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Managing the Maturity Structure of Marketable Treasury Debt: 1953-1983

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Abstract

This paper examines the evolution of the maturity structure of marketable Treasury debt from 1953 to 1983. Average maturity contracted erratically from 1953 to 1960, expanded through mid-1965, contracted again through late 1975, and then expanded into the early 1980s. What accounts for these broad trends? In particular, what were the maturity objectives of Treasury debt managers? Were they able to achieve their objectives? Why or why not?

Key words: Treasury debt management, maturity structure of debt, advance refundings

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How much to issue in different maturity sectors is an important facet of Treasury debt management. Should officials concentrate on shorter-term issues to take advantage of lower term premia, or should they issue as well at longer maturities to avoid coming to market too frequently with unwieldy offerings?

Treasury issued a substantial amount of long-term debt during World War II. Total marketable debt at the end of 1945 was $199 billion, of which 65 percent matured in more than one year and 30 percent in more than ten years. In contrast, between 1946 and 1952 Treasury chose, almost exclusively, to issue short-term debt. By the end of 1952, 50 percent of marketable debt (which had declined to $149 billion) matured in a year or less. The contracting maturity structure became an issue in the 1952 presidential campaign and maturity structure has since remained a topic of some significance.

This paper examines the evolution of the maturity structure of marketable Treasury debt from 1953 to 1983.[1] As illustrated in Chart 1, average maturity contracted erratically from 1953 to 1960, expanded to mid-1965, contracted again to late 1975, and then expanded into the early 1980s. What accounts for these broad trends? In particular, what were the maturity objectives of Treasury debt managers, were they able to achieve their objectives, why or why not? (This paper takes the maturity objectives of policymakers as a given. It does not address whether they should, as a normative matter, prefer a shorter or longer maturity structure.)

The evolution of the maturity structure of marketable Treasury debt involves offering techniques – such as exchange offers and fixed-price subscription offerings – and statutory restrictions on issuance – such as the upper limit of 4¼ percent on the interest rate at which a new bond could be offered – that were once important but have since been abandoned. The appendix briefly summarizes these relics.

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[1] Garbade (2015) examines the post-1983 experience.

The Post-War Years

Chart 2 shows the sixty-four offerings of marketable coupon-bearing debt between 1946 and 1952. All of the offerings were in exchange for maturing debt; there were no cash offerings.[2] Fifty-eight of the issues were either certificates of indebtedness ("certificates," coupon-bearing securities with no more than one year to maturity) or notes with less than two years to maturity. The other six, all issued in the second half of the interval, were notes and bonds maturing in from four to seven years.

Treasury relied on short-term offerings between 1946 and 1949 primarily because of cost. Yields on 1-year certificates ranged from ⅞ percent to 1¼ percent; long-term bond yields ranged from 2 to 2½ percent.[3]

Issue sizes increased over time. The average size of an issue in 1946 was $2.71 billion. By 1949 it was $3.66 billion. Average issue size reached $5.63 billion in 1952. The increasing size prompted a modest shift into longer-term securities. Treasury sold six intermediate-term notes and bonds between late 1949 and 1952:

- December 1949 $4.68 billion 4¼-year notes
- March 1950 $1.86 billion 5-year notes
- April 1950 $3.50 billion 4-year, 11½-month notes (reopening)
- December 1950 $6.85 billion 5-year notes
- March 1952 $0.93 billion 7-year, ½-month bonds
- July 1952 $4.25 billion 5-year, 11½-month bonds

The *New York Times* reported that market participants "interpreted the [7-year offering in March 1952] as a recognition … that more of the national debt should be spread over a longer term." [4]

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2 The appendix explains the difference between a cash offering and an exchange offering.

3 See Garbade (2020).

4 "90% of New Type Treasury Issue Taken for Bonds Being Redeemed," *New York Times*, February 29, 1952, p. 33.

<u>1953 to 1958</u>

Dwight Eisenhower was inaugurated President on January 20, 1953. On the following day, George Humphrey, the former president of M.A. Hanna Company of Cleveland, Ohio, was sworn in as Secretary of the Treasury. Shortly thereafter, Humphrey appointed W. Randolph Burgess, former manager of the System Open Market Account at the Federal Reserve Bank of New York and former Vice Chairman of National City Bank, as his assistant for debt management. (Burgess became Under Secretary of the Treasury for Monetary Affairs in August 1954 following passage of the act of July 22, 1954, that established the position.)

Humphrey and Burgess both wanted to "stretch out" debt maturities, offering longer-term debt in smaller, less frequent operations.[5] They believed that refinancings had become unwieldy, that there was a significant risk of unexpectedly high attrition and a concomitant cash emergency,[6] and that frequent offerings interfered with Federal Reserve open market operations.

Initial Efforts

The new administration made its policy preferences clear when, in April, it offered $1 billion of 3½ percent 30-year bonds at par.[7] One commentator stated that the offering was "the first step toward re-creation of a genuinely long-term Government bond market." [8] Another

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5 See, for example, Burgess's address before the American Bankers Association on September 23, 1953, reprinted in 1953 Treasury Annual Report, p. 262. In his February 1953 State of the Union Message, President Eisenhower noted that "It is clear that too great a part of the national debt becomes due in too short a time. The Department of the Treasury will undertake – indeed has undertaken – at suitable times a program of extending part of the debt over longer periods and gradually placing greater amounts in the hands of longer-term investors."

6 As explained in the appendix, attrition is the amount of maturing debt in an exchange offering that is not exchanged and must, therefore, be redeemed with cash

7 Federal Reserve Bank of New York Circular no. 3964, April 13, 1953.

8 *Reporting on Governments*, April 11, 1953.

suggested that "the new issue is adequate proof … that the Eisenhower Administration was in earnest in its pledge to work for more balance in the public debt structure." [9]

The bond was priced cheap to market levels, Burgess having made "no secret of his desire to have the first floatation of long-term bonds by this Treasury administration a thumping success which would go to a substantial premium." [10] The *New York Times* reported that "the success of the cash offering is held to be a sure thing; and a big oversubscription is expected. It is sensed that the new issue will [trade] at a substantial premium – probably a point or more." [11]

Subscriptions for about $6 billion of the bonds were cut to $5¼ billion on efforts to weed out "free riders" intending to sell their allotments quickly at premium prices; the remaining subscribers were allocated 20 percent of what they requested.[12] The new bond traded at a modest premium, 100¼ percent of par value, immediately following the close of the subscription books but broke below par within a couple of weeks, reportedly because of sales by free riders who got allotments in spite of official efforts to prune their subscriptions.[13] The offering was later criticized as "inexpertly launched" and a matter of "too long, too fast." [14]

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9 "New U.S. Bond Seen of Major Import," *New York Times*, April 12, 1953, p. F1.

10 *Reporting on Governments*, April 11, 1953.

11 "New U.S. Bond Seen of Major Import," *New York Times*, April 12, 1953, p. F1.

12 "Treasury Awards $1,080,000,000 of 3.25% Issue on 20% Quota Basis," *New York Times*, April 23, 1953, p. 46, and "Treasury to Allot Long-Term Bonds on a 20% Basis," *Wall Street Journal*, April 23, 1953, p. 11.

13 "New 30 Year Bond is Quoted at 100¼," *New York Times*, April 16, 1953, p. 48, and "Treasury Issues Sag to New Lows as Loan Interest Rate Climbs," *Wall Street Journal*, April 28, 1953, p. 12.

14 "Humphrey, Leary of Inflation, Is Said to Favor a Long-Term Issue," *Wall Street Journal*, January 25, 1955, p. 17, and "Market Welcome Waits 3% U.S. Bond," *New York Times*, January 30, 1955 p. F1. See also "Treasury Facing Bond Challenge," *New York Times*, August 8, 1954, p. F1.

Hiatus

Treasury did not offer another long-term bond for almost two years. In the interim, officials pursued a program of more modest stretch-outs, offering four bonds with maturities in excess of five years between mid-1953 and late 1954, none longer than nine years (Chart 3). The offerings included

- an October 1953 cash offering of 7-year, 10-month bonds ($2.24 billion sold),
- a February 1954 exchange offering of 7¾-year bonds ($11.18 billion sold),
- an August 1954 exchange offering of 6¼-year bonds ($3.81 billion sold), and
- a November 1954 exchange offering of 8⅔-year bonds ($6.76 billion sold). [15]

The market had presented opportunities to issue much longer debt. Bond yields declined from 2.87 percent to 2.57 percent during a recession that started in July 1953 and continued until mid-1954 (Chart 4). Despite the favorable market for longer-term issuance, Secretary Humphrey chose to issue short- and intermediate-term debt as an "anti-recession weapon." On the eve of a May 1954 financing, the *Wall Street Journal* reported that Treasury would offer short-term securities:

> This is in line with Secretary's Humphrey's recent policy of using management of the public debt as an anti-recession weapon.
>
> The Treasury chief purposely has avoided putting out long-term bonds on the theory such borrowings would soak up funds that would otherwise be available for home mortgages, for corporation, state and local securities and for other private investment outlets.
>
> Mr. Humphrey would prefer to put out long-term bonds as part of his goal of 'stretching out' the debt. He feels there already is too much of the public debt in

[15] Federal Reserve Bank of New York Circular no. 4033, October 28, 1953, Circular no. 4066, February 1, 1954, Circular no. 4132, July 30, 1954, and Circular no. 4166, November 22, 1954.

> securities that mature in a year or less. But, until the business downturn is clearly reversed, he will stick to short-term issues, according to Treasury officials.[16]

Treasury considered a long-term bond in the November 1954 financing, but ended up offering an 8⅔-year bond. The *Wall Street Journal* reported that "while the longer-term intermediate issue reflected less administration concern over the business outlook, the G.O.P. policymakers were still unwilling to run the risk of disturbing the business upturn by offering a long-term bond." [17]

The 40-Year Bond

By early 1955 the economy was clearly expanding.[18] No longer restrained by fears of retarding recovery, Treasury announced a February exchange offering of 13-month notes, 2½-year notes, and 40-year bonds.[19] The 40-year bond was the longest since a 1911 issue of 50-year bonds sold to finance construction of the Panama Canal [20] and was hailed as "a substantial step in the establishment of a real long-term market for Government securities." [21]

By the time the subscription books closed on the exchange offering, investors had tendered for \$8.45 billion of the 13-month notes, \$3.78 billion of the 2½-year notes, and \$1.92

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16 "Treasury Slated to Sell \$2 Billion Notes, Offer Exchange of Issues," *Wall Street Journal*, April 29, 1954, p. 13. Treasury offered a choice of 1-year certificates and 4¾-year notes in the May financing.

17 "Treasury Offers Intermediate Bond 2 Short-Term Issues in Refunding," *Wall Street Journal*, November 19, 1954, p. 7.

18 FOMC economist Ralph Young reported in early November 1954 that a modest economic strengthening "was being widely interpreted as foreshadowing sustained, though possibly moderate, cyclical expansion." Minutes of the Executive Committee of the Federal Open Market Committee, November 9, 1954, p. 5. Four weeks later "the big question with which business observers are now concerned is whether a recovery movement is definitely taking form." Minutes of the Federal Open Market Committee, December 7, 1954, p. 2. By the end of the year "a vigorous economic recovery" was "visible and tangible." Minutes of the Executive Committee of the Federal Open Market Committee, December 28, 1954, pp. 3-4.

19 Federal Reserve Bank of New York Circular no. 4193, January 31, 1955.

20 Garbade (2012, p. 45).

21 "Market Welcome Waits 3% U.S. Bond," *New York Times*, January 30, 1955, p. F1.

billion of the 40-year bond. Humphrey declared the bond offering a ‘substantial achievement’ and a “further step in carrying out the goal of improving the structure of the debt.” [22] Officials said they expected to enter the long-term market once or twice a year.[23]

Treasury reopened the 40-year bond in July 1955 with a $750 million fixed-price cash offering,[24] but that was the last offering with a term of more than five years until the fall of 1957.

Another Hiatus

Unlike the earlier hiatus, the August 1955 to September 1957 hiatus was the result of a robust economic expansion and rising bond yields. Long-term Treasury yields rose from 2.95 percent in August 1955 to a peak of 3.73 percent in October 1957 (Chart 4).

Treasury officials repeatedly decried the lack of investor interest in long-term debt while yields were rising. In November 1955 they complained that “present holders of the maturing issue did not appear to be interested in a longer-term security.” [25] In March 1956 they stated that “the market for Government securities was not at this time receptive to any but fairly short-term paper.” [26] And in November 1956 the *Wall Street Journal* reported that Treasury officials “decided to offer short-term securities … because the market wanted this type of security.” [27]

On the eve of a July 1957 financing, Secretary Humphrey complained that “there’s no market for long-term bonds at interest rates we’d like or ought to pay” and that “so many people want money and are bidding for it, the only way we can take it away from them is to bid for it,

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22 “Big U.S. Refunding is 94% Successful,” *New York Times*, February 9, 1955, p. 39.

23 “Treasury’s 40-Year 3% Issue is 73% Taken: Refunding Called Success,” *Wall Street Journal*, February 9, 1955, p. 17.

