenditures were highly inelastic to changes in interest rates, so that offering high rates to obtain funds for the Treasury would do little to curb private spending, while forcing bonds on the banks would effectively reduce their ability to expand loans and contribute considerably to the anti-inflationary program.

Thus, the problems related to the attrition of the market for government securities, discussed above, are often regarded from the narrow point of view of the Treasury as a “money raiser” as the central problems of debt management. However, when debt management is viewed in the proper perspective of general economic policy, the real issue is how to manage the debt so as to produce the most desirable economic effects. In order to arrive at a proper answer to this question, it is necessary to consider the economic effects of changes in the size and composition of the debt, the subject to which we shall turn our attention in the next chapter.

#### OTHER RECENT PROBLEMS

In the last couple of years particularly, the Treasury has begun to encounter some new problems in debt management which seem to be a byproduct of increasing sophistication on the part of the public in anticipating what to expect from government in an environment in which flexible monetary and fiscal policies are employed vigorously in an effort to maintain economic stability.

##### *Sharp changes at turning points*

When the Federal Reserve reduced the discount rate in November 1957, as the first sign of a change in policy to deal with the recession, interest rates promptly began to decline. Yields on long-term Treasury bonds fell from 3.73 percent in October 1957 to 3.12 percent in April 1958, while rates on 3-month Treasury bills declined much more sharply from 3.58 percent in October 1957 to 0.83 percent in June 1958. Sustained heavy demands for long-term funds to refinance short-term

<sup>33</sup> Actually, this method of financing is a bit difficult to implement under our present institutional arrangements. However, in principle it can be achieved by having the Treasury sell its securities directly to the Federal Reserve, with the System raising member-bank reserve requirements enough to immobilize the excess reserves created when the Treasury uses the funds for current expenditures or the retirement of publicly held debt.

credits obtained during the preceding period of monetary restriction probably accounted for the slowness with which long-term rates declined. In any case, short-term rates fell to very low levels, particularly in relation to long-term rates.

Recovery began to develop in the spring of 1958, although there was some lag before the evidence became available that this was the case. By midsummer, however, recovery tendencies became generally apparent, and a very sharp reaction of long-term rates set in. Between June and September, long-term rates on Treasury bonds rose from 3.19 percent to 3.75 percent—by the latter date, which, of course, represented a very early stage in the recovery process, long-term rates were higher than they had been at the peak of the period of inflation and tight credit in 1957. Short-term rates continued to decline after long-term rates had begun to turn up, but between June and September they also rose rather sharply.

The sharp rise in long-term rates as soon as business activity starts to turn up is probably something that can be expected in future recoveries unless measures are taken to prevent it. As soon as investors see the forces of recovery developing, they know that it will not be long before the Federal Reserve will turn to a restrictive policy. Moreover, they know that the recovery is likely to gain momentum and develop into inflation and that, in consequence, a restrictive monetary policy and rising interest rates can be expected for some time to come. Consequently, they tend to back away from long-term bonds whose prices are expected to fall as interest rates rise. The result is an exaggerated and sudden rise in long-term interest rates in anticipation of inflation and credit restriction.

#### *Debt management problems during recovery*

The Treasury encountered problems of debt management during the period of recovery in 1958-59 which can probably be expected to plague us again in recovery periods if fiscal policy is used aggressively to combat recessions. These problems arise essentially from a carryover of recession budget deficits into the recovery period. Thus, by the spring of 1958 it was apparent that the Treasury was to have a very large deficit during the fiscal year 1959. This was certainly one of the factors that caused the sharp rise in interest rates between June and September 1958, since investors saw clearly that the Treasury would be a heavy cash borrower during the coming months.<sup>34</sup> At the same time, as suggested above, the onset of recovery made it apparent that the Federal Reserve would soon shift in the direction of a restrictive policy. This latter expectation was clearly confirmed when the discount rate was raised in August.

The Treasury found itself faced by mid-1958 with the problem of financing a cash deficit which, in fact, amounted to \$13 billion during the next year, at a time when interest rates were already beginning to rise. As we saw earlier in this chapter, the Treasury's debt management problems were further complicated by an especially heavy schedule of refundings during 1958, due partly to the fact that the restrictive credit policies of 1956 and 1957 had induced it to finance heavily in the short-term market and much of the resulting short-term debt rolled over and came due again in 1958.

<sup>34</sup> Speculative activities, discussed in the next section of this chapter, were also an important cause of the sharp rise in interest rates.

Table III-2 shows the cash budget surplus or deficit and the surplus or deficit of the Federal Government on income and product transactions (i.e., the budget as it appears in the national income accounts) by quarters for 1957, 1958, and the first half of 1959. These two sets of data are not entirely comparable because the income and product budget surplus or deficit is expressed as an annual rate and is seasonally adjusted, while the cash budget surplus or deficit is unadjusted. Nevertheless, a comparison is of some interest. While there is no single satisfactory measure of the fiscal impact of government on the economy, the budget as shown in the national income accounts is probably the best measure available. Table III-2 shows that the budget deficit in the national income accounts reached its peak (on a seasonally adjusted basis) in the second quarter of 1958 and thereafter gradually tapered off until a small surplus appeared in the second quarter of 1959. Making allowance for the fact that in a normal year the cash budget shows a surplus in the first half of the year due to heavy tax collections in March and June, it is apparent from the existence of small cash deficits in the first two quarters of 1959 that the effects of the recession were still being felt quite strongly during this period.<sup>35</sup> Thus, the monetary and debt management effects of the recession deficit carried over well into the recovery period after the fiscal effects had pretty well spent themselves.<sup>36</sup>

TABLE III-2.—*Comparison of surplus or deficit in cash budget and in national income and product accounts budget, 1957-59*

[Billions of dollars]

Calendar year and quarter	Excess of receipts from or payments to (-) the public	Government surplus or deficit (-) income and product transactions <sup>1</sup>	Calendar year and quarter	Excess of receipts from or payments to (-) the public	Government surplus or deficit (-) income and product transactions <sup>1</sup>
1957 I.....	4.8	4.8	1958 II.....	1.4	-10.9
1957 II.....	3.3	2.2	1958 III.....	-5.5	-10.1
1957 III.....	-2.4	3.0	1958 IV.....	-7.1	-7.8
1957 IV.....	-4.4	-6	1959 I.....	-1	-3.9
1958 I.....	4.0	-8.0	1959 II.....	-3	.4

<sup>1</sup> Seasonally adjusted quarterly totals and annual rates.

Sources: Treasury Department and Department of Commerce.

Criticisms were frequently made of the heavy deficit of fiscal 1959, and the Treasury's debt management difficulties were attributed to fiscal mismanagement. These criticisms seem to miss the point that undoubtedly the heavy deficit that was initiated during the recession was in large part responsible for the rapid pace of the recovery. If fiscal policy is used aggressively in a recession and succeeds in producing a vigorous and prompt recovery, problems of this kind seem to be inevitable, since the deficit is certain to persist on a cash basis

<sup>35</sup> The national income and product budget adjusts to changes in national income with a much shorter lag than the cash budget. The chief reason for this is that corporate income taxes are included in the national income accounts on an accrual rather than a cash basis. For a summary of the factors accounting for the difference between the two budgets for 1956-58, see Survey of Current Business (July 1959), p. 26, table III-10.

<sup>36</sup> On a calendar year basis, the national income account budget showed a deficit of \$9.1 billion during 1958 and, according to present indications, will show a surplus in 1959. On the other hand, the cash budget (including only transactions passing through the account of the Treasurer of the United States, a slightly different concept from that shown in table III-2) showed a deficit of \$7.2 billion for the period Jan. 1 through Oct. 27, 1959, as compared with a deficit of only \$3.9 billion in the comparable period in 1958. Thus, it appears certain that the cash deficit in 1959 will be larger than in 1958. (Calculations based on data from the Treasury Bulletin and the Daily Treasury Statement as published in the New York Times.)

into the period of recovery and to disappear only gradually. It certainly would be undesirable to raise taxes or reduce expenditures during the early stages of the recovery in order to speed the achievement of budgetary balance. Actually, the debt management difficulties during this period probably did relatively little harm, since there is certainly no evidence that they interfered with the Federal Reserve's ability to apply restrictive policies. In fact, one can question the desirability of having the long-term rate of interest rise as rapidly as it did during the early stages of recovery. Treasury debt management operations were probably partly responsible for this, but more flexible policies on the part of the Federal Reserve could have mitigated it.

### *Speculative excesses*

The occurrence of extensive speculation in connection with new offerings of Treasury securities has aroused considerable concern recently. Attention has centered particularly around the speculative debacle connected with the issuance of the 2½ percent bonds of 1965 in June 1958. The chief causes and consequences of this episode are now reasonably clear, as a result of an extensive study prepared by the Treasury and the Federal Reserve System.<sup>37</sup>

The facts can be summarized briefly as follows: For several months prior to the issuance of the 2½ percent bond in the June refunding, there had been considerable profitable speculation in Treasury securities. After the Federal Reserve reduced the discount rate in November 1957, indicating a shift in the direction of easy money, interest rates fell sharply and the prices of longer term Treasury securities rose. The Treasury put out four issues of bonds between the time of the discount rate reduction in November and the June refunding, and in each case the issues experienced sharp price appreciation, thus attracting investor attention.<sup>38</sup> Thus, investors, expecting the Treasury to offer a bond in the June exchange, and expecting a continuing rise in bond prices, began to purchase the "rights" (i.e., maturing securities) well in advance of the June refunding.

The speculative buildup of positions in "rights" was financed through the availability of very abundant credit on easy terms. Although interest rates declined substantially after the discount rate reduction in November, a continuing heavy demand for long-term funds (including demand by the Treasury) tended to check the decline in long-term rates. With short-term rates falling very sharply, the result was a situation in which the differential between long- and short-term rates was unusually large. This situation contributed to the speculative fever in two ways: first, by generating expectations of further declines in long-term rates and second, by making available an ample amount of cheap, short-term credit for the financing of speculative positions in "rights." These positions were financed by bank loans and by repurchase agreements, mainly with nonfinancial corporations. Lenders in many cases required little or no margin.

In the June refunding, the Treasury offered holders of three maturing securities, a choice of two securities: a 1¼ percent 11-month

<sup>37</sup> "Treasury-Federal Reserve Study of the Government Securities Market," pts. I, II, and III. At the time this is written, pt. I has been published by the Treasury Department and the Board of Governors of the Federal Reserve System, but pts. II and III are available only in preliminary mimeographed form.

<sup>38</sup> The Treasury sold \$654 million of 3¼ percent 17-year bonds for cash in early December, \$3,854 million of 3 percent 6-year bonds and \$1,727 million of 3¼ percent 32-year bonds in an exchange operation in early February, and \$1,484 million of 3 percent 8½-year bonds for cash in late February. An issue of \$1,135 million of 3¼ percent 26-year bonds was also sold for cash at the time of the June refunding.

certificate and a 2½ percent 6½-year bond. The publicly held portions of the three maturing issues aggregated \$9,110 million, of which \$1,725 million was exchanged for the certificate, \$7,033 million was exchanged for the bond, and \$352 million was turned in for cash. The demand for the new bond was much heavier than the Treasury had anticipated, reflecting the speculative demand that had been built up through the extensive trading in "rights" prior to the offering.

The difficulties that followed the issuance of the new securities were primarily due to the fact that a sudden change in the economic outlook and in interest rate expectations occurred at just about the time the securities were issued. Actually, it has since become apparent that the low point of the 1957-58 recession occurred in April, so that recovery was already under way at the time that the speculative positions in rights were being built up; however, due to the lag in the collection and publication of statistics, this was not apparent to most observers at the time. By mid-June when the new securities were issued, visible signs of recovery began to appear. Expectations that interest rates would continue to decline were suddenly replaced by expectations of rising rates, associated with expectations of rising business activity and a shift toward restrictive credit policy on the part of the Federal Reserve. The expectations of rising interest rates were accentuated by the sudden realization that the Treasury would have a large budget deficit in the new fiscal year, which would necessitate heavy borrowing.

Under these circumstances, bond prices began to fall, and investors who had bought the new 2½ percent bond in anticipation of quick speculative gains found themselves faced with losses instead. Many small and inexperienced investors who apparently held the newly issued bonds on thin or nonexistent margins found themselves faced with calls for additional margin which they could not meet and were forced to sell in a falling market.<sup>39</sup> The resulting scramble to liquidate set off a decline in security prices, with the result that by late September—at a fairly early stage in the period of recovery—the yield on long-term Treasury bonds was back at the 3¼-percent level that had prevailed at the peak of the previous period of tight credit in 1957. It may be noted that both the Treasury and the Federal Reserve intervened on a small scale in June and July in an unsuccessful attempt to stabilize the market.<sup>40</sup>

Too much significance probably should not be attached to the speculative episode which occurred in 1958. The dramatic nature of the incident is a result of the fact that it happened to occur at the precise time that market expectations were undergoing a sudden change. Speculative activity, if not carried to excess, can provide useful underwriting support for Treasury financing, since speculators buy up new Treasury issues and then sell them to other investors as funds become available for investment. The profits of speculators

<sup>39</sup> The financing of investments in "rights" on thin or even nonexistent margins is not a particularly reprehensible practice, since these securities, being of very short maturity, are not subject to any appreciable price variation. However, when new longer term securities are issued in exchange for the rights, the usual practice is to require additional margin. In the 1958 episode, however, many lenders continued to finance positions in the 2½ percent bonds, after their issuance, without requiring additional margin.

<sup>40</sup> During June and July, the Treasury bought \$491 million of the 2½ percent bonds for retirement under sec. 19 of the Second Liberty Bond Act, as amended, and another \$100 million for the Treasury investment accounts. At the beginning of August, a large refunding operation, involving three issues totaling \$16.3 billion (\$9 billion held by the public) showed signs of running into difficulties, and the Federal Reserve bought \$1.1 billion of the certificates being offered in exchange and \$110 million of the rights. However, the System shortly offset most of the monetary effects of these support operations through the sale of bills in the market.

may be regarded as a price the Treasury pays for underwriting services.<sup>41</sup> Even in the case under consideration, despite the disruption caused by the sudden change in expectations, the securities had apparently moved out into the hands of investors by the end of 1958.

There are, however, two or three disquieting aspects to the speculative episode of 1958. One is that apparently the speculation tended to be carried to excess due to the unusually large differential between short- and long-term interest rates that was permitted to develop in early 1958. It is not clear whether the dangers inherent in this situation were recognized by the authorities at the time, but if they were, the situation could probably have been corrected by a more flexible open market policy on the part of the Federal Reserve—the System could have sold Treasury bills and bought longer term securities to correct the disparity in the rate structure. Again, after the liquidation of speculative positions got underway in June and July and began to drive up long-term interest rates, a more flexible System policy might have been desirable. While the rise in long-term interest rates may have done no harm, there is no evidence that it was desired by the authorities at the time. It would appear that the System let this development occur without attempting to do anything about it because of a rather doctrinaire adherence to the so-called bills-only policy.<sup>42</sup>

Finally, the loose credit practices that helped to accelerate the speculative buildup are a matter for serious concern. They raise the question as to whether it might be desirable to impose some kind of legal margin requirements on trading in Treasury securities. This question is discussed rather inconclusively in the Treasury-Federal Reserve study of the Government securities market.<sup>43</sup> One thing seems clear—that if higher margins are imposed it will be necessary to provide for special treatment of Government security dealers in order to permit them to finance their positions in an economical fashion. The present writer is inclined to favor waiting for further evidence before urging that any formal action be taken. In the 1958 episode it is not clear that the speculation hurt anyone but the speculators.

#### *The savings bond problem*

The savings bond program was begun in 1935 and grew to major proportions during World War II. The Treasury has relied mainly on this program as a means of attracting individual savings, especially savings of persons of moderate means, into Government securities. At the present time, two types of savings bonds, the series E and series H bonds, are being sold. The two series are similar in several respects—they yield the same return if held to maturity, both are redeemable on demand at specified prices, and annual purchases of each are limited to \$10,000 per year per buyer. However, the series E is a discount-type bond which pays the entire accumulated interest at maturity or time of redemption, while the series H bond pays interest semiannually. Both bonds pay a return that rises with the period of holding, so that they can be redeemed before maturity only at a sacrifice of yield.

<sup>41</sup> This matter is discussed further in ch. VI.

<sup>42</sup> See ch. V.

<sup>43</sup> See "Treasury-Federal Reserve Study of the Government Securities Market," pt. III.

Prior to April 1957, the Treasury also issued larger denomination savings bonds (series F and G bonds, replaced in May 1952 by series J and K). These had characteristics similar to the series E and H bonds, except that they were issued in larger denominations and were designed to appeal to wealthier individuals and institutional investors.

TABLE III-3.—Operations of U.S. savings bond program, fiscal years 1947-59

(Billions of dollars)

Fiscal year	Sales for cash	Cash payments for redemption <sup>1</sup>	Net cash receipts or payments (-)			Accrued discount on outstanding bonds	Increase or decrease (-) in bonds outstanding <sup>2</sup>	Total outstanding at end of year
			Total	Series E and H	Other <sup>3</sup>			
1947-----	7.2	5.5	1.7	-0.1	1.8	0.7	2.4	49.1
1948-----	6.2	5.1	1.1	.2	.9	.8	1.9	51.5
1949-----	7.1	5.1	2.1	.7	1.3	.9	3.0	53.4
1950-----	5.7	5.4	.3	.5	-.2	1.0	1.3	56.4
1951-----	5.1	6.1	-1.0	-1.0	(4)	1.1	.1	57.7
1952-----	3.9	5.1	-1.2	-.7	-.5	1.2	(4)	57.8
1953-----	4.6	5.6	-1.1	(4)	-1.1	1.2	.2	58.0
1954-----	5.5	6.5	-1.0	.3	-1.3	1.2	.2	58.2
1955-----	6.5	7.3	-.8	.7	-1.5	1.2	-.5	58.6
1956-----	5.8	7.8	-2.0	.5	-2.5	1.2	-.8	57.9
1957-----	4.9	9.0	-4.1	-.6	-3.5	1.2	-2.9	55.0
1958-----	4.7	8.5	-3.9	-.5	-3.4	1.2	-2.6	52.3
1959-----	4.5	7.2	-2.7	-.6	-2.1	1.2	-1.5	50.8
Total, 1947-59-----	71.8	84.4	-12.6	-.6	-12.1	14.4	1.8	-----
Total, 1951-59-----	45.5	63.2	-17.7	-1.9	-15.9	10.9	-6.8	-----

<sup>1</sup> Original sales price plus accrued discount.

<sup>2</sup> Includes A-D, F, G, J, and K bonds.

<sup>3</sup> "Increase or decrease (-) in bonds outstanding" equals "Total net cash receipts or payments (-)" plus "Accrued discount on outstanding bonds."

<sup>4</sup> Less than \$50,000,000.

NOTE.—Detail may not add to totals due to rounding.

Source: Treasury Department.

Table III-3 summarizes the operation of the savings bond program for the fiscal years 1947-59. The most notable fact brought out by this table is that the savings bond program has been a consistent cash drain on the Treasury since 1951. During the period from mid-1950 to mid-1959, cash payments for redemption of savings bonds (including both redemptions at maturity and before maturity) amounted to \$63.2 billion, while cash receipts from sales amounted to only \$45.5 billion, so that the net cash drain was \$17 billion. It should be noted that the effects of the savings bond program on the Treasury's cash position are appreciably understated by the statistics on bonds outstanding. During the 1951-59 period, the total amount of bonds outstanding declined by only \$6.8 billion; this amount is substantially smaller than the cash drain because the face amount of bonds outstanding tends to be increased by interest accruals on the discount-type bonds outstanding (the series E and J bonds). The amount of accrued discount has aggregated \$10.9 billion for the 1951-59 period, thus accounting for the difference between the cash drain on the Treasury and the decline in the amount of bonds outstanding.

It may be noted that the bulk of the cash drain in the last few years has been the result of redemptions of the larger denomination bonds (mainly series J and K). These bonds, which were discontinued in 1957, as indicated above, were designed to appeal to sophisticated investors. With the adoption of flexible monetary policy after the

Treasury-Federal Reserve accord of March 1951, and especially as monetary policy was applied more and more aggressively, particularly in periods of inflation, it was discovered that these sophisticated investors tended to redeem savings bonds and shift their funds into higher yielding marketable Treasury (or private) securities when interest rates rose. It was this kind of difficulty that caused the Treasury to discontinue the sale of the larger denomination bonds in 1957..

As can be seen from table III-3, the smaller-denomination bonds (series E and H) have also been the source of a cash drain on the Treasury during the fiscal years 1957-59. This is doubtless mainly due to the increases in interest rates on time deposits and savings and loan shares which have occurred in the last few years.<sup>44</sup> Acting under new legislative authority, the Treasury in September 1959 raised the interest rate on series E and H savings bonds from 3.26 to 3.75 percent.<sup>45</sup> It remains to be seen whether this change will increase the attractiveness of these securities to small investors. Other measures which might be taken to increase the attractiveness of savings bonds to small investors are discussed in a later chapter.<sup>46</sup> The cash drain resulting from redemptions of the larger-denomination savings bonds is almost certain to continue, but it will necessarily be brought to a halt before very long, since the amount of these bonds outstanding had been reduced to \$7.8 billion by the end of June 1959.

<sup>44</sup> The yields to maturity of U.S. savings bonds, series E and H, were raised from 3 to 3.25 percent, effective Feb. 1, 1957. However, the yields on savings bonds rise with the period of holding and are less than 3 percent for the first 3 years; thus, low rates during the early period reduce their attractiveness relative to time deposits and savings and loan shares. (Treasury Bulletin (May 1957), pp. A-1 ff.) According to data compiled by the U.S. Savings and Loan League for 1957, the average return on savings and loan accounts was 3.3 percent, the average interest rate on savings deposits in mutual savings banks was 3.0 percent, and the average interest rate on time deposits in commercial banks was 1.8 percent. (Savings and Loan Fact Book, 1958, table 34, p. 58.) However, compilations based on data contained in the accounting statements of all insured commercial banks indicates that the average interest rate on time and savings deposits in commercial banks in 1957 was 2.08 percent—somewhat higher than the Savings and Loan League estimate. (FDIC, Annual Report, 1957, p. 41.) Thus, yields on savings and loan shares and on time deposits in mutual savings banks have been somewhat higher than the returns on U.S. savings bonds for the first 2 or 3 years. Moreover, a number of savings and loan associations and savings banks have recently raised their rates, in some cases as high as 4 percent.

<sup>45</sup> For a full explanation of the new terms on savings bonds, see Treasury Bulletin (October 1959), pp. A-2 ff.

<sup>46</sup> See ch. VI.



## CHAPTER IV

### ECONOMIC EFFECTS OF DEBT OPERATIONS

As indicated in an earlier chapter, we shall define debt management to include all measures which affect the composition of the publicly held debt.<sup>1</sup> Specifically, debt management in this sense includes the following kinds of decisions:

1. Decisions by the Treasury concerning the types of securities to issue to finance deficits and to refund outstanding debt.<sup>2</sup>

2. Decisions by the Treasury concerning the types of debt to retire with budget surpluses. In practice the Treasury retires maturing debt—which necessarily has a zero maturity at the time it is retired regardless of its original maturity—but in principle there is nothing to prevent the use of excess tax revenues to buy up debt in the market prior to maturity.

3. Decisions by the Federal Reserve concerning the kinds of securities to buy and sell in the open market to effectuate monetary policy. Also included would be “swapping operations” in which the System might simultaneously sell one kind of security and buy another without affecting bank reserves or the money supply.

It should be noted that debt management as here defined does not include actions which affect the money supply.<sup>3</sup> Decisions concerning the magnitude—as distinct from the composition—of Federal Reserve open market purchases and sales fall under the heading of monetary policy. Fiscal policy encompasses the determination of the budget surplus or deficit. Given the surplus or deficit, the decision as to what portion of the surplus is to be used to retire debt and what portion is to be used to build up the Treasury’s cash balances or the decision as to what portion of the deficit is to be financed by borrowing and what portion is to be financed by drawing down cash balances falls under the heading of monetary policy, since changes in the Treasury’s cash balances have effects on the money supply and in some cases bank reserves.<sup>4</sup>

In this chapter we shall assume, for the most part, that all debt is marketable and that the extent of its marketability is unrestricted.<sup>5</sup> Marketable debt can vary in maturity, and our discussion has to do with the economic effects of issuing debt of different maturities and

<sup>1</sup> See ch. I.

<sup>2</sup> In addition to the usual kind of refunding at maturity, this takes in, of course, so-called “advance refunding”—i.e., the issuance of new securities in exchange for securities that have not yet matured.

<sup>3</sup> There may be second-order effects on the money supply resulting from the fact that debt management operations may cause shifts of bank reserves between banks having different reserve requirements. However, these effects are likely to be neither important nor predictable, and we shall disregard them entirely.

<sup>4</sup> The Treasury’s decisions as to whether to carry its cash balances in Federal Reserve banks or in commercial banks are also regarded as part of monetary policy.

<sup>5</sup> During World War II, the Treasury issued so-called bank restricted bonds—i.e., bonds which banks were not permitted to hold until they were within 10 years of maturity. It might appear that by the use of bonds that were restricted to certain classes of holders, the Treasury could reduce the interest cost of managing the debt, since this device would permit the Treasury to act as a discriminating monopolist by segmenting the market and, in effect, charging a higher price in submarkets having a more elastic demand. In this case, however, it is doubtful whether such discrimination would in fact reduce interest cost, since marketability is one of the desiderata of government debt, and placing restrictions on marketability might reduce the attractiveness of Treasury securities to most investors.

the considerations that might be involved in the choice of the optimum maturity mix.

In managing the debt, the Treasury is rightly concerned about the interest cost involved. Accordingly, we shall begin with a consideration of the ways in which the choice of debt management policies affects the behavior of these costs. Then we shall look into the ways in which alternative debt operations may affect private expenditures, since to the extent that debt management may contribute to the maintenance of economic stability and growth, this contribution is a result of its ability to affect the timing and composition of private spending. Next we shall consider simultaneously the interest cost effects and the expenditure effects to see how both of these considerations may be combined to arrive at an appropriate policy. In the final section, we shall step slightly outside the definition of debt management set forth above in order to consider certain aspects of the management of the Treasury's cash balances and the timing of cash borrowing and debt retirement.

#### INTEREST COST TO THE TREASURY

For purposes of the present discussion, let us suppose that the Treasury is faced with the necessity of borrowing a given amount of money and consider how the way in which it times its borrowings in various maturity sectors will affect its interest cost. To begin with, however, it will be necessary for us to consider the factors which determine the maturity structure of interest rates.

##### *The maturity structure of interest rates*

The interest rate structure at any particular time is determined by a combination of factors, of which the most important are the expectations of borrowers and lenders concerning future interest rates. As the economy moves from prosperity to recession and back again, the rate structure moves in a way which is at least roughly predictable.

Generally, interest rates on debt contracts of all maturities move up and down together.<sup>6</sup> This is simply because demand schedules for credit in all sectors tend to move up and down together as credit conditions change and because both lenders and borrowers commonly have some flexibility with respect to the maturity sector in which they will operate, so that if rates in a particular maturity range get out of line with other rates, corrective forces are set in motion.

Thus, in a boom period interest rates in all maturity sectors ordinarily rise, while in recession periods they fall. However, the changes in interest rates are ordinarily different for different maturities. In particular, as the level of interest rates rises and falls, short-term interest rates usually move over a considerably wider range than do long-term interest rates. These differential movements of rates in different maturity ranges can be explained, at least approximately, by reference to patterns of interest rate expectations.

To illustrate how interest rate expectations influence the interest rate structure, let us consider a situation in which the consensus of expectations on the part of borrowers and lenders is that interest rates are going to rise in the near future. Before these expectations

<sup>6</sup> This is not always the case—occasionally short-term and long-term interest rates move in opposite directions. However, this is usually a transition phenomenon which lasts only a short time. See footnote 11 below.

developed, for whatever reason, suppose that short-term and long-term interest rates were approximately equal. As a result of the change in expectations, lenders would have a tendency to eschew long-term securities, because they would expect to suffer capital losses on investments in such securities when interest rates rose and because they would feel that it was preferable to hold back and wait until prices of longer term securities fell before investing in them. Investors with this kind of expectations would tend to shift their flow of funds toward shorter term loans and securities. In fact, some investors might even sell out their existing holdings of long-term securities in advance of the expected price decline and put their funds into short-term securities. Thus, there would be a shift in the supply of funds from the long- to the short-term market. Borrowers, on the other hand, would tend to make a reverse shift. To the extent that they felt that interest rates were going to rise, they would feel that the present was an auspicious time to borrow at long-term in order to take maximum advantage of the existing relatively low rates. As a consequence of the shift of supply from the long- to the short-term market and the shift of demand from the short- to the long-term market, the long-term rate would tend to rise relative to the short-term rate, thus producing an upward-sloping yield curve. Under circumstances in which interest rates were expected to fall, precisely the opposite kinds of shifts would tend to occur. Supply would shift from the short- to the long-term market and demand from the long- to the short-term market, thus producing a rise in the short-term rate relative to the long-term rate and a downward-sloping yield curve.

If investors or speculators are prepared to move funds between the various maturity sectors on a carefully calculated basis, the determination of the rate structure becomes somewhat more precise than the above discussion suggests. If investors held identical expectations with complete certainty, the long-term rate for any specified period would become equal to the average of the expected short-term rates over that period. That is, neglecting compounding of interest, if the present rate for 6-month loans were 3 percent and this rate were expected to rise continuously to 4 percent, 5 percent, and 6 percent, respectively, for the next three 6-month periods, the current rate for a 2-year loan would be about 4.5 percent, the average of these rates.<sup>7</sup> The reason for this is that the investor would have to be able to get the same return for investing for 2 years as he could obtain for investing now for 6 months and successively reinvesting in similar 6-month contracts over the next 2 years. If this relationship did not hold, shifts of demand and supply similar to those discussed above would occur until it did prevail.

