Treasury-Federal Reserve Study of the
U.S. Government Securities Market

NEW TECHNIQUES IN DEBT MANAGEMENT SINCE THE LATE 1950'S

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APPENDIX

New Techniques in Debt Management Since the Late 1950's

As in other fields, new techniques and innovations in debt management were developed to meet specific needs. Some of these needs were already well established by the late 1950's while others evolved later, but all are related to fundamental and continuing debt management objectives. The basic functions of Treasury debt management are to borrow for expenditures not covered by revenues and to refinance maturing obligations. Of equal importance is the role of debt management in achieving major national policy goals--the promotion and maintenance of sound noninflationary growth in the domestic economy and progress toward balancing our international accounts. There are also a number of subsidiary objectives: to achieve and maintain a well balanced debt structure; to provide debt instruments designed to meet market and nonmarket requirements; to minimize the interference of debt management action with the execution of Federal Reserve monetary policy; and to hold interest costs to a minimum within a framework consistent with all other goals. A recent addition to these aims is the coordination of Treasury and Federal Agency financing within the context of broad economic policy objectives.

Historical Summary

Innovations in the Treasury Bill Area

Toward the Fall of 1958 the Treasury became increasingly concerned over the lack of receptivity in the market, even to short-term offerings. Faced with the huge increase in the deficit in fiscal 1959, the Treasury

felt that much of it, out of necessity, would have to be financed in the money market area of Treasury bills. At that time, only 91-day bills were being issued except for the seasonal tax anticipation bills. In expanding the amount offered each week to increase the total volume of the 91-day bills outstanding, the Treasury ran the risk of not having the offering adequately covered by subscriptions. Instead, by lengthening the maturity of the bills, it was felt that the same amount offered each week would be able to support a proportional increase in the volume outstanding. For example, $1 billion of 13-week bills offered each week would keep $13 billion outstanding and $1 billion of 26-week bills could maintain $26 billion outstanding, etc. Conversely, it would take only $1/2 billion of 26-week bills to keep $13 billion outstanding. Accordingly, these considerations led to the introduction of the 6-month bill in December 1958. The 26-week bill was not intended as a substitute for the 13-week bill. While the weekly shorter bill offerings were reduced, they were continued for those investors preferring the most liquid Treasury borrowing instrument.

Developing a full cycle of 6-month bills while cutting back on 3-month offerings was a relatively slow process in a period of pressing and immediate needs. Thus, the quarterly 1-year bill cycle involving amounts of $2 billion in each issuance was introduced in the Spring of 1959 to fill that gap. In order to interfere as little as possible with certificates generally offered in the quarterly refinancings of mid-February, May,

August, and November, the 1-year bill was designed to mature in mid-January, April, July, and October.

During the period through 1959, the currencies of most free world industrial countries had become convertible or fixed in terms of gold and/or dollars. Due to increases in the U.S. balance of payments deficit the Treasury lost gold steadily and increasingly. The rising excess of outgo over income resulted mainly from our military commitments, foreign aid, tourism, export of capital, and more particularly, the lure of higher interest rates abroad following currency convertibility. To discourage the flight of short-term funds seeking higher rates overseas after the onset of the 1960-61 recession, bill rates were prevented from declining to the low levels that had been reached in earlier post-war recessions.

In 1961 the procedure familiarly called "operation twist" was undertaken jointly by the Federal Reserve System and the Treasury. The System's role was to divert part of its open market operations for monetary expansion into the coupon issue area, including maturities longer than 1 year. By so doing, the System would be helping to hold long-term interest rates down to spur the domestic economy, while refraining from putting downward pressure on short-term rates. Debt management's part in the process was to increase the supply of bills: first, in the conventional way by increasing offerings of regular bills; and second, by offering bill strips from time to time. These strips consisted of a simultaneous addition to a number of consecutive weekly maturities of existing bills. The announcements stipulated that tenders had to include in one bid equal amounts of

each maturity offered in the strip. The complicated nature of the bidding for the strips tended to discourage all but the most sophisticated bidders. As a result, bill rates rose more rapidly than with the more gradual system of increments to a whole cycle of regular bill offerings.

In the meantime the quarterly 1-year bill had not been enthusiastically received by the market and its later performance in the next several years was relatively spotty. To diminish its impact on the market the Treasury reached the decision in 1963 to reduce the amounts in each offering substantially but increase the frequency of the offerings.

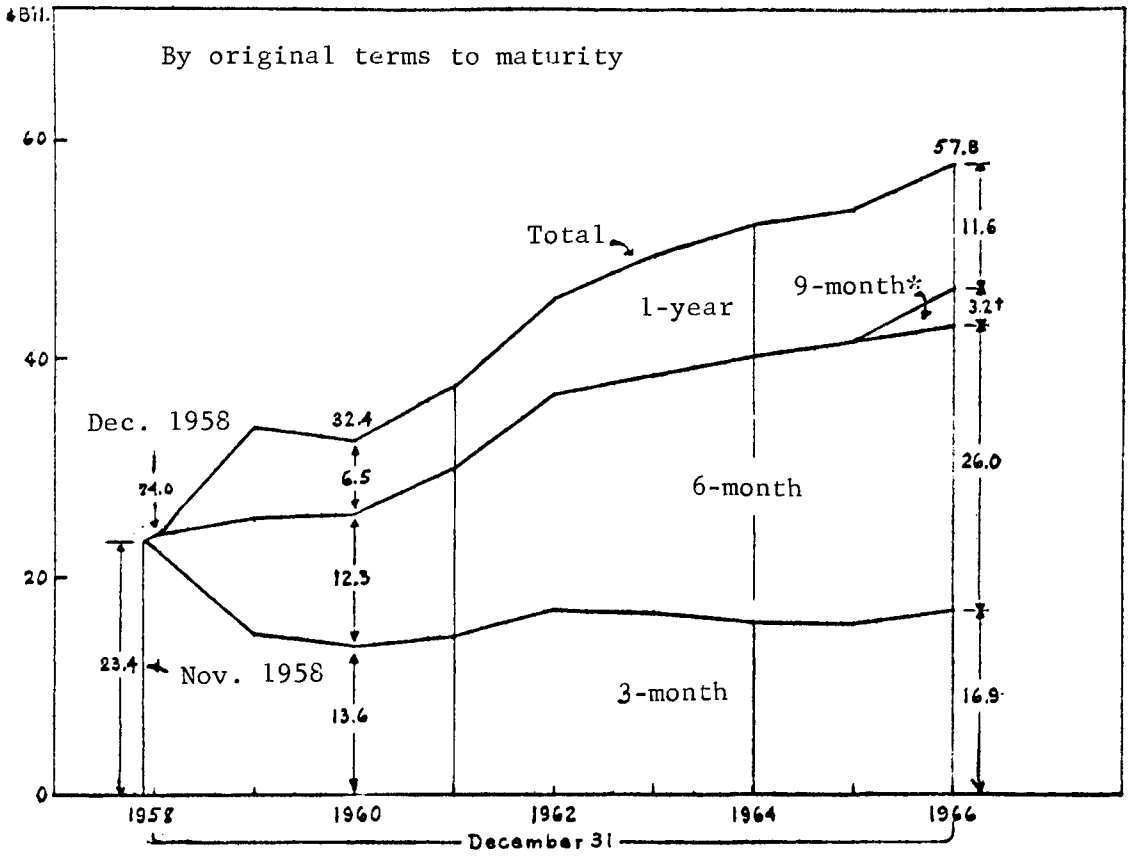
Accordingly, the quarterly cycle of 1-year bills was converted into a monthly cycle beginning in August 1963. Although the amounts offered were cut back about 60%, the greater frequency of offerings in the conversion permitted an appreciable over-all increase in the amount of 1-year bills outstanding on the completion of the cycle.

The initiation of the month-end annual bill had an important effect on Treasury debt management choices and decisions in the short-term coupon issue area. It virtually replaced the 1-year certificate which had been the basic "anchor" issue in the quarterly refinancings. Instead, except for one offering of certificates in August 1966 the Treasury has issued short-term notes of 15 to 21 months' maturity. In addition, the pricing of these short-term notes has been strongly influenced by the results of the 1-year bill auctions immediately preceding a financing.

In early September 1966, following announcements that Federal borrowing from the public, including Agency borrowing, would be cut back and sales of PC's would be postponed until the credit markets improved, the Treasury embarked upon a new month-end cycle of 9-month bills to raise part of its current cash needs. At the same time the 1-year segment of the monthly cycle was reduced slightly. Including the strip of three 9-month bills offered last November, only 2 monthly issues remained by the end of the year, to complete the 9-month cycle.

Chart 1

GROWTH OF REGULARLY ISSUED TREASURY BILLS



*Includes $1.2 billion strip of 4, 5, and 6-month bills issued in November.

†Includes $.4 billion dated Dec. 31, 1966, delivered Jan. 3, 1967.

Chart 1 shows the composition of outstanding bills by original term to maturity. In early December 1958 just before the inception of the 6-month bill, regularly issued 3-month bills totaled $23.4 billion. By the end of 1966 the regular weekly and monthly bills outstanding amounted to $57.8 billion--an increase of $34.4 billion. Of the $57.8 billion total, $16.9 billion or 29% were originally issued as 3-month bills, $26.0 billion or 45% were 6-month bills, and the combined 9-month and 1-year bills were $14.8 billion or 26%.

By and large the 2-1/2 fold expansion of regularly issued bills occurred without straining the absorptive capacity of the market and the added choices of maturities played a significant role in the orderly distribution of the expanded volume.

Discount Issuance of Coupon Securities

In 1958 the Treasury actively explored the question of issuing coupon securities at a discount. At that time the General Counsel of the Treasury held that public debt legislation enacted soon after U.S. entry into World War II overrode an earlier provision against offering a security at less than par. Also in 1958 the Attorney General rendered an opinion in concurrence with the Treasury General Counsel which stated that it was clearly the intent of Congress to give the Secretary greater flexibility in the issuance of Treasury obligations. Accordingly, the Treasury began to offer coupon issues at a discount late in 1958. Although reasonably

certain that such issuance was legally possible, the Treasury did not exercise the option until 1958, mainly because it was felt that below par offerings would not be favorably received by the market.

The principal advantage of discounting coupon issues is that it enables the Treasury to "fine tune" the yields on its offerings to make them more attractive. Pricing equally close could, of course, be accomplished by providing the next higher coupon rate at a premium. This has been done on a number of occasions over the years. In practice, however, it was found that investors were generally loath to pay over par for a closely priced offering in a somewhat cautious market environment.

One advantage to the investor of offering issues below par is that the discount can usually be treated as a capital gain if the issue is held to maturity. Moreover, the discount price can be treated as the cost basis for determining a gain (or loss) if the issue is sold before maturity. This is of no advantage to nontaxable investors and is not a very important advantage to taxable holders ordinarily, because there are definite limits to the allowable amount of discount at original issue, which would be permitted capital gain treatment. Section 1232 of the 1954 Internal Revenue Code spells out this limitation.

Under Section 1232 "If the original issue discount is less than 1/4 of 1% of the redemption price at maturity, multiplied by the number of complete years to maturity, then the issue discount shall be considered to be zero."

However, if the discount at original issue is 1/4% or more of the maturity value for each full year to maturity the discount is treated as ordinary income. For example, if a 2-year note held to maturity is issued at a price of 99.50, the .50 discount would be treated as ordinary income for tax purposes, but at a price of, say, 99.51, the .49 discount would be treated as capital gain.

According to the tax code, under original issue discount (i.e. the 99.50 example above), any gain on subsequent sale--up to the prorata amount of the discount based on how long the issue has been held--would be considered ordinary income. Suppose that in the first example above, where a 2-year note was issued at 99.50, the original investor sells the note for 99.75 at the end of one year. The prorata part of the discount for the time he has held the note is .25, or one-half of the issue discount. Since his gain is .25, all of it is ordinary income. If the gain were less all of it would still be ordinary income, but if it were more the excess over .25 would be a capital gain. If the second buyer then holds the note to maturity and redeems it at 100 (face value), the prorata share of the discount for the second year would also be .25, and the second investor's gain would also be all ordinary income.

The trouble with an original issue discount obligation is that, when it is traded in the secondary market, the proration of the discount has to continue to be taken into account. For odd periods of holdings and at varying purchase prices, this could create numerous problems.

In this connection, an anomalous situation developed with an issue of Treasury notes in 1964. In the regular quarterly refunding of February in that year, the anchor issue offered by the Treasury was an 18-month 3-7/8%

note at a discount price of 99-7/8. Since the discount was less than 1/4% of the par redemption price at maturity, it was not considered original issue discount for tax purposes. In the following April, the Treasury reopened the 3-7/8% note to raise needed cash, but this time the price was 99.70 because the market had softened. The .30 discount in this case, however, was original issue discount and therefore, in the market, the additional issue of 3-7/8's was not truly identical to the February issue. In order to differentiate between the two, the additional issue had to be stamped and during the remaining term to maturity the market had to provide separate quotations for each part.

However, the right to issue certificates, notes, and bonds at a discount has served the Treasury well. Within the limitation precluding original issue discount treatment for tax purposes, it was found desirable to issue securities at a discount on many occasions. In all since the practice was introduced in 1958, discount issuances have totaled about $97 billion of coupon obligations for cash or in exchange for maturing securities.

Cash Refunding

In the Fall of 1958 and throughout 1959 the Treasury also experienced a rapid rise in the proportion of maturing issues which public holders turned in for cash, instead of accepting attractively priced exchange offers. This, of course, is a natural consequence of a rising interest rate environment, in which investors believe that alternative instruments are more remunerative or that the offered issues may subsequently be obtained at lower cost in the market.

In either case, the Treasury was faced with an increasing volume of attrition at a time when, in addition to massive refunding requirements,

large amounts of new funds were needed. To meet this development, the Treasury announced in March 1960 that holders of succeeding maturities would not necessarily have the pre-emptive right to an exchange offer. Instead, the Treasury at its discretion would pay off maturing issues with funds obtained by offering an approximately similar amount of new securities for cash subscription.

One of the problems which arose from the use of the cash refunding technique was related to the roll over of maturing issues held by official accounts. In a rights refunding when a coupon issue matures, the Federal Reserve and the Government Investment Accounts generally roll over their holdings into the new securities offered, while other investors subscribe for as many of the new issues as they wish. In the case of new cash financings the Federal Reserve does not participate at all while the Government Accounts have usually been allotted a predetermined amount in full, generally $100 million or less. All other investors are subject to percentage allotment except for minor amounts to small subscribers allotted in full. In the case of cash refundings the Treasury had to find a way to accord the same treatment to the holdings of the Federal Reserve and Treasury Accounts as in rights refundings; otherwise their subscriptions would be subject to percentage allotment as would those of all other subscribers. In that event, the Federal Reserve and Treasury (for the Government Investment Accounts) would have to guess the correct percentage allotment, or else these official investors would acquire either more or less of the new securities than their holdings of the maturing issues. In either case, mainly with respect to the Federal Reserve's allotment, there would be an unwanted effect on the money

market of unpredictable extent: toward ease if more were acquired than held, or toward restraint if less were acquired.

The problem was resolved first by allowing all investors to turn in their maturing securities to pay for the new issues, and second by including in one category all official-type holders whose subscriptions would be allotted in full. These accounts, as listed in the first cash refinancing announcement of the August 1960 maturities, include: States, political subdivisions or instrumentalities thereof, public pension and retirement and other public funds, Government Investment Accounts, the Federal Reserve Banks, international organizations in which the United States holds membership, foreign central banks, and foreign states.

Beginning with the November 1963 cash refunding, the Treasury announced that subscribers entitled to full allotment would be required to certify that the amounts of their subscriptions do not exceed the amounts of their holdings of eligible securities immediately prior to the announcement. The stipulation is intended to prevent any of the listed holders from buying up the eligible issues after the announcement to acquire a larger amount of an attractively priced offering, possibly for speculative purposes.

Other factors in cash refundings, as in offerings for new cash, such as maximum allowable subscriptions, cash deposits, allotment ratios, and minimum allotments have been varied to suit particular conditions.

The cash refinancing procedure has a number of advantages over rights refundings. In a cash operation the Treasury determines how much of one or

more issues it wants to offer. Thus, the technique offers flexibility in that additional cash can be raised by offering more than the total amount maturing, or if attrition is desired, the exact extent of it can be predetermined. By the same token, unwanted attrition, which may occur in a rights refunding, can be avoided. In addition, with more flexible control over subscriptions and allotments, excessive speculative activity can be more easily held within bounds.

There are two principal advantages of rights over cash refundings. First, an investor knows exactly how much of a new issue he will be allotted in a rights operation. This is preferred by the relatively smaller, less sophisticated investor who would have to guess the allotment ratio in a cash refunding and pad his subscription accordingly. If the guesses on allotment ratios are too small, investors may end up with much more of the new securities than they wanted. Hence, smaller banks and other institutional investors are ordinarily more inclined to participate in rights refundings than in cash operations.

The second basic advantage of rights is that the market rather than the Treasury determines the amount taken of each issue when two or more options are provided. When the Treasury sets the amounts of each issue offered in a cash refunding there is some tendency to limit the size of the longer option for fear that it will not be adequately covered. For that reason longer options may be made arbitrarily small, or may be eliminated entirely. Thus, rights refundings tend to maximize debt extension.

The Treasury has made extensive use of the cash refunding technique. Since its inception in August 1960 through last November, there have been 26 quarterly refinancings. Of these, 10 were cash operations.

Advance Refunding

In early 1959 when the rapid economic expansion which started in the Spring of 1958 was in full swing, the Treasury became increasingly convinced that alternative methods of debt extension to bring about a better balance in the maturity structure of the marketable debt would have to be explored. Strenuous and fairly successful efforts had been made to lengthen the debt in the period between September 1957 and January 1959, but the inexorable passage of time rendered the success quite temporary. In the ensuing period of rapid upturn in market rates of interest, the normal methods of debt extension through cash offerings or refundings at maturity were strongly felt to be costly and inadequate if, indeed, they were possible at all.

In the normal course of events, as longer-term issues shortened, they gravitated into the hands of intermediate and short-term holders, mainly commercial banks and corporations. Finally, when the issues matured, short-term holders were not inclined to accept long-term bonds in exchange; thus in rights refundings--the usual type of operation up to that time--a reverse transfer of maturing issues to long-term investors became necessary. Except in a period of falling interest rates, there was little chance for substantial amounts of long-term offerings to be taken. The method hit upon as promising truly significant amounts of debt extension, with a minimum impact on prevailing longer-term rates, was advance refunding. In an advance

refunding the Treasury offers holders of existing issues, which are not due to mature for some time, the opportunity to exchange their holdings for longer issues.

In the summer of 1959, legislation was introduced to modify the tax code sufficiently to ease and simplify advance refunding operations for many investors who would otherwise be unwilling to exchange. The legislation provided for nontaxable exchanges in advance refundings, when so stipulated by the Secretary of the Treasury. Accordingly, in most cases investors could carry over the cost basis of their issues eligible for exchange, to the new issues offered. Generally Federal and State supervisory authorities followed the Treasury's lead in allowing such accounting treatment and under the provision many institutional investors, including those not subject to tax, could take advantage of the exchange offer without having to show a substantial book loss on the old issues being replaced. In essence, the nontaxable exchange provision postponed any gain (or loss) effect until the new securities were subsequently sold or redeemed.

Another impediment to successful advance refunding operations was removed by the new legislation. It provided that the issue price of the old security would become the issue price of the new, which precluded treating the new issue as having been offered at an original issue discount for tax purposes. In many cases, without the new provision any subsequent profit on the sale of the new securities would have been converted from a capital gain into ordinary income.

After the groundwork had been completed, the Treasury tried a pilot advance refunding in June 1960. The operation was considered a success and led to the full scale advance refunding of October 1960. At that time the Treasury issued a "white paper", Debt Management and Advance Refunding, in which basic concepts were discussed. It indicated that "Senior" advance refundings, such as the 1960 operation, should involve outstanding issues maturing between 5 and 12 years whose holders would be offered long-term bonds of 15 years and over. "Junior" advance refundings, such as the June 1960 operation, would involve outstanding issues maturing between 1 and 5 years whose holders would be offered medium-term issues in the 5 to 10-year maturity range. Thus, the longer outstanding issues in a senior refunding would be replaced by the new issues offered in a junior refunding, leaving the 1 to 5-year area open to regular refundings of maturing issues and cash offerings. It was felt that in this leapfrog process the ownership pattern of the outstanding issues would remain relatively undisturbed, market churning would be reduced, and the upward pressure on longer-term interest rates would be much smaller than with conventional refundings at maturity.

In addition, since advance refundings are not subject to any predetermined schedule, the Treasury can choose the most opportune time for such operations in relation to the market environment and to other debt management objectives. Moreover, unlike refunding at maturity, attrition is no problem because there is no expectation that nearly all of the publicly held portion of an eligible issue will be exchanged and no cash pay off of the remainder is involved. Thus, the Treasury runs little risk and any appreciable amount extended not only improves the

debt structure but also reduces the refunding burden when the issue finally matures.

While the precepts regarding the leapfrog principle generally continued to be observed, the role of advance refunding was gradually expanded beginning in 1962. First, junior and senior type offerings were included within one operation. Second, the mechanics of advance refunding were applied to outstanding issues maturing within 1 year, with the objective of reducing large concentrations of early maturities to facilitate regular refinancing when they finally came due, and later such short-term issues were included with junior advance refundings. Third, outstanding issues maturing in 5 years or less were made eligible for exchange into long-term issues. And fourth, the scope of advance refundings was greatly enlarged in terms of the number of eligible issues in one operation and the amounts of these issues in public hands.

Advance refunding into long-term issues was effectively prohibited when market yields rose above the 4-1/4% interest limitation on bonds in the Fall of 1965. Since then the technique has been combined with regular refundings and has been limited to the advance refunding of issues maturing within 6 months into notes coming due within 5 years.

Even a brief history of advance refunding would be incomplete without including a description of its evolution into a formidable debt restructuring tool through conceptual changes and the development of subsidiary techniques.

At first the choice of outstanding and offered issues was limited, by and large, to those which could be accommodated on a straight par for par basis. It was felt by some that any adjustment payments to, or by, the subscriber would complicate the operation beyond the chance of success. However, such adjustment (or "boot") payments were successfully introduced in the third advance refunding. Thereafter, boot payments made possible a much wider choice of eligible and offered issues and, in fact, led to advance refundings in which as many as nine eligible issues were exchangeable for any of three offered issues.

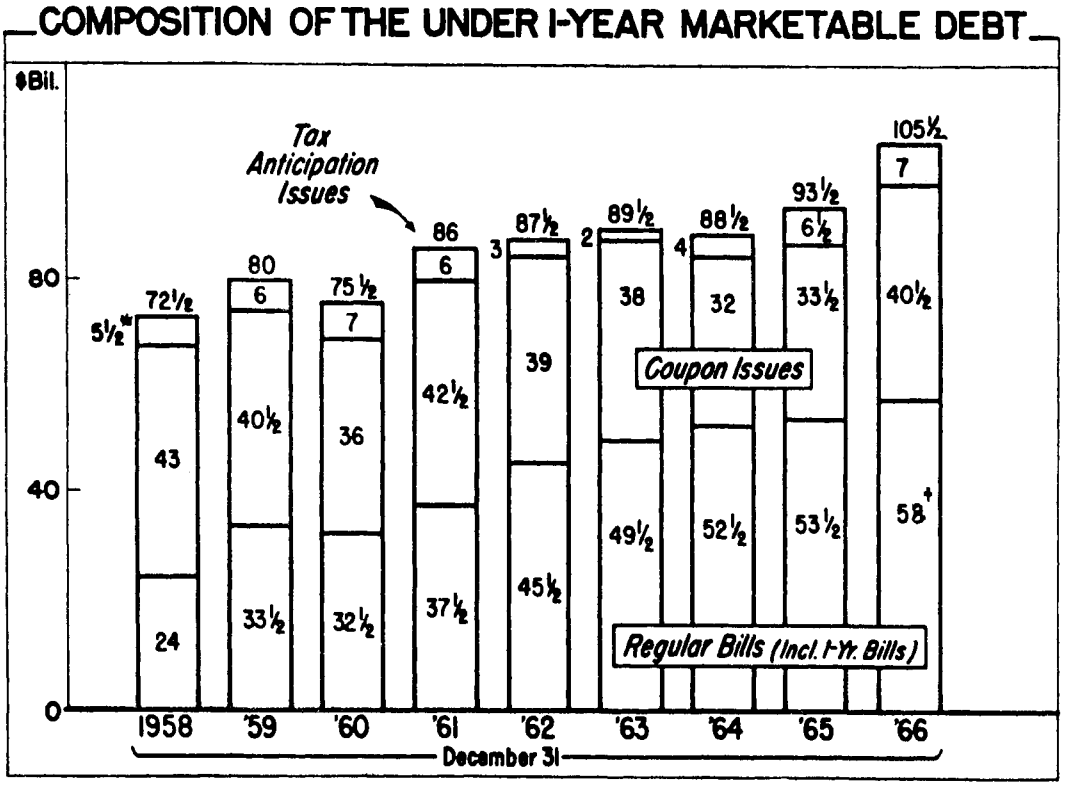
By the time of the March 1962 advance refunding, Congressional questions and criticisms against the new technique led to hearings before the Senate Finance Committee on March 14 and 16. Criticism centered particularly on the senior refundings in which World War II tap 2-1/2's had been replaced by the Treasury with long-term 3-1/2% bonds. The apparent increase in cost to the maturity date of the old issues was considered too great to be offset by the subsequent likely saving in interest. On the other hand, there seemed little or no opposition to junior refundings since the eligible issues would have had to be refunded relatively soon anyway. No truly senior advance refunding has been attempted since 1962.

Another development resulted from the advance refunding of under 1-year maturities. Making the offered issues attractive in some cases

produced substantial "rights" values for the eligible issues. Holders of "rights" unwilling to exchange were thus encouraged to sell in the market and to invest the proceeds temporarily in bills. This had the effect of depressing bill yields when the Treasury was actively seeking to increase such yields for balance of payments reasons. After the first experience the sale of additional bills at such a time or the announcement of intention to sell bills was effectively used to prevent any substantial bill rate declines.

The prerefunding of near maturities and junior advance refundings had other important aspects. By removing large blocks of early maturities,

Chart 2



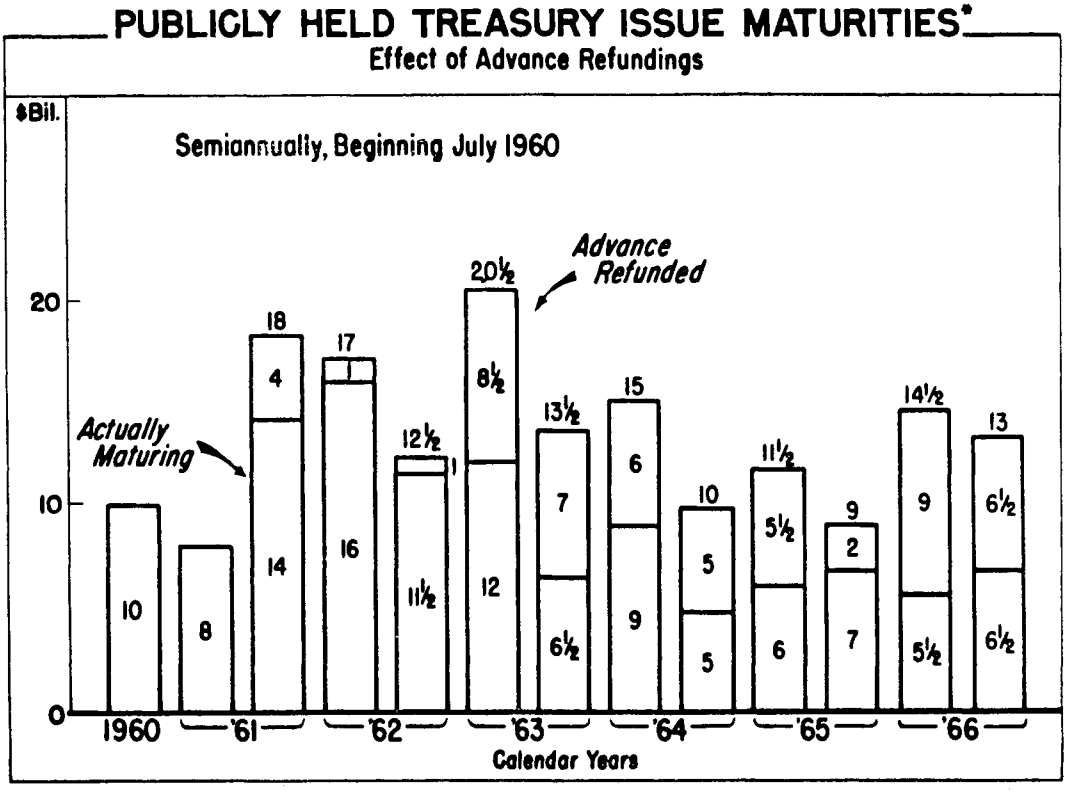
*Includes $2.7 billion of special bills maturing May 15, 1959.

†Includes $.4 billion of 9-month bills dated Dec. 31, 1966, delivered Jan. 3, 1967.

room was made for expanding the volume of regular bills without an undue increase in short-term debt maturing within 1 year. As shown on Chart 2, this procedure was effective in holding the under 1-year marketable debt from 1958 through 1965 to an increase of $21 billion. The volume of coupon issues declined from $43 billion to $33-1/2 billion in that time, while regular bills grew by about $30 billion.

The sharp curtailment of advance refunding following the January 1965 operation was chiefly responsible for the rapid buildup of under 1-year debt during 1966. In addition to making room for bills, advance refunding greatly reduced amounts of short-term issues in public hands by breaking up large concentrations of early maturities. This is clearly illustrated by Chart 3. From the second half of 1961 through 1966 the volume of

Chart 3

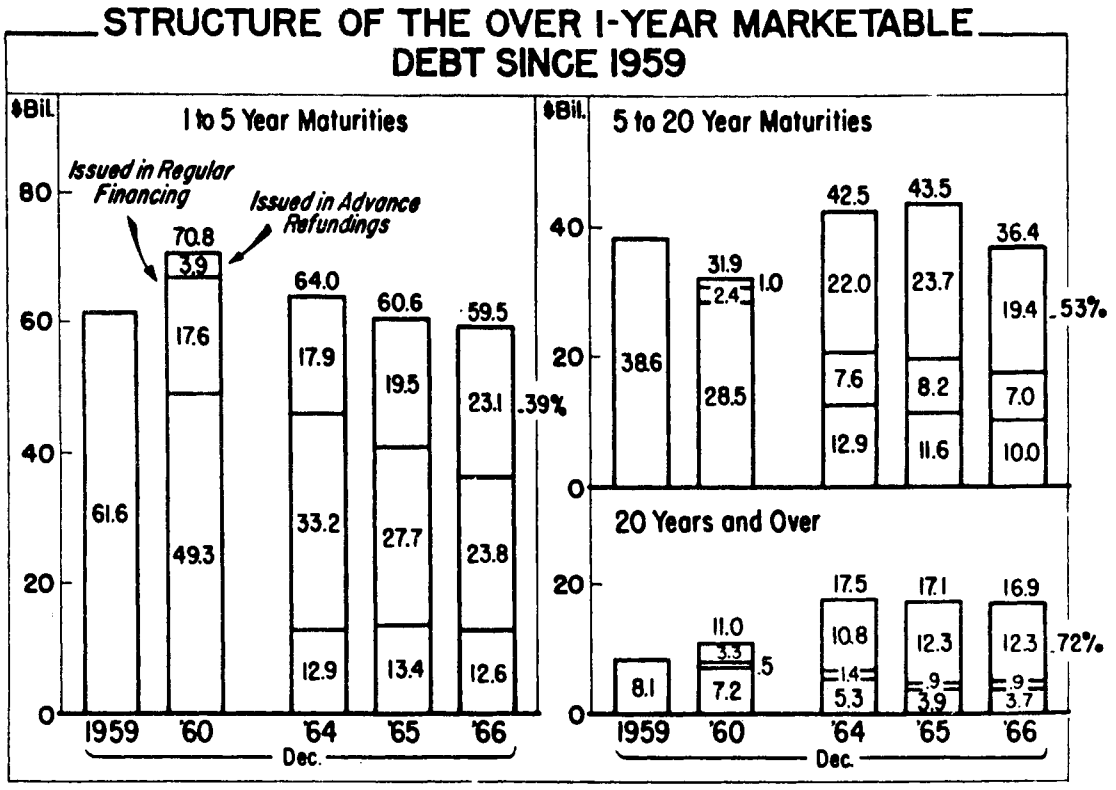


*Excluding regular weekly and 1-year bills and tax anticipation issues.

maturing issues held by the public was diminished by from $1 to $9 billion, or an average of $5-1/2 billion for each semiannual period. By 1963, following the inception of prerefunding, in which issues maturing within 1 year were made eligible for advance refunding, the regular refunding burden was sharply reduced. By 1964 the publicly held amounts to be rolled over each half-year had declined to some $5 to $7 billion. Having these smaller amounts greatly facilitated the quarterly refunding operations and, indeed, in some cases, made cash refundings easily successful when, otherwise, they might have been risky, if not impossible altogether. Moreover, the actual amounts by which early maturities were reduced, understate considerably the true contribution of advance refunding to easier regular refunding. Without such reductions, most of the much larger original maturities, of necessity, would have been rolled over into short-term issues requiring refunding again after a year or two.