24 Federal Reserve Bank of New York Circular no. 4245, July 6, 1955.

25 “U.S. Raises Yields in Big Refinancing,” *New York Times*, November 26, 1955, p. 24.

26 “Treasury Offers Short-Term Issues in Swap for $95 Billion Securities.” *Wall Street Journal*, March 2, 1956, p. 11.

27 “Treasury Offers Two Certificates at 3¼% for $9.1 Billion of 2⅝s,” *Wall Street Journal*, November 19, 1956, p. 22.

too, and I don't think the Government should be taking money away from business." He conceded that he had been unable to make any "improvement in the mess" inherited from the Truman Administration and expressed the view that the situation had gotten so bad that he did not think the Government could sell 5-year bonds in substantial amounts at any price.[28]

A New Team

Robert Anderson, former Secretary of the Navy and former Deputy Secretary of Defense, succeeded Humphrey as Secretary of the Treasury on July 29, 1957. Two months later, Julian Baird, a banker from St. Paul, MN, succeeded Burgess as Under Secretary for Monetary Affairs. The new team initially encountered unexpected success in stretching out the maturity structure of marketable Treasury debt but ultimately ran into the same problem that had vexed Humphrey and Burgess: the lack of investor interest in long-term bonds when interest rates were rising.

Following the onset of another recession in August 1957, Treasury debt managers decided to test whether investors might have a renewed interest in longer-term debt. In September they offered $500 million of 12-year bonds for cash.[29] The offering elicited subscriptions for $4.65 billion of the bonds, far in excess of what had been anticipated. The *Wall Street Journal* reported that "officials conceded they had misjudged the market" and that "there was much more interest in the long bonds than we anticipated" [30]

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28 "Treasury Offers Three Short-term Issues at Rates from 3⅝% to 4% to Refund $24 Billion of Securities," *Wall Street Journal*, July 19, 1957, p. 3.

29 Federal Reserve Bank of New York Circular no. 4506, September 16, 1957. See also "U.S. to Borrow 3 Billion on Three Issues Paying 4%," *New York Times*, September 13, 1957, stating that although "the Government has not issued any long-term bonds since the middle of 1955, when it sold 40-year bonds at 3 per cent, spokesmen felt there had been a shift in the market demand for long-term investment bonds …" and "Treasury Will Offer $500 Million of 12-Year 4% Bonds to Stretch Out Federal Debt in $3 Billion Financing," *Wall Street Journal*, September 13, 1957, p. 5, reporting the view of debt managers that "they felt they could sell some bonds at this time and decided to try a small amount, only $500 million."

30 "Treasury Flooded with Orders for 12-Year 4% Bond," *Wall Street Journal*, September 19, 1957, p. 3.

Anderson was quick to recognize opportunity knocking. The *Journal* remarked on "his determination to renew the Administration's efforts to lengthen out the debt" and reported that "he has been talking in very strong terms to his associates about his intention of issuing long-term securities 'at every opportunity.'" [31]

Long-term Treasury yields fell from 3.73 percent in October 1957 to about 3.15 percent in the second quarter of 1958. During that period Treasury sold $650 million of a 17-year bond (in November 1957), $1.73 billion of a 32-year bond (in February 1958), and $1.13 billion of a 27-year bond (in June 1958).[32]

Treasury offered a 6⅔-year bond a few days after the 27-year offering.[33] The new security attracted enormous speculative interest that turned into a disorderly rout when new data indicated that economic activity was beginning to turn up.[34] The rout brought an abrupt end to Anderson's maturity extension program: Treasury did not offer anything longer than 2½ years for the balance of the year.

Summary

Treasury issuance of long-term debt between 1953 and 1958 was an erratic affair. Officials were sometimes unwilling to issue in a recession (when interest rates were falling) for fear of retarding recovery and were sometimes reluctant to issue in a expansion (when interest rates were rising) because of a perceived lack of investor interest and reluctance to pay the rising rates. More than a decade later, Paul Volcker, then Under Secretary for Monetary Affairs, would observe that "No time seems to be a good time for offering long-term Treasury securities – either

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31 "Treasury Flooded with Orders for 12-Year 4% Bond," *Wall Street Journal*, September 19, 1957, p. 3.

32 Federal Reserve Bank of New York Circular no. 4531, November 18, 1957, Circular no. 4562, February 3, 1958, and Circular no. 4605, May 29, 1958.

33 Federal Reserve Bank of New York Circular no. 4605, May 29, 1958.

34 The summer 1958 debacle is described in Garbade (forthcoming, ch*. 15)*.

rates are too high or there is a desire to maximize the flow of funds to other borrowers." [35] The erratic behavior of average maturity (Chart 1) reflects the herky-jerky, start-stop, issuance.

<u>1959-1960</u>

Treasury officials renewed their efforts at maturity extension in 1959. However, when a January cash offering of $750 million of 21-year bonds [36] attracted fewer subscriptions than anticipated,[37] they decided to offer only 1-year certificates and 3-year notes in the February refunding [38] and limited a March cash offering of 10½-year bonds to $500 million.[39]

Secondary market bond yields increased in April 1959 above the 4¼ percent statutory ceiling on the interest rate on new bonds,[40] limiting Treasury to issuing certificates and notes.

A year later, after yields had receded, Treasury brought a cash offering of 25-year 4¼ percent bonds.[41] Unsure of the depth of demand, it left the amount of the offering open, saying that it would accept "up to" $1.5 billion in subscriptions. The *New York Times* reported that the Treasury "did not know how big the demand would be. In part this sense of 'groping in the dark' resulted from the fact that no long-term bonds had been issued for nearly a year. … The market was 'thin.'" [42] The offering received subscriptions for only $370 million of the bonds. Something different was needed if officials were to make progress towards their goal of stretching out the maturity structure of the debt.

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35 Treasury press release, "Remarks of the Honorable Paul A. Volcker, Under Secretary of the Treasury for Monetary Affairs, to the Money Marketeers at the Bankers Club, New York, New York," March 7, 1972."

36 Federal Reserve Bank of New York Circular no. 4685, January 12, 1959.

37 "Treasury Allots Its New 4% Issue," New York Times, January 17, 1959, p. 24.

38 Federal Reserve Bank of New York Circular no. 4697, February 2, 1959.

39 Federal Reserve Bank of New York Circular no. 4716, March 23, 1959.

40 The appendix describes the 4¼ ceiling.

41 Federal Reserve Bank of New York Circular no. 4868, April 4, 1960.

42 "Investors Wary on 25-Year Bond," *New York Times*, April 8. 1960, p. 1.

The Advent of Advance Refundings

In June 1960, Treasury officials announced an unusual "advance" refunding: an offer to issue either a 4-year note or an 8-year bond in exchange for a bond maturing in November 1961 – *more than 1¼ years in the future*.[43] The offer was described variously as an effort to avoid congestion by reducing the amount of debt that would have to be refinanced in in the not-too-distant future and as an effort to stretch out the maturity structure of marketable Treasury debt. Investors tendered for $4.56 billion of the 4-year notes, were allotted $3.89 billion, and tendered for and were allotted $320 million of the 8-year bonds, retiring 38 percent of the target bond. Officials said they were "pleased" with the results.[44]

Under Secretary Baird, in an August 1960 speech at the University of Wisconsin,[45] focused on maturity extension as the primary objective of the Treasury's new debt management tool. Baird expressed particular concern with the growth of debt maturing in from one to five years. (Debt maturing within one year was not considered a problem because the liquidity needs of the economy were believed to require a substantial short-term debt.[46]) He outlined a "leapfrog process" where Treasury would first undertake a "senior advance refunding," offering debt maturing in more than ten years in exchange for debt maturing in from five to ten years, followed by a "junior advance refunding" offering debt maturing in from five to ten years in exchange for debt maturing in from one to five years. The two-stage process was deemed necessary because

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43 Federal Reserve Bank of New York Circular no. 4896, June 6, 1960. The offering followed a September 22, 1959 amendment to federal tax law allowing the Secretary of the Treasury to offer a new security in exchange for an outstanding issue without tax consequences. The superseded law required that an investor recognize any capital gain or loss on the outstanding security at the time of the exchange. The amendment allowed an investor to transfer the basis in the outstanding security to the new security.

44 "Investors Spurn Long-Term Bond in Treasury Swap," *Wall Street Journal*, June 16, 1960, p. 2.

45 "Treasury May Broaden Scope of Its Advance Refunding Plan," *New York Times*, August 19, 1960, p. 29, and "Treasury Mulls Offer of Long-Term Bonds in Advance Refunding of Wartime 2½s," *Wall Street Journal*, August 19, 1960, p. 3.

46 U.S. Treasury Department (1960, p. 3)

holders of debt maturing in from one to five years were rarely interested in extending beyond ten years. Baird expressed particular interest in moving holders of eight "tap" bonds – bonds with 2½ percent coupons issued during World War II and maturing between December 1968 and December 1972 (Table 1) – into longer maturities.

The September 1960 Senior Advance Refunding

In September 1960, Treasury offered three long-term bonds in the first senior advance refunding:

- a 20-year bond offered in exchange for a tap bond maturing in 6¾ years ($2.11 billion outstanding)
- a 29-year bond in exchange for a tap bond maturing in 8¼ years ($2.82 billion outstanding), and
- a 38-year bond in exchange for a tap bond maturing in 8¾ years ($3.74 billion outstanding) or a tap bond maturing in 9¼ years ($3.81 billion outstanding).[47]

Officials said they hoped to issue a total of between $3 billion and $5 billion of the three bonds. Actual issuance totaled $3.97 billion, including $640 million of the 20-year bond, $990 million of the 29-year bond, and $2.34 billion of the 38-year bond. The refunding removed about 30 percent of each of the four tap bonds and produced a seven month extension of average maturity.[48]

1961 to Mid-1965: Advance Refundings

Following John F. Kennedy's inauguration as president, Douglas Dillon, former chairman of Dillon, Read & Co., former ambassador to France, and former Under Secretary of State, became Secretary of the Treasury. Robert Roosa, former head of the Research and

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47 Federal Reserve Bank of New York Circular no. 5009, March 15, 1961.

48 "Early Refunding Termed Success," *New York Times*, September 23, 1960, p. 41.

Statistics Function at the Federal Reserve Bank of New York, became Under Secretary of the Treasury for Monetary Affairs.

In a March 1961 advance refunding, the new Treasury team offered a 5⅔-year bond in exchange for a bond maturing in 2½ years ($6.76 billion outstanding) and a 6⅔-year bond in exchange for any of three other securities:

- a bond maturing in 1¼ years ($5.26 billion outstanding),
- a bond maturing in 1¾ years ($3.45 billion outstanding), and
- a note maturing in 1-year, 11-months ($3.97 billion outstanding). [49]

The *Wall Street Journal* reported that "Mr. Roosa took pains to emphasize that the operation … is intended to 'tell the market that this Administration intends to use the previous Administration's method of debt lengthening.'" [50]

Treasury received $1.29 billion of the 1¼-year bond (25 percent of the amount outstanding), $1.18 billion of the 1¾-year bond (34 percent of amount outstanding), $1.13 billion of the 1-year 11-month note (28 percent of amount outstanding), and $2.44 billion of the 2½-year bond (36 percent of amount outstanding); a total of $6.04 billion (31 percent of the total amount outstanding). Secretary Dillon labeled the operation a "gratifying success" [51]

The next operation, in September 1961, was another senior advance refunding. In announcing the operation, Roosa expressed the view that "the one overriding consideration here is that we must take advantage of opportunities to lengthen the debt." [52] The structure of the offering was more complicated than the September 1960 operation. Officials offered a *choice* of any of three securities: a 19-year, 2-month bond, a 28-year, 5-month bond, or a 37-year, 2-

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[49] Federal Reserve Bank of New York Circular no. 4934, September 9, 1960.

[50] "Treasury to Offer New 3⅝%, 3⅜% Bonds for Swap," *Wall Street Journal*, March 16, 1961, p. 4.

[51] "Early Refunding Termed Success," *New York Times*, March 25, 1961, p. 29, and "Debt Refunding Was Successful, Treasury Says," *Wall Street Journal*, March 27, 1961, p. 4.

[52] "Treasury Plans Refunding Move," *New York Times*, September 8, 1961, p. 44.

month bond, in exchange for either of two securities: a tap bond maturing in 8½ years ($4.69 billion outstanding) or a tap bond maturing in 9½ years ($2.93 billion outstanding).[53] They received a total of $3.76 billion of the two tap bonds (49 percent of the total amount outstanding) and were said to be "very pleased" with the outcome.[54]

Advance Refundings in 1962: A Changing Focus

Treasury undertook another pair of advance refundings in 1962. The February operation provided a mix of two junior refundings (one with an option to exchange a 3-year bond for an 18-year bond) and one senior refunding (Table 2). Investors tendered $5.18 billion of the five exchange-eligible securities (28 percent of the total amount outstanding) and took $2.80 billion of a 9½ year bond, $560 million of the 18-year bond, $900 million of a 28-year bond, and $930 million of a 36¾-year bond.