When allowance is made for the fact that the expectations of investors are uncertain and that expectations differ from one investor to another, the precision of the expectational theory is destroyed. Nevertheless, the expectational theory seems to explain, at least in broad outline, the typical pattern of movement of the interest-rate structure. To complete the explanation, however, it is necessary to add one further element. It appears that, at least as regards move-

<sup>7</sup> The "expectational" theory of the interest-rate structure is expounded in J. R. Hicks, "Value and Capital" (2d ed.; Oxford: the Clarendon Press, 1946), ch. XI; F. A. Lutz, "The Structure of Interest Rates," *Quarterly Journal of Economics*, LV (November 1940), 36-63, reprinted in W. Fellner and B. F. Haley (eds.), "Readings in the Theory of Income Distribution" (Philadelphia: Blakiston Co., 1946), pp. 499-529. See also R. A. Musgrave, "The Theory of Public Finance" (New York: McGraw-Hill Book Co., 1959), ch. XXIV.

ments of interest rates associated with short-run fluctuations of business conditions, investors' expectations are determined in relation to some level of interest rates which they regard as "normal" or "conventional." Thus, as interest rates rise to "high" (at least by recent standards) levels during a period of inflation, the expectation that they are going to decline in the near future becomes more and more widespread, and as a consequence, short-term rates rise relative to long-term rates. In such circumstances, short-term rates may actually rise above long-term rates. On the other hand, when interest rates fall to "low" levels during recession periods, the expectation becomes increasingly widespread that they are going to rise, and, accordingly, short-term rates fall substantially below long-term rates. At times when rates are not expected to change or when an increase or a decrease seems approximately equally likely, short-term and long-term rates may be approximately equal, although this statement is subject to an important qualification to be pointed out shortly.

It is a commonly observed phenomenon that, as interest rates and security prices move up and down, short-term interest rates ordinarily fluctuate over a wider range than long-term interest rates, while long-term security prices fluctuate over a wider range than short-term security prices. This typical pattern of movement constitutes a fairly impressive piece of indirect evidence in support of the expectational theory as outlined above. It can be shown that if investors' elasticities of interest rate expectations are between zero and unity—that is, if a rise in current interest rates causes investors to revise upward their expectations of future interest rates over their planning horizon but by an amount less than the rise in current interest rates—the expectational theory will produce the patterns of movement in interest rates and security prices that are typically observed.<sup>8</sup>

Lenders may have a preference for liquidity—that is, price stability—because of the possibility that an unforeseen contingency may require them to sell securities on short notice. At the same time, borrowers, particularly those who are borrowing for long-term purposes such as investment in fixed plant and equipment, clearly have a distinct preference for long-term debt contracts, since with such contracts they avoid the necessity for frequent renewal of their loans perhaps at inconvenient times. Thus, lenders have an inherent preference for short debt and borrowers for long debt, and this tends to bias the short-term interest rate in a downward direction compared to the long-term rate. For this reason, even when interest rates are not expected to change, the short-term rate is likely to be somewhat below the long-term rate. Also, of course, there are limitations on the

<sup>8</sup> To illustrate, suppose we have two securities, a \$1,000 3-percent "bill" having a maturity of 1 year and a \$1,000 3 percent consol. Suppose the typical investor has a planning horizon of 1 year and his elasticity of expectations is 0.5. To begin with, both securities are selling at par, to yield 3 percent. Suppose now that, for whatever reason, the yield on consols rises to 3.1 percent so that the price of consols falls to \$967.74. With an elasticity of yield expectations of 0.5, the investor will expect that the yield on consols at the end of his 1-year horizon will have fallen halfway back to its original level, or will be 3.05 percent so that the price of consols will be \$983.61. If he invests \$967.74 in a consol and holds it for 1 year, his expected return will be \$30 interest plus a capital gain of \$15.87, or a total of \$45.87, giving a yield (for 1 year) of 4.74 percent. In order to equalize the returns for holding consols and "bills," the interest rate on bills will have to rise to 4.74 percent, and the price of outstanding 3-percent bills will have to fall to \$983.39. Thus, the yield on bills will rise more than the yield on consols, while the price of consols will fall more than the price of bills. This pattern of behavior will be obtained only if the elasticity of expectations lies between zero and unity—which is a technical translation of the idea that investors' expectations are dominated by convention or the concept of a normal yield level. It may be noted that in this illustration it was assumed that the short-term yields adjust to become consistent with current and expected long-term yields rather than the other way around. In fact, however, the two approaches are equivalent. This extension and adaptation of the expectational theory is developed by Tibor Scitovsky in "A Study of Interest and Capital," *Economica*, VII n.s. (August 1940), 304-306. See also Musgrave, *op. cit.*, p. 596.

mobility of funds from one maturity sector to another, and some lenders and borrowers have conventional preferences for debt of certain maturities, which interfere with the full realization of the rate pattern that would be produced by the free reign of expectations.<sup>9</sup> Nevertheless, the actual movements of the interest rate structure seem to be broadly consistent with the expectational theory.

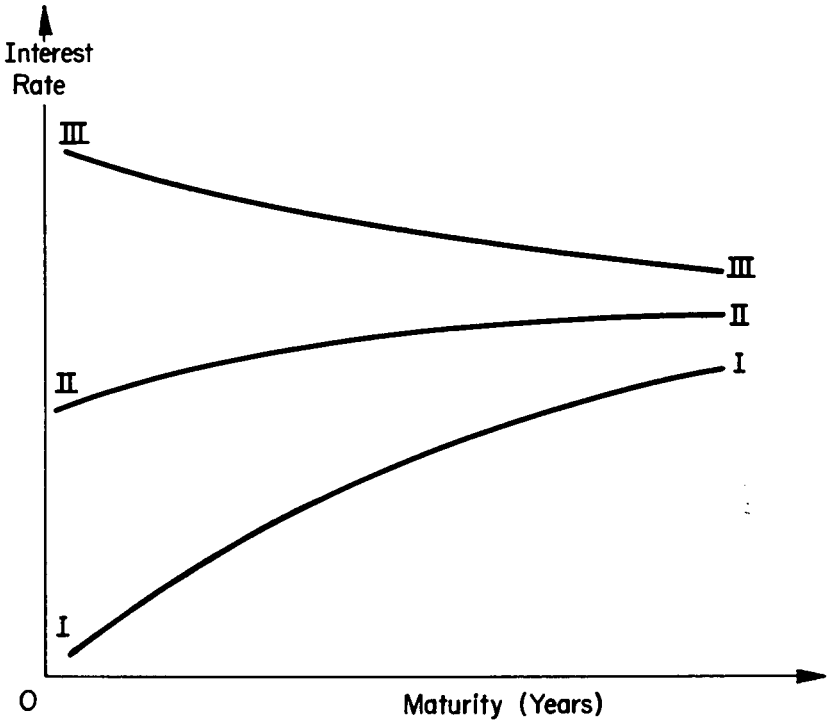


Chart IV-1. Illustrative interest-rate patterns

Chart IV-1 presents a somewhat idealized picture of the way in which the term structure of interest rates might be expected to behave according to the expectational theory as outlined above. Yield curve I is the kind of pattern that would tend to prevail in recession periods when interest rates were low and most investors expected them to rise in the future. Curve III is the type that would prevail in boom periods when interest rates were high and most investors expected them to fall. Curve II is the type that would prevail in periods in which most investors expected rates to remain unchanged for some time in the future or when expectations of increases were about as common as expectations of decreases.<sup>10</sup> As business conditions change, the rate structure would move continuously from one position to another—for example, during a period of recovery from recession,

<sup>9</sup> These factors are stressed in J. M. Culbertson, "The Term Structure of Interest Rates," *Quarterly Journal of Economics*, LXXI (November 1957), 485-517. We shall also make use of them below to explain certain peculiarities that have appeared in the rate structure recently.

<sup>10</sup> Curve II has a gentle upward slope due to the inherent preferences of lenders for short-term debt and of borrowers for long-term debt, referred to above.

the structure would gradually change from type I to type III.<sup>11</sup> Thus interest rates would tend to rise together, but with short-term rates moving over a considerably wider range than long-term interest rates.

For many years up until rather recently, the term structure of interest rates in the United States was of the type I variety, with short-term interest rates substantially lower than long-term rates. During the depression of the 1930's, interest rates fell to low levels, as is characteristic of such periods, and investors, judging the rate level by the conventional standards established in the 1920's, felt that rates were abnormally low and could be expected to rise. Accordingly, short-term rates fell to very low levels and the yield curve took on a sharply upward-sloping shape. During World War II, the Federal Reserve System, in coordination with the Treasury, decided to peg the interest rate structure in order to assist the Treasury in financing the war. The rate structure selected for pegging was approximately the one then prevailing, which reflected the effects of the prolonged depression. The Treasury bill rate was fixed at  $\frac{3}{8}$  percent and the certificate rate at  $\frac{7}{8}$  percent, with rates rising to  $2\frac{1}{2}$  percent for long-term Treasury bonds.<sup>12</sup> Although the bill and certificate rates were freed in July and August 1947, and somewhat greater flexibility was introduced into the short-term end of the rate structure, the fixing of the long-term rate and control over the rate structure was maintained until the accord of March 1951. Even after the accord, flexibility was introduced only gradually. Since the "bills-only" policy was put into effect in 1953 by the Federal Reserve System, the rate structure (as distinct from the rate level) has been determined almost entirely by market forces with very little intervention by the authorities other than the incidental effects caused by the open market operations in bills.

The combined result of the depression, war finance, and the policies of the early postwar period was to produce a situation in which the short-term rate was below the long-term rate—and frequently very much below it—continuously for approximately a quarter of a century. As a result of this experience, the notion came to be widely accepted that a rate curve sloping steeply upward was the normal thing. In accordance with the expectational theory, the existence of this view in itself tended to inhibit movements of the rate structure away from the upward-sloping position. Historically, however, during the period prior to 1930, short-term rates appear to have been above long-term a good deal of the time.<sup>13</sup> And the basic forces of

<sup>11</sup> There may be times when short- and long-term rates move in opposite directions. For example, during the early stages of a recovery period when interest rates begin to rise and investors expect the rise to continue for some time as the recovery develops, lenders may hold funds back from the long-term market to wait until rates begin to stabilize, putting these funds temporarily into the short-term market, while borrowers may anticipate their needs for long-term funds and accelerate their long-term borrowing in order to meet their requirements before rates rise further. In these circumstances, long-term rates may rise sharply while short-term rates are rising only slightly or perhaps even declining. In terms of our earlier analysis, this is a circumstance in which market participants have elastic expectations rather than the inelastic expectations which normally seem to prevail. This is likely to be a transition phenomenon, however, which accelerates the rise in long-term interest rates to a point where inelastic expectations again prevail and short-term rates rise sharply to produce a type III curve.

<sup>12</sup> For a discussion of the decision to fix the rate structure, see H. C. Murphy, "The National Debt in War and Transition," *op. cit.*, pp. 92-103. The fixing of this rate structure created some problems for the Treasury and the Federal Reserve, because the structure itself contradicted the expectations created in the minds of investors. The upward slope of the yield curve corresponded with expectations of rising rates, while the decision to fix rates created expectations that rates would not change. Under these circumstances, it became increasingly difficult to get investors to hold short-term securities. If the rate structure is to be pegged, the structure selected should be one in which short- and long-term rates are approximately equal—that is, a curve of the type II variety as shown in chart IV-1.

<sup>13</sup> See David Durand, "Basic Yields of Corporate Bonds, 1900-1942," National Bureau of Economic Research Technical Paper 3 (New York: National Bureau of Economic Research, 1942), especially charts showing yield curves for individual years from 1900 to 1942.

the market appear to be reasserting themselves as the implications of a flexible interest rate policy come to be more widely understood. Thus, we seem to be witnessing a reappearance of the classic pattern in which the short-term rate is above the long-term rate during prosperous times, while the opposite relation holds during recession periods.

In one respect, however, the interest rate structure during recent periods when monetary policy has been restrictive and the level of interest rates has risen has departed from the pattern described above. As interest rates have risen recently, a bulge has appeared in the yield curve in the intermediate maturity range. This is illustrated in chart IV-2, which shows the yield curves for Treasury securities in March 1958 and in August 1959. The March 1958 curve is a typical yield curve for a recession period, with the short-term rate very low relative to the long-term rate. By August 1959 the forces of recovery which increased credit demands, combined with a rather restrictive Federal Reserve policy, had caused a considerable rise in interest rates generally. Short-term rates had risen sharply from their recession lows. However, the rate structure in August 1959 rose quite sharply from about 3.80 percent for the shortest term securities to about 4.85 percent at a maturity of about 2½ years and declined steadily thereafter to a level of slightly over 4 percent for the longest term securities.<sup>14</sup>

It seems likely that the tendency for the shortest term interest rates to remain below the rates on intermediate-term securities, even when rates rise to relatively high levels, is due to the existence of important groups of investors who are strongly interested in liquidity. For example, nonfinancial corporations have become an important factor in the Government securities market in recent years. Corporate treasurers have become increasingly sophisticated in managing their cash positions so as to economize on cash balances and earn interest by investing in Treasury bills and other short-term Government securities.<sup>15</sup> These investors seldom invest in anything but quite short-term securities because of their aversion to price variability, since the funds invested are, in effect, transactions balances which may be needed on short notice to make payments.<sup>16</sup> Commercial banks are also interested in short-term Governments, which constitute the bulk of their secondary reserves. Foreign accounts and State and local governments have become increasingly important investors in Governments. Like nonfinancial corporations, these groups of investors, being interested chiefly in liquidity, do not ordinarily speculate on changes in security prices and therefore concentrate their holdings in the short-term sector regardless of interest rate expectations.<sup>17</sup> The fact that all of these investor groups added substantially to their holdings of Government securities between mid-1958 and mid-1959 suggests that their activities may have served to moderate the rise in interest rates in the shortest maturity range and thus have

<sup>14</sup> A similar pattern made its appearance in 1956 when monetary policy became restrictive and persisted through most of 1957 until the trend of monetary policy was reversed to counter the recession late in that year.

<sup>15</sup> Corporations also invest their surplus funds in open market commercial paper and in repurchase agreements with Government security dealers. However, short-term governments are by far the most important outlet for their funds. See C. E. Silberman, "The Big Corporate Lenders," *Fortune* (August 1956).

<sup>16</sup> On the theoretical aspects of the management of transactions balances, see James Tobin, "The Interest-Elasticity of Transactions Demand for Cash," *Review of Economics and Statistics*, XXXVIII (August 1956), 241-47, and W. J. Baumol, "The Transactions Demand for Cash: An Inventory Theoretic Approach," *Quarterly Journal of Economics*, LXVI (November 1952), 545-556.

<sup>17</sup> Of course, commercial banks do shift the composition of their portfolios of Government securities in accordance with changing interest rate expectations. But, as far as their secondary reserves are concerned, they tend to maintain large holdings in the short-term sector under most circumstances.

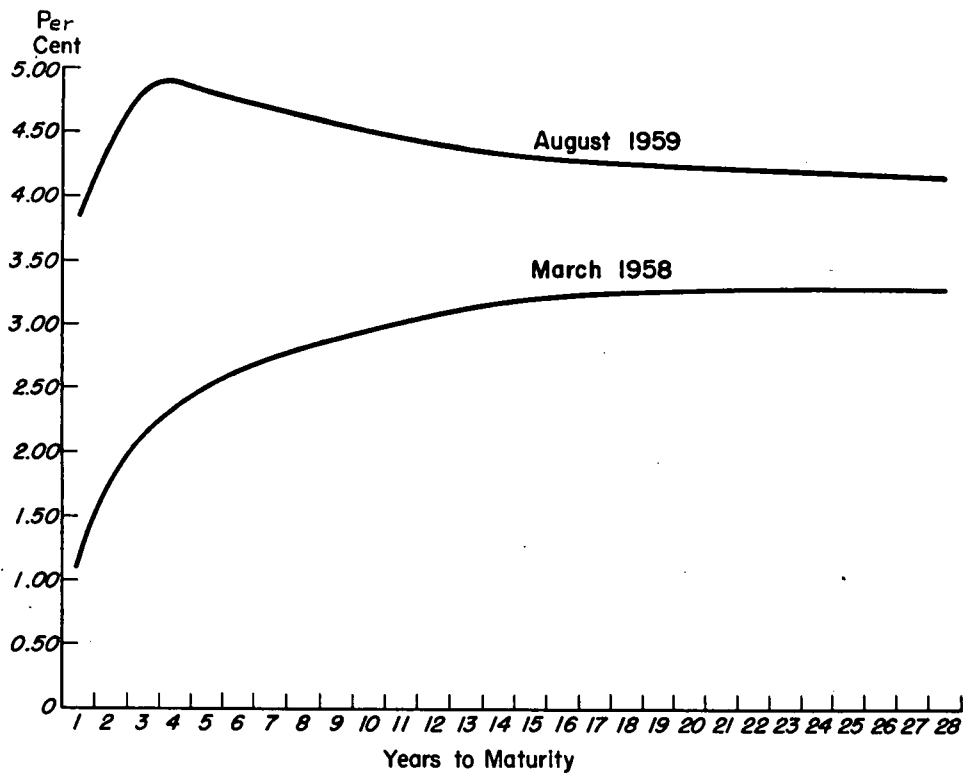


Chart IV-2. Term structure of interest rates: March 1958 and August 1959



been mainly responsible for the failure for short-term interest rates to rise more than they did.<sup>18</sup> If a restrictive monetary policy continues to be applied, it may become necessary at a later time for some of these investor groups to liquidate their holdings of short-term Governments in order to finance expenditures or to meet loan demands (in the case of commercial banks). If and when this happens, short-term rates may rise sharply, thus producing the sort of downward-sloping yield curve which characterized prosperous periods in earlier times.<sup>19</sup>

#### *Debt management policy and interest costs to the Treasury*

One possible objective of Treasury debt management would be the minimization of the interest cost on the debt. To isolate this objective, suppose the Treasury borrows enough to cover its cash deficits and uses cash surpluses to retire debt, conducting its cash borrowing and refunding operations entirely with a view to the minimization of interest costs and leaving economic stabilization entirely to the Federal Reserve. On this assumption, what can be said concerning debt management policy?

First of all, the Treasury might attempt to minimize the current coupon bill on Treasury securities, making no effort to look into the future. While this would be an unrealistic and short-sighted approach to the problem, it does bring out one important point. The Treasury has monopolistic power in the credit market in the sense that the scale of its borrowings in various maturity sectors has a noticeable effect on the interest rates it has to pay. Under these conditions, borrowing in each subsector of the market should be carried to the point at any particular time where the marginal cost of funds is equalized in all subsectors.<sup>20</sup> That is, borrowing would not simply be conducted each time in the market in which the interest rate happened to be lowest. Presumably this would mean that borrowing would be conducted simultaneously in most sectors of the market most of the time, with the division of the total between subsectors depending upon the behavior of marginal costs in the various subsectors. The behavior of marginal costs would depend, in turn, upon the shapes of the various supply curves of funds available from lenders and also upon the shapes of the demand curves for funds on the part of other borrowers competing with the Treasury, since the Treasury could obtain funds by squeezing out these other borrowers. The shapes of these supply and demand curves in various subsectors of the market and therefore the marginal costs of funds to the Treasury would undoubtedly vary considerably depending upon the present state of business, the future outlook for business activity, and the interest rate expectations of borrowers and lenders. In view of our present lack of quantitative

<sup>18</sup> Between June 30, 1958, and June 30, 1959, nonfinancial corporations increased their holdings of Government securities by \$6.1 billion (from \$13.9 billion to \$20 billion). While no data on maturities are available, it can be assumed that these increased holdings were heavily concentrated in short maturities. Foreign accounts increased their holdings by \$3.4 billion (from \$6.2 billion to \$9.6 billion); most of this increase was in bills and certificates. State and local governments added \$1.3 billion to their holdings. Commercial banks increased their investments in Government securities within 5 years of maturity by \$3.4 billion (data from Federal Reserve Bulletin).

<sup>19</sup> This explanation of the bulge in the rate structure in the intermediate maturity range emphasizes compartmentalization of the market. Such factors are stressed by Culbertson, *op. cit.*, as an important factor in determining the rate structure generally. It may be noted that a bulge would be produced by the expectational theory if investors expected rates to rise for a time and then fall. However, compartmentalization appears to be a more plausible explanation for this particular phenomenon.

<sup>20</sup> To illustrate the point, suppose the Treasury could borrow 100 in a particular maturity subsector at an interest rate of 3.10 percent, while if it tried to borrow 200 in this sector it would have to pay 3.20 percent. Thus the interest cost of borrowing \$100 would be \$3.10 per year, while the cost of borrowing \$200 would be \$6.40 per year. The marginal costs would be \$3.10 or 3.10 percent for the first \$100 and \$3.30 (\$6.40—\$3.10) or 3.30 percent for the second \$100.

knowledge of the sort necessary to permit us to predict market reactions, the marginal cost principle is pretty much an "empty box" as far as providing any operational guides to the Treasury in conducting debt management operations is concerned.

However, even if we knew enough about the behavior of the market to be able to apply the marginal cost principle as outlined above, this principle would provide a wholly inadequate guide to the Treasury as far as minimizing interest cost is concerned. The reason is that the minimization of interest cost is inherently a dynamic problem. To minimize in a meaningful sense, the Treasury must try to look ahead and foresee future interest rate developments. To illustrate, it may at times pay the Treasury to borrow in the short-term market even though the immediate marginal cost of funds here is higher than in longer term sectors of the market if it expects that short-term interest rates are going to fall sharply in the near future, thus permitting the reborrowing of the funds at very low cost when the short-term debts mature.

Thus, cost minimization requires the Treasury to attempt to forecast future business conditions and Federal Reserve policy in order to predict the future movements of interest rates as a basis for current debt management policies. While the complexities involved in this kind of operation make the establishment of any clear-cut rules of action clearly impossible, it does appear that a little can be said about what a policy of interest-cost minimization would involve.

As we have seen, the classic pattern of interest rate movements is for interest rates on debts of all maturities to move up and down together, with short-term rates sweeping over a wider range than long-term rates, rising above long-term rates in prosperous periods when the rate level is high and falling below them in recession periods when the rate level is low. This has been the historic pattern, and there are signs that it is becoming reestablished. In fact, the aggressive use of monetary policy should intensify the forces which tend to produce this pattern of rate movements. If we assume that interest rates move in this way, it seems apparent that interest-cost minimization would require the Treasury to concentrate its long-term borrowing in recession periods when rates tend to be low. Paradoxically perhaps, this is true despite the fact that short-term rates tend to be well below long-term rates during such periods. The explanation is that when the Treasury borrows at long-term during recession periods it gets the advantage of the prevailing low rates for a long period in the future. Thus, the Treasury would concentrate its borrowing in the short-term market during prosperous times, despite the fact that short-term rates would be high during such periods.<sup>21</sup> Most of this short-term debt would be rolled over at low interest cost during recession periods when interest rates fell, thus offsetting the high prosperity cost with a low recession cost, while some extension of long-term borrowings would be conducted in recession periods. This practice of shifting toward the long-term market during periods of low interest rates and toward the short-term market during periods of high interest rates is in line with the practices followed by many private borrowers who are seeking to minimize interest costs—in

<sup>21</sup> If the Treasury was prepared to buy up its outstanding debt in the market (at the prevailing market price, of course) before maturity, it might at times pay to do this in prosperous times when interest rates were high (and bond prices low), borrowing the necessary funds in the short-term market.

fact, such behavior on the part of private borrowers is, as we have seen, part of the basic explanation of the behavior of the interest rate structure.

Obviously, this suggested pattern does not provide anything more than a very rough guideline for the debt managers in seeking to minimize interest cost. The marginal cost principle continues to apply in this expanded context, and while it is impossible to turn this principle into an operational guide to policy, the principle does at least suggest that the Treasury should probably be raising at least part of its funds in each sector of the market most of the time, while shifting the weight of its operations toward the short-term market during prosperous times when rates are high and toward the long-term market during recessions when interest rates are low.

This pattern of debt management operations appears to have two rather interesting corollaries. One is that a policy of interest-cost minimization would tend to accentuate fluctuations in short-term interest rates and to damp fluctuations in long-term interest rates. This is because the Treasury would tend to concentrate its borrowings in the short-term sector when rates were high and in the long-term sector when they were low.<sup>22</sup> This effect would probably be offset to some extent because if the Treasury behaved in this way, private borrowers and lenders would probably do so to a lesser extent than they would in the absence of such Treasury action. Nevertheless, a net effect of this kind seems very likely. The second corollary is that a policy of concentrating on short-term borrowing when interest rates were high and on long-term borrowing when they were low, while minimizing average interest costs over time, would probably produce strong procyclical fluctuations in Treasury interest payments. When interest rates rose, the heavy volume of short-term borrowing would drive up short-term rates and as existing short-term debt rolled over and had to be refinanced at the higher rates, interest costs would snowball rapidly. On the other hand, when rates declined, much of the short-term debt would be rolled over at low rates, while part of it would be refinanced by borrowing at long term at relatively low rates.<sup>23</sup>

#### EFFECTS ON THE LEVEL OF PRIVATE EXPENDITURES

It seems to be pretty generally accepted that the way in which the Treasury conducts its debt management operations can have important effects on the level of private expenditures and consequently that debt management can exercise either stabilizing or destabilizing effects on the economy. The conclusions of orthodox theory in this respect are quite clear: lengthening debt maturities is deflationary (or anti-inflationary) and shortening maturities is inflationary (or anti-deflationary); accordingly, the debt should be lengthened during inflationary periods and shortened during recessions if debt management is to serve as a stabilizer. However, the clarity of the conclusions is not matched by an equal clarity in the underlying reasoning. There are several possible routes by which debt operations may affect the level of expenditures, which we shall discuss.

<sup>22</sup> As suggested in footnote 21, the Treasury might also find it desirable to retire existing long-term debt through market purchases financed by short-term borrowing when interest rates were high, thus still further forcing up short-term rates and checking the rise in long-term rates.

<sup>23</sup> This discussion refers only to cyclical movements of interest costs relative to the trend. Whether total interest payments actually rose and fell according to this pattern would also depend upon the secular trend in outstanding debt, together with the cyclical pattern of borrowing and debt retirement, and upon the secular trend in interest rates.

*Interest rate efforts*

Suppose the Treasury—or it could just as well be the Federal Reserve—engages in a supposedly deflationary debt operation, borrowing funds in the long-term market and using the funds to retire short-term debt, thus lengthening the average maturity of the outstanding publicly held debt.<sup>24</sup> One way in which an operation of this kind may affect the level of expenditures is through the effects it will have on interest rates. In fact, this seems to be the way in which the operation is viewed by the financial community—it is commonly said that when the Treasury sells long-term bonds it “preempts” funds from the capital market, thus reducing the supply available for financing private spending and exerting a restrictive effect.

The difficulty with the line of reasoning, however, is that an operation of this kind, while raising the long-term rate of interest, simultaneously lowers the short-term rate. Funds are removed from the long-term sector and injected into the short-term sector. The rise in the long-term rate will be deflationary and the fall in the short-term rate will be inflationary. The net result of the operation will depend upon which of these two effects is greater. The analysis is fairly complicated, because it depends not only upon the sensitivity of expenditures to changes in short-term rates compared with the sensitivity of expenditures to changes in long-term rates but also upon the interest elasticities of the supplies of funds in the two sectors. Moreover, the two sectors are linked together by expectations, as pointed out earlier.

To begin with, suppose we assume that the supply of funds is completely interest-inelastic in both sectors, and suppose further that we neglect the effects of expectations. In this case, there will be no change in total expenditures, the amount financed with short-term funds increasing as much as the amount financed with long-term funds declines. The long-term rate of interest will rise more or less than the short-term rate of interest will fall depending upon whether the elasticity of expenditure schedules in the long-term market is less or more than the elasticity of expenditure schedules in the short-term market.

If we make the more reasonable assumption that the supply of funds has some interest elasticity in each sector, the direction and magnitude of the effect on total expenditures depends upon the elasticities of demand and supply in the two sectors. In fact, a shift of funds from the long-term to the short-term market will have a net restrictive effect—i.e., will reduce the level of total expenditures—if the following condition is satisfied:

$$\frac{\eta_{E1}}{\eta_{E2}} > \frac{\eta_{S1}}{\eta_{S2}}$$

where  $\eta_{E1}$  is the absolute value of the elasticity of expenditures with respect to the long-term interest rate,  $\eta_{E2}$  is the absolute value of the

<sup>24</sup> All so-called restrictive debt operations can be subsumed under this heading. When the Treasury borrows cash to cover a deficit, if it borrows long-term funds, it lengthens the debt as compared with what would have been the result if it had borrowed short-term funds. When the Treasury retires debt, it ordinarily retires only maturing debt which is by definition short term (in fact, its maturity is zero)—except to the extent that debt retirement takes the form of buying up existing debt for the trust funds. However, the Treasury could buy up existing long-term debt in the market when it wanted to retire debt; if it did this, it would shorten maturities as compared with what they would have been if it had retired short-term debt. When the Federal Reserve sells long-term securities in order to reduce bank reserves, it lengthens the maturity of the publicly held debt compared with the situation that would have prevailed had it sold short-term securities instead.

elasticity of expenditures with respect to the short-term interest rate,  $\eta_{S_1}$  is the elasticity of supply of funds with respect to the long-term rate, and  $\eta_{S_2}$  is the elasticity of supply of funds with respect to the short-term rate.<sup>25</sup> The restrictive effect will be larger the greater the amount by which the left-hand side of the above inequality exceeds the right-hand side.

Thus, the restrictive effect will be greater (a) the greater the elasticity of expenditure schedules with respect to the long-term rate, (b) the smaller the interest elasticity of expenditure schedules with respect to the short-term rate, (c) the smaller the interest elasticity of the supply of funds in the long-term market, and (d) the greater the interest elasticity of the supply of funds in the short-term market. Chart IV-3 shows a case in which the elasticities of supply are the same in both markets, while the expenditure schedule is more elastic in the long-term than in the short-term market. A shift of funds in the amount of  $AE_{s_2}$  ( $=BE_{11}$ ) from the long-term to the short-term market results in a decrease in expenditures financed with long-term funds of  $E_{12}E_{11}$  and an increase in expenditures financed with short-term funds of  $E_{s_1}E_{s_2}$ . Total expenditures are reduced by the amount  $E_{12}E_{11}E_{s_1}E_{s_2}$ . In this case, the two supply elasticities are equal, and there is a restrictive effect because the elasticity of expenditures with respect to the long-term rate exceeds the elasticity with respect to the short-term rate.

Chart IV-4 illustrates the case in which the two expenditure schedules are of equal elasticity, and a shift of funds in the amount  $AE_{s_2}$  ( $=BE_{11}$ ) from the long- to the short-term market produces a restrictive effect because the elasticity of supply of funds is greater in the short- than in the long-term market. The reduction in total expenditures is equal to  $E_{12}E_{11} - E_{s_1}E_{s_2}$ .

Using this framework, we can make an effort to evaluate the probable effects of lengthening or shortening debt maturities by considering, on the one hand, the probable elasticity of expenditures with respect to the long- and short-term rates, and on the other, the corresponding elasticities of supply of funds.

*Expenditure elasticities.*—It is difficult to evaluate the effects on private expenditures of a change in the general level of interest rates, and obviously the effects of a change in the structure of rates is even more difficult to judge. However, there is some theoretical basis for such an analysis, and some empirical evidence that can be brought to bear.