In some cases so much of an eligible issue was extended through advance refunding that the publicly held portion appeared too small for more than one option in the regular refunding at maturity. It was felt in such cases that if the resulting longer issue was too tiny, its market characteristics would be impaired. While this, of course, was true, it is clear that advance refunding in doing a good job of debt extension had, in effect, already provided additional longer options.

Chart 4



The part played by advance refunding in restructuring the over 1-year marketable debt is amply demononstrated on Chart 4. By the end of 1959 the most vulnerable segment of intermediate and long-term debt, the 1 to 5-year maturities, had increased to $61-1/2 billion. This portion of the debt poses the constant threat of spilling down into the under 1-year category. When the Treasury is foreclosed by the 4-1/4% bond limitation from extending beyond 5 years, this sensitive area of the maturity structure is likely to grow. By December 1960, 1 to 5-year debt grew to nearly $71 billion from $40 billion 5 years earlier. The $9 billion growth in 1960 occurred partly as a result of the pilot advance refunding in June that year, while

the big October senior refunding had no effect in that maturity area.

Thereafter, however, advance refunding played a very significant role in increasing longer maturities. As late as December 1966, advance refunding had accounted for 72% of the $17 billion in 20-year or longer bonds outstanding, and for 53% of the diminished 5 to 20-year maturities. Even in the 1-5 year area 39% of outstanding issues had originated in advance refundings.

In summary, the importance of advance refunding in improving the structure of the marketable debt can scarcely be exaggerated. From June 1960 through January 1965 nearly $68 billion of securities was extended into longer-term issues in 11 operations--an average of $6.2 billion per operation, of which $5.7 billion was publicly held. The scope of advance refundings gradually increased during the period. By combining as much as $26-1/2 and $22 billion of publicly held eligible issues in the July 1964 and January 1965 operations, the Treasury brought about the extension of more than $18 billion of those securities. Yet, despite these massive doses of debt extension and the upward pressure of the continuing economic expansion beginning in 1961, the impact on long-term interest rates was modest. Rates on long-term Governments rose only moderately and private long-term rates very little, if at all. Not until July 1965 following the escalation of the war in Vietnam, did interest rates begin to rise sharply.

Bond Auctions

In 1962 the Treasury made arrangements and set forth rules for selling entire issues of long-term bonds through competitive bidding to underwriting groups. Immediately following each auction, the winning syndicate was to reoffer the bonds to the investing public at a price determined by the underwriters. The procedure, in essence, was similar to the normal method of selling corporate and municipal bonds through competitive bidding.

In these long-term bond auctions, the Treasury expected there would be at least 3 very large bidding groups, although under the rules, no acceptable group was prohibited from bidding. Each of these syndicates included some of the big primary Government security dealers and dealer banks, as well as other dealers, brokers, and banks willing to be affiliated with the major members of the group. The basic idea behind the organization of these large marketing groups was to spread the risk of handling a large issue and to ensure as wide a distribution as possible of the bonds to the investing public.

The first auction for $250 million bonds was held in January 1963. In its invitation to bid the Treasury announced that the bonds could carry either a 4 or 4-1/8% coupon rate, would come due in 30 years, and would become callable after 25 years. The winning syndicate bid a price of 99.85111 per $100 for the bonds as 4's of 1988-93 at an interest cost to the Treasury of 4.008%, and the bonds were reoffered at par. The reoffering was a success

in that the underwriters were able to dispose of the securities, terminate price restrictions, and dissolve the selling group in two days.

The Treasury held the second auction in April 1963 for $300 million of bonds. The invitation to bid called for either 4's or 4-1/8's of 1988-94, and the winning bid was 100.55119 on a 4-1/8% coupon at an interest cost of 4.093%. The bonds were reoffered at 100.75 to yield 4.082%. However, this issue proved more difficult to sell than the first auction offering and remained bound by syndicate restrictions for some time. It so happened that the chances for the second offering to achieve a quick sell-out were substantially dampened by the announcement of an impending large telephone issue on the day of the Treasury auction.

The interest cost to the Treasury on the auction bonds was probably less than if they had been sold in regular financings. The yield spread on each of the auction issues was 8 basis points above prevailing Treasury market rates as compared with an average spread of about 12 basis points for regular Treasury offerings.

The new auction method of selling long-term bonds created a number of problems. First, the underwriting risk was great because the Government bond market is extremely sensitive to economic and political news of all kinds, both domestic and foreign. Thus, the underwriters could not stand much exposure. Second, obtaining advance commitments from prospective investors was likely to be difficult, particularly in a cautious market

environment. Third, the Government bond market is so broad and one long-term Treasury issue is so much like another, that market stability in the maturity area of the new issue could not be successfully maintained by the winning syndicate. Stabilizing the market would be very difficult, especially if the other market professionals were to sell the issue short. And fourth, the attitude of the Federal Reserve in maintaining an "even keel" during the auction and early reoffering period could not be expected to continue indefinitely.

As a result of the problems involved, the long bond auction has not been used since April 1963. At the time, market circles held strongly that the risks of competitive bidding for an entire issue of long-term bonds were too great even if the amounts offered were limited to $300 million or less.

Participation Certificates

The sale of participation issues as a debt management tool originated in 1953 mainly as part of a generalized program to hold down the Federal debt subject to statutory limit, but the budgetary effect was also recognized. The first PC's, the Commodity Credit Corporation certificates of interest, were (and still are) short-term instruments of participation in a pool of crop loans. They have been taken mostly by commercial banks, are subject to redemption on demand, and are guaranteed by the CCC.

For a number of years the CCC certificates of interest were the only

PC's offered by the Federal Government, except for a small RFC issue in 1954 which was liquidated 2 years later. Ordinarily CCC PC's result when crop loans are taken over by banks or other financial institutions, instead of being presented for payment by the Government. In that way the CCC PC's reduce expenditures for loans in addition to holding down the debt.

In fuller explanation, the proceeds of PC sales have a two-fold fiscal effect: When deposited in the general fund balance, the proceeds diminish the Treasury's refunding or new borrowing needs. Thus, the public debt is reduced or prevented from increasing as much as it would have without the PC's. The explanation of the effect on budget expenditures is more complicated. The money for most Federal credit programs is drawn from revolving funds set up under Congressional authorizations. Drawings by the agencies represent borrowings from the Treasury and as these agencies make loans to the public, the funds used become budget expenditures. The process is reversed when loans are repaid by the public or are sold to private investors, or when PC's are issued. As the repayments, or proceeds of outright sales or of PC's, are deposited in the Treasury's balance they become negative budget expenditures, and at the same time agency indebtedness to the Treasury is reduced. It should also be stressed, however, that PC sales represent some replenishment of loanable funds for the credit programs.

To stem the rising tide of private loans and mortgages held by the Government, outright sales of financial assets had been actively pursued

under some programs. However, these were nowhere near large enough to affect the overall rapid growth of Federally financed credit to the public. To study this and other related problems, the President appointed a Committee on Federal Credit programs, with the Secretary of the Treasury as Chairman. The Committee submitted its report in February 1963 and among its many recommendations, the report strongly urged that private financing should be substituted for public credit, whenever it was feasible to do so. In this regard the sale of participations in pools of Federal Agency held loans and mortgages seemed to promise the speediest approach for implementing the Committee's recommendation.

Even before the Federal Credit Committee report, the Export-Import Bank of Washington in 1962 began to issue certificates of participation against a pool of selected foreign loans in its portfolio. These certificates were originally 10-year obligations (later 7-year) with semiannual level amortizations of principal to coincide roughly with the amortization schedules of the loans in the pool. The certificates were offered only to commercial banks, mainly those with a substantial interest in foreign loans. By the terms of the offerings, the Eximbank PC's had limited negotiability, in that the banks originally subscribing, could sell only sub-participations to correspondent banks or other affiliated institutions. To make up for this lack of liquidity, the participations were made subject to redemption in part or full at the option of the holder, or of Eximbank, beginning 2-1/2 years from issue date. As a source of funds, additional issues of PC's were

sold by the Eximbank from time to time without appreciably changing the basic terms of the instrument.

In pursuance of the Federal Credit Committee recommendation on an enlarged role for private credit, active consideration began to be given to expanding the scope of participation offerings. After intensive study, legislation was introduced and enacted in September 1964 empowering the FNMA to act as trustee for pooling Federal Agency held mortgages as the backing for a new type of PC offering. In effect, these PC's represented the sale of the interest and principal payments on the mortgages. Accordingly, the PC's were arranged to mature serially to correspond with the payments inflow. In the mortgage field, PC's have distinct advantages over outright sales: they remove the risk of mortgage default; they eliminate servicing costs; they attract investors otherwise not interested in mortgages directly.

The mortgages involved in the first PC offerings were from FNMA's Management and Liquidation and Special Assistance portfolios and from the portfolio of the VA. FNMA sold the initial PC offering in November 1964, as a $300 million, 10-year serial issue with $30 million maturing each year.

The marketing arrangement as originally set up has remained essentially unchanged. PC offerings are awarded by FNMA to one very large underwriting syndicate, which in turn reoffers them to the investing public at prescribed interest rates and prices. The rate and price for each of the maturities making up the issue is determined by negotiation between the syndicate and

FNMA, with Treasury concurrence. This includes a scale of underwriting charges or commissions for each of the serial maturities paid by FNMA.

Aside from rates and prices, the terms and conditions of the FNMA PC's posed a number of market problems. For example, some of the serial maturities were unpopular and hard to sell; the amount of each serial maturity was small, making dealer operations in the secondary market difficult and risky; although negotiable, the PC's were all registered, requiring more time for transfer and handling; and the guarantee by FNMA, though backed by a letter from the Secretary regarding Treasury willingness to lend funds to FNMA for servicing the PC's if necessary, was not considered by some to be fully binding legally.

After the first few offerings, the receptivity of the market to FNMA PC's declined in the rapidly rising interest rate environment following the enlargement of the war in Southeast Asia. During the same period the environment for Eximbank offerings weakened as demand for bank credit increased sharply. Despite attempts to make the Exim-type PC's more attractive by reducing the time when they could be redeemed by holders and by making them eligible for Federal Reserve discount, the Eximbank found it increasingly difficult to sell PC's at reasonable rates of interest.

Meanwhile, to further increase the role of private credit and in view of the greater need for funds primarily as a result of the war, plans for an expanded PC program went forward, culminating in the Participation Sales

Act of 1966, passed in May. Under the statute the potential coverage of credit programs subject to inclusion in participation pools was substantially enlarged. To provide for Congressional control, the Act requires Congressional approval through appropriations for any insufficiency of the pools to the servicing of the PC's. In addition, the legislation authorizes the Treasury to coordinate the PC offerings with its debt management operations and to approve the direct sales of certain financial assets. The programs and Agencies listed in the Act are:

Direct loans of the Farmers Home Adminstration, Department of Agriculture, relating to farm operations, farm ownership, housing, and soil and water;

Loans for academic facilities by the Office of Education, Department of Health, Education and Welfare;

Loans and mortgages held by the Department of Housing and Urban Development except those related to secondary market operations of FNMA;

Loans and mortgages held by the Veterans Administration;

Loans held by the Eximbank;

Loans held by the Small Business Administration.

According to the House Banking and Currency Committee report on the participation sales bill, the level of all direct Federal loans outstanding on June 30, 1966, was estimated at $33.3 billion, assuming all PC sales contemplated in the January 1966 budget document were completed. Of this amount, however, only some $10 to $11 billion of financial assets are in the programs listed in the Act.

During the second quarter of 1966, as market rates of interest generally increased,

yields on Federal Agency issues and PC's rose sharply relative to Treasury market rates as private and public credit demands soared. Federal Agencies were faced with greatly increased demands from those unable to borrow from banks and other sources. In consequence, the agencies, particularly the Home Loan Banks, FNMA, and the Farm Credit agencies, increased their market borrowing. Together with the expanded PC program called for by the budget for fiscal 1967, these demands created a very depressed and unhealthy atmosphere in the credit markets. By late August the markets had become so severely tightened that interest rates rose to the highest levels in 40 years or more.

In this situation the Administration acted vigorously to dispel apprehension and to ease pressures on the money and capital markets. In addition to other measures, the President, on September 9, 1966, requested the curtailment of agency borrowing. The next day the Secretary of the Treasury announced that scheduled sales of PC's would be postponed until the credit markets improved, and any new money for agency needs in excess of maturities would be provided by the Government Investment Accounts.

As a result of official measures to relieve pressures, interest rates dropped quickly and the tightness in the money and capital markets gradually eased. Toward the end of the year, the environment was considered appropriate for FNMA to announce the first offering of PC's following the early September postponement. Additional legislation providing Congressional authorization to meet insufficiencies of interest from the loan pools to service PC interest payments was enacted in September.

In the meantime, while market receptivity to the growing volume of PC's was reaching a low ebb during the summer of 1966, meetings were held among market participants, representatives of the Treasury, the Budget Bureau, FNMA, and other interested Agencies, to discuss measures for improving the market characteristics of PC's. Most of the suggestions made by the market professionals were adopted for the FNMA PC's announced in December. These included: The concentration of one offering into as few as two or three separate maturities, instead of small annual serial maturities; Optional bearer or registered forms of the certificates; Denominational exchanges of coupon issues to be provided by the Federal Reserve Banks of New York, Chicago, and San Francisco; Wire transfer facilities between these major money market centers; and an opinion by the Attorney General that PC's are full faith and credit instruments of the United States.

Beginning in 1962, sales of participation certificates through 1966 totaled about $5-3/4 billion. Of this amount about $4 billion remained outstanding on December 31, 1966, after redemptions, amortizations, and maturities. The shift of these amounts from Federal to private credit has required some degree of experimentation. By and large, however, there is reason to think that thrcugh adequate coordination with Treasury debt management and Federal Agency borrowing operations, PC's can play a useful and beneficial fiscal role.

The history of debt management innovations would be incomplete without mentioning developments in the area of nonmarketable Treasury securities. Although such issues do not have a direct impact on the market, they have important effects in changing the supply of marketable issues and in carrying out broad debt management and national economic policy objectives.

Savings Bonds

By the Spring of 1959, the Savings Bond program was faltering and in evident trouble. Sales of E and H bonds had declined from $5.3 billion in fiscal 1956 to $4.5 billion in 1959, and the net cash drain, the excess of redemptions over sales, reached more than $.6 billion in the latter year.

Twice before, in 1952 and again in 1957, the Treasury had raised savings bond rates by small fractions of 1%: first, from 2.9 to 3% to maturity in May 1952 and then from 3 to 3-1/4% in February 1957. As rate competition for savings sharpened, the 3-1/4% became clearly inadequate. Accordingly, the Treasury requested legislation permitting the rate to maturity on savings bonds to be increased to 3-3/4% beginning in June 1959. The enacted legislation raised the maximum allowable savings bond rate to 4-1/4%, provided the President found that the increase would be in the national interest.

At the same time, the Treasury also asked for and was granted statutory permission to raise future earning rates on all outstanding E and H bonds. Under this innovation, earning rates for the remaining period to next maturity were increased generally by 1/2 of 1%, the same increase as provided on new E and H bonds to maturity. The higher rates on outstanding bonds eliminated any incentive to switch out of old bonds into new ones and greatly reduced incentives to move out of savings bonds altogether. In asking the Congress for permission to raise earning rates on outstanding bonds the Treasury also felt that it has something of a trusteeship function

on behalf of millions of individual savers who do not follow interest rate trends closely, and that on the grounds of equity these holders were entitled to the increased earning rates.

The new rates worked quite well in bringing a turn-around in the program and between June 1959 and June 1965 the value of outstanding E and H bonds increased by over $6 billion. During this period, the relative stability of long-term interest rates was a strong factor in sustaining the performance of the program.

In the Fall of 1965 as competition for savings intensified, E and H bond sales were again flagging and redemptions rising. In consequence, the Treasury asked the President to raise the maturity rate on new bonds from 3.75 to 4.15% and increased the earning rates on outstanding bonds to next maturity by .4%. Despite the extreme intensification of the competition for savings in 1966, the E and H bond program performed remarkably well after the announcement of the improvement in savings bond rates in February 1966. In the 10 months to the end of the year after February, the amount of E and H savings bonds outstanding grew by nearly $1.0 billion to $50.2 billion, for a total increase of $7-1/2 billion in the 7-1/2 years from mid-1959 to December 1966, for an average growth rate of $1 billion per year.

Coincidentally, the average rate of growth in E and H bonds outstanding during the past 20 years, although anything but constant, was also $1 billion a year, or a total of about $20 billion. This is $20 billion the

Treasury did not have to raise in the market, making possible an $8-1/2 billion decrease in all other publicly held Federal debt during that period instead of an $11-1/2 billion increase.

Foreign and Foreign Currency Series Securities

Foreign Series: Nonmarketable securities issued to foreign central banks and governments, payable in dollars, were introduced in August 1961 under the authority of the Second Liberty Bond Act. These issues include certificates, generally 3 months to maturity; 1 to 5-year notes; and bonds which in practice have had maturities between 1 and 7 years. Most foreign series securities have been issued for special purposes.

In general, the foreign series certificates were made redeemable in whole or part at the option of the holder on 2 days' notice, and longer issues were usually made convertible into 3-month certificates. In special cases certain over 1-year maturities have been redeemable at the option of the U.S. while others, by prior agreement, were made subject to redemption before maturity. In all cases payments on early redemption are at par.

The principal purposes of the foreign series securities have been: to insulate certain large transactions from having a major impact on the U.S. Government securities markets; to provide issues which are not subject to market risk; to furnish longer-term investment media for facilitating certain types of bilateral financial arrangements; to finance currency swap agreements; and to induce long-term capital inflows which improve the U.S. balance of payments position.

Although not all of these purposes are common to all transactions, they are interrelated. For example, in a swap transaction, West German marks may be obtained by the U.S. in exchange for dollars. Instead of using the dollars to buy a large block of marketable issues, the German central bank might invest in nonmarketable foreign series 3-month certificates at the going rate on 3-month bills. The Deutschemarks received in exchange by the U.S. would thus increase foreign exchange reserves for payments purposes or for protecting the position of the dollar.

The nonmarketable foreign bonds issued in 1964 to Canada in connection with the Columbia River project and treaty provide an example of the use of longer-term foreign series securities for bilateral financial arrangements. The agreement called for project funds to be raised in the U.S. and accordingly $254 million was turned over to the Canadian Government, which then transferred $204 million in Canadian dollars to the British Columbia Government to pay for construction costs. $50 million of the $254 million U.S. dollars was used to pay off U.S. commercial bank loans to British Columbia. The remaining $204 million U.S. dollars was invested by the Canadian Government in nonmarketable U.S. foreign series nonconvertible bonds, to prevent the transaction from having an immediate balance of payments impact. The bonds were arranged to mature serially in equal amounts over 7 years and as the bonds are paid off, the U.S. dollars received are added to Canadian foreign exchange reserves.

The outstanding amount of foreign series issues grew to a peak of nearly $1.2 billion in November 1965. Since then, they declined to about

$600 million by the end of 1966. Of this amount, nearly $330 million was in over 1-year convertible issues which do not enter into the U.S. international payments deficits on the "liquidity balance" basis.

Foreign currency series: In October 1961 the Treasury began to sell nonmarketable securities payable in foreign currencies to official foreign entities. Like the nonmarketable foreign issues payable in U.S. dollars, the authority to provide these securities stems from the Second Liberty Bond Act. The use of such issues originated during World War I when Treasury certificates of indebtedness denominated in Spanish currency were given in payment for war material purchased in that country.

Originally, foreign currency series securities could be either certificates of indebtedness with maturities of 1 year or less, or bonds not limited in any way as to the term to maturity. Issuing foreign currency bonds gave the Treasury full leeway to provide maturities upwards of 1 year as long as the interest rates paid remained under 4-1/4%. Since the rates on foreign currency issues have generally been determined by market yields on Treasury issues of comparable maturity, the statutory 4-1/4% interest limit effectively foreclosed the issuance of bonds when market rates rose above that level. Accordingly, the Treasury requested legislation, which was passed in November 1966, to permit also the issuance of foreign currency series notes having original maturities of 1 to 5 years.

Most foreign currency certificates have had an original maturity of 3 months, usually subject to redemption on 2 days' notice. The longer issues

have generally had original maturities of 15 to 24 months and most were made convertible into 3-month certificates, or redeemable, usually at the option of the holder. Others were made payable before maturity according to prior agreement or were callable by the U.S. Treasury. In all cases of early redemption, payments are at par.

The basic purposes of the new foreign currency issues were to provide a supply of foreign exchange for conducting operations to defend the U.S. dollar, to help cushion demands on the U.S. gold stock by adding a new investment medium for foreign central banks and governments, and to assist in meeting U.S. balance of payments deficits. In addition, the foreign currency securities have proved to be a useful device for temporarily augmenting international liquidity.

The more immediate developments leading to the introduction of foreign currency issues started in 1959, after a number of major countries had moved to currency convertibility. This greatly increased the potential for large scale flows of funds from the U.S. to foreign markets seeking higher rates of return. In turn, such movements could create exchange rate difficulties and produce an adverse impact on the balance of payments.

As the U.S. continued to sustain balance of payments deficits, foreign official efforts to stabilize exchange rates produced a flow of dollars into the hands of central banks in countries with favorable payments balances. Most of these dollars were invested at interest in short-term marketable issues to satisfy liquidity needs. Although these investments represented

a reduction in potential drain of U.S. gold, they did not fully meet other needs.

The foreign currency series securities not only furnish another investment alternative, thus helping to reduce the demand for U.S. gold, they also directly provide the U.S. with foreign currency needed to protect the dollar against speculation and to meet day to day requirements arising from trade, tourism, foreign aid, military commitments abroad, etc. Ordinarily foreign currency is bought with dollars. But in a situation of sustained balance of payments deficits, the purchase of foreign exchange with dollars would only increase the amount of dollars in foreign hands. The technique of borrowing foreign currency avoids the build up of foreign dollar holdings.

In addition to providing foreign exchange, foreign currency issues maturing beyond 1 year count as long-term investments, which bring U.S. international accounts into closer balance on the generally accepted "liquidity balance of payments" basis when nonconvertible bonds or notes, which cannot be optionally exchanged for certificates or redeemed before 1 year are issued.

For the most part, aside from being liquid earning assets to central banks and governments, issues payable in foreign currencies are riskless in that they protect the lender against exchange risk.

Up to the present time foreign currency issues have been denominated in Austrian schillings, Belgian francs, German marks, Italian lire, and

Swiss francs. The volume of foreign currency series outstanding rose to a peak of $1.3 billion in September 1965 but by the end of 1966 the amount had declined to $860 million. Of this amount about $750 million is subject to redemption or conversion at the option of the holder.

Market Impact and Analysis of Major New Techniques*

Innovations in the Treasury Bill Area

By the end of calendar 1966, regularly offered Treasury bills (excluding the seasonal tax anticipation series) had risen to nearly 2-1/2 times the amount outstanding at the beginning of December 1958, from $23-1/2 billion to $57-3/4 billion. This $34-1/4 billion rise is by far the largest growth in any category of the public debt over the same period and represents more than 70% of the increase in the total public debt. The increase in the volume of Treasury bills since 1958 has taken place during two expansions of the economy and one recession. By and large it has occurred without undue strains on the money market excepting early in 1960 and more recently, last September, at the crests of the interest rate cycle. To a considerable degree the successful expansion program is the result of careful use of the new techniques and innovations.

The 6-month bill: The 6-month bill did not achieve full market acceptance immediately. Originally the new bills were offered in $400 million amounts each week while offerings of 3-month bills were reduced from $1,800 to $1,600 million. By June 1959, when the Treasury upped its offerings of 6-month bills to $500 million while the 3-month offerings had declined to $1.0 to $1.2 billion, average discount rates on new 3 and 6-month bills had moved up sharply and the spread between them had climbed from an average of about 25 basis points in the first few auctions to a high of 81 basis points.

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* Background tables and other material will be found in the appendix section.

In consequence, the $500 million 6-month bill cycle was not completed until the second half of calendar 1960. By that time the peak of interest rates had been passed and the economic recession was well under way. (See Appendix table 1 on 3 and 6-month bill auction rates.)

The low point in Treasury short-term borrowing rates was reached in April 1961 with the average auction rate at 2.18% for 3 months and 2.30% for 6 months. By contrast, in the 1957-58 recession the 3-month bill low point was .64%. In the current economic expansion, short-term rates did not really begin to rise until after the first bill strip offering in June 1961 and after the supply of 6-month bills was increased to $600 million per week.

By the late Spring of 1961, the 6-month bill was achieving full market acceptance. The coverage ratio, that is, the ratio of subscriptions to allotments, was averaging nearly 220% as against about 180% for the 3-month bill. This occurred despite the increase in the weekly offerings of 6-month bills to $500 million while the 3-month offerings had been gradually reduced from $1.8 billion before the introduction of the longer bill, to mostly $1.1 billion in 1961. During the period from the cyclical high in rates in January 1960 to mid-1961, the spreads in average discount rates between the two maturities had declined to about 15 basis points, indicating a growing awareness of the greater gain potential in the longer bills. (Appendix table 3.)

Also during this period, bidding in the 6-month auctions became increasingly sophisticated. From 1959 to mid-1961, the range in an auction

from the average of all successful bid prices to the stop-out, the lowest accepted bid, narrowed significantly. Expressed in terms of yields, the range from the average bid rate to the stop-out rate declined from 4 basis points to 1 basis point.

While the decline in average rate spreads between the 3 and 6-month bills may well be attributed to expectations of greater gains on the longer bills in a falling interest rate environment, the increased concentration of bids more clearly demonstrates market acceptance of the 6-month bill.

By the end of 1963, following the Federal Reserve discount rate increase from 3 to 3-1/2%, rates in the weekly auctions had also risen to 3-1/2% or more. The increase in rates reflected the enlarged volume of weekly offerings as the amounts of 3-month bills issued each week had grown to $1.3 billion and 6-month bills to $.8 billion. As a result of a $1.0 billion bill strip in October 1963, which added $100 million to 10 weekly maturities in the 26-week cycle, the total volume of weekly bills outstanding had increased to $38.5 billion, of which bills originally 6 months to maturity accounted for $21.8 billion or about 57%.

Despite the growth in the volume of the longer bills and the increases in interest rate that had taken place between mid-1961 and December 1963, the rate spreads in the auctions between the two maturities declined from about 25 to 13 basis points. At times the spreads reached as low as 3 and averaged 15 basis points during the period. In corroboration of the

market's receptivity of the 6-month bill in a rising interest rate environment, the high concentration of bids around the auction averages continued without significant change.

In 1964 offerings of 6-month bills were gradually increased to $1.0 billion per week by the Fall, while the 3-month bill was reduced from $1.3 billion to mostly $1.2 billion. Rates in the auctions had moved close to 4% after the discount rate increase in November, but during 1964 average spreads did not rise above 20 basis points and were usually considerably less. Subscription coverage on the longer of the two maturities had slipped a little but was still close to 190% during the 4th quarter of 1964 as compared with about 175% on the 3-month. The bids on 6-month bills continued to be closely bunched around the average rate and the yield range between the auction average and the stop-out was usually less than 1 basis point. By this time, also, dealer net positions in over 92-day bills were running 2 to 3 times as large as in shorter bills. It is quite likely that with an upward sloping yield curve continuing in the short-term area the market felt there was still a greater propensity for gain in the longer bills.

Despite the escalation of the War in Vietnam in July 1965 the situation with respect to the usual measures of market receptivity did not change appreciably. During this period rates on 3 and 6-month bills gradually rose and were about 4-1/8 and 4-1/4% by early December before the discount rate was increased to 4-1/2%.

Following the discount rate rise, bill rates again rose rapidly and after a pause during the first half of 1966, jumped to the highest levels in 40 years. In the meantime, dealer net positions in bills dwindled in response to expectations of higher rates in the short-term area and by June 1966 they were at the lowest points since such statistics became available in 1960. Weekly offerings of 3-month bills had again increased to $1.3 billion but the spread between the two maturities gradually widened and reached a high of 50 basis points in early September 1966, during the period of extreme tightness that developed in the credit markets. Two weeks later, following vigorous action by the Administration to allay apprehensions and relieve the pressure of Federal Agency borrowings and PC offerings, the average levels in the auctions reached peaks of 5.59% on the 3-month bill and 6.04% on the 6-month. The jump in bill rates was touched off by the realization that a part of the burden of Government financing and foregone PC sales would have to be borne by the bill market. Market hesitance in the auctions was demonstrated by the widened range from the average rate to the stop-out, which in the case of 6-month bills fluctuated sharply from 1 to more than 6 basis points in the 3rd quarter. Oddly enough, however, during this period the ratio of subscriptions to allotments on both the 3 and 6-month bills remained remarkably constant, hovering around 170% for the 3-month bill and around 200% for the 6-month.

In the Fall of 1966, as tightness in the credit markets was gradually eased, bill rates began to decline and with that, the spreads between average rates on 3 and 6-month bills in the weekly auctions dropped to less

than 10 basis points by the year end. In further evidence of the return to more normal conditions, the range of bids from the average to the stop-out was reduced to less than a basis point in November and December. At the same time, dealer positions in bills maturing beyond 92 days rose sharply, indicating again the greater gain potential on longer bills.

In summary, the market has adjusted extremely well to the increased volume of 6-month bills. In the process, the amount of weekly bills outstanding grew from $23-1/2 billion in December 1958 at the start of the 6-month bill cycle to nearly $43 billion at the end of 1966. $26 billion, 60% of the total, originated in 6-month bills. During the same period the weekly offerings increased only from $1.8 billion to $2.3 billion.

The 1-year bill: The 1959 offerings in the first quarterly cycle averaged about 330 days to maturity, amounting to $2.0 billion per quarter. Each offering was adequately covered by the subscriptions with an average coverage ratio of 176%. This is not surprising because payment through tax and loan account credit was permitted. The new bill cycle was expensive by comparison with coupon issue rates in the market. The 4.20% average bank discount rate in the auctions adjusted to a coupon equivalent basis of 4.41% was 38 basis points more than comparable coupon issue yields. And that did not include the value of the tax and loan account credit created, which would have added an estimated 31 basis points to the spread. It should be recalled, however, that 1959 was a year of rapidly rising interest

rates, an environment not very conducive to the successful introduction of a new instrument. (For detail on annual bills see Appendix table 4.)

On the first rollover of the 1-year bill cycle in January 1960 the amount of the issue was cut back to $1.5 billion. Despite this, the cost of the January 15, 1960, 1-year bill (average discount rate) was 5.07%, equivalent to a coupon yield of 5.36%. This was the highest rate of interest paid by the Treasury for any issue in the 1958-61 interest rate cycle.

The next 1-year bill auction in April 1960, with $2.0 billion offered, resulted in a coupon equivalent yield of 4.84% but produced a spread of 1.03% above the comparable 1-year coupon issue rate. This was the largest spread in the quarterly cycle, if the value of tax and loan account credit in the first four auctions in 1959 is disregarded. The apathetic bidding in this auction is easily seen in the range of bids from the average to the stop-out, a high for the 1-year bill cycle of 13 basis points in terms of yield. Thereafter, the amounts in the next 3 offerings were cut back to $1.5 billion, but were restored to $2.0 billion through July 1962. During this period the coverage ratio picked up from an average of 148% in the first two auctions of 1960 to 209% in the next three, but ranged from 173% to 208% when offerings were increased to $2.0 billion. Following the cutbacks to $1.5 billion, the concentration of bids around the average returned to more normal ranges.

For the remaining years of the quarterly cycle through July 1963, the

amount offered in 3 of the 4 quarters was raised to $2.5 billion while the other quarter stayed at $2.0 billion. Thus, by the time the monthly cycle was introduced, the total amount of annual bills outstanding had risen to $9.5 billion. During this period the coverage ratio did not change significantly on the average but other measures indicated improving market acceptance.

For the quarterly cycle as a whole, nonbank dealer awards ranged from 19 to 35% of total public allotments--excluding the offerings paid through tax and loan account credit, which were awarded almost entirely to commercial banks. The average of 25% for nonbank dealer awards to total allotments for the quarterly bills compares with 21% on 3 and 6-month bills during the same period. This indicates a greater participation of sophisticated bidders for the 1-year bills.

