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Beyond Thirty: Treasury Issuance of Long-Term Bonds from 1953 to 1965

Kenneth D. Garbade

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Beyond Thirty: Treasury Issuance of Long-Term Bonds from 1953 to 1965

Kenneth D. Garbade

Federal Reserve Bank of New York Staff Reports, no. 806
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Abstract

Ever since the emergence of regular and predictable issuance of coupon-bearing Treasury debt in the 1970s, thirty years has marked the outer boundary of Treasury bond maturities. However, longer-term bonds were not unknown in earlier years. Seven such bonds, including one with a forty-year term, were issued between 1955 and 1963. This paper examines the circumstances that led to the issuance of these seven bonds.

Key words: Treasury debt management, long-term bonds, U.S. Treasury

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Ever since the emergence of regular and predictable issuance of coupon-bearing Treasury debt in the 1970s, thirty years has marked the outer boundary of Treasury bond maturities.[1] However, longer-term bonds were not unknown in earlier years. Seven such bonds, including one with a forty-year term, were issued between 1955 and 1963 (Table 1 and Chart 1).

This paper examines the circumstances that led to the issuance of the seven bonds. An appendix discuses two longer-term bonds issued, under very different circumstances, much earlier in the twentieth century, including a perpetuity issued in 1900 and a fifty-year bond issued in 1911.

The common thread that binds the seven bonds together was the objective of Treasury debt managers, from 1953 to the mid-1960s, of lengthening the maturity structure of the debt.[2] At first, from 1953 to 1957, it was thought that much could be done simply by offering debt with as long a maturity as possible whenever possible. However, that essentially *ad hoc* approach proved both ineffective and inefficient within the context of a debt management architecture founded on fixed-price (rather than auction) offerings of coupon-bearing debt, because Treasury officials were only occasionally willing to offer long-term securities that were competitive with private sector offerings. The resulting sporadic issuance left market participants uncertain of when the next long-term offering might be announced and provided little incentive to plan for future offerings. As a result, long-term offerings tended to be small as well as sporadic.

Sporadic issuance also meant that officials rarely had a firm grasp on where to price a new long-term bond. Too high a yield was liable to attract intense speculative interest; too low a

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1 Except for the period from 2002 to 2005, and occasionally at other times before 1988 due to a statutory ceiling on bond coupon rates, the Treasury has issued thirty-year bonds on a regular and predictable basis since August 1978. Garbade (2007, Chart 7), Garbade (2015), and 1978 Treasury Annual Report, p. 19. Treasury officials have, however, discussed longer-term issuance from time to time. See, for example, Minutes of the Meeting of the Treasury Borrowing Advisory Committee of the Securities Industry and Financial Markets Association, February 5, 2013.

2 This paper does not address the optimal maturity structure of Treasury debt, and is limited to examining how Treasury debt managers sought to lengthen the maturity structure after 1952.

yield was liable to fail to attract sufficient interest of any kind. Fearing the repercussions of a failed offering, debt managers commonly underpriced long-term issues and sought to limit speculative participation with a variety of stop-gap measures, including asking Federal Reserve Banks to weed out subscriptions from speculators, providing preferential payment terms for "savings-type" investors like pension funds and life insurance companies, and awarding larger allotments to savings-type investors.

Things began to improve in 1960 with the advent of advance refundings – an innovative program aimed at limiting the adverse consequences of a poorly-received offering of long-term debt that facilitated larger issues and pricing closer to market levels.[3] However, when bond yields rose above 4¼ percent in mid-1965 a statutory restriction on sales of bonds at higher yields killed any possibility of further extending the maturity structure of the debt. By the time Congress began providing meaningful relief from the 4¼ ceiling (in 1976), Treasury had launched its program of regular and predictable auction offerings of coupon-bearing debt.[4] The new debt management architecture allowed managers to control the average maturity of the debt without issuing bonds longer than 30 years.

The Maturity Structure of Marketable Debt after World War II

World War II was financed with E-bonds bought through payroll savings plans, seven large wartime loan drives, and a Victory Loan drive in late 1945. Every loan drive offered a long-term bond, but none of the bonds had a maturity longer than 27 years.[5] In mid-1946 the Treasury had $268 billion of debt outstanding, including $190 billion of marketable debt with an average maturity of ten years and four months.[6]

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[3] An advance refunding was an offer to exchange debt that was not close to maturity for longer-term debt. Advance refundings are discussed in detail below.

[4] Garbade (2004 and 2007).

[5] Garbade (2012, Table 24.2).

[6] Garbade (2012, Table 24.1). All references to average maturity are taken from the *Treasury Bulletin*.