We may suppose that the kinds of real investment that are financed by funds raised in the long-term market are, in general, of a longer term character than those which are financed by funds raised in the short-term market. Thus, to a considerable extent, the question we are considering appears to be whether long-term investment projects are more sensitive to interest rate changes than are short-term investment projects. At first glance, it appears that there is a strong a priori reason to believe that this is the case. If businessmen attempt to evaluate investment projects scientifically, using a profit-maximization criterion, they may proceed by comparing the present value of

<sup>25</sup> The supply of funds in each market means the net supply arising from saving and dishoarding. For the derivation of this inequality, see the appendix at the end of this chapter.

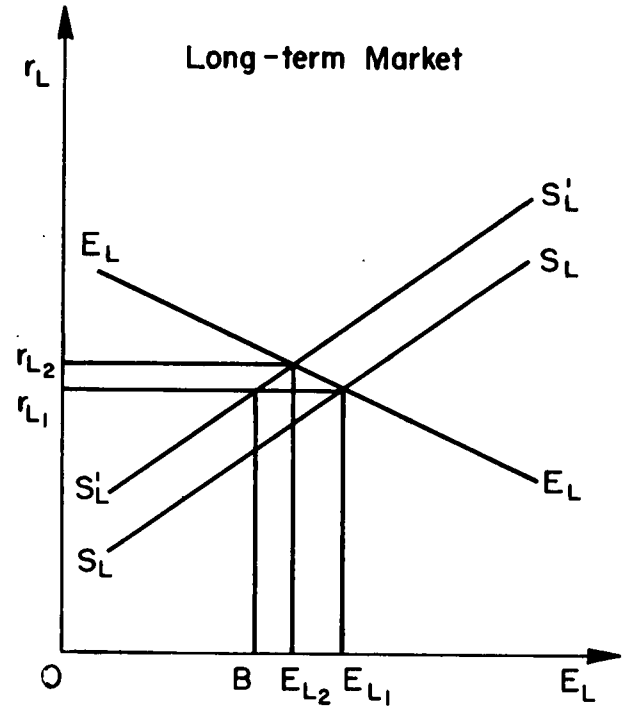
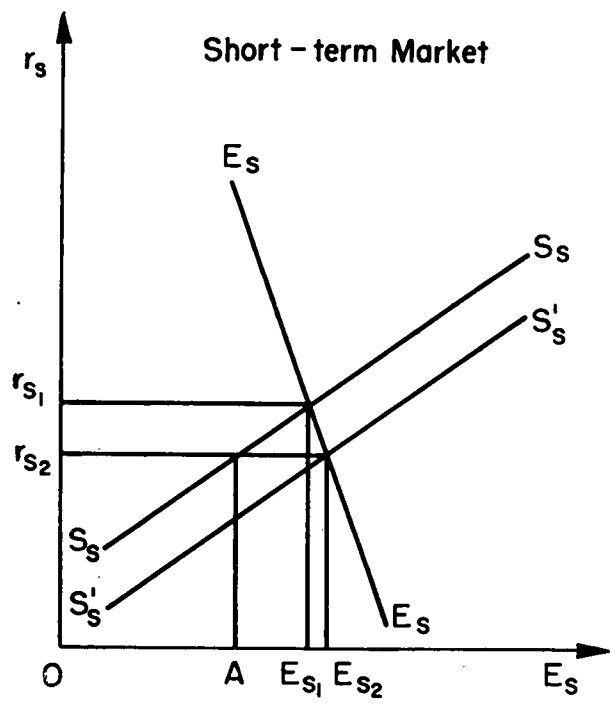


Chart IV-3.

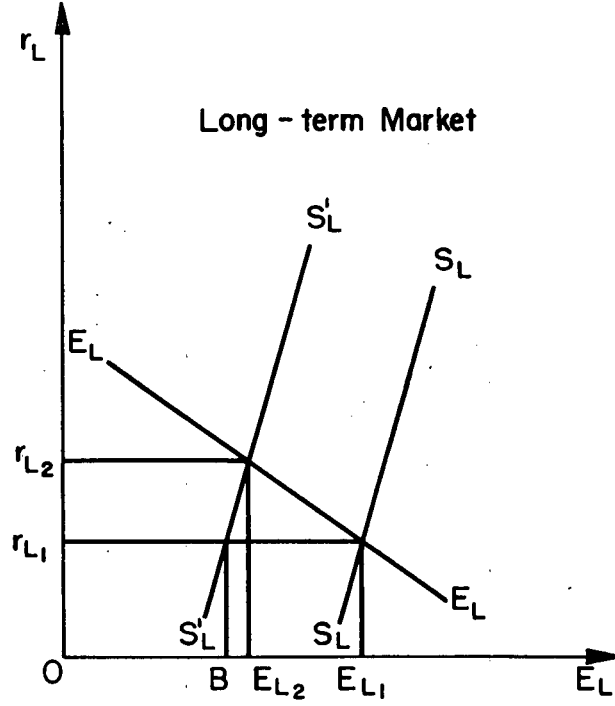
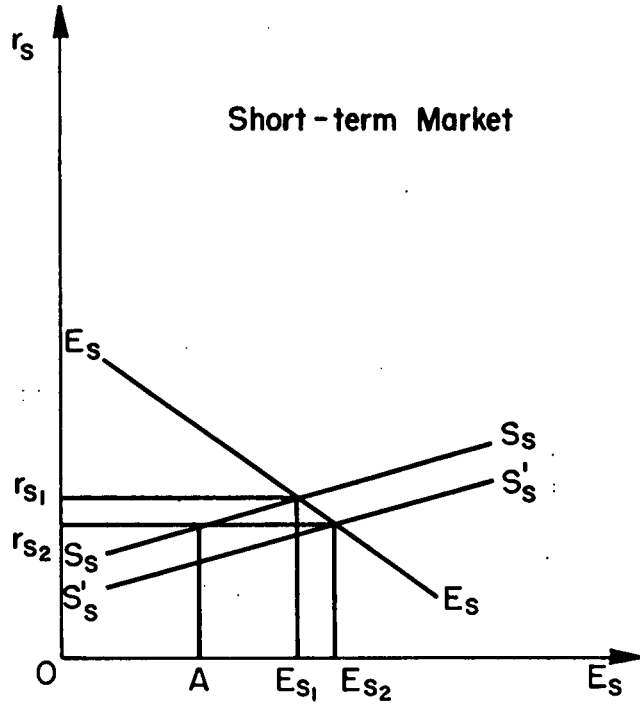


Chart IV-4

the expected future returns from the project with the project's cost.<sup>26</sup> If value is greater than cost, the firm will invest; if cost is greater than value, it will not invest. Since a given change in the rate of discount employed will have a much greater effect on the present value of long- than of short-term investments, it would appear that a rise in the long-term interest rate is more likely to push a significant amount of investment below the margin of profitability than would a similar rise in the short-term rate.<sup>27</sup> According to this view, the interest elasticity of long-term investment is likely to be substantially greater than the interest elasticity of short-term investment.<sup>28</sup>

However, this argument requires very substantial modification, because the risks connected with long-term investments are very much greater than those associated with short-term investments. A firm building a plant which is expected to last for 30 years must base its calculations upon a forecast of all the factors affecting its business over that period—including the demand for its product, the costs of labor and materials, possible technological changes in production methods, the possibility of the development of new products by competitors, etc. In making its investment decisions, it must make some allowance for the risks involved in unexpected changes in such factors as these, most of which are vastly more important to it than the rate of interest. One way of allowing for risk would be to discount future returns at an interest rate that contains a liberal allowance for risk.<sup>29</sup> In fact, we may think of the discount rate used by a firm to evaluate the prospective profitability of an investment as being composed of three elements: the pure rate of interest, which represents the interest rate on a Treasury security having the same maturity as the security to be issued by the firm to raise funds; an allowance for lender's risk; and an allowance for borrower's risk. Thus, we have

$$r = r_p + r_l + r_b$$

where  $r$  is the discount rate used,  $r_p$  is the pure rate of interest,  $r_l$  is allowance for lender's risk, and  $r_b$  is allowance for borrower's risk. The allowance for lender's risk ( $r_l$ ) is an amount of interest over and above the pure rate that the buyer of the securities will insist on getting to cover the risk that the borrower will not meet the interest and/or principal payments on the securities. The pure rate of interest plus lender's risk allowance is the interest rate that the borrower actually has to pay in the market to obtain the funds. The allowance for borrower's risk ( $r_b$ ) is an amount that the borrower himself adds on to the interest rate he has to pay in the market in order to obtain the rate he uses to discount the expected returns.

Thus, the pure rate of interest ( $r_p$ ) might be 3 percent and the allowance for lender's risk ( $r_l$ ) 2 percent, so that the firm had to pay

<sup>26</sup> Another way to state this comparison is to say that they compare the interest rate they must pay for the funds (or an imputed interest cost if they are using internal funds for financing) with the marginal efficiency of investment. Since the present value of the investment is obtained by discounting the expected future returns at the market rate of interest while the cost of the project is equal to the expected future returns discounted at a rate equal to the marginal efficiency of investment, it follows that when the market rate of interest is less than the marginal efficiency of investment, the present value of the project is greater than its cost and vice versa.

<sup>27</sup> A rise in the interest rate from 4 to 5 percent (i.e., a relative increase of 25 percent) will reduce the present value of an investment with an expected life of 40 years by 13 percent, while the same change in the interest rate will reduce the present value of an investment with an expected life of 1 year by only 1 percent.

<sup>28</sup> Actually, this statement assumes that there is no difference in the underlying array of investment projects arranged in order of declining profitability, as between the long-term and the short-term sectors. In truth, this is a matter concerning which we have no evidence at all.

<sup>29</sup> This discussion follows, in a general way, the analysis in G. L. S. Shackle, "Interest Rate and the Pace of Investment," *Economic Journal*, LV (March 1946), 1-17.



5 percent for funds. What is a reasonable value for the borrower's risk allowance? One study of investment decisions in England before World War II suggests that businessmen frequently do not consider an investment at all, regardless of the rate of interest, unless it promises to pay returns in the 30- to 50-percent range.<sup>30</sup> Even if the borrower's risk is only 20 percent, assuming a pure interest rate of 3 percent and an allowance for lender's risk of 2 percent, the discount rate employed would be 25 percent.

Now debt management operations (or monetary policy for that matter) are not able to affect directly the allowances for lender's and borrower's risk; their influence is confined to the pure rate of interest. To illustrate the significance of this, suppose that by means of sales of long-term securities the pure rate of interest in the above calculation was forced up to 4 percent—a relative increase of 33 percent in the yield on long-term Government securities. If the allowances for lender's and borrower's risk continued to be 2 percent and 20 percent, respectively, the discount rate employed in evaluating investments would be raised only from 25 percent to 26 percent, a relative increase of only 4 percent.<sup>31</sup> A rise in the rate of discount employed in valuing an asset from 25 to 26 percent will have only a small effect on the value of the asset even if its expected life is long.<sup>32</sup>

The moral of this story is that the presence of uncertainty is likely to blunt to a great extent the effect of the rate of interest even on decisions to invest in assets with a long expected life. The above discussion is probably somewhat unrealistic: Instead of discounting expected returns at a rate of discount which contains a heavy loading for borrower's risk, it appears that businessmen commonly use formulas for evaluating investments which do not take account of the current rate of interest at all. Instead they frequently use very crude rules of thumb, such as requiring the investment to pay for itself in, say, 2 to 5 years even though its expected life is much longer than this.<sup>33</sup>

Turning to the empirical evidence, such as it is, we find little indication that either short-term investment or long-term investment possesses any great degree of sensitivity to the rate of interest. Such surveys as have been made by means of questionnaires or interviews relating to business investment decisions have failed to turn up

<sup>30</sup> This survey was carried out by the Oxford Economists' Research Group in 1939. See J. E. Meade and P. W. S. Andrews, "Summary of Replies to Questions on Effects of Interest Rates," and P. W. S. Andrews, "A Further Inquiry into the Effects of Rates of Interest," Oxford Economic Papers, October 1938, pp. 14-31, and March 1940, pp. 33-73, respectively. Comments on the findings by H. D. Henderson and by R. S. Sayers were also published in the same issues of the "Oxford Economic Papers." A summary of the findings, together with the original comments and some later ones, is given in T. Wilson and P. W. S. Andrews (eds.), "Oxford Studies in the Price Mechanism" (Oxford: The Clarendon Press, 1951), pp. 1-74. Answers in the original survey which suggests that businessmen, in effect at least, include a very high risk premium in their calculations concerning the desirability of investment are cited in Shackle, *op. cit.*, pp. 6-7.

<sup>31</sup> The percentage change in  $r$  is equal to  $r_p/(r_p+r_i+r_b)$  times the percentage change in  $r_p$ . Thus, in the above example,  $r_p$  increased by 25 percent,  $r_p/(r_p+r_i+r_b)$  was 12 percent, and  $r$  increased by 4 percent.

<sup>32</sup> The effect will be greatest in the case of an investment having a perpetual life. Even here a rise in the discount rate from 25 to 26 percent will reduce the present value by something less than 4 percent.

<sup>33</sup> For a critical discussion of such rules of thumb, see George Terborgh, "Dynamic Equipment Policy" (New York: McGraw-Hill Book Co., 1949), chs. XII and XIII. It may be noted that if returns were discounted at the rate of interest the borrower had to pay (i.e., the pure rate plus allowance for lender's risk only), the use of a short payoff period would be a device for allowing for borrower's risk and would, by converting long-term investments, in effect, into short-term investments, greatly blunt the effects of interest rate changes on such investment.

evidence that interest rates are an important factor.<sup>34</sup> Numerous econometric investigations have been conducted in recent years, covering both aggregate investment and investment in particular sectors. In very few of these studies have interest rates proved to be a significant variable affecting investment.<sup>35</sup>

One might expect a priori to find a significant interest rate effect in the case of regulated industries, such as railroads and public utilities and residential housing, since these sectors combine a low degree of uncertainty with long equipment life.<sup>36</sup> However, the evidence is somewhat mixed. L. R. Klein in several studies of investment in railroads and electric utilities has found indications that the long-term interest rate exerts a significant influence.<sup>37</sup> On the other hand, a recent study of investment in the electric power industry suggests that interest rates are not important.<sup>38</sup>

In the case of housing, interest rates seem to have had a very definite effect in recent years, but the effect has worked through the supply of funds rather than the demand. When interest rates have risen, the fixed interest-rate ceilings on FHA-insured and VA-guaranteed mortgages have resulted in funds being drained off into competing uses which are free to pay higher rates. It is not clear whether housing construction would be sensitive to interest rate variations if these ceilings did not exist.<sup>39</sup>

Nearly all of the studies that have been made relate to long-term investment and suggest that it is not sensitive to variations of the rate of interest of magnitudes such as we have experienced. There is some suggestion that possibly the effects of interest on investment operate with a rather long lag and that failure to allow for this lag is

<sup>34</sup> The most famous of these surveys is the Oxford survey, referred to in footnote 30, which is admittedly very much out of date and was conducted in an economic environment entirely different from that prevailing in recent years. A survey of the case materials in the files of the Harvard Graduate School of Business Administration, made in the late 1930's, also failed to turn up evidence of significant effects. See J. F. Ebersole, "The Influence of Interest Rates Upon Entrepreneurial Decisions in Business—A Case Study," *Harvard Business Review*, XVII (1938), 34-39. This study is subject to some of the same limitations as the Oxford survey and some others as well. The results of the Oxford and other surveys are subjected to a critical examination in W. H. White, "Interest Elasticity of Investment Demand—The Case From Business Attitude Surveys Reexamined," *American Economic Review*, XLVI (September 1956), 585-587.

<sup>35</sup> A tabulation of the results of a large number of studies of investment in the United States is presented in J. R. Meyer and Edwin Kuh, "The Investment Decision" (Cambridge: Harvard University Press, 1957), appendix to ch. II. This tabulation shows almost no cases, except in the railroad and public utility industries, in which interest rates turned out to be a significant explanatory variable. Klein and Goldberger were not able to find evidence of an interest rate effect on investment. They say, "In using our highly aggregative measure of investment, we find no reasonable empirical results for the effect of interest. In all possible combinations with current nonwage income, lagged nonwage income, and long-term bond yield we obtain estimated coefficients with signs contrary to advance expectations, large sampling errors and sometimes impossibly large coefficients. To some extent these results follow from our failure to distinguish among inventories, construction, and equipment. In a large model we may expect to find the short-term interest rate significant in inventory outlays, the long-term interest rate significant in construction outlays, and unlagged income significant in either inventory or equipment outlays." L. R. Klein and A. S. Goldberger, "An Econometric Model of the United States, 1929-52" (Amsterdam: North-Holland Publishing Co., 1955), pp. 67-68.

<sup>36</sup> Shackle (op. cit.) suggests housing as a sector in which investment is likely to be powerfully affected by interest rates.

<sup>37</sup> The results of the various studies by Klein are tabulated in the summary table in Meyer and Kuh, loc. cit.

<sup>38</sup> Avram Kesselgoff and Franco Modigliani, "Private Investment in the Electric Power Industry and the Acceleration Principle," *Review of Economics and Statistics*, XXXIX (November 1957), 363-379.

<sup>39</sup> See my paper, "The Impact of Monetary Policy on Residential Construction, 1948-58," in "Study of Mortgage Credit," Committee on Banking and Currency, Subcommittee on Housing, U.S. Senate, 85th Cong., 2d sess. (Washington: Government Printing Office, 1958), pp. 244-264.

partly responsible for our failure to uncover them.<sup>40</sup> But this is not much of a consolation for either debt management policy or monetary policy, since the existence of lags creates serious problems in connection with the timing of policy actions.

Most of the studies of the effects of interest rates on investment have related to long-term investment. The view used to be widely prevalent that interest rates exerted their main influence on business inventories, and this view still seems to prevail in some quarters.<sup>41</sup> However, while the evidence is rather inadequate, such studies as have been made recently suggest that credit conditions do not affect inventories strongly and that such effects as are present operate with a troublesome lag.<sup>42</sup> Some skepticism seems in order concerning the effects of interest rates on inventory investment in view of the relative unimportance of interest costs in connection with short-term loans of the type used to carry inventories in relation to the importance of inventories in the production process and the possibility of substantial speculative inventory profits during periods of rising prices.<sup>43</sup> Such evidence as is available suggests that the demand for consumer credit is not very sensitive to interest rates for a variety of reasons.<sup>44</sup>

We may conclude that such evidence as there is suggests, although by no means conclusively proves, that both long-term and short-term investment are rather insensitive to changes in interest rates. Thus, it seems likely that a change in the maturity structure of the debt would be unlikely to have a very large effect on the level of expenditures as a result of the effects of the changes in the interest rates. One might guess that the effects on long-term investment are likely to be a bit more important than the effects on short-term investment, but even this is little more than a guess. Thus, there is little reason to think that the simultaneous sale of long-term securities and purchase of short-term securities by the Treasury would have much effect via the elasticity of expenditure schedules. Probably both the restrictive effect on long-term investment and the stimulative effect on short-term investment would be quite small and the difference between the two negligible, at least for reasonable scales of operations.

<sup>40</sup> One recent study suggests that interest rates affect plant and equipment outlays of manufacturing firms but that the influence operates with a 1-year lag. See Franz Gehrels and Suzanne Wiggins, "Interest Rates and Manufacturers' Fixed Investment," *American Economic Review*, XLVII (March 1957), pp. 79-92. In another study, based on interviews with business executives, there was evidence of a fairly long lag between the time funds are raised and the time they are used for capital expenditures. This study did not uncover clear evidence that either interest rates or the availability of funds are important factors in investment decisions; however, the interviews were conducted in 1951 and 1952 before flexible monetary policy was being vigorously applied. See Robert Eisner, "Determinants of Capital Expenditures: An Interview Study" (Urbana, Ill.: University of Illinois, 1956), pp. 34-35 and 27-29. For an extensive discussion of the lags involved in monetary policy, see Thomas Mayer, "The Inflexibility of Monetary Policy," *Review of Economics and Statistics*, XL (November 1958), 358-374.

<sup>41</sup> R. G. Hawtrey has for many years been a prominent exponent of this view. See, for example, his "Capital and Employment" (London: Longmans, Green, & Co., 1937). For a more recent view that, in Britain at least, monetary restriction may have its main effects on inventory investment, see H. G. Johnson, "The Revival of Monetary Policy in Britain," *Three Banks Review*, June 1956, pp. 3-20.

<sup>42</sup> Gehrels and Wiggins, *op. cit.*, find no evidence that interest rates influence manufacturers' inventories. Another recent study suggests that monetary controls may be able to influence inventory investment, apparently by changing the availability of credit rather than interest rates. However, the evidence is very tenuous, and the author expresses the view that the lags involved are a troublesome problem. See Doris M. Eisemann, "Manufacturers' Inventory Cycles and Monetary Policy," *Journal of the American Statistical Association*, LIII (September 1958), 680-688.

<sup>43</sup> Moses Abramowitz, "Inventories and Business Cycles" (New York: National Bureau of Economic Research, Inc., 1950), pp. 125-126, 130-131. The Oxford Survey referred to earlier also indicated that inventory investment is not sensitive to interest rates.

<sup>44</sup> Considerable evidence on this matter, not all pointing in the same direction, is to be found in "Consumer Installment Credit" (6 vols.; Washington: Board of Governors of the Federal Reserve System, 1957). For a summary, see my article, "Consumer Installment Credit: A Review Article," *American Economic Review*, XLVII (December 1957), pp. 966-984. See also Avram Kesselgoft, "Factors Affecting the Demand for Consumer Installment Sales Credit," National Bureau of Economic Research Technical Paper 7 (New York: National Bureau of Economic Research, 1952). This study indicates that changes in interest rates are likely to have little effect on the demand for consumer credit but that substantial changes in credit terms (downpayments and maturity of loans) may be of some importance.

*Supply elasticities.*—The effects of shifting funds between the long- and short-term markets will depend upon the elasticities of supply in the two markets, as well as upon the elasticities of expenditures schedules. The restrictive effect of shifting funds from the long- to the short-term market will be greater the greater the elasticity of supply in the short-term market and the smaller the elasticity of supply in the long-term market. The reason for this is that, other things equal, the interest rate will fall less in the short-term market the more elastic is the supply and the interest rate will rise more in the long-term market the less elastic is the supply.

Evidence regarding the elasticities of supply in the two markets is practically nonexistent, however. One might expect that the elasticity of supply would be somewhat greater in the short-term market than in the long-term market, since short-term securities are better substitutes for money than are long-term securities. This might suggest that it would take smaller interest rate changes to induce people to shift between money and short-term securities than to induce them to shift between long-term securities and money.

*Conclusions.*—The above discussion suggests that lengthening of the debt may have some restrictive effects and shortening of the debt some stimulative effects as a result of changes in interest rates. The elasticity of expenditure schedules may well be a little greater in the long- than in the short-term sector, and the supply of funds more interest-elastic in the short- than in the long-term sector. Both of these relationships will tend to produce the indicated effects. However, these relations between relative elasticities of supply and demand are based upon very tenuous evidence, and the interest elasticities of expenditure schedules are probably so small in both sectors that the effects are likely to be very weak.

The above discussion assumes that the long- and short-term sectors of the market are completely compartmentalized and, therefore, independent of one another. When induced shifts of demand and supply between the long- and short-term sectors are allowed for the effects of debt management are likely to be still further weakened. Thus, when a debt-lengthening operation is carried out, the resulting decline in short-term rates and rise in long-term rates is very likely to cause some borrowers to shift from the long- to the short-term market and some lenders to shift funds from the short- to the long-term market. Thus, some long-term investment projects, instead of being abandoned due to the rise in the cost of long-term funds, would be financed with short-term credits, and concomitantly the increased supply of short-term funds instead of stimulating more short-term investment would, to some extent at least, be used to finance long-term investment.

We may conclude that, in view of the uncertainties involved and the small magnitudes of the probable reactions, interest rate effects do not provide much of a foundation for so-called stabilizing debt-management operations.

### *Liquidity effects*

Changes in the composition of the publicly held debt are sometimes said to have an effect on the level of expenditures as a result of their impact on the public's liquidity.<sup>45</sup> For the sale of long-term securities

<sup>45</sup> For a discussion of the theory of debt management constructed largely on the basis of a liquidity argument, see E. R. Rolph, "Principles of Debt Management," *American Economic Review*, XLVII (June 1957), 302-320.

and use of the proceeds to retire or buy up short-term debt, the argument apparently runs as follows: Those who give up money in exchange for illiquid long-term securities are much less liquid as a result, while those who give up relatively liquid short-term securities in exchange for cash are made only a little more liquid. Those whose liquidity is reduced will reduce their income-generating expenditures, while those whose liquidity has increased will increase their expenditures. Since the reduction in the liquidity of the one group is larger than the increase in the liquidity of the other, the reduction in expenditures by the group whose liquidity has been reduced will exceed the increase in expenditures by the group whose liquidity has been increased, and the net result is restrictive or anti-inflationary.<sup>46</sup> A shortening of debt maturities will have the opposite effects and will therefore be expansive or inflationary.

This argument seems to have a somewhat mystical quality to it. Why should a person who, because of the attractive terms offered, is induced to make a voluntary exchange of cash for long-term securities be thereby induced to change his expenditures on goods and services? And, similarly, why should one who voluntarily exchanges a short-term security for cash proceed to squander part of the cash on expenditures he did not previously deem worth making? Of course, one explanation might be that changes in interest rates resulting from such operations may cause revisions of expenditure plans. However, we have already discussed the effects of interest rate changes. Discussions of debt management often seem to make a great deal out of a direct liquidity effect which is not dependent on interest rate changes.<sup>47</sup>

Thus there seems to be a disturbing gap in the reasoning underlying the theory of direct liquidity effects. To the extent that there is anything to the argument, it appears to be an extension of the notion that the level of expenditures will depend upon the size of the stock of cash balances or other liquid assets held by households and perhaps business firms.<sup>48</sup> That is, according to the direct liquidity theory as applied to debt management, the level of private expenditures depends not only on the size of the stock of liquid claims but also on "how liquid" this stock is. On the basis of such empirical studies as have been made, it is far from clear that changes in the stock of liquid assets of the magnitude that take place in normal peacetime periods have important effect on expenditures.<sup>49</sup> Surely, if there is doubt as to whether the size of the stock of claims is an important factor, it is

<sup>46</sup> In addition to the difficulties pointed out below, the argument seems to assume that the effects are more or less symmetrical; that is, the effects of changes in liquidity are the same (or at least not systematically different) for the group whose liquidity is reduced as for the group whose liquidity is increased. However, one might assume that those who give up liquidity most readily would be those who attach least importance to it and therefore would be least influenced by it, while those who will most readily accept additions to their liquidity would be those who attach most importance to it and would be most affected by it. If this were the case, it would systematically weaken the liquidity effect and might conceivably reverse it.

<sup>47</sup> Rolph (op. cit., pp. 306-307) specifically disavows reliance on interest rate changes and rests his argument on a direct liquidity effect.

<sup>48</sup> For a discussion of various hypotheses that have been advanced concerning the relationship between accumulated wealth and the level of expenditures—especially on the part of consumers—see Gardner Ackley, "The Wealth-Saving Relationship," *Journal of Political Economy*, LIX (April 1951), 154-161. The most elaborate effort to integrate wealth effects into modern monetary theory is to be found in Don Patinkin, "Money, Interest, and Prices" (Evanston, Ill.: Row Peterson and Co., 1956).

<sup>49</sup> Some investigators have found that liquid assets have an important effect on consumer expenditures. See Arnold Zellner, "The Short-Run Consumption Function," *Econometrica*, XXV (October 1957), 552-567; and Klein and Goldberger, op. cit., pp. 50-66 and 89-95. However, other studies have achieved predictive relationships that are equally satisfactory without using liquid assets. The fact is that our knowledge of consumer behavior is quite unsatisfactory, and studies by the Survey Research Center at the University of Michigan suggest that the influence of liquid assets is interrelated in a complex fashion with other variables. Klein and Goldberger (*ibid.*, pp. 50-83 and 89-92) also found that business holdings of liquid assets influence investment, but here too there is much uncertainty.

even more doubtful whether the composition of the stock is a matter of appreciable significance. Certainly there is no evidence whatever that this is the case.

To summarize, we may say that (a) the theoretical basis for direct liquidity effects is decidedly uncertain, and (b) to the extent that these effects may have theoretical validity they appear to represent a second-order extension of an effect whose first-order importance has never been clearly established. Until the theory has been clarified and some evidence has been adduced concerning their empirical importance, it seems justifiable to assume that direct liquidity effects of changing debt composition are nonexistent or at least of negligible importance.

#### DEBT MANAGEMENT AS A SPECIES OF SELECTIVE CONTROL

It seems best to regard marginal changes in the composition of the publicly held debt as a form of selective credit control which, by changing the structure of interest rates, influences the composition of demand for goods and services. For example, the sale of long-term securities and use of the proceeds to retire short-term debt would raise the long-term rate of interest and lower the short-term rate. This might be expected to reduce expenditures on long-term investment in plant and equipment and housing and increase expenditures on inventory investment and consumer durable goods financed by consumer credit. Admittedly our knowledge of the quantitative magnitudes of these effects is decidedly fragmentary; nevertheless, it is generally agreed, for instance, that to the extent that monetary factors influence plant and equipment investment the effects are produced mainly by changes in the long-term rate of interest.

Undoubtedly marginal changes in the composition of the publicly held debt do have effects on the level of expenditures as well as on their composition. For reasons indicated above, however, these effects are of the second order of importance, and, in our present state of knowledge, we cannot even be sure in all circumstances what the direction of these effects is. Moreover, to the extent that changes in debt composition do have a net effect on the public's aggregate spending, similar effects can be produced by monetary controls. It is difficult to see what can be accomplished in the way of contracyclical control of aggregate spending by means of debt management that cannot be accomplished more effectively by Federal Reserve monetary policy. Debt management, at least as presently conducted by the Treasury, is a cumbersome instrument of stabilization policy, because it is difficult to time in a flexible way and because the Treasury is almost unavoidably concerned about its success in raising money. Monetary policy is a superior instrument of economic stabilization, because the Federal Reserve possesses a high degree of administrative flexibility and because the maintenance of economic stability is its major responsibility.

The superiority of the Federal Reserve as the administrator of stabilization policy also suggests that to the extent that we rely upon marginal changes in debt composition and interest rate structure as a selective control for stabilization purposes, the responsibility for producing such changes should be assigned to the Federal Reserve. By flexible use of open market operations, the Federal Reserve is in a

position to manage the interest rate structure. Under the so-called bills-only policy which has been in effect since 1953, the Federal Reserve has confined its open market operations almost entirely to Treasury bills or equivalent short-term securities and avoided exercising control over the interest rate structure. The reasons underlying the adoption of this policy and the possibility of a more flexible approach will be discussed in the next chapter.