At the conclusion of the February operation, holders of all eight tap bonds had had an opportunity to exchange their bonds for longer-term debt. Treasury officials were reported to believe that the "debt-extending potential" available from refinancing tap bonds was "about exhausted." [55]

The September 1962 operation took a new tack and focused on reducing the quantity of securities due to be refinanced in the near future. In what came to be known as a "pre-refunding," the operation gave holders of $26.82 billion of six different certificates and notes maturing in the next eight months an opportunity to exchange their holdings for a note maturing in 5 years or a bond maturing in 10 years (Table 3). Investors tendered $7.85 billion of the exchange-eligible securities (29 percent of the amount outstanding).

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53 Federal Reserve Bank of New York Circular no. 5082, September 7, 1961.

54 "Refunding by U.S. Called a Success," *New York Times*, September 22, 1961, p. 45.

55 "Treasury Has 2-Stage Plan to Ease Strain of Selling Short-Term Notes for New Cash," *Wall Street Journal*, September 6, 1962, p. 2.

1963 to 1965

At the beginning of 1963, Treasury had two viable advance refunding formats: pre-refundings of debt maturing in the near future and junior advance refundings of debt maturing in from one to five years. Each of the two operations in 1963 provided one pre-refunding and one junior advance refunding (Tables 4 and 5).

The three following operations, in 1964 and 1965, merged the two formats (Tables 6, 7, and 8). Holders of debt maturing in anywhere from just a few weeks to more than two years could exchange their securities for bonds maturing in from slightly more than five years to as much as twenty-eight years. Investor interest varied widely. Twelve percent of the outstanding bonds were tendered in the January 1964 operation, 22 percent in July 1964, and 42 percent in January 1965.

Appraisal

In a speech on Treasury debt management in November 1964,[56] Roosa reviewed the efficacy of pre- and advance refundings. He characterized the operations as "perhaps the most effective single technique that has been used to keep the debt well placed," noting that,

> The role of advance refundings in the debt extension effort of recent years has been spectacular. Over the 5 years 1960-64 that advance refundings have been in use, the Treasury has issued an annual average of about $4 billion of bonds maturing in 10 years or more, compared with an average of slightly more than $1 billion per year for the 8 preceding years… As a result, the long postwar decline in the average maturity of the marketable debt to a low of 4 years 2 months in September 1960, was not only ended but reversed. The average maturity is now 5 years 2 months.

Roosa emphasized the advantages of pre- and advance refundings compared to refundings at maturity, pointing out that, with advance refundings,

> The Treasury has complete initiative with respect to timing and amounts. Instead of being bound to act on a maturity date established many years earlier, the Treasury can

[56] 1965 Treasury Annual Report, pp. 324-329.

> choose when to enter the market, in the light of prevailing market conditions – accomplishing more, disturbing less.
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> Moreover, should the response be comparatively poor [[57]] – either because new events intervened while the books were open or because the design of the offering was not adequately attractive – the Treasury suffers no significant consequences. It still will have other opportunities to handle the remaining holdings of securities eligible for the advance exchange, and there will be no impact at all upon its cash position. Low response to a refunding of actually matured issues, on the other hand, raises innuendoes of 'failure' and leads to a possible short-fall of cash as the Treasury pays out heavy amounts for redemptions.

and he noted the advantages of consolidated operations:

> By combining many issues in a single operation, often taking maturities scattered over a range of several years, the Treasury can reduce the total number, or the scale, or both, of its subsequent operations. The effect can be to reduce the weight of Treasury operations in the market, particularly important in periods when the market itself is under strain.

Despite Roosa's fulsome praise, offerings of bonds in advance refundings came to an abrupt halt in mid-1965 when secondary market yields on securities with more than five years to maturity rose above the statutory ceiling of 4¼ percent on interest rates on new bonds.

<u>1961 to Mid-1965: Raising New Money and Refinancing Maturing Debt</u>

Advance refundings were a supplement to, rather than a replacement for, traditional debt management operations: raising new money and refinancing maturing debt. The latter operations continued to be important in the first half of the 1960s and stretching out the maturity structure of marketable debt continued to be a prominent objective. However, the question of whether to offer short-term debt or long-term debt became more complicated.

The Gold Problem

U.S. gold reserves began to decline in 1958 as U.S. investors began to seek more rewarding investment opportunities aboard. In the absence of intervention by foreign central

[57] Bryan (1972) examined the determinants of the success of an advance refunding.

banks, their foreign investments would have led to the appreciation of foreign currencies relative to the dollar. To maintain the fixed exchange rates mandated by the Bretton-Woods Agreement,[58] foreign central banks had to buy dollars against selling their own currencies. They could do either of two things with their growing dollar balances: (a) purchase dollar-denominated securities, typically short-term securities like Treasury bills, or (b) buy gold from the U.S. Treasury at the price of $35 per ounce enshrined in the Bretton-Woods Agreement. The latter action would drain U.S. gold reserves and could ultimately force the United States off the $35 gold standard. To keep foreign governments willing to hold bills in lieu of demanding gold, Treasury and Federal Reserve officials had to keep short-term U.S. interest rates on a par with short-term rates in Europe.

Refunding Operations in the First Half of 1961

Officials in the incoming Kennedy Administration was acutely aware of the gold drain and the need to maintain short-term interest rates. The February and May 1961 mid-quarter refundings [59] offered appropriately short-term securities (Chart 5).

In February, Treasury offered $6.9 billion of an 18-month note.[60] Roosa stated that "the choice of an eighteen-month maturity … was influenced by three factors … the state of the economy, *the balance of payments*, and market congestion on other maturity dates." [61] Officials received subscriptions for $18.98 billion of the notes and issued $7.32 billion.

In May, Treasury offered $5¼ billion of a 1-year certificate and $2½ billion of a 2-year note.[62] Roosa observed that "The new issues were of short term because of the continuing

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58 See Steil (2013) and Conway (2014).

59 The advent of mid-quarter refundings is described in the appendix.

60 Federal Reserve Bank of New York Circular no. 4995, February 6, 1961.

61 "Kennedy Battles Money Dilemma," *New York Times*, February 3, 1961, p. 31. Emphasis added.

62 Federal Reserve Bank of New York Circular no. 5031, May 1, 1961.

possibility that short-term rates might fall so low as to cause a renewed outflow of dollars seeking higher rates abroad. By borrowing thus the Treasury increases the demand for short-term money and thus tends to push up the cost – the interest rates – on it." [63] He further noted that the decision to issue 1- and 2-year securities "continues our policy of concentrating heavily in the short term area so long as there is reason for concern over keeping our short-term rates in line with those abroad." [64] Treasury received subscriptions for $13.82 billion of the 1-year certificates and issued $5.51 billion; it received subscriptions for $12.89 billion of the 2-year notes and issued $2.75 billion.

Mid-1961 to the Spring of 1963

After addressing their initial concerns with short-term interest rates, administration officials returned to stretching out the maturity structure of the debt. For almost two years, from mid-1961 to the spring of 1963, officials offered intermediate-term debt – and in several cases long-term debt – in mid-quarter refundings and in cash offerings for new money.

The shift in focus started with the July 1961 refunding, when the Treasury offered a 6¾-year bond in addition to 1¼- and 3-year notes.[65] The *Wall Street Journal* reported that "inclusion of the bond in the replacement package was dictated mainly by the Treasury's desire to gain some lengthening of the average maturity of the debt." [66] (Average maturity at the time was 4½ years.)

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63 "President Erases Interest Ceiling," *New York Times*, April 28, 1961, p. 43.

64 "Treasury to Offer Certificate, Note in Debt Refunding," *Wall Street Journal*, April 28, 1961, p. 5.

65 Federal Reserve Bank of New York Circular no. 5059, July 13, 1961. The usual August mid-quarter refunding was moved forward to accommodate the refinancing of $9.96 billion of securities maturing August 1, 1961.

66 "Treasury Discloses Terms of $12.5 Billion Refinancing," *Wall Street Journal*, July 14, 1961, p. 3.

In the November 1961 refunding Treasury offered a 13-year bond as well as 1¼- and 4½-year securities.[67] The *New York Times* reported that "Treasury wants to stretch out the debt as much as it can." [68]

In January 1962 Treasury offered a 7⅔-year bond in a cash financing for new money.[69] The *Journal* reported that the Treasury did not want to sell short-term securities, believing that "short-term interest rates … are at satisfactory levels from the standpoint of competing foreign interest rates" and that "a new supply of short-term securities might have put undesired upward pressure on domestic short-term rates." [70]

In a second new money financing in April 1962, Treasury offered a 6⅓-year bond.[71] Roosa noted that the bond would "help meet the Treasury's objective of lengthening the average maturity of the national debt." [72]

A 30-Year Bond. By the summer of 1962 Treasury officials had concluded that the usefulness of advance refundings as a vehicle for issuing long-term debt was about played out and that they needed to begin selling long-term bonds for cash and in exchange for maturing debt.[73] Roosa announced that the August 1962 mid-quarter refunding would include an offering of "up to" $750 million of 30-year bonds, in addition to $6.5 billion of a 1-year certificate and $1.5 billion of a 6½-year bond.[74] The bond offering was premised on the idea that "good debt

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67 Federal Reserve Bank of New York Circular no. 5103, November 6, 1961.

68 "Treasury Slates Refinancing Deal," *New York Times*, November 3, 1961, p. 47.

69 Federal Reserve Bank of New York Circular no. 5138, January 15, 1962.

70 "Treasury to Offer $1 Billion of 4% Bonds," *Wall Street Journal*, January 12, 1962, p. 24.

71 Federal Reserve Bank of New York Circular no. 5175, April 9, 1962.

72 "Treasury to Borrow $1 Billion in New Cash Through 3¾% Bonds Maturing Aug 15, '68," *Wall Street Journal*, April 6, 1962, p. 2.

73 "Treasury to Raise $1 Billion in New Cash, Sell 30-Year Bond in $8.5 Billion Financing," *Wall Street Journal*, July 27, 1962, p. 3.

74 Federal Reserve Bank of New York Circular no. 5207, July 30, 1962.

management" required a willingness "to borrow in all ranges of maturities" and signaled Roosa's belief that the Treasury "must begin making a direct entry into the long-term market." [75]

Investors tendered for only $360 million of the 30-year bond. A Treasury official remarked that "We learned an object lesson from the experience. The dimensions of the long-term market are such that billions aren't lying around to be picked up." [76]

Selling Long-Term Debt in Syndicate Auctions. The disappointing demand for the 30-year bond, coupled with the belief that the potential for issuing such bonds in advance refundings was played out, prompted Treasury officials to look for a third way to sell long-term debt.

In mid-September 1962 the Treasury announced that it would auction long-term bonds to competing syndicates of securities dealers.[77] The auctions would follow the same format as "those which have been widely used for many years in selling State and local government securities and the bonds of privately-owned public utilities." Each syndicate would bid on an all-or-none basis for the full amount of the bonds offered. The syndicate bidding the lowest yield would win the bonds and re-offer the bonds at a fixed price to public investors.

The first syndicate auction offering was announced on December 20: $250 million of 30-year bonds.[78] Bidding closed at 11 a.m. on Tuesday, January 8, 1963. Three syndicates, and one firm acting on behalf of a group of final investors, submitted bids. The winning bid was $99.85111 per $100 principal amount, equivalent to a yield of 4.008210 percent; the cover was $99.85100, or a yield of 4.008216 percent. The bonds were reoffered to the public at par and

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75 "Treasury to Raise $1 Billion in New Cash, Sell 30-Year Bond in $8.5 Billion Financing," *Wall Street Journal*, July 27, 1962, p. 3.

76 "Treasury Unlikely to Try Long-Term Cash Market Again Soon: Mediocre Results Cited," *Wall Street Journal*, August 3, 1962, p. 2.

77 Federal Reserve Bank of New York Circular no. 5224, September 14, 1962. Roosa chose the syndicate method of bidding because "few if any" securities firms "felt they were big enough in capital to back up their judgment in a free-for-all auction." "Sale Date Fixed on U.S. Issue," *New York Times*, October 18, 1962, p. 72.

78 Federal Reserve Bank of New York Circular no. 5273, December 20, 1962.

sold out within two hours.[79] Secretary Dillon stated that the bidding "indicates that the market has responded with keen interest to this first offering of bonds at competitive bidding and has provided the base for the potential development of an important new instrument for debt management." [80]

Treasury brought a second, not nearly so successful, syndicate auction offering of 31-year bonds on April 9, 1963.[81] Three syndicates submitted bids. The winning bid was $100.55119 per $100 principal amount, equivalent to a yield of 4.093 percent, the cover was $100.51259, or a yield of 4.095 percent, and the bonds were reoffered to the public at 100¾.[82] Less than half was sold before the close of business [83] and the syndicate broke up on April 26 with few additional bonds sold.[84] Roosa conjectured that the next auction sale was "a long time" away. [85]

Spring 1963 to Mid-1965

After the poorly received fixed-price offering of a 30-year bond in August 1962 and the equally poorly received auction offering of a 31-year bond in April 1963, the Treasury did not offer long-term debt in a conventional offering before bond yields rose above the 4¼ percent

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[79] "New Treasurys' Quick Sellout Spurs Investor Interest in Debt Issues," *Wall Street Journal*, January 9, 1963, p. 25.