Between 1946 and 1951, Treasury did virtually all of its financing at the front end of the yield curve. Of fifty-eight marketable coupon-bearing issues sold in those six years, forty-four matured in a year or less. Only four were longer than two years, and none was longer than five years. (At the time, notes had a maximum maturity of five years.) By mid-1952 the average maturity of marketable debt had fallen to 5⅔ years.

The November 1952 nomination of George Humphrey as Secretary of the Treasury in the incoming Eisenhower Administration, and the subsequent appointment of W. Randolph Burgess as a special assistant for debt management, fueled expectations that Treasury would soon begin issuing longer-term bonds. The *Wall Street Journal* reported that Humphrey wanted to "replace a big chunk of the government debt now represented by short-term securities with longer-term bonds" and that Burgess "advocates putting more of the debt into long-term securities." [7] Frequently cited reasons for wanting to lengthen the maturity structure of the debt included reducing the frequency of refunding operations (which had become almost monthly occurrences and were believed to interfere with the timely execution of Federal Reserve monetary policy) and reducing the inflationary implications of a large stock of liquid short-term debt.[8] Paul Heffernan, a financial correspondent for the *New York Times*, reported that "the Treasury can be expected to press ahead toward the avowed objective of lengthening the maturity structure of the present heavy concentration of short-dated … debt," but allowed that the new leadership would be "cautious, not rash or doctrinaire." [9]

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7 "Humphrey Will Try New-Old Weapon of Curbing Money Supply," *Wall Street Journal*, December 29, 1952, p. 1, and "Placing Federal Debt on a Sounder Basis Runs into Snags But Humphrey's Confident," *Wall Street Journal*, March 27, 1953, p. 6. See also "Treasury-Federal Reserve Harmony Seen with Assignment of Key Department Posts," *Wall Street Journal*, December 13, 1952, p. 2, noting that "Mr. Burgess' appointment greatly increases chances the Treasury will next year refund part of the national debt with long-term bonds."

8 "Humphrey Will Try New-Old Weapon of Curbing Money Supply," *Wall Street Journal*, December 29, 1952, p. 1, and "Placing Federal Debt on a Sounder Basis Runs Into Snags But Humphrey's Confident," *Wall Street Journal*, March 27, 1953, p. 6.

9 "Refunding Success Pleases Treasury," *New York Times*, February 15, 1953, p. F1.

The First Post-War Long-Term Marketable Treasury Bond

On Wednesday, April 8, 1953, Secretary Humphrey announced preliminary terms for a $1 billion fixed-price cash subscription offering of 3¼ percent 30-year bonds at par,[10] the first long-term marketable bond offering since the Victory Loan. The offering was relatively small and widely viewed as doing little more than "testing the market." [11] Nevertheless, Heffernan wrote, "the new issue is adequate proof … that the Eisenhower Administration [is] in earnest in its pledge to work for more balance in the public debt structure by … putting out securities of longer term." [12] Sylvia Porter, the author of a widely-read money market newsletter, enthused that "the Treasury is proving its determination to pursue a fundamental program of reconstructing the national debt." She called the offering "bold, courageous debt management." [13]

Allowing deferred payment of up to 90 percent of the purchase price for as long as three months and bearing a 3¼ percent coupon,[14] the new offering was seen as a "sure thing" – yields on outstanding long-term Treasury bonds were then about 3 percent – and likely to trade in the secondary market at a premium of a point or more after the subscription books had closed.[15] One observer thought the new bonds would "go over with a zip." [16] Humphrey, concerned about demand from "free-riders" – speculators who subscribed with the intention of selling their

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10 Federal Reserve Bank of New York Circular no. 3962, April 8, 1953.

11 "Treasury to Sell $1 Billion, 30-Year 3¼% Bond, Issue," *Wall Street Journal*, April 9, 1953, p. 11.

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

13 Sylvia Porter, *Reporting on Governments*, April 11, 1953, p. 1.

14 Federal Reserve Bank of New York Circular no 3962, April 8, 1953, and Circular no. 3064, April 13, 1953.

15 At the time, when-issued trading in a new certificate, note, or bond offered for cash did not begin until after the subscription books for the security had closed, a convention grounded in a World War II agreement among major Treasury dealers. Childs (1947, p. 375).