#### THE OUTSTANDING DEBT AS AN AUTOMATIC STABILIZER

It is useful to distinguish between the debt structure at any particular time and marginal changes in the debt structure. The above discussion deals entirely with marginal changes and suggests that their effects on the level of expenditures are not likely to be very great, although their selective effects on the composition of expenditures may be of some importance. However, the debt structure in existence at any particular time conditions, in ways to be discussed shortly, the manner in which the economy and particularly the financial system react to external disturbances. Monetary policy may work more effectively with one debt structure than with another. Consequently, the achievement and maintenance of a desirable debt structure may be an important objective of economic policy.

Another way to make the distinction just referred to is to distinguish between discretionary debt policy and the debt as an automatic stabilizer.<sup>50</sup> This is similar to the distinction that is customarily made between discretionary fiscal policy and automatic fiscal stabilizers.<sup>51</sup> Our discussion earlier in this chapter was concerned with discretionary debt policy. Discretionary debt policy deals with the question of how such marginal adjustments in the composition of the debt as are possible through cash borrowing, debt retirement, and refunding operations (together with open-market operations by the Federal Reserve System) should be conducted under different economic conditions in order to contribute to economic stability. In discussing the debt as an automatic stabilizer, we are concerned with the way in which the composition of the outstanding debt at any particular time conditions the way in which the economy reacts to disturbances and the way in which monetary controls function.

We turn now to an analysis of the economic effects of alternative debt structures or the role of the debt as an automatic stabilizer. It has been argued that the growth of the public debt and Government securities market, together with the growing importance of large financial institutions, has considerably strengthened the influence of monetary policy by providing a sensitive medium which rapidly transmits the influence of Federal Reserve policy to all parts of the economy. Moreover, large institutional investors are very sensitive to small changes in interest rates and security prices, and it is said that the Federal Reserve can rely upon this sensitivity as a means of influenc-

<sup>50</sup> This distinction is made in Musgrave, *op. cit.*, pp. 590, 603-608.

<sup>51</sup> Automatic fiscal stabilizers include devices, such as the personal and corporate income taxes and the unemployment compensation system, which tend automatically to move the budget in the direction of a deficit when economic activity slows down and in the direction of a surplus when it speeds up, thus helping to stabilize the economy. Discretionary fiscal policy takes in changes in tax or expenditure legislation (or administrative decisions to speed up public works expenditures, etc.) for the purpose of promoting economic stability.

ing the supply of funds these institutions make available to the private sector of the economy.<sup>52</sup>

While there is undoubtedly some truth in this argument, the growth of the public debt and the improved efficiency of the Government securities market have also served in important ways to reduce the influence of monetary forces in the economy and the effectiveness of monetary policy. Transactions in Government securities provide a means by which banks, financial institutions, and other investors can rearrange their asset portfolios in such a way as to elude the Federal Reserve's attempts at control, or at least to postpone their impact for a considerable time. This is well illustrated by reference to the 1955-57 period of credit restraint.

Between December 1954 and September 1957 bank loans expanded by roughly \$28 billion, even though the publicly held money supply (demand deposits and currency) actually declined by about a billion dollars.<sup>53</sup> Table IV-1 shows the factors affecting the money supply during this period. As indicated in the table, two factors account mainly for the fact that bank loans were able to increase so substantially at a time when the Federal Reserve succeeded in keeping the money supply under tight control. The growth of time deposits accounted for \$12.4 billion. For the most part, this growth of time deposits is related to the accumulation of saving out of the rising levels of income associated with the prosperous business conditions of the period.<sup>54</sup>

TABLE IV-1.—*Factors affecting money supply,<sup>1</sup> Dec. 31, 1954, to Sept. 25, 1957*

<i>Factor</i>	<i>Amount</i>
Increase in bank loans.....	+27.7
Decrease in holdings of U.S. Government obligations by commercial and savings banks.....	-14.0
Increase in time deposits.....	-12.4
Other factors.....	-2.4
	-----
Change in money supply.....	-1.1

<sup>1</sup> Money supply equals demand deposits adjusted plus currency outside banks.

Source: Federal Reserve Bulletin.

The other factor and the one that is important in the present context is the reduction of \$14 billion in bank holdings of Treasury securities. Banks obtained about half of the funds they used for loan expansion by selling such securities to nonbank investors or by redeeming them for cash at maturity. To the extent that they did this, of course, the money supply was not expanded because the sale of securities destroyed money which was recreated by the lending.

Much concern is often expressed concerning the inflationary effects of monetization of public debt by the banking system. By analogy, it might seem that the 1955-57 demonetization of debt—shifting it

<sup>52</sup> R. V. Roosa, "Interest Rates and the Central Bank," in "Money, Trade, and Economic Growth: In Honor of John Henry Williams" (New York: Macmillan Co., 1951), pp. 270-295; also Roosa's "Federal Reserve Operations in the Money and Government Securities Markets" (New York: Federal Reserve Bank of New York, 1956).

<sup>53</sup> On a seasonally adjusted basis, the money supply increased by \$5 billion, or 3.9 percent.

<sup>54</sup> Part of the growth of savings deposits, especially in 1957, appears to have been induced by rising interest rates on such deposits and to have represented shifts of funds from demand deposits. These shifts of funds undoubtedly had some inflationary impact and represented a compensating response of the financial system to tightening credit conditions. On this, see my article, "Financial Intermediaries and Monetary Controls," Quarterly Journal of Economics, LXXIII (November 1959).



out of the banking system—was anti-inflationary. Or, looking a little more carefully and observing that the bank sales of Government securities were accompanied by increases in loans, thus leaving bank earning assets and the money supply unchanged, it might seem that such operations were neutral in their effects. But even this view seems to be incorrect. Taken by themselves, sales of securities by the banking system to other investors would have restrictive effects, since they would reduce the money supply and drive up interest rates. Loan expansion, on the other hand, is inflationary, because it creates money which in most cases is promptly used to finance income-generating expenditures. The combined operation of liquidating securities and expanding loans will be inflationary on balance unless the security sales reduce income-generating expenditures as much as the loans increase them. This is possible, of course—the rise of interest rates could induce contraction of expenditures and the use of funds thus released to buy the securities being offered for sale by the banks. To this extent, the active portion of the money supply is not increased—it is reduced by the security sales and increased by the lending—and the total amount of spending is little affected, although its direction may be significantly changed. It does not seem reasonable to expect such results, however. The deposits that are extinguished by the security sales are likely to be largely idle deposits. These deposits are then recreated through lending and promptly inserted directly into the income stream. The net result of the operation is to leave the money supply unchanged but to increase the fraction of the money supply that is being actively used at the expense of the fraction that is being held idle, thus producing an increase in the velocity of monetary circulation.<sup>55</sup>

Portfolio adjustments by nonbank financial institutions can have similar effects to those discussed above.<sup>56</sup> However, while these institutions have been selling Government securities and shifting funds into private loans and securities most of the time since World War II, these shifts do not seem to have had a systematic cyclical pattern.<sup>57</sup> Commercial banks, on the other hand, have systematically increased their holdings of Treasury securities during periods of recession and low interest rates and liquidated them in order to shift into loans during periods of tight money and rising interest rates. This is clearly brought out in table IV-2, which shows that commercial banks accumulated \$9.7 billion of Government securities between June 1953 and December 1954 when interest rates were low and credit conditions relatively easy. Between December 1954 and September 1957 when credit conditions were tight and interest rates rising, they reduced their holdings by \$10.2 million.<sup>58</sup> During the period when

<sup>55</sup> For a further development of this argument, see my papers, "On the Effectiveness of Monetary Policy," *American Economic Review*, XLVI (September 1956), 588-606, and "Monetary Policy and the Structure of Markets," in "The Relationship of Prices to Economic Stability and Growth," *Compendium of Papers Submitted by Panelists Appearing before the Joint Economic Committee* (Washington: Government Printing Office, 1958), pp. 493-511.

<sup>56</sup> See my paper, "On the Effectiveness of Monetary Policy," *op. cit.*

<sup>57</sup> Although there are differences in the behavior of different types of institutions—such as savings and loan associations and life insurance companies—the above statement seems to be true for all nonbank finance institutions taken together. See my article, "Financial Intermediaries and Monetary Controls," *op. cit.*, for an extensive discussion of this matter.

<sup>58</sup> This amount differs from the \$14 billion reduction in holdings of Government securities by the banking system shown in table IV-1 for the same period for three reasons: (a) Table IV-1 covers commercial and mutual savings banks, whereas the present discussion relates only to commercial banks; (b) the above figures cover only the commercial banks included in the Treasury survey of ownership, which takes in about 90 percent of total bank holdings; and (c) holdings are valued at book value in table IV-1, whereas they are valued at face value in the present context.

credit conditions became easier in connection with the 1957-58 recession—i.e., between September 1957 and June 1958—they built up their holdings of Government securities by \$6.7 billion. Since June 1958 as credit conditions have tightened, they have liquidated \$4.0 billion of Government securities.

TABLE IV-2.—Changes in commercial bank holdings of marketable Treasury securities by maturity classification for specified periods

[Millions of dollars]

	June 1953 to December 1954	December 1954 to December 1955	December 1955 to December 1956	December 1956 to September 1957	December 1954 to September 1957	September 1957 to June 1958	February 1958 to June 1959
All maturities..	9,736	-7,121	-2,479	-613	-10,213	6,673	-3,985
Within 1 year.....	-3,842	-8,005	3,902	554	-3,549	1,242	-3,386
1 to 5 years.....	502	3,157	2,525	1,197	6,879	-1,231	6,810
5 to 10 years.....	12,329	-1,618	-9,241	-1,663	-12,522	5,680	-6,026
Over 10 years.....	746	-655	355	-701	-1,021	982	-1,383

NOTE.—Details may not add to totals due to rounding.

Source: Federal Reserve Bulletin.

The above discussion brings out a very important point, namely, that the existence of large quantities of liquid readily shiftable claims introduces a considerable amount of "play" into the financial system and may greatly reduce the sensitivity of the economy to monetary adjustments. This is because persons or institutions possessing such liquid claims and desiring to sell them to finance their own current expenditures or the expenditures of others through loans will ordinarily have little difficulty in finding buyers for the claims among holders of idle cash balances. Thus, it may be said that the existence of a large stock of short-term liquid claims tends to result in a highly elastic liquidity preference schedule. Or, to put it another way, they lead to a situation in which credit tightening and rising interest rates tend to induce substantial dishoarding of cash balances and a rise in monetary velocity.

An effective debt management policy may be able to reduce the amount of "play" in the financial system by controlling the supply of liquid assets, thus making the economy more responsive to changing credit conditions and monetary policy. If there is a great quantity of short-term securities in the hands of banks, financial institutions, and other investors, it will be relatively easy to find buyers for these securities and thereby obtain funds to finance direct spending and lending activities. One reason for this is that the demand for cash balances for transactions purposes appears to have a considerably greater interest elasticity than we used to think. Nonfinancial corporations and State and local government units have become considerably more sophisticated in managing their cash positions in the last few years, and when interest rates rise, they find it worthwhile to make considerably more frequent purchases and sales of securities—including Treasury bills, finance company paper, and repurchase agreements with Government security dealers—in order to keep their liquid balances invested to a maximum extent. Thus, banks, as well as other spenders and lenders, will ordinarily find it possible to liquidate Treasury bills or other short-term Government securities without

having to accept much of a decline in price. In fact, with extremely short-term securities they can realize funds at no loss at all in a rather short time by simply turning them in for cash at maturity.

Investors holding longer term securities may have somewhat greater difficulty in finding buyers for these securities when they want to liquidate them and shift into loans. One reason is that these securities are not likely to be attractive to holders of transactions balances, because of the substantial degree of price risk involved in holding them. Moreover, their prices normally fall substantially more than do the prices of short-term securities when interest rates rise and, for this reason, there may be somewhat greater reluctance to sell them due to the capital losses involved.

Some writers in recent years have placed considerable emphasis on this so-called locked-in effect as part of the mechanism by which tightening credit makes itself felt. While there are some conceptual difficulties concerning the locked-in effect,<sup>59</sup> it does appear that in certain situations it may be a significant factor. Suppose, for example, that a bank holds a Government bond with 15 years to run to maturity and a coupon rate of 3 percent. The yield on the bond to maturity is currently 3.5 percent, and accordingly its market price is \$94.20. Suppose the bank expects interest rates to fall so that the yield on this bond will be back at 3 percent by the end of a year. If the bank were to sell this security and use the proceeds to make a loan to a customer, it would have to charge an interest rate of more than 9 percent in order to earn a return on the loan as large as the return to be expected from holding the security for a year, taking account of the expected price appreciation. This 9 percent rate includes no allowance for default risk on the loan; accordingly the rate might have to be somewhat higher than this to induce the shift. Thus, the locking-in effect might be significant in the case of commercial banks, provided the banks were faced with the prospect of liquidating longer term securities in order to expand loans.<sup>60</sup> Our previous discussion of bank portfolio shifting suggests that banks have not in fact been locked in in the last few years, but the reason may be that they have been well supplied with short- and intermediate-term securities on which prospective capital gains and losses are not large enough to be a major factor in the banks' calculations.<sup>61</sup> It may be noted that if rising interest rates create the expectation of further rises—i.e., if interest rate expecta-

<sup>59</sup> See my article, "On the Effectiveness of Monetary Policy," *op. cit.*, and Musgrave, *op. cit.*, pp. 604-606.

<sup>60</sup> My previous criticism of the "locked in" effect, as well as that of Musgrave (both cited in footnote 51) was concerned entirely with the case of a shift from a marketable Government security to a marketable private security. In such cases, the locked-in effect is of very little significance, because the price of the private security will ordinarily be expected to move in the same direction and to approximately the same degree as that of the Government security. Thus, if there is a prospective capital gain to be had from holding onto the Government security, an approximately equal capital gain can be expected if the funds are shifted to a private security. In the case discussed here, in which the shift is from a Government security to a private loan (i.e., a nonmarketable security), there is no possibility of a capital gain from the loan, so any prospect of a capital gain from holding onto the Government security must be compensated for by a higher interest rate on the loan. This gives considerably more scope for a locked-in effect.

<sup>61</sup> The data in table IV-2 suggest that banks have made many of the adjustments in their Government security portfolios by buying and selling securities in the 5- to 10-year maturity range. However, this may be partly spurious, since changes in the amount of securities in a particular maturity sector can occur due to shifts of blocks of securities across the boundaries of that sector as a result of the passage of time, as well as due to purchases and sales. In order to arrive at any clear conclusions concerning bank portfolio practices in this respect, it would be necessary to study the changing composition of portfolios in detail, paying attention to specific Treasury issues. It would be possible to do this, using data from the Treasury Survey of Ownership, but the pressure of time makes it impossible in connection with the present study. The peculiar Federal tax provisions applicable to commercial banks exert an influence over bank portfolio policies. Capital losses are deductible from ordinary income, while capital gains are subject to the lower rates of the capital gains tax. These provisions may encourage banks to make their portfolio adjustments through transactions in intermediate and longer term securities. For a good discussion of these tax provisions, see R. H. Parks, "Income and Tax Aspects of Commercial Bank Portfolio Operations in Treasury Securities," *National Tax Journal*, XI (March 1958), 21-34.

tions are elastic rather than inelastic as assumed in the above example—rising rates will strengthen rather than weaken an investor's incentive to shift from Government securities into loans.<sup>62</sup> However, as suggested in connection with our earlier discussion of the interest rate structure, there is considerable indirect evidence that inelastic interest rate expectations predominate most of the time.

The above analysis suggests that debt management policy might well be directed at keeping down the supply of highly shiftable liquid assets in the economy in order to provide a financial framework within which interest rate adjustments and monetary policy may work more effectively to maintain economic stability. However, the implications with respect to this view of debt management's function are somewhat different from those reflected in the orthodox theory of stabilizing debt management policy. The time when excessive liquidity tends to build up, particularly in the banking system, is during recession periods. Large buildups of short-term, highly liquid, and readily shiftable Treasury securities in the hands of the banks does little good in promoting recovery, and tends to create trouble during the succeeding expansion by undermining the Federal Reserve's ability to bring the credit situation under effective control. A judicious policy of long-term borrowing during recession periods may be able to induce the banks to reach out for longer maturities instead of loading up heavily with very short-term securities. Of course, if such a policy should discourage the banks from expanding loans, it would be harmful. However, this does not seem likely; in fact, it may very well have the opposite effect. If the Treasury increases the short-term debt excessively during a recession, thus helping to keep short-term interest rates from falling, the banks may be tempted to build up their liquidity at the expense of their loans. On the other hand, if short-term borrowing is kept down and longer-term securities offered instead, the very low short-term rates may encourage the banks to press loan expansion aggressively, since they prefer loans to long-term Government securities. At the same time, if they can be induced to invest in longer-term securities to the extent that the resources made available to them by the decline in credit demand and by Federal Reserve policy exceed the amount needed to satisfy such loan demand as there is, the monetary authorities should be in a better position to exert effective discipline during the ensuing expansion.

#### COMBINING INTEREST COST AND STABILIZATION EFFECTS

We have considered the way in which alternative debt management policies are likely to affect the interest cost of the Treasury on the one hand and the stability of the economy on the other. Let us now attempt to bring these two aspects of the problem together.

##### *An orthodox view*

Probably the nearest thing there is to a unified theory of debt management along orthodox lines is that presented by Prof. Earl Rolph.<sup>63</sup> Rolph treats debt management and open market operations as a unit, making no concessions to the present institutional arrangements which

<sup>62</sup> For example, in the above case, if the bank expected the yield on the Government security to continue rising and reach 3.75 percent at the end of the year, the yield to be expected from holding the security for a year would be only about 0.25 percent, and it would presumably be willing to make the loan at a very low interest rate.

<sup>63</sup> Rolph, "Principles of Debt Management," *op. cit.*

divide the responsibility between the Treasury and the Federal Reserve. His fundamental argument is that the debt should be managed in such a way as to minimize the interest cost of achieving a desired level of private spending.

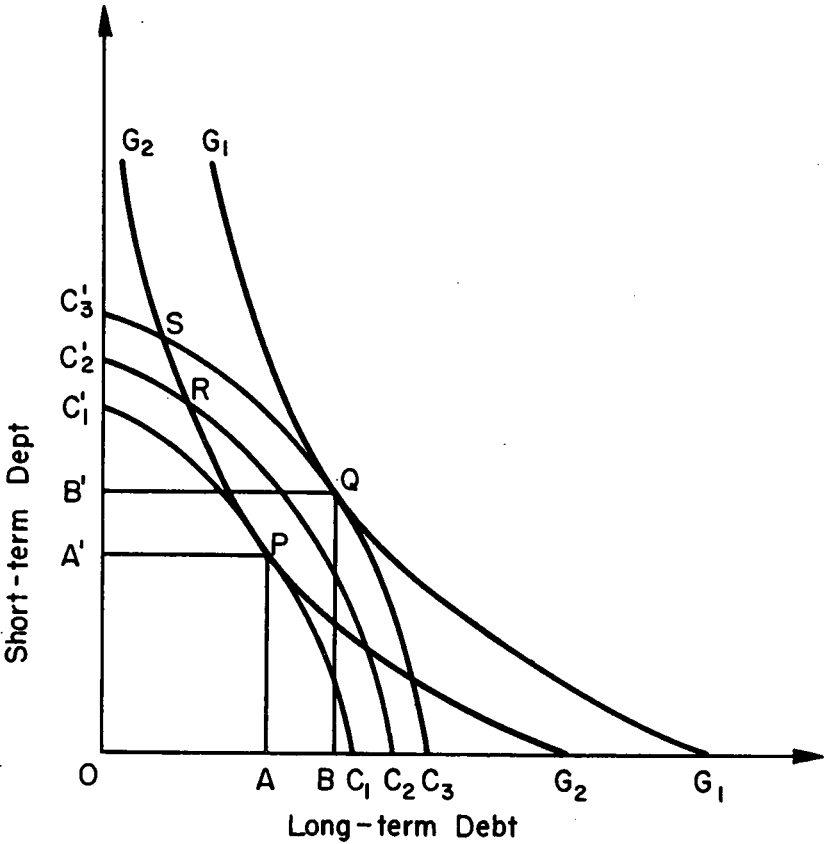


Chart IV-5

Rolph's theory of debt management can be explained with the aid of chart IV-5.<sup>64</sup> In this chart, the  $C$  curves (of which three,  $C_1C_1$ ,  $C_2C_2$ , and  $C_3C_3$ , are shown) are isointerest cost curves. For simplicity only two types of debt are allowed for—short-term debt, measured along the vertical axis, and long-term debt, measured along the horizontal axis. Each of the  $C$  curves represents the various combinations of long- and short-term debt that can be placed with investors at a specified interest cost—for example, the  $C_1$  curve might represent all the combinations that could be placed at a total interest cost of \$6 billion,  $C_2$  the combinations that could be placed at a cost of \$7 billion, and  $C_3$  the combinations that could be placed at a cost of \$8 billion. Since it is assumed that the short-term interest rate is always below the long-term rate, the intercept of each  $C$  curve with

<sup>64</sup> This chart is adapted from fig. 3 in Rolph's article, *op. cit.*, p. 315.

the vertical axis is further from the origin than is its intercept with the horizontal axis.<sup>65</sup> The curves are said to be concave to the origin (as drawn in chart IV-5). This is due to the fact that when there is, say, a great deal of long-term debt and only a little short-term debt outstanding, the Treasury can issue more short-term debt in exchange for long-term debt at very favorable terms, but the terms become less and less favorable as more and more short-term debt is issued and more and more long-term debt is retired.

The  $G$  curves (of which two,  $G_1G_1$  and  $G_2G_2$ , are shown) in chart IV-5 can be described as isoprivate-expenditure curves—that is, each curve relates to a given level of private expenditures and takes in all combinations of short-term and long-term debt which will result in this level of private expenditures. For example, curves  $G_2G_2$  and  $G_1G_1$  might correspond to levels of private expenditures of \$300 billion and \$250 billion, respectively. In drawing these curves, it is assumed that all other governmental measures affecting expenditures, such as the reserve requirements of the banks and the legislation governing budgetary expenditures and taxes, are given. The  $G$  curves are taken to be convex to the origin, as drawn in chart IV-4. It should be noted particularly that the quantity of money is not the same at all points on a particular expenditure curve. To illustrate this point, suppose the authorities to issue long-term debt and retire short-term debt in such a way as to stay on the same expenditure curve. If they sell long-term debt and retire an equal amount of short-term debt, the liquidity of the private sector will be reduced and expenditures will be depressed, and in order to restore the preexisting expenditure level, they will have to retire more short-term debt for cash.

The proper way to conduct debt management, according to Rolph's analysis, is as follows: First the authorities must select the desired level of private expenditures—presumably the level consistent with economic stability. Let us say they decide that \$300 billion is the proper level (i.e., they want to be on expenditure curve  $G_2$ ). Having made this decision, they should issue the mix of short-term and long-term debt that would achieve this level of expenditures at minimum interest cost. In order to do this, they should seek to attain the position (point P in this case) at which the selected expenditure curve is tangent to an isocost curve. They should, in this case, issue OA of long-term debt and OA' of short-term debt, which will put them on the cost curve  $C_1C_1$ , with an annual interest cost of \$6 billion, the minimum consistent with \$300 billion of private expenditures. If the objective chosen had been \$250 billion of private spending, the authorities should issue OB of long-term debt and OB' of short-term debt, reaching the point Q on the curve  $C_2C_2$ , where interest cost would be \$8 billion a year, the minimum for that level of spending.

This is an ingenious unified theory of debt management. Unfortunately, it has a number of shortcomings, some of them rather serious.

1. The argument underlying the expenditure curves in Rolph's analysis rests upon direct liquidity effects. As indicated above, the reasoning underlying direct liquidity effects is dubious, and even if

<sup>65</sup> That is, if all debt is short-term debt, more of it can be placed at a given interest cost than could be placed at that cost if it were all long-term debt. It should be noted that the total amount of debt and the money supply are not the same at different points on a given  $C$  curve.

such effects are present, there is absolutely no empirical basis for evaluating their importance. In fact there is little reason to think that moderate changes in debt structure have much effect on private expenditures.

2. If we accept the fundamentals of Rolph's own argument, the expenditure curves should be drawn concave to the origin rather than convex.<sup>65a</sup> This does not, however, undermine his argument but merely means that the optimum debt structure might consist entirely of long-term or (less likely) short-term securities.

3. The analysis of interest costs is based upon a defective theory of the interest rate structure. Rolph assumes that the short-term rate is always below the long-term rate due to a preference for liquidity, whereas historically this relation has not always (or even usually) held.<sup>66</sup>

4. The theory elevates the minimization of interest cost to an absurdly high level as a criterion of economic policy. The trouble with this criterion is that the structure of private expenditures is likely to be affected by changes in the composition of the publicly held debt. Referring to chart IV-5, it might be, for example, that the level of private spending would be \$300 billion at every point on expenditure curve  $G_2G_2$ . However, at point S, with a large short-term debt and a small long-term debt, it might be that inventory investment would be considerably smaller and plant and equipment expenditures much larger than would be the case at point P. If the authorities felt that excessive inventory investment might lead to instability, while plant and equipment expenditures would promote a rapid rate of growth, they might quite properly be willing to pay something in excess of the minimum interest cost (attainable at point P) in order to achieve a superior pattern of expenditures.<sup>67</sup> It is true that we know very little about how changes in debt structure affect the pattern of expenditures, but neither do we know how they affect the level; indeed, it is difficult to see how we could know much about the one without the other, in which case there would be no basis for assuming indifference.<sup>68</sup>

5. In our present state of knowledge, the theory is completely non-operational. Of course, even a nonoperational theory may be of some value in providing policymakers with a framework within which to formulate their decisions. However, the defects in Rolph's theory are sufficiently serious to render it of little value even for this purpose.

#### *An alternative approach*

Before attempting to develop some general principles that might provide guides for debt management policy, it is well to take note of several points. First, in the present state of our knowledge, it is

<sup>65a</sup> This error in Rolph's analysis has been pointed out by two writers. See Musgrave, *op. cit.*, pp. 602-603, and R. M. Friedman, "Principles of Debt Management: Comment," *American Economic Review*, XLIX (June 1959), 401-403. See also E. R. Rolph, "Principles of Debt Management: Reply," *American Economic Review*, XLIX (June 1959), 404-405, in which Rolph admits the correctness of Friedman's criticism.

<sup>66</sup> Rolph admits this himself with reference to the period before 1914 ("Principles of Debt Management," *op. cit.*, p. 311, footnote 18). In fact, however, the long-term rate was above the short-term rate rather frequently after 1914 up to 1930, and indications of this relation have reappeared recently, as noted earlier.

<sup>67</sup> If the economy, including the capital markets, were perfectly competitive, it could be argued that minimizing interest costs would lead to a welfare-maximizing allocation of investment. This is pointed out by Musgrave, *op. cit.*, p. 589. However, the presence of market imperfections renders this argument inoperative.

<sup>68</sup> It may be noted that if interest cost minimization is the appropriate criterion for debt management, it should be applicable to other aspects of stabilization policy. Thus, if the monetary authority has the power to raise reserve requirements, it could raise the requirements and offset the deflationary effects of this action by purchasing debt and in this way reduce the Treasury's interest cost. This could be continued until reserve requirements had been raised to 100 percent; thus, Rolph's scheme is an argument for the 100-percent reserve plan.

simply not possible to lay down precise rules to govern debt management. We simply do not know enough about the effects of alternative debt management policies to be very specific. Second, we should probably not take the possible stabilizing or destabilizing potentialities of debt management too seriously. All of the effects of debt management are of the second order of importance—any debt management operation makes some people more liquid than they were and others less liquid, and it lowers some interest rates while raising others. In view of the fact that there is considerable doubt about the potency of the effects of changes in the levels of interest rates and of liquidity on private expenditures, it is not surprising that the effects of changes in the structure of interest rates and of liquidity are even harder to discern. The effect of any debt management operation is the resultant of two effects, one in one direction and one in the other. Both are probably rather weak, their difference rather small, and commonly we cannot even be sure of the direction of the net effect.

Even though the immediate effects of current debt operations may not be a matter of critical importance, for the reasons just mentioned, the composition of the existing debt stock may make some difference to the stability of the economy and the effectiveness of monetary policy, particularly in dealing with inflationary situations. If there is an excessive stock of short-term, liquid, highly shiftable claims in existence at the time when inflationary forces begin to develop, the task of the monetary authorities may be greatly complicated.

These considerations suggest a vigorous policy of lengthening debt maturities. By reducing the available supply of short-term, highly shiftable, liquid claims, lengthening of debt maturities tends to tighten up the financial system, making the economy more responsive to monetary controls. While a certain amount of "slippage" in our monetary controls is desirable, it seems pretty clear that at the present time the amount of slippage is so great as to interfere with effective monetary policy. Moreover, there is something to be said on several counts for a policy of concentrating, to a certain extent, on debt lengthening during recessions and relaxing the policy somewhat during boom periods. The following specific points may be noted in this connection.

1. From the standpoint of keeping down the interest cost to the Treasury, as pointed out earlier, it is desirable to borrow at long term during recession periods when interest rates are low, in order to get the maximum advantage of the low rates. An orthodox policy of lengthening the debt during boom periods and shortening it during recessions, to the extent that it is successful, probably tends to maximize Treasury interest costs. While interest costs are certainly not an overriding consideration, as indicated in chapter I, there is certainly something to be said, from the standpoint of prudent financial management, for keeping them low unless some important objective is achieved by increasing them.

2. If the Treasury sells longer term securities during recessions while, if possible, reducing the short-term debt, there will be some advantages from the standpoint of economic stability.<sup>69</sup> The reduction in the supply of short-term securities will accentuate the tendency for short-term rates to fall. This will make such securities less at-

<sup>69</sup> There is a problem connected with the financing of cash deficits which will occur during recessions, assuming that a stabilizing fiscal policy is followed. This is discussed in the next section.



tractive to the banks, thus increasing their incentive to follow an aggressive loan policy, which, of course, is precisely what is needed from the standpoint of promoting recovery. At the same time, the sale of intermediate and longer term securities will tend to keep rates up in these sectors and attract banks to invest in these securities to the extent that they cannot find outlets for their funds in loans. Since these securities will probably be somewhat less easily shiftable during the ensuing recovery period, the banks will find it somewhat more difficult to elude the effects of restrictive monetary policy than would have been the case had they become loaded down with very short-term securities during the recession. Thus, monetary controls will probably take hold somewhat more quickly and smoothly than would otherwise have been the case.