From July 1960 to July 1963 the average range of bids in the quarterly auctions from the mid-point to the stop-out declined to about 1/2 of 1 basis point. However, the coupon equivalent rate spreads fluctuated sharply, ranging from 4 basis points less than 1-year coupon issue yields to 52 basis points more. The higher spreads generally coincided with efforts to raise short-term rates to be more competitive with rates abroad.

The $1.0 billion per month cycle which began in August 1963 met a much better market reception than the quarterly cycle. The subscription coverage averaged about 225% from the Fall of 1963 through the end of 1964. While this is not significant in view of the smaller amounts offered, other measures

of market acceptance clearly showed the preference for the monthly cycle. Spreads above coupon issue rates narrowed significantly, averaging about 12 basis points through the middle of 1966 as compared with more than twice that average spread for all of the issues in the quarterly cycle. Moreover, nonbank dealer awards as a percentage of total public allotments in the monthly cycle through mid-1966 increased to an average of 43% from 25% for the quarterly offerings.

Under the extreme monetary tightness that developed in the Summer of 1966, the spread above comparable coupon issue yields rose to a high of 44 basis points in August and remained fairly high for the next 3 issues, following the introduction of the 9-month bill. However, the range of bids from the average to the stop-out rose to 10 basis points in June 1966 but the range in other monthly auctions did not exceed 4 basis points. In December the spread above coupon issue yields declined to normal levels once again as market expectations improved in an environment clearly reflecting moves toward further monetary ease. In the second half of 1966, public allotments dropped to 75% of total offerings and during this period, the percentage of nonbank dealer awards to public allotments in the August auction fell to 23%, but picked up again when the credit markets began to improve.

In summary, as a monthly cycle the 1-year bill has performed quite well in the market by any standard of measurement. Because it is an auction instrument, however, it tends to get relatively expensive in a tight money market environment or when confidence in the going structure of interest

rates has been shaken.

The 9-month bill: Its brief history starting in September 1966 provides only a short run opportunity for analysis. Coverage ratios on the four $500 million monthly offerings in 1966 averaged 217%. However, only 83%, or $1.7 billion of the $2.0 billion total, was allotted to public holders. Of the $1.7 billion in public allotments 41% was awarded to non-bank dealers. In comparison, the simultaneous 1-year bill auctions produced an average coverage ratio of 210% for the four $900 million offerings. In those auctions 79% or $2.8 billion was allotted to the public, of which the dealers got 44%. (See Appendix table 5.)

In the four 1966 9-month auctions, the range of successful bids from the average to the stop-out was somewhat greater than for the annual bills. The average range was nearly 3 basis points as against 2 basis points for 1-year bills, but the difference may easily be attributed to the newness of the 9-month instrument.

In comparison with coupon issue yields in the market, the four 9-month bills averaged 5.72% (coupon equivalent) for a spread of 26 basis points above comparable coupon issues, while the annual bills auctioned at the same time averaged 5.74%, about 27 basis points above 1-year coupon issue yields.

Thus, the early performance of the 9-month bill was about on a par with the annual bill by any of these standards of comparison, which implies that the relative sizes of the amounts offered--$500 million per month of

the 9-month bill vs. $900 million of the 1-year--represented a good balance between the two.

Bill strips: Through 1966, 6 bill strips for $6.8 billion have been issued since they were first offered in June 1961. Included in that amount is a $1.2 billion strip of 3 month-end bills issued last November as part of the 9-month cycle. (For bill strip detail see Appendix table 6.)

The first bill strip covered 18 maturities of $100 million each, with terms ranging from 8 to 25 weeks, and was sold at an average bank discount rate of 2.31% with payment through tax and loan account credit at an estimated value of 50 basis points. Taking that into account, the spread above the average of going rates on comparable bill maturities was 35 basis points.

In June 1961 when the first bill strip was offered, short-term rates were declining and the strip had no significant effect in turning rates upward. Subsequent strips of weekly bills, however, had substantial impacts on the market. For example, in November 1961 the 3-month bill rate rose 14 basis points between the bill strip announcement date and the day of the auction, and rose another 17 basis points between the auction and the payment date.

The degree of market impact is difficult to assess in each case because some of the strip offering effects were anticipated by the market as an aftermath of pre- or junior advance refundings which tended to put downward pressure on bill rates as rights were liquidated by holders not interested in the advance refunding offer.

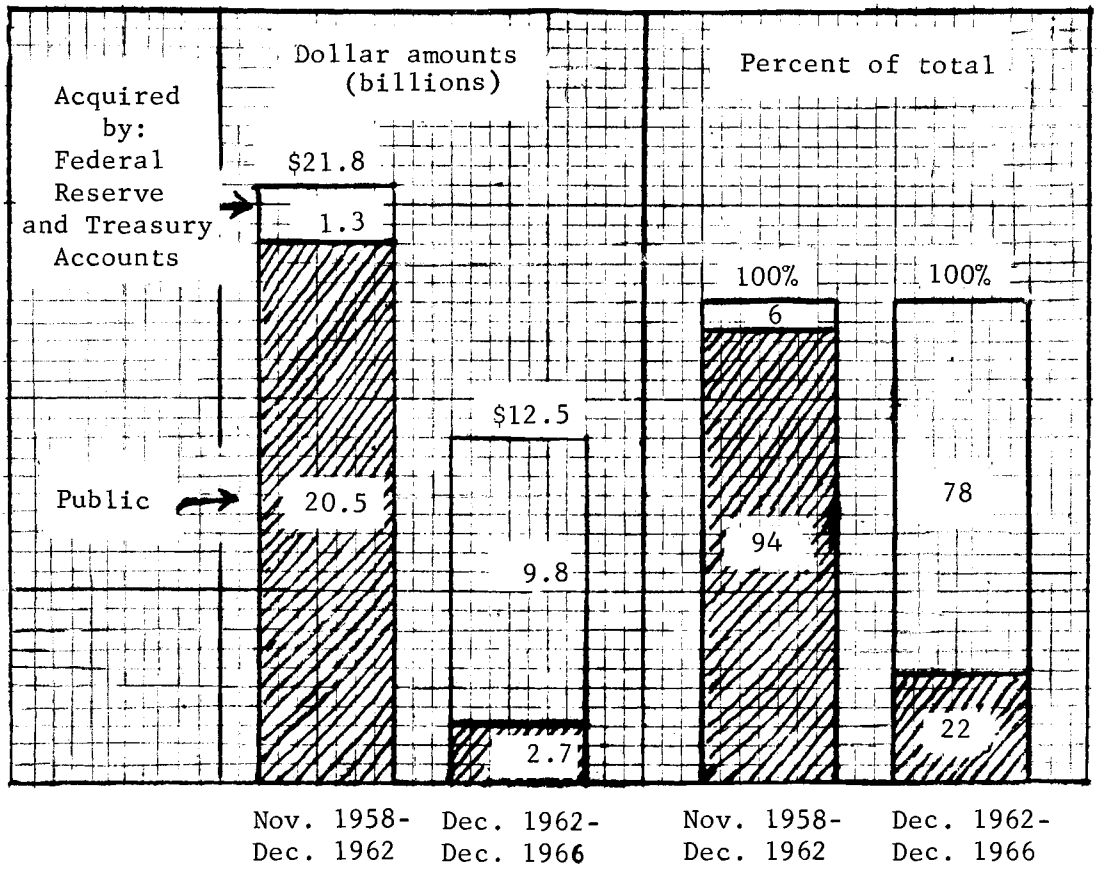
All of the strips were well covered, with subscriptions ranging from 190% to 259% of allotments. Official accounts did not take part in the strip offerings; all of the offerings were publicly allotted. Awards to nonbank dealers averaged 55% of total allotments for the 4 strips, for which payment through tax and loan accounts was not permitted. In the last 2 of these, nonbank dealers accounted for 67% of total allotments, indicating that sophisticated bidders were getting an increasing share of bill strip awards.

Bill innovations in summary: The increase to 2-1/2 times the amount of regularly issued bills outstanding between November 1958 and December 1966, beginning with the advent of the 6-month bill, was generally absorbed by the market smoothly. For the most part the increase occurred in an 8-year period which included a very wide variation in market rates. During the latest economic expansion beginning in 1961 the auction averages on 3 and 6-month bills ranged from 2.2 and 2.3% at the 1961 low to 5.6 and 6.0% at the peak in September 1966, and the range on annual bills was almost as great. About one-half of the 3-1/4 to 3-3/4% rise in bill rates took place in the 9 months after the discount rate increase in December 1965. Even so, the bill market operated with little strain until the period of sharp market tension in the late summer of 1966. After Administration action to dispel fears and relieve some of the pressure of Agency borrowing and PC sales, the normal flow of bills into and out of the market was quickly restored. This occurred despite some apparent increase in the impending burden on the bill market resulting from the reduced pressures of Government financing elsewhere on the credit markets.

Chart 5

INCREASES IN REGULAR BILLS OUTSTANDING

November 1958 - December 1966



An important aspect of the 2-1/2 fold increase in regularly issued bills should be pointed out. In the 4 years or so from the end of November 1958 to December 1962, total regularly issued bills outstanding increased by $21.8 billion. Of that amount public investors absorbed $20.5 billion or 94% of the total increase, while the Federal Reserve System and the Government Investment Accounts picked up $1.3 billion, or about 6% of the total. In the next 4 years to December 1966, regular bills outstanding grew by $12.5 billion. But of that amount public holders acquired only $2.7 billion or 22% while the official accounts absorbed $9.8 billion, or 78%. (For details see Appendix Table 7.)

In the first four years, a substantial part of the big rise in public holdings came in 1959 when the brunt of deficit financing was largely borne by the bill market in a tight monetary environment. But a greater part occurred in 1961 and 1962 when official action was directed toward increasing the amount of liquidity in the economy in the early years of the latest expansion. During the second four years, the System again began to increase its bill holdings as the need for "operation twist" waned. Also during this period, business corporations increasingly found other short-term investments such as commercial bank CD's more profitable than Treasury bills, and later in the period from mid-1965 through most of 1966 the banks found it desirable to reduce their bill holdings to meet the insatiable private demand for bank credit. From 1964 on, the Federal Reserve increasingly acquired bills in open market operations to replace gold losses and build the reserves needed for the continuation of economic expansion.

However, even during the period of rapid increase in the bill holdings of official accounts, the commercial banks and the dealers continued to act as the major "underwriters" for new bills. The fact that the Federal Reserve found it expedient to buy more bills than coupon issues in its open market operations does not detract from the bill market's ability to undertake the distribution of the added supply.

Cash refunding

When the Treasury began in 1960 to refinance through cash subscriptions instead of rights exchanges in its quarterly refinancings, the change in technique gave rise to a number of questions. After some 6-1/2 years and ten quarterly cash refundings in which $71-1/2 billion worth of new securities were issued, answers to a number of the questions are reasonably clear. Among these questions are the following:

Is cash refinancing a complete substitute for rights refundings?

Which does a better job of restructuring the debt?

Which is more expensive for the Treasury?

How do they compare with regard to the participation and activity of the dealer market?

Here are some of the comparisons:

Of the $71-1/2 billion issued in quarterly cash refinancings through 1966, $35-1/2 billion was awarded to public subscribers (other than the Federal Reserve and Government Investment Accounts). During the same period $141 billion of new securities were issued in 16 rights refundings.1/ Of these, public holders received $75 billion for an average exchange of $4.7 billion. In the cash refinancings the average amount allotted to public subscribers was $3.5 billion, indicating the Treasury tended to use the exchange approach for the larger operations.

1/ For details see Appendix Table 8.

In six of the ten cash operations only one shorter-term anchor issue was offered. In three others, two options were offered; and in one operation there were three options. The Treasury provided more extension options in the rights refundings. Of the 16 exchange operations, only two were limited to one option. In each of these cases public holdings of the maturing issues were about $2-1/2 billion, which was considered too small to warrant more than a single option. Of the 14 remaining rights operations, 10 provided two options and four had three options.

The average length of the issues offered in rights exchanges was 28 months as against 22 months in the cash operations. But this greatly understates the difference in the contribution of the two types of offerings to debt extension. Nearly $42-3/4 billion in securities other than anchor options was issued in rights refundings while about $7-3/4 billion was allotted in cash subscriptions. The average length of these longer issues in rights refundings was close to 60 months or nearly 5 years, and in terms of debt extension equal to $42-3/4 billion times 5 years or $212 billion bond-years. The average length in cash operations was 70 months, but the effective debt extension was only $45 billion bond-years. Moreover, of these longer issues the public allotment in rights was $35-1/2 billion as against $7-3/4 billion in cash operations. Thus, rights refundings were far more effective in extending the length of those holdings which are not automatically rolled over at maturity.

One attribute of cash financings which has no counterpart in rights refundings is the control of the Treasury to predetermine the amounts offered, including additional cash or planned attrition. About $3.1 billion of new money was raised in seven of the 10 cash refundings, while in the first operation, instead of raising new cash there was about $660 million of planned payoff. In the other two cases, offerings just about replaced the maturing amounts without attrition or additional cash.

The variation in the allotment ratios illustrates one of the chief disadvantages of cash refinancings. The ratio of total public allotments to total public subscriptions on the 15 individual issues offered in the cash refundings ranged from 12 to 100%. The 100% allotment was on a small $365 million issue of long-term bonds in August 1962, of which $315 million was subscribed for and allotted to the public. In November 1965, a very cautious market environment produced an allotment ratio of 48% on a single option 18-month note. In this case many subscribers received much more than they wanted of the total $3.2 billion awarded to the public, which contributed to a very weak secondary market in the new issue. Even without those two cases, however, the variation in allotment ratios to public investors was still quite large and ran from 12% to about 35%, with an average ratio of 21%.

The cost of "underwriting spreads" to the Treasury was slightly less on cash than on rights refundings. These are the spreads of offering rates above market yields on comparable maturities to make the new issues more

attractive. The average of such spreads was about 10-1/2 basis points in the cash operations as against 11-1/4 basis points in the rights exchanges. This was not due to the greater proportion of longer-term issues offered in the rights refundings. There has been no discernible pattern on the spreads with respect to maturity. However, the spreads on both kinds of offerings declined substantially from early 1963 to late 1966.

The participation and activity of the dealer market in cash as against rights refundings shows no clearcut differences. Statistics on dealer activity compiled by the Federal Reserve Bank of New York begin in 1961 and include 9 of the 10 cash refinancings through 1966 and 13 of 16 rights operations during the same period. Dealer activity varied widely in financings within each type of offering, but the averages were not far apart. (See Appendix Tables 9 and 10.)

For example, awards to reporting dealers through cash subscriptions ran from 6-1/2 to 20% of total allotments to the public for an average of 12-1/2%. Issues to dealers in rights refundings ranged from 9 to 26-1/2% of issues to the public and averaged 14-1/2%. The small difference between the two averages reflects the dealers' willingness to participate about as much in one type of operation as in the other.

Another comparison of activity is the maximum dealer net long position in when-issued securities in a cash refinancing and the maximum position in rights plus when-issued securities in a rights operation. This indicates

the dealers' degree of exposure to market risk in or immediately following a financing. Expressing the exposure in each financing as a percentage of allotments, the range in the case of cash refundings was 6 to 22% for an average of 11%, and on the rights approach the range was 7 to 20-1/2% of total issues to the public with an 11-1/2% average. Here the difference in the two averages is negligible, indicating that the dealers were generally equally willing to take risks in either type of financing.

A third index of dealer activity is the volume of trading in when-issued securities during or immediately after a financing. Data are available for nearly all of the refundings through the 7th day following the announcement of terms. Although trading in cash operations did not start until after the subscription books closed, while in rights refundings trading began immediately after the announcements, this difference in procedure is not considered significant due to the high concentration of trading in the first few days. Trading in rights, mainly accumulations by dealers prior to exchange, was excluded since that can be considered equivalent to dealer awards in cash refinancings. The volume of trading in each financing has been related to the total amount of securities issued to the public, to allow for differences in the size and in the number of refundings in the two types of operations.

The average trading volume in cash refinancings ran from 14-1/2 to 43% but six out of the eight for which data are available ranged from 21 to 32-1/2%. The average was 26%. In rights operations the range was fairly well strung out from 13-1/2 to 31% and the average was 19-1/2%. The

difference between the two averages is not large. One possible explanation stems from the circumstance that unsophisticated investors -- the smaller banks, for example -- ordinarily prefer rights refundings to cash refinancings. Guessing the probable percentage allotment in a cash operation requires a high degree of money and capital market sophistication. Even expert appraisal is often wrong. Rather than guess incorrectly and receive possibly much more or possibly much less of the new securities than they wish to hold, many investors may prefer to acquire the exact desired amount in the secondary market.

Advance Refunding

Scope: Between June 1960 and August 1966 the Treasury conducted 13 advance refunding operations. In magnitude a total of about $286 billion in outstanding issues was made eligible for exchange offers and of these, about $204 billion was in public hands. Slightly over $69 billion or more than 1/3 of public holdings was exchanged.[1/] The scope of these operations can be judged from the fact that the average of the marketable coupon debt outstanding at each midyear during the 6-1/4 year period was about $154 billion, of which about $117 billion was publicly held. Thus, the advance refundings during the period represent offers to roll over some 1-3/4 times the marketable debt in the public's hands, with the turn-ins amounting to about 60%.

These advance refundings include a veritable multiplicity of offerings with respect to rates and maturities of the eligible and offered issues. In all, more than 65 outstanding issues and about 25 newly offered issues were involved, with several of these eligible and offered issues used again in succeeding operations. The maturities of new issues offered in exchange ran from a little less than 4 years to more than 38 years, while outstanding eligible issue maturities ranged from less than a month to more than 10-3/4 years. The percentages of public holdings of eligible issues exchanged covered a range of 8.6 to 72.2%.

These advance refundings all occurred within the term of the last peak to peak interest rate cycle which spanned a period from early January 1960 to late August 1966. The offering yields on the new issues ran from a low

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1/ Table 11 provides detailed information on each advance refunding and the totals for 1960-1966.

of 3.63% in March 1961 to a high of 5.24% in August 1966, while the range of eligible issue coupon rates went from 2-1/4 to 5%.

Performance factors: With such wide variations in rates and terms, some degree of segregation of these operations into more comparable groups is necessary for analytical purposes. Thus, for most analyses the advance refundings have been grouped into three categories, two of which were described in the Advance Refunding "White Paper" released prior to the full scale advance refunding of October 1960. The three categories are pre-, junior, and senior advance refundings, based on the terms to maturity of the eligible issues involved. Prerefunding refers to eligible issues with remaining terms to maturity of less than 1 year; junior advance refunding refers to those maturing between 1 and 5 years; and senior advance refunding to those longer than 5 years. These are arbitrary distinctions, particularly when it is found that 7 of the 18 junior refunding issues had remaining terms of 1 to 1-1/2 years, while the 32 prerefunding issues had remaining terms ranging from 3/4 of a month to 9-3/4 months.

For the purposes of this paper, the measure of performance in advance refundings has been based primarily on the percentage of publicly held issues exchanged. In this regard, performance is complicated by the fact that a number of the prerefunding and junior refunding issues were made eligible in more than one advance refunding. Moreover, some eligible issues were reopened, that is, the outstanding amounts were added to, between advance refundings.

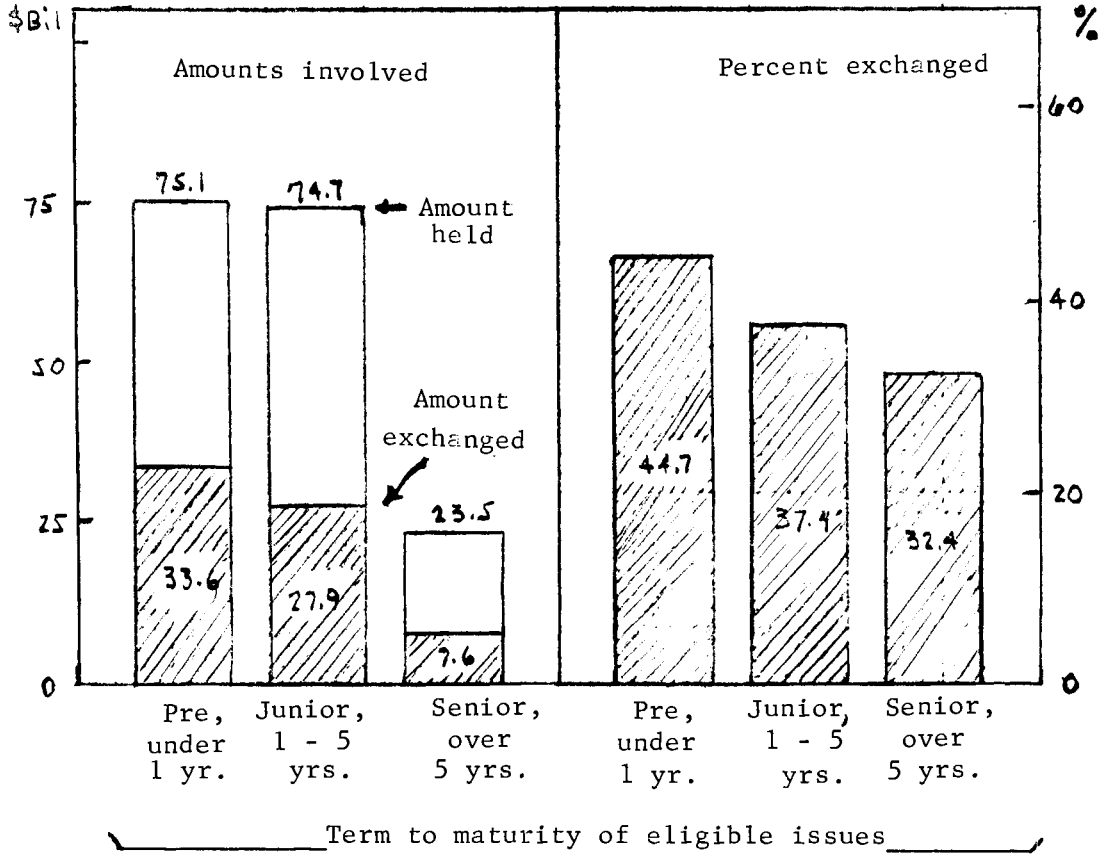
Over all, about 34% of the issues publicly held which were made eligible for advance refunding in 1960-1966 were exchanged, if the eligible issues are all regarded as not having been previously included in an earlier advance refunding. If such double counting is eliminated the average percentage exchanged would be about 46%.[1/] For purposes of simplicity, however, and with the extensive changes in ownership as maturities shorten, in the analyses which follow, allowance is made for double counting only within category groups. For example, an eligible issue in a junior refunding category (1 to 5-year maturity) which has been hit twice without having been added to in the meantime, is either treated as one eligible issue merely having been offered additional options or for some purposes the second hit will be disregarded. However, a junior refunding issue which became eligible again in the prerefunding category (under 1-year maturity) will be regarded as one not subject to a previous advance refunding. Account is also taken of additions to eligible issues between advance refundings. In the case of senior refundings none of the eligible issues involved (the World War II 2-1/2's) was made eligible more than once.

As shown on Chart 6, prerefundings with nearly 45% of eligible public holdings exchanged were the most successful category if account is taken of the same issue having been involved in more than one advance refunding. Junior refundings are the next most successful category with 37-1/2% exchanged and senior refundings are last with 32-1/2%. This strongly implies that the shorter the length of the eligible issue, the larger the percentage that will be exchanged. As a broad generalization that is the case.

1/ Based on figures in Appendix Table 11.

Chart 6

EXCHANGES OF PUBLICLY HELD ISSUES IN ADVANCE REFUNDINGS 1960-66



However, other factors also have a bearing on performance in advance refundings. One such factor is the coupon rate of the eligible issue. In making this comparison, the total amount exchanged of all issues in a coupon size was divided by the sum of the amounts of those issues in public hands before the refundings, providing a weighted average percentage of each coupon size exchanged. First, only the initial use of each individual issue was considered. Generally when an issue was made eligible more than once it was closer to maturity, hence more apt to have

a higher turn-in rate based on the amount remaining in public hands. Moreover, in prerefundings many investors assumed that when the issues reached maturity, the refunding offer might include a short-term option only or that the operation might be a cash refinancing with no right to exchange.

Chart 7 shows the relationship of coupon size to the percentage exchanged. The top tier of bars gives only a hint of any significant relationship if all of the issues involved in the advance refundings are lumped together. But when they are divided into pre-, junior, and senior operations, it is fairly apparent that a rough inverse correlation exists between the size of the eligible issue coupon and the percentage exchanged. The tendency is more evident in the case of prerefundings than in junior advance refundings 1/ while the senior refundings show no tendency because only one coupon size was made eligible.

On the basis of preliminary studies, the correlations in the pre- and junior refundings are not precise enough for truly predictive purposes. Such studies of the results in advance refundings through July 1964 indicate a coefficient of correlation squared (r^2) of .565 in the case of

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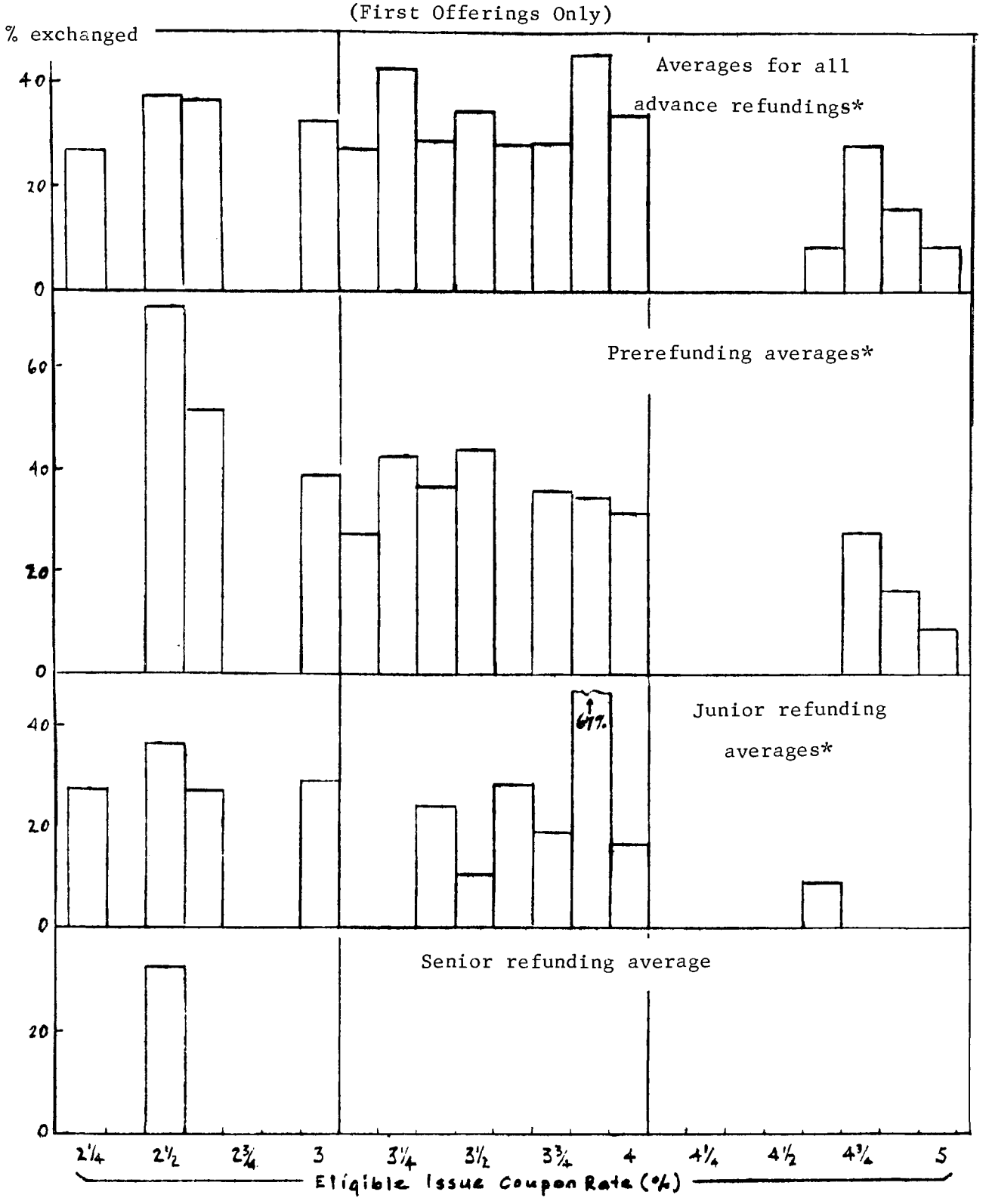
1/ The one issue clearly out of line in the junior refunding is the 3-7/8% note of February 15, 1965, with 67% exchanged in the January 1965 advance refunding. It was barely over 1-year to maturity at the time and was held largely by banks and corporations willing to turn them in for the rights value involved. In addition, dealers were more satisfied to position them until maturity since they carried the second highest coupon rate in the refunding, thus reducing their cost of carry. The issue carrying the highest coupon rate, 4%, was not as readily available and relatively fewer rights were turned in to the market.

Chart 7

SIZE OF ELIGIBLE ISSUE COUPONS IN ADVANCE REFUNDINGS
AND PERCENT OF PUBLIC HOLDINGS EXCHANGED

(First Offerings Only)



*Excluding exchanges in succeeding advance refundings.

prerefundings and only about .243 in the case of junior operations. It is quite possible that as the number of advance refundings grows and additional refinements are used, the statistics will yield more favorable results.

In those cases where the same issue was made eligible again in a later advance refunding, no pattern emerges with respect to size of coupon, mainly because there are too few observations to permit any meaningful conclusions. It is evident, however, that other factors, such as the coupon size of the offered issue, its length, and the shortness of the eligible issue's remaining term to maturity are also significant. And, of course, with only limited observations the general monetary policy and interest rate environment at the time of a refunding becomes overriding.

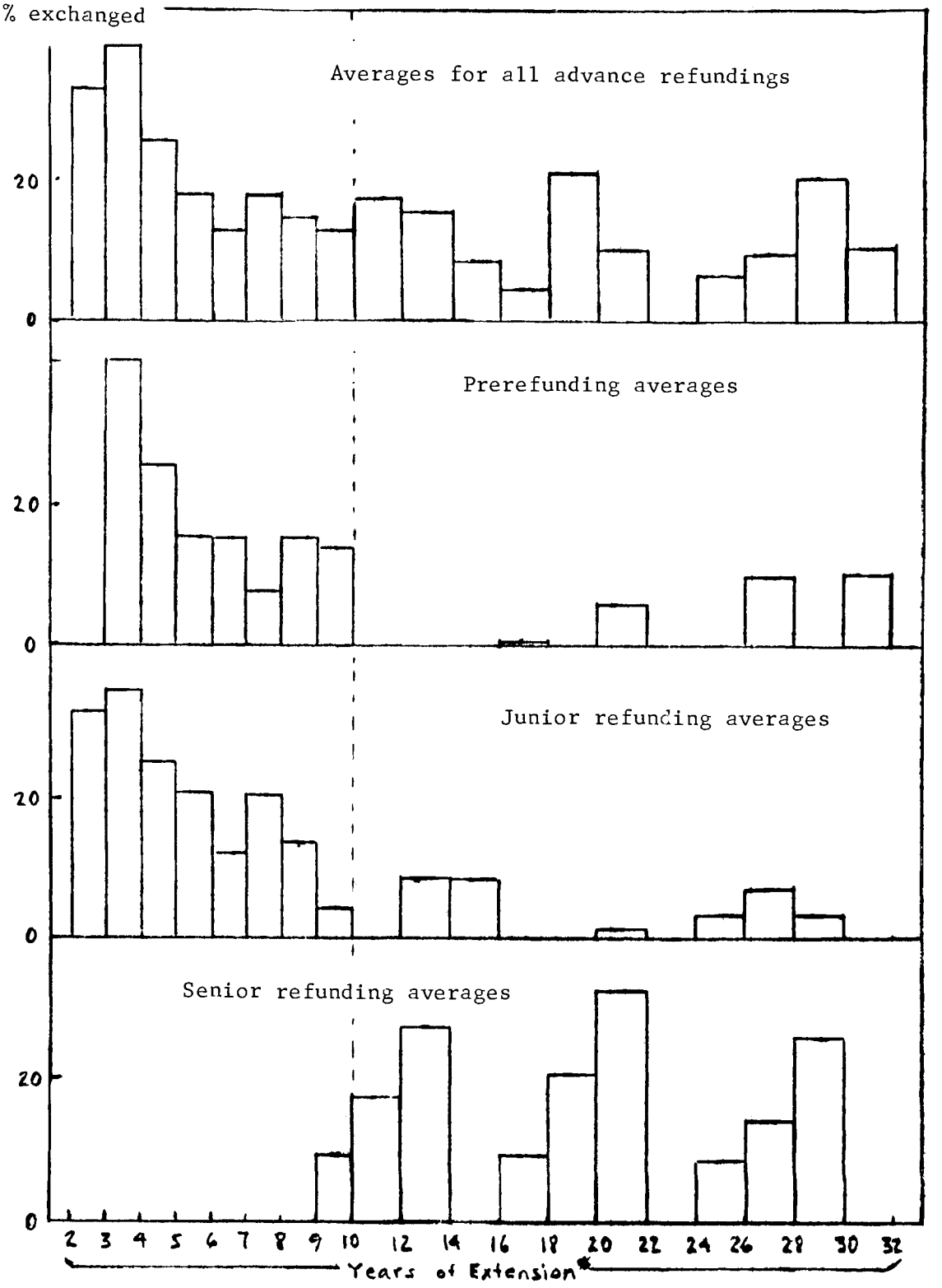
Another apparently important factor is the length of extension. As shown on Chart 8, the greater the extension the less proportionately is likely to be taken in pre- and junior refundings. In senior operations no truly significant pattern emerges except that performance in the first senior refunding was better than in the second, and the second better than the third. Here again the correlation between years of extension and percentages exchanged even in the pre- and junior operations is imprecise and cannot be used with any appreciable degree of confidence for predictive purposes.