16 "Treasury's 30-Year 3¼% Bond Issue to Raise $1 Billion Goes on Sale," *Wall Street Journal*, April 13, 1953.

awards quickly and pocketing the premium over par – asked banks and other creditors to abstain from financing the 10 percent down payment required at the time a subscription was tendered.[17]

Treasury was swamped with $6 billion of subscriptions when the books opened on April 13. At the request of the Treasury, Federal Reserve officials weeded out $750 million of tenders attributed to free-riders [18] and allocated $1.2 billion of bonds among the remaining $5¼ billion of subscriptions.[19] Subscriptions up to $5,000 were filled in full and larger subscriptions were awarded 20 percent of the amount subscribed, subject to a minimum of $5,000.[20]

Despite the substantial over-subscription, the new bonds traded only a quarter point over par when trading opened on April 15.[21] The *Wall Street Journal* claimed that the unexpectedly small premium indicated "the Treasury staff [had] judged the appetite of the government bond market expertly" [22] but an alternative explanation suggested that many subscribers had "padded" their tenders in anticipation of a low allotment rate and that a large quantity of bonds had gone to free riders.[23] Less than two weeks later the bonds broke through par. The *New York Times*

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17 "New Issue Finds Bonds Unsettled," *New York Times*, April 14, 1953, p. 37, and "Books Closed on 3¼ % U.S. Bonds; Heavy Oversubscription Indicated," *New York Times*, April 15, 1953, p. 47. Treasury concern with free riders went back more than two decades. See Garbade (2012, pp. 303-310).

18 Federal Reserve Bank of New York Circular no. 3967, April 17, 1953, noting that the Federal Reserve Banks were "reviewing" subscriptions that were "excessive in relation to the net worth of the subscribers," "Billion Issue Gets 5½ Billion of Bids," *New York Times*, April 18, 1953, p. 23, "Humphrey Says 3¼ % 30-Year Offering Is Oversubscribed 5 Times," *Wall Street Journal*, April 18, 1953, p. 8, and "Treasury Awards $1,080,000,000 of 3.25% Issue on 20% Quota Basis," *New York Times*, April 23, 1953, p. 46, noting "screening by Federal Reserve Banks to eliminate speculative 'free riders' and cut back legitimate but excessive orders."

19 Federal Reserve Bank of New York Circular no. 3973, April 29, 1953.

20 Federal Reserve Bank of New York Circular no. 3970, April 22, 1953, and "Treasury Awards $1,080,000,000 of 3.25% Issue on 20% Quota Basis," *New York Times*, April 23, 1953, p. 46.

21 "New 30-Year Bond is Quoted at 100¼ ," *New York Times*, April 16, 1953, p. 48.

22 "The Treasury Bond Offering," *Wall Street Journal*, April 16, 1953, p. 8.

23 See "Billion Issue Gets 5½ Billion of Bids," *New York Times*, April 18, 1953, p. 23.

attributed the price slide to "the unloading of small aggregates of bonds by speculators disappointed at not having realized a quick profit on a would-be 'free ride.'" [24]

The disappointing after-market for the new bonds led Treasury officials to throttle back on their maturity extension initiative. The *Wall Street Journal* reported on May 12 that officials were debating the idea of "temporarily abandoning … the drive to put more of the public debt into long-term securities." [25] Burgess stated that the market was "overloaded" [26] and that the Treasury had "no intention of pushing the market too hard and piling on another [long term] issue in the near future. … We are going to proceed gradually." [27] Treasury did not offer another bond with more than ten years to maturity until February 1955.

A Forty-Year Bond

By early 1955, market participants were beginning to think that it was time for Treasury to re-enter the long-term market.[28] Some felt that, with recent refundings relying on notes and short-term bonds, the intermediate-term sector had taken "all that the traffic would bear." [29]

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[24] "Dip In Issues is Largest Since Support by Federal Reserve was Dropped in March, '51," *New York Times*, April 28, 1953, p. 37.

[25] "Treasury Men Consider Easing 'Tight Money' Program a Bit – Briefly," *Wall Street Journal*, May 12, 1953, p. 1.

[26] "Burgess Defends Treasury Policies, But Says It Will 'Proceed Cautiously' on Sale of Long-Term Bonds," *Wall Street Journal*, May 13, 1953, p. 4.

[27] "U.S. Watching for Signs of Slump to Take Measure of Prevention," *New York Times*, May 13, 1953, p. 41.

[28] "Government Issues Fall on Small Volume," *Wall Street Journal*, January 4, 1955, p. 17, citing "renewed talk of a possible new long-term Treasury issue," and "Long-Term Issue by U.S. Expected," *New York Times*, January 23, 1955, p. F1, reporting that "more than eighteen months have passed since the Treasury put out its first post-war issue of long-term bonds and the financial world believes that the time is at last ripe for a repeat performance" and that, in the opinion of government securities dealers, "the market would welcome an additional supply of long-term bonds similar in size to the Humphrey issue of 1953."

[29] "Long-Term Issue by U.S. Expected," *New York Times*, January 23, 1955, p. F1.