3. During periods of expansion as economic activity quickened and the level of interest rates rose as a result of an increasingly restrictive Federal Reserve policy, the Treasury would gradually diminish its efforts to sell long-term securities, shifting more and more to the short-term market. This would probably also have some beneficial effects from a stabilization point of view. To the extent that the banking system had accumulated short-term securities during the preceding recession—which would certainly occur to some extent—the rise in short-term rates would discourage their sale, or at least lead the banks to mark up loan rates more rapidly. This might serve to make monetary controls take hold more effectively, particularly in the short-term sectors. It might have some tendency to discourage an excessively rapid buildup of inventories, thus weakening the effect of the destabilizing inventory accelerator, although too much should not be expected here. However, these forces would probably strengthen the availability effects of monetary policy, which have been so much stressed in the last few years.<sup>70</sup>

4. Perhaps the greatest advantage of this policy would be that it would tend to minimize the extent to which the Treasury's debt management problems would interfere with the freedom of the Federal Reserve during periods of inflation. A well-managed program of extending maturities during recession periods would reduce the frequency with which the Treasury had to come to the market. More important, however, during tight credit periods, the Treasury would shift to the short-term market, where it would be out of the Federal Reserve's way. Short-term borrowing causes few difficulties for the Federal Reserve, whereas long-term borrowing at inopportune times during inflationary periods has frequently forced the Federal Reserve to ease up on policies of monetary restriction.

5. This kind of debt policy would probably accentuate the cyclical swings in Treasury interest payments and particularly cause them to rise very rapidly during periods of expansion, since short-term rates would be forced up sharply, and short-term debt rolls over rapidly tending to make rising interest costs snowball. This effect would be destabilizing, since rising interest payments, being a species of transfer payment, have an income effect. Thus, rising interest payments would have an inflationary effect unless offset by a somewhat tighter monetary or fiscal policy than would otherwise have been followed. However, this effect is not likely to be important, since, as pointed

<sup>70</sup> On the availability doctrine, see H. S. Ellis, "The Rediscovery of Money," and R. V. Roosa, "Interest Rates and the Central Bank," both in "Money, Trade, and Economic Growth: In Honor of John Henry Williams," op. cit., pp. 253-269 and 270-295, respectively.

out in an earlier chapter, the multiplier applicable to Treasury interest payments is probably rather small.<sup>71</sup>

6. In an economy as buoyant as the American economy has been in recent years and with an active full-employment policy, recessions are likely to be shorter in duration than booms. For this reason, it may be difficult to sell enough long-term securities during recessions to prevent the debt from shortening gradually. Accordingly, in order to prevent the slow accumulation of an undue amount of liquid short-term debt, it would be desirable to make some—albeit diminishing—effort to sell long-term securities during periods of expansion, especially if such offerings can be handled and timed in such a way as not to interfere with the Federal Reserve's freedom to control credit. Some possible changes in debt management techniques which might facilitate such operations—as well as have other advantages—are discussed in a later chapter.<sup>72</sup>

7. Finally, but very important, a bold policy of the kind here advocated would require as an accompaniment a flexible policy on the part of the Federal Reserve. For example, the debt managers might overshoot the mark in their attempts to raise long-term funds during a recession, with the result that recovery would be impeded unless some compensating action were taken. If such a situation should arise, the Federal Reserve should be able to perceive it and should be prepared to act promptly and effectively to offset it by putting funds directly into the long-term market through open market purchases of long-term securities. Thus it would be desirable to abandon the present "bills only" policy and be prepared to deal in all sectors of the market if necessary. The feasibility of such a change is examined at some length in the next chapter.

In conclusion, a word of caution is in order. The importance of debt management as a means of keeping down the supply of liquid assets should not be exaggerated. The shiftability effects of debt management policy, like the interest rate effects and direct liquidity effects, are of the second order of importance. Short-term Government securities are more liquid than longer term securities, but the latter also possess a considerable degree of liquidity. Funds can be activated by means of transactions in intermediate- or long-term securities, as well as by means of transactions in short-term securities. A policy of lengthening debt maturities may help to tighten up our system of monetary controls, but it is no panacea and too much should not be expected from it.

#### THE HANDLING OF BUDGET DEFICITS AND SURPLUSES

A budget deficit has an inflationary (or antideflationary) income effect on the economy, whether it is produced by an increase in expenditures or a reduction in taxes. Similarly, a budget surplus has a deflationary (or anti-inflationary) income effect.<sup>73</sup> On the other hand, borrowing to finance a deficit has a deflationary (or anti-inflationary) effect, while the use of a surplus to retire debt has an inflationary (or antideflationary) effect. The inflationary effect of

<sup>71</sup> See ch. I.

<sup>72</sup> See ch. VI.

<sup>73</sup> The income effects are reinforced by asset effects, since a deficit will increase the nominal value of the net claims held by the public, while a surplus will decrease net claims. These effects on the size of the stock of net claims are independent of the way in which the deficit is financed or the use to which the surplus funds are put; however, it is doubtful whether they are of much importance.

a budget deficit is almost certain to be more important than the deflationary effect of an equal amount of borrowing, so that the net effect of a deficit financed by borrowing is inflationary. Similarly, the net effect of a surplus and an equal amount of debt retirement is, under most circumstances, strongly deflationary. Nevertheless, it is desirable to distinguish between the effects of deficits and surpluses, on the one hand, and borrowing and debt retirement, on the other. This distinction is not always made. For example, emphasis is frequently placed on the desirability of paying off some of the debt out of budget surpluses in good times as part of an anti-inflationary program.<sup>74</sup>

The deflationary effects of borrowing to finance a deficit during a recession do not ordinarily cause serious problems, because the Federal Reserve can easily offset these effects by means of appropriately easier monetary policy. However, the effects of debt retirement during inflationary periods cannot be so easily dismissed. The reason is that the Treasury is likely to be absorbing securities through debt retirement at the very time when commercial banks and other investors, who are hard pressed as a result of a restrictive Federal Reserve policy, are trying to sell such securities in order to finance private spending. Thus, the debt retirement may complicate the problems of the Federal Reserve considerably—or, to put it another way, the Federal Reserve's job would be considerably easier if the Treasury were not retiring so much debt.

TABLE IV-3.—Changes in holdings of Government securities by various investor groups, Dec. 31, 1955, to June 30, 1957

[Billions of dollars]

	Holdings, Dec. 31, 1955	Holdings, June 31, 1957	Change, Dec. 31, 1955, to June 31, 1957
Total debt held outside Government agencies and trust funds.....	229.1	215.1	-14.0
Federal Reserve.....	24.8	23.0	-1.8
Commercial banks.....	62.0	55.8	-6.2
Mutual savings banks.....	8.5	7.9	-.6
Insurance companies.....	14.3	12.3	-2.0
Other corporations.....	23.5	16.1	-7.4
State and local governments.....	15.1	16.9	1.8
Individuals.....	65.3	67.1	1.8
Miscellaneous investors <sup>1</sup> .....	15.6	16.0	.4

<sup>1</sup> Includes savings and loan associations, dealers and brokers, foreign accounts, corporate pension funds, and nonprofit institutions.

Source: Federal Reserve Bulletin.

This problem is dramatically illustrated during the period from December 1955 to June 1957. During this period, the Federal Reserve was applying an increasingly restrictive monetary policy for the purpose of keeping down inflationary pressures. As shown in table IV-4, substantial amounts of Government securities were liquidated by commercial banks (\$6.2 billion), nonfinancial corporations (\$7.4 billion), insurance companies (\$2 billion), and mutual savings banks (\$0.6 billion). These investor groups sold governments

<sup>74</sup> In this vein, the Cabinet Committee on Price Stability for Economic Growth said in a recent report, "Not only is it imperative that the budget be balanced in the fiscal year starting next month, but it is important that the national debt be reduced" (New York Times, June 29, 1959, p. 16).

either to finance their own spending—as in the case of nonfinancial corporations—or to increase their loans to finance the spending of others, and there can be little doubt that the liquidations blunted the effects of the Federal Reserve's restrictive policy. The Federal Reserve itself sold \$1.8 billion of Government securities in the process of implementing its restrictive policy. Part of the \$18 billion of Government securities sold by all of these groups combined was absorbed by other classes of investors who increased their holdings. Net purchases were made by State and local governments (\$1.8 billion), individuals (\$1.8 billion), and miscellaneous investors (\$0.4 billion). However, these absorptions totaled only \$4 billion. The remaining \$14 billion was absorbed by the Treasury itself through outright debt retirement or purchase by Government agencies and trust funds. Thus, while the Treasury's cash surplus of \$13.6 billion during this period undoubtedly was an important anti-inflationary influence, the use of this surplus to carry out a large program of debt retirement unquestionably reduced the effectiveness of restrictive monetary policy.

Actually, in order to get the maximum anti-inflationary mileage out of a budget surplus, the Treasury should impound the funds in the form of deposits in the banks rather than retire debt. These accumulated deposits could then be used to finance deficits and/or retire debt during recession periods, since debt retirement is appropriate in recessions and inappropriate in times of inflation. If cash balances are built up by the Treasury, the effect is most deflationary if the funds are held in the Treasury's accounts at Federal Reserve banks, since this reduces bank reserves and, unless offset by Federal Reserve action or accidental factors, forces the banks to carry through a secondary contraction of loans and investments and the money supply. Holding the budget surplus in the form of deposits in the commercial banks reduces the publicly held money supply but does not force the banks into a secondary contraction of credit. In lieu of holding the funds in the form of increased balances in the Federal Reserve banks, the Treasury could use them to retire Federal-Reserve-held debt, but since the Federal Reserve returns most of its interest earnings to the Treasury at the end of each year, such debt retirement is mostly fictitious.

When the Treasury has a budget surplus, considerations of prudent financial management make it appear desirable to retire debt in order to reduce interest costs. However, the considerations referred to above suggest that if an arrangement could be negotiated with the commercial banks to pay interest on Treasury deposits which exceed some specified levels and are left in the banks for some specified minimum period of time, so that the Treasury would be partially compensated for forgoing the saving of interest to be obtained from retiring debt, it might be desirable at times to let surpluses build up in the form of deposits in commercial banks in prosperous periods and then draw them down to finance deficits in recession periods. Perhaps the surplus funds could be shifted to time deposit accounts. It might not be desirable to impound the full amount of a budget surplus in this way, but an arrangement such as this would considerably increase the Treasury's financial flexibility and might at times make a useful contribution to effective stabilization policy.

## APPENDIX TO CHAPTER IV

The discussion of the interest rate effects of debt management operations in the text is based on the following simple model:

$$\begin{aligned} E &= E_s + E_l \\ E_s &= E_s(r_s) \\ E_l &= E_l(r_l) \\ S_s &= S_s(r_s) + G_s \\ S_l &= S_l(r_l) + G_l \\ S_s &= E_s \\ S_l &= E_l \end{aligned}$$

Here  $E$  = total expenditures,  $E_s$  = expenditures affected by the short-term interest rate,  $E_l$  = expenditures affected by the long-term interest rate,  $S_s$  = the total supply of short-term funds,  $G_s$  = the exogenous portion of the supply of short-term funds,  $S_l$  = the total supply of long-term funds,  $G_l$  = the exogenous portion of the supply of long-term funds,  $r_s$  = the short-term interest rate, and  $r_l$  = the long-term interest rate. The supplies of funds in both markets include saving and dishoarding of existing cash balances. The two markets are assumed to be entirely independent. The model takes account only of direct effects; no income effects via the multiplier are allowed for.

We wish to consider the effects of a shift of funds from one market to another—say, from the long-term to the short-term market. Thus, we consider the effects of an increase in  $G_s$ , together with an equal and simultaneous reduction in  $G_l$ . The model can be simplified to the following:

$$\begin{aligned} E &= E_s(r_s) + E_l(r_l) \\ S_s(r_s) + G_s &= E_s(r_s) \\ S_l(r_l) + G_l &= E_l(r_l) \end{aligned}$$

Differentiating with respect to  $G_s$ , we obtain

$$\frac{dE}{dG_s} = \frac{dE_s}{dr_s} \frac{dr_s}{dG_s} + \frac{dE_l}{dr_l} \frac{dr_l}{dG_s} \quad (1)$$

$$\frac{dS_s}{dr_s} \frac{dr_s}{dG_s} + 1 = \frac{dE_s}{dr_s} \frac{dr_s}{dG_s} \quad (2)$$

$$\frac{dS_l}{dr_l} \frac{dr_l}{dG_s} + \frac{dG_l}{dG_s} = \frac{dE_l}{dr_l} \frac{dr_l}{dG_s} \quad (3)$$

Since the increase in  $G_s$  is assumed to be matched by an equal decrease in  $G_l$ , we have

$$\frac{dG_l}{dG_s} = -1$$

Making use of this, we can solve equation (3) for  $\frac{dr_l}{dG_s}$ , as follows:

$$\frac{dr_l}{dG_s} = \frac{1}{\frac{dS_l}{dr_l} - \frac{dE_l}{dr_l}}$$

Similarly, we can solve equation (2) for  $\frac{dr_s}{dG_s}$ , as follows:

$$\frac{dr_s}{dG_s} = \frac{1}{\frac{dS_s}{dr_s} - \frac{dE_s}{dr_s}}$$

Substituting these last two results for  $\frac{dr_s}{dG_s}$  and  $\frac{dr_l}{dG_s}$  in equation (1), we have

$$\frac{dE}{dG_s} = \frac{\frac{dE_l}{dr_l}}{\frac{dS_l}{dr_l} - \frac{dE_l}{dr_l}} - \frac{\frac{dE_s}{dr_s}}{\frac{dS_s}{dr_s} - \frac{dE_s}{dr_s}}$$

We shall assume that

$$\frac{dE_l}{dr_l} < 0, \frac{dE_s}{dr_s} < 0, \frac{dS_l}{dr_l} > 0, \text{ and } \frac{dS_s}{dr_s} > 0$$

If the shift of funds from the long- to the short-term market is to have a restrictive effect, we must have

$$\frac{dE}{dG_s} < 0,$$

which will be the case if

$$\frac{\frac{dE_l}{dr_l}}{\frac{dS_l}{dr_l} - \frac{dE_l}{dr_l}} - \frac{\frac{dE_s}{dr_s}}{\frac{dS_s}{dr_s} - \frac{dE_s}{dr_s}} < 0$$

or

$$\frac{\frac{dE_l}{dr_l}}{\frac{dS_l}{dr_l} - \frac{dE_l}{dr_l}} < \frac{\frac{dE_s}{dr_s}}{\frac{dS_s}{dr_s} - \frac{dE_s}{dr_s}}$$

or

$$\frac{dE_l}{dr_l} \frac{dS_s}{dr_s} - \frac{dE_l}{dr_l} \frac{dE_s}{dr_s} < \frac{dE_s}{dr_s} \frac{dS_l}{dr_l} - \frac{dE_s}{dr_s} \frac{dE_l}{dr_l}$$

or

$$\frac{dE_l}{dr_l} \frac{dS_s}{dr_s} < \frac{dE_s}{dr_s} \frac{dS_l}{dr_l}$$

or

$$\frac{\frac{dE_l}{dr_l}}{\frac{dS_l}{dr_l}} < \frac{\frac{dE_s}{dr_s}}{\frac{dS_s}{dr_s}}$$

If we interpret the supplies in the two markets to mean the total supplies including the exogenous portions, this expression can be converted to elasticity form, as follows:

$$\frac{\eta E_l}{\eta S_l} < \frac{\eta E_s}{\eta S_s}$$

$\eta E_l$  = elasticity of expenditures with respect to the long-term interest rate,  $\eta E_s$  = elasticity of expenditures with respect to the short-term interest rate,  $\eta S_l$  = elasticity of supply of long-term funds, and  $\eta S_s$  = elasticity of supply of short-term funds. If we change the signs of  $\eta E_l$  and  $\eta E_s$ , both of which are negative, we must reverse the inequality, thus

$$\frac{\eta E_l}{\eta S_l} > \frac{\eta E_s}{\eta S_s}$$

where  $\eta E_l$  and  $\eta E_s$  are the numerical values of the elasticities of the two expenditure schedules. If this inequality is satisfied, a shift of funds from the long- to the short-term market will reduce the level of total expenditures.

## CHAPTER V

### FEDERAL RESERVE OPEN MARKET OPERATIONS

Under the definition adopted in this study, debt management includes all operations which affect the composition of the publicly held debt. Accordingly, it takes in some aspects of Federal Reserve operations; in particular, decisions concerning the maturity sectors in which the system shall conduct its operations fall within the scope of our study.

In the spring of 1953, the Federal Open Market Committee adopted a new code of rules governing the conduct of open market operations. The rules adopted followed the recommendations of an ad hoc subcommittee of the Federal Open Market Committee, which made an extensive study of the Government securities market in 1952.<sup>1</sup> The rules were as follows:

1. Open market operations were to be confined, under normal circumstances, to the short end of the market—i.e., to Treasury bills or equivalent short-term securities.

2. System intervention for the purpose of influencing the behavior of the Government securities market—as distinct from actions designed to implement monetary policy—was to be confined to the correction of “disorderly situations” in the market. In effectuating this aspect of open market policy, transactions in whatever maturity sector seemed most appropriate were to be permissible.

3. The System was to discontinue the practice prevalent up to that time of providing direct support to the market during periods of Treasury financing through purchases of maturing issues, new issues being offered, or other comparable issues.

These rules have been adhered to with little deviation since their adoption,<sup>2</sup> but the “bills-only” policy, as it has come to be called, has excited a good deal of controversy both within the Federal Reserve System and outside.<sup>3</sup>

<sup>1</sup> The full text of the report of the ad hoc subcommittee is included in “U.S. Monetary Policy: Recent Thinking and Experience,” hearings before the Subcommittee on Economic Stabilization of the Joint Committee on the Economic Report (Washington: Government Printing Office, 1954), pp. 257-307. This document will be referred to hereafter as the “Flanders Hearings.”

<sup>2</sup> The Federal Open Market Committee has deviated from the 1953 rules on only one occasion. In late November 1955, the Committee authorized the manager of the System account to purchase, on a when-issued basis, up to \$400 million of 2½ percent certificates dated Dec. 1, 1955, and maturing Dec. 1, 1956. Actual purchases under this authorization amounted to \$167 million. This exception was authorized in response to an appeal from the Secretary of the Treasury for assistance in preventing undue cash redemptions in connection with a large refunding operation. (See Board of Governors of the Federal Reserve System, Annual Report, 1955, pp. 8, 109-110.) In July 1958 the Committee authorized for the first time action under the second clause of the 1953 rules to “correct a disorderly situation in the market.” This action was an aftermath of the disruption of the market related to the speculative activity in the 2½ percent bonds issued in June 1958 (see ch. III). In connection with a Treasury refunding operation, the System purchased \$1.1 billion of 1½ percent certificates dated Aug. 1, 1958, and maturing Aug. 1, 1959. In addition, it purchased \$0.1 billion of “rights” and a small amount of other securities, exclusive of Treasury bills. By early August, it had offset the effects of these transactions on member bank reserves by means of sales of Treasury bills. (See Board of Governors of the Federal Reserve System, Annual Report, 1958, pp. 7-8, 31, 53-55; also “Treasury-Federal Reserve Study of the Government Securities Market,” pt. II (preliminary mimeographed edition, 1959), pp. 93-98.)

<sup>3</sup> The controversy within the Federal Reserve System has erupted into public view on several occasions. See the reply submitted by Chairman Martin to the questions submitted by the Subcommittee on Economic Stabilization (especially pp. 15-26), the comments of Allan Sproul, then President of the Federal Reserve Bank of New York (pp. 223-227), and the comments of the Federal Reserve Bank of New York on the ad hoc subcommittee report (pp. 307-331) in the Flanders hearings. See also the Record of Policy Actions of the Federal Open Market Committee for the year 1953 in Board of Governors of the Federal Reserve System, Annual Report, 1953, pp. 86-105.

Whatever the objectives of debt management policy may be, the question necessarily arises as to how the responsibility in this field shall be divided between the Treasury and the Federal Reserve. In principle at least, the Federal Reserve can do anything that the Treasury can do. There may be practical limitations arising from "lack of appropriate ammunition" on the part of the Federal Reserve—i.e., the System may not have in its possession at any particular time securities of the maturities needed to conduct the desired type of operations. However, there are various ways in which this limitation might be circumvented, such as an arrangement under which the System could exchange securities with the Treasury at any time in order to obtain the maturities it needed.<sup>4</sup>

It was suggested in the last chapter that marginal changes in the composition of the publicly held debt are best regarded as a species of selective credit controls which affect the interest rate structure: To the extent that such marginal changes in debt composition and in the interest rate structure are to be used to achieve the objectives of economic policy, there is much to be said for assigning the responsibility to the Federal Reserve rather than the Treasury. The System has important advantages over the Treasury as an agent for carrying out carefully timed marginal adjustments in debt composition. For one thing, the Treasury, being responsible for paying the Nation's bills, is necessarily concerned, as a practical matter, with raising money above all else. The Federal Reserve is free from this particular responsibility and can concentrate wholeheartedly on the economic effects of its operations. Moreover, the Treasury's flexibility is bound to be inhibited to a considerable extent by the fact that its outstanding debt matures in large chunks at predetermined times. While, in principle, the timing and magnitude of borrowing operations need not be narrowly determined by the time pattern of maturing debt and the need to raise new money, in practice these considerations are bound to be the major determining factors. Within reasonable limits, on the other hand, the Federal Reserve can adjust the timing and magnitude of its operations to the requirements of economic stability and growth—in fact, this administrative flexibility is commonly cited as the great strength of Federal Reserve monetary policy.

This suggests a rough division of labor with respect to debt management, under which the Treasury would concern itself with achieving and maintaining a debt structure which would minimize the economy's resistance to destabilizing external disturbances, with due regard for keeping down the interest cost of the debt, as outlined in the last chapter. The Federal Reserve would take responsibility for such carefully timed marginal changes in the debt structure as might be desirable for the purpose of regulating the interest rate structure in the interest of economic growth and stability.

Under the bills-only policy, the Federal Reserve has allowed the interest rate structure to be determined by market forces, as condi-

<sup>4</sup> It is interesting to note that the System has shortened the maturities of the securities in its portfolio considerably in the last decade. On Dec. 31, 1948, the System's total holdings of Government securities amounted to \$23.3 billion. Of this amount \$12.4 billion were due to mature within 1 year, \$3.3 billion in 1 to 5 years, \$4.0 billion in 5 to 10 years, and \$7.2 billion in more than 10 years. On Dec. 31, 1953, total holdings amounted to \$26.3 billion, of which \$21.0 billion were scheduled to mature within 1 year, \$3.9 billion in 1 to 5 years, \$0.2 billion in 5 to 10 years, and \$1.3 billion in more than 10 years. By permitting its portfolio to shorten in this way the System has deliberately allowed its ability to intervene in various sectors of the market to become greatly weakened.



tioned by the impact of Treasury debt management operations. It is appropriate for us to consider at this point the reasons underlying the adoption of the bills-only policy, the extent to which it has been successful in achieving its avowed objectives, and the desirability of this policy in comparison with an alternative policy under which the Federal Reserve would take some responsibility for regulating the interest rate structure.

#### AN EVALUATION OF THE BILLS-ONLY POLICY

There appear to be several reasons for the adoption of the bills-only policy by the Federal Reserve System. Some of these reasons are matters of economic philosophy, others relate to the technical operation of the Government securities market, and still others are connected with the administrative procedures of the System.

##### *Neutrality and minimum intervention*

It seems quite clear that the preference of the Board of Governors and the Federal Open Market Committee for the bills-only policy is a manifestation of the preference for primary reliance on "free markets" that has been so frequently expounded by Chairman Martin.<sup>5</sup> According to this view, the System should confine itself to controlling the total supply of money and bank credit and leave the allocation of credit to the operation of the "free market." This means that all forms of selective controls should be sedulously avoided, and policy should seek in every way possible to stay "neutral" as far as the allocation of credit is concerned. Since the structure of interest rates is related primarily to the allocation of credit, the market should be permitted to determine the structure.<sup>6</sup>

From a strictly theoretical standpoint, the ideal way to implement a monetary policy that was completely neutral as far as the interest rate structure is concerned would be to rely upon changes in reserve requirements as a credit control weapon. However, System officials are convinced that variable reserve requirements are a clumsy and ineffectual means of conducting the day-to-day adjustments required to adapt monetary policy to constantly changing circumstances.<sup>7</sup> The superior administrative flexibility of open market operations means that they are necessarily the principal weapon of monetary

<sup>5</sup> In explaining the changes in open market techniques that were made in 1953, the Board of Governors referred to these measures as steps toward "freer, more self-reliant financial markets." It observed that in such markets, "the Federal Reserve would seek to have the impact of its actions as broad, general, and impersonal as possible. It would neither establish prices of particular securities or classes of securities directly, nor set up or maintain particular relationships in rate levels as between different sectors of the credit market, such as might impair the efficiency of the market in performing its allocative function." Board of Governors of the Federal Reserve System, Annual Report, 1953, pp. 6-7.

<sup>6</sup> The proponents of neutrality and minimum intervention on the part of the Federal Reserve System are sometimes guilty of an inconsistency. Such persons often argue that Treasury debt management operations should be conducted with a view to their effects on the stability of the economy. This obviously means that the Treasury should vary its debt offerings as between different maturity sectors of the market in such a way as to contribute to stability. Thus, debt policy would interfere with the forces of the free market in the determination of the interest rate structure. It is quite clear that if intervention of this kind is an improper activity for the Federal Reserve, it is equally improper for the Treasury. In fact, it would appear that the only approach to Treasury debt management which would be consistent with minimum intervention would be one of minimizing interest costs without regard to the effects on the economy.

<sup>7</sup> Reserve requirements have not been increased since 1951 and since that time have been reduced several times—in the recessions of 1953-54 and 1957-58. It is apparent that the System has given up on reserve requirements as a cyclical weapon—at least under normal circumstances—and it is in the process of adjusting them to the level it feels is proper from a secular standpoint. While some economists feel that there is no fundamental reason why reserve requirement changes cannot be used to a greater extent, the present writer is inclined to agree with the apparent System view that they are inherently clumsy and ill-suited to the making of frequent small changes in credit conditions. The secular downward adjustment of reserve requirements in preference to open market purchases of securities as a means of providing reserves to support economic growth does, however, have some debt management implications which are discussed in ch. VI.

control. And it can be argued that a policy of dealing only in the shortest term securities is the closest practicable approach to a neutral open market policy, since under such a policy the System is controlling member bank reserves and thereby the aggregate supply of money and credit by dealing in the type of debt that is "nearest to money."<sup>8</sup>

What one thinks of this "neutrality" or "minimum intervention" argument depends partly upon one's economic (and perhaps political) philosophy.<sup>9</sup> However, when proponents of this view go on to claim, as they often do, that the objectives of economic stability and growth can be achieved just as effectively by means of a policy which aims to control only the total supply of money and credit as by a policy which is more flexible and attempts to influence the interest rate structure and the allocation of credit, the question becomes debatable on economic grounds. As a result of institutional factors and market imperfections, the incidence of general monetary controls which change the total supply of money and bank credit is uneven, some sectors of the economy being affected strongly and others being left almost untouched.<sup>10</sup> Thus, the distinction between "general" and "selective" credit controls is largely an illusion, since so-called general controls have selective effects. Moreover, recent analysis of the structure of the economy suggests that, at least in dealing with inflation, policies need to be selective in an intelligent way. When the inflation is concentrated in certain sectors of the economy, policies which strike other parts of the economy where prices are rigid in a downward direction due to the existence of market power may create unemployment in those sectors but do little to check the rise in prices.<sup>11</sup>

This suggests that if intelligent selectivity can be achieved by manipulating the structure of interest rates, such manipulation is a perfectly proper activity for the central bank to engage in, just as it suggests in general that selective controls are a proper—indeed essential and unavoidable—ingredient of effective stabilization policy. It may be noted that the System's emphasis on neutrality is quite out of tune with the attitudes that prevail among central bankers in many foreign countries, where there has been a notable development of selective control devices in recent years.<sup>12</sup>

### *Strengthening the Government securities market*

In recommending that the Federal Reserve System confine its open market operations to short-term securities, the ad hoc subcommittee

<sup>8</sup> As a matter of fact, though, it is hard to see why the neutrality argument could not be used to justify a policy of "bonds only" about as well as one of bills only. That is, it is the "only" rather than the "bills" that makes the policy more or less neutral. If one wants to split hairs, a fully neutral open market policy would call for dealings in all maturities according to some complicated formula which would be neutral in its effects on the interest rate structure.

<sup>9</sup> It should also be noted that "minimum intervention" as the term is sometimes used to characterize the bills-only policy clearly does not mean minimum volume of Federal Reserve operations. There can be no doubt that at times the Federal Reserve could accomplish its objectives with a smaller volume of open market purchases or sales if it were prepared to deal in the maturity most appropriate to the particular situation. This has been pointed out by Allan Sproul (Flanders hearings, pp. 226-227). Thus, minimum intervention means something considerably broader and less specific; namely, minimum interference with the working of market forces.

<sup>10</sup> See "Staff Report on Employment, Growth, and Price Levels," prepared for consideration by the Joint Economic Committee, 86th Cong., 1st sess. (Washington: Government Printing Office, 1959), pp. 362-394.

<sup>11</sup> See Charles L. Schulte, "Recent Inflation in the United States," Study Paper No. 1.

<sup>12</sup> An alternative view of central banking which appears to typify the attitudes prevalent in many other countries has been expressed by the British monetary expert, R. S. Sayers, in the following words: "The business of a central bank is to influence the behavior of the country's financial institutions in the interest of the broad economic policy of the government. The most appropriate way for it to function depends upon the nature of the financial institutions it is called upon to influence, and the economic policy whose furtherance is its ultimate purpose . . . . The central bank should be quick to adapt itself to changes in the economy, and should be ready to use any device it can find to control the behavior of the financial system in the interest of the 'employment policy' adopted by the government." Sayers, "Central Banking after Bagehot" (Oxford: Clarendon Press, 1957), pp. 47, 33.

based its recommendation on the desirability of developing a stronger Government securities market—a market characterized, to use the subcommittee's phrase, by "depth, breadth, and resiliency."<sup>13</sup> The subcommittee contended that dealers would not be prepared to take positions and make markets in longer-term Treasury securities as long as a serious possibility existed that the Federal Reserve would conduct open market operations in these maturities for the purpose of effectuating monetary policy. Dealers were said to feel incapable of predicting what actions the System might take, and the risk of price variation in longer term securities is so great that they might suffer severe losses if the Federal Reserve should unexpectedly decide to sell from its portfolio at a time when dealers were holding substantial positions in long-term bonds. Thus, as long as the possibility of open market operations in long-term securities existed, there was a strong likelihood that dealers would cease taking positions in such securities, thus becoming merely brokers rather than true dealers.