Still another factor which logically should have a substantial bearing on the percentage exchanged is the increase in coupon rate from the eligible

Chart 8

PERCENT OF ELIGIBLE ISSUES EXCHANGED RELATED TO THE LENGTH OF EXTENSION IN ADVANCE REFUNDINGS

(First Offerings•Only)



*From each number of years to, but not including the next number.

to the offered issue. This, of course, has to take adjustment (boot) payments into account. As with the other factors mentioned, a very rough relationship appears to exist, but again it is imprecise and does not stand the test of correlation significance.

Preliminary studies failed to turn up any conclusive evidence that the attractiveness of the offerings in terms of the yield spread on the offered issues above the prevailing market pattern of rates had any appreciable effect on the proportion exchanged.

When measured against another variable--the size of the offered issue coupon--the percentage taken showed an inverse relationship. However, this is not too surprising. With an upward sloping yield curve, although gradually diminishing in slope, the higher coupons were on the longer options during most of the active advance refunding period of June 1960 to January 1965 and apparently the length of the extension was a stronger factor than the size of offered coupons.

In attempting to find useful relationships following the July 1964 refunding, a multiple correlation study yielded no significant results primarily because the amount of data then available was too small to provide a sufficient number of degrees of freedom. It may be that as experience with advance refundings grows, the data will provide more precisely useful statistical conclusions.

Investor participation: The following analyses cover the advance refundings through 1965. The last two in 1966 were combinations of regular refundings at maturity and prerefundings, thus precluding the investor classification of the offered issues which originated from the regular as against the prerefunding issues. This still leaves over $62-1/2 billion of public exchanges for analysis.1/

The ownership pattern in those exchanges closely follows the division between the 3 senior refundings and the pre- and junior refundings. The senior operations included as eligible issues, the World War II 2-1/2's, all with remaining terms of over 5 years. The pre- and junior refundings included all other eligible issues. (See Appendix Table 13.)

As indicated in the following table, insurance companies and mutual savings banks acquired about 50% of the $7.6 billion in new 3-1/2% bonds in the senior refundings. In the first 2 senior operations these investors accounted for more than 58% of the 3-1/2's taken; but in the third, life companies and mutual savings banks could not participate more fully because their holdings of the 2-1/2's eligible in that refunding had been largely depleted by conversion into nonmarketable 2-3/4% bonds in 1951 and 1952.

State and local pension funds exchanged over $800 million of the wartime 2-1/2's, picking up the next largest part of the offered long-term 3-1/2's. Other State and local funds accounted for nearly $650 million or 8-1/2% of the senior exchanges. Among other public investors, commercial banks 2/ exchanged $630 million, picking up 8-1/4% of the 3-1/2's and individuals acquired more than $400 million or 5-1/2%.

1/ Exchanges in the 1960-1965 advance refundings, by investor classes, are covered in Appendix Table 12.

2/ This includes exchanges by bank dealers also. As reported to the Treasury, commercial bank allotments are not subdivided into dealer banks and other banks.

Public Participation in Advance Refundings 1960-1965
Amounts of offered issues acquired, by class of investor 1/

Investor class:	Amounts exchanged in:			Percentage distribution		
	Senior refundings	Pre- and junior refundings	Total	Senior refundings	Pre- and junior refundings	Total
	(In billions of dollars)					
Commercial banks 1/..	.6	32.9	33.5	8.3%	59.7%	53.5%
Dealers & brokers 1/.	.4	8.2	8.6	5.2	14.9	13.7
Corporations.....	.1	1.6	1.8	1.6	3.0	2.8
Insurance Co's.....	2.6	2.1	4.7	33.9	3.8	7.5
Mutual Savings.....	1.2	1.2	2.4	16.3	2.2	3.9
Private pension funds.....	.1	.5	.6	1.7	.9	1.0
State and local:						
Pension funds.....	.8	.5	1.4	10.7	1.0	2.1
Other.....	.6	2.0	2.7	8.4	3.7	4.3
Individuals.....	.4	1.4	1.8	5.5	2.5	2.9
All other.....	.6	4.6	5.2	8.4	8.3	8.3
Total exchanged by public.....	7.6	55.0	62.6	100.0%	100.0%	100.0%

1/ Source: Treasury Bulletin; bank dealers included with commercial banks.
Note: Detail may not add to totals due to rounding.

In the pre- and junior advance refundings commercial banks were by far the major participating class in acquiring nearly $33 billion or 60% of the offered issues. Dealers and brokers took $8.2 billion or about 15% of the total offerings in those refundings as against less than $400 million or 5% in the senior operations. (The dealers' role in advance refundings is more completely detailed in the section on dealer participation and activity.)

Corporations which averaged less than 3% of all exchanges participated

more fully in the first junior advance refunding, accounting for 6% of the total exchanged in that refunding. While holding sizeable amounts of many of the eligible issues in later refundings they showed relatively little interest even in the shortest (3 year-11 month) issues offered.

Individuals participated most heavily in the 3rd senior refunding, in which the eligible issues included the June and December 1972 tap 2-1/2's. The amounts of these issues remaining after the conversions into the non-marketable 2-3/4's, mainly by institutional investors, were relatively heavily concentrated in individuals' holdings.

State and local pension funds which had participated quite actively in the senior operations did not acquire any substantial portion of the long bonds offered in pre- and junior refundings, mainly because they held relatively few of the eligible issues.

The following table shows the extent to which public investors preferred the shorter options in the 1960-65 advance refundings. However, the dollar amounts exchanged into the two maturity categories under 10 years were not very far apart in proportion to the total amount of eligible issues in each case. In fact, of the public holdings eligible for the under 5-year offered issues, 33% was exchanged; and of those eligible for the 5 to 10-year issues 24% was exchanged. Similarly, with respect to the two maturity groups over 10 years, 10% of the total eligible for the 10 to 20-year maturities was exchanged as compared with 11% of those eligible for the 20-year and over category.

Maturity Distribution of Offered Issues Acquired by the Public in Advance Refundings 1960-1965, By Class of Investor

(In billions of dollars)

	Under 5 years	5-10 years	10-20 years	20 years or over	Total
Commercial banks.....	8.9	21.0	.9	2.7	33.5
Dealers and brokers...	1.3	3.9	.7	2.6	8.6
Corporations.....	.5	1.0	*	.2	1.8
Insurance companies...	.4	1.4	.5	2.4	4.7
Mutual savings.....	.2	.8	.1	1.3	2.4
Private pension funds.	.1	.3	.1	.2	.6
State and local:					
Pension funds.....	*	.3	.2	.9	1.4
Other.....	.4	1.4	.2	.7	2.7
Individuals.....	.2	1.0	.1	.4	1.8
All other.....	1.3	3.0	.2	.7	5.2
Total public.....	13.3	34.1	3.1	12.1	62.6
Total publicly held issues eligible for exchange 1/:	40.7	140.2	31.9	110.5	188.6 1/

1/ Maturity detail will add to much more than the total, as most eligible issues were exchangeable into 2 or more options.

* Less than $50 million.

Note: Figures may not add to totals due to rounding.

As might have been expected, commercial banks, the largest participating class, chose under 10-year maturities for almost 90% of their exchanges. Their takings of $3.6 billion in the over 10-year area, three-quarters of which was 20 years and longer, partly reflected bank dealer positioning of longer issues.

Nearly 60% of insurance company and mutual savings bank participation

fell into the over 10-year area, most of which was in over 20-year maturities. The remaining 40% of insurance company and mutual savings bank acquisitions which went into the under 10-year area, was partly due to exchanges by fire and casualty insurance companies which normally hold shorter-term issues.

State and local pension funds concentrated close to 80% of their $1.4 billion participation in the long-term area. Individuals, on the other hand, placed about 70% of their $1.8 billion participation into under 10-year maturities, despite their relatively larger holdings in the War Loan 2-1/2's which were eligible for exchange only into long-term bonds.

With respect to the percentage of investor holdings of eligible issues exchanged, the data available are not wholly comparable as between holdings and allotments. Moreover, coverage is incomplete for some of the investor groups.

Commercial banks with fairly good coverage apparently turned in about 32-1/2% of their eligible issue holdings. Insurance companies exchanged about 42% and mutual savings banks about 38% of their eligible holdings.

Figures for State and local funds cover only the last seven of the 1960-65 advance refundings. If the figures are comparable, the indicated turn-in rate was about 60% for State and local pension funds and 21% for the other funds in those operations.

Available figures for all but the first advance refunding indicate

that corporations exchanged about 13% of their eligible issues while private pension funds exchanged about 30%. Figures on eligible issues of individuals are not available.

In summary, commercial banks and dealers accounted for over 2/3 of the offered issues taken by public subscribers in the 1960-65 advance refundings. This included about $33.5 billion allotted to the commercial banks and $8.6 billion to the dealers.

At the end of the 1960-65 advance refunding period the commercial banks surveyed by the Treasury (representing some 80 to 85% of total commercial bank holdings) held $3.2 billion fewer coupon issues than at the beginning. Moreover, their holdings in 1 to 5-year maturities declined by nearly $13 billion over the period. This is the maturity area into which much of the commercial bank acquisitions in the advance refundings would have fallen with the passage of time. Since they acquired almost $30 billion of issues in the 4 to 10-year maturity area, it would seem that the banks, like the dealers, were generally acting in an underwriting capacity in these operations. In addition, the mechanism for distributing these securities was through the dealer market. Thus, in large measure, the success of the advance refunding technique was due to the underwriting and distributing functions of these two groups.

Market impact: In its White Paper, Debt Management and Advance Refunding, the Treasury held that the impact on long-term rates would be much smaller with advance refunding than with ordinary cash financing or

maturity refunding, given equal volumes of long-term debt extension in either case. The discussion in the White Paper centered primarily on the contrast between exchanging intermediate-term issues for long-term (senior refundings) bonds on the one hand, and finding new long-term funds for issuing long-term bonds for cash or in refundings at maturity, on the other.

It was thought, in the latter case, that new cash borrowing would absorb long-term funds otherwise available for private or State and local needs and that the added supply of long Treasury bonds would exert upward pressure on interest rates generally. It was also felt that this would occur in regular refundings at maturity. By the time originally long-term issues reached maturity, they would be held mostly by short-term holders or held as liquidity reserves by other investors and neither of these would want long bonds in exchange. In that case, new long-term funds would be required for the purchase of the "rights" or the "when issued" new securities, thus paralleling the effect of new long-term issues sold for cash.

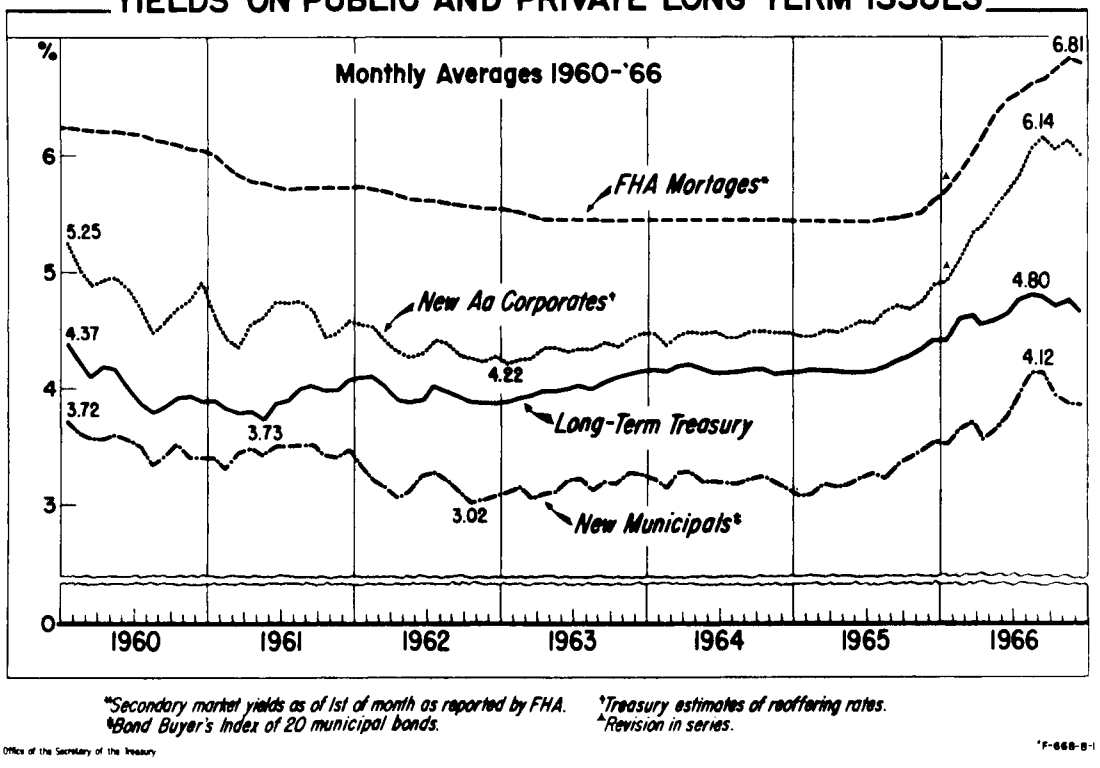
In a senior advance refunding, it was thought, long-term investors would be given the opportunity to extend their intermediate-term holdings before those securities had largely gravitated into the hands of short-term investors. In general, the inducement to extend would be provided by higher coupon rates of interest, based on the higher investment yields resulting from an upward sloping market pattern of rates curve. Moreover, in such an exchange the injection of new long-term funds would be substantially smaller than in a regular maturity refunding, hence the

upward pressure on long-term rates would be minimized.

These tenets remained generally in effect through the March 1962 combination junior-senior refunding. Thereafter, senior advance refunding was discontinued. Not only was there Congressional criticism, but once all the holders of the wartime 2-1/2's had been given an opportunity to exchange, few alternative low coupon issues remained as candidates for senior advance refundings in the immediate future.

In the meantime, from the Fall of 1960 to the Spring of 1962, $8.0 billion of existing publicly held issues had been extended into new long-term bonds maturing beyond 15 years. Despite this substantial volume of

Chart-9



debt extension, yields on mortgages and on long-term corporate and municipal bonds continued to decline.

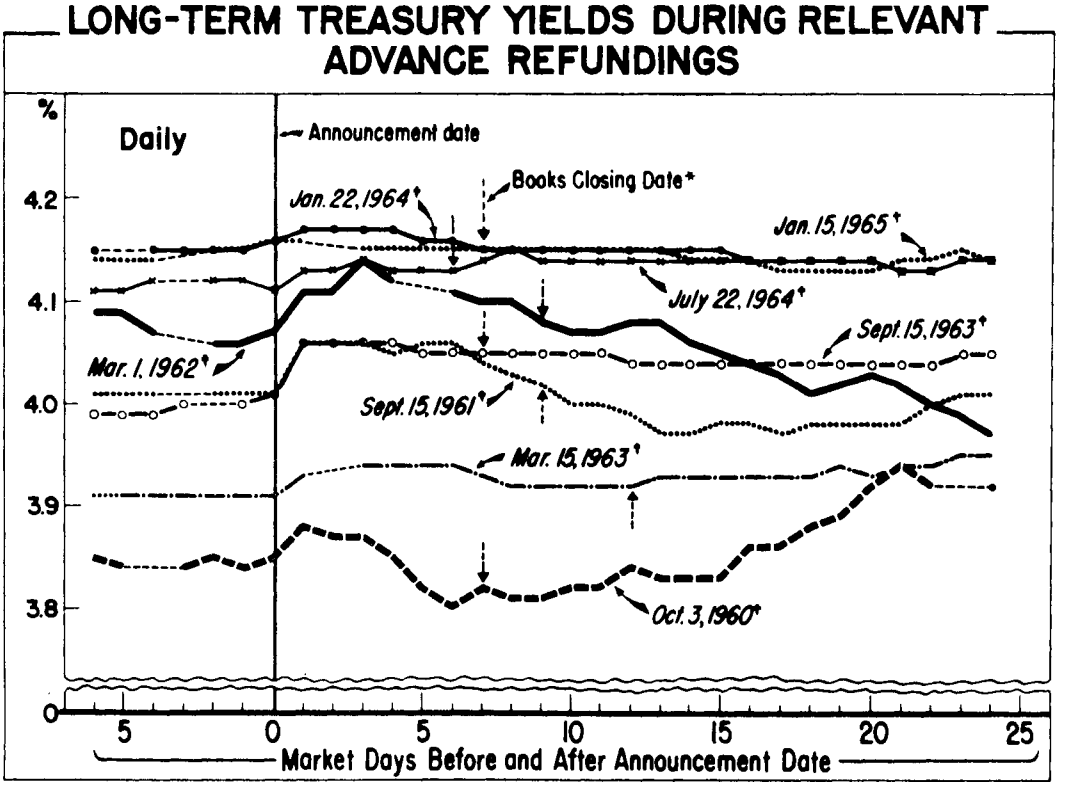
During the following period through January 1965, the Treasury revised its position on the circumstances under which long-term bonds might be issued in advance refundings. In most of the combination junior and prerefundings after March 1962, the existing issues involved were made eligible for exchange into long-term bonds. Consequently, a substantial expansion in the role of the dealer market was required in the transfer of rights, in helping to underwrite the refundings, and in distributing the new issues to firm holders. Although relatively little net new money was needed, the revised procedure induced a considerable degree of market churning and a substantial amount of overhang of the new securities in the after market. Nevertheless, it was felt that these pre- and junior refundings would act as catalysts to reduce market hesitance and to increase activity and interest in the long-term securities in general. Thus, it was expected that the upward impact on long-term rates would continue to be small.

Expectations based on the newer concepts were fairly well realized. During the March 1962 to January 1965 period, average long-term Treasury yields rose 13 basis points from 4.01 to 4.14%, but private and municipal rates either increased very nominally or declined. The monthly average of new Aa corporate reoffering rates rose only 4 basis points, while mortgage rates in the secondary market declined 25 basis points and new municipals went down about 9 basis points. (See Appendix Table 14.) During this period an additional $6.3 billion of publicly held Treasury issues were

extended beyond 15 years.

While the more prolonged effect of advance refundings on long-term Treasury rates is not readily discernible in a period of slowly rising bond yields, the immediate impact of such operations on long-term Treasury yields was clearly minimal. This is illustrated on Chart 10. After the initial jump following the announcement in most cases, long-term yields either leveled off or declined in 5 of the 8 refundings in which long bonds were issued. Also in 5 of the 8 cases long-term rates were back to, or under the levels before the announcement by the time the subscription books closed, and continued to be flat or to decline thereafter.

Chart-10



†Issue or interest adjustment dates. *In the September 1961, March 1962 and March 1963 refundings, books closed for investors other than individuals about one week earlier.

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In the 3 refundings in which long-term rates were slightly higher 15 market days after the announcement, the rates were up less than 5 basis points from the level before the announcement. In most cases, yields remained level for some time thereafter. Obviously, market trend comparisons cannot be carried much further in this connection, as other factors would increasingly influence the interest rate environment soon after a refunding.

One interesting point shown on the chart is that market yields remained remarkably stable for the most part from one refunding to another. Except for the October 1960 and March 1963 operations, long-term Treasury yields were within an 11 basis point range immediately following the announcements.

The experience with long bonds issued in the advance refundings through 1965 amply demonstrates that debt extension can be accomplished with relatively little impact on long-term rates. Between October 1960 and January 1965 about $14.3 billion in publicly held eligible issues was extended into maturities ranging from nearly 17 to more than 38 years, during a period of substantial economic expansion. In fact, average market rates on mortgages and yields on corporate and municipal bonds were generally lower at the end of this period than at the beginning, while Treasury long-term rates were less than 1/4% higher. Only after the enlargement of the war in Vietnam in July 1965, followed by the increase in the discount rate in December, did interest rates begin to rise sharply.

The accelerating rise in interest rates produced by the war and the overheating economy was not fully reflected in the increase in long-term Treasury yields because the 4-1/4% interest ceiling brought to an abrupt

halt the chance of any increase in the supply of long bonds. The upward pressure on Treasury yields was reflected more fully in the intermediate-term area. In response to the sharp increase in market yields, a 5-1/4% rate was required in the August 1966 maturity and prerefunding combination on a 4-3/4 year note. During the extreme credit squeeze which followed the refunding announcement in late July, the market yield on the new 5-1/4's hit a high of 5-3/4% on August 29.

Dealer participation and activity: Available dealer statistics compiled by the Federal Reserve Bank of New York give the clear impression that dealers' participation in the first 5 advance refundings was relatively small as compared with the next 6. 1/ (For details on dealer activity in advance refundings see Appendix Table 15.)

Reporting Dealers--Allotments, Maximum Net Position, and Trading Volume as Percentages of Total Public Allotments

1960-1965

	Percent of total public allotments		
	Issues to dealers	Maximum position in rights plus new issues†	Cumulative volume of trading†*
First 5 advance refundings: June 1960-March 1962.....	6.9%**	4.8%	3.9%
Next 6 advance refundings: Sept. 1962-Jan. 1965.....	28.0	13.4	19.3
Average.....	21.2%	10.7%	14.4%

† Includes positions and trading in outstanding reopened issues.
* Through the 5th day after announcement.
** Partly estimated.

1/ The comparison excludes the 1966 maturity and prerefunding combinations because the dealer position and trading figures on the new issues are not classified according to the eligible issues of origin. In any case, the available data suggest that most of the dealer allotments originated from the maturing issues.

The June 1960-March 1962 refundings cover not only the first 2 senior refundings but also the junior-senior combination and 2 separate junior operations. The data indicate that the dealers were some 3 to 5 times as active in the last 6 advance refundings as in the first 5. It is not clear just why the dealers remained much more aloof from the earlier junior as well as senior operations. One possible explanation is that the earlier refundings generally included low coupon eligible issues, which made the cost of carrying the rights to the issue dates of the new securities more expensive than in the later operations. It is also possible that the generally higher coupon rates in the later advance refundings and the relative stability of longer-term yields gave the dealers a greater incentive to position the new issues.

However, even in the 6 later advance refundings the dealers were relatively much more heavily involved in the longer offered issues than in the shorter ones. Their turn-in rate for new under 15-year maturities ranged from about 8 to 39% of the total issued to the general public while their takings of over 15-year maturities ran from 61 to 74%. As indicated in the following table, their dollar acquisition of under 15-year maturities totaled $7.6 billion for an average participation rate of 21% and their over 15-year maturities were $4.3 billion or nearly 69% of all issues to the public.

Despite the lack of dealer involvement in the 5 earlier advance refundings, over-all public participation was quite high. Public allotments as a percentage of their holdings of eligible issues were 32% in

Total Issues to the Public and Dealer Allotments 1960-1965

	Total issues to public ($ bil.)	Dealer allotment ($ bil.)	Dealer allotment as % of total public
First 5 advance refundings:			
Maturities: under 15 years....	11.9	.8 1/	6.5%
over 15 years.....	8.0	.6 1/	7.4
Next 6 advance refundings:			
Maturities: under 15 years....	36.5	7.6	21.0
over 15 years.....	6.3	4.3	68.7
Total.....	62.6	13.3	21.2

1/ Partly estimated.
Note: Figures may not add to totals due to rounding.

those advance refundings as against 34% in the 6 later operations. Apparently the dealer market became an increasingly important factor in the later advance refundings. (For details see Appendix Table 16.)

Another point might be made. In the 6 later operations bank dealer participation was much greater relative to nonbank dealer participation than in the earlier refundings. Allotment figures published in the Treasury Bulletin and the statistics on dealers reporting to the New York Federal Reserve Bank which include bank dealers, indicate that the bank dealers increased their share of total dealer participation from about 18% in the earlier operations to 37% in the 6 later ones.

A comparison of dealer participation in advance refundings and in regular maturity refundings, shows that during fairly similar periods they were much more heavily involved in advance refundings. On average,

they acquired 21% of total issues to the public in the advance operations through January 1965, as compared with 14-1/2% in the quarterly rights refundings from August 1961 through May 1966.

One index of dealer activity is their maximum net long position in rights plus when-issued securities, which measures the degree of their exposure to market risk. As a percentage of total public allotments, this was about the same in both types of operations. In the quarterly rights refundings during the period mentioned, their maximum net positions per refunding averaged 11.3% of total public allotments, as against 10.7% in the advance refundings. But, excluding the first 5 advance refundings their maximum net positions in the other 6 averaged 13.4%.

Another measure of dealer activity is the volume of trading in when-issued securities during or immediately after a financing. Comparable data indicate that dealers traded the new issues more actively in the advance refunding operations than in the quarterly refundings. Figures available for trading through the 7th day following the announcement of terms show that the accumulated volume of trading in the advance refundings was 24.8% of total issues to the public as compared with 19.4% in the quarterly rights operations. Excluding the first 5 advance refundings the trading volume rises to 27.8% of the new issues taken by all public holders.

Note: For a discussion of the longer-run effect of advance refunding on dealer trading volume in the intermediate- and long-term areas of the market, see the analysis entitled 16th Lowest Daily Volume of Trading by Louise Ahearn, page 21 of the study paper, Market Performance as Reflected in Aggregative Indicators.

Cost of advance refunding: It is virtually impossible to quantify the "true" net extra cost or saving resulting from advance refunding. Once such a refunding has been consummated no one can know, or even guess with confidence, what would have happened without it or by attempting to accomplish the same degree of debt extension in another way. But it is difficult to escape the conclusion that the issuance of long-term bonds in cash financings or through regular refundings at maturity, in the same volume as through advance refundings would either have been impossible under the 4-1/4% ceiling, or without that would have been far more expensive. The experience with regular financings in comparison with advance refundings in the 1960's clearly points to that conclusion.

As indicated in the table below, the total amount of bonds longer than 10 years issued in the 3-year period from April 1960 through April 1963 in

Issues of Over 10-Year Treasury Bonds 1960-1965

	Amount issued ($ mil.)	Average term to maturity (years)	Average offering yield	Average offering yield spread 1/
In cash financings and regular refundings at maturity, April 1960-April 1963.....	1,902	24.4	4.13%	.12%
In advance refundings:				
Oct. 1960-Sept. 1963.....	13,597	27.1	4.10	.11
Oct. 1963-Jan. 1965 2/.....	4,200	26.6	4.25	.06
Total in advance refunding...	17,797	27.0	4.13	.10

1/ Spreads above market yields on outstanding issues of comparable maturity.

2/ No bonds longer than 10 years were issued in cash financings or regular refundings at maturity in this period.

cash financings or regular maturity refundings was $1.9 billion. During this period the Treasury made the last strenuous attempts to issue long bonds without resort to advance refunding. It was also the period during which the bond auction was introduced and then abandoned as a practical means of producing debt extension on a substantial scale. In these financings the Treasury offered long-term bonds on 5 separate occasions for an average issuance of about $380 million per offering.1/

During a closely similar period the Treasury conducted 5 advance refundings in which bonds longer than 10 years were offered. The total amount extended was $13.6 billion, averaging nearly $2.7 billion per operation. The average term to maturity of these bonds was about 2-1/2 years longer and their interest yield was about 3 basis points (.03%) less than on the bonds issued for cash or in regular refundings. Thus, although the two methods achieved roughly comparable degrees of debt extension at closely similar interest costs, the amounts extended in advance refunding were more than 7 times greater.1/

In the remaining advance refundings the Treasury found it possible to increase the over 10-year debt by another $4.2 billion without offering an investment yield higher than 4.25%. In all, about $17-3/4 billion of long-term debt was advance refunded between October 1960 and January 1965 before the rise in interest rates in the summer of the latter year effectively foreclosed the issuance of over 5-year debt.

1/ For details see Appendix Table 17.

In terms of spreads above existing market yields on comparable maturities, long bonds issued for cash and in regular refundings appeared to be about as attractive as those in advance refundings. The average of offering yield spreads was 12 basis points in the cash and maturity refundings and 11 basis points in the advance refundings.

Looking behind these statistics, it seems probable that regular operations on the scale of advance refundings could not have succeeded. Long-term bonds offered in two of the regular refundings during the 1960-63 period were for cash subscription. In both of these cases the allotment ratio was 100%, indicating a considerable degree of unwillingness on the part of investors to subscribe for long-term issues.

It seems reasonable to infer that massive amounts of debt cannot be extended at long-term through regular means, except possibly during a fairly protracted recession. Despite the claims from time to time that Treasury debt operations have little impact on economic cycles, debt management could not comfortably ignore even the marginal procyclical effect of a large scale absorption of long-term funds in cash financings or regular maturity refundings during a recession. Moreover, as indicated earlier the effect on interest rates, including other long-term rates than on governments, would also be a strong procyclical influence.

As in the case of long-term issues, the relative cost of advance refunding offerings in the intermediate maturity area also appears to compare favorably with those issued in regular financings. For this comparison new issues maturing in

3 through 10 years offered through cash subscription or in regular refundings were matched against similar issues offered in advance refundings.

As shown in the accompanying table, from May 1960 through November 1966, about $45 billion of 3 to 10-year securities were issued at an average offering rate of 4.15% with an average term of 5.6 years in regular financings. In comparison, similar term issues, offered in advance refundings, totaled $56.5 billion, at an average investment yield of 4.11%, with an average maturity of 6.4 years. (For details see Appendix Table 18.)

In this case, the average spread of the offered yields above market rates on issues of comparable maturity was slightly more in the advance refundings than in cash financings and regular refundings. In practice, however, such spreads have not been an important factor in determining the exchange percentage in advance refundings. Moreover, the yield spreads in financings for new cash do not reflect the value of the tax and loan account credit involved.

Treasury Issues with Maturities over 3 but not over 10 years, 1960-1966

	Amount issued ($ bil.)	Average term to maturity (years)	Average offering yield	Average offering yield spread 1/
In cash financings and regular refundings at maturity, May 1960-Nov. 1966....	44.9	5.6	4.15%	.10%
In advance refundings June 1960-Aug. 1966...	56.5	6.4	4.11	.11

1/ Spreads above market yields on outstanding issues of comparable maturity.

It should be noted, however, that in the case of the regular financings the debt extended was for the full term of 5.6 years while not all of the 6.4 years in advance refunding represents debt extension. In advance refunding the debt extension is reduced by the remaining terms of the eligible issues. In the case of junior advance refunding into intermediate issues this can reduce the debt extension considerably. But even with full allowance for this, the average extension on 3 to 10-year issues in the advance refundings was 5.3 years. Thus the bond-years of extension (amounts times years) in the regular financings was $250 billion-years and in the advance refundings, $299 billion-years.

It would seem, therefore, that advance refunding was also successful in extending debt into the intermediate area at an interest rate which was comparable to and in fact slightly less than in issuance for cash or in maturity refunding.

One approach toward determining the cost of advance refunding is the budget or dollar cost concept as shown in the report of the Senate Finance Committee hearings on advance refunding, March 14, 1962 1/. In this approach it is implicitly assumed that advance refunding is not mandatory as is the refunding of a maturing issue. Thus, the budget effect is logically measured on the basis of not doing anything until an issue reaches maturity. But since the reason for having an advance refunding in the first place, is to improve the maturity structure of the marketable debt, it seems appropriate

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1/ Pages 14 and 15, Hearings on Advance Refunding and Debt Management March 15 and 16, 1962, before the Senate Finance Committee.

to assume that at maturity, the eligible issues would be extended to the same point of time as in the actual advance refundings.

More explicitly, the additional cost (per $100) is the difference between the interest rate on the outstanding eligible issue, and the rate on the new issue offered in exchange, applied for the remaining term of the old issue. The saving (per $100) is the difference between the interest rate on the new issue offered in the exchange, and the rate that would be required to reopen the same new issue when the remainder of the old issue reaches maturity. This difference is applied to the period from the maturity of the old issue to the maturity of the new.

The following analysis includes only those eligible issues which matured before December 1966. This not only covers about 80% of all exchanges, but also precludes any need to guess the interest rates required to refund the remainder of the eligible issues maturing in the future.