On Thursday, January 27, Treasury officials announced the offering of a 13-month, 1⅝ percent note and a 40-year, 3 percent bond in a par-for-par exchange for a 2⅞ percent bond called for early redemption on March 15.[30] (Box 1 explains the mechanics of an exchange offering.) The *New York Times* observed that the 40-year bond was the longest offering since the fifty-year Panama Canal issue of 1911 (described in the appendix) and called it "a major step toward redeeming the Eisenhower campaign pledge to 'stretch out' the national debt." [31] Heffernan conjectured that "the new bond will likely be spared the fevered infancy that plagued the first Humphrey issue," which he disparaged as "inexpertly launched" with offering terms "of a kind to encourage speculative acquisitions." [32] There could be no "free riding" with an exchange offering: every tender had to be accompanied by a quantity of securities eligible for exchange that matched the quantity of securities requested.

On Monday, January 31, the 2⅞ percent bond eligible for exchange closed at a bid price of 100⅛, enough of a premium to incentivize large holders to exchange their bonds in lieu of demanding cash.[33] Of the $2.6 billion of the 2⅞'s outstanding, $323 million was exchanged into the 13-month note and $1.9 billion was exchanged into the 40-year bond. The balance, $365 million, was retained for cash redemption.[34] Treasury officials called the offering "a complete success" and Secretary Humphrey expressed his satisfaction with the "successful placing" of the issue. Going forward, officials said they expected to offer a long-term bond "once or twice a year." [35]

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30 Federal Reserve Bank of New York Circular no. 4192, January 27, 1955.

31 "Treasury Offers 40-Year, 3% Bond," *New York Times*, January 28, 1955, p. 27.

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

33 "Market is Lively in 40-Year Bonds," *New York Times*, February 1, 1955, p. 37

34 Federal Reserve Bank of New York Circular no. 4199, February 16, 1955.

35 "Treasury 40-Year 3% Issue is 73% Taken; Refunding Called Success," *Wall Street Journal*, February 9, 1955, p. 17.

In fact, not four months had passed before rumors began to circulate that the Treasury was contemplating another long-term issue.[36] Officials confirmed the rumors on July 5, announcing that they would reopen the 40-year bond in a $750 million fixed-price cash subscription offering.[37]

Unlike the 30-year bonds sold for cash in 1953, the new cash offering was specifically targeted to "savings-type investors" such as pension and retirement funds.[38] The targeting took two forms. First, savings-type investors, but only those investors, were permitted to pay for their allotments on an installment basis – the first time since World War II that the Treasury permitted installment payments by some, but not all, subscribers.[39] The reopening was scheduled to settle on July 20 but savings-type investors could pay as little as 25 percent of what they owed on that date if they agreed to pay at least 60 percent by September 1 and the balance by October 3.[40] Second, the Treasury announced that it was prepared to "make different percentage allotments … to avoid excessive allotments of bonds to non-savings-type investors."

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36 "Treasury Issues Off Drastically," *New York Times*, June 17, 1955, p. 31, reporting that the price of the outstanding 40-year bond had fallen more than a point as a result of "reports that the Treasury is considering resuming some long-term financing in connection with Federal Government borrowings in July and August," and "U.S. Treasury Issues Drop on Rumors of Long-Term Financing," *Wall Street Journal*, June 28, 1955, p. 13.

37 Federal Reserve Bank of New York Circular no. 4244, July 5, 1955.

38 The Treasury defined savings-type investors as "pension and retirement funds – public and private, endowment funds, insurance companies, mutual savings banks, fraternal benefit associations and labor unions' insurance funds, savings and loan associations, credit unions, and other savings organization (not including commercial banks)." Treasury Department Circular no. 962, July 11, 1955, reprinted in Federal Reserve Bank of New York Circular no. 4245, July 6, 1955.

39 "$2.75 Billion Financing Is Scheduled by Treasury," *New York Times*, July 6, 1955, p. 35, noting that "this was said to be the first time during peacetime that such an arrangement had been limited to a particular type of investor." In contrast, the 30-year bonds sold in April 1953 provided that *any* buyer could pay for the bonds in installments over a period of three months. Federal Reserve Bank of New York Circular no. 3962, April 8, 1953, and Circular no. 3964, April 13, 1953, and "$1,000,000,000 Long-Term Issue Offered by Treasury at a 3¼% Rate," *New York Times*, April 9, 1953, p. 41.

40 Federal Reserve Bank of New York Circular no. 4244, July 5, 1955.

[41] The relatively small size of the reopening, $750 million, was based on "the amount of long-term money that [Treasury officials believed] was readily available." [42]

Subscription books were open for one day only, July 11. Three days later the Treasury announced that it had received $1.7 billion of subscriptions, including $747 million from savings-type investors. Subscriptions for less than $25,000 were filled in full, savings-type investors were allotted 65 percent of their subscriptions (subject to a minimum of $25,000), and other investors were allotted 30 percent (subject to the same minimum).[43] Treasury officials characterized the offering as "highly successful." [44]

New Management

Notwithstanding the success of the twin 40-year offerings, Humphrey and Burgess did not bring another long-term offering before they left office in mid-1957. (Robert Anderson replaced Humphrey on July 19; Julian Baird replaced Burgess on September 30.) Until the fall of 1957, new cash was raised, and maturing debt was refinanced, exclusively with certificates and notes. The average maturity of marketable debt was 5⅔ years in mid-1952 and 4¾ years in mid-1957.