[80] "First U.S. Bonds Go to Syndicate," *New York Times*, January 9, 1963, p. 10.

[81] Federal Reserve Bank of New York Circular no. 5317, March 20, 1963.

[82] Federal Reserve Bank of New York Circular no. 5322, April 9, 1963.

[83] "Treasury Raises 300 Million in Auction of Long-Term Bonds," *New York Times*, April 10, 1963, p. 51, "Treasury 'Satisfied' With 4.093145% Cost of $300 Million 31-Year Issue; Resale Slow," *Wall Street Journal*, April 10, 1963, p. 2.

[84] "Bond Syndicate Being Broken Up," *New York Times*, April 26, 1963, p. 47, "Bonds: Prices Gain Widely in Treasurys before Syndicate Breakup is Confirmed," *New York Times*, April 26, 1963, p. 52, "Price Floor Removed from Treasury 4⅛s; Dealers Doubt Decline Will Exceed ½ Point," *Wall Street Journal*, April 26, 1963, p. 21.

[85] "Bond Syndicate Being Broken Up," *New York Times*, April 26, 1963, p. 47.

ceiling in mid-1965.[86] Between May 1963 and mid-1965, officials mostly offered debt maturing in less than three years, typically defending their choice of maturity by referencing a need to maintain or bolster short-term interest rates (Table 9).

However, they did not abandon entirely their interest in stretching out the maturity structure of the debt. Officials offered intermediate-term bonds on three occasions when conditions permitted:

- In June 1963 they offered a 7-year, 2-month bond in a fixed-price cash financing for new money.[87] Roosa indicated that "the Treasury decided to enter the intermediate-term market with its new securities offering … because there was no immediate need to bolster short-term interest rates through the sale of short-term securities and because the market was clearly ready to accept some securities of intermediate maturity length." [88]
- In May 1964 officials offered a 1½-year note and a 10-year bond.[89] The *New York Times* reported that "the operation, with its inclusion of the 10 year bond, will represent another step in the continuing effort to lengthen the maturity structure of the debt and avoid overloading the short-term area." [90]
- In May 1965 they offered a 1¼-year note and a 9-year bond.[91] Under Secretary of the Treasury Frederick Deming [92] stated that he wasn't "particularly concerned" about

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[86] Treasury did, however, continue to offer long-term debt in advance refundings. It sold $5.44 billion of debt 20 years or longer between the fall of 1963 and mid-1965

[87] Federal Reserve Bank of New York Circular no. 5343, June 7, 1963.

[88] "Treasury to Sell 1.25 Billion Issue," *New York Times*, June 7, 1963, p. 56.

[89] Federal Reserve Bank of New York Circular no. 5489, May 1, 1964.

[90] "Treasury Planning to Replace $10.6 Billion Maturing Issues," *New York Times*, April 30, 1964, p. 47.

[91] Federal Reserve Bank of New York Circular no. 5649, April 30, 1965.

[92] Deming became Under Secretary for Monetary Affairs in February 1965, following Roosa's departure at the end of 1964.

whether domestic short-term interest rates were high enough for balance-of-payment purposes, because the outflow of capital for short-term investment at higher rates in other nations had been "almost nil." [93]

Mid-1965 to Mid-1974: Contraction

There were two important statutory constraints on Treasury debt management in mid-1965: bonds could not be issued at a rate of interest in excess of 4¼ percent, and notes had to mature in not more than five years from the date of issue. Secondary market yields on Treasury debt maturing in more than five years exceeded 4¼ percent after mid-1965 and, in the absence of legislation extending the maximum maturity of a note or eliminating (or providing exemptive relief from) the 4¼ ceiling, Treasury could not issue at maturities beyond five years.

Both statutory constraints remained undisturbed until mid-1967, so from mid-1965 to mid-1967 Treasury was limited to issuing coupon-bearing debt with no more than five years to maturity (Chart 6). Over that two year interval, the average maturity of marketable debt fell from 5 years and 4 months to 4 years and 7 months – eliminating most of the gains from the first half of the 1960s.

Extending the Maximum Maturity of a Note

In mid-1967 Congress extended the maximum maturity of a note to seven years.[94] Treasury officials offered the first 7-year note in the November 1967 mid-quarter refunding and subsequently made regular use of their expanded authority: twelve of the following thirteen mid-quarter refundings – through and including February 1971 – offered a note maturing in more than five years (Table 10). Eight of the refundings included a note with the maximum, 7-year, maturity. The average maturity of Treasury debt nevertheless continued to decline.

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93 "Treasury Offers to Replace $8.4 Billion of Maturing Notes with Existing Issues," *Wall Street Journal*, April 29, 1965, p. 3.

94 Act of June 30, 1967.

The Volcker Years

David Kennedy became Secretary of the Treasury on January 22, 1969, and Paul Volcker became Under Secretary of the Treasury for Monetary Affairs five days later. In his inaugural mid-quarter refunding announcement, Volcker took note of the eroding average maturity and stated that "We would like to do what we can to begin moving that ominous curve in the opposite direction." [95] He noted that the 4¼ ceiling was "obviously a constraining factor" and that Treasury officials "would like more flexibility."

Exemptive Relief from the 4¼ Ceiling. By March 1971, average maturity was down to 3½ years, prompting Congress to consider whether to accede to a Treasury request to eliminate the 4¼ ceiling. The Senate Finance Committee agreed that "the Treasury Department may well be correct in assuming that the 4¼ percent interest rate limit has interfered with good debt management practices." [96] However, the committee was "reluctant to remove the ceiling completely, at least until there has been an opportunity to observe the effects of a limited exception to the ceiling." Rather than eliminate the 4¼ ceiling, the act of March 17, 1971, provided $10 billion of exemptive relief.

Treasury offered its first bond since the spring of 1965 in the August 1971 mid-quarter refunding, and issued nine more bonds in mid-quarter refundings through the middle of 1974 (Table 11). However, in spite of this second expansion of Treasury's debt management authority, average maturity fell to 3 years in mid-1974.

Reentering the Market for Long-Term Treasury Bonds. The 1967 legislation (allowing Treasury to issue notes as long as seven years) and the 1971 legislation (allowing Treasury to issue up to $10 billion of bonds at yields above the 4¼ ceiling) relaxed statutory

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[95] "Choice of Two Notes Given to Public," *New York Times*, January 30, 1969, p. 43.

[96] Committee on Finance (1971, p. 12). See also Committee on Ways and Means (1971).

constraints on Treasury debt management in quite different ways. The 1967 legislation relaxed the maturity limit on notes (from five years to seven years) but did not impose any limit on the quantity of the longer-term notes that Treasury could issue. The 1971 legislation relaxed the quantity limit on bonds issued at interest rates above 4¼ percent (from zero to $10 billion), but did not impose any limit on the term to maturity of the higher-rate bonds that the Treasury could issue.

Using its expanded authority to issue bonds of any term, Treasury reentered the long-term market in January 1973. An offering of 20-year bonds for new money was the first long-term offering since the January 1965 advance refunding. The *Wall Street Journal* reported Treasury officials as saying that the offering was "designed to stretch out the maturity range of part of the nation's debt" [97]

Treasury's re-entry continued with offerings of a 25-year bond in the May 1973 mid-quarter refunding, a 20-year bond in the August 1973 refunding, reopenings of that bond in the November 1973 and February 1974 refundings, and another 25-year bond in the May 1974 mid-quarter refunding.[98]

1975: Financing a Surging Deficit

U.S. economic activity peaked in the fall of 1973 and then began a long slide that bottomed out in the spring of 1975; the unemployment rate rose from 4.8 percent to a high of 9.0 percent.

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[97] "Treasury Plans Offer of 20-to-30-Year Bonds to Smooth Out Debt," *Wall Street Journal*, December 18, 1972, p. 19.

[98] Federal Reserve Bank of New York Circular no. 7130, April 26, 1973, Circular no. 7194, July 26, 1973, Circular no. 7259, October 26, 1973, Circular no. 7332, January 31, 1974, and Circular no.7386, May 2, 1974. All six offerings were auction, rather than fixed-price, offerings. The new format had been introduced in a November 1971 offering of 1½-year notes, following a disastrous fixed-price offering in May 1970, and had been extended out the curve since that time. See Garbade (2004) and Garbade (forthcoming, ch. 28).

The recession triggered an extraordinary Federal deficit that pushed debt management practices into new territory. Over the five years from 1970 to 1974, the average annual increase in marketable Treasury debt had been \$11.4 billion per year. Marketable debt increased by \$70.3 billion in 1975. How the requirement for so much new money was satisfied had profound consequences for how officials would manage the maturity structure of marketable debt in the late 1970s and thereafter.

Treasury's Regular Issuance Programs

At the end of 1974, Treasury had two programs for regular issuance of coupon-bearing debt. The first, in place since 1958, was regular mid-quarter refundings. Offerings had been on an auction basis since mid-1973. Treasury specified how much it wanted to sell and market participants indicated how much, and at what yield, they were willing to buy. Because they controlled the size of an offering, officials could raise modest amounts of new money simply by offering a bit more than what was maturing. Mid-quarter offerings increased from 1974 to 1975 (Table 12), but not in parallel with the Treasury's new money requirements.

The second regular issuance program was Treasury's quarterly offerings of 2-year notes, a program had been put in place in the fall of 1972 (Table 13).[99] The first rollover refinancing of a maturing 2-year note with a new 2-year note occurred in September 1974. As with mid-quarter refundings, Treasury raised modest amounts of new money by offering a bit more than what was maturing.

New Money Coupon Offerings Before 1975

Prior to 1975, Treasury had, from time to time, raised significant amounts of new money by offering coupon-bearing debt on an *irregular*, *as-needed*, basis, at a time *other than* the 15th of the middle month of a quarter (Table 14). Importantly, however, such "new money" debt was

99 The introduction of regular quarterly offerings of 2-year notes is discussed in Garbade (2007) and Garbade (forthcoming, ch. 28).

set to mature at the time of a future mid-quarter refunding. To refinance the "new money" debt when it matured, Treasury folded the amount required into whatever other debt – typically issued in earlier mid-quarter refundings – was maturing on the same day. Volcker described this as a matter of "building up … note and bond maturities at quarterly intervals, to be handled at the Treasury's discretion at maturity" [100]

Financing the 1975 Deficit

Treasury officials began 1975 with a conventional new money offering, issuing $1.25 billion of notes on January 7, 1975, that were set to mature on May 15, 1979. Less conventionally, they also issued $750 million of notes that were set to mature at the end of the first quarter of 1976, when they could be refinanced with 2-year notes. [101] However, it was already evident that new money offerings that would, at maturity, merge into one of the two regular issuance streams would not suffice.

Monthly 2-Year Notes. Treasury officials introduced monthly 2-year notes in February 1975.[102] In late February they offered two notes set to mature at the end of months that were not the third month of a quarter: $1½ billion of notes set to mature on February 28, 1977, and $1½ billion set to mature on August 31, 1976.[103] The *Wall Street Journal* observed out that the notes "could become the initial phase of a cycle of two-year notes that would be issued at the end of

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[100] Treasury press release, "Remarks of the Honorable Paul A. Volcker, Under Secretary of the Treasury for Monetary Affairs, to the Money Marketeers at the Bankers Club, New York, NY," March 7, 1972.

[101] Both issues were announced in Federal Reserve Bank of New York Circular no. 7534, December 23, 1974.

[102] This was not the first time Treasury expanded a program of regular quarterly issuance to a program of regular monthly issuance. It did the same thing in August 1963 when it moved year bill auctions from quarterly to monthly. See Garbade (forthcoming, ch. 20).

[103] Federal Reserve Bank of New York Circular no. 7569, February 11, 1975.

each month." [104] A similar issue, on March 25,1975, of notes set to mature on May 31, 1976, followed.[105]

Table 15 shows notes issued in 1975 with a term to maturity of not more than two years. All of the notes were set to mature on the last day of a month, and all except the end-of-quarter issues (shown in boldface in the table) raised new money and contributed to filling in the new program of monthly 2-year notes.

Quarterly 4-Year Notes. At mid-year Treasury introduced a new series of quarterly 4-year notes maturing on the last day of a quarter - a clone of the original 2-year program.[106] The new series included \$1.77 billion of notes issued on July 9, 1975, and set to mature June 30, 1979, \$2.08 billion of notes issued on September 4, 1975, and set to mature September 30, 1979, and \$2.00 billion of notes issued on January 6, 1976, and set to mature December 31, 1979.[107]

1976 to 1983: Stretching Out the Debt, Again

At the end of 1975, the average maturity of marketable Treasury debt had fallen to a post-World War II low of 2 years, 8 months, yet by year-end 1983 it was back up to 4 years, 3 months. A steady expansion of regular and predictable offerings beyond the monthly 2-year and quarterly 4-year series introduced in 1975 played an important role in the stretch-out. Equally important, Congress continued to relax the statutory constraints on longer-term issuance.