It is abundantly clear that by advance refunding, the Treasury has saved very substantially on the eligible issues maturing through 1966. This is true whether or not the 4-1/4% interest ceiling on over 5-year offerings is taken into account.

Under assumption "A" in the accompanying table, if the Treasury had waited and could have refunded into the new issues offered in the advance refundings at rates above 4-1/4%, the over-all net saving would have totaled more than $700 million. This is the theoretical amount saved by

Estimated Interest Cost or Savings in Advance Refunding of Eligible Issues which Matured before Dec. 31, 1966

Additional cost based on the difference in interest rate between the eligible and the offered issues

Assumption A on interest saving: Savings based on difference between rate on the new security offered in the advance refunding and the market rate required to reopen the offered issue when the eligible issue reached maturity 1/

(In millions of dollars)

Eligible issues maturing in:	Total amount exchanged	Added cost for period to eligible issue maturity	Saving, from eligible issue maturity to offered issue maturity	Saving less cost: net saving (+) or cost (-)
1961.....	4,214	74	-6	-80
1962.....	2,473	47	25	-22
1963.....	16,257	119	75	-44
1964.....	11,232	41	170	+130
1965.....	8,513	78	166	+88
1966.....	16,226	84	719	+635
Total....	58,915	443	1,149	+706

Assumption B on interest saving: Same as "A" except when market rate required on an offered issue maturing in more than 5 years was over 4-1/4%, the length of the new issue was limited to 5 years or made as long as possible at 4-1/4%. (Total amounts exchanged and additional cost are the same as above).

(In millions of dollars)

Eligible issues maturing in:	Total saving and net saving or cost		Discounted values of added cost and of savings under "B" 2/		
	Total saving	Net saving (+) or cost (-)	Added cost	Total saving	Net saving (+) or cost (-)
1961.....	-6	-80	72	-6	-78
1962.....	25	-22	45	21	-24
1963.....	75	-44	113	66	-47
1964.....	77	+37	39	68	+29
1965.....	88	+10	72	73	+1
1966.....	467	+384	79	400	+321
Total....	726	+283	421	622	+202

1/ Market rate on offered issue plus .12%, regardless of whether issues over 5 years would require more than 4-1/4%.

2/ Discounted at 3.5%, see footnote 3, appendix table 19.

Note: Figures may not add to totals due to rounding.

having refunded earlier. Through 1963 the Treasury would have incurred a net loss. But as rates rose during the course of the interest rate cycle the net costs turned into net savings. With interest rates continuing to rise sharply, particularly after the increase in the discount rate in December 1965, the theoretical net savings increased almost astronomically to $635 million on the amounts which would have matured in 1966. Even excluding the 1966 maturities and eliminating the upsurge in interest rates during 1966 the Treasury would have had a theoretical net saving of about $70 million through 1965.1/

However, well before the end of 1965 the increase in rates above 4-1/4% had already precluded the issuance of maturities over 5 years. It is evident, therefore, that the figures under assumption "A" are unrealistic. At best they merely provide some measure of the value of the debt extension which actually took place. A more realistic figure for what would have happened without the advance refundings is indicated under assumption "B".

In "B", when market rates rose above the 4-1/4% limit, the length of a hypothetical refunding issue was either limited to 5 years or was made as long as possible at 4-1/4%. Under this assumption the net savings would have been drastically reduced from over $700 million to about $280 million as a result of the foreshortened terms of these hypothetical issues.1/

1/ For cost details on each eligible issue in advance refundings maturing through 1966, see Appendix Table 19.

If these more realistic figures are discounted to the dates of the advance refundings, the savings would be discounted more than the added costs, because the savings are further in the future. Nevertheless, the discounted values still produce a net over-all savings of more than $200 million on the amounts exchanged, which would have matured by the end of 1966. Thus, even under the more realistic assumption regarding the 4-1/4% interest ceiling the Treasury undoubtedly saved on interest cost as a result of having previously extended debt through advance refunding.

From this, it may be inferred that the Treasury is bound to benefit in the long run, only if interest rates are in an ever upward trend. But that is a superficial view. The fact is that the figures in assumption "B" tend to understate the benefits of advance refunding. Not only have the amounts extended been placed well beyond the need to refund them at the present historically high rate levels, but also the probability is that that much of the $59 billion maturing through 1966 would have been refunded and most likely re-refunded by this time. This most certainly would have added to the upward pressure on the rates for refunding the issues which did actually mature.

From a budget cost/point of view, approximately $185 billion of marketable coupon/debt came to maturity and was refunded in the regular way during the 5-1/2 years from mid-1961 through 1966. About $99 billion of this was publicly held and the part of total eligible advance refunding issues maturing through 1966 in public hands was over $50 billion. It seems reasonable to suppose that the net effect of reducing the publicly held refunding

load by more than 1/3 should have produced some lowering of interest rates required for the regular refundings. If that lessening of the rate required, averaged as little as 5 basis points, the budget savings based on total maturities would come to over $90 million a year.

In summary, it seems almost certain that massive debt extension through cash financing or refunding at maturity on a scale matching advance refunding would have been far more expensive and would have produced much greater repercussions in the other capital markets, if indeed, it would have been possible at all. It also appears certain that through 1966, advance refunding has produced interest savings for the Treasury, even if the early benefits of an improved debt structure are ignored. Moreover, any reasonable assumption on the interest saving involved in having reduced publicly held short-dated coupon debt, would add considerably to the interest which was saved directly as a result of advance refunding.

Tax consequences of advance refunding: There have been two types of tax treatment of exchanges in advance refunding: Nontaxable exchanges with the tax effect on gains or losses generally postponed; and taxable exchanges with an immediate tax effect on gains or losses.

Beginning with the July 1964 advance refunding, taxable exchange treatment has been accorded to the prerefunding eligible issues maturing in 6 months or less. From that time on, the Treasury decided that issues as close to maturity as 6 months should be regarded as maturing issues for tax purposes. Under such tax treatment any gain or loss is recognized

immediately for tax purposes and is reportable for the year in which the exchange took place.

Exchanges are designated as nontaxable by the Secretary of the Treasury under the authority of Section 1037 of the Internal Revenue Code as amended in September 1959. As defined in the Code, any gain or loss in such an exchange is not recognized for tax purposes at the time of the exchange, but instead, is postponed until the new securities received by the taxpayer are sold, redeemed, or otherwise disposed of, whichever comes first. The designation of an exchange as nontaxable is not permissive; it must be treated as such by all taxpayers.

In a nontaxable exchange, any subsequent gain or loss upon the sale, redemption, or other disposal of the new issues is a capital gain to a taxpayer unless the securities are stock in trade, as in the case of dealers. The holding period which determines whether the capital gain is short or long-term, is measured from the purchase date of the eligible issue turned in by the taxpayer, to the disposal date of the new issue offered in the exchange. If the period of holding is greater than 6 months, any gain (or loss) is a long-term capital gain (or loss).

To commercial banks--and also to mutual savings banks and savings and loan associations--losses in excess of gains in a given year on coupon issues, whether acquired in advance refundings or otherwise, are considered to be ordinary losses for tax purposes; while gains in excess of losses

are capital gains. Because of this provision, commercial banks tend to segregate gains in one year and losses in another in order to take greater advantage of the unsymmetrical tax treatment of gains and losses on coupon securities. This practice is mostly confined to their holdings of Governments and advance refunding allows considerable latitude in this regard during the term to maturity of the offered issues.

The September 1959 Act covering nonrecognition of gains or losses in advance refundings also amended the Code with respect to the cost basis of the eligible and offered issues. In a par for par exchange, without adjustment (boot) payments, the cost basis of the eligible (old) issue becomes the cost basis of the new issue received by the investor. However, when an adjustment payment is made by the investor to the Treasury, the boot is invariably added to the cost basis of the old issue to determine the basis of the new issue.

When boot is paid by the Treasury to the investor, the payment is ordinarily subtracted from the cost basis of the old issue to determine the basis of the new issue. But, this procedure holds only if the total value received by the investor in the exchange is less than the cost basis of his old issue. This is determined by comparing the sum of the boot received by the investor and the fair market value of the new issue at the time of exchange, with the cost basis of the old issue. If the sum of the boot plus the new issue value exceeds the old issue basis, the excess is recognized immediately. But in no case can the amount recognized be

greater than the amount of the boot received by the taxpayer. (For examples of the tax treatment of boot see Appendix page 37.

The tax consequences of boot in advance refunding can be quite complex. One generalization that may be made, however, is that boot paid to a taxpayer by the Treasury improves his yield after tax as compared with providing the same investment yield on the offered issue before tax, but without boot. Boot paid by a taxpayer to the Treasury has the opposite effect.

As a fairly simple illustration, let us assume that a 5-year 3% existing issue currently priced in the market at 96.20 (decimal price, yield about 3.84%) is made eligible for exchange into a 25-year 4% bond without boot. Based on the price of the eligible issue, the offering investment yield before tax on the 25-year 4's, would be 4.25%. Given these assumptions, the "minimum reinvestment rate" before tax for the 20-year extension would be 4.41%. This is the minimum rate at which an investor who elects not to exchange, would have to reinvest the proceeds of his 3% issue when it matures, in order to equal the return on the 4% bond, had he accepted the exchange offer. 1/

The table below shows the effect of tax on the offering investment yield and the reinvestment rate if boot is used to equate the terms of the exchange (before tax) when the coupon rate is reduced or increased by 1/8%. In this case the boot equates the terms of the exchange using a 3-7/8% or a 4-1/8% coupon rate instead of 4%.

1/ For a fuller explanation of the reinvestment rate see Appendix pages 38 and 39, excerpts from advance refunding offer of Feb. 20, 1963 paragraphs 12 and 13.

Tax Effect of Boot Payments on Investment Yield
and Reinvestment Rate

Assumptions: The tax rate is 48% (the corporate rate) on the coupon income and 25% on long-term capital gain. The taxpayer is a commercial bank. The cost basis of the 5-year 3% issue outstanding is 98 per $100; and its current market price is 96.20. The exchange is nontaxable.

Coupon rate on 25-year bond	Boot paid to taxpayer (per $100)	Investment yield 1/			Reinvestment rate	
		Before tax	After tax	Taxable equivalent 2/	Before tax	Taxable equivalent 2/
3-7/8%.....	+1.91	4.25%	2.21%	4.24%	4.41%	4.40%
4%.....	0	4.25	2.19	4.20	4.41	4.35
4-1/8%.....	-1.91	4.25	2.17	4.17	4.41	4.30

1/ To maturity date of the new.
2/ On a hypothetical issue at par.

The advantage to the taxpayer of receiving a boot payment clearly shows up in the figures. On the 3-7/8% bond, providing the same yield as the 4% before tax, the after tax yield is greater by 2 basis points, and the taxable equivalent rate on a hypothetical par issue is greater by about 4 basis points. The minimum reinvestment rate for the extension is better by 5 basis points. These earning rates are correspondingly lower on the 4-1/8% bond with boot paid by the taxpayer.

This effect of boot on the after tax yield is due to the difference in tax treatment between boot payments and coupon income. The coupon is subject to the full ordinary income tax rate, while the cash payment of boot is considered a change in capital value.

The payment of boot to, or by, the investor is a substitute for a decrease or an increase in the offered coupon rate. Thus, when boot is received by the taxpayer in compensation for a smaller coupon rate than he would otherwise be entitled to, the effect is the conversion of a fraction of what would have been ordinary income into capital gain. When boot is paid by the taxpayer the effect is opposite and he pays ordinary income tax rates on the small additional part of his coupon income which his boot has paid for.

There is little evidence to indicate that taxable investors have been greatly influenced by the effect of boot payments. It is a fact, however, that the Treasury has paid out considerably more boot than it has received in its nontaxable advance refundings. On more than $57-1/2 billion of eligible issues exchanged in those refundings, boot paid to public holders totaled about $231 million as against $77 million paid by public investors to the Treasury. (For details see Appendix Table 20.)

A conservative rough estimate indicates that upwards of 90% of these boot payments were made to, or by, taxable investors. It seems clear that the Treasury has provided a tax boon to those investors, even if the period of holding the offered issues is not to maturity. In addition to the advantage of capital gains treatment on the boot received, in many cases taxpayers are provided free use of the capital gains tax during the postponement of recognition.

The obvious conclusion from this is that, on equity grounds, boot

should be reduced to the barest minimum needed to equate the terms of exchange in advance refundings involving more than one eligible issue. Furthermore, the eligible issues should be chosen with this in mind.

Participation Certificates

Opinions differ sharply on the "true" nature of participation certificates. The economic, accounting, and statistical aspect of the problem helped to trigger a major study of budget concepts and practice, while the political problems and implications have sharply divided the Congress on the subject.

Proponents hold that the sale of PC's, as shares in the principal and interest income of an irrevocably pledged pool of loans, represents the sale of assets. They further say that under the PC procedures the costs of credit programs to the Federal Government are more truly reflected than if the programs are financed through Treasury advances to agencies at rates below Treasury borrowing costs. Moreover, they say that PC's provide a means for attracting private funds into the credit areas represented by the pool of loans at less cost than afforded by other alternatives. They point out that the cost of selling PC's is less than the cost of selling assets directly, even in those cases in which the Federal Government retains full servicing responsibility and provides a full guarantee.

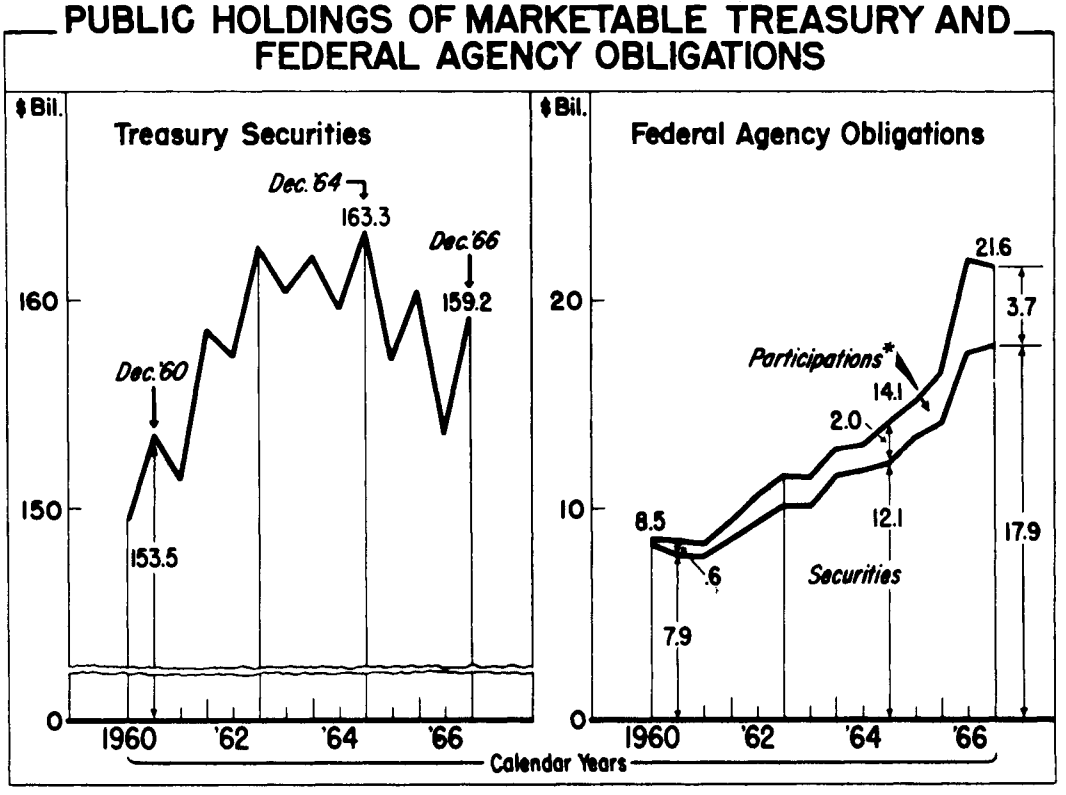
Those on the other side feel strongly that a PC is a somewhat thinly disguised device for selling a debt instrument. The new funds attracted by the fully guaranteed PC's free of servicing costs merely prove that the attraction is indeed a Government security. Moreover, all of the improvements in the terms and conditions since early 1967 to improve marketability make the PC's resemble direct debt obligations more and more

and to resemble sales of assets less and less.

As a matter of fact, PC's did not become a significant issue until after the advent of the FNMA-type offerings in November 1964. Before that such instruments had been sold by the Commodity Credit Corporation for many years without repercussions, while the early Export-Import Bank PC's, which date back to May 1962, were also distributed without fanfare, although it should be noted they were sold to a rather select group of commercial banks. Other PC's were sold in the process of liquidating the RFC.

The FNMA offerings of PC's, which began in November 1964, followed legislation empowering FNMA to act as trustee for pooling Federal Agency

Chart-11



held mortgages. Although these offerings started in a period of slowly rising Treasury and Federal Agency market yields, the major impact of the PC's came in 1966 after the escalation of the war in Vietnam followed by the discount rate rise in December. Increased sales of PC's had been forecast in the budget for fiscal 1966 with a substantially larger increase in fiscal 1967.

During the December 1964-June 1966 period PC's held by the public more than doubled, from $2.0 billion to nearly $4.4 billion. In the same period, public borrowing by Federal Credit Agencies also rose sharply. In fact, during the 1-1/2 years from December 1964 through June 1966, Federal Agency debt held by the public increased from $12.1 billion to $17.6 billion, at roughly 3-1/2 times the annual rate of increase in the preceding four years.

To a considerable extent, the expansion of Agency borrowing resulted from a swelling demand for credit generally. Commercial banks and other lending institutions facing heavy borrowing requirements in a tightening money and credit market environment, began to ration credit and choose among borrowers. Unsatisfied borrowers, including farmers and small businessmen, turned to the Federal Agencies to meet credit needs ordinarily supplied by the private institutions. In addition, the tightening situation produced a sharp reduction in the supply of mortgage money. The savings and loan associations experienced particularly heavy withdrawals of funds, seeking higher rates of return elsewhere. As a result, the associations increased their borrowing from the Federal Home Loan Banks. At the same time FNMA increased its purchases of mortgages in attempting to support the secondary market.

Thus, these Federal Agencies faced with expanded credit demands sharply increased their market borrowing. Also during this period the increased demand for bank credit for business loans and other private needs, plus the burgeoning corporate and municipal long-term borrowing, added to the burden on the credit markets. Moreover, the expanded role of PC's envisaged in the Participation Sales Act of May 1966 and called for in the budget for fiscal 1967, added to heightened expectations of still tighter markets and higher rates.

As a result, a near crisis atmosphere developed in the extremely tightened environment of July and August 1966, and interest rates generally reached the highest levels in 40 years or more. Although the $9.7 billion reduction in public holdings of marketable Treasury debt, from the end of 1964 through mid-1966 as shown on Chart 11, more than offset the stepped up Federal Agency net borrowing plus increases in outstanding PC's, it was apparently not enough to enable lenders to meet the soaring demands from private borrowers.

The market rate on 1-year Federal Agency issues reached a peak of close to 6-3/8% on August 30, 1966; the 5-year rate rose above 6-1/8%; and the rate in the 10-year area increased to more than 5-7/8%. Treasury rates at the same time had also risen swiftly and by the end of August had sharply cut the yield spreads between Treasury and Agency issue rates from the peak spreads in late June and early July. The peak spreads occurred when expectations of higher Agency and PC rates were at full tide.[1/] At times market

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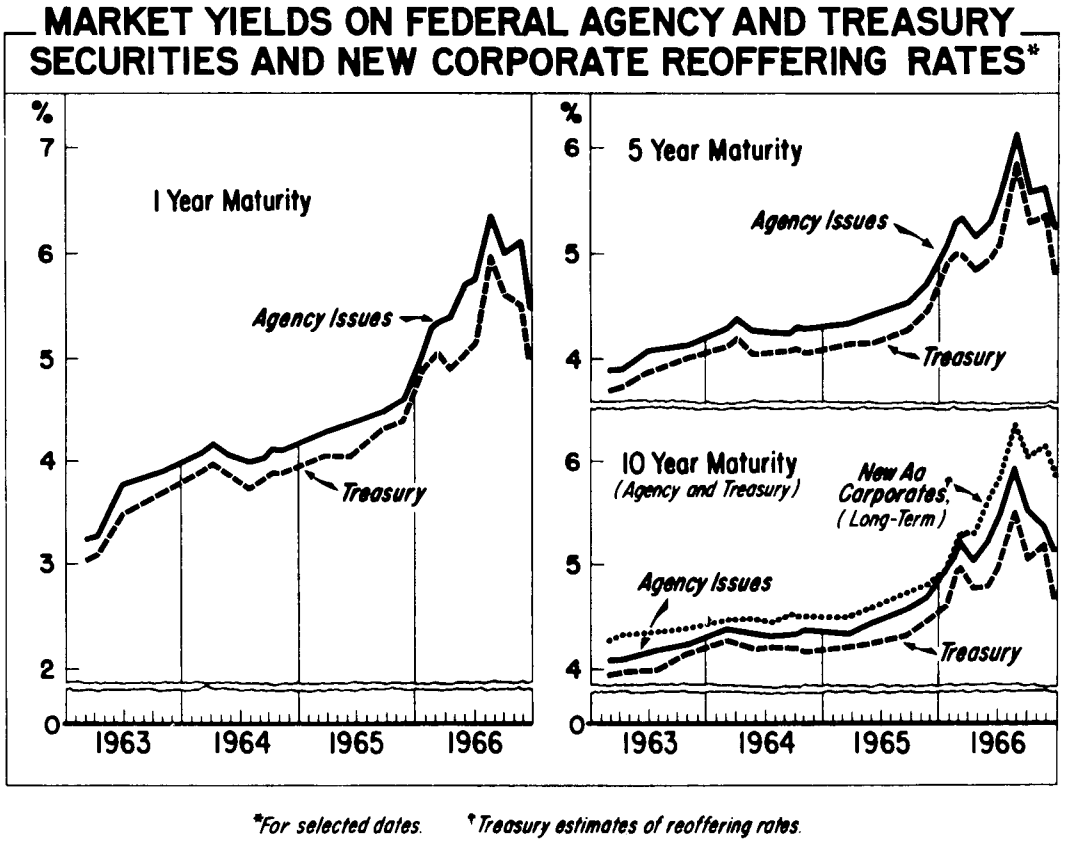
1/ For market yields on Agency and Treasury issues and differentials, at constant maturities, see Appendix Table 21.

yields on Agency issues in the 10-year maturity area were nearly as high as reoffering rates on new Aa corporate bonds without deferred call protection. (See Chart 12.) Yields on outstanding PC's were generally higher than Agency yields during 1966.

In this situation, the steps taken by the Administration in early September 1966 to allay apprehensions and to ease the pressures on the credit markets were directed mainly toward diminishing Federal Agency borrowing and PC sales. On September 8, in addition to other fiscal measures the President called for the curtailment of public borrowing by the Federal Agencies and the next day the Treasury announced that scheduled sales of

Chart 12



PC's would be postponed until the credit markets improved and that any new borrowing for Agency needs in excess of maturities would be absorbed by the Government Investment Accounts.

As a result of these measures, market fears were calmed, the tightness was eased, and interest rates quickly receded from the near-crisis peaks. By December 1966 the situation had improved enough to permit the announcement of a new PC offering.

The evolution of the present participation certificates, aside from the short-term CCC offerings, began in May 1962 with the introduction of the Eximbank type PC's. The market features of these PC's was thought to make them comparable with prime rate bank loans, as much as with Federal Agency issues.

Some of the terms and conditions of the Eximbank PC's sold before 1967 tended to reduce their comparability with Agency issues. The principal amounts of the PC's were subject to semiannual amortization generally in conformity with the loans in the pool. Their negotiability was quite limited and to compensate for the lack of liquidity, holders were given the option (the Eximbank also) of redeeming the PC's in part or in full on each interest payment date, beginning 2-1/2 years from the date of issue. The redemption option time was reduced on the last 2 issues to 18 and 15-1/2 months, primarily to make them easier to sell. The full term to maturity was 10 years on the first PC's but this was reduced to 7 years thereafter.

About $2.1 billion of these Eximbank PC's were issued but by December 1966 about $1.0 billion had been retired, mostly through the exercise of the redemption option. The Exim-type PC's were relatively expensive instruments as indicated in the following table.

Export-Import Bank PC Offerings, Rates, and Spreads, 1962-1966 1/

Issue Date	Amount ($ mil.)	Term to earliest redemption (yrs.-mos.)	Interest cost to Eximbank	Cost spread above		
				Federal Agency market yields 2/	Treasury market yields 2/	Prime commercial bank rate
May 1962	300	2-6	4.25%	.72%	.93%	.25%
May 1963	250	2-6	4.00	.50	.64	-.50
Apr. 1964	372	2-6	4.50	.22	.34	0
Nov. 1964	450	2-6	4.50	.37	.50	0
Feb. 1966	365	1-6	5.50	.29	.49	.50
June 1966	396	1-3-1/2	5.60 3/	.20	.67	.10

1/ Excluding rollover of $107 million of the April 1964 issue turned in for redemption in October 1966.

2/ At Eximbank PC terms to earliest redemption date at holder's option.

3/ Including $1.25 per $1,000 commission.

As a new untried instrument the Exim PC's started with a fairly high yield spread above Federal Agency market rates and even above the commercial bank rate. In subsequent offerings, the spreads above Agency issue rates declined, partly as a result of a somewhat improved customer reception, but mainly as a result of mounting upward rate pressures in the Agency market. Comparisons with the prime rate do not indicate a close relationship, primarily because the prime rate was held at artificial levels with compensating balances providing the finer tuning needed for rate flexibility.

Attempts to raise target amounts through Eximbank offerings in 1966 proved unsuccessful. As a result, beginning in 1967 the terms and conditions of Eximbank PC's were changed to conform with the newest FNMA type PC's.

In contrast to the Exim PC's the first 3 offerings of FNMA PC's were fairly well received at rates generally in line with yields on existing Agency issues. This occurred despite the underwriters' dislike of some features such as small serial maturities extending over a 10 to 15-year period and the availability of the obligations only in registered form. Moreover, in the belief of some bond counsel there was a definite need for an Attorney General opinion that Treasury funds, if required, would be guaranteed to meet interest and principal payments.

As indicated in the table below, the interest costs on the first 3 PC's averaged between 7 and 9 basis points above comparable Agency market yields and between 1/4 and 3/8% above Treasury yields. These costs seemed to be quite reasonable in view of the newness of the offered instruments. However, the two offerings in the first half of 1966 were relatively much more expensive in the rapidly rising interest rate environment at the time.

It should be mentioned that the comparison of PC costs with yields on outstanding Agency issues depends on the validity of dealers' quotations in the Agency market. If it can be argued that dealers' quotations are not much further out of line with "true" market values at any one time than at another, the changes in the spreads are a reasonable index of

relative additional costs needed to ensure market acceptance. In 1965-66, the spreads above Treasury rates on the parts of PC offerings maturing after 5 years reflect the lack of any possible increase in the supply of over 5-year Treasury bonds in the immediate future.

FNMA PC Offerings, Rates, and Spreads, 1964-1966 1/

Issue Date	Total amount ($ mil.)	No. of maturities	Average term (yrs.)	Average interest cost	Average cost spread above	
					Federal Agency market yields	Treasury market yields
Nov. 1964	300	10	5.5	4.37%	.08%	.25%
July 1965	525	15	8.0	4.54	.09	.35
Dec. 1965	375	15	8.0	4.76	.07	.31
Apr. 1966	410	15	9.3	5.44	.26	.55
June 1966	530	8	6.7	5.57	.28	.72
Jan. 1967 1/	600 2/	3	11.2	5.25	.09	.57

1/ Including the Jan. 1967 offering announced Dec. 19, 1966.
2/ Public portion of offering; in addition $500 million was taken by Government Investment Accounts.

The first FNMA PC's following the postponement of scheduled offerings by the Secretary in September 1966 carried revised terms and conditions strongly recommended by market professionals during the summer. In the improved market environment at the end of the year, the average interest cost spread above Federal Agency rates on the new PC's was back to the pre-1966 levels. However, the average spreads above Treasury yields remained large, reflecting the continuing substantial differentials between Treasury and Agency issues.

In summary, the FNMA-type PC's, particularly the models following the September 1966 postponement, appear to have earned a place in the roster of regular Agency issues. To that extent the nature of PC's as viewed by the market has been resolved.

APPENDIX

NEW TECHNIQUES IN DEBT MANAGEMENT

SINCE THE LATE 1950'S

Table 1--Monthly Average Rates* in the 3-Month and 6-Month Bill Weekly Auctions, November 1958-December 1966

(Per cent per annum)

Auction month	3-month	6-month	Spread	3-month	6-month	Spread	3-month	6-month	Spread	3-month	6-month	Spread
		1958										
Nov.	2.756	---	---									
Dec.	2.814	3.065[1/]	.251									
		1959			1961			1963			1965	
Jan.	2.837	3.097	.260	2.302	2.496	.194	2.914	2.962	.048	3.828	3.944	.116
Feb.	2.712	3.166	.454	2.408	2.601	.193	2.916	2.970	.054	3.929	4.003	.074
Mar.	2.852	3.159	.307	2.420	2.591	.171	2.897	2.950	.053	3.942	4.003	.061
Apr.	2.960	3.277	.317	2.327	2.493	.166	2.909	2.988	.079	3.932	3.992	.060
May	2.851	3.368	.517	2.288	2.436	.148	2.920	3.006	.086	3.895	3.950	.055
June	3.247	3.531	.284	2.359	2.546	.187	2.995	3.078	.083	3.810	3.872	.062
July	3.243	3.885	.642	2.268	2.457	.189	3.143	3.272	.129	3.831	3.887	.056
Aug.	3.358	3.840	.482	2.402	2.670	.268	3.320	3.437	.117	3.836	3.938	.102
Sept.	3.998	4.626	.628	2.304	2.689	.385	3.379	3.494	.115	3.912	4.050	.138
Oct.	4.117	4.646	.529	2.350	2.702	.352	3.453	3.573	.120	4.032	4.197	.165
Nov.	4.209	4.585	.376	2.458	2.686	.228	3.522	3.648	.126	4.082	4.238	.156
Dec.	4.572	4.915	.343	2.617	2.875	.258	3.523	3.667	.144	4.362	4.523	.161
		1960			1962			1964			1966	
Jan.	4.436	4.840	.404	2.746	2.965	.219	3.529	3.652	.123	4.596	4.731	.135
Feb.	3.954	4.321	.367	2.752	2.955	.203	3.532	3.664	.132	4.670	4.820	.150
Mar.	3.439	3.693	.254	2.719	2.883	.164	3.553	3.740	.187	4.626	4.825	.199
Apr.	3.244	3.548	.304	2.735	2.838	.103	3.484	3.676	.192	4.611	4.742	.131
May	3.392	3.684	.292	2.694	2.789	.095	3.482	3.612	.130	4.642	4.814	.172
June	2.641	2.909	.268	2.719	2.804	.085	3.478	3.572	.094	4.539	4.696	.157
July	2.396	2.826	.430	2.945	3.085	.140	3.479	3.566	.087	4.855	4.982	.127
Aug.	2.286	2.574	.288	2.837	3.005	.168	3.506	3.618	.112	4.932	5.189	.257
Sept.	2.489	2.803	.314	2.792	2.947	.155	3.527	3.666	.139	5.356	5.798	.442
Oct.	3.426	2.845	.419	2.751	2.859	.108	3.575	3.729	.154	5.387	5.652	.265
Nov.	2.384	2.650	.266	2.803	2.875	.072	3.624	3.794	.170	5.344	5.604	.260
Dec.	2.272	2.530	.258	2.856	2.908	.052	3.856	3.971	.115	5.007	5.108	.101

*Bank discount rates.

1/ 3-week average.