The *Wall Street Journal* observed that "the debt stretchout collapsed" in the wake of a tightening money market.[45] Humphrey explained the collapse by saying that "there's no market for long-term bonds at interest rates we'd like or ought to pay" and reflected that "so many people want money and are bidding for it, the only way we can take it away from them is to bid

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

42 "Treasury Again Offers a 40-Year Bond in Its New Borrowing Plan," *Wall Street Journal*, July 6, 1955, p. 14.

43 Federal Reserve Bank of New York Circular no. 4249, July 14, 1955.

44 "Long-Term Treasury Offering Gets Double the Orders Needed," *Wall Street Journal*, July 15, 1955, p. 9.

45 "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.

for it, too, and I don't think the Government should be taking money away from business." He claimed that the Government could not sell even five-year bonds "at any price." [46]

Following Anderson's swearing-in, Treasury officials renewed their efforts at debt extension. On September 12, 1957, they announced a modest fixed-price cash subscription offering of $500 million of 12-year bonds.[47] The *Wall Street Journal* described the offering as "an attempt … to feel out the possibility of again attempting to lengthen the maturity of [Treasury's] outstanding debt." [48]

The 12-year bonds were an unexpected success. Treasury received $4.7 billion of tenders and issued $657 million of bonds on a 10 percent allotment to large buyers.[49] Officials acknowledged that they had misjudged the market: "There was much more interest in the long bonds than we anticipated, and much more than we were led to believe by our advisers." [50]

Seeking to take advantage of the evident demand for fixed-income securities, officials offered another $500 million of bonds in November, this time bonds with a 17-year maturity.[51] The offering attracted $3.8 billion of subscriptions, against which the Treasury issued $650

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46 "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.

47 Federal Reserve Bank of New York Circular no. 4505, September 12, 1957, and Circular no. 4506, September 16, 1957.

48 "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.

49 Federal Reserve Bank of New York Circular no. 4508, September 18, 1957, and Circular no. 4510, September 24, 1957. Subscriptions for $50,000 or less were filled in full. Subscriptions for larger amounts received the greater of $50,000 and 10 percent of the amount subscribed.

50 "Treasury Flooded With Orders for 12-Year 4% Bond, Suggesting Greater Availability of Investment Funds," *Wall Street Journal*, September 19, 1957, p. 3.

51 Federal Reserve Bank of New York Circular no. 4531, November 18, 1957.

million of bonds.[52] Large savings-type investors received 26 percent of the amount subscribed; all other large subscribers received 10 percent.[53]

The impetus for the dramatic turnaround – less than six months earlier Humphrey had claimed that the Government could not sell five-year bonds – was the onset of a recession, an easier monetary policy, and a sharp decline in interest rates. Long-term bond yields fell 50 basis points, from 3¾ percent to 3¼ percent, between October and the end of 1957. Early in 1958, Heffernan described the bond market as "a ferment of speculative activity," suggested that "probably never since the war has there been so much speculative buying of Treasury bonds," and observed that "the extraordinary rise in the Government bond market … constitutes the most gracious invitation that the Treasury has received from the market to borrow at long-term since the war."[54]

A 32-Year Bond

On January 29, 1958, Anderson and Baird announced a triple-option exchange offering for $16.8 billion of maturing and soon-to-mature debt.[55] Investors were given a choice of a 1-year certificate, a 6-year bond, and a 32-year bond.

Officials conceded that, with a 3½ percent coupon rate and a price of par, the 32-year bonds were cheap compared to bonds in the secondary market. They defended the rate as

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52 Federal Reserve Bank of New York Circular no. 4535, November 25, 1957, and Circular no. 4537, November 27, 1957.

53 Subscriptions for less than $10,000 were filled in full. Subscriptions for larger amounts received the greater of $10,000 and either 26 percent (for savings-type investors) or 10 percent (for others) of the amount subscribed.

54 "U.S. Bonds Catch Speculator's Eye," *New York Times*, January 19, 1958, p. F1.