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104 "Treasury to Sell \$10.6 Billion Debt in Three Offers," *Wall Street Journal*, January 23, 1975, p. 23.

105 Federal Reserve Bank of New York Circular no. 7579, March 5, 1975.

106 This was not the first time Treasury cloned a regular issuance program. It did the same thing in December 1958 when it introduced weekly auctions of 26-week bills patterned on the existing weekly auctions of 13-week bills. See Garbade (forthcoming, ch. 16).

107 Federal Reserve Bank of New York Circular no. 7657, June 19, 1975, Circular no. 7684, August 7, 1975, and Circular no. 7770, December 10, 1975.

Relaxing Statutory Constraints on New Issues of Longer-Term Debt

In March 1976 Congress extended the maximum maturity of a note from seven years to ten years and increased the exemption from the 4¼ ceiling to $12 billion.[108] The first action allowed Treasury to issue coupon-bearing debt with maturities of up to ten years unconstrained by the 4¼ ceiling. The second action allowed Treasury to issue an additional $2 billion of securities unconstrained by the maximum, 10 year, maturity of a note. Congress further increased the exemption from the 4¼ ceiling from time to time [109] and finally eliminated the ceiling in 1988 [110]

Regular and Predictable Offerings.

The evolution of a new policy instrument frequently occurs in fits and starts.[111] The development of regular and predictable offerings between 1975 and 1983 was no exception, a feature particularly evident in decisions regarding the issuance of intermediate-maturity 5- and 7-year notes and the issuance of 15- and 20-year bonds (Chart 7).

5-Year Notes. Looking back, it is clear that quarterly offerings of 5-year notes began in January 1976. The first such note was issued on January 26 and was set to mature in five years

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[108] Act of March 15, 1976.

[109] Congress increased the exemption to $17 billion in 1976 (Act of June 30, 1976), to $27 billion in 1977 (Act of October 4, 1977), to $32 billion in 1978 (Act of August 3, 1978), to $40 billion in the spring of 1979 (Act of April 2, 1979), to $50 billion in the fall (Act of September 29, 1979), to $70 billion in 1980 (Act of October 3, 1980), to $110 billion in 1982 (section 289(c) of the Tax Equity and Fiscal Responsibility Act of September 3, 1982), to $150 billion in 1983 (Act of May 26, 1983), to $200 billion in 1984 (Act of May 25, 1984), to $250 billion in 1986 (section 13212 of the Consolidated Omnibus Budget Reconciliation Act of 1985, enacted April 7, 1986), and to $270 billion in 1987 (section 9403 of the Omnibus Budget Reconciliation Act of December 22, 1987).

[110] Section 6301 of the Technical and Miscellaneous Revenue Act of November 10, 1988

[111] See, for example, the development of repurchase agreements as an instrument of monetary policy described in Garbade (forthcoming).

and four months, on May 15, 1981.[112] Whether that single issue would develop into a series was, at the time, by no means certain. Edwin Yeo, the Under Secretary of the Treasury for Monetary Affairs since August 1975, said only that the Treasury was "seriously considering" introducing a 5-year series.[113]

A second offering came in late March – this time a four year and ten month note issued on April 5 and set to mature on February 15, 1981.[114] Issuance practices settled down after the third offering – a five year and one month note issued on July 9 and set to mature on August 15, 1981.[115] The next three offerings followed similarly, issued early in the first month of a quarter and maturing on a mid-quarter refunding date five years and one month later

15-Year Bonds. In the course of announcing the May 1977 mid-quarter refunding, Anthony Solomon, recently appointed Under Secretary of the Treasury for Monetary Affairs in the new Carter Administration, disclosed that he was thinking about replacing the 5-year notes with 15-year bonds, in order to get "some useful debt extension." [116] From June 1977 to March 1978 officials alternated semi-annual offerings of 15-year bonds with semi-annual offerings of 5-year notes. In June 1978 they switched to offering 15-year bonds exclusively.

The Return of 5-Year Notes. In late July 1979, Solomon announced that he might offer a 5-year note in the first half of September, but that he did not contemplate reintroducing a

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[112] Federal Reserve Bank of New York Circular no. 7791, January 8, 1976.

[113] "Treasury Plans Heavy Borrowing," *New York Times*, January 28, 1976, p. 58.

[114] Federal Reserve Bank of New York Circular no. 7839, March 17, 1976.

[115] Federal Reserve Bank of New York Circular no. 7899, June 21, 1976.

[116] "U.S. With Cash Surplus in Quarter, Plans to Pay Off $2 Billion of Debt," *New York Times*, April 28, 1977, p. 85, and "Treasury to Sell $3.75 Billion of Securities," *Wall Street Journal*, April 28, 1977, p. 33.

regular series of the notes.[117] Soon thereafter, Treasury issued a four year and eight month note that was set to mature on May 15, 1984.[118] Three months later, on December 4, officials issued a five year and five month note set to mature on May 15, 1985.[119] Three months after that, on March 3, 1980, they issued a five year and two month note,[120] and thereafter regularly issued a note early in the third month of each quarter that was set to mature on the mid-quarter refunding date five years and two months later.

7-Year Notes and 20-Year Bonds. In late 1980, Treasury replaced the unpopular 15-year bond [121] with a 20-year bond and introduced a new series of 7-year notes. Both securities were regularly issued early in the first month of a quarter. The 7-year notes matured early in the first month of the same quarter seven years later; the 20-year bonds were set to mature on the mid-quarter refunding date twenty years and one month after issue [122]

Mid-Quarter Refundings

Over the same period – from the mid-1970s to the early 1980s – Treasury regularized offerings in its mid-quarter refundings (Chart 8). It experimented, between the end of 1977 and May 1980, with alternating semi-annual offerings of 7-year notes and 10-year notes as the

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117 "Treasury Schedules a $7.25 Billions Sale," *New York Times*, July 26, 1979, p. D7, and "Treasury to Raise Additional Cash of $2.42 Billion," *Wall Street Journal*, July 26, 1979, p. 32.

118 Federal Reserve Bank of New York Circular no. 8629, August 22, 1979.

119 Federal Reserve Bank of New York Circular no. 8688, November 21, 1979.

120 Federal Reserve Bank of New York Circular no. 8759, February 20, 1980.

121 The unpopularity of the 15-year bond is noted in Garbade (2015, p. 48).

122 In early 1982 Congress failed to increase the exemption from the 4¼ ceiling in time to allow the issuance of 20-year bonds in April and July. The gap is evident in Chart 7. An increase in the exemption in early September allowed the Treasury to restart issuance.

middle maturity in a refunding but ultimately settled on 10-year notes, along with a 3-year anchor issue and a 30-year bond.[123]

Summary

By 1983, Treasury was regularly issuing 2-year notes monthly, 4-, 5-, and 7-year notes and 20-year bonds quarterly, and 3-year and 10-year notes and 30-year bonds in mid-quarter refundings.

Concluding Remarks

From 1953 to the early 1990s, Treasury officials sought to lengthen the maturity structure of marketable Treasury debt.[124] That policy objective rarely dominated other objectives – such as promoting economic recovery from a recession, avoiding unacceptably high interest rates, and slowing the loss of U.S. gold reserves – but it was always a non-trivial consideration.

Official focus in the 1950s on stretching out the debt was sporadic and the results meager, but the ability of policy makers to make progress improved dramatically in the first half of the 1960s. They used advance refundings to issue long-term debt and addressed additional objectives in deciding how to raise new money and refinance maturing debt.

The stretch-outs of the early 1960s came to an abrupt end when yields on Treasury securities over five years to maturity rose above the 4¼ percent statutory interest ceiling on new bonds. An increase in the maximum maturity of a note to seven years in 1967, and a $10 billion exemption to the 4¼ ceiling in 1971, had little effect as average maturity fell to a low of 2¾ years at the end of 1975.

The situation began to change again in 1976, when,

- Congress increased the maximum maturity of a note to ten years,

[123] The preceding footnote also explains the absence of 30-year bonds from the May and August 1982 refundings.

[124] In 1993, Treasury officials turned away from the forty year effort. Garbade (2015, ch. 5).

- Congress began to more or less regularly lift the exemption to the 4¼ ceiling whenever bond issuance got near the ceiling, and
- officials regularized their offerings of intermediate and long-term debt.

Although relaxing statutory constraints was clearly important, regularization fundamentally changed the character of Treasury debt management. Decisions about what maturity debt to issue were no longer made on a case-by-case basis, but rather on a series-by-series basis. Regular and predictable issuance suppressed the ability of debt managers to address problems of the day – such as a need to put upward or downward pressure on short-term interest rates – with tactical issuance decisions [125] and forced them to focus on whether they should, over time, be issuing more or less longer-term debt. The answer, they concluded, was to issue more longer-term debt. The average maturity of the debt began to rise, reaching 5 years and 9 months by the end of the 1980s.

<u>Appendix</u>. A Primer on Coupon-Bearing Treasury Debt, Treasury Offerings, and Statutory Constraints on Debt Management in the Late 1940s, 1950s, and 1960s

In the late 1940s, 1950s, and 1960s, Treasury issued coupon-bearing debt in three forms: certificates of indebtedness ("certificates," coupon-bearing debt maturing in not more than one

[125] In the spring of 1972, Paul Volcker, then Under Secretary of the Treasury for Monetary Affairs, discussed the prospect for extending regular and predictable offerings from bills to coupon issues: "Further steps towards regularization could potentially be made through a commitment regularly to refund present quarterly maturities into pre-specified areas of the market. … we could also extend the logic to the regular sale of small issues of long-term bonds. But, when I press the logic of that approach to its extreme, some of the drawbacks are obvious. Regularization and routinization are nice sounding words; straightjacket and rigidity are not. From where I sit, I cannot help but be conscious of the number of times in which particular market or economic objectives may influence the Treasury's thinking as to the form of a particular financing." Treasury press release, "Remarks of the Honorable Paul A. Volcker, Under Secretary of the Treasury for Monetary Affairs, to the Money Marketeers at the Bankers Club, New York, New York," March 7, 1972."

year), notes (coupon-bearing debt maturing in not more than five years), and bonds (coupon-bearing debt with no maturity limit). The securities were sold in fixed-price subscription offerings for cash and in exchange for maturing debt. Prior to 1960 cash offerings were used to raise new money; maturing securities were refinanced with exchange offerings.

Fixed-Price Cash Offerings

In a fixed-price cash offering, Treasury fixed the price, maturity, and coupon rate of the securities it was offering, specified the quantity that it wanted to sell, and invited public subscriptions.

For example, on October 26, 1953, Treasury announced a cash offering at par of about $2 billion of a 2¾ percent bond to be issued on November 9 and to mature on September 15, 1961.[126] Market participants tendered for $12.54 billion of the bonds. Treasury issued $2.24 billion, awarding tenders for less than $10,000 the full amount subscribed. Larger tenders from mutual savings banks, insurance companies, pension and retirement funds, and state and local governments were allotted 24 percent of the amount subscribed (but not less than $10,000) and larger tenders from all others were allotted 16 percent of the amount subscribed (but not less than $10,000).[127]

Fixed-Price Exchange Offerings

In a fixed-price exchange offering, Treasury fixed the maturity and coupon rate of the securities it was offering and announced that it would exchange the new securities for maturing debt on a par-for-par basis, with all tenders to be satisfied in full.

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[126] Federal Reserve Bank of New York Circular no. 4032, October 26, 1953, and Circular no. 4033, October 28, 1953.

[127] Federal Reserve Bank of New York Circular no. 4039, November 2, 1953, and Circular no. 4041, November 6, 1953. Fixed-price cash offerings were commonly over-subscribed and subject to *pro rata* rationing.

For example, on August 28, 1953, officials announced an offering of 2⅝ percent certificates to be issued on September 15 and to mature on September 15, 1954, and an offering of 2⅞ percent notes to be issued on the same date and to mature on March 15, 1957, in exchange for $7.99 billion of bonds maturing on September 15.[128] Market participants subscribed for $4.72 billion of the certificates and $3.00 billion of the notes.[129] The remaining $265 million of maturing bonds, so-called "attrition," was held for cash redemption.

Mid-Quarter Refundings

In the late 1950s, Treasury adopted the practice of specifying the maturity date of a new issue of coupon-bearing debt as the 15th of the second month of some future quarter, regardless of whether that debt was being issued to refinance maturing debt or to raise new money.[130] The new practice "regularized" future refinancings. As debt came due and needed to be refinanced, the refinancing offerings, for settlement on the 15th of February, May, August, or November, came to known as "mid-quarter refundings." With only a couple of exceptions during the 1960s, the only time Treasury issued coupon-bearing debt on other than the 15th of the second month of a quarter was when it needed to raise new money.

Cash Refundings

In late July 1960, Treasury officials had to decide how to refinance $9.6 billion of notes due to mature on August 15. Rather than a conventional exchange offering, they chose to offer $7¾ billion of a 1-year certificate and $1 billion of a 7¾-year bond in fixed-price cash offerings.[131] Market participants subscribed for $17.39 billion of the certificates and were

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128 Federal Reserve Bank of New York Circular no. 4010, August 28, 1953, and Circular no. 4012, September 2, 1953.