In the short-term market, the heavier volume of trading and the inherently greater stability of prices would make it possible for the dealers to continue to make markets and take positions despite the existence of open-market trading by the Federal Reserve. Open-market operations in the short-term market would transmit their effects to the long-term market anyhow through the process of market arbitrage which links the various sectors of the market together. The dealers would be able to take positions and make markets in longer-term securities in the face of these indirect effects, because these effects are produced by the actions of private traders seeking (presumably) to maximize returns, and dealers in Government securities are highly expert at understanding and even anticipating the actions of such traders. Thus, a policy of bills only would increase dealer participation and thereby strengthen the market.<sup>14</sup>

The question that naturally arises, in light of the subcommittee's recommendation, is whether or not the bills-only policy has actually resulted in a stronger Government securities market. It is extremely difficult to arrive at a definite conclusion concerning this question. One reason for the difficulty is that the Federal Reserve System has followed a much more aggressively flexible monetary policy since the adoption of the bills-only policy than it did prior to that time. Thus, even with the best of data, it would be difficult to judge how the market would have performed in the face of an equally aggressive policy under some other kind of open-market technique. Nevertheless, some useful judgments can be arrived at on the basis of a study of the performance of the Government securities market since 1953. Such a study suggests the following generalizations concerning the behavior of the Government securities market.<sup>15</sup>

<sup>13</sup> The subcommittee uses this phrase repeatedly in its report. The meaning attached to it is described in the following words: "In strictly market terms, the inside market, i.e., the market that is reflected on the order books of specialists and dealers, possesses depth when there are orders, either actual orders or orders that can be readily uncovered, both above and below the market. The market has breadth when these orders are in volume and come from widely divergent investor groups. It is resilient when new orders pour promptly into the market to take advantage of sharp and unexpected fluctuations in prices." Flanders hearings, p. 265.

<sup>14</sup> *Ibid.*, pp. 264-268. This is the essence of the subcommittee recommendation. It was qualified by recognition of a possible need to intervene in sectors other than short term in order to correct disorderly situations, and there was considerable discussion of facilities for financing dealers, the administration of System open-market operations, and so on.

<sup>15</sup> The following interpretations are based upon a study of materials made available to the author by the Board of Governors of the Federal Reserve System.

1. Dealer positions are influenced chiefly by expectations concerning interest rate movements, although Treasury financing activity also has important effects.

2. Dealer positions appear to fluctuate principally in response to broad interest rate movements and expectations related thereto. Positions in longer-term obligations rise sharply when a trend toward lower interest rates is clearly indicated and there are strong signs that this direction will continue for some time, and they are reduced as quickly as possible when this trend is reversed. Positions in Treasury bills and other short maturities are less affected since the possibility of profit or loss on these obligations resulting from sustained interest rate movements is not so great.

3. Short-term fluctuations in interest rates—i.e., temporary upward movements during a period when the trend is downward or temporary downward movements when the trend is upward—do not appear to have appreciable effects on dealer positions.

4. The only quantitative information available on changes in the willingness of dealers to make markets for various classes of securities is in the spreads between their quoted bid and asked prices. Such spreads were generally larger on all types of interest-bearing securities in late 1956 and the first half of 1957 when price fluctuations were large and the risk of loss great, than at any earlier time since the end of World War II. Dealers' comments in 1956 and 1957 also suggested that the market outside the short-term sector was thin, narrow, etc., but it would be dangerous to place much emphasis on these qualitative statements.

These observations suggest—as a priori reasoning would lead one to expect—that the market for longer term securities is inherently a thin market. No dealer can afford to resist market trends—any dealer who tried to do so would soon be bankrupt. In fact, dealers tend to accentuate major market movements. When a sustained upward movement of bond prices appears to be getting underway, dealers buy long-term securities, planning to sell out later on at higher prices. On the other hand, when a downward movement of bond prices gets underway, dealers liquidate their positions in order to avoid losses and may even assume short positions. Clearly, such actions by dealers, far from stabilizing the market and giving it “depth, breadth, and resiliency,” tend to accelerate major movements of interest rates and to make the market thin.

These points are rather dramatically illustrated by the changes in dealer positions in securities of over 10 years' maturity that took place during 1955, 1956, and 1957. In 1955, dealer positions were relatively large—averaging three to four times their average level for the period 1951–57 during most of the first half of the year. Late in the year, as interest rates rose, dealer positions began to decline and by February of 1956 were only a fraction of their 1955 levels. Positions remained small during 1956, with some rise near the end of the year and carrying over into 1957. A further decline set in. In April, and from the beginning of June to the middle of September, dealers occupied a net short position. However, in mid-September, amid signs of a recession which created expectations of a turn-about in monetary policy, the situation reversed itself dramatically and dealers built up their positions to levels comparable with those which prevailed in

1955. Positions in securities of 5 to 10 years' maturity followed a rather similar, although by no means identical, pattern.

In February 1958, dealers increased their positions in bonds, both in the 5-to-10-year and the over-10-year categories, as a result of heavy subscriptions to three Treasury bond offerings during that month.<sup>16</sup> On February 5, 1958, total dealer positions amounted to \$290 million in bonds of 5 to 10 years' maturity and \$266 million in bonds of over 10 years' maturity.<sup>17</sup> Dealer positions in bonds remained high until July; then with interest rates rising and the outlook suggesting the beginning of an upward trend in interest rates, positions were pared down sharply, particularly in the over-10-year maturity range.<sup>18</sup>

It is possible that dealers sometimes resist movements of bond prices which they regard as temporary—e.g., that when some development that they interpret as self-correcting causes bond prices to rise, they may sell bonds out of their position, hoping to rebuild their position on favorable terms when the temporary price rise is reversed. However, it is difficult to obtain clear evidence of this. In any case, it is perfectly clear that, as far as major price movements are concerned, dealers ride with them and even accentuate them.

In fact, it seems quite obvious that, as long as an aggressively flexible monetary policy is followed, the long-term bond market is bound to be thin and subject to rather large and cumulative price fluctuations, regardless of the kind of open market policy followed by the Federal Reserve. Although the evidence is not entirely satisfactory and there are many gaps in our knowledge of the behavior of the Government securities market, it is very doubtful whether the bills-only has significantly encouraged dealers to take positions and make markets in long-term securities, particularly at times when interest rates are moving sharply upward.

The fact of the matter is that it is doubtful whether it would be desirable from the standpoint of flexible monetary policy to maximize the depth, breadth, and resiliency of the Government securities market. To some extent at least, flexible monetary policy relies on fluctuations of interest rates as the medium through which it exerts its effects on the economy. At times the ad hoc subcommittee seems to be saying that it would be desirable to have a Government securities market in which the Federal Open Market Committee could conduct the maximum possible volume of open market purchases and sales with the minimum effect on interest rates and security prices.<sup>19</sup> In reality it is extremely difficult to specify with any precision the properties that would be most desirable to inculcate in the Government securities market in order to make this market best serve the ends of effective monetary policy. However, it seems perfectly clear that "minimum price reaction to a given volume of operations" would not be the ideal market characteristic. Thus, it is not even clear that if the bills-only policy accomplished the objective set out in the ad

<sup>16</sup> In February 1958, the Treasury sold \$1.4 billion of 8½-year bonds for cash and \$3.8 billion of 6-year bonds and \$1.6 billion of 32-year bonds in an exchange operation.

<sup>17</sup> These data are taken from the "Treasury-Federal Reserve Study of the Government Securities Market," pt. II (preliminary mimeographed edition, 1959), app. C, table 1.

<sup>18</sup> Dealers received large allotments of the speculation-ridden 2½-percent bond of 1965 which was issued in June 1958. As a result of this, dealer positions in the 5- to 10-year maturity range rose sharply in June and declined beginning in July.

<sup>19</sup> This point (together with a number of other telling criticisms of the ad hoc subcommittee report) is made in "Comments of the Federal Reserve Bank of New York on Report of the Ad Hoc Subcommittee on the Government Securities Market," Flanders hearings, pp. 307-331.

hoc subcommittee report, this result would be in the best interest of effective monetary policy.

For the reasons just outlined, the case for the bills-only policy presented in the ad hoc subcommittee report appears to be rather weak, because (1) the change in market behavior foreseen in that report does not appear to have been realized, and (2) it is by no means clear that this kind of market behavior, if it were to be achieved, would best serve the interest of flexible monetary policy.

*Arbitrage between short- and long-term interest rates*

Another argument that has been advanced in support of the bills-only policy is that the effects produced on short-term interest rates are rapidly and effectively transmitted to the long-term market by a process of arbitrage. That is, it is said that the long-term rate is influenced just about as effectively by trading in the short-term market as it would be by dealing directly in long-term securities.<sup>20</sup> Partly the sensitivity of long-term rates of interest to operations initiated in the short end of the market is due to the presence of market professionals who engage in carefully timed operations when yields on different maturities get out of line with one another and with market expectations. Perhaps more important are the activities of various classes of borrowers and lenders who are prepared to enter various sectors of the market and who thereby provide links between sectors.<sup>21</sup> There can be little doubt about the existence of these links, as well as the presence of systematic arbitrage. In fact, in our earlier discussion, we placed considerable emphasis on these factors as the determinants of the term structure of interest rates.<sup>22</sup> The question in the present context, however, is whether these links between the short- and long-term markets are sufficiently tight to permit precise and effective control of long-term interest rates by means of operations confined to the short-term market.

*Direct versus indirect effects of open market operations.*—One argument that has been advanced in support of the bills-only policy is that open market operations exert their effects on interest rates partly by changing the supply of securities directly and partly indirectly through their effects on the supply of bank reserves and that the second, indirect effect, which is independent of the sector in which the operations take place, is much more important than the direct effect.<sup>23</sup> The reason for this is that the indirect effect through bank reserves is magnified by the power of the banking system to engage in multiple credit expansion. Thus, it is said that, with reserve requirements averaging around 14 percent for demand deposits, so that the credit expansion multiplier is approximately 7, about one-eighth of the effect of open market operations on interest rates comes through the direct effect and about seven-eighths of the effect comes about through the expansion or contraction of bank credit resulting from the change in bank reserves. Since the direction of the indirect seven-eighths will presumably be largely independent of the sector in which the opera-

<sup>20</sup> It may be noted that if this argument is correct, it reduces considerably whatever merit there might otherwise be in the minimum intervention or neutrality argument. If interest rates move in more or less the same way regardless of the sector in which open market operations are conducted, it becomes rather difficult to argue that, as a matter of principle, it is important to confine operations to the short-term market.

<sup>21</sup> These links are stressed in W. W. Riefler, "Open Market Operations in Long-Term Securities," Federal Reserve Bulletin, November 1958, 1260-1274.

<sup>22</sup> See ch. IV.

<sup>23</sup> Riefler, *op. cit.*

tions are conducted, it makes relatively little difference whether the Federal Reserve deals in bills or in longer term securities.<sup>24</sup>

A study of changes in the System's portfolio of Government securities, corrected for changes in member bank reserve requirements so as to show the amount of bank reserves injected into or withdrawn from the banking system by Federal Reserve action, indicates that the relation between such actions and changes in the aggregate supply of bank credit is a very loose one indeed in the short run. On a week-to-week basis, the change in the supply of bank credit frequently moves in the opposite direction from that indicated by the System's action, and even when the movements are in the same direction, the ratio of the change in loans and investments to the change in reserves attributable to Federal Reserve operations varies in a highly erratic and unpredictable way.<sup>25</sup> There are, of course, many reasons for the erratic relation between System actions affecting reserves and changes in loans and investments. One is that there are many factors other than Federal Reserve open market operations and changes in reserve requirements that affect member bank reserves—including changes in float, currency in circulation, gold stock, and so on. In fact, a considerable part of Federal Reserve open market operations are designed to offset, in whole or in part, the effects of these other factors, rather than to change the net amount of reserves available.<sup>26</sup> In addition, shifts of deposits among different classes of member banks and between member and nonmember banks affect the credit expansion power of the banking system, due to the fact that the different classes of member and nonmember banks are subject to different reserve requirements.

The relationships referred to above suggest that the primary effects of Federal Reserve open market operations may at times be of considerable importance, and whether the System buys in one maturity sector or another may have a major influence on the structure of interest rates. Furthermore, the System's influence on the rate structure is seen to be potentially even more important when it is recognized that it is quite possible to buy securities in one maturity sector and simultaneously sell in another sector without changing the aggregate volume of member bank reserves at all. The System is obviously in a position to exercise a major influence on the rate structure if it so desires.

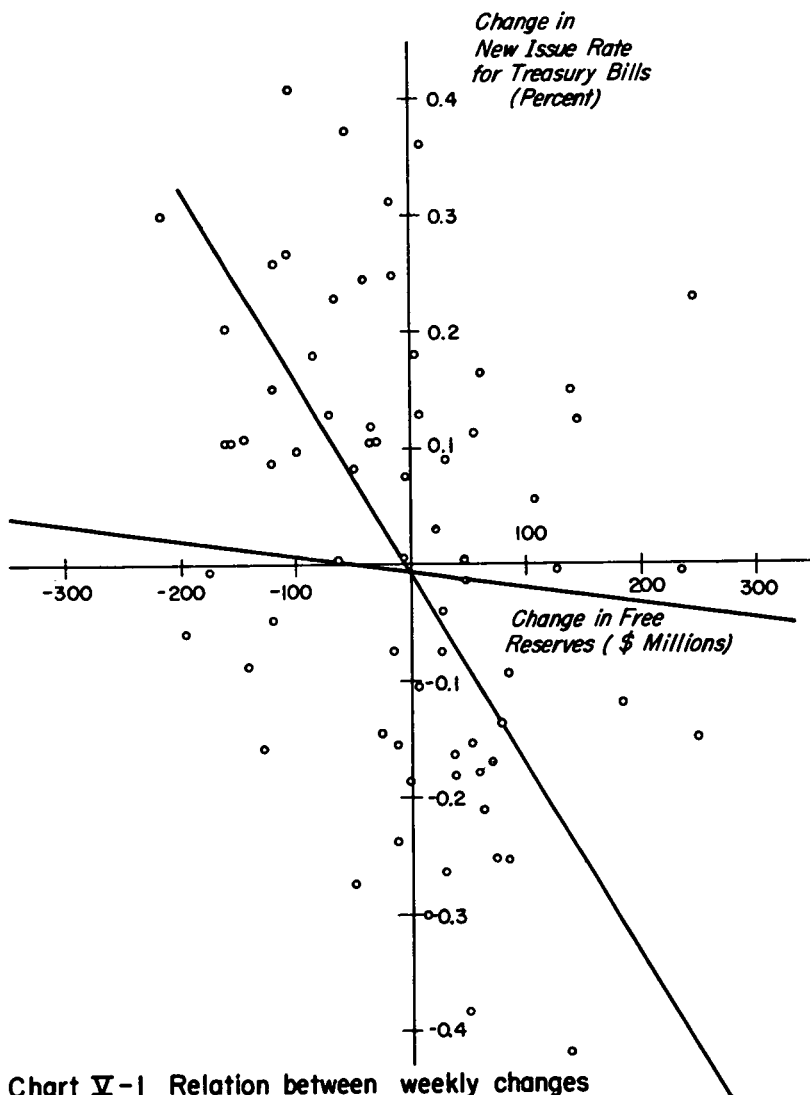
*Bank reserves and the Treasury bill rate.*—Under the bills-only policy, the ability of the Federal Reserve to control long-term interest rates through open market operations depends upon (1) its ability to control interest rates on Treasury bills, and (2) the existence of a stable, predictable relationship between changes in short-term and long-term interest rates. With respect to control of the Treasury bill rate, there can be little doubt that the System could regulate this rate with great precision by means of dealings in Treasury bills if it were to make such regulation the purpose of open market policy. However, at the present time open market operations in Treasury bills are conducted with a view to maintaining stable conditions in the

<sup>24</sup> Allowance for cash drain might reduce the credit expansion multiplier somewhat, but since changes in currency in circulation do not follow changes in demand deposits closely in the short run, we shall disregard this refinement. *Ibid.*, p. 1269, footnote 2.

<sup>25</sup> Accurate comparisons of the kind referred to are impossible to make because of various inadequacies in the data, but judging from such information as is available the above statement seems justified.

<sup>26</sup> See R. V. Roosa, "Federal Reserve Operations in the Money and Government Securities Markets," (Federal Reserve Bank of New York, 1956).

money market as a whole and for the purpose of achieving an approximate target level of "free reserves."<sup>27</sup> Chart V-1 shows the relation between week-to-week changes in free reserves, plotted on the hori-



**Chart V-1 Relation between weekly changes in Treasury bill rate and weekly changes in free reserves, Jan. 1, 1958, to May 13, 1959**

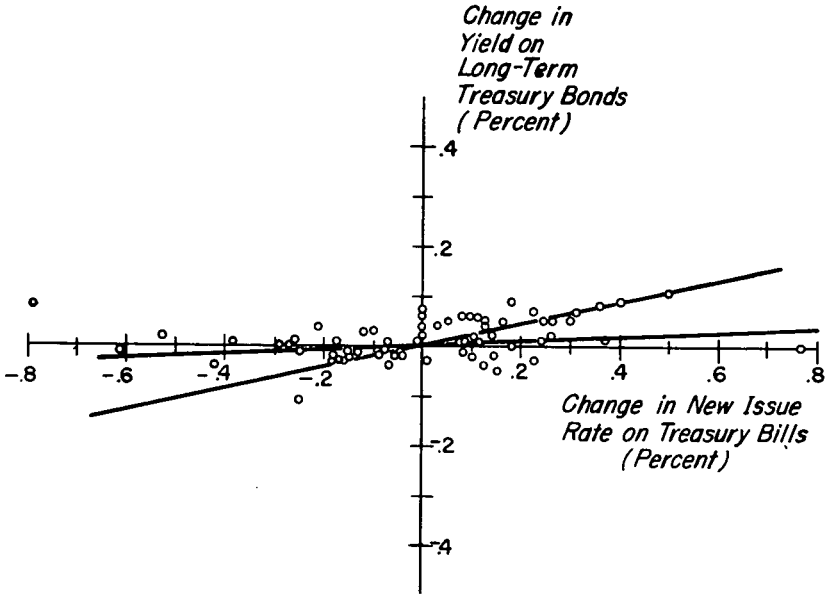
zontal axis, and week-to-week changes in the new-issue rate on Treasury bills, plotted on the vertical axis. Although reduced levels of free reserves are strongly associated with higher levels of short-term

<sup>27</sup> "Free reserves" is the difference between aggregate member bank excess reserves and aggregate member bank borrowings from the Federal Reserve (discounts and advances). When member bank borrowings exceed excess reserves, it is said that there are "negative free reserves" or "net borrowed reserves."



interest rates over longer periods of time, it is clear from chart V-1 that there is not a very close relation between week-to-week changes in the Treasury bill rate and week-to-week changes in free reserves.<sup>28</sup> There are many factors that affect the Treasury bill rate other than the reserve position of the banking system, particularly in the short run.

The point of this analysis is that System operations in Treasury bills, as now conducted, are not designed to control the Treasury bill



**Chart V-2 Relation between weekly changes in Treasury bill rate and weekly changes in yield on long-term treasury bonds, Jan. 4, 1958, to May 30, 1959.**

rate but to regulate the volume of free reserves and that the relation between free reserves and the Treasury bill rate is so loose that these operations do not effectively regulate the bill rate in the short run, even indirectly. Thus, the fulcrum by which the System affects long-term interest rates is a very unsteady one. For that reason, even if there were a stable and predictable relation between short- and long-term interest rates as a result of arbitrage, control over the long-term interest rate would be very imprecise with present techniques.

<sup>28</sup> The coefficient of correlation,  $r$ , for the data presented in chart V-1 is only  $-0.285$ , and  $r^2$  is  $.0812$ . That is, only about 8 percent of the variance in week-to-week changes in the Treasury bill rate is explained by its relation to free reserves. The two regression lines representing the regression of free reserves on the bill rate and of the bill rate on free reserves are shown on the chart.

*Arbitrage between short-term and long-term markets.*—As indicated earlier, there is a reasonably predictable relationship between movements in short-term interest rates and movements in long-term interest rates over the business cycle, and this relation seems to be explainable in terms of expectations. However, the relationship is not very precise for short periods of time. Chart V-2 shows week-to-week changes in the Treasury bill rate on the horizontal axis and week-to-week changes in the yield on long-term Treasury bonds on the horizontal axis. While there is some relation between movements of the two interest rates, the relation is not very exact or predictable.<sup>29</sup> The reason is that short-term rates are connected to long-term rates by a flexible link that is very sensitive to changes in business sentiment and to changes in the outlook for monetary policy and interest rates. Thus, even if open market operations in Treasury bills were successful in controlling the Treasury bill rate with a high degree of precision, it is quite clear that control over long-term rates would not be equally exact. If control over long-term interest rates is to be reasonably precise, it can be accomplished only by direct dealings in long-term securities.

*Bills-only and the administration of open market operations*

In addition to the philosophical desire to achieve neutrality, the contention that the performance of the Government securities market would be improved, and the argument that dealings in bills would effectively influence interest rates in all maturity sectors of the market, it appears that there was another reason for the adoption of the bills-only policy. This is the desire to achieve simplicity in monetary policy in order to minimize the problems of administration.

The present arrangements for the administration of open market operations are exceptionally cumbersome. The Federal Open Market Committee consists of 12 members, including the 7 members of the Board of Governors and 5 of the presidents of Federal Reserve banks. The president of the New York Reserve Bank is always a member of the Committee, due to the special role of the New York bank in the administration of open market operations, while the other 11 banks are represented on a rotating basis.<sup>30</sup> The presidents of the seven Reserve banks that are not currently represented on the Committee often come to the meetings in order to keep in touch with current conditions and to make their advice available. Moreover, numerous members of the staffs of the Board of Governors and of the individual Reserve banks are ordinarily present. Thus, the body responsible for the conduct of open market operations frequently consists, in effect, of 30 to 40 people. Even a body of 12 is a clumsy administrative organ, and the presence of numerous nonvoting participants makes the problem worse. The need to arrive at a reasonable consensus among such a large number of persons makes it extremely difficult to conduct anything but a very simple policy with a minimum number of dimensions. Bills-only meets the need for simplicity admirably, and this is undoubtedly one of the reasons for its adoption.

<sup>29</sup> The coefficient of correlation for the data presented in chart V-2 is  $-0.352$ , and  $r^2$  is  $.1236$ , indicating that only about 12 percent of the variance in week-to-week changes in bond yields is explained by the relation with the Treasury bill rate.

<sup>30</sup> One member of the Open Market Committee is elected by the Federal Reserve Banks of Boston, Philadelphia, and Richmond; one by the Federal Reserve Banks of Cleveland and Chicago; one by the Federal Reserve Banks of Atlanta, St. Louis, and Dallas; and one by the Federal Reserve Banks of Minneapolis, Kansas City, and San Francisco. In each of these groups, the practice is to allow membership to rotate on a year-to-year basis among the presidents of the constituent Reserve banks.

## ADVANTAGES OF A MORE FLEXIBLE OPEN MARKET POLICY

As we have seen, the neutrality or minimum intervention argument in support of bills only is open to question on the grounds that all policies are selective in their impacts on different sectors of the economy and that intelligent selectivity is a necessary attribute of effective stabilization policy under present-day conditions. Moreover, there is little evidence that bills only has resulted in improved performance of the Government securities market, and there does not seem to be much basis for the view that effective control over long-term interest rates can be achieved by dealing only in bills. While the administrative difficulties of conducting a more complex policy should not be underrated, it is always possible to change administrative arrangements.

Thus, none of the positive arguments that have been advanced in support of bills only seem to have very much validity. We turn now to a consideration of some of the advantages that might be achieved through a limited departure from this policy. It is possible to distinguish three different purposes for which open market operations in longer term securities might be employed: (1) prevention of temporary distortions in the interest rate structure, (2) prevention of meaningless short-run fluctuations in the prices of Treasury securities, and (3) manipulation of the interest rate structure as a selective control in the interest of economic stability. Let us consider each of these in turn.

*Prevention of temporary distortions in the interest rate structure*

An excellent example of a situation in which a troublesome distortion in the interest rate structure developed is the early months of 1958. When monetary policy turned from tightness to ease in the latter part of 1957 as part of the policy for dealing with developing recession, short-term interest rates fell very sharply. While long-term interest rates also declined, the decline was quite moderate, due in good part to the fact that the demand for long-term funds remained heavy. Bond issues that had been postponed by corporations and by State and local governments were put on the market as soon as credit conditions eased, with the proceeds being used in part to repay bank loans that had been incurred during the period of tight credit in order to finance investment projects temporarily until such time as conditions in the capital market became more favorable for raising long-term funds.

Thus, in early 1958 an unusually wide differential existed between short- and long-term interest rates. As long as the expectation prevailed that the recession would continue, investors expected a further decline in long-term interest rates with a consequent rise in bond prices. At the same time, the unusually low short-term interest rates reflected the availability of cheap and ample short-term credit accommodations. As the Treasury-Federal Reserve study of the Government security market has indicated, this particular combination of circumstances was very conducive to the development of speculation in Treasury securities, since it was possible to borrow short-term funds at low cost and on thin (or nonexistent) margins and use the funds to buy newly issued longer term Treasury issues which appeared almost certain to rise in price, thus resulting in very lucrative capital gains. This distortion in the interest rate structure was certainly one of the

causes of the excessive speculation which developed in connection with the refunding of June 1958, and demoralized the Government securities market for the remainder of the year.<sup>31</sup>

In this case, it is quite clear that the Federal Reserve should have recognized the dangers inherent in the situation and taken steps to correct the distortion in the rate structure. This could have been done by the purchase of a limited quantity of long-term securities in the open market either in lieu of or in addition to the purchases of short-term securities that were made. In addition to reducing the danger of speculative excesses, in this particular case, the decline in long-term interest rates would certainly have done no harm and conceivably might have helped a little to stimulate a recovery of plant and equipment spending by business.

#### *Smoothing fluctuations in bond prices*

It was pointed out earlier that one of the reasons for the fact that Treasury securities have become less attractive to investors is the greatly increased instability in their prices in recent years.<sup>32</sup> To some extent the variability in prices of Government securities is an inevitable accompaniment of a flexible monetary policy which relies upon interest rates as an economic regulator. However, some of the fluctuations in bond prices are due to speculative factors in the market which not only do not contribute to effective monetary policy but may even interfere with it. An example of this is the collapse of the bond market which occurred in the months following the issuance of the 2½ percent bonds of 1965 in June 1958.<sup>33</sup> When bond prices began to fall, the forced liquidation of thinly margined speculative positions in these bonds accelerated the decline, which quickly spread to other issues of Government securities. The Treasury bought back a small amount of the 2½ percent bonds in July, and the Federal Reserve gave some support to a Treasury refunding operation in August, but the total amount of support given to the market in these two operations was quite small and entirely insufficient to restore stability.

The Federal Reserve was understandably reluctant to bail out the speculators who had subscribed to the 2½ percent bonds in order to earn a quick profit. However, on balance, more extensive support to the market would almost surely have been desirable, since it would have moderated the sharp rise in interest rates which occurred in the last half of 1958 while the economy was just beginning to recover from the recession and would have damped the gyrations of Government security prices, which may well have served to reduce the attractiveness of such securities to investors.

Just as an exchange stabilization fund may serve a useful purpose under a regime of flexible foreign exchange rates by moderating excessive fluctuations of exchange rates that merely represent transitory factors, a skillfully conducted program of open market operations in longer-term securities can offset transitory random fluctuations in security prices without interfering with interest rate movements that represent basic adjustments to changing economic conditions. Recent experience suggests that Government security dealers cannot be relied upon to act in such a way as to offset even temporary fluctuations in

<sup>31</sup> For a more extensive discussion of this episode, see ch. III above.

<sup>32</sup> See ch. III.

<sup>33</sup> For a more detailed discussion, see ch. III.

security prices. If excessive and meaningless shortrun fluctuations are to be moderated or prevented in the interest of orderly markets, the initiative in this respect must be taken by the Federal Reserve System.

*Interest rate structure and economic stabilization*

As indicated above, it seems best to view changes in the structure of interest rates produced by marginal adjustments in the composition of the publicly held debt as a form of selective credit control. While changes in the interest rate structure do have selective effects, our general knowledge concerning the nature of these effects is at present very unsatisfactory. However, it is reasonably clear that, to the extent that monetary policy working through interest rate adjustments does have an impact on business investment in fixed capital, this effect depends primarily upon changes in long-term interest rates, although, as was indicated in our discussion in the last chapter, it appears that even the long-term rate is not a major influence on such investment.

Periodic booms in plant and equipment expenditures, such as occurred in 1955-57, are one of the major sources of instability in the economy, and if monetary-debt policy could serve as a regulator of such expenditures, its contribution to economic stability might be greatly enlarged. In part, the interest insensitivity of investment is due to institutional factors, such as the strong propensity of business to finance investment from funds generated internally through depreciation allowances and retained earnings and the high marginal rate of taxation of 52 percent under the corporate income tax, which cuts effective interest costs in half.<sup>34</sup> It is possible that the interest sensitivity of investment could be increased by such measures as an undistributed profits tax, which would encourage greater dividend distributions and correspondingly heavier reliance on external sources of funds to finance investment, and repeal, in whole or in part, of the deductibility of interest as an expense under the corporate income tax.<sup>35</sup> If such an effort is made to increase the interest sensitivity of investment and thereby strengthen the influence of monetary policy, it should certainly be accompanied by a vigorous program of open market operations in long-term securities for the purpose of exercising more effective control over long-term interest rates.

While the possibility of exerting more influence over fixed investment by means of the long-term rate of interest is worthy of careful study, it is not clear that, even under the most favorable circumstances, the interest rate is a sufficiently potent instrument to exert effective control. In addition, there is the danger that if measures could be designed which would hold investment booms in effective check, the result might be a generally lower level of investment, which would tend to slow down the rate of economic growth.<sup>36</sup>

Even under present circumstances, changes in long-term interest rates exert a potent influence over residential construction. This influence is largely due to the existence of legal ceilings on the interest

<sup>34</sup> On the basis of rational calculations, the existence of high taxes should not influence the interest sensitivity of investment very much, since the tax reduces the prospective returns from investment in the same proportion as it reduces the interest cost of funds. Nevertheless, it is widely alleged that the tax does weaken the influence of interest rates.