55 Federal Reserve Bank of New York Circular no. 4561, January 29, 1958, and Circular no. 4562, February 3, 1958.

necessary to attract what they hoped would be more than $1 billion of subscriptions.[56] Unlike Humphrey and Burgess, Anderson and Baird had no problem competing aggressively for long-term funds. Heffernan, however, noted that the "generous terms" had sparked "speculative interest … on a scale unmatched since the war." He described the market as being swept by "a wave of speculative buying" and reported that bond dealers were projecting as much as $2 billion in subscriptions for the 32-year bonds.[57]

Following the close of the subscription books on February 5, Treasury officials announced that investors had opted for $9.8 billion of the certificates, $3.8 billion of the 6-year bonds, and $1.7 billion of the 32-year bonds. $1.5 billion of the securities eligible for exchange were held for cash redemption.[58] Officials characterized the offering as "highly successful." [59]

The Need for New Approaches

In the wake of the successful offering of 32-year bonds, Treasury officials continued to pursue their objective of lengthening the maturity structure of the debt, selling four more bonds in fixed-price cash subscription offerings over the next two years, including,

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56 "U.S., in 16.8 Billion Refunding, Offers a 32-Year Bond at 3.5%," *New York Times*, January 30, 1958, p. 33, and "Treasury to Offer 32-Year, 3½ % Bond in Refinancing $16.8 Billion Issues; Move Aimed at Lengthening Debt." *Wall Street Journal*, January 30, 1958, p. 3.

57 "Treasury Issues Meet New Favor," *New York Times*, February 2, 1959, p. F1. The speculative fervor evident during the winter of 1957-58 and the following spring collapsed in mid-June 1958. Market turmoil following a refunding in early June led the Treasury to repurchase $590 million of its own debt, including $456 million of a bond that it had just issued. A second price slide in mid-July led the Federal Open Market Committee to declare a "disorderly market" and to authorize, for the first time since 1953, the purchase of notes and bonds for the System Open Market Account. Acting on that authority, the Open Market Desk purchased $1.3 billion of securities in the process of restoring an orderly market and supporting an imperiled $16.3 billion exchange offering of 1-year certificates. See Garbade (2012, pp. 351-352).

58 Federal Reserve Bank of New York Circular no. 4567, February 13, 1958.

59 "Treasury Refunding's Cash-In Rate Called Low by Officials," *Wall Street Journal*, February 10, 1958, p. 16.

- $1.13 billion of a 27-year bond in June 1958,[60]
- $884 million of a 21-year bond in January 1959,[61]
- $619 million of a 10½-year bond in March 1959,[62] and
- $470 million of a 25-year bond in April 1960.[63]

In spite of the stepped-up issuance, the average maturity of marketable debt fell, from 4¾ years in mid-1957 to 4⅓ years in mid-1960. Officials realized they had to find a new approach if they were going to succeed in stabilizing, and ultimately extending, the maturity structure of the debt.

Part of the problem was the difficulty of identifying the middle ground between an offering that was so cheap that it sparked speculative interest and an offering that was so pricey that it ran the risk of either failing outright (in the case of a cash offering) or triggering unexpectedly large demands for cash redemption (in the case of an exchange offering). Treasury officials had to find either (1) a mechanism that would limit the repercussions associated with a poorly received offering or (2) a mechanism for pricing offerings at market levels on a consistent basis. They found the first, and very nearly found the second.

Advance Refundings

An "advance refunding" is an offer to exchange debt that is *not* close to maturity for longer-term debt. Advance refundings were introduced in 1960 to get around two problems (noted in Box 1) associated with conventional exchange offers: most holders of maturing securities were unlikely to want to exchange their securities for new issues of longer-term debt,

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60 Federal Reserve Bank of New York Circular no. 4605, May 29, 1958, and Circular no. 4609, June 10, 1958.

61 Federal Reserve Bank of New York Circular no. 4684, January 8, 1959, Circular no. 4685, January 12, 1959, Circular no. 4689, January 16, 1959, and Circular no. 4693, January 22, 1959.

62 Federal Reserve Bank of New York Circular no. 4715, March 19, 1959, Circular no. 4716, March 23, 1959, Circular no. 4719, March 26, 1959, and Circular no. 4722, March 31, 1959.

63 Federal Reserve Bank of New York Circular no. 4867, March 31, 1960, Circular no. 4868, April 4, 1960, Circular no. 4872, April 7, 1960, and Circular no. 4874, April 13, 1960.

and the transfer of exchange rights from holders that wanted cash to investors that wanted a new issue was complicated and costly. Advance refundings provided a way for investors with intermediate-term horizons to keep invested in intermediate-term debt, and for investors with long-term horizons to keep invested in long-term debt, without engaging in secondary market transactions.[64] And if an advance refunding failed to attract much interest the adverse consequences were minimal: Treasury would get at least one more "bite of the apple" (when the securities sought for exchange had to be refinanced at maturity with a conventional cash or exchange offering) and possibly two or three (if the securities sought for exchange had several years to run).