129 1954 Treasury Annual Report, p. 24.

130 Garbade (forthcoming, ch. 16).

131 Federal Reserve Bank of New York Circular no. 4919, August 1, 1960.

awarded a total of $7.83 billion. They subscribed for $5.18 billion of the bonds and were allotted $1.07 billion. Treasury used existing cash balances to retire the remaining $700 million of maturing notes.

The introduction of "cash refundings" allowed the Treasury to offer less than the amount maturing when it wanted to retire indebtedness and to offer more than the amount maturing when it want to raise new cash. Cash refundings also expanded the size of the market in a mid-quarter refunding by allowing anyone with cash to subscribe; subscribers no longer needed to own a maturing security.

Statutory Constraints on Treasury Debt Management

Prior to 1967 there were two important statutory constraints on Treasury debt management:

- bonds could not be issued with an interest rate in excess of 4¼ percent,[132] and
- notes had to mature in not more than five years.[133]

Thus, Treasury was limited to issuing debt maturing in not more than five years whenever secondary market yields on Treasury debt maturing in more than five years exceeded 4¼ percent.

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[132] The 4¼ ceiling dated to the First World War. Garbade (2012, ch. 5). The Second Liberty Bond Act of September 24, 1917, imposed a ceiling of 4 percent. The Third Liberty Bond Act of April 4, 1918, raised the ceiling to 4¼ percent.

[133] Notes were first authorized by the Victory Liberty Bond Act of March 3, 1919.

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Chart 1. Average Maturity of Marketable Treasury Debt. Treasury Bulletin.

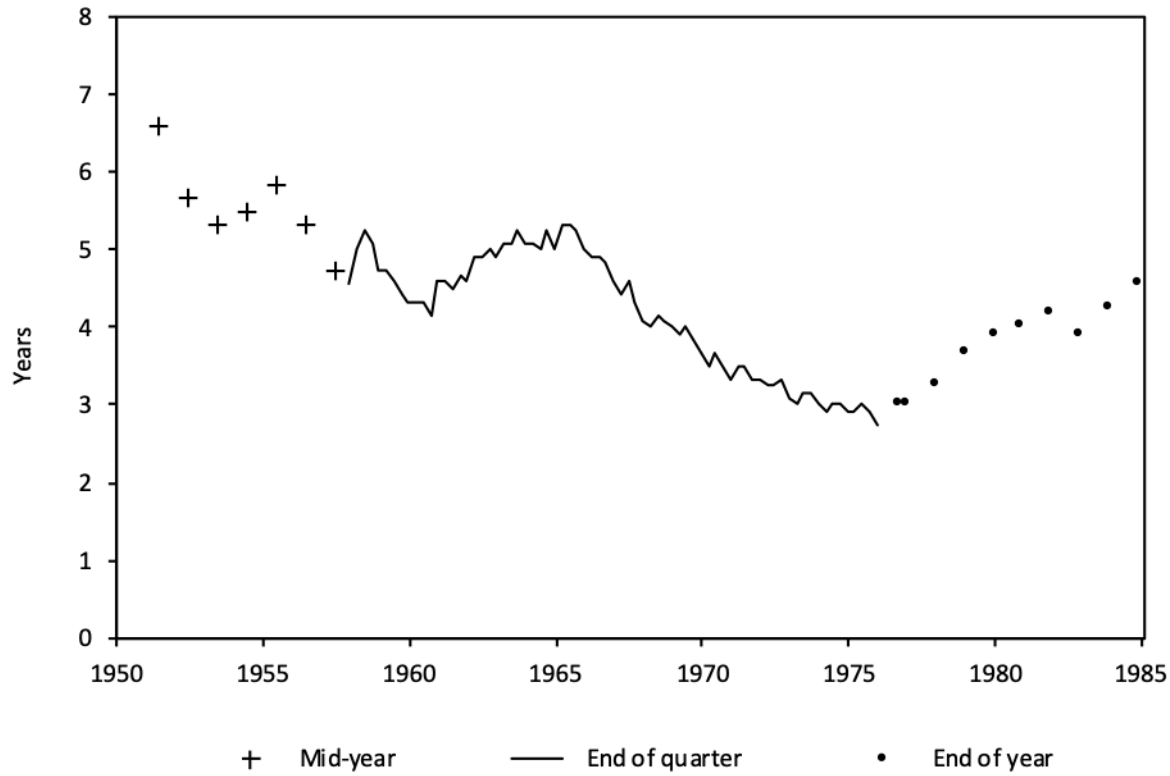

Chart 2. **Term to Maturity of Marketable Coupon Offerings.** Treasury Bulletin

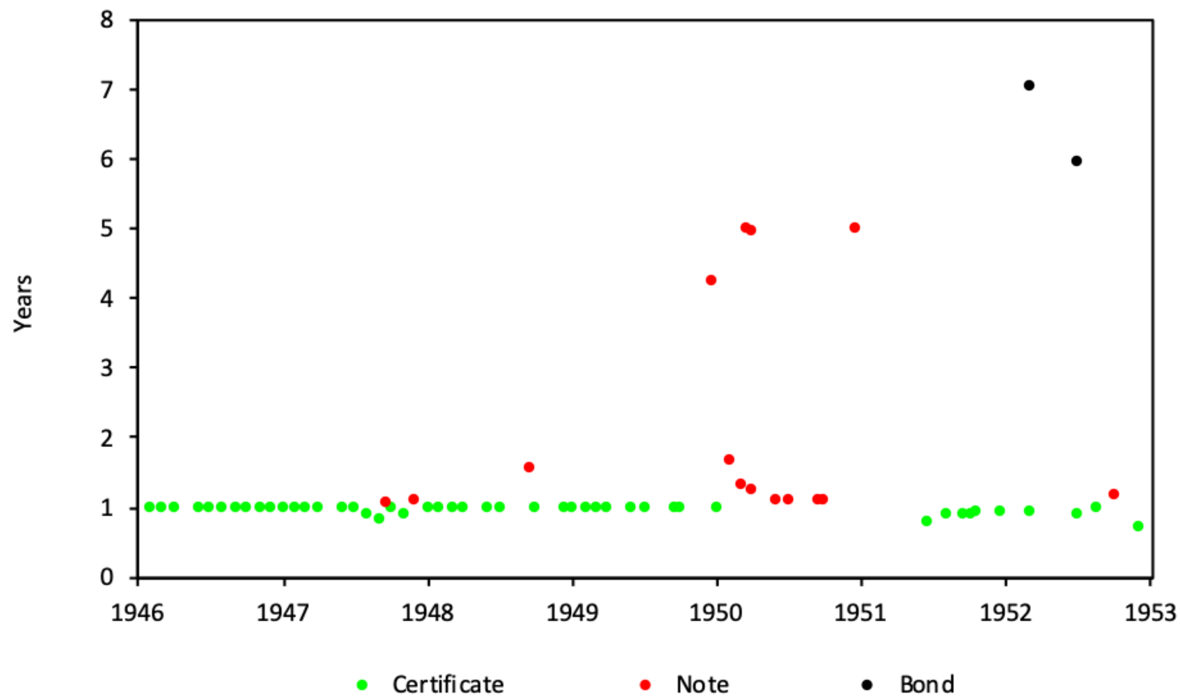

Chart 3. Term to Maturity of Marketable Coupon Offerings. Treasury Bulletin.

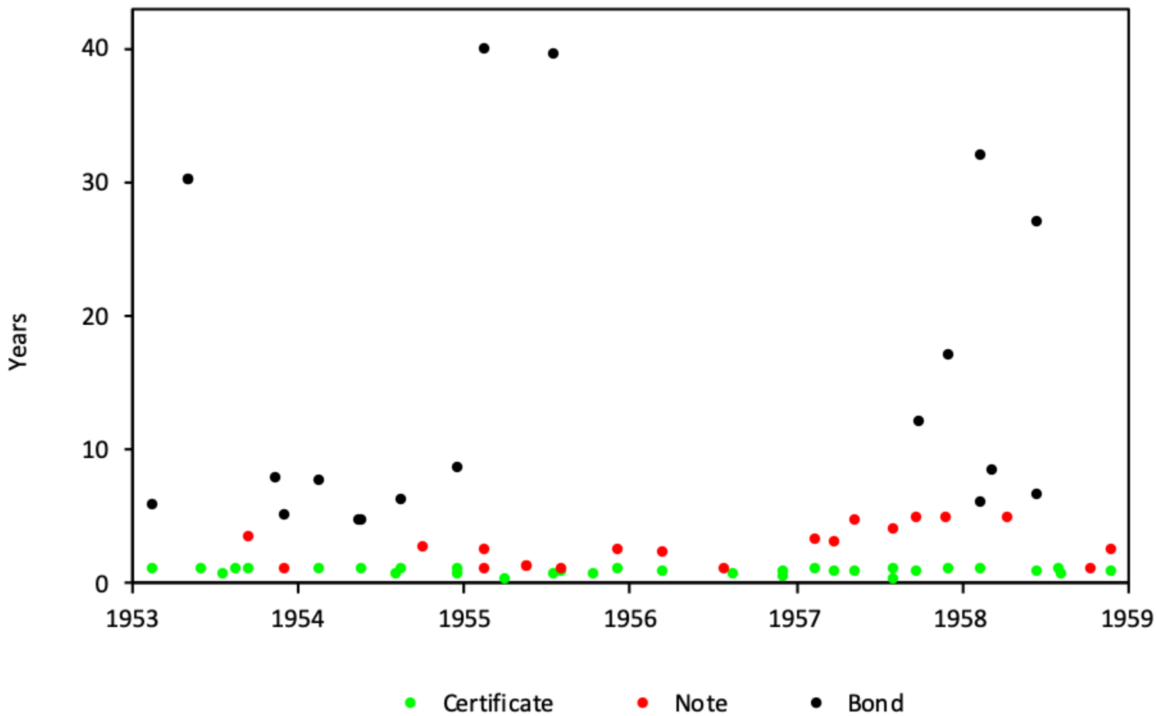

Chart 4. **Treasury Yields.** Board of Governors of the Federal Reserve System (1976, Tables 12.7A and 12.12A).

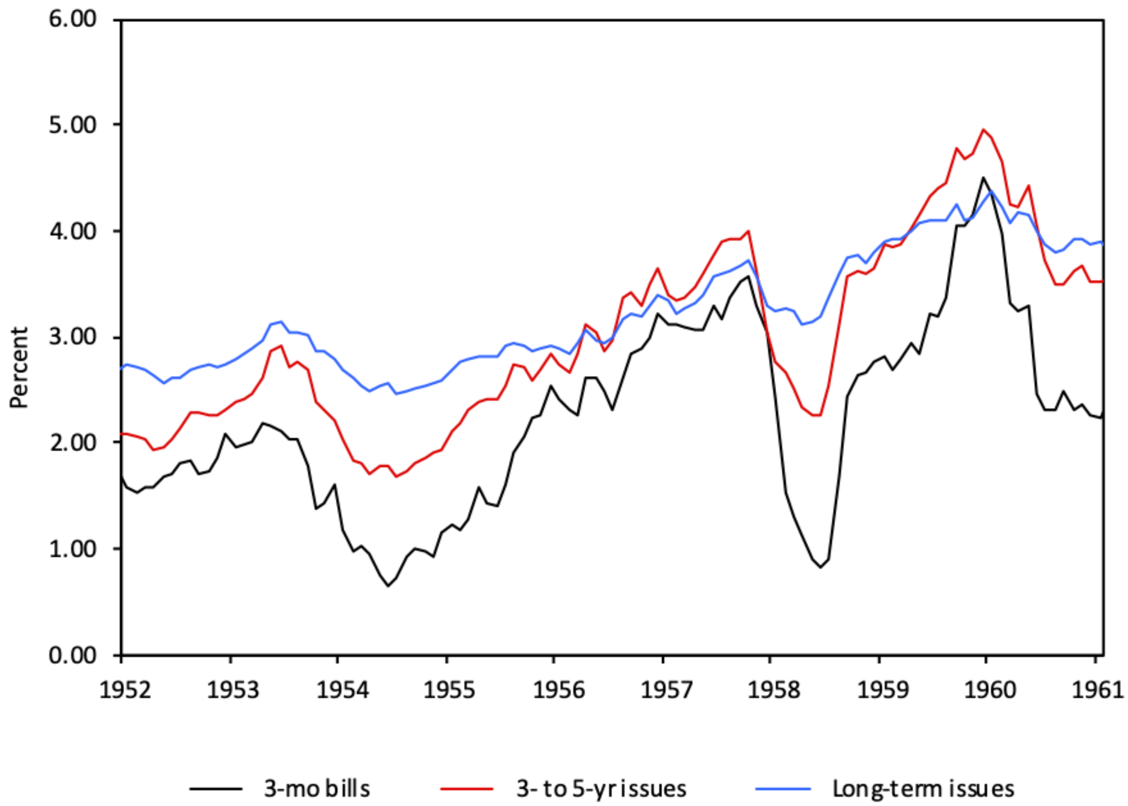

Table 1. **"Tap" Bonds Issued During World War II.** Statement of the Public Debt, December 31, 1947. All eight bonds carried a 2½ percent coupon.