Table 2--91-Day Treasury Bills--Quarterly Averages of Auction Results, 1958-66

(Dollar figures are in millions)

Date	Total tenders accepted	Total tenders received	Coverage ratio	Non-competitive bids	Competitive Bids				Discount rates and spreads		
					Nonbank dealers		Others		Average rate	High to low	Average to high
					Received	Accepted	Received	Accepted			
1958											
I	$1,724	$2,510	146%	$337	n.a.	n.a.	n.a.	n.a.	1.896%	.094%	.024%
II	1,701	2,522	148	264	"	"	"	"	1.020	.103	.021
III	1,746	2,528	145	276	"	"	"	"	1.653	.108	.035
IV	1,755	2,707	154	298	"	"	"	"	2.788	.089	.021
1959											
I	1,431	2,301	161	261	"	"	"	"	2.803	.114	.017
II	1,101	1,968	179	223	"	"	"	"	3.014	.065	.019
III	1,139	1,865	164	223	"	"	"	"	3.511	.136	.065
IV	1,136	1,900	167	235	"	"	"	"	4.306	.108	.044
1960											
I	1,139	1,909	168	248	$528	$226	$1,133	$665	3.904	.104	.050
II	1,123	1,817	161	211	566	288	1,030	624	3.057	.133	.065
III	1,047	1,843	176	206	569	232	1,067	609	2.393	.067	.030
IV	1,047	1,873	179	214	591	220	1,069	613	2.354	.050	.039
1961											
I	1,076	1,959	182	215	585	231	1,159	630	2.380	.056	.019
II	1,093	2,016	185	203	647	254	1,166	636	2.327	.044	.017
III	1,101	1,962	178	218	621	250	1,123	633	2.331	.053	.020
IV	1,109	2,073	187	221	660	251	1,192	637	2.473	.042	.014
1962											
I	1,170	2,182	187	214	610	191	1,358	765	2.738	.042	.014
II	1,247	2,296	184	208	672	244	1,416	795	2.714	.034	.011
III	1,301	2,190	168	240	644	272	1,306	789	2.856	.043	.014
IV	1,301	2,198	169	249	659	283	1,290	769	2.803	.033	.010
1963											
I	1,301	2,169	167	256	608	243	1,305	802	2.910	.038	.010
II	1,301	2,177	167	238	632	303	1,307	760	2.940	.028	.007
III	1,301	2,127	164	254	591	288	1,282	759	3.284	.042	.019
IV	1,285	2,102	164	254	651	324	1,197	707	3.495	.030	.009

Table 2--91-Day Treasury Bills--Quarterly Averages of Auction Results, 1958-66

(Dollar figures are in millions)

Date	Total tenders accepted	Total tenders received	Coverage ratio	Non-competitive bids	Competitive Bids				Discount rates and spreads		
					Nonbank dealers		Others		Average rate	High to low	Average to high
					Received	Accepted	Received	Accepted			
1964											
I	$1,286	$2,271	177%	$250	$619	$310	$1,402	$727	3.537%	.024%	.007%
II	1,216	2,108	173	230	590	279	1,287	709	3.482	.024	.009
III	1,224	2,105	172	244	559	230	1,302	749	3.502	.029	.009
IV	1,223	2,146	175	246	576	231	1,324	747	3.689	.034	.014
1965											
I	1,186	2,192	185	248	522	180	1,423	757	3.901	.024	.009
II	1,201	2,149	179	240	503	181	1,407	780	3.873	.022	.008
III	1,201	2,087	174	260	485	198	1,342	743	3.867	.031	.013
IV	1,201	2,048	171	254	495	232	1,299	715	4.175	.048	.016
1966											
I	1,302	2,237	172	264	538	254	1,434	784	4.630	.037	.015
II	1,301	2,159	166	249	519	234	1,391	817	4.593	.041	.016
III	1,301	2,200	169	260	488	214	1,451	827	5.071	.095	.041
IV	1,302	2,277	175	266	563	267	1,448	769	5,228	.056	.021

n.a. Not available.

Table 3--182-Day Treasury Bills--Quarterly Averages of Auction Results

(Dollar figures are in millions)

Date	Total tenders accepted	Total tenders received	Coverage ratio	Non-competitive bids	Competitive Bids				Discount rates and spreads		
					Nonbank dealers		Others		Average rate	High to low	Average to high
					Received	Accepted	Received	Accepted			
1958											
I											
II											
III											
IV	$400	$ 890	222%	$39	n.a.	n.a.	n.a.	n.a.	3.065%	.031%	.010%
1959											
I	400	750	188	26	"	"	"	"	3.137	.095	.026
II	423	825	195	27	"	"	"	"	3.383	.056	.018
III	408	807	198	43	"	"	"	"	4.099	.089	.038
IV	429	763	178	50	"	"	"	"	4.724	.076	.038
1960											
I	400	842	210	60	$258	$ 72	$ 525	$268	4.239	.050	.020
II	470	831	177	43	267	121	520	305	3.344	.091	.040
III	478	986	206	45	310	91	631	341	2.740	.045	.014
IV	470	1,043	222	48	355	93	640	329	2.664	.045	.013
1961											
I	492	1,058	215	46	319	62	693	384	2.565	.041	.013
II	485	1,051	219	46	343	78	662	361	2.496	.032	.010
III	569	1,069	188	42	337	129	690	398	2.609	.038	.015
IV	593	1,197	202	54	359	114	784	425	2.749	.030	.011
1962											
I	600	1,192	199	51	364	115	777	434	2.930	.030	.013
II	631	1,292	205	52	438	155	802	424	2.809	.022	.007
III	701	1,354	197	58	392	116	934	527	3.012	.032	.012
IV	747	1,469	198	61	448	166	960	520	2.880	.021	.006
1963											
I	800	1,353	169	55	408	189	890	556	2.961	.029	.010
II	801	1,527	191	58	452	178	1,017	565	3.023	.017	.005
III	800	1,396	174	57	462	223	877	520	3.404	.032	.016
IV	800	1,435	179	67	467	200	901	533	3.625	.027	.010

Table 3--182-Day Treasury Bills--Quarterly Average of Auction Results

(Dollar figures are in millions)

Date	Total tenders accepted	Total tenders received	Coverage ratio	Non-competitive bids	Competitive Bids				Discount rates and spreads		
					Nonbank dealers		Others		Average rate	High to low	Average to high
					Received	Accepted	Received	Accepted			
1964											
I	$ 862	$1,715	199%	$64	$562	$239	$1,089	$559	3.683%	.020%	.006%
II	901	1,695	188	65	599	345	1,629	490	3.624	.018	.006
III	901	1,621	180	64	515	264	1,033	573	3.613	.023	.009
IV	987	1,841	187	84	613	311	1,145	593	3.834	.025	.010
1965											
I	1,002	2,218	221	96	293	354	1,328	551	3.984	.014	.004
II	1,001	2,030	203	99	675	310	1,256	592	3.929	.013	.005
III	1,001	1,806	180	97	544	278	1,165	626	3.970	.022	.008
IV	1,001	2,046	204	124	578	270	1,345	608	4.335	.024	.009
1966											
I	1,001	2,033	203	124	613	286	1,296	591	4.791	.023	.014
II	1,000	2,046	205	130	665	299	1,250	570	4.746	.026	.012
III	1,001	2,056	205	138	568	271	1,350	592	5.359	.062	.028
IV	1,001	2,186	218	761	704	295	1,643	545	5.428	.033	.011

n.a. Not available.

Table 4--Auction Results on Quarterly and Monthly 1-Year Treasury Bills

(Dollar figures are in millions)

Date of:		Subscriptions			Allotments to:				Discount rates and spreads		
Issue	Maturity	Total	Accepted	Coverage ratio	Com'l banks	Nonbank dealers	Other public	Official accounts[1]	Average rate	High to low	Average to high
Quarterly:											
4/1/59	1/15/60	$3,445	[2]/$2,006	172%	n.a.	n.a.	n.a.	n.a.	3.386%	.186%	.050%
5/11/59	4/15/60	3,461	[2]/ 2,003	173	$1,952	$1	$50	---	3.835	.125	.030
7/15/59	7/15/60	3,173	[2]/ 2,001	159	1,981	*	20	---	4.728	.472	.092
12/2/59	10/17/60	3,965	[2]/ 2,004	198	1,982	1	24	---	4.860	.207	.033
1/15/60	1/15/61	2,303	1,504	153	567	294	525	$118	5.067	.160	.083
4/15/60	4/15/61	2,857	2,001	143	1,069	402	295	235	4.608	.302	.132
7/15/60	7/15/61	3,036	1,501	202	612	290	363	236	3.265	.074	.024
10/17/60	10/16/61	3,302	1,502	220	723	334	363	82	3.131	.075	.019
1/15/61	1/15/62	3,078	1,502	205	651	406	242	203	2.679	.055	.021
4/15/61	4/15/62	4,116	2,000	206	896	448	330	326	2.827	.054	.017
7/15/61	7/15/62	4,174	2,004	208	917	536	476	75	2.908	.061	.012
10/16/61	10/15/62	3,757	2,003	187	939	667	286	111	2.975	.058	.013
1/15/62	1/15/63	3,651	2,001	182	1,078	404	302	217	3.366	.041	.015
4/15/62	4/15/63	3,454	2,001	173	925	506	407	163	2.943	.039	.014
7/15/62	7/15/63	3,722	2,004	186	952	379	629	44	3.257	.048	.016
10/15/62	10/15/63	4,535	2,500	181	1,209	574	437	280	2.969	.039	.010
1/15/63	1/15/64	5,244	2,496	210	1,331	516	587	62	3.015	.020	.005
4/15/63	4/15/64	4,048	2,501	162	1,192	628	569	112	3.062	.018	.006
7/15/63	7/15/64	4,495	1,998	225	844	538	593	23	3.582	.069	.016
Monthly:											
9/3/63	8/31/64	2,632	1,001	263	364	543	87	7	3.575	.019	.004
10/1/63	9/30/64	2,395	1,002	239	387	461	139	15	3.586	.022	.006
11/4/63	10/31/64	1,891	1,000	189	401	429	158	12	3.633	.025	.007
12/3/63	11/30/64	2,795	[3]/ 1,005	278	964	16	20	5	3.590	.029	.009

Footnotes at end of table.

Table 4--Auction Results on Quarterly and Monthly 1-Year Treasury Bills

(Dollar figures are in millions)

Date of:		Subscriptions			Allotments to:				Discount rates and spreads		
Issue	Maturity	Total	Accepted	Coverage ratio	Com'l banks	Nonbank dealers	Other public	Official accounts[1/]	Average rate	High to low	Average to high
Monthly:	(Contd.)										
1/3/64	12/31/64	$2,113	$1,000	211%	$423	$426	$141	$ 10	3.707%	.020%	.007%
2/6/64	1/31/65	2,212	1,000	221	340	463	188	9	3.680	.023	.008
3/3/64	2/28/65	2,412	1,001	241	664	222	101	14	3.765	.018	.007
4/8/64	3/31/65	2,568	1,001	257	992	*	9	---	3.719	.028	.006
5/6/64	4/30/65	1,884	1,001	188	458	411	132	---	3.705	.020	.009
6/2/64	5/31/65	2,208	1,000	221	332	503	155	10	3.719	.013	.004
7/7/64	6/30/65	2,393	1,001	239	287	540	154	20	3.691	.010	.003
8/4/64	7/31/65	2,080	1,000	208	621	232	147	*	3.644	.023	.007
8/31/64	8/31/65	1,940	1,000	194	400	425	126	49	3.688	.018	.009
9/30/64	9/30/65	1,849	1,001	185	514	323	132	32	3.773	.020	.006
10/31/64	10/31/65	2,350	1,000	235	367	408	113	112	3.790	.013	.003
11/30/64	11/30/65	2,497	1,001	249	354	418	137	92	4.068	.088	.020
12/31/64	12/31/65	2,311	1,003	230	458	282	233	30	3.972	.022	.008
1/31/65	1/31/66	2,908	1,000	291	374	342	182	102	3.945	.009	.002
2/28/65	2/28/66	2,023	1,001	202	473	355	131	42	4.062	.030	.008
3/31/65	3/31/66	2,241	1,000	224	365	420	142	73	3.987	.023	.008
4/30/65	4/30/66	2,573	1,001	257	98	650	99	154	3.996	.005	.003
5/28/65	5/31/66	2,752	1,001	275	55	724	86	136	3.954	.003	.000
6/30/65	6/30/66	2,191	1,001	219	378	349	163	111	3.807	.031	.014
7/31/65	7/31/66	1,714	1,000	171	293	420	127	160	3.875	.021	.006
8/31/65	8/31/66	1,927	1,000	193	311	408	92	189	4.006	.018	.007
9/30/65	9/30/66	2,970	1,000	297	339	264	114	283	4.236	.024	.007
10/31/65	10/31/66	2,304	1,000	230	314	281	203	202	4.192	.013	.005
11/30/65	11/30/66	1,949	1,001	195	453	256	121	171	4.277	.028	.011
12/31/65	12/31/66	2,720	1,001	272	291	459	188	63	4.731	.018	.006

Footnotes at end of table.

Table 4--Auction Results on Quarterly and Monthly 1-Year Treasury Bills

(Dollar figures are in millions)

Date of:		Subscriptions			Allotments to:				Discount rates and spreads		
Issue	Maturity	Total	Accepted	Coverage ratio	Com'l banks	Nonbank dealers	Other public	Official accounts 1/	Average rate	High to low	Average to high
Monthly: (Contd.)											
1/31/66	1/31/67	$1,917	$1,001	192%	$486	$176	$147	$192	4.699%	.025%	.011%
2/28/66	2/28/67	1,771	1,000	177	314	352	210	124	4.945	.032	.012
3/31/66	3/31/67	1,571	1,000	157	397	374	154	75	4.739	.060	.040
4/30/66	4/30/67	1,834	1,001	183	332	302	177	190	4.773	.039	.016
5/31/66	5/31/67	2,013	1,001	201	302	347	154	198	4.966	.035	.014
6/30/66	6/30/67	1,569	1,001	157	383	406	162	50	4.697	.165	.098
7/31/66	7/31/67	1,869	995	188	236	307	187	265	4.964	.048	.024
8/31/66	8/31/67	2,237	1,000	224	403	150	97	350	5.844	.054	.019
9/30/66	9/30/67	1,473	900	164	308	212	195	185	5.806	.081	.039
10/31/66	10/31/67	2,272	905	251	189	535	97	84	5.544	.011	.005
11/30/66	11/30/67	2,164	901	240	243	275	106	277	5.519	.016	.002
12/31/66	12/31/67	1,665	901	185	238	217	215	231	4.820	.076	.030

n.a. Not available.
1/ Federal Reserve and Government Investment Accounts.
2/ 100% Tax-and-loan-account credit.
3/ 50% Tax-and-loan-account credit.

Table 5--Auction Results on Monthly 9-Month Treasury Bills

(Dollar figures are in millions)

Date of:		Subscriptions			Allotments to:				Discount rates and spreads		
Issue	Maturity	Total	Accepted	Coverage ratio	Com'l Banks	Nonbank dealers	Other Public	Official accounts[1/]	Average rate	High to low	Average to high
Monthly:											
9/30/66	6/30/67	$ 985	$500	197%	$235	$158	$27	$ 80	5.808%	.086%	.042%
10/31/66	7/31/67	1,076	500	215	221	149	23	107	5.567	.046	.019
11/30/66	8/31/67	1,183	501	236	167	187	9	138	5.552	.036	.019
12/31/66	9/30/67	1,093	500	219	280	186	17	17	4.920	.111	.035

1/ Federal Reserve and Government Investment Accounts.

Table 6--Treasury Bill Strip Auction Results

(Dollar figures are in millions)

Date of:		Subscriptions			Allotments to 1/:			Average length (days)	Discount rates and spreads		
Issue	Maturity	Total	Accepted	Coverage ratio	Com'l banks	Nonbank dealers	Other public		Average rate	High to low	Average to high
6/14/61	8/ 3/61-11/30/61	$4,673	2/$1,802	259%	$1,792	---	$ 10	109.6	2.308%	.043%	.018%
11/15/61	12/ 7/61-1/25/62	1,519	800	190	361	$333	106	46.5	2.277	.148	.046
11/15/62	1/17/63-3/21/63	2,410	1,001	241	575	414	12	94.5	2.866	.049	.010
10/28/63	2/ 6/64-4/ 9/64	2,108	1,001	211	269	699	33	132.5	3.601	.041	.007
7/29/64	10/15/64-12/17/64	2,147	1,001	215	308	650	43	109.6	3.505	.040	.013
11/25/66	3/31,4/30,5/31/67	2,987	2/ 1,202	249	1,196	---	6	156.3	5.318	.120	.028

1/ None to Federal Reserve and Government Investment Accounts.
2/ 100% Tax-and-loan-account credit.

Table 7--OUTSTANDING AMOUNTS OF REGULARLY ISSUED BILLS
(In millions of dollars)

	Levels			Yearly Changes		
		Holdings of:			Holdings of:	
	Total	Official accounts[1/]	Public	Total	Official accounts[1/]	Public
November 1958-	23,416	2,141	21,275	----	----	----
December:						
1958-------	24,016	2,331	23,985	+ 600	+ 190	+2,710
1959-------	33,637	2,812	30,825	+9,621	+ 481	+6,840
1960-------	32,431	3,713	28,718	-1,206	+ 901	-2,107
1961-------	37,430	3,708	33,722	+4,999	- 5	+5,004
1962-------	45,246	3,475	41,771	+7,816	- 233	+8,049
1963-------	49,538	5,466	44,072	+4,292	+1,991	+2,301
1964-------	52,468	7,572	44,896	+2,930	+2,106	+ 824
1965-------	53,651	9,800	43,851	+1,183	+2,228	-1,045
1966[2/]------	57,760	13,254	44,506	+4,109	+3,454	+ 655

1/ Federal Reserve and Government Investment Accounts.
2/ Includes a net increase of $400 million in bills dated December 3, delivered January 3, 1967.

Table 8--TREASURY COUPON SECURITIES--ISSUANCES IN RIGHTS AND IN CASH QUARTERLY REFINANCINGS, AUGUST 1960-DECEMBER 1966
(Dollar figures are in millions)

Issue date	Description	Term (yrs.-mos.)	Rights refunding		Cash refinancing		
			Total issued[1]	Issued to public	Subscriptions[2]	Allotments Total[1]	Allotments To public
8/15/60	3-1/8% CI 8/1/61	0-11-1/2			$11,848	$7,829	$2,288
	3-7/8% Bd. 5/15/68[3]	7-9			5,158	1,070	1,045
11/15/60	3-1/4% Nt. 2/15/62	1-3	$9,098	$3,996			
	3-3/4% Bd. 5/15/66	5-6	1,213	1,207			
2/15/61	3-1/4% Nt. 8/15/62	1-6			15,375	7,325	3,720
5/15/61	3% CI 5/15/62	1-0			12,001	5,509	3,691
	3-1/4% Nt. 5/15/63	2-0			12,110	2,753	1,916
8/1/61	3-1/4% Nt. 11/15/62	1-3-1/2	6,082	2,696			
	3-3/4% Nt. 8/15/64	3-0-1/2	5,019	3,419			
	3-7/8% Bd. 5/15/68[3]	6-9-1/2	749	691			
11/15/61	3-1/4% Nt. 2/15/63	1-3	3,642	3,574			
	3-3/4% Bd. 5/15/66[3]	4-6	2,384	2,380			
	3-7/8% Bd. 11/15/74[3]	13-0	517	381			
2/15/62	3-1/2% CI 2/15/63	1-0	6,862	3,451			
	4% Nt. 8/15/66	4-6	4,454	2,936			
5/15/62	3-1/4% CI 5/15/63	1-0	6,686	4,356			
	3-5/8% Nt. 2/15/66	3-9	3,114	3,097			
	3-7/8% Bd. 11/15/71	9-6	1,204	1,140			
8/15/62	3-1/2% CI 8/15/63	1-0			16,351	6,852	3,048
	4% Bd. 2/15/69	6-6			6,643	1,844	1,744
	4-1/4% Bd. 8/15/87-92	30-0			315	365	315
11/15/62	3-1/8% CI 11/15/63	1-0	4,856	1,060			
	3-1/2% Nt. 11/15/65	3-0	3,286	3,285			
	4% Bd. 2/15/72	9-3	2,344	2,338			
2/15/63	3-1/4% CI 2/15/64	1-0	6,741	2,818			
	3-3/4% Bd. 8/15/68[3]	5-6	2,490	2,475			
5/15/63	3-1/4% CI 5/15/64	1-0	5,693	2,366			
	3-5/8% Nt. 2/15/66[3]	2-9	3,273	3,188			

Table 8--TREASURY COUPON SECURITIES--ISSUANCES IN RIGHTS AND IN CASH QUARTERLY REFINANCINGS, AUGUST 1960-DECEMBER 1966
(Dollar figures are in millions)

Issue date	Description	Term (yrs.-mos.)	Rights refunding		Cash refinancing		
			Total issued[1]	Issued to public	Subscriptions[2]	Allotments Total[1]	Allotments To public
8/15/63	3-3/4% Nt. 11/15/64	1-3	$6,398	$2,249			
11/15/63	3-7/8% Nt. 5/15/65	1-6			$16,064	$7,977	$3,972
2/15/64	3-7/8% Nt. 8/13/65	1-6	6,202	2,188			
	4% Nt. 8/15/66[3]	2-6	1,810	1,810			
5/15/64	4% Nt. 11/15/65	1-6	8,560	2,177			
	4-1/4% Bd. 5/15/74	10-0	1,532	1,503			
8/15/64	3-7/8% Nt. 2/15/66	1-6			12,985	4,040	2,173
11/15/64	4% Nt. 5/15/66	1-6			15,458	9,519	3,077
2/15/65	4% Nt. 11/15/66	1-9			10,149	2,253	1,766
5/15/65	4% Nt. 8/15/66[3]	1-3	5,904	1,651			
	4-1/4% Bd. 5/15/74[3]	9-0	2,062	1,997			
8/13/65	4% Nt. 2/15/67	1-6	5,151	2,100			
	4% Bd. 2/15/69[3]	3-6	1,884	808			
11/15/65	4-1/4% Nt. 5/15/67	1-6			5,490	9,748	3,171
2/15/66	4-7/8% Nt. 8/15/67	1-6	[4] 2,117	867			
	5% Nt. 11/15/70	4-9	[4] 2,839	1,819			
5/15/66	4-7/8% Nt. 11/15/67	1-6	8,135	1,450			
8/15/66	5-1/4% CI 8/15/67	1-0	5,919	1,440			
	5-1/4% Nt. 5/15/71	4-9	[4] 2,578	1,059			
11/15/66	5-5/8% Nt. 2/15/68	1-3			5,016	2,635	1,791
	5-3/8% Nt. 11/15/71	5-0			14,029	1,734	1,734
Total			$140,798	$74,971	$158,992	$71,453	$35,451
Average term: total			2 yrs.-4 mos.		1 yr.-10 mos.		
Other than anchor issues:							
Amounts			42,752	35,533	38,255	7,766	6,754
Average term total			5 yrs.-0 mos.		5 yrs.-10 mos.		

1/ Including issues to Federal Reserve System and Government Investment Accounts.
2/ Public only.
3/ Reopening.
4/ Excluding prerefundings.

TABLE 9: Dealer Activity in Quarterly Rights Refundings, 1961-1966[1/]
(Dollar figures are in millions)

Refunding Date	Issues to:			Maximum position in rights and new issues[2/]		Cumulative Volume of Trading			
						Rights [3/]		New Issues [4/]	
	Total public	Dealers [5/]	Dealers as per cent of public	Amounts	Per cent of issues to public	Amounts	Per cent of issues to public	Amounts	Per cent of issues to public
8/1/61	$6,806	$1,013	14.9	$867	12.7	$1,455	20.4	n.a.	n.a.
11/15/61	6,335	1,112	17.6	760	12.1	1,748	27.6	$1,252	19.8
2/15/62	6,387	580	9.1	458	7.2	n.a.	n.a.	1,006	15.8
5/15/62	8,593	1,037	12.1	766	8.9	1,329	15.5	1,193	13.9
11/15/62	6,683	838	12.5	651	9.7	1,478	22.1	1,201	18.0
2/15/63	5,293	814	15.4	469	8.9	1,343	25.4	1,134	21.4
5/15/63	5,554	713	12.8	707	12.7	1,265	22.8	754	13.6
8/15/63	2,249	231	10.3	233	10.4	543	24.1	402	17.9
2/15/64	3,998	716	17.9	575	13.4	1,088	27.2	956	23.9
5/15/64	3,680	594	16.1	464	12.6	769	20.9	843	22.9
5/15/65	3,648	963	26.4	659	18.1	981	26.9	956	26.2
8/13/65	2,907	409	14.1	351	12.1	1,205	41.5	846	29.1
5/15/66	1,450	334	23.0	294	20.3	386	26.6	447	30.8
Total or average	$63,583	$9,354	14.7	$7,254	11.3	--	--	--	--
w/o 8/1/61	56,777	--	--	--	--	--	--	$10,989	19.0
w/o 2/15/62	57,196	--	--	--	--	$13,590	23.8	--	--

1/ Excluding combination maturity and prerefundings in February and August 1966.
2/ Includes position in outstanding reopened issues except in August 1961 refunding.
3/ While books were open.
4/ Through 7th day after announcement.
5/ Dealers reporting to the Federal Reserve Bank of New York.
n.a. - Not available.

Table 10--Dealer Activity in Quarterly Cash Refinancings, 1961 - 1966
(Dollar figures are in millions)

Refunding date	Allotments to: Total public	Allotments to: Dealers 3/	Allotments to: Dealers as per cent of public	Maximum positions* in new issues 1/ Amount	Maximum positions* in new issues 1/ Per cent of public allotments	Cumulative volume* of trading 2/ Amount	Cumulative volume* of trading 2/ Per cent of public allotments
2/15/61	$3,720	n.a.	n.a.	$180	4.8	$1,004	27.0
5/15/61	5,607	$406	7.2	548	9.8	1,383	24.7
8/15/62	5,107	340	6.7	312	6.1	1,516	29.7
11/15/63	3,972	556	14.0	444	11.2	928	23.4
8/15/64	2,173	431	19.8	479	22.0	936	43.1
11/15/64	3,077	355	11.5	260	8.4	867	28.2
2/15/65	1,766	284	16.1	209	10.8	571	32.3
11/15/65	3,171	397	12.5	357	11.3	454	14.3
11/15/66	3,525	735	20.9	692	19.6	738	20.9
Total or average--	$32,118	---	----	$3,481	10.8	$8,397	26.1
w/o 2/15/61	$28,398	$3,504	12.3	----	----	----	----

1/ In total new issues (where more than one).

2/ Trading through 7th day after announcement.

3/ Dealers reporting to the Federal Reserve Bank of New York.

* Includes position and trading in outstanding reopened issues.

n.a. Not available.

Table II - Advance Refundings Since June 1960

Old issues				New issues							Effect on average length of marketable debt (Mos.)	"Boot" paid to Treasury (+) per $100	For nontaxable holders or before tax	
Description	Amount outstanding		Term to maturity (Yrs. - Mos.)	Description	Term to maturity (Yrs. - Mos.)	Extension (Yrs. - Mos.)	Amount exchanged		% exchanged				Approximate investment yield from exchange date to maturity 1/	Approximate minimum reinvestment rate for extension period adj. for "boot"
	Total	Publicly held					Total	Publicly held	Total	Publicly held				
	(m. of d.)						(m. of d.)							
June 1960:														
2-1/2% 11/15/61.....	$11,177	$10,994	1-5	3-3/4% 5/15/64	3-11	2-6	$ 3,893	$3,814	34.8%	34.7%		-	4.24%	4.51%
				3-7/8% 5/15/68	7-11	6-6	320	264	2.9	2.4		-	4.14	4.22
Total.....	11,177	10,994				2-10	4,214	4,077	37.7	37.1	0.8			
October 1960:														
2-1/2% 6/15/62-67.....	2,109	1,839	6-8-1/2	3-1/2% 11/15/80	20-1-1/2	13-5	643	512	30.5	27.8		-	3.92	4.23
2-1/2% 12/15/63-68.....	2,815	2,391	8-2-1/2	3-1/2% 2/15/90	29-4-1/2	21-2	993	777	35.3	32.5		-	3.96	4.17
2-1/2% 6/15/64-69.....	3,738	3,281	8-8-1/2	3-1/2% 11/15/98	38-1-1/2	29-5	1,095	993	29.3	30.3		-	3.97	4.09
2-1/2% 12/15/64-69.....	3,812	3,288	9-2-1/2	3-1/2% 11/15/98	38-1-1/2	28-11	1,248	1,113	32.7	33.9		-	3.99	4.14
Total.....	12,474	10,801				24-7	3,979	3,395	31.9	31.4	6.3			
March 1961:														
2-1/4% 6/15/59-62.....	5,262	4,743	1-3	3-5/8% 11/15/67	6-8	5-5	1,296	1,226	24.6	25.9		-	3.75	3.98
2-1/4% 12/15/59-62.....	3,449	2,710	1-9	3-5/8% 11/15/67	6-8	4-11	1,177	819	34.1	30.2		+$0.30	3.75	4.10
2-5/8% 2/15/63.....	3,971	3,799	1-11	3-5/8% 11/15/67	6-8	4-9	1,131	998	28.5	26.3		-	3.75	4.08
2-1/2% 8/15/63.....	6,755	6,696	2-5	3-3/8% 11/15/66	5-8	3-3	2,438	2,399	36.1	35.8		-	3.63	4.09
Total.....	19,436	17,947				4-4	6,041	5,442	31.1	30.3	1.6			
September 1961:														
				3-1/2% 11/15/80	19-2	10-8	1,035	589	22.1	17.6		+ 2.25	4.16	4.31
2-1/2% 3/15/65-70.....	4,688	3,351	8-6	3-1/2% 2/15/90	28-5	19-11	722	622	15.4	18.6		- 1.00	4.23	4.36
				3-1/2% 11/15/98	37-2	28-8	495	469	10.6	14.0		- 2.00	4.19	4.28
				3-1/2% 11/15/80	19-2	9-8	238	203	8.1	9.3		+ 3.50	4.15	4.30
2-1/2% 3/15/66-71.....	2,927	2,180	9-6	3-1/2% 2/15/90	28-5	18-11	576	515	19.7	23.6		+ 0.25	4.21	4.36
				3-1/2% 11/15/98	37-2	27-8	692	428	23.6	19.6		- 1.00	4.19	4.30
Total.....	7,615	5,531				19-2	3,757	2,826	49.3	51.1	4.5			
March 1962:														
3% 2/15/64.....	3,854	3,688	1-11-1/2	4% 8/15/71	9-5-1/2	7-6	1,154	1,104	29.9	29.9		-	4.11	4.32
2-5/8% 2/15/65.....	6,896	6,088	2-11-1/2	4% 8/15/71	9-5-1/2	6-6	1,651	1,293	23.9	21.2		+ 2.00	4.10	4.36
				4% 2/15/80	17-11-1/2	15-0	563	386	8.2	6.3		+ 0.25	4.20	4.36
2-1/2% 6/15/67-72.....	1,757	1,575	10-3-1/2	3-1/2% 2/15/90	27-11-1/2	17-8	233	198	13.3	12.6		+ 1.25	4.21	4.37
				3-1/2% 11/15/98	36-8-1/2	26-5	180	165	10.2	10.5		-	4.19	4.30
2-1/2% 9/15/67-72.....	2,716	2,356	10-6-1/2	3-1/2% 2/15/90	27-11-1/2	17-5	345	185	12.7	7.9		+ 1.50	4.21	4.38
				3-1/2% 11/15/98	36-8-1/2	26-2	420	266	15.5	11.3		+ 0.25	4.19	4.30
2-1/2% 12/15/67-72.....	3,515	3,227	10-9-1/2	3-1/2% 2/15/90	27-11-1/2	17-2	322	299	9.2	9.3		+ 1.75	4.19	4.38
				3-1/2% 11/15/98	36-8-1/2	25-11	333	281	9.5	8.7		+ 0.50	4.17	4.30
Total.....	18,739	16,935				13-0	5,201	4,176	27.8	24.7	4.1			

Office of the Secretary of the Treasury
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1/ Based on price of bonds eligible for exchange--mean of bid and ask prices at noon on day before announcement, adjusted for "boot" payments.

Note: All items on table were made public or are derivable from public sources.

* Less than .05%.