<sup>35</sup> For an argument in support of a reduction in the extent of deductibility of interest under the corporate income tax, see H. S. Houthakker, "Protection Against Inflation," Study Paper No. 8, pp. 131-133.

<sup>36</sup> For a more extensive discussion of the possibilities and difficulties of exerting more effective control over fixed investment, see "Staff Report on Employment, Growth, and Price Levels," op. cit., pp. 396-398.

rates on FHA-insured and VA-guaranteed mortgages. When interest rates on competitive investments, such as corporate and Treasury securities, rise above these ceilings, the supply of funds is attracted away from residential construction, and when interest rates on competitive investments decline, the supply of funds flows back into the mortgage market, thus stimulating residential construction. It is quite clear that, due mainly to the existence of the ceilings, monetary policy has had a greater effect on residential construction than on any other sector of the economy.<sup>37</sup>

Although the effects are not as great as in the case of residential construction, it seems reasonably clear that monetary policy has had a significant impact on expenditures by State and local governments on schools, highways, and other public projects, which are financed by long-term borrowing.<sup>38</sup> While these effects may at times contribute to economic stability, they may also result in undesirable curtailment of projects having a high social priority.

Even if no effort is made to develop the long-term rate of interest into a more effective regulator of long-term investment, it is frequently important to be able to exert effective control over the long-term interest rate by means of open market operations in long-term securities. For example, there may be times when it would be desirable to follow a restrictive credit policy without exerting an undue effect on State and local government expenditures or on residential construction. Under these circumstances, measures to prevent long-term interest rates from rising unduly—that is, open market purchases of long-term securities—might accompany a generally restrictive policy.

In general, we may conclude that whether we move in the direction of trying to increase the influence of interest rates and thus rely on interest rate fluctuations to make monetary policy effective or move in the other direction of placing greater reliance on selective credit controls which do not work through interest rates, there will be times when open market operations in longer-term securities will contribute significantly to the effectiveness of monetary policy in maintaining economic stability. For this reason, it is important that the Federal Reserve System abandon the present practice of arbitrarily confining its open market operations to Treasury bills or equivalent short-term securities and be prepared to deal in whatever maturities will contribute most effectively to the maintenance of growth and stability.

#### CONCLUSION

It is quite clear that open market operations in long-term securities are useful at times as a means of preventing or eliminating distortions in the interest rate structure as well as to prevent fluctuations in bond prices which are the result of speculative influences and which serve no useful economic function. Moreover, from the standpoint of credit control for the purpose of economic stabilization, there are clearly times when open market operations in longer maturities may serve a useful purpose, whether monetary policy depends largely upon interest rate fluctuations to achieve its objectives or relies extensively

<sup>37</sup> For a more extensive discussion, see my paper, "The Impact of Monetary Policy on Residential Construction, 1948-58," in "Study of Mortgage Credit," Subcommittee on Housing, Committee on Banking and Currency, U.S. Senate, 85th Cong., 2d sess. (Washington: Government Printing Office, 1958), pp. 244-264; also "Staff Report on Employment, Growth, and Price Levels," *op. cit.*, pp. 363-368.

<sup>38</sup> See "Staff Report on Employment, Growth, and Price Levels," *op. cit.*, pp. 381-385.

upon selective controls. In view of the fact that the bills-only policy does not appear to have strengthened the Government securities market in the way its proponents expected it to, it would seem to be desirable to abandon the policy in its present rather rigid and doctrinaire form. At the same time, it should be recognized that to a considerable extent the function of open market operations is to keep the money market on an even keel by offsetting undesirable effects on member bank reserves resulting from changes in the float of uncollected checks, currency in circulation, gold stock, and other factors which are largely outside the control of the Federal Reserve authorities. The frequent reserve adjustments that are necessary for such shortrun stabilizing purposes should, under ordinary circumstances, be accomplished through purchases of Treasury bills or equivalent short-term securities. Thus, it is likely that even with a flexible open market policy under which the System was prepared to enter any maturity sector when such intervention was called for, the great bulk of open market operations most of the time would be in the short-term sector.

## CHAPTER VI

### SOME SUGGESTIONS CONCERNING DEBT MANAGEMENT POLICY

In this concluding chapter, we shall summarize the approach to debt management that emerges from the analysis in earlier chapters, particularly chapter IV. We shall then consider the relation of debt management to monetary and fiscal policies, considering particularly the way in which reforms in present monetary and fiscal policies which appear to be desirable on other grounds might simplify our debt management problems. Finally, we shall consider some changes of a technical nature which might reduce interest cost and add to the flexibility of debt management.

#### A SUGGESTED APPROACH TO DEBT MANAGEMENT

The analysis presented in earlier chapters suggests an approach to debt management along the following lines:

1. In managing its cash borrowing, debt retirement, and refunding operations, the Treasury should concern itself with the achievement and maintenance of a satisfactory debt structure. It should not be greatly concerned with the immediate economic impact of its current debt operations, since the aggregate effects of these operations are of the second order of importance and since it should be the responsibility of the Federal Reserve to offset these effects if they are undesirable. While it is not possible in the present state of our knowledge to specify an optimum debt structure from the standpoint of economic stability and growth, it is quite clear that at the present time the debt should be lengthened in order to reduce its shiftability, increase the resistance of the economy to external disturbances, and tighten up monetary controls. Thus, for the present, the Treasury should concentrate on lengthening debt maturities.

2. The interest cost of managing the debt is a matter of some importance, and the Treasury should plan its debt operations at least partially with a view to keeping down the interest cost. This suggests vigorous efforts to extend debt maturities during recession periods when interest rates are relatively low. Since the immediate effects of debt management do not seem to be very important, as explained earlier, debt lengthening during recessions is not likely to be harmful, and it will have the advantage of helping to prevent the excessive buildups of liquidity during recessions which tend to undermine the effectiveness of monetary policy during ensuing boom periods. During periods of inflation, the Treasury should not discontinue entirely its efforts to sell long-term securities, but it should shift the emphasis in the direction of short-term borrowing. This will keep down interest costs in the long run and will also minimize the extent to which the Treasury interferes with the freedom of the Federal Reserve in applying a restrictive monetary policy.



3. Marginal adjustments in debt composition and interest rate structure should be viewed as a species of selective controls, and the Federal Reserve should be assigned the responsibility for making such adjustments of this kind as appear to be called for in order to achieve economic growth and stability. This suggests the abandonment of the bills-only policy and the adoption of a more flexible policy with respect to open-market operations in order (1) to prevent distortions in the interest rate structure, (2) to prevent unnecessary transitory and random fluctuations in security prices which have no important economic function, and (3) to control the rate structure in the interest of growth and stability.

It will be noted that this prescription comes rather close to saying that the Treasury should manage the debt entirely with a view to minimizing interest costs, while the Federal Reserve should be assigned the entire responsibility for economic stabilization.<sup>1</sup> In view of our lack of exact knowledge of the relationships involved, however, it seems better not to state the prescription in such precise language. In fact, the above generalizations can constitute only a set of rough guidelines for debt policy rather than an exact prescription or rule.

Some students of debt management have suggested that, since Treasury debt management and Federal Reserve open-market operations are very similar from a functional economic standpoint, the two be completely unified. This could be accomplished by turning over the entire task of debt management to the Federal Reserve.<sup>2</sup> The Treasury might, for example, raise whatever funds it needed in excess of tax receipts by borrowing directly from the Federal Reserve, which would take responsibility for selling the appropriate securities to the public. In principle, this approach has much to recommend it. However, as a practical matter, in view of the unsatisfactory state of knowledge concerning the effects of debt management, such a reform would probably be unwise. There is a danger that the energies of the Federal Reserve would be unduly absorbed by the problems of raising funds which are now the concern of the Treasury and that the conduct of stabilizing monetary policy would suffer accordingly. It seems better to leave the responsibility for the maintenance of a proper debt structure and of avoiding unduly high interest costs in the hands of the Treasury, with the Federal Reserve taking responsibility for producing such carefully timed marginal changes in debt composition as are necessary to regulate the interest rate structure to produce selective effects which may contribute to economic growth and stability.

Another possible approach to debt management that has been suggested recently is that the Treasury take initial steps to attain a viable debt structure and then program a standard set of debt operations such as to maintain this debt structure and carry out such a set of operations each year, regardless of economic conditions. The objective of this proposal would be to attain a position of neutrality

<sup>1</sup> It may be noted that, strictly speaking, a policy of minimizing interest costs would require the Treasury to anticipate the actions of the Federal Reserve, since to the extent that securities are absorbed into the Federal Reserve portfolio, the net interest cost to the Treasury is reduced due to the fact that most of the interest earned by the Federal Reserve is returned to the Treasury at the end of the year. However, it seems proper to overlook this refinement on the grounds that it would complicate the formulation of debt management policy considerably. Moreover, it could be argued that the Federal Reserve differs from other investors merely because it happens to be subject, in effect, to a particularly high marginal rate of taxation. Since it would be wholly impracticable for the Treasury to take account of different marginal rates of tax applicable to other investors, it is legitimate to disregard tax rates in the case of the Federal Reserve also.

<sup>2</sup> This is proposed in R. L. Bunting, "A Debt Management Proposal," *Southern Economic Journal*, XXV (January 1959), 338-342.

in debt management.<sup>3</sup> An alternative approach would be to establish a benchmark pattern of debt offerings to be made in a normal year when there was no reason for debt management to be either restrictive or expansive. Starting from this position, the volume of longer term offerings could be speeded up during inflationary periods and slowed down and replaced by shorter term offerings in periods of recession.<sup>4</sup> In practice it might prove very costly to put such schemes into effect, and it is not clear that the importance of debt management is great enough to justify the cost; moreover, it might simply prove very difficult at times to sell the required amount of long-term securities. And it is not certain that the advance programming of financing would not be playing into the hands of the market. With respect to the second proposal, it would seem that to the extent that stabilization policy relies upon changes in the interest rate structure, the Federal Reserve, with its greater flexibility of maneuver and more undivided responsibility for economic stabilization, would be the appropriate agency to take the responsibility.

#### RELATION OF DEBT MANAGEMENT TO OTHER POLICIES

The magnitude of the Treasury's debt management problems and the interest cost to the Treasury depend partly upon the kinds of monetary and fiscal policies that are being followed.

##### *Debt management and the "mix" of monetary and fiscal policies*

A given level of aggregate demand can be achieved by various combinations of monetary and fiscal policies. Within limits, adjustments in Government expenditures, adjustments in taxes, and adjustments in interest rates and credit availability are substitutes for one another in regulating aggregate demand. The choices we make among these various types of adjustments affect the composition of demand and hence the way in which resources are allocated among current consumption, private investment, and the production of Government services. We can tighten up on fiscal policy by, for example, raising taxes, and compensate for the effects on aggregate demand by easing credit and lowering interest rates.

Over a period of years the mix of monetary and fiscal policies may have a significant effect on the rate of economic growth. For example, by raising personal income taxes to reduce the level of consumption and lowering the rate of interest to encourage investment, we can, at least to some extent, increase the rate of growth, since investment adds to productive capacity and thus permits income and production to grow more rapidly in future years.<sup>5</sup> Thus, a high-tax-low-interest-rate policy would tend to produce a higher rate of growth than a low-tax-high-interest-rate policy.

A generally easier monetary policy, compensated by a tighter fiscal policy, would in addition to promoting a more rapid rate of growth,

<sup>3</sup> T. C. Gaines, "Techniques of Treasury Debt Management" (unpublished Ph. D. dissertation, Columbia University, 1959), ch. XII.

<sup>4</sup> J. M. Culbertson, "A Positive Debt Management Program," *Review of Economics and Statistics*, XLI (May 1959), 89-98.

<sup>5</sup> For a discussion of the effects of changes in the mix of expenditure, tax, and monetary policies on the rate of growth and on the further problem of maintaining a balance between the growth of productive capacity and the growth of demand, see my article, "Monetary-Fiscal Policy and Economic Growth," *Quarterly Journal of Economics*, LXXI (February 1957), 36-55. It may be noted that many types of Government expenditures add to capacity, and the rate of growth may be increased by raising the level of such capacity creating Government expenditures while making other adjustments in taxes or in monetary policy to control the aggregate level of demand. On this see R. A. Musgrave, "The Theory of Public Finance" (New York: McGraw-Hill Book Co., 1959), ch. 20.

simplify the problems of debt management and reduce the interest cost to the Treasury in two ways: (1) larger surpluses and/or smaller deficits in the cash budget would result in a lower rate of growth (or perhaps a decline) in the size of the publicly held debt, and (2) lower interest rates resulting from easier monetary policies would save interest costs to the Treasury and would make effective debt management easier to achieve.

There is some reason to believe that even relatively slight changes in the policy mix between monetary and fiscal policies could have a substantial effect on the interest cost of managing the public debt. The reason for this is that such evidence as there is suggests that most types of expenditures are not very sensitive to interest rates so that, for example, even a relatively small increase in taxes which reduced the level of consumption would require a rather sharp decline in interest rates in order to stimulate enough additional investment spending to maintain an unchanged level of aggregate demand.

There has recently been much concern about the relatively slow rate of economic growth that has characterized the American economy in the last few years. Much of this concern arises out of the existence of the economic struggle between the United States and the Soviet Union and the fact that the Soviet economy has been growing much more rapidly than the American economy. Thus, there is much to be said for a less restrictive monetary policy, together with a more restrictive fiscal policy as a means of encouraging growth. An incidental advantage of such a shift in the policy mix is that it would simplify the Treasury's debt management problems.

#### *General versus selective monetary controls*

In the last few years, the Federal Reserve has relied almost entirely on so-called general credit controls, implemented by means of open market operations, changes in discount rates, and changes in member bank reserve requirements. Measures of this kind exert their influence by changing the total supply of bank credit available and tend to be reflected in substantial changes in interest rates. The effects of restrictive credit policies applied during periods of inflationary pressure in early 1953, 1955-57, and 1958-59 have substantially outweighed the effects of the easy money policies which prevailed in the recessions of 1953-54 and 1957-58, with the result that there has been a very substantial rise in interest rates, especially since 1952.

The Federal Reserve has, in the last few years, been opposed to the use of selective credit controls, such as the control of consumer installment credit through the setting of minimum downpayments and maximum maturities, as was done under regulation W of the Board of Governors during World War II and the Korean war.<sup>6</sup> There is certainly something to be said for increased reliance on selective credit controls directed at some of the sectors of the economy which have exhibited excessive instability. For example, serious consideration might be given to selective controls in the area of consumer credit, including housing, and perhaps more effective control over bank lending to reduce the magnitude of inventory fluctuations.<sup>7</sup>

In the present context, it is important to note that increased reliance on selective credit controls would have some advantages from

<sup>6</sup> At the present time, the only selective control being used by the Federal Reserve is the control of margin requirements for loans to finance the purchasing and carrying of securities.

<sup>7</sup> See "Staff Report on Employment, Growth, and Price Levels," prepared for consideration by the Joint Economic Committee, 86th Cong., 1st sess. (Washington: Government Printing Office, 1959), ch. 9.

the standpoint of debt management, since most types of selective controls exert their impact by reducing the demand for credit directly rather than by relying upon rising interest rates to accomplish the purpose. In fact, restricting credit through the use of selective controls, taken by itself, will tend, if anything, to reduce interest rates. Thus, a monetary policy relying more on selective credit controls would presumably require smaller increases in interest rates to achieve a given restrictive effect than would a policy relying entirely on general controls. This being the case, increased reliance on selective credit controls would have the incidental advantage of reducing the interest cost of managing the public debt.

*Criteria for choosing the policy "mix"*

As indicated above, a somewhat tighter fiscal policy accompanied by an easier monetary policy would tend to reduce the Treasury's interest cost and simplify the problems of debt management. Greater reliance on selective as contrasted with general credit controls in the area of monetary policy would have a similar effect. It happens that, under present circumstances, there is much to be said for each of these changes in policy emphasis on grounds other than debt management—the first because it would tend to increase the rate of economic growth and the second because it might result in more effective economic stabilization.

It is important to emphasize, however, that debt management should not be more than a very marginal consideration in arriving at decisions concerning the proper policy mix. We should select the proper combination of fiscal and monetary policies, on the one hand, and the proper mix of selective and general monetary controls on the other, on the basis of the impact these policies have upon the economy. Debt management, while a matter of some importance, is distinctly subsidiary to the selection of proper monetary and fiscal policies from the standpoint of economic growth and stability.

*Open market operations versus reserve requirement changes*

In the conduct of its general monetary policy directed at control of the supply of money and bank credit, the Federal Reserve has a choice between the use of open market operations and changes in member bank reserve requirements. In recent years, the System has relied on open market operations for short-run stabilization of the economy, but appears to be engaged in a program of secular reduction of member bank reserve requirements. Reserve requirements have been lowered several times during the recessions of 1953-54 and 1957-58, while they have not been increased since 1951. Thus, reserve requirements have been adjusted downward particularly during recession periods, apparently for the purpose of supplying the reserves needed to support economic growth.

The use of open market purchases of Government securities to supply reserves to the banking system has an advantage, from the standpoint of debt management, over reductions in reserve requirements, since open market purchases tend to reduce the interest cost to the Treasury in two ways:

1. If reserves are provided by buying securities, the interest rate differentials between Government and private securities should be a little greater than would be the case if reserve requirements were lowered. If we make the reasonable assumption that the monetary

authorities have a "target" level of credit restriction which they will achieve under either arrangement and that this target level of credit restriction determines the level of interest rates on private debt, we may suppose that these private interest rates will be approximately the same in either case. Hence, interest rates on Government debt should be a little lower under a policy of buying securities.

2. There would be a further interest saving to the Treasury from a policy of buying securities due to the fact that nearly all (90 percent, to be exact) of the added interest paid on securities held by the Federal Reserve would be returned to the Treasury at the end of the year. That is to say, the marginal tax rate applicable to interest payments received by the Federal Reserve is higher than that applicable to other holders of Treasury securities.

To illustrate the possible magnitudes involved, we might consider the situation prevailing in October 1959. In that month the daily average amount of required reserves of member banks at the prevailing reserve requirements (18 percent, 16½ percent, and 11 percent for demand deposits at central Reserve city, Reserve city, and country banks, respectively, and 5 percent for time deposits) was \$18.2 billion. If the reserve requirements had been at the maximum permitted by present law (22 percent, 22 percent, and 14 percent for demand deposits, at the three classes of banks and 6 percent for time deposits), required reserves would have been \$23.1 billion. In this situation, if reserve requirements were raised to their maximum levels, the Federal Reserve would have to buy approximately \$5.1 billion of Government securities if its objective was to keep the supply of money constant.<sup>8</sup> The interest on this amount of debt, at the present level of interest rates of about 4 percent, would be approximately \$200 million per year. Assuming that the average tax rate applicable to this interest was 30 percent, there would be a saving of roughly \$120 million a year to the Treasury as a result of shifting these securities into the hands of the Federal Reserve, which is, in effect, subject to a marginal tax rate of 90 percent. This would be the saving from the second of the sources referred to above. The total marketable debt held outside the Treasury investment accounts and the Federal Reserve amounted to \$149.5 billion at the end of September 1959. Thus, the Federal Reserve purchases of \$5.1 billion needed to implement the scheme would have amounted to 3.3 percent of the marketable debt outstanding. It seems very doubtful whether purchases of this magnitude would have much effect on the yield differentials between Government and private securities; consequently, the interest saving from the first source referred to above would probably be negligible. Thus, the total saving to the Treasury the first year would probably be about \$120 million. It should be noted that this saving would be repeated in each future year, and there would be further savings resulting from the fact that with the higher reserve requirements it would be necessary to buy more securities than would otherwise have been the case in order to provide for future growth of the money supply.

The above estimate relates to the maximum possible saving assuming that the Federal Reserve raised reserve requirements to the maximum level permissible under present law and kept them there. Such

<sup>8</sup> Slightly larger purchases might be necessary to offset the loss of liquid assets by the public if the level of income flow was to be held constant. In fact, an alternative objective instead of holding the money supply constant might be to maintain a constant supply of bank credit; this would require somewhat larger purchases. This matter is considered below.

a policy has not been proposed, but it has been suggested that the Federal Reserve should desist from further reductions in reserve requirements and, from now on, supply reserves needed for growth by purchasing securities.<sup>9</sup> Assuming that the money supply is permitted to grow at a rate of 3 percent per annum and that an average interest rate of 2.8 percent prevails, the saving to the Treasury that would result from this policy as compared with a policy of supplying the necessary reserves by reducing reserve requirements has been estimated at an average of \$45 million per year for the next 10 years.<sup>10</sup>

It seems clear that the savings to the Treasury that might result from increased reliance on open market purchases in supplying reserves to support growth of the money supply, while perhaps not a matter of major importance, are by no means negligible. However, in order to assess the desirability of placing greater reliance on open market purchases as a means of supplying member bank reserves, it is necessary to consider the other differences in the effects of such purchases as compared with reserve requirement reductions. There are two such effects to be considered. First, reserve requirement reductions tend to result in higher profits for commercial banks than are produced by open market purchases; second, reserve requirement reductions increase the "leverage" of monetary controls whereas open market purchases do not affect the "leverage." Let us consider each of these effects briefly.

1. It seems likely that reserve requirement reductions do have a more favorable effect on bank earnings than do open market purchases. This is simply due to the fact that with lower reserve requirements, the ratio of earning assets to total bank assets will be higher. However, the quantitative effects are not easy to estimate. One study which assumes that the money supply grows at a rate of 3 percent per annum estimates that member bank net profits would average about \$40 million per year higher over a 10-year period if reserves are supplied by reducing reserve requirements than if they are supplied by open market purchases.<sup>11</sup> It may be noted, however, that there is a question whether the money supply should be assumed to grow at the same rate whether reserves are supplied one way or the other. An alternative assumption, which is perhaps just as reasonable and would lead to rather different conclusions, is that the volume of bank credit (i.e., loans and investments) would be the quantity whose growth would be kept the same under either policy. If this were the case, bank profits should be at least approximately the same under either policy.<sup>12</sup> It seems probable that the banks would be made worse off by higher reserve requirements, but it is extremely difficult to make a realistic estimate of the magnitude of the effect.

<sup>9</sup> This was the purpose of the proposed "sense of Congress" amendment to the legislation to raise the interest-rate ceiling of 4½ percent applicable to Government securities having a maturity of more than 5 years, which was considered but not acted upon during the 1st sess. of the 86th Cong. See the statement and testimony by Representative Henry S. Reuss in "Public Debt Ceiling and Interest Rate Ceiling on Bonds," hearings before the Committee on Ways and Means, House of Representatives, June 10, 11, and 12, 1959 (Washington: Government Printing Office, 1959), pp. 253-261.

<sup>10</sup> This estimate is taken from an unpublished study by Prof. John H. Kareken.

<sup>11</sup> This estimate is based on an unpublished study by Prof. John H. Kareken.

<sup>12</sup> If the objective was the maintenance of a constant income flow, it would appear that the resulting policy would lead to a result lying somewhere between one which would produce the same growth in the money supply under either policy and one which would lead to the same growth of bank earning assets. It may be noted also that it is not safe to assume that the average net return on additional earning assets will be the same whether reserves for growth are supplied by open market purchases or by reserve requirement reductions. Since reserve balances are riskless assets, when the banks hold larger reserves, they may feel justified in assuming somewhat greater risks on the remainder of their assets and thus be able to earn higher returns per dollar of earning assets.

2. The differential effects of the two policies on the leverage of monetary controls should not be dismissed lightly. According to the study referred to above, if reserves were supplied to support a 3 percent per annum growth of the money supply by reducing reserve requirements, average member bank reserve requirements would be reduced from the present level of approximately 15 percent to about 11 percent at the end of the decade. Allowing for a cash drain of 10 percent of demand deposits, which is approximately the marginal ratio of the expansion of currency outside banks to the expansion of demand deposits adjusted for the decade 1948-58, the coefficient of commercial bank credit expansion is about 4.4 for a reserve requirement of 15 percent and about 5.2 for a reserve requirement of 11 percent.<sup>13</sup> Thus, a policy of reducing reserve requirements would, over the 10-year period, result in an increase of approximately 18 percent in the coefficient of bank credit expansion. This would mean that by the end of the period a change of \$82 in excess reserves would have approximately the same effect on the supply of money and credit as a change of \$100 now has. Since the slowness with which monetary policy makes its effects felt on the economy seems to be partly due to the need to carry out a large volume of operations to accomplish a given result, such an increase in the coefficient of expansion might be quite helpful. It may be noted in this connection that the flexibility of open market operations makes such operations the best instrument to use for cyclical and short-run monetary adjustments, and an increase in the leverage reduces the volume of such operations needed to produce a given effect.

Evaluation of the desirability of open market operations as compared with reserve requirement reductions as a means of supplying reserves seems to involve a decision as to whether the increased leverage of monetary policy resulting from lower reserve requirements is worth the cost in terms of additional interest payments by the Treasury. The question of bank profits also enters in, but a proper evaluation of this question would require more accurate estimates than are now available concerning the effects of alternative policies on such profits, together with some kind of judgment as to whether profits are adequate at the present time. It would seem appropriate for the Federal Reserve System to indicate what assumptions and judgments concerning all of these matters (and perhaps other considerations it feels are involved) it has been using as a basis for the program of secular reduction in reserve requirements it appears to have been engaged in.

#### POSSIBLE INNOVATIONS IN DEBT MANAGEMENT TECHNIQUE

Given (1) the mix between monetary and fiscal policy, (2) the mix between general and selective monetary controls, (3) the mix between open market operations and reserve requirement adjustments in the conduct of general monetary policy, and (4) the structure of the debt currently outstanding, the approximate scope of the Treasury's debt management problems is determined. It was suggested above that the Treasury should manage the debt with a view to lengthening maturities—at least under present circumstances—in order to tighten up

<sup>13</sup> With a cash drain, the coefficient of expansion is equal to  $(1+c)/(r+c)$ , where  $c$  is the marginal ratio of currency to demand deposits and  $r$  is the reserve requirement for demand deposits.

the financial system and provide an environment in which monetary controls may work more effectively, while at the same time giving due consideration to keeping down the interest cost. We turn our attention now to the question of the techniques to be employed in handling debt operations. It is quite clear that the techniques employed should, insofar as possible, be the ones which permit the Treasury to sell the desired securities at minimum cost under any given circumstances. Several changes in technique which are worthy of consideration can be suggested.

#### *Auctioning of longer term securities*

The auction method of selling new securities has proved to be highly successful in connection with the marketing of Treasury bills.<sup>14</sup> There might be some advantages in using this same method in selling new issues of intermediate and longer term securities.<sup>15</sup> Under this arrangement, the Treasury would set the coupon rate on new notes or bonds and call for bids by investors who would specify the amounts they would take and the prices they would pay.<sup>16</sup> The Treasury would accept bids, starting with the highest and going down the list as far as necessary to raise the amount of funds needed.

One of the possible advantages of the auction technique is that it might reduce the interest costs of the Treasury. One potential source of interest saving would be the possibility of collecting some consumers' surplus—i.e., each block of securities would be sold at the highest price the investor would be willing to pay, whereas under the present arrangement everyone is, in effect, paid the price necessary to attract the least willing buyer. In addition, the Treasury at present feels the need to set the coupon rate a little on the high side—i.e., to sweeten the offering a little—to insure the success of the operation. This frequently results in the securities rising a little in price shortly after issuance, giving speculative profits to free riders. This tendency would be eliminated if the auction technique could be successfully applied. It should be noted, on the other hand, that auctioning would impose a somewhat greater risk on the investor; consequently it is not absolutely certain that it would lower interest costs to the Treasury. On balance, however, it does seem possible that some saving in interest costs would result from the successful adoption of auctioning.

The present bill auctions interfere scarcely at all with the Federal Reserve's freedom of action in applying a restrictive policy in times of inflation, whereas with the techniques presently in use, offerings of longer term securities frequently necessitate a relaxation of a policy of active restriction during the offering period. Auctioning of longer

<sup>14</sup> See ch. II.

<sup>15</sup> The auction method as a device for selling new Treasury securities should not be confused with the possible organization of the market for existing securities as an auction or exchange market. The question whether the market for existing securities should continue to be organized, as it is at present, as a negotiated or over-the-counter market or should be reorganized as an auction or exchange market is discussed in "Treasury-Federal Reserve Study of the Government Securities Market" (1959), pt. I, pp. 71-108. The conclusion reached there is that the present organization is probably preferable, chiefly because the large size of many transactions in Government securities would create difficulties in an auction market. Auctioning of new Treasury securities is also different from competitive bidding in connection with the sale of new corporate and municipal bonds. Here underwriting syndicates are formed among investment banking firms which submit bids for the issue. The entire issue is sold to the lowest bidder who then redistributes the securities to ultimate investors, normally at a price a little higher than that paid to the issuing corporation or municipality. Auctions of Treasury securities would invite the participation of all investors and would not involve the formation of underwriting syndicates to buy up an entire issue.

<sup>16</sup> In the case of Treasury bills, it is not necessary to set a coupon rate since they are sold on a straight discount basis—i.e., for a 91-day bill the investor bids something less than the maturity value of \$1,000, his bid determining the yield he is willing to accept. The \$1,000 he receives at the end of 91 days represents the return of his principal plus his interest return. In the case of longer term securities, it would be necessary to set a coupon rate to determine the size of the periodic payment of interest to be made to the holder.



term securities might reduce the extent to which Treasury financing interferes with the freedom of the Federal Reserve. However, it may well be that offerings of longer term securities are bound to impinge somewhat on the Federal Reserve's freedom of action and that the auction technique would do little to resolve the problem.<sup>17</sup>

The chief disadvantage of auctioning, according to the Treasury, is that some small investors who now buy new issues of Treasury bonds would not participate in auctions because they would not feel confident of their ability to judge market trends to the degree necessary to make intelligent bids.<sup>18</sup> Probably the seriousness of this difficulty is considerably exaggerated, since it seems doubtful whether the quantitative importance of sales to small investors of the type referred to is very great.

A more serious problem and one which should be explored carefully in connection with an extension of the auction device, is the possibility that the bidding would be dominated by a small group of market professionals, with an attendant danger of collusion, outright or tacit. The extent of this danger would depend upon the number of bids that could be expected and the extent to which a small number of bids by large institutional investors and professional dealers and traders might dominate the market. In the bill auctions, several hundred bids are apparently typically received. However, in the case of longer term securities, the number of bids would doubtless be smaller, and it would appear that collusive bidding might be a serious possibility.