Dated date	Maturity date	Amount issued
		$ billions
May 5, 1942	Jan 15, 1967	2.11
Dec 1, 1942	Dec 15, 1968	2.83
Apr 15, 1943	Jun 15, 1969	3.76
Sep 15, 1943	Dec 15, 1969	3.84
Feb 1, 1944	Mar 15, 1970	5.20
Dec 1, 1944	Mar 15, 1971	3.48
Jun 1, 1945	Jun 15, 1972	7.97
Nov 15, 1945	Dec 15, 1972	11.69

Table 2. **February 1962 Mixed Junior/Senior Advance Refunding.** March 1, 1962, record date of exchange. Federal Reserve Bank of New York Circular no. 5153, February 15, 1962.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for first junior advance refunding			
Feb 15, 1964	3	bond	1.96
Feb 15, 1965	2⅝	bond	2.96
Securities offered in first junior advance refunding			
Aug 15, 1971	4	bond	9.46
Securities eligible for second junior advance refunding			
Feb 15, 1965	2⅝	bond	2.96
Securities offered in second junior advance refunding			
Feb 15, 1980	4	bond	17.96
Securities eligible for senior advance refunding			
Jun 15, 1972	2½	tap bond	10.29
Sep 15, 1972	2½	bond	10.54
Dec 15, 1972	2½	tap bond	10.79
Securities offered in senior advance refunding			
Feb 15, 1990	3½	bond	27.96
Nov 15, 1998	3½	bond	36.71

Table 3. **September 1962 Pre-Refunding.** September 15, 1962, record date of exchange. Federal Reserve Bank of New York Circular no. 5221, September 5, 1962.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for pre-refunding			
Feb 15, 1963	3½	certificate	0.42
Feb 15, 1963	2⅝	note	0.42
Feb 15, 1963	3¼	note	0.42
May 15, 1963	3¼	certificate	0.66
May 15, 1963	3¼	note	0.66
May 15, 1963	4	note	0.66
Securities offered in pre-refunding			
Aug 15, 1967	3¾	note	4.91
Aug 15, 1972	4	bond	9.92

Table 4. **March 1963 Mixed Pre-Refunding and Junior Advance Refunding.** March 15, 1963, record date of exchange. Federal Reserve Bank of New York Circular no. 5304, February 25, 1963.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for pre-refunding			
Aug 15, 1963	3½	certificate	0.42
Aug 15, 1963	2½	bond	0.42
Nov 15, 1963	3⅛	certificate	0.67
Feb 15, 1964	3	bond	0.92
Securities offered in pre-refunding			
Feb 15, 1967	3⅝	note	3.92
Nov 15, 1971	3⅞	bond	8.67
Feb 15, 1980	4	bond	16.92
Securities eligible for junior advance refunding			
Nov 15, 1965	3½	note	2.67
Feb 15, 1966	3⅝	note	2.92
Aug 15, 1966	3	bond	3.42
Nov 15, 1966	3⅜	bond	3.67
Securities offered in junior advance refunding			
Nov 15, 1974	3⅞	bond	11.67
Feb 15, 1980	4	bond	16.92

Table 5. September 1963 Mixed Pre-Refunding and Junior Advance Refunding. September 15, 1963, record date of exchange. Federal Reserve Bank of New York Circular no. 5382, September 4, 1963.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for pre-refunding			
May 15, 1964	3¼	certificate	0.67
May 15, 1964	4¾	note	0.67
May 15, 1964	3¾	note	0.67
Securities offered in pre-refunding			
Nov 15, 1968	3⅞	bond	5.17
Aug 15, 1973	4	bond	9.92
May 15, 1994	4⅛	bond	30.66
Securities eligible for junior advance refunding			
May 15, 1966	3¾	bond	2.67
Aug 15, 1966	4	note	2.92
Feb 15, 1967	3⅝	note	3.42
Aug 15, 1967	3¾	note	3.92
Securities offered in junior advance refunding			
Aug 15, 1973	4	bond	9.92
May 15, 1994	4⅛	bond	30.66

Table 6. **January 1964 Merged Pre-Refunding and Junior Advance Refunding.** January 22, 1964, record date of exchange. Federal Reserve Bank of New York Circular no. 5442, January 8, 1964.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for refunding			
Aug 15, 1964	3¾	note	0.56
Aug 15, 1964	5	note	0.56
Nov 15, 1964	3¾	note	0.82
Nov 15, 1964	4⅞	note	0.82
Feb 15, 1965	2⅝	bond	1.07
May 15, 1965	4⅝	note	1.31
Securities offered in refunding			
Aug 15, 1970	4	bond	6.56
May 15, 1985	4¼	bond	21.31

Table 7. **July 1964 Merged Pre-Refunding and Junior Advance Refunding.** July 22, 1964, record date of exchange. Federal Reserve Bank of New York Circular no. 5514, July 8, 1964.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for refunding			
Aug 15, 1964	3¾	note	0.07
Aug 15, 1964	5	note	0.07
Nov 15, 1964	3¾	note	0.32
Nov 15, 1964	4⅞	note	0.32
May 15, 1965	3⅞	note	0.81
Feb 15, 1966	3⅝	note	1.57
May 15, 1966	3¾	bond	1.81
Aug 15, 1966	4	note	2.06
Feb 15, 1967	3⅝	note	2.57
Securities offered in refunding			
Oct 1, 1969	4	bond	5.19
Nov 15, 1973	4⅛	bond	9.32
Aug 15, 1992	4¼	bond	28.07

Table 8. **January 1965 Merged Pre-Refunding and Junior Advance Refunding.** January 15, 1965, record date of exchange. Federal Reserve Bank of New York Circular no. 5596, December 30, 1964.

Maturity date	Coupon rate	Instrument	Term
	percent		years
Securities eligible for refunding			
Feb 15, 1965	2⅝	bond	0.08
Nov 15, 1965	3½	note	0.83
Nov 15, 1965	4	note	0.83
Feb 15, 1966	3⅝	note	1.08
Feb 15, 1966	3⅞	note	1.08
May 15, 1966	3¾	bond	1.33
Aug 15, 1967	3¾	note	2.58
Nov 15, 1967	3⅝	bond	2.83
Securities offered in refunding			
Feb 15, 1970	4	bond	5.08
Feb 15, 1974	4⅛	bond	9.08
Aug 15, 1992	4¼	bond	27.58

Chart 5. **Term to Maturity of Mid-Quarter Refundings and New Money Offerings.** Treasury Bulletin.

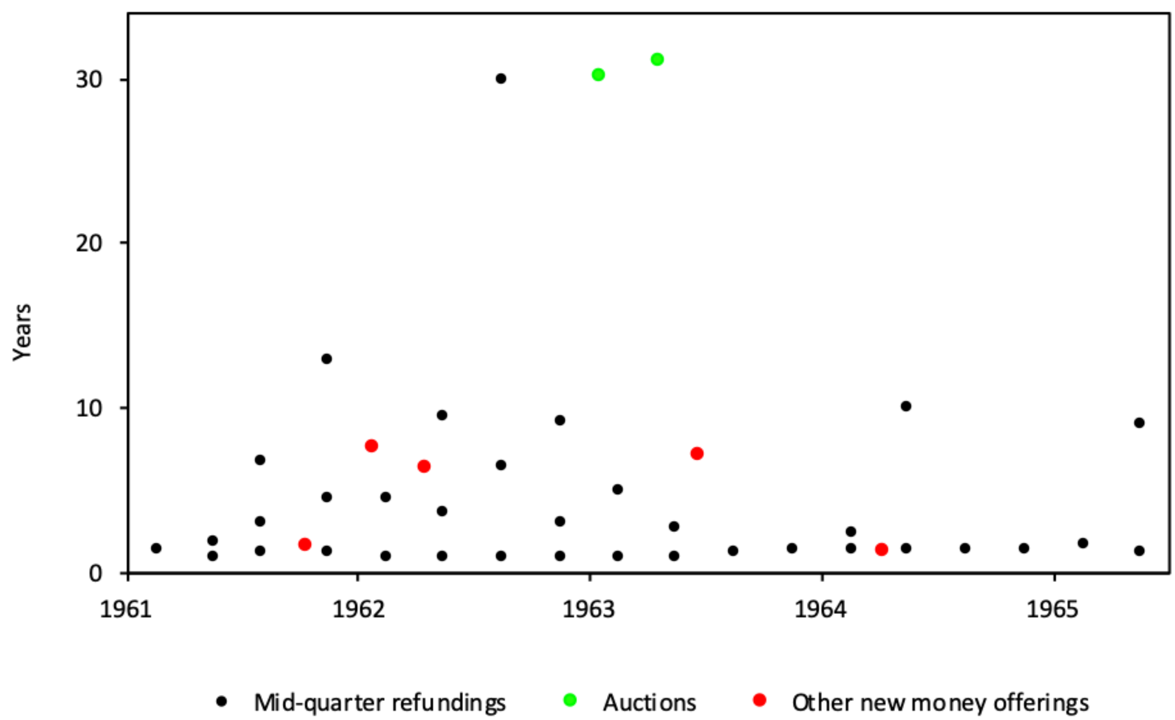

Table 9. Commentaries on Mid-Quarter Refundings in 1963 and 1964

May 1963, Treasury offered 1-year certificates and 2¾-year notes [134]

- *New York Times* reported that "The Treasury's decision to offer relatively short-term issues … hinges on the balance of payments … While there is no need to raise short-term interest rates, [Roosa] said, there is a need to keep them from sagging." [135]

- *Wall Street Journal* reported that Roosa "decided to limit the exchange offer to relatively short-term issues to help maintain upward pressure on short-term interest rates in the U.S. … This is deemed necessary by Treasury officials to forestall movements of funds out of the U.S. to countries where interest rates are higher. Such movements add to the U.S. balance-of-payments deficits and increase the potential claim of foreign governments on the Treasury's gold supply." [136]

- *Wall Street Journal* also reported that Roosa "said market trends in recent days have widened the spread in interest rates between Canada and the U.S. to the point where short-term funds are usually attracted to Canada. 'This underlines the need to avoid action now that would in any way weaken our continuing efforts to maintain strong Treasury bill rates in international competition.' " [137]

August 1963, Treasury offered 1¼-year notes [138]

- *New York Times* reported that: "The Treasury announced today that it was refinancing $6,600,000,000 of maturing debt in a manner specifically designed to bolster the Government's intensified efforts to reduce the balance-of-payments. … The offering of just the single relatively short-term issue was decided on, Mr. Roosa said, as a means of at least maintaining 'and possibly lifting' short-term interest rates." [139]

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[134] Federal Reserve Bank of New York Circular no. 5331, April 26, 1963.

[135] "Treasury Plans Big Refinancing," *New York Times*, April 25, 1963, p. 41.

[136] "Treasury Offers 3¼% Certificate, 3⅝% Note in Swap," *Wall Street Journal*, April 25, 1963, p. 22.

[137] "Treasury Offers 3¼% Certificate, 3⅝% Note in Swap," *Wall Street Journal*, April 25, 1963, p. 22.

[138] Federal Reserve Bank of New York Circular no. 5362, July 26, 1963.

[139] "U.S. to Refinance 6.6-Billion Debt," *New York Times*, July 25, 1963, p. 43.

- *New York Times* also reported that: “The 15-month maturity of the new refunding issue was seen as an attempt to add to the supply of short-term paper and hence depress prices and increase yields.” [140]

November 1963, Treasury offered 1½-year notes [141]

- *Wall Street Journal* reported Roosa as saying that “The issue reflects continued close attention to supporting short-term interest rates to help the balance-of-payments situation.” [142]

November 1964, Treasury offered 1½-year notes [143]

- *New York Times* reported Roosa as saying that “The operation announced today will help to maintain United States short-term interest rates. Any issue at longer term, such as 30-months, might have resulted in ‘downward pressure’ on short-term rates.” [144]

- *Wall Street Journal* reported Roosa as saying that “The Treasury doesn’t want to ‘lose any ground’ in international money flows by letting bill rates sink low enough that U.S. capital is attracted to higher rates abroad.” [145]

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[140] “Activity Centers of Issue ‘Rights,’” *New York Times*, July 26, 1963, p. 35.

[141] Federal Reserve Bank of New York Circular no. 5407, October 25, 1963.

[142] “Treasury Offers Note Refunding of $7.6 Billion,” *Wall Street Journal*, October 24, 1963, p. 25.

[143] Federal Reserve Bank of New York Circular no. 5567, October 30, 1964.

[144] “U.S. Raising Billion in New Cash,” *New York Times*, October 29, 1964, p. 49.

[145] “Treasury Offers $9,250,000,000 of New 4% Notes,” *Wall Street Journal*, October 29, 1964, p. 2.

Chart 6. Term to Maturity of Mid-Quarter Refundings, 2-Year Notes, and New Money Offerings. Treasury Bulletin.