Officials announced a trial offering in June 1960, giving holders of $11.2 billion of bonds maturing in November 1961 an opportunity to exchange their bonds, on a par-for-par basis, for either a 4-year note or an 8-year bond.[65] Unsure of the depth of investor interest, and desirous of limiting speculative exchanges, they capped the note offering at $3½ billion and the bond offering at $1½ billion, saying that it was sufficient, in this initial foray, to "whittle down" the quantity of bonds that would ultimately have to be refinanced.[66]

Subscription books opened on Thursday, June 8 and remained open until the close of business on Monday, June 13. The Treasury received subscriptions for $4.6 billion of the notes

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64 "Treasury May Broaden Scope of Its Advance Refunding Plan," *New York Times*, August 19, 1960, p. 29, quoting Under Secretary Baird as saying that "we are seeking to keep typical long-term investors in long bonds, typical intermediate investors in intermediates, and typical short-term holders in relatively short maturities."

65 Federal Reserve Bank of New York Circular no. 4896, June 6, 1960, and Circular no. 4897, June 8, 1960. See also "Treasury to Offer 4-Year Notes and 8-Year Bonds in Advance Refunding," *Wall Street Journal*, June 7, 1960, p. 3.

66 The idea of "whittling down" a large issue prior to maturity was introduced in the 1920s. Garbade (2012, ch. 12 and fn. 33 on p. 174).

and issued $3.9 billion on 85 percent allocations; it received, and filled in full, subscriptions for $322 million of the bonds.[67]

Officials followed up on the successful trial with plans for larger and longer-term advance refundings. In a speech at the University of Wisconsin on August 18, 1960, Under Secretary Baird outlined a conceptual framework for the program going forward. Treasury would first refinance outstanding 5- to 10-year debt into longer maturities in a "senior advance refunding" and then refinance outstanding 1- to 5-year debt into the 5- to 10-year sector in a "junior advance refunding." [68]

Treasury announced the first senior advance refunding on September 9, 1960: a three part, par-for-par, offering of:

- 20-year bonds maturing on November 15, 1980, for bonds due in June 1967,
- 30-year bonds maturing on February 15, 1990, for bonds due in December 1968, and
- 38-year bonds maturing on November 15, 1998, for bonds due in June and December, 1969.[69]

Subscriptions for the 20-year bonds would be filled in full, but no more than a total of $4.5 billion of the 30- and 38-year bonds would be issued. Officials hoped to issue between $3 billion and $5 billion of new bonds.[70]

Following the close of the subscription books Treasury announced that it had received tenders for $4 billion of new bonds, including $644 million of the 20-year bond, $993 million of

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67 Federal Reserve Bank of New York Circular no. 4900, June 15, 1960, and Circular no. 4902, June 22, 1960.

68 "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.

69 Federal Reserve Bank of New York Circular no. 4934, September 9, 1960.

70 "U.S. Offers Trade in Wartime Bonds," *New York Times*, September 10, 1960, p. 1.

the 30-year, and $2.3 billion of the 38-year bond.[71] All of the tenders were filled in full. Taking note of the "minimum market impact," the "relatively small changes in the price of the affected issues," and the "small amount of market churning," officials pronounced themselves "pleased" with the results. [72]

Following the inauguration of John F. Kennedy, C. Douglas Dillon replaced Anderson as the Secretary of the Treasury (on January 21, 1961) and Robert Roosa replaced Baird as Under Secretary for Monetary Affairs (on January 31). Dillon and Roosa decided to continue the advance refunding program initiated by their predecessors.[73]

The March 1961 advance refunding was a junior refunding of four notes and bonds maturing in 1962 and 1963 into not more than $3 billion of a 5-year, 7½-month bond and not more than $5 billion of a 6-year, 7½-month bond.[74] The offering was well-received and resulted in the issuance of $2.4 billion of the shorter bond and $3.6 billion of the longer bond.[75]

Six months later Treasury announced a senior refunding of two bonds due to mature in 1970 and 1971 into the same three long-term bonds offered a year earlier.[76] The offering led to

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71 Federal Reserve Bank of New York Circular no. 4937, September 22, 1960, and Circular no. 4940, September 30, 1960.

72 Federal Reserve Bank of New York Circular no. 4937, September 22, 1960, "Early Refunding Termed Success," *New York Times*, September 23, 1960, p. 41, and "Treasury Says Non-Government Holders Swapped $33.4 Billion Bonds in Refunding," *Wall Street Journal*, September 23, 1960, p. 3.

73 "Treasury to Offer New 3⅝%, 3⅜% Bonds for Swap," *Wall Street Journal*, March 16, 1961, p. 4, reporting that, following the announcement of the first advance refunding undertaken by Kennedy Administration officials, "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.'"