If auctioning were to be applied to refunding operations, it would be necessary to sell the new securities for cash which would then be used to retire the maturing securities. It is possible that some sales might be lost, since some investors who would turn the old security in for the new one under an exchange procedure might not participate in the auctioning.<sup>19</sup> However, when a security reaches maturity it is a liquid short-term investment and is likely to be in the hands of an investor who is interested in such an instrument. New long-term securities, on the other hand, appeal to a different type of investor, one who has savings to invest on a permanent basis or who buys to resell for short-run speculative profit. Consequently, under present arrangements there is a considerable amount of trading in the market prior to a new exchange offering, as holders of rights (that is, the maturing securities) who do not want the new security sell such rights to other investors who do want it. At times, this large volume of market activity causes difficulties, and it might be an advantage of the auction technique that it would eliminate the need for such activity.

Another possible advantage of the auction technique is that it would eliminate the need for the Treasury to consult with institutional investors and market professionals in the process of determining what price to put on its issues. However, it would still be necessary to consult market experts or to rely upon information collected in other

<sup>17</sup> The Treasury itself has expressed the view that extended use of auctioning would not lessen the extent to which debt management interferes with the freedom of monetary policy. See "Employment, Growth, and Price Levels," hearings before the Joint Economic Committee, 86th Cong., 1st sess., pt. 6C, pp. 1739-1740.

<sup>18</sup> *Ibid.*, p. 1736.

<sup>19</sup> One student of debt management has suggested that the Treasury handle refunding operations by offering a new security in exchange at a fixed price and at the same time offering an unspecified amount of the same security at competitive auction for cash. The size of the cash offering would then be set at the amount needed to cover attrition on the exchange. See T. C. Gaines, "Techniques of Treasury Debt Management" (unpublished Ph. D. dissertation, Columbia University, 1950), pp. 547, 555, and 563.

ways in order to decide upon the timing and maturity sector of prospective longer term issues.

A final advantage of the auction method is that it would eliminate the confusion and uncertainty that now exists concerning allotments of cash offerings. Under present arrangements, when an offering is oversubscribed, as is ordinarily the case, an investor cannot tell with any accuracy what proportion of his subscription will be allotted to him. In other words, the Treasury must establish some kind of arbitrary rules to ration the securities. Institutional investors, such as life insurance companies and savings banks, have indicated that the uncertainty about allotments is a significant deterrent to their participation in new offerings. Under the auction method, this problem would be solved, since an investor could rely upon getting the full amount of securities for which he placed bids, provided his bids were high enough to be among those accepted by the Treasury.<sup>20</sup>

The Treasury itself has expressed its opposition to the auction method as applied to longer term securities and has indicated a number of reasons why it does not believe the method would work well.<sup>21</sup> Most of these reasons appear to the present writer to be merely surmises, the validity of which can only be tested by giving the method a serious trial. One objection, raised by the Treasury and also by several dealers in Government securities, most of whom oppose auctioning, is that the interest cost to the Treasury would be increased at times when credit is tight and interest rates rising.<sup>22</sup> While this might well turn out to be the case, those who take this position do not advance any very convincing arguments. There are technical difficulties related to the handling of discounts on the sale of bonds under present tax regulations, but there is no reason why these difficulties could not be ironed out by appropriate changes in the regulations.<sup>23</sup>

We may conclude that the possible advantages to the Treasury from use of the auction method in marketing longer term securities certainly appear sufficiently promising to justify some experimentation with the technique.

#### *Smaller and more frequent offerings*

It is possible that small offerings of longer term securities made at frequent intervals would help the Treasury to secure a larger share of the current flow of saving. Sale of large blocks of long-term securities may require either extensive reshuffling of portfolios as investors sell existing securities to make room for the new offering or substantial purchases of an underwriting nature by, say, commercial banks and Government security dealers, who then feed the securities into the

<sup>20</sup> One of the objections of the Treasury itself to the auction method for selling longer term securities is that under this method it is difficult to control the amount of securities issued to "any single investor or investor class." In particular, it seems to be concerned that it would be difficult to limit commercial bank subscriptions and allotments. ("Employment, Growth, and Price Levels," hearings, pt. 6C, op. cit., pp. 1736-1737.) The Treasury seems obsessed with the idea that commercial bank subscriptions are bad, apparently on the ground that during inflationary periods they result in an increase in the money supply. However, this objection has little if any validity under a regime of flexible monetary policy in which the Federal Reserve exerts effective control over the credit base. Under these conditions, if the Treasury pre-empt part of the supply of bank credit, there is no net increase in the money supply but merely a corresponding reduction in the amount of money that can be created by loans to the private sector. In fact, commercial bank underwriting of shorter term issues through the use of tax and loan account credits has been very helpful to the Treasury, and, as indicated in ch. II, the Treasury has weakened its position unnecessarily by discouraging bank subscriptions to longer term securities and discriminating against banks in determining allotments.

<sup>21</sup> "Employment, Growth, and Price Levels," hearings, pt. 6C, op. cit., pp. 1736-1739.

<sup>22</sup> *Ibid.*, pp. 1737, 1887-1902.

<sup>23</sup> *Ibid.*, pp. 1738-1739.

market over a period of time as current savings become available for investment. Small offerings which tap current flows of saving as they become available might be more efficient.

One difficulty with small offerings which were made frequently is that such a technique would probably require the repeated reopening of existing issues; otherwise the number of separate issues would become unduly large. The frequent reopening of existing issues might tend to undermine the working of the secondary market in these issues, since investors might come to anticipate periodic declines in the prices of the issues at the time of reopenings as the market was called upon to absorb additional amounts of securities. Under these conditions, investors might hesitate to buy these securities in the market between successive Treasury offerings, with the result that trading would dry up and the issues become unattractive.

During the period May–August 1935, the Treasury experimented with frequent small offerings sold at competitive bidding through the reopening of existing issues. In that case, the results were as indicated above. The prices of the securities involved declined rather steadily, the volume of bids received fell off, and investor interest dried up, so that the scheme was abandoned.<sup>24</sup> This episode is sometimes cited as evidence that the auction technique does not work well in the sale of longer term securities, but the experience seems more properly attributable to the fact that the offerings were relatively small and involved the reopening of existing issues than to the fact that the auction method was employed.<sup>25</sup>

It should be possible to devise ways to get around this difficulty.

For example, the Treasury could employ a method of random selection (e.g., by drawing lots) to determine which of a number of issues spread over a considerable maturity range was to be reopened each time. Thus, the likelihood of any particular issue being reopened would be relatively small so that the tendency for the secondary market to dry up would be avoided.<sup>26</sup>

It might appear that an increase in the frequency of offerings would mean an increase in the extent to which debt management would interfere with the Federal Reserve's freedom of action in conducting monetary policy, especially when a restrictive policy was called for. However, the opposite might well be true—that the smallness of the offerings would result in a minimum of interference. In this connection, regularity might be important. If the Treasury were to make a small offering of bonds, perhaps using the auction method each month, investors would be able to plan on the basis of these offerings and might develop the practice of setting aside a certain portion of their current inflows of funds for investment in these securities, and the offerings would probably come to be a routine

<sup>24</sup> In May 1935, the Treasury reopened a 3-percent bond of 1946–48 which had originally been sold in June 1934. Tenders were received for \$270.1 million, of which \$98.8 million were accepted at an average price of 103 $\frac{3}{4}$ ¢. The same issue was again reopened in June tenders amounting to \$461.3 million, of which \$112.7 million were accepted at an average price of 103 $\frac{1}{2}$ ¢. In July 1935, an issue of 2 $\frac{1}{2}$ -percent bonds, originally sold in March 1935, was reopened. Tenders of \$511.0 million were received, of which \$102.0 million were accepted at an average price of 101 $\frac{1}{2}$ ¢. This issue was again reopened later in July, tenders dropping to \$231.0 million, of which the Treasury accepted \$106.5 million at an average price of 101 $\frac{1}{2}$ ¢. When the same issue was reopened for a third time in August, tenders fell to \$147.3 million, of which \$98.5 million were accepted at an average price of 100 $\frac{2}{3}$ ¢.

<sup>25</sup> One more effort was made to use the auction method in August 1935. This was in connection with an offering of \$100 million of 1 $\frac{1}{2}$ -percent Federal Farm Mortgage Corporation 4-year notes. This offering was a failure in the sense that tenders amounted to only \$85.6 million, of which \$85.3 million were accepted at an average price of 99. The auction method has not been used to sell any security other than Treasury bills since that time.

<sup>26</sup> I am indebted to Prof. John Lintner for this suggestion.

matter which would interfere very little with the freedom of monetary policy.<sup>27</sup> However, the difficulty with regularizing offerings in this way is that it would put the Treasury at the mercy of the market and at times would almost certainly require the payment of extremely high interest costs. In the opinion of the present writer, this disadvantage would probably be serious enough to make such regularization undesirable on balance. Nevertheless, it is a practice that is sufficiently promising to merit experimentation on a small scale.

#### *More effective underwriting*

One of the Treasury's difficulties has been that it has had inadequate underwriting support, much less than is used in private financing. Such underwriting of Treasury issues as there is derives from (1) commercial banks, especially through the use of tax and loan account credits in connection with short-term cash offerings; (2) dealers who buy for resale and who provide support for refunding operations by trading in "rights" and "when-issued securities"; and (3) speculators, who have at times bought newly issued securities in the hope of reselling at a profit within a short period of time. The Treasury has denied itself the full support of the commercial banks in distributing longer term cash offerings by trying to discourage bank subscriptions and by discriminating against banks in allotting securities. As long as the Federal Reserve is in a position to exert effective control over the reserve base of the banking system, there seems to be little justification for these practices.

Serious consideration should be given to the provision of some underwriting support through the Federal Reserve System. The Federal Reserve banks could buy part of a new Treasury cash offering of longer term securities and then resell (i.e., distribute) these securities to the public over a period of time. A procedure of this kind has been used successfully in England.<sup>28</sup> Under the British system, when a new security is sold for cash, the amount not subscribed by the public is subscribed by the Issue Department of the Bank of England, which is in effect the underwriter for the Government.<sup>29</sup> The Issue Department then gradually disposes of the securities to the public. In recent years, the authorities have sought to have available in the Issue Department at all times at least one medium-term and one long-term issue for sale to the public. These securities are sold on a "tap" basis at prices which are determined by the authorities.

At the same time that it is selling longer term securities on a "tap" basis, the Issue Department habitually buys up in the market portions of the longer term issue that is next maturing. Thus, by the time the security matures, the amount held by the public has been reduced, thereby facilitating refunding. During any period, the Issue Department may be a net borrower from or net lender to the market, depending upon whether its sales of "tap" issues exceed or fall short of its purchases of other securities. Which of these conditions prevails depends upon whether the Treasury needs funds from this source to

<sup>27</sup> The use of frequent and regular small offerings sold by the auction method is advocated in Culbertson, *op. cit.*

<sup>28</sup> See "Report of the Committee on the Working of the Monetary System" (the so-called Radcliffe Report) (London: Her Majesty's Stationery Office, 1959), pp. 36-38.

<sup>29</sup> Under the Bank Charter Act of 1844, the Bank of England was divided into an Issue Department and a Banking Department. Although the division is now merely a matter of accounting which has no policy significance, the Issue Department is formally responsible for the issuance of bank notes and holds gold and Government securities as "cover" for the note issue. See R. S. Sayers, "Modern Banking" (4th ed.; London: Oxford University Press, 1958), pp. 80-82.

finance a budget deficit or has funds available from a budget surplus for debt retirement.

These procedures tend to spread out the impact of debt operations over time and minimize their disturbing effects on the capital market. There is no reason why similar techniques could not be applied in this country by the Treasury and the Federal Reserve. Or if it is felt that the Federal Reserve should confine its operations to economic stabilization, it should be possible to devise some other institutional arrangement—such as a kind of “stabilization fund”—which would perform a similar function. In this connection, however, it should be noted that the British authorities deliberately utilize the underwriting operations of the Issue Department as a means of exerting a marginal influence over the interest rate structure, thus integrating these operations into the framework of stabilization policy.

#### *Advance refunding*

Advance refunding means offering to holders of an existing security the option of turning it in for a newly issued security before maturity. As longer-term securities approach maturity, they frequently fall into the hands of investors who are interested in them as liquidity instruments, and when they mature, it is difficult to interest such investors in exchanging them for new long-term securities. Judicious advance refunding would catch these securities before they leave the hands of those who are holding them as investments and offer a new longer term security in exchange at that point.

Advance refunding can be used as a means of bringing about a large once-and-for-all readjustment of the debt structure in order to achieve a structure that is amenable to effective management. An example of this is the large-scale conversion operation which was carried out in Canada in 1958. In July of that year, the Canadian Government made public a plan to refund up to \$6.4 billion of outstanding Victory bonds in advance of their due dates. The Victory bonds consisted of five issues of marketable debt with maturity dates ranging from January 1959 to September 1966 and a coupon rate of 3 percent. Two of the issues were near maturity dates and the others were due to become callable in a few years. These bonds, which were issued during the financing of World War II, amounted to about 43 percent of the Canadian national debt and 61 percent of its outstanding marketable Government securities.

In exchange for these securities, holders of the Victory bonds were offered their choice of four noncallable, marketable issues: a 3 percent bond due in 1961, a 3½ percent bond due in 1965, a 4¼ percent bond due in 1972, or a 4½ percent bond due in 1983. Holders of Victory bonds maturing in 1962 were not eligible for the new 1961 issue, and holders of Victory bonds with later due dates were not eligible for the issues maturing in 1961 or 1965. Those who converted were entitled to an immediate cash payment of from \$12.50 to \$25 per \$1,000 of bonds converted with the higher premiums going to those who selected the longer term issues.

The 9-week refunding period was begun by a sales appeal by the Finance Minister and the Governor of the Bank of Canada, to an estimated 10,000 bankers and bond dealers throughout Canada over a closed-circuit transcontinental television hookup. A national appeal to convert was made by the Government over radio and television.

An extensive newspaper advertising program was carried on by the banks in an attempt to appeal to small investors who held an estimated one-third of the debt. The immediate cash payments were emphasized as an inducement to small investors.

The refunding operation was successful. About 90 percent (\$5.8 billion) of the Victory bonds were converted into the new issues including \$3.5 billion of the two longest issues. The average maturity of the total marketable debt increased from 6.3 years to 10.5 years as a result of the operation.

During the period of the refunding and for a short time thereafter the Bank of Canada supported the markets for the Victory bonds and the new issues at or near par; as a result, it acquired over \$1 billion of the longer term bonds. The expansionary effect of these purchases was partially offset by the sale of treasury bills and short-term bonds. Over the period of financing, the Bank of Canada expanded its holdings of bonds maturing in more than 10 years from 10 percent to 50 percent of its Government security portfolio, while its holdings of bills and short-term bonds fell from about 60 percent to less than 12 percent of its portfolio.

As a result of this and also as a result of reliance on the banking system for earlier debt financing during the year, the money supply in 1958 rose by 16 percent from January to October, compared with an increase of only about 6 percent during 1956 and 1957. According to the Governor of the Bank of Canada—

The Canada conversion loan of 1958 made possible a return thereafter to non-bank financing of Government bond issues and a halting after early October of the monetary expansion which had been necessary up to that time. The degree of monetary expansion experienced prior to this date was substantially greater than would have been necessary or desirable for monetary and economic reasons alone, but was, I believe, justified and unavoidable in order that a strenuous and successful effort might be made to deal with serious problems affecting the Government's cash deficit and the condition of the public debt.<sup>30</sup>

The additional cost of carrying the debt was estimated at about \$130 million for 1958, an increase of about 25 percent over the debt charges of the previous fiscal year. About half of this increase was considered to be the cost of the actual operation, while the remainder represented additional interest charges. The coupon rates on the longer issues were three-eighths percent above those on comparable securities issued a short time before the conversion operation.

The U.S. Treasury has indicated strong interest in advance refunding as a means of achieving a better balanced debt structure.<sup>31</sup> Legislation passed in the last session of Congress eliminated technical obstacles by changing the tax treatment of losses incurred in connection with advance refunding operations and thus paved the way for use of the device.<sup>32</sup> Advance refunding could be used as a means of reducing the large volume of debt scheduled to mature in 1 to 5 years. At the end of September 1959, the amount of publicly held marketable debt in this maturity sector came to \$52.9 billion. Replacement of some of this debt with longer term securities could result in a better balance of maturities and also contribute to the basic objective of debt lengthening. Advance refunding could also be used as a means

<sup>30</sup> Bank of Canada, "Annual Report of the Governor to the Minister of Finance, 1958," pp. 3-4.

<sup>31</sup> See report of a speech by Julian B. Baird, Under Secretary of the Treasury for Monetary Affairs, to the stockholders of the Federal Reserve Bank of Boston, *New York Times*, Oct. 16, 1959.

<sup>32</sup> For a discussion of the tax problems connected with advance refunding and of the legislation designed to deal with these problems, see "Public Debt Ceiling and Interest Rate Ceiling on Bonds," *op. cit.*, pp. 30-31, 84-87.

of dealing with some \$24 billion (publicly held portion) of 2½ percent bonds issued during World War II and having first call dates ranging from 1962 to 1967 and maturity dates ranging from 1967 to 1972. At the present time, however, the implementation of such a program of advance refunding is impossible due to the fact that it would require the payment of interest rates in excess of the 4¼ percent legal ceiling applicable to Treasury securities with maturities beyond 5 years.<sup>33</sup>

Used carefully and in moderation under proper conditions, advance refunding can be a useful way of attaining a more viable debt structure. However, a massive conversion operation such as was undertaken in Canada would appear to be unwise. A series of cautious and piecemeal operations can accomplish the same results without entailing such heavy interest costs as the Canadian Government was forced to pay. In fact, the U.S. Treasury appears to have in mind a more cautious and experimental approach.<sup>34</sup>

#### *Use of call provisions*

The presence of a call feature in a Treasury security gives the Treasury greater possibilities of being able to take advantage of favorable movements of interest rates in future years. The Treasury has issued non callable securities in the last few years.<sup>35</sup> Call features are commonly included in corporate securities, and several Federal and State regulatory agencies follow a firm policy of requiring a provision for immediate callability or a short deferment period, together with a low call premium, in securities issued by companies under their jurisdiction. Recent studies suggest that the presence of a call privilege in corporate bonds is not reflected to any very significant extent in an increase in the interest rate on the bonds.<sup>36</sup> It seems likely that the inclusion of call features in Treasury securities would commonly be well worth the extra immediate cost involved.

#### *Establishment of captive markets for Treasury securities*

From time to time, it has been suggested that certain types of financial institutions, most commonly commercial banks, should be required to hold Government securities to the extent of a certain portion of their assets or liabilities.<sup>37</sup> Such provisions would have a number of effects, one of which would be to establish captive markets for Treasury securities, presumably reducing to some extent the cost and trouble involved in managing the debt.

Those who have advocated provisions of this kind in the last few years have ordinarily done so on the grounds that they would contribute to the effectiveness of monetary controls rather than because they would reduce the costs of debt management.<sup>38</sup> For example, it

<sup>33</sup> In November 1959, the Treasury engaged in a minor bit of advance refunding. In September 1957, it issued \$2 billion of 4-percent notes due Aug. 15, 1962, which could be redeemed in February 1960, at the option of the holder on 3 months' notice. In the November financing, holders of these notes were given an opportunity to exchange their securities for 4½-percent notes of November 1963; \$1,684 million of the original notes were exchanged, \$157 million were redeemed for cash, and the remaining \$160 million were held for redemption in 1962. (Treasury Bulletin, December 1959, pp. A-1 ff.)

<sup>34</sup> See report of speech by Mr. Baird in New York Times, Oct. 16, 1959.

<sup>35</sup> In the case of two issues of notes which were sold in 1957, the Treasury actually provided for redemption at the option of the holder after a specified period of time on 3 months' advance notice.

<sup>36</sup> See W. J. Winn and A. Hess, Jr., "The Value of the Call Privilege," and the accompanying discussion by J. A. Pines in Journal of Finance, XIV (May 1959), pp. 182-195 and 218-227.

<sup>37</sup> For a recent discussion of such provisions as applied to commercial banks, see Joseph Aschheim, "Supplementary Security-Reserve Requirements Reconsidered," Journal of Finance, XIII (December 1958), 473-487.

<sup>38</sup> In the period right after World War II when the Federal Reserve was supporting the prices of Government bonds, on the other hand, there was considerable support for a secondary reserve requirement for commercial banks in the form of Government securities as a means of permitting the Federal Reserve to restrict credit and push up interest rates on private debt without depressing the prices and raising the yields of Government securities.

has been argued that a secondary reserve requirement in the form of Government securities applied to commercial banks might be helpful, because it would make it more difficult for banks to shift the composition of their portfolios from Government securities to loans during periods when the Federal Reserve is trying to restrict credit.<sup>39</sup> In the opinion of the present writer, there is a presumption against the establishment of legal requirements concerning the holding of Government securities by financial institutions merely for the purpose of reducing the Treasury's interest costs. If such requirements are to be put into effect, it should be done for the reason that they make the financial mechanism perform more satisfactorily—by increasing the effectiveness of overall monetary controls, improving the allocation of credit, or making controls more effective in dealing with a sector of the economy which is a source of instability.<sup>40</sup>

#### *Improved marketing techniques*

The Treasury relies rather heavily on the advice it receives in consultations with professional investor groups in deciding on the maturity ranges in which to issue securities, as well as on the interest rates and other provisions to be incorporated in its issues. While the information obtained as a result of consultations with investor groups is unquestionably useful to the Treasury, there is much to be said for the development of more extensive facilities on the part of the Treasury itself for assessing the market for Government securities on a continuing basis and for engaging in a vigorous program of sales promotion. It might be possible to make use of the district Federal Reserve banks and their branches as one channel for developing more extensive contacts with investors. It seems possible that a vigorous educational and sales promotion program could substantially broaden the market for Treasury securities by increasing the participation of individual investors, as well as smaller financial institutions located in places remote from the centers of finance.

As a matter of fact, recent developments in debt management indicate an increasing interest in Treasury securities on the part of individual investors, apparently as a result of increasing yields. The most striking evidence of this is to be found in the reception accorded the so-called "magic 5's"—an issue of 4-year, 10-month marketable 5-percent notes issued in October 1959—which took the market by distinct surprise and aroused nationwide attention.

On October 1, 1959, the Treasury announced a plan to raise about \$4 billion in a cash offering. The offering consisted of \$2 billion of 245-day tax anticipation bills to be sold on an auction basis and \$2 billion of the aforementioned 5-percent notes. The note issue was designed specifically to appeal to small investors. The Treasury promised that all subscriptions up to \$25,000 would be honored in full if accompanied by cash payment. In addition, holders were given the option of registering their securities as a protection against loss or theft and as a means of obtaining interest payments directly without going through the standard coupon-clipping procedure. The 5-percent rate, the highest paid by the Treasury in over 30 years,

<sup>39</sup> For example, see my paper, "On the Effectiveness of Monetary Policy," *American Economic Review*, XLVI (September 1956), 588-606.

<sup>40</sup> Some suggestions for selective controls along these lines are made in "Staff Report on Employment Growth, and Price Levels," *op. cit.*, ch. 9.



received front-page attention in many newspapers and was reviewed extensively over radio and television news broadcasts—an unusual phenomenon for a Treasury financing operation.

Subscriptions to the note issue totaling over \$11.1 billion were received from an estimated 130,000 subscribers including about 110,000 small investors. The allotment exceeded \$2.3 billion including \$100 million to the Treasury investment accounts. The fully paid subscriptions of \$25,000 or less, which were allotted in full, totaled \$941 million. Savings type investors were allotted 45 percent of their \$1,361 million of subscriptions, commercial banks were allotted only 8 percent of their \$6,390 million of subscriptions, and all other investors obtained 5 percent of \$2,433 million in subscriptions, with all subscribers receiving at least \$1,000 of the notes.<sup>41</sup>

It seems likely that to some extent investors redeemed savings bonds in order to buy the 5-percent notes. To the extent that this occurred, the Treasury experienced an increase in interest costs without any net gain in funds available. Funds were also undoubtedly withdrawn from other savings media—such as savings deposits and savings and loan shares—for investment in the notes. As a result of the episode of the 5-percent notes, there was considerable apprehension on the part of savings institutions concerning the impact of future Treasury debt management actions.

The experience with the “magic 5’s” suggests that by offering sufficiently attractive interest rates the Treasury may be able to tap the flow of individual saving directly. In the past it has secured a portion of this flow through the savings bond program and through the sale of marketable securities to savings institutions which in turn obtained their funds by selling their claims to investors. However, marketable securities may be more attractive—especially when interest rates are relatively high—to many investors than savings bonds, and savings institutions have generally been channeling their funds into private investment rather than into Government securities. It seems likely that the market for Treasury securities among individual investors could be substantially expanded by a vigorous educational and sales promotion effort.

#### *The savings bond program*

In September 1959, the Congress raised the maximum permissible interest rate on series E and H savings bonds (the only series now being sold) to 4½ percent, the same as the maximum rate for marketable securities having maturities in excess of 5 years. Taking immediate advantage of the legislative authorization, the Treasury raised the yield to maturity on these bonds from 3¼ percent to 3½ percent.<sup>42</sup> Despite earlier improvements in the yields and other terms of savings bonds in May 1952 and April 1957,<sup>43</sup> the increases in other interest rates had reduced the attractiveness of the bonds, with the result that the savings bond program had been a serious cash drain on the Treasury for several years, as indicated earlier.<sup>44</sup> Unlike earlier improvements in terms, those that were put into effect in September 1959, applied to a limited extent to bonds already outstanding as well

<sup>41</sup> Treasury Bulletin, October 1959, p. A-1.

<sup>42</sup> For details, see Treasury Bulletin, October 1959, pp. A-2 ff.

<sup>43</sup> See Treasury Bulletin, May 1952, pp. A-1 ff., and May 1957, pp. A-1 ff.

<sup>44</sup> See ch. III.

as to bonds issued subsequently.<sup>45</sup> In November 1959, the Treasury announced a plan, effective January 1, 1960, which would permit investors who switch from series E, F, or J bonds (which pay interest at maturity or when they are redeemed) to series H bonds (which pay interest every 6 months) to defer the payment of income tax on the accrued interest on the E, F, or J bonds until the H bonds mature or are redeemed prior to maturity.<sup>46</sup>

It remains to be seen whether the increase in yields on savings bonds will make them sufficiently attractive to investors to eliminate or reduce substantially the cash drain that the program has imposed on the Treasury. In addition to a further increase in interest rates, another device that might be resorted to would be the issuance of bonds whose redemption value (and interest payments, if any) are tied to the Consumer Price Index. A scheme of this kind could, of course, be applied to marketable securities also, but the savings bonds seem to be the most eligible candidate. The chief danger with the introduction of so-called purchasing power bonds would be that it might be interpreted as a sign that the authorities had become convinced that an upward drift of the price level was inevitable. It is not clear, however, how serious this danger would be, and on balance there is much to be said for the view that it is a proper function of the Government to provide the small, unsophisticated investor with a form of investment which contains protection against the erosion of his wealth through inflation.<sup>47</sup>

#### THE INTEREST RATE CEILING

The interest rate ceiling of  $4\frac{1}{4}$  percent applicable to Treasury securities having maturities in excess of 5 years (i.e., all Treasury bonds) has been in effect since World War I.<sup>48</sup> Until recently the interest rate ceiling was of no more than academic interest, since interest rates were for many years below the levels where the ceiling constituted a meaningful restriction on the Treasury's freedom of action. But interest rates have been moving upward, except for relatively brief periods of recession in 1949, 1953-54, and 1957-58, during the entire postwar period, and particularly since the vigorous revival of flexible monetary policy beginning in 1953. By mid-1949, interest rates had risen to such a high level that it had become impossible for the Treasury to borrow longer term funds at rates below the ceiling.<sup>49</sup>

The interest rate ceiling is an arbitrary limitation with no analytical justification, and it should accordingly be repealed. However, the ceiling has become a major political and economic issue, because it

<sup>45</sup> A summary of the changes in the terms of existing bonds is given in Treasury Bulletin, December 1959, pp. A-4 ff.

<sup>46</sup> For the details, see Treasury Bulletin, December 1959, pp. A-3 ff.

<sup>47</sup> For an argument in support of purchasing-power bonds, see H. S. Houthakker, "Protection against Inflation," Study Paper No. 8.

<sup>48</sup> The  $4\frac{1}{4}$ -percent ceiling was first applied to both notes (i.e., securities with maturities of 1 to 5 years) and bonds in the Third Liberty Bond Act of April 1919. Subsequently, in March 1918, in response to a request by Secretary of the Treasury Carter Glass for complete removal of the ceiling, the Congress in the Victory-Liberty Loan Act eliminated the ceiling as applied to notes but kept it for bonds. See "Public Debt Ceiling and Interest Rate Ceiling on Bonds," op. cit., pp. 14-16.

<sup>49</sup> The Treasury has the right to sell securities at a discount, and it would accordingly be possible to circumvent the ceiling by selling bonds with a coupon of  $4\frac{1}{4}$  percent (or less) at a price sufficiently below par to provide a yield which would make them attractive to investors. However, the Secretary of the Treasury has taken the position that it is not proper to circumvent the ceiling in this way. See "Public Debt Ceiling and Interest Rate Ceiling on Bonds," op. cit., p. 18.

symbolizes an important controversy concerning economic policy. The administration and the Federal Reserve in advocating repeal of the interest rate ceiling have contended that the present high level of interest rates is the result of the working of inexorable economic laws under conditions in which the demand for goods and services is pressing on the capacity of the economy and inflation is threatening, and that we are faced with a simple choice of letting interest rates continue to rise and adjusting the Treasury's borrowing costs upward accordingly, or else of interfering with the working of fundamental economic forces, thus producing catastrophic inflation. Little recognition is given to the fact that there are other ways of dealing with inflation besides the simple application of restrictive general monetary policy. We could, for example, place more reliance on fiscal policy and selective credit controls and less reliance upon restricting the growth of the total supply of money and credit; under such a policy interest rates would be lower than under a policy which placed greater emphasis on general credit restriction. Nor is any serious attention apparently paid by the advocates of general monetary policy to the contention that these controls have an uneven impact on the economy and that in the present economic environment they may serve to keep down the level of employment and the rate of economic growth without coming to grips with the problem of inflation in an effective way.<sup>50</sup>

The existence of the interest rate ceiling has probably done little damage thus far, since the Treasury would probably have done very little borrowing in maturity ranges beyond 5 years in recent months in any case. Nevertheless, as indicated earlier in this study, lengthening of the debt is an objective of some importance, and it would be desirable for the Treasury to be free to achieve what it can in this respect at all times. Removal of the interest rate ceiling would therefore be desirable, but a fundamental reexamination of our present stabilization policies is even more important.

<sup>50</sup> These arguments concerning the effects of general monetary controls are spelled out in "Staff Report on Employment, Growth, and Price Levels," *op. cit.*, ch. 9.