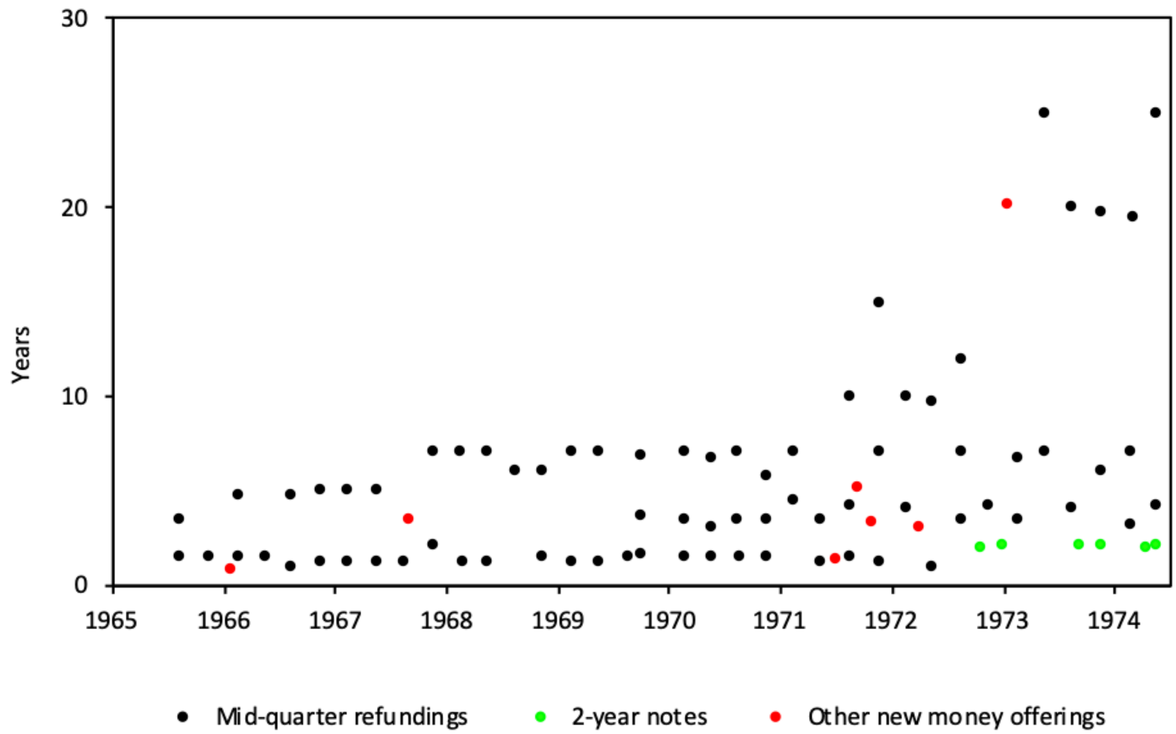

Table 10. Mid-Quarter Refundings, November 1967 to May 1971. Federal Reserve Bank of New York circulars.

	Term < 2 years		Term ≥ 2 years, Term ≤ 5 years		Term > 5 years	
	Term	**Amount issued**	**Term**	**Amount issued**	**Term**	**Amount Issued**
	years	$ billions	years	$ billions	years	$ billions
Nov 1967	-	-	2	10.74	7	1.65
Feb 1968	1¼	4.28	-	-	7	2.16
May	1¼	3.37	-	-	7	6.75
Aug	-	-	-	-	6	10.29
Nov	1½	7.80	-	-	6	2.33
Feb 1969	1¼	8.76	-	-	7	3.73
May	1¼	2.33	-	-	7	2.70
Aug	1½	2.93	-	-	-	
Oct	1 yr, 7 mo	4.17	3 yr, 7 mo	1.16	6 yr, 10 mo	1.68
Feb 1970	1½	2.25	3½	1.85	7	1.86
May	1½	10.74	3	4.68	6¾	3.31
Aug	1½	3.38	3½	3.14	7	2.26
Nov	1½	2.04	3½	4.51	5¾	2.51
Feb 1971	-	-	4½	2.48	7	2.97
May	1¼	3.45	3½	3.22	-	-

Table 11. Mid-Quarter Refundings, August 1971 to May 1974. Federal Reserve Bank of New York circulars.

	Term < 4 years		Term ≥ 4 years, Term ≤ 7 years		Term > 7 years	
	Term	**Amount issued**	**Term**	**Amount issued**	**Term**	**Amount Issued**
	years	$ billions	years	$ billions	years	$ billions
Aug 1971	1½	2.50	4¼	3.12	10	0.81
Nov	1¼	4.27	7	4.25	15	0.85
Feb 1972	-	-	4¼	2.80	10	0.47
May	1	3.79	-	-	9¾	0.50
Aug	3½	3.52	7	0.89	12	0.35
Nov	-	-	4	3.04	-	-
Feb 1973	3½	3.88	6¾	1.60	-	-
May	-	-	7	7.27	25	0.70
Aug	-	-	4	2.65	20	0.93
Nov	2 yr, 1 mo	1.73	6	2.24	19¾	0.44
Feb 1974	3¼	2.57	7	1.84	19½	0.55
May	2 yr, 1 mo	2.70	4¼	2.46	25	0.59

Table 12. **Mid-Quarter Refundings, 1974 and 1975.** Federal Reserve Bank of New York circulars.

	Term < 4 years		Term ≥ 4 years, Term ≤ 7 years		Term > 7 years	
	Term	**Amount issued**	**Term**	**Amount issued**	**Term**	**Amount Issued**
	years	$ billions	years	$ billions	years	$ billions
Feb 1974	3¼	2.57	7	1.84	19½	0.55
May	2 yr, 1 mo	2.70	4¼	2.46	25	0.59
Aug	2¾	5.33	6	4.30	24¾	0.89
Nov	3	3.63	7	2.72	24½	0.94
Feb 1975	3¼	3.96	6	2.17	25	0.90
May	3¼	5.16	7	2.75	30	1.60
Aug	2¾	4.42	7	2.92	25	1.11
Nov	-	-	7	2.90	24¾	1.15

Table 13. **Two-year Notes Issued Before 1976.** Federal Reserve Bank of New York circulars.

Issue	Maturity	Term	Amount Issued
		years	$ billions
Oct 19, 1972	Sep 30, 1974	1.95	2.06
Dec 28, 1972	Dec 31, 1974	2.01	2.10
-	-	-	-
-	-	-	-
Sep 4, 1973	Sep 30, 1975	2.07	2.04
Nov 15, 1973	Dec 31, 1975	2.12	1.73
Apr 9, 1974	Mar 31, 1976	1.98	1.54
May 15, 1974	Jun 30, 1976	2.13	2.70
Sep 30, 1974	Sep 30, 1976	2.00	2.02
Dec 31, 1974	Dec 31, 1976	2.00	2.28
Mar 31, 1975	Mar 31, 1977	2.00	2.58
Jun 30, 1975	Jun 30, 1977	2.00	2.17
Sep 30, 1975	Sep 30, 1977	2.00	3.23
Dec 31, 1975	Dec 31, 1977	2.00	2.77

Two-year notes were not issued at the end of the first or second quarter of 1973 because of a "substantial Treasury cash position in the second half of .. fiscal year [1973] due largely to foreign purchases of special nonmarketable issues." 1973 Treasury Annual Report, p. 12.

Table 14. **New Money Coupon Offerings, 1960 to 1973.** Federal Reserve Bank of New York circulars.

Issue	Maturity	Term	Amount Issued
		years	$ billions
Apr 14, 1960	May 15, 1962	2.08	2.21
Apr 14, 1960	May 15, 1985	25.08	0.47
Oct 11, 1961	May 15, 1963	1.59	2.29
Jan 24, 1962	Oct 1, 1969 *	7.69	1.11
Apr 18, 1962	Aug 15, 1968	6.33	1.26
Jun 20, 1963	Aug 15, 1970	7.15	1.91
Apr 8, 1964	Aug 13, 1965 **	1.35	1.07
Jan 19, 1966	Nov 15, 1966	0.82	1.65
Aug 30, 1967	Feb 15, 1971	3.46	2.51
Jun 29, 1971	Nov 15, 1972	1.38	2.29
Sep 8, 1971	Nov 15, 1976	5.19	1.28
Oct 22, k1971	Feb 15, 1975	3.32	2.05
Apr 3, 1972	May 15, 1975	3.11	1.78
Jan 10, 1973	Feb 15, 1993	20.10	0.63

* A bond maturing on October 1, 1969, had been issued on October 1, 1957, prior to the regularization of bond maturity dates to the 15th of the second month of a quarter, so the November 15, 1969, mid-quarter maturity date for subsequent issues was pushed up to October 1, 1969.

** August 15, 1965, was a Sunday, so Treasury set the maturity date of debt maturing in the middle of August, 1965, to Friday, August 13.

Table 15. Coupon Offerings in 1975 With a Term to Maturity Not Longer than Two Years. Quarterly 2-year notes shown in boldface. Federal Reserve Bank of New York circulars.

Issue	Maturity	Term	Amount Issued
		years	$ billions
Jan 9, 1975	Mar 31, 1976	1.23	0.75
Mar 3, 1975	Aug 31, 1976	1.50	1.65
Mar 3, 1975	Feb 28, 1977	1.99	1.67
Mar 25, 1975	May 31, 1976	1.19	1.58
Mar 31, 1975	**Mar 31, 1977**	**2.00**	2.58
Apr 8, 1975	Nov 30, 1976	1.65	1.50
Apr 30, 1975	Apr 30, 1977	2.00	1.58
May 27, 1975	May 31, 1977	2.01	2.14
Jun 6, 1975	Oct 31, 1976	1.40	1.58
Jun 30, 1975	**Jun 30, 1977**	**2.00**	2.17
Jul 31, 1975	Jul 31, 1977	2.00	1.52
Aug 29, 1975	Aug 31, 1977	2.01	2.02
Sep 30, 1975	**Sep 30, 1977**	**2.00**	3.23
Oct 31, 1975	Oct 31, 1977	2.00	3.16
Dec 31, 1975	**Dec 31, 1977**	**2.00**	2.77

Chart 7. **Term to Maturity of Coupon Offerings other than Mid-Quarter Refundings.**
Treasury Bulletin.

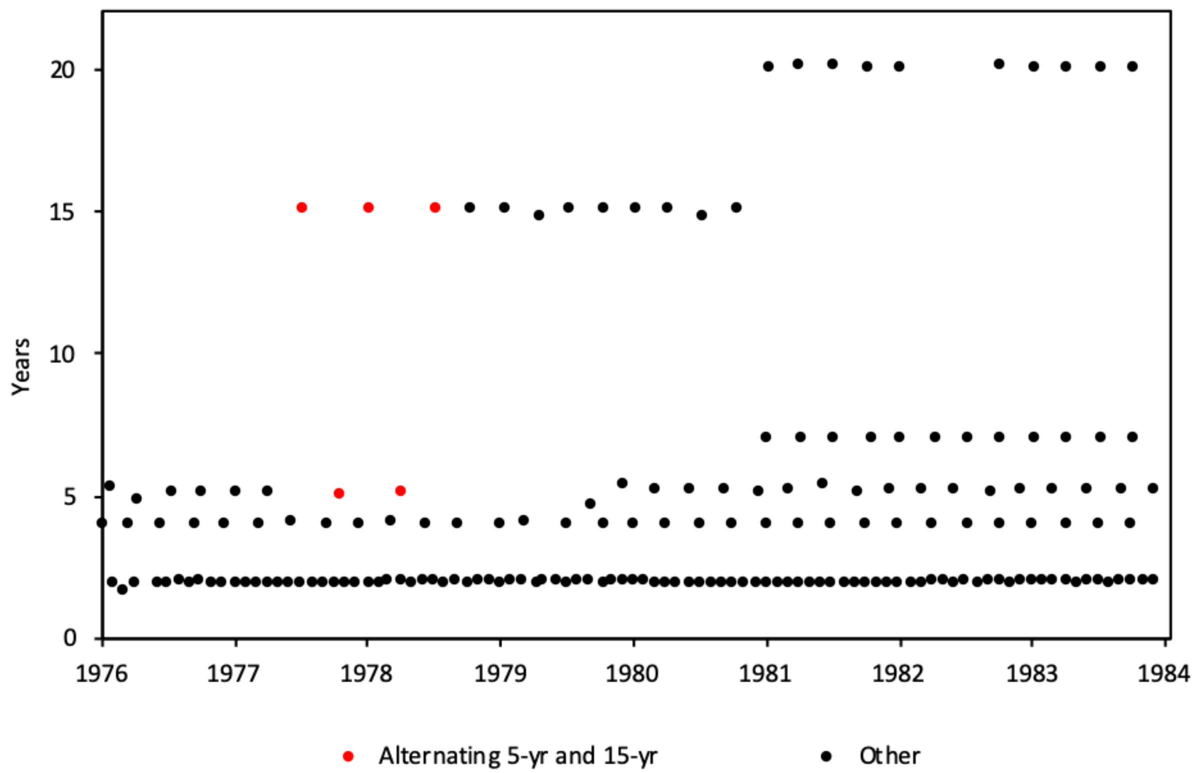

Chart 8. **Term to Maturity of Mid-Quarter Refundings.** Treasury Bulletin.