Table II - Advance Refundings Since June 1960 - (Continued)

Old issued				New issues							Effect on average length of marketable debt (Mos.)	"Boot" paid to Treasury (+) per $100	For nontaxable holders or before tax	
Description	Amount outstanding		Term to maturity (Yrs. - Mos.)	Description	Term to maturity (Yrs. - Mos.)	Extension (Yrs. - Mos.)	Amount exchanged		% exchanged				Approximate investment yield from exchange date to maturity 1/	Approximate minimum reinvestment rate for extension period adj. for "boot"
	Total	Publicly held					Total	Publicly held	Total	Publicly held				
	(m. of d.)						(m. of d.)							
September 1962:														
3-1/2% 2/15/63	$ 6,862	$ 3,354	0-5	3-3/4% 8/15/67	4-11	4-6	$ 772	$ 772	11.3%	23.0%		-$0.50	3.81%	3.90%
				4% 8/15/72	9-11	9-6	370	370	5.4	11.0		- 0.70	4.06	4.12
2-5/8% 2/15/63	2,839	2,597	0-5	3-3/4% 8/15/67	4-11	4-6	1,093	1,091	38.5	42.0		- 0.10	3.80	3.89
				4% 8/15/72	9-11	9-6	259	259	9.1	10.0		- 0.30	4.05	4.11
3-1/4% 2/15/63	3,642	3,381	0-5	3-3/4% 8/15/67	4-11	4-6	981	966	27.0	28.6		- 0.40	3.81	3.90
				4% 8/15/72	9-11	9-6	402	367	11.0	10.9		- 0.60	4.06	4.12
3-1/4% 5/15/63	6,685	4,119	0-8	3-3/4% 8/15/67	4-11	4-3	953	952	14.2	23.1		- 0.40	3.81	3.94
				4% 8/15/72	9-11	9-3	449	444	6.7	10.8		- 0.60	4.06	4.15
3-1/4% 5/15/63	5,047	3,975	0-8	3-3/4% 8/15/67	4-11	4-3	1,301	1,297	25.8	32.6		- 0.40	3.81	3.94
				4% 8/15/72	9-11	9-3	720	480	14.3	12.1		- 0.60	4.06	4.15
4% 5/15/63	1,743	1,649	0-8	3-3/4% 8/15/67	4-11	4-3	181	181	10.4	11.0		- 1.00	3.83	3.97
				4% 8/15/72	9-11	9-3	379	339	21.7	20.6		- 1.20	4.07	4.16
Total	26,819	19,074				6-0	7,860	7,519	29.3	39.4	2.9			
March 1963: Pre-refunding														
3-1/2% 8/15/63	6,851	3,017	0-5	3-5/8% 2/15/67	3-11	3-6	960	954	14.0	31.6		- .50	3.65	3.80
				3-7/8% 11/15/71	8- 8	8-3	693	664	10.1	22.0		- 1.10	3.97	4.05
				4% 2/15/80	16-11	16-6	17	17	.2	.6		-.90	4.04	4.09
2-1/2% 8/15/63	4,317	3,952	0-5	3-5/8% 2/15/67	3-11	3-6	2,275	2,273	52.7	57.5		-.10	3.65	3.80
				3-7/8% 11/15/71	8- 8	8-3	532	532	12.3	13.5		-.70	3.97	4.06
				4% 2/15/80	16-11	16-6	49	49	1.1	1.2		-.50	4.04	4.10
3-1/8% 11/15/63	4,856	1,061	0-8	3-5/8% 2/15/67	3-11	3-3	206	194	4.2	18.3		-.30	3.64	3.84
				3-7/8% 11/15/71	8- 8	8-0	94	94	1.9	8.9		-.90	3.96	4.08
				4% 2/15/80	16-11	16-3	2	2	*	.2		-.70	4.04	4.11
3% 2/15/64	2,700	2,588	0-11	3-5/8% 2/15/67	3-11	3-0	845	845	31.3	32.7		-.10	3.63	3.87
				3-7/8% 11/15/71	8- 8	7-9	196	196	7.3	7.6		-.70	3.96	4.11
				4% 2/15/80	16-11	16-0	24	24	.9	.9		-.50	4.03	4.12
"Junior" refunding														
3-1/2% 11/15/65	3,286	3,268	2-8	3-7/8% 11/15/74	11- 8	9-0	136	135	4.1	4.1		- 1.50	3.98	4.24
				4% 2/15/80	16-11	14-3	195	195	5.9	6.0		- 1.00	4.04	4.23
3-5/8% 2/15/66	3,114	2,891	2-11	3-7/8% 11/15/74	11- 8	8-9	314	213	10.1	7.4		- 1.70	3.98	4.24
				4% 2/15/80	16-11	14-0	420	420	13.5	14.5		- 1.20	4.04	4.24
3% 8/15/66	1,484	1,337	3-5	3-7/8% 11/15/74	11- 8	8-3	251	251	16.9	18.8		-	3.97	4.33
				4% 2/15/80	16-11	13-6	210	98	14.2	7.3		+.50	4.03	4.30
3-3/8% 11/15/66	2,438	2,205	3-8	3-7/8% 11/15/74	11- 8	8-0	373	323	15.3	14.6		- .90	3.97	4.32
				4% 2/15/80	16-11	13-3	213	201	8.7	9.1		- .40	4.03	4.29
Pre-refunding	18,724	10,618				4-10	5,893	5,844	31.5	55.0				
"Junior" refunding	10,321	9,701				11-1	2,112	1,836	20.5	18.9				
Total	29,045	20,319				6-6	8,005	7,680	27.6	37.8	3.1			

Office of the Secretary of the Treasury
Office of Debt Analysis

1/ Based on price of bonds eligible for exchange--mean of bid and ask prices at noon on day before announcement, adjusted for "boot" payments.

Note: All items on table were made public or are derivable from public sources.

* Less than.05%

Table II - Advanced Refundings Since June 1960 - (Continued)

Old Issues				New Issues							Effect on average length of marketable debt (mos.)	"Boot" paid to Treasury (+) per $100	For nontaxable holders or before tax	
Description	Amount outstanding		Term to maturity (Yrs. - Mos.)	Description	Term to maturity (Yrs. - Mos.)	Extension (Yrs. Mos.)	Amount exchanged		% exchanged				Approximate investment yield from exchange date to maturity 1/	Approximate minimum reinvestment rate for extension period adj. for "boot"
	Total	Publicly held					Total	Publicly held	Total	Publicly held				
	(m. of d.)						(m. of d.)							
September 1963: Pre-refunding														
3-1/4% 5/15/64.....	$ 5,693	$ 2,370	0-8	3-7/8% 11/15/68	5-2	4-6	$ 620	$ 618	10.9%	26.1%		-$0.65	4.02%	4.14%
				4% 8/15/73	9-11	9-3	500	500	8.8	21.1		- 1.15	4.15	4.22
				4-1/8% 5/15/89-94	30-8	30-0	375	375	6.6	15.8		- 1.35	4.21	4.24
3-3/4% 5/15/64.....	3,893	3,585	0-8	3-7/8% 11/15/68	5-2	4-6	777	756	20.0	21.1		- 0.95	4.02	4.13
				4% 8/15/73	9-11	9-3	782	782	20.1	21.8		- 1.45	4.14	4.22
				4-1/8% 5/15/89-94	30-8	30-0	317	317	8.1	8.8		- 1.65	4.20	4.24
4-3/4% 5/15/64.....	4,933	2,070	0-8	3-7/8% 11/15/68	5-2	4-6	194	194	3.9	9.4		- 1.60	4.02	4.13
				4% 8/15/73	9-11	9-3	214	198	4.3	9.6		- 2.10	4.14	4.22
				4-1/8% 5/15/89-94	30-8	30-0	126	126	2.6	6.1		- 2.30	4.20	4.24
"Junior" refunding														
3-3/4% 5/15/66.....	3,597	3,254	2-8	4% 8/15/73	9-11	7-3	621	588	17.2	18.1		- 1.15	4.15	4.32
				4-1/8% 5/15/89-94	30-8	28-0	114	114	3.1	3.5		- 1.35	4.21	4.28
4% 8/15/66.....	4,454	2,703	2-11	4% 8/15/73	9-11	7-0	340	272	7.6	10.1		- 1.80	4.15	4.34
				4-1/8% 5/15/89-94	30-8	27-9	105	105	2.4	3.9		- 2.00	4.21	4.29
3-5/8% 2/15/67.....	4,287	4,122	3-5	4% 8/15/73	9-11	6-6	721	706	16.8	17.1		- 0.40	4.15	4.32
				4-1/8% 5/15/89-94	30-8	27-3	91	91	2.1	2.2		- 0.60	4.21	4.28
3-3/4% 8/15/67.....	5,282	4,926	3-11	4% 8/15/73	9-11	6-0	716	674	13.6	13.7		- 0.70	4.14	4.36
				4-1/8% 5/15/89-94	30-8	26-9	132	132	2.5	2.7		- 0.90	4.20	4.29
Subtotals:														
Pre-refunding.....	14,519	8,025				11-8	3,905	3,867	26.9	48.2				
"Junior" refunding.	17,620	15,005				9-10	2,838	2,681	16.1	17.9				
Total.....	32,139	23,030				10-10	6,742	6,548	21.0	28.4	4.3			
January 1964														
3-3/4% 8/15/64.....	$ 5,019	$ 3,279	0-6-3/4	4% 8/15/70	6-6-3/4	6-0	$ 695	$ 695	13.8%	21.2%		-$0.95	4.16%	4.21%
				4-1/4% 5/15/75-85	21-3-3/4	20-9	238	238	4.7	7.3		- .05	4.25	4.27
5% 8/15/64.....	2,316	2,093	0-6-3/4	4% 8/15/70	6-6-3/4	6-0	164	109	7.1	5.2		- 1.65	4.15	4.21
				4-1/4% 5/15/75-85	21-3-3/4	20-9	106	72	4.6	3.4		- .75	4.25	4.27
3-3/4% 11/15/64.....	6,398	2,245	0-9-3/4	4% 8/15/70	6-6-3/4	5-9	277	277	4.3	12.3		- .95	4.16	4.24
				4-1/4% 5/15/75-85	21-3-3/4	20-6	158	158	2.5	7.0		- .05	4.25	4.28
4-7/8% 11/15/64.....	4,195	1,864	0-9-3/4	4% 8/15/70	6-6-3/4	5-9	211	201	5.0	10.8		- 1.85	4.15	4.24
				4-1/4% 5/15/75-85	21-3-3/4	20-6	116	103	2.8	5.5		- .95	4.25	4.28
2-5/8% 2/15/65.....	4,682	4,097	1-0-3/4	4% 8/15/70	6-6-3/4	5-6	655	630	14.0	15.4		+ .25	4.15	4.25
				4-1/4% 5/15/75-85	21-3-3/4	20-3	53	27	1.1	.7		+ 1.15	4.25	4.29
4-5/8% 5/15/65.....	2,113	1,685	1-3-3/4	4% 8/15/70	6-6-3/4	5-3	221	122	10.5	7.2		- 1.80	4.16	4.23
				4-1/4% 5/15/75-85	21-3-3/4	20-0	76	23	3.6	1.4		- .90	4.25	4.28
Total.....	$24,723	15,263				9-5	2,971	2,657	12.0	17.4	1.6			

Office of the Secretary of the Treasury
Office of Debt Analysis

1/ Based on price of bonds eligible for exchange--mean of bid and ask prices at noon on day before announcement, adjusted for "boot" payments.

Note: All items on table were made public or are derivable from public sources.

Table II - **Advanced Refundings Since June 1960 - (Continued)**

Old Issues				New Issues							Effect on average length of marketable debt (mos.)	"Boot" paid to Treasury (+) per $100	For nontaxable holders or before tax	
Description	Amount outstanding (m. of d.) Total	Amount outstanding (m. of d.) Publicly Held	Term to maturity (Yrs. - Mos.)	Description	Term to maturity (Yrs. - Mos.)	Extension (Yrs. - Mos.)	Amount exchanged (m. of d.) Total	Amount exchanged (m. of d.) Publicly Held	% exchanged Total	% exchanged Publicly held			Approximate investment yield from exchange date to maturity 1/	Approximate minimum reinvestment rate for extension period adj. for "boot"
July 1964: 1964 Maturities														
5% 8/15/64.....	$ 2,045	$ 1,911	0-0-3/4	4% 10/1/69	5-2-1/4	5-1-1/2	$ 287	$ 287	14.0%	15.0%		$- .45	4.06%	4.08%
				4-1/8% 11/15/73	9-3-3/4	9-3	362	362	17.7	18.9		- .90	4.22	4.24
				4-1/4% 8/15/87-92	28-0-3/4	28-0	197	197	9.6	10.3		- .05	4.24	4.25
3-3/4% 8/15/64.....	4,086	2,347	0-0-3/4	4% 10/1/69	5-2-1/4	5-1-1/2	637	637	15.6	27.1		- .30	4.06	4.07
				4-1/8% 11/15/73	9-3-3/4	9-3	344	344	8.4	14.7		- .75	4.22	4.23
				4-1/4% 8/15/87-92	28-0-3/4	28-0	196	196	4.8	8.4		+ .10	4.24	4.25
4-7/8% 11/15/64.....	3,867	1,558	0-3-3/4	4% 10/1/69	5-2-1/4	4-10-1/2	250	250	6.5	16.0		- .80	4.06	4.12
				4-1/8% 11/15/73	9-3-3/4	9-0	232	232	6.0	14.9		-1.25	4.22	4.27
				4-1/4% 8/15/87-92	28-0-3/4	27-9	118	118	3.1	7.6		- .40	4.24	4.26
3-3/4% 11/15/64.....	5,961	1,809	0-3-3/4	4% 10/1/69	5-2-1/4	4-10-1/2	162	162	2.7	9.0		- .45	4.06	4.12
				4-1/8% 11/15/73	9-3-3/4	9-0	213	213	3.6	11.8		- .90	4.22	4.27
				4-1/4% 8/15/87-92	28-0-3/4	27-9	145	145	2.4	8.0		- .05	4.24	4.26
1965-'67 Maturities														
3-7/8% 5/15/65.....	7,977	3,917	0-9-3/4	4% 10/1/69	5-2-1/4	4-4-1/2	399	399	5.0	10.2		- .50	4.08	4.15
				4-1/8% 11/15/73	9-3-3/4	8-6	769	769	9.6	19.6		- .95	4.23	4.29
				4-1/4% 8/15/87-92	28-0-3/4	27-3	188	188	2.4	4.8		- .10	4.25	4.27
3-5/8% 2/15/66.....	5,653	5,095	1-6-3/4	4% 10/1/69	5-2-1/4	3-7-1/2	942	942	16.7	18.5		- .10	4.09	4.22
				4-1/8% 11/15/73	9-3-3/4	7-9	1,303	1,303	23.0	25.6		- .55	4.24	4.34
				4-1/4% 8/15/87-92	28-0-3/4	26-6	147	147	2.6	2.9		+ .30	4.25	4.29
3-3/4% 5/15/66.....	2,862	2,540	1-9-3/4	4% 10/1/69	5-2-1/4	3-4-1/2	294	294	10.3	11.6		- .25	4.08	4.23
				4-1/8% 11/15/73	9-3-3/4	7-6	297	297	10.4	11.7		- .70	4.23	4.36
				4-1/4% 8/15/87-92	28-0-3/4	26-3	22	17	.8	.7		+ .15	4.25	4.30
4% 8/15/66.....	5,820	4,135	2-0-3/4	4% 10/1/69	5-2-1/4	3-1-1/2	179	179	3.1	4.3		- .65	4.08	4.24
				4-1/8% 11/15/73	9-3-3/4	7-3	334	333	5.7	8.1		-1.10	4.23	4.36
				4-1/4% 8/15/87-92	28-0-3/4	26-0	151	134	2.6	3.2		- .25	4.25	4.30
3-5/8% 2/15/67.....	3,475	3,301	2-6-3/4	4% 10/1/69	5-2-1/4	2-7-1/2	578	578	16.6	17.5		+ .30	4.08	4.28
				4-1/8% 11/15/73	9-3-3/4	6-9	503	500	14.5	15.2		- .15	4.23	4.39
				4-1/4% 8/15/87-92	28-0-3/4	25-6	35	35	1.0	1.1		+ .70	4.25	4.31
1964 Maturities.....	15,959	7,625				11-3	3,143	3,143	19.7	41.2				
1965-7 Maturities....	25,787	18,988				7-8	6,141	6,115	23.8	32.2				
Total.....	41,746	26,613				8-11	9,284	9,258	22.2%	34.8%	4.8			

Office of the Secretary of the Treasury
Office of Debt Analysis

1/ Based on price of bonds eligible for exchange--mean of bid and ask prices at noon on day before announcement, adjusted for "boot" payments.
Note: All items on table were made public or are derivable from public sources.

Table II - Advanced Refundings Since June 1960 - (Continued)

Old Issues				New Issues							Effect on average length of marketable debt (mos.)	"Boot" paid to Treasury (+) per $100	For nontaxable holders or before tax	
Description	Amount outstanding		Term to maturity (Yrs. - Mos.)	Description	Term to maturity (Yrs. - Mos.)	Extension (Yrs. - Mos.)	Amount exchanged		% exchanged				Approximate investment yield from exchange date to maturity 1/	Approximate minimum reinvestment rate for extension period adj. for "boot"
	Total	Publicly held					Total	Publicly held	Total	Publicly held				
	(m. of d.)						(m. of d.)							
January 1965:														
2-5/8% 2/15/65 2/..	$ 3,976	$ 3,442	0-1	4% 2/15/70	5-1	5-0	$ 674	$ 673	17.0%	19.6%		$ -.60	4.16%	4.16%
				4-1/8% 2/15/74	9-1	9-0	493	493	12.4	14.3		-.65	4.23	4.23
				4-1/4% 8/15/87-92	27-7	27-6	641	641	16.1	18.6		+.25	4.24	4.24
Nov. 1965-Nov. 1967 Maturities														
3-1/2% 11/15/65.....	2,954	2,869	0-10	4% 2/15/70	5-1	4-3	640	624	21.7	21.7		-.45	4.18	4.23
				4-1/8% 2/15/74	9-1	8-3	416	416	14.1	14.5		-.50	4.24	4.28
				4-1/4% 8/15/87-92	27-7	26-9	282	250	9.5	8.7		+.40	4.25	4.26
4% 11/15/65.....	8,560	2,253	0-10	4% 2/15/70	5-1	4-3	176	176	2.1	7.8		-.90	4.18	4.24
				4-1/8% 2/15/74	9-1	8-3	140	139	1.6	6.2		-.95	4.24	4.28
				4-1/4% 8/15/87-92	27-7	26-9	145	145	1.7	6.4		-.05	4.25	4.27
3-5/8% 2/15/66.....	3,260	2,649	1-1	4% 2/15/70	5-1	4-0	588	481	18.0	18.2		-.40	4.18	4.23
				4-1/8% 2/15/74	9-1	8-0	334	211	10.2	8.0		-.45	4.24	4.28
				4-1/4% 8/15/87-92	27-7	26-6	144	144	4.4	5.4		+.45	4.25	4.26
3-7/8% 2/15/66.....	4,040	2,133	1-1	4% 2/15/70	5-1	4-0	379	369	9.4	17.3		-.70	4.18	4.24
				4-1/8% 2/15/74	9-1	8-0	400	394	9.9	18.5		-.75	4.24	4.28
				4-1/4% 8/15/87-92	27-7	26-6	665	665	16.5	31.2		+.15	4.25	4.27
3-3/4% 5/15/66.....	2,250	1,931	1-4	4% 2/15/70	5-1	3-9	300	257	13.3	13.3		-.50	4.18	4.25
				4-1/8% 2/15/74	9-1	7-9	147	113	6.5	5.9		-.55	4.24	4.29
				4-1/4% 8/15/87-92	27-7	26-3	116	116	5.2	6.0		+.35	4.25	4.27
3-3/4% 8/15/67.....	4,433	4,072	2-7	4% 2/15/70	5-1	2-6	903	810	20.4	19.9		-.05	4.18	4.31
				4-1/8% 2/15/74	9-1	6-6	461	461	10.4	11.3		-.10	4.24	4.32
				4-1/4% 8/15/87-92	27-7	25-0	140	140	3.2	3.4		+.80	4.25	4.28
3-5/8% 11/15/67.....	3,604	2,775	2-10	4% 2/15/70	5-1	2-3	724	670	20.1	24.1		+.30	4.17	4.37
				4-1/8% 2/15/74	9-1	6-3	738	577	20.5	20.8		+.25	4.24	4.35
				4-1/4% 8/15/87-92	27-7	24-9	122	99	3.4	3.6		+1.15	4.25	4.29
2-5/8% 2/15/65.....	$ 3,976	$ 3,442				14-1	$1,808	$1,807	45.5%	52.5%				
11/65-11/67 Mat.....	29,101	18,682				9-3	7,957	7,257	27.3	38.8				
Total.....	$33,077	$22,124				10-2	$9,765	$9,063	29.5%	41.0%	5.6			

Office of the Secretary of the Treasury
Office of Debt Analysis

1/ Based on prices of issues eligible for exchange--mean of bid and ask prices at noon on day before announcement, adjusted for "boot" payments.
2/ Not eligible for nontaxable exchange privilege.

Note: All items on table were made public or are derivable from public sources.

Table 11 - Advanced Refundings Since June 1960 - (Continued)

Old Issues				New Issues							Effect on average length of marketable debt (mos.)	"Boot" paid to Treasury (+) per $100	For nontaxable holders or before tax	
Description	Amount outstanding (m. of d.) Total	Publicly held	Term to maturity (Yrs. - Mos.)	Description	Term to maturity (Yrs. - Mos.)	Extension (Yrs. - Mos.)	Amount exchanged (m. of d.) Total	Publicly held	% exchanged Total	Publicly held			Approximate investment yield from exchange date to maturity 1/	Approximate minimum reinvestment rate for extension period adj. for "boot"
February 1966: Pre-refunding														
3-3/4% 5/15/66	$1,688	$1,415	0 - 3	5% 11/15/70	4 - 9	4 - 6	$657	$652	38.9%	46.1%		+$0.30	4.98%	5.00%
4% 5/15/66	9,519	2,982	0 - 3			4 - 6	1,230	1,206	12.9	40.4		+ 0.25	4.98	5.00
3% 8/15/66	1,024	972	0 - 6			4 - 3	324	324	31.6	33.3		+ 0.90	4.98	5.02
4% 8/15/66	11,060	5,118	0 - 6			4 - 3	2,625	2,555	23.7	49.9		+ 0.45	4.97	5.00
Total . . .	$23,291	$10,487				4 - 4	$4,836	$4,737	20.8%	45.2%	1.2			
August 1966: Pre-refunding														
4-3/4% 11/15/66	$ 1,652	$1,637	0 - 3	5-1/4% 5/15/71	4 - 9	4 - 6	$ 517	$ 517	31.3%	31.6%		+ 0.10	5.24%	5.26%
4% 11/15/66	2,254	1,669	0 - 3			4 - 6	584	576	25.9	34.5		+ 0.35	5.23	5.24
3-3/8% 11/15/66	1,851	1,595	0 - 3			4 - 6	586	581	31.7	36.4		+ 0.55	5.24	5.23
Total	$ 5,757	$4,901				4 - 6	$1,687	$1,674	29.3%	34.2%	0.4			
Total June 1960 - Aug.-1966	$286,037	$204,019				9 - 3	$74,343	$69,053	26.0%	33.9%	41.2			

1/ Based on price of bonds eligible for exchange--mean of bid and ask prices at noon on day before announcement, adjusted for "boot" payments.

TABLE 12 -- EXCHANGES BY INVESTOR CLASSES IN ADVANCE REFUNDINGS, 1960 - 1965

(In millions of dollars)

Advance Refundings	Commercial Banks	Dealers and Brokers	Corporations	Insurance Companies	Mutual Svgs. Banks	Private Pension Funds	State & local funds		Individuals	All Other Public	Total Public	Fed. Reserve and Govt. Inv. Accts.	Total
							Pension	Other					
1960--June	2,685	160	228	204	71	41	39	202	148	300	4,077	137	4,214
Oct.	267	154	55	1,090	823	66	292	275	120	254	3,395	583	3,979
1961--Mar.	3,378	324	185	328	150	41	54	302	173	508	5,442	599	6,041
Sept.	192	132	24	1,337	363	34	280	228	81	156	2,826	431	3,757
1962--Mar.	1,877	348	89	308	132	75	290	270	369	419	4,176	1,024	5,201
Sept.	4,731	1,194	185	149	186	57	44	222	113	639	7,519	341	7,860
1963--Mar.	4,403	1,567	237	99	238	68	106	143	133	687	7,680	325	8,005
Sept.	3,365	1,539	174	192	210	56	125	277	132	480	6,548	197	6,745
1964--Jan.	1,442	658	82	109	42	15	29	72	56	153	2,657	314	2,971
July	5,501	1,086	289	326	240	125	18	422	313	935	9,258	26	9,284
1965--Jan.	5,650	1,426	214	376	148	54	74	262	175	684	9,063	702	9,765
Total	33,490	8,587	1,762	4,695	2,427	632	1,351	2,675	1,813	5,213	62,644	5,176	67,820

Note: Figures may not add to totals due to rounding.

TABLE 13-- Exchanges in Senior and in Pre- and Junior Advance Refundings

By Class of Investor, 1960 - 1965
(In millions of Dollars)

Investor Classes	Senior Refundings 1/				Pre- and Jr. Refundings 2/	Total
	Oct. 1960	Sept. 1961	Mar. 1962	Total		
Commercial banks	267	192	156	630	32,861	33,490
Dealers and brokers	154	132	110	396	8,192	8,587
Corporations	55	24	40	119	1,643	1,762
Insurance companies	1,090	1,337	156	2,583	2,112	4,695
Mutual savings banks	823	363	58	1,244	1,183	2,427
Private pension funds	66	34	32	132	500	632
State and local:						
Pension funds--	292	280	243	815	536	1,551
Other	275	228	138	641	2,034	2,675
Individuals	120	81	215	416	1,397	1,813
All other public	254	156	231	641	4,573	5,213
Total public	3,395	2,826	1,394	7,615	55,030	62,644
Federal Reserve and Govt. Inv. Accts.	583	931	439	1,953	3,222	5,176
Total	3,979	3,757	1,833	9,569	58,253	67,820

1/ Eligible issues with remaining terms to maturity over 5 years.

2/ Eligible issue maturities in pre-refundings under 1 year; in junior refundings, 1 - 5 years.

Note: Figures may not add to totals due to rounding.

TABLE 14: YIELDS ON LONG-TERM TREASURY, MUNICIPAL, AND PRIVATE SECURITIES

Monthly Averages, 1960-1966
(In per cent)

Month	Long-Term Treasury	New Aa Corporates 1/	New Municipals 2/	FHA Mortgages 3/	Month	Long-Term Treasury	New Aa Corporates 1/	New Municipals 2/	FHA Mort-gages 3/
1960					1963				
Jan.	4.37	5.25	3.72	6.24	Jan.	3.89	4.22	3.10	5.52
Feb.	4.22	5.02	3.60	6.23	Feb.	3.92	4.25	3.15	5.50
Mar.	4.08	4.89	3.56	6.22	Mar.	3.93	4.26	3.05	5.47
Apr.	4.18	4.94	3.56	6.21	Apr.	3.97	4.35	3.10	5.44
May	4.16	4.95	3.60	6.21	May	3.97	4.35	3.11	5.44
June	3.98	4.85	3.55	6.19	June	4.00	4.32	3.21	5.44
July	3.86	4.68	3.50	6.18	July	4.01	4.34	3.22	5.44
Aug.	3.79	4.48	3.34	6.14	Aug.	3.99	4.34	3.13	5.44
Sept.	3.84	4.58	3.42	6.11	Sept.	4.04	4.40	3.20	5.43
Oct.	3.91	4.68	3.53	6.09	Oct.	4.07	4.36	3.19	5.43
Nov.	3.93	4.76	3.40	6.05	Nov.	4.11	4.42	3.29	5.44
Dec.	3.88	4.93	3.40	6.04	Dec.	4.14	4.49	3.27	5.44
1961					1964				
Jan.	3.89	4.63	3.40	6.00	Jan.	4.15	4.49	3.22	5.44
Feb.	3.81	4.43	3.31	5.89	Feb.	4.14	4.38	3.14	5.44
Mar.	3.78	4.36	3.45	5.82	Mar.	4.18	4.45	3.28	5.44
Apr.	3.80	4.56	3.50	5.77	Apr.	4.20	4.49	3.28	5.44
May	3.73	4.66	3.43	5.75	May	4.16	4.48	3.20	5.44
June	3.88	4.75	3.52	5.72	June	4.13	4.49	3.20	5.44
July	3.90	4.74	3.52	5.70	July	4.13	4.43	3.19	5.44
Aug.	4.00	4.76	3.52	5.71	Aug.	4.14	4.43	3.19	5.44
Sept.	4.02	7.67	3.53	5.72	Sept.	4.16	4.49	3.23	5.44
Oct.	3.98	4.45	3.42	5.72	Oct.	4.16	4.49	3.25	5.44
Nov.	3.98	4.48	3.41	5.72	Nov.	4.12	4.47	3.18	5.44
Dec.	4.06	4.58	3.47	5.71	Dec.	4.14	4.47	3.13	5.43
1962					1965				
Jan.	4.08	4.55	3.34	5.72	Jan.	4.14	4.44	3.06	5.43
Feb.	4.09	4.53	3.21	5.70	Feb.	4.16	4.44	3.09	5.43
Mar.	4.01	4.45	3.15	5.68	Mar.	4.15	4.49	3.18	5.43
Apr.	3.89	4.31	3.06	5.65	Apr.	4.15	4.48	3.15	5.43
May	3.88	4.26	3.11	5.61	May	4.14	4.52	3.17	5.43
June	3.90	4.30	3.26	5.60	June	4.14	4.57	3.24	5.43
July	4.02	4.41	3.28	5.60	July	4.15	4.57	3.27	5.43
Aug.	3.98	4.39	3.23	5.58	Aug.	4.19	4.66	3.24	5.45
Sept.	3.94	4.28	3.11	5.56	Sept.	4.25	4.71	3.35	5.46
Oct.	3.89	4.26	3.02	5.55	Oct.	4.28	4.69	3.40	5.49
Nov.	3.87	4.23	3.04	5.53	Nov.	4.34	4.75	3.46	5.51
Dec.	3.87	4.28	3.07	5.53	Dec.	4.43	4.90	3.54	5.63

For footnotes see next page.

TABLE 14: YIELDS ON LONG-TERM TREASURY, MUNICIPAL, AND PRIVATE SECURITIES

Monthly Averages, 1960-1966
(In per cent)

Month	Long-Term Treasury	New Aa Corporates 1/	New Municipals 2/	FHA Mortgages 3/	Month	Long-Term Treasury	New Aa Corporates 1/	New Municipals 2/	FHA Mort-gages 3/
1966		4/		5/	1966				
Jan.	4.43	4.93	3.52	5.70	July	4.75	5.80	3.95	6.51
Feb.	4.61	5.09	3.65	5.85	Aug.	4.80	6.04	4.12	6.58
Mar.	4.63	5.33	3.72	6.00	Sept.	4.79	6.14	4.12	6.63
Apr.	4.55	5.38	3.56	6.16	Oct.	4.70	6.04	3.94	6.72
May	4.57	5.55	3.65	6.32	Nov.	4.74	6.11	3.87	6.81
June	4.63	5.67	3.77	6.45	Dec.	4.65	5.98	3.86	6.77

1/ Average of weekly new Aa corporate reoffering rates estimated by the Treasury.
2/ Bond Buyer 20 bond index.
3/ Average yield on new 25-year mortgages as of the first of the succeeding months. Compiled by FHA (Figures published by FHA are rounded to the nearest .05%).
4/ Adjusted to reflect value of deferred call provisions beginning in 1966.
5/ Yields on new 30-year mortgages beginning in 1966. (See note in parentheses in footnote 3.)

Table 15--Dealer Activity in Advance Refundings, 1960-1965
(Dollar figures are in millions)

Refunding date	Issues to: Total public	Dealers	Dealers as % of public	Maximum positions in rights & new issues[1] Amounts	% of issues to public	Cumulative volume of trading Rights[2] Amounts	% of issues to public	New issues Amounts	% of issues to public
6/23/60	$4,077	n.a.	n.a.	$ 197	4.8%	$ 292	7.2%	*$ 119	2.9%
								+ n.a.	
10/ 3/60	3,396	n.a.	n.a.	80	2.4	55	1.6	* 50	1.5
								+ 102	3.0
3/30/61	5,443	$ 364	6.7%	334	6.1	563	10.3	* 174	3.2
								+ n.a.	
9/29/61	2,827	163	5.8	57	2.0	150	5.3	* 119	4.2
								+ n.a.	
3/ 9/62	4,178	450	10.8	279	6.7	n.a.	n.a.	* 312	7.5
								+ 504	12.1
9/20/62	7,520	1,515	20.1	772	10.3	2,163	28.8	*1,029	13.7
								+1,286	17.1
3/15/63	7,681	2,288	29.8	983	12.8	3,773	49.1	*1,996	26.0
								+2,412	31.4
9/18/63	6,551	2,210	33.7	967	14.8	2,043	31.2	*1,042	15.9
								+1,840	28.1
1/29/64	2,658	1,052	39.6	716	26.9	1,141	42.9	* 554	20.8
								+1,170	44.0
7/24/64	9,255	2,433	26.3	1,107	12.0	2,702	29.2	*1,788	19.3
								+2,519	27.2
1/19/65	9,063	2,447	27.0	1,184	13.1	2,833	31.3	*1,829	20.2
								+2,642	29.2
Total or Average	$62,649	$13,315	21.2%	$6,676	10.7%	-----	-----	-----	-----
w/o 3/1/62	58,471	-----	-----	-----	-----	$15,715	26.9	-----	-----
6/23/60-3/ 1/62	19,921	1,365	6.9	947	4.8	-----	-----	*$ 774	3.9
9/15/62-1/19/65	42,728	11,945	28.0	5,728	13.4	-----	-----	*8,238	19.3
	42,728	-----	-----	-----	-----	-----	-----	+11,869	27.8

1/ Includes position in outstanding reopened issues.
2/ Through 4th day after announcement.
* Available through 5th day after announcement.
+ On 7th day after announcement.
n.a. Not available.
Source: Federal Reserve Bank of New York.