74 Federal Reserve Bank of New York Circular no. 5009, March 15, 1961, and Circular no. 5010, March 20, 1961.

75 Federal Reserve Bank of New York Circular no. 5018, April 3, 1961.

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

the issuance of an additional $1.3 billion of the 19-year bond, $1.3 billion of the 29-year bond, and $1.2 billion of the 37-year bond.[77]

In 1962 Treasury officials changed from alternating between junior and senior refundings to a more open format that contemplated a wider range of securities in each operation (Chart 2). Under the program outlined by Julian Baird in August 1960, the February 1962 advance refunding would have been a junior refunding (because it followed the September 1961 senior refunding). The February operation did provide for refinancing 2- and 3-year debt into a 9½-year security, but it also provided for refinancing that same 3-year debt into an 18-year security – something not contemplated in Baird's program – and for refinancing 10¼-, 10½-, and 10¾-year debt into 28- and 36¾-year securities – something that would have been done in a senior refunding.[78] (The offering of 36¾-year debt was the third offering of bonds due in November 1998.)

In a speech on November 19, 1964, Under Secretary Roosa explained why advance refundings, and particularly the more open format of advance refundings, were so attractive to Treasury officials:

> 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 choose when to enter the market, in the light of prevailing market conditions – accomplishing more, disturbing less.
>
> Moreover, should the response be comparatively poor [[79]] – 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

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77 Federal Reserve Bank of New York Circular no. 5087, September 21, 1961, and Circular no. 5089, September 28, 1961.

78 Federal Reserve Bank of New York Circular no. 5153, February 15, 1963, and Circular no. 5155, February 19, 1962.

79 Bryan (1972) examined the determinants of the success of an advance refunding.

> 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.
>
> 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.[80]

Until mid-1965, advance refundings were the primary vehicle for issuing long-term Treasury bonds and supported an increase in the average maturity of marketable debt from 4⅓ years in mid-1960 to 5⅓ years in mid-1965. The eleven operations undertaken between 1960 and 1965 resulted in the sale of $13.8 billion of bonds maturing in more than twenty years (including $5.7 billion of bonds maturing in more than thirty years). In contrast, all of the other bond offerings between 1960 and 1965 sold only $1.4 billion of bonds maturing in more than twenty years (including only $550 million of bonds maturing in more than thirty years). Advance refundings appeared to solve the Treasury's maturity extension problem. It was not, however, the only solution.

Bond Auctions

By the late 1950s Treasury officials were well aware of the usefulness of auctions for pricing new issues at market levels. The Treasury had been auctioning 3-month bills weekly since 1937.[81] It began auctioning 6-month bills on the same schedule in December 1958 and 1-year bills at a quarterly frequency in March 1959.[82] However, Secretary Anderson declined to extend the auction process beyond bills.

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80 Remarks by Under Secretary of the Treasury for Monetary Affairs Roosa, November 19, 1964, before the Bankers Club of Chicago. Reprinted 1965 Treasury Annual Report, pp. 324-329. See also Beard (1966, p. 20).

81 Garbade (2012, pp. 298-302).

82 Federal Reserve Bank of New York Circular no. 4663, November 18, 1958, and Circular no. 4715, March 19, 1959.

Testifying before the Joint Economic Committee in mid-1959,[83] Anderson readily acknowledged that auctions were "an efficient mechanism" for pricing bills and further acknowledged that auction sales of notes and bonds would "relieve [the Treasury] of a major responsibility in pricing and selling coupon issues," but nevertheless claimed that fixed-priced offerings were preferable to auction offerings of coupon-bearing debt. He based his claim on the observation that many of the small banks, corporations, and individuals who subscribed to fixed-price offerings of notes and bonds did not have the "professional capacity" to bid in auctions. Lacking the requisite expertise, they were liable to either bid too high and pay too much or bid too low and be shut out and were therefore likely to avoid bidding altogether and to buy new securities in the post-auction secondary market – which is exactly what happened when Treasury Secretary Henry Morgenthau tried to auction bonds in 1935.[84] Anderson suggested that the withdrawal of small institutional and individual investors from the primary market would have adverse consequences, including reducing Treasury's ability to distribute its debt broadly (an objective dating back to the nineteenth century [85]) and increasing the risk that, for lack of sufficient participants, auctions might not be competitive and might even fail to cover the Treasury's financing requirements. He concluded that "the present practice of offering Treasury certificates, notes, and bonds at prices and interest rates determined by the Treasury … result[s] in an effective distribution of new Treasury issues at minimum cost to the taxpayer."

In the fall of 1962, Dillon and Roosa decided to give bond auctions another try. Importantly