Table 16--New Issues Offered in Advance Refundings, 1960-1965, Terms to Maturity, Allotments to Total Public and Dealers

Advance refunding	New issue offered	Term (yrs.-mos.)	Issues (in millions of dollars) to: Public	Dealers[1]	Dealers as per cent of public
6/23/60	3-3/4% Nt. 5/15/64	3-11	3,814	n.a.	n.a.
	3-7/8% Bd. 5/15/68	7-11	263	n.a.	n.a.
			4,077		
10/ 3/60	3-1/2% Bd. 11/15/80	20- 1½	512	n.a.	n.a.
	3-1/2% Bd. 2/15/90[1]	29- 4½	777	n.a.	n.a.
	3-1/2% Bd. 11/15/98	39- 1½	2,107	n.a.	n.a.
			3,396		
3/30/61	3-5/8% Bd. 11/15/67	6- 8	3,044	210	6.9%
	3-3/8% Bd. 11/15/66	5- 8	2,399	154	6.4
			5,443	364	6.7
9/29/61	3-1/2% Bd. 11/15/80[1]	19- 2	793	10	1.3
	3-1/2% Bd. 2/15/90[1]	28- 5	1,137	(153	(7.5
	3-1/2% Bd. 11/15/98[1]	37- 2	897	(	(
			2,827	163	5.8
3/ 9/62	4% Bd. 8/15/71	9- 5½	2,398	163	6.8
	4% Bd. 2/15/80[1]	17-11½	386	166	43.0
	3-1/2% Bd. 2/15/90[1]	27-11½	682	23	3.4
	3-1/2% Bd. 11/15/98[1]	36- 8½	712	98	13.7
			4,178	450	10.8
9/20/62	3-3/4% Nt. 8/15/67	4-11	5,261	754	14.3
	4% Bd. 8/15/72	9-11	2,259	761	33.7
			7,520	1,515	20.1
3/15/63	3-5/8% Nt. 2/15/67	3-11	4,267	890	20.9
	3-7/8% Bd. 11/15/71[1]	8- 8	1,485	574	38.7
	3-7/8% Bd. 11/15/74[1]	11- 8	922	214	23.2
	4% Bd. 2/15/80[1]	16-11	1,007	611	60.7
			7,681	2,288	29.8
9/18/63	3-7/8% Bd. 11/15/68	5- 2	1,568	446	28.4
	4% Bd. 8/15/73	9-11	3,723	919	24.7
	4-1/8% Bd. 5/15/89-94[1]	30- 8	1,260	845	67.1
			6,551	2,210	33.7

For footnotes see next page.

Table 16--New Issues Offered in Advance Refundings, 1960-1965, Terms to Maturity, Allotments to Total Public and Dealers

Advance refunding	New issue offered	Term (yrs.-mos.)	Issues (in millions of dollars) to: Public	Dealers[1]	Dealers as per cent of public
1/29/64	4% Bd. 8/15/70[1]	6- 6-3/4	2,035	626	30.8
	4-1/4% Bd. 5/15/75-85[1]	21- 3-3/4	623	426	68.4
			2,658	1,052	39.6
7/24/64	4% Bd. 10/ 1/69[1]	5- 2-1/4	3,726	429	11.5
	4-1/8% Bd. 11/15/73	9- 3-3/4	4,353	1,179	27.1
	4-1/4% Bd. 8/15/87-92[1]	28- 0-3/4	1,176	825	70.2
			9,255	2,433	26.3
1/19/65	4% Bd. 2/15/70	5- 1	4,059	332	8.2
	4-1/8% Bd. 2/15/74	9- 1	2,805	518	18.5
	4-1/4% Bd. 8/15/87-92[1]	27- 7	2,199	1,597	73.6
			9,063	2,447	27.0
First 5 refundings:		Under 15 yrs.	11,918	[2] 770	6.5%
		Over 15 yrs.	8,003	[2] 595	7.4
Last 6 refundings:		Under 15 yrs.	36,463	7,641	21.0%
		Over 15 yrs.	6,265	4,304	68.7

[1] Reopened issue.

[2] Partly estimated.

n.a. Not available.

Source: Federal Reserve Bank of New York

Table 17--Treasury Bonds with Over 10 Years to Maturity Issued in Cash Financings and Regular Refundings, and in Advance Refundings

Issue date	Description	Term (yrs.-mos.)	Amount issued ($ mil.)	Type of financing	Offering yield (per cent)	Spread above outstanding issue yields
Cash Financings and Regular Refundings:						
4/ 5/60	4-1/4% Bd. 5/15/75-85	25-1-1/2	470	New cash	4.25	.15
11/15/61	3-7/8% Bd. 11/15/74	13-0	517	Rights	3.975	.14
8/15/62	4-1/4% Bd. 8/15/87-92	30-0	365	Cash rfdg.	4.19	.13
1/17/63	4% Bd. 2/15/88-93	30-1	250	Auction	4.008	.08
4/18/63	4-1/8% Bd. 5/15/89-94	31-1	300	Auction	4.093	.08
	Total or average - - -	24-4	1,902		4.13	.12
Advance Refundings:						
10/ 3/60	3-1/2% Bd. 11/15/80	20-1-1/2	643	Senior	3.92	.05
	3-1/2% Bd. 2/15/90	29-4-1/2	993	Senior	3.96	.09
	3-1/2% Bd. 11/15/98	38-1-1/2	2,343	Senior	3.98	.12
9/29/61	3-1/2% Bd. 11/15/80	19-2	1,273	Senior	4.155	.125
	3-1/2% Bd. 2/15/90	28-5	1,298	Senior	4.22	.14
	3-1/2% Bd. 11/15/98	37-2	1,187	Senior	4.19	.13
3/ 9/62	4% Bd. 2/15/80	17-11-1/2	563	Junior	4.20	.13
	3-1/2% Bd. 2/15/90	27-11-1/2	900	Senior	4.205	.125
	3-1/2% Bd. 11/15/98	36- 8-1/2	933	Senior	4.185	.135
3/15/63	3-7/8% Bd. 11/15/74	11-8	1,074	Junior	3.975	.085
	4% Bd. 2/15/80	16-11	1,130	Pre and Jr.	4.036	.086
9/18/63	4-1/8% Bd. 5/15/89-94	30-8	1,260	Pre and Jr.	4.207	.127
	Subtotal or average - -	27-1	13,597		4.10	.115
1/29/64	4-1/4% Bd. 5/15/75-85	21-3-3/4	747	Pre and Jr.	4.25	.06
7/24/64	4-1/4% Bd. 8/15/87-92	28-0-3/4	1,199	Pre and Jr.	4.245	.095
1/19/65	4-1/4% Bd. 8/15/87-92	27-7	2,254	Pre and Jr.	4.247	.047
	Subtotal or average - -	26-7	4,200		4.25	.06
	Total or averages - - -	27-0	17,797		4.13	.10

Table 18--Issues Maturing in 3 Through 10 Years in Cash Financings and Regular Refundings, and in Advance Refundings

Issue date	Description	Term (yrs.-mos.)	Amount issued ($ mil.)	Type of financing	Offering yield	Spread above outstanding issue yields
Cash financings and regular refundings:						
5/15/60	4-5/8% Nt. 5/15/65	5-0	2,113	Rights	4.625%	.165%
8/15/60	3-7/8% Bd. 5/15/68	7-9	1,070	Cash Rfdg.	3.875	.085
11/15/60	3-3/4% Bd. 5/15/66	5-6	1,213	Rights	3.75	.01
8/ 1/61	3-3/4% Nt. 8/15/64	3-1/2	5,019	Rights	3.75	.15
	3-7/8% Bd. 5/15/68	6-9-1/2	749	Rights	3.98	.10
11/15/61	3-3/4% Bd. 5/15/66	4-6	2,384	Rights	3.81	.10
1/24/62	4% Bd. 10/1/69	7-8-1/2	1,114	New Cash	4.04	.11
2/15/62	4% Nt. 8/15/66	4-6	4,454	Rights	4.00	.07
4/18/62	3-3/4% Bd. 8/15/68	6-4	1,258	New cash	3.75	.14
5/15/62	3-5/8% Nt. 2/15/66	3-9	3,114	Rights	3.68	.14
5/15/62	3-7/8% Bd. 11/15/71	9-6	1,204	Rights	3.94	.07
8/15/62	4% Bd. 2/15/69	6-6	1,844	Cash Rfdg.	4.00	.09
11/15/62	4% Bd. 2/15/72	9-3	2,344	Rights	4.00	.08
2/15/63	3-3/4% Bd. 8/15/68	5-6	2,490	Rights	3.75	.09
6/20/63	4% Bd 8/15/70	7-2	1,906	New cash	4.00	.11
5/15/64	4-1/4% Bd. 5/15/74	10-0	1,532	Rights	4.25	.02
5/17/65	4-1/4% Bd. 5/15/74	9-0	2,062	Rights	4.22	.07
8/13/65	4% Bd. 2/15/69	3-6	1,884	Rights	4.17	.09
2/15/66	5% Nt. 11/15/70	4-9	2,839	Rights	5.00	.10
8/15/66	5-1/4% Nt. 5/15/71	4-9	2,578	Rights	5.25	.11
11/15/66	5-3/8% Nt. 11/15/71	5-0	1,734	Cash Rfdg.	5.375	.105
Total or average May 1960-Nov. 1966 - - -		5-7	44,905		4.15	.10

Table 18--Issues Maturing in 3 through 10 Years in Cash Financings and Regular Refundings, and in Advance Refundings

Issue date	Description	Term (yrs.-mos.)	Amount Issued ($ mil.)	Type of financing	Offering yield	Spread above outstanding issue yields
Advance Refundings:						
6/23/60	3-3/4% Nt. 5/15/64	3-11	3,893	Junior	4.24%	.20%
	3-7/8% Bd. 5/15/68	7-11	320	Junior	4.14	.10
3/30/61	3-5/8% Bd. 11/15/67	6-8	3,604	Junior	3.75	.14
	3-3/8% Bd. 11/15/66	5-8	2,438	Junior	3.63	.07
3/ 9/62	4% Bd. 8/15/71	9-5-1/2	2,805	Junior	4.104	.10
9/20/62	3-3/4% Nt. 8/15/67	4-11	5,282	Prerefund.	3.809	.17
	4% Bd. 8/15/72	9-11	2,579	Prerefund.	4.06	.12
3/15/63	3-5/8% Nt. 2/15/67	3-11	4,287	Prerefund.	3.645	.15
	3-7/8% Bd. 11/15/71	8-8	1,515	Prerefund.	3.965	.09
9/18/63	3-7/8% Bd. 11/15/68	5-2	1,591	Prerefund.	4.02	.08
	4% Bd. 9/15/73	9-11	3,894	Pre and Jr.	4.147	.13
1/29/64	4% Bd. 8/15/70	6-6-3/4	2,223	Pre and Jr.	4.155	.105
7/24/64	4% Bd. 10/ 1/69	5-2-1/4	3,726	Pre and Jr.	4.07	.085
	4-1/8% Bd. 11/15/73	9-3-3/4	4,357	Pre and Jr.	4.229	.09
1/19/65	4% Bd. 2/15/70	5-1-	4,381	Pre and Jr.	4.175	.085
	4-1/8% Bd. 2/15/74	9-1	3,130	Pre and Jr.	4.238	.06
2/15/66	5% Nt. 11/15/70	4-9	4,836	Prerefund.	4.976	.075
8/15/66	5-1/4% Nt. 5/15/71	4-9	1,687	Prerefund	5.236	.12
	Total or average June 1960 - Aug. 1966	6-5	56,548		4.106	.11

Table 19-Estimated Cost or Saving in Advance Refundings-Eligible Issues Maturing before Dec. 31, 1966

Assumption "A"-Interest savings from eligible issue maturity to maturity of offered issue based on market yield on issue when remainder of eligible issue was refunded at maturity[1/]
"B"-same as "A" except when market rate on offered issues longer than 5 years was over 4-1/4%[2/]

(Dollar figures are in millions)

Year	Eligible issue		Number of advance refundings involved	Total exchanged	Estimated budget cost or savings					Discounted values of cost or saving[3/]		
					Added cost to eligible issue maturity	Savings under assumption "A"	Net Savings (+) or cost (-) under "A"	Savings under assumption "B"	Net Savings (+) or cost (-) under "B"	Added cost to eligible issue maturity	Savings under assumption "B"	Net savings (+) or cost (-) under "B"
1961:	2-1/2% Bd	11/15/61	1	$4,214	$74.0	-$ 6.4	-$80.4	-$ 6.4	-$80.4	$71.6	-$ 5.9	-$77.5
1962:	2-1/4% Bd	6/15/59-62	1	1,296	22.3	15.1	- 7.2	15.1	- 7.2	21.6	13.0	- 8.6
	2-1/4% Bd	12/15/59-62	1	1,177	24.8	9.6	- 15.2	9.6	- 15.2	23.7	8.2	- 15.5
1963:	2-5/8% Nt.	2/15/63	2	2,483	28.4	- .2	- 28.6	- .2	- 28.6	25.7	- .3	- 26.0
	3-1/4% Nt.	2/15/63	1	1,383	3.7	- 8.0	- 11.7	- 8.0	- 11.7	3.7	- 7.0	- 10.7
	3-1/2% C.I.	2/15/63	1	1,142	2.0	- 7.8	- 9.8	- 7.8	- 9.8	2.0	- 6.8	- 8.8
	3-1/4% C.I.	5/15/63	1	1,402	6.1	1.2	- 4.9	1.2	- 4.9	6.0	1.0	- 5.0
	3-1/4% Nt.	5/15/63	1	2,021	8.9	1.8	- 7.1	1.8	- 7.1	8.8	1.5	- 7.3
	4% Nt.	5/15/63	1	560	.2	- 2.3	- 2.5	- 2.3	- 2.5	--	- 2.0	- 2.0
	2-1/2% Bd	8/15/63	2	5,294	66.0	70.6	+ 4.6	70.6	+ 4.6	63.3	62.2	- 1.1
	3-1/2% C.I.	8/15/63	1	1,670	2.5	15.5	+ 13.0	15.5	+ 13.0	2.5	13.7	+ 11.2
	3-1/8% C.I.	11/15/63	1	302	1.3	4.2	+ 2.9	4.2	+ 2.9	1.3	3.7	+ 2.4
1964:	3% Bd	2/15/64	2	2,219	29.6	37.2	+ 7.6	37.1	+ 7.5	28.5	31.2	+ 2.7
	3-1/4% C.I.	5/15/64	1	1,495	8.3	38.5	+ 30.2	13.5	+ 5.2	8.1	12.1	+ 4.0
	3-3/4% Nt.	5/15/64	1	1,876	4.6	38.0	+ 33.4	14.0	+ 9.4	4.5	12.5	+ 8.0
	4-3/4% Nt.	5/15/64	1	534	- 2.0	9.0	+ 11.0	1.9	+ 3.9	- 1.9	1.7	+ 3.6
	3-3/4% Nt.	8/15/64	2	2,110	2.3	21.5	+ 19.2	8.6	+ 6.3	2.2	7.9	+ 5.7
	5% Nt.	8/15/64	2	1,116	- 1.5	12.4	+ 13.9	1.1	+ 2.6	- 1.5	1.6	+ 3.1
	3-3/4% Nt.	11.15/64	2	955	2.2	9.7	+ 7.5	2.5	+ .3	2.2	--	- 2.2
	4-7/8% Nt.	11/15/64	2	927	- 2.8	3.9	+ 6.7	- 1.3	+ 1.5	- 2.8	.8	+ 3.6

1/ Based on difference between market yield plus .12% and the coupon rate (effective) on the offered issue.

2/ If over 4-1/4%, the length of the offered issue was limited to 5 years, but could be longer if not over 4-1/4%.

3/ Cost and savings discounted at 3.5%, the average yield on marketable issues on June 30, 1957 through 1966.

Table 19-Estimated Cost or Saving in Advance Refundings-Eligible Issues Maturing before Dec. 31, 1966

Assumption "A"-Interest savings from eligible issue maturity to maturity of offered issue based on market yield on issue when remainder of eligible issue was refunded at maturity[1]/
"B"-Same as "A" except when market rate on offered issues longer than 5 years was over 4-1/4%[2]/

(Dollar figures are in millions)

Year	Eligible issue	Number of advance refundings involved	Total exchanged	Estimated budget cost or savings					Discounted values of cost or saving 3/		
				Added cost to eligible issue maturity	Savings under assumption "A"	Net Savings (+) or cost (-) under "A"	Savings under assumption "B"	Net Savings (+) or cost (-) under "B"	Added cost to eligible issue maturity	Savings under assumption "B"	Net savings (+) or cost (-) under "B"
1965:	2-5/8% Bd 2/15/65	3	$4,730	$64.2	$81.6	+$17.4	$46.6	-$17.6	$58.8	$ 38.4	-$ 20.4
	4-5/8% Nt. 5/15/65	1	297	- 1.4	.8	+ 2.2	.1	+ 1.5	- 1.3	--	+ 1.3
	3-7/8% Nt. 5/15/65	1	1,356	3.5	15.0	+ 11.5	6.4	+ 2.9	3.4	4.4	+ 1.0
	3-1/2% Nt. 11/15/65	2	1,669	10.8	55.1	+ 44.3	28.6	+ 17.8	10.4	24.9	+ 14.5
	4% Nt. 11/15/65	1	461	.8	13.5	+ 12.7	6.1	+ 5.0	.8	5.3	+ 4.5
1966:	3-5/8% Nt. 2/15/66	3	4,192	32.4	229.0	+196.6	171.5	+139.1	31.1	148.3	+ 117.2
	3-7/8% Nt. 2/15/66	1	1,444	4.2	102.8	+ 98.6	55.1	+ 50.9	4.0	48.5	+ 44.5
	3-3/4% Bd 5/15/66	4	2,568	14.1	127.3	+113.2	73.2	+ 59.1	13.5	62.4	+ 48.9
	4% Nt. 5/15/66	1	1,230	--	- 2.8	- 2.8	- 2.8	- 2.8	--	- 2.5	- 2.5
	3% Bd 8/15/66	2	785	14.0	59.1	+ 45.1	34.3	+ 20.3	13.0	28.0	+ 15.0
	4% Nt. 8/15/66	3	3,734	6.6	125.9	+119.3	79.9	+ 73.3	6.1	68.6	+ 62.5
	3-3/8% Bd 11/15/66	2	1,172	12.5	67.8	+ 55.3	46.2	+ 33.7	11.6	37.6	+ 26.0
	4% Nt. 11/15/66	1	584	- .2	5.3	+ 5.5	5.3	+ 5.5	- .3	5.0	+ 5.3
	4-3/4% C.I. 11/15/66	1	517	.1	4.7	+ 4.6	4.7	+ 4.6	.1	4.2	+ 4.1

1/ Based on difference between market yield plus .12% and the coupon rate (effective) on the offered issue.

2/ If over 4-1/4%, the length of the offered issue was limited to 5 years, but could be longer if not over 4-1/4%.

3/ Cost and savings discounted at 3.5%, the average yield on marketable issues on June 30, 1957 through 1966.

TABLE 20--Types of Exchange and Adjustment (Boot) Payments in Advance Refundings, 1960-66
Types of exchange: Nontaxable, recognition of gains or losses postponed; Taxable, immediate recognition
(In millions of dollars)

Advance Refunding	Total exchanges						Exchanges by the Public					
	Nontaxable			Taxable[1]			Nontaxable			Taxable[1]		
Exchanges with-----	No Boot	Boot paid to investor	Boot paid by investor	Boot paid to investor	Boot paid by investor	Total	No Boot	Boot paid to investor	Boot paid by investor	Boot paid to investor	Boot paid by investor	Total
AMOUNTS EXCHANGED:												
1960:June	4,214	--	--	--	--	4,214	4,077	--	--	--	--	4,077
Oct.	3,979	--	--	--	--	3,979	3,395	--	--	--	--	3,395
1961:Mar.	4,864	--	1,177	--	--	6,041	4,623	--	819	--	--	5,442
Sept	--	1,909	1,849	--	--	3,757	--	1,519	1,307	--	--	2,826
1962:Mar.	1,334	--	3,867	--	--	5,201	1,269	--	2,908	--	--	4,176
Sept	--	7,860	--	--	--	7,860	--	7,519	--	--	--	7,519
1963:Mar.	251	7,544	210	--	--	8,005	251	7,331	98	--	--	7,680
Sept	--	6,742	--	--	--	6,742	--	6,548	--	--	--	6,548
1964:Jan.	--	2,262	708	--	--	2,971	--	1,999	657	--	--	2,657
July	--	5,359	782	2,947	176	9,284	--	5,338	777	2,947	196	9,258
1965:Jan.	--	5,028	2,931	1,167	641	9,765	--	4,596	2,661	1,166	641	9,063
1966:Feb.	--	--	--	--	4,836	4,836	--	--	--	--	4,737	4,737
Aug.	--	--	--	--	1,687	1,687	--	--	--	--	1,674	1,674
Total	14,642	36,706	11,524	4,114	7,360	74,343	13,615	34,848	9,227	4,113	7,248	69,053
						(Net to investor)						(Net to investor)
BOOT PAID:												
1960:June	--	--	--	--	--	--	--	--	--	--	--	--
Oct.	--	--	--	--	--	--	--	--	--	--	--	--
1961:Mar.	--	--	3.5	--	--	-3.5	--	--	2.5	--	--	-2.5
Sept	--	24.0	33.1	--	--	-9.1	--	19.9	21.6	--	--	-1.7
1962:Mar.	--	--	50.9	--	--	-50.9	--	--	39.4	--	--	-39.4
Sept	--	37.0	--	--	--	+37.0	--	34.8	--	--	--	+34.8
1963:Mar.	--	41.2	1.1	--	--	+40.1	--	38.6	.5	--	--	+38.1
Sept	--	75.8	--	--	--	+75.8	--	73.3	--	--	--	+73.3
1964:Jan.	--	22.6	2.2	--	--	+20.4	--	18.9	1.9	--	--	+17.0
July	--	26.4	2.5	17.2	.2	+40.9	--	26.3	2.4	17.2	.2	+40.9
1965:Jan.	--	20.7	9.7	7.2	1.6	+16.6	--	19.0	8.8	7.2	1.6	+15.8
1966:Feb.	--	--	--	--	19.8	-19.8	--	--	--	--	19.4	-19.4
Aug.	--	--	--	--	5.8	-5.8	--	--	--	--	5.7	-5.7
Total		247.7	103.0	24.4	27.4	141.7		230.8	77.1	24.4	26.9	151.2

1/ Boot paid in all taxable exchanges. Note: Figures may not add to totals due to rounding.

TABLE 21 -- Market Yields on Federal Agency and Treasury Issues at Constant Maturities and Reoffering Rates or New Corporate Bonds--Selected Dates, 1963-66
(In per cent)

Date	1-Year			5-Years			10-Years			New Aa
	Agency	Treasury	Spread	Agency	Treasury	Spread	Agency	Treasury	Spread	Corporate rates1/
1963--Feb. 28	3.22	3.02	.20	3.88	3.68	.20	4.08	3.94	.14	4.26
Apr. 8	3.26	3.09	.17	3.89	3.72	.17	4.08	3.97	.11	4.31
July 29	3.76	3.48	.28	4.08	3.87	.21	4.18	3.99	.19	4.35
Oct. 31	3.88	3.68	.20	4.13	4.01	.12	4.24	4.15	.09	4.38
1964--Mar. 10	4.08	3.90	.18	4.28	4.11	.17	4.32	4.20	.12	4.46
Apr. 6	4.15	3.95	.20	4.58	4.19	.39	n.a.	4.22	n.a.	
May 28	4.04	3.84	.20	4.27	4.03	.24	4.33	4.19	.14	4.47
July 29	3.98	3.71	.27	4.25	4.05	.20	4.31	4.20	.11	4.43
Sept. 23	4.02	3.82	.20	4.24	4.06	.18	4.32	4.19	.13	4.51
Oct. 13	4.10	3.86	.24	4.30	4.08	.22	4.33	4.19	.14	4.48
Nov. 6	4.08	3.86	.22	4.28	4.04	.24	4.37	4.15	.22	4.48
1965--Mar. 26	4.27	4.04	.23	4.33	4.14	.19	4.34	4.20	.14	4.49
June 4	4.35	4.03	.32	4.42	4.15	.27	4.44	4.23	.21	4.58
Sept. 24	4.47	4.31	.16	4.54	4.29	.27	4.56	4.31	.25	4.71
Nov. 23	4.58	4.38	.20	4.71	4.45	.26	4.68	4.45	.23	4.80
1966--Jan. 26	5.05	4.88	.17	5.08	4.91	.17	4.94	4.61	.33	4.95
Feb. 23	5.29	4.98	.31	5.28	5.00	.28	5.08	4.92	.16	5.18
Mar. 11	5.34	5.05	.29	5.34	4.99	.35	5.22	4.96	.26	5.30
Apr. 22	5.38	4.89	.49	5.16	4.83	.33	5.04	4.77	.27	5.30
June 6	5.70	5.03	.67	5.30	4.96	.34	5.25	4.79	.46	5.64
June 24	5.61	4.85	.76	5.33	4.94	.39	5.25	4.80	.45	
July 8	5.74	5.15	.59	5.52	5.09	.43	5.48	4.99	.49	5.82
Aug. 30	6.36	5.97	.39	6.14	5.85	.29	5.92	5.48	.44	6.35
Oct. 11	6.00	5.58	.42	5.58	5.29	.29	5.52	5.05	.47	6.04
Nov. 28	6.10	5.48	.62	5.62	5.35	.27	5.37	5.19	.18	6.15
Dec. 29	5.47	5.00	.47	5.22	4.80	.42	5.13	4.60	.53	5.86

n.a. Not available.

APPENDIX TO PARAGRAPH NO. 9
NONRECOGNITION OF GAIN OR LOSS FOR FEDERAL INCOME TAX PURPOSES

Where a bond is offered by the Treasury with a payment (other than the accrued interest adjustment) to the investor.

Examples:

1. Assume that:

   (a) The fair market value of the security offered by the Treasury on the date the subscription is submitted is $99.00 (per $100 face value).

   (b) The payment to the subscriber (discount) on account of $100 issue price is $.50.

   (c) The cost basis of the security surrendered by the subscriber is $99.75 (per $100 face value).

   The sum of the fair market value of the security offered by the Treasury and the payment to the subscriber is $99.00 + $.50 or $99.50. This is less than the cost basis of the issue surrendered, therefore, no gain is recognized. The new issue will be entered on the books of the subscriber at a cost basis of $99.25, the cost basis of the issue surrendered less $.50. The gain or loss between this cost basis and the proceeds of a subsequent sale or redemption of the new issue will be a capital gain or loss to all investors, except those to whom the bonds are stock in trade. Under present law, if the combined time that the security surrendered and the new security received in exchange were held exceeds 6 months, the capital gain or loss is long-term, otherwise it is short-term.

2. The assumptions are the same except that the cost basis on the books of the subscriber, of the security surrendered is now $99.25 (per $100 face value) instead of $99.75 in example 1.

   The sum of the fair market value of the new security received in exchange by the subscriber plus the $.50 payment (discount) is again $99.50. This exceeds the cost basis of the security surrendered by $.25. This excess is a recognized gain reportable for the year in which the exchange takes place. The gain is a capital gain except to those to whom the bonds are stock in trade. Under present law, if the time the security surrendered was held exceeds 6 months, the capital gain is long-term, otherwise it is short-term.

   The subscriber will carry the new issue received in exchange at a cost basis equal to the basis of the issue surrendered ($99.25), less the payment ($.50), plus the amount of the recognized gain ($.25), or ($99.25 - $.50 + $.25) $99.00.

3. The assumptions are the same as in example 1, except that the cost basis on the books of the subscriber, of the security surrendered is $98.75 (per $100 face value) instead of $99.75 in example 1.

   The sum of the fair market value of the new issue received in exchange by the subscriber plus the $.50 payment (discount) is still $99.50. This exceeds the $98.75 cost basis by more than $.50. However, the amount of the gain reportable for the year of the exchange is $.50, since the amount of gain recognized cannot exceed the amount of the payment. The nature of the recognized gain and its treatment is the same as in example 2.

   In this case, the subscriber will enter the new security received in exchange on his books at the same cost basis as the security surrendered.

Excerpt from advance refunding offer of Feb. 20, 1963.

12. Computation of reinvestment rate for the extension of maturity:

A holder of the outstanding eligible securities had the option of accepting the Treasury's exchange offer or of holding them to maturity. Consequently, he can compare the interest plus (or minus) any payment, other than the adjustment of accrued interest, he will receive resulting from exchanging now with the total of the interest on the eligible issues and what he might obtain by reinvesting the proceeds of the eligible securities at maturity.

The income before tax for making the extension now through exchange will be the coupon rates plus (or minus) any payment on the new issues. If a holder of the eligible securities does not make the exchange he would receive the coupon rates on the eligible issues to their maturity and would have to reinvest at that time at a rate equal to that indicated in paragraph 13 below for the remaining terms of the issues now offered, in order to equal the return (including any payment) he would receive by accepting the exchange offer. For example, if the 3% bonds of 2/15/64 are exchanged for 3-7/8% bonds of 11/15/71 the investor receives 3-7/8% interest for the entire eight years and eight months plus $.70 (per $100 face value) immediately. If the exchange is not made, a 3% rate will be received until February 15, 1964, requiring reinvestment of the proceeds of the 3's of 1964 at that time at a rate of at least 4.11% for the remaining seven years and nine months, all at compound interest, to average out to a 3-7/8% rate for eight years and eight months plus the $.70 immediate payment. This minimum reinvestment rate of the extension period is shown in the table under paragraph 13. The minimum reinvestment rates for the other issues included in the exchange are also shown in the table under paragraph 13.

13. Investment rates on the new notes and bonds offered in exchange to holders of the eligible securities:

Eligible securities	3-1/2% C/Is 8/15/63	2-1/2% Bonds 8/15/63	3-1/8% C/Is 11/15/63	3% Bonds 2/15/64
FOR THE NEW 3-5/8% NOTES OF FEBRUARY 15, 1967				
Payments on account of $100 issue price to subscriber	$0.50	$0.10	$0.30	$0.10
Approximate investment yield from exchange date (3/15/63) to maturity of notes offered in exchange based on price of securities eligible for exchange 1/	3.65%	3.65%	3.64%	3.63%
Approximate minimum reinvestment rate for the extension period 2/	3.80	3.80	3.84	3.87
FOR THE NEW 3-7/8 BONDS OF NOVEMBER 15, 1971				
Payments on account of $100 issue price to subscriber	$1.10	$0.70	$0.90	$0.70
Approximate investment yield from exchange date (3/15/63) to maturity of bonds offered in exchange based on price of securities eligible for exchange 1/	3.97%	3.97%	3.96%	3.96%
Approximate minimum reinvestment rate for the extension period 2/	4.05	4.06	4.08	4.11

	3-1/2% Notes 11/15/65	3-5/8% Notes 2/15/66	3% Bonds 8/15/66	3-3/8% Bonds 11/15/66
FOR THE NEW 3-7/8% BONDS OF NOVEMBER 15, 1974				
Payments on account of $100 issue price to subscriber:	$1.50	$1.70	$ -	$0.90
Approximate investment yield from exchange date (3/15/63) to maturity of bonds offered in exchange based on price of securities eligible for exchange 1/	3.98%	3.98%	3.97%	3.97%
Approximate minimum reinvestment rate for the extension period 2/	4.24	4.24	4.33	4.32

Footnotes appear at end of table on next page.

Eligible securities	3-1/2% C/Is 8/15/63	2-1/2% Bonds 8/15/63	3-1/8% C/Is 11/15/63	3% Bonds 2/15/64	3-1/2% Notes 11/15/65	3-5/8% Notes 2/15/66	3% Bonds 8/15/66	3-3/8% Bonds 11/15/66
	FOR THE NEW 4% BONDS OF FEBRUARY 15, 1980							
Payments on account of $100 issue price:								
By subscriber ----------	$ -	$ -	$ -	$ -	$ -	$ -	$0.50	$ -
To subscriber ----------	0.90	0.50	0.70	0.50	1.00	1.20	-	0.40
Approximate investment yield from exchange date (3/15/63) to maturity of bonds offered in exchange based on price of securities eligible for exchange 1/ ----------	4.04%	4.04%	4.04%	4.03%	4.04%	4.04%	4.03%	4.03%
Approximate minimum reinvestment rate for the extension period 2/ ----------	4.09	4.10	4.11	4.12	4.23	4.24	4.30	4.29

1/ Yield to nontaxable holder or before tax. Based on mean of bid and asked prices (adjusted for payments on account of issue price) at noon on February 19, 1963.

2/ Rate for nontaxable holder or before tax. For explanation see paragraph 12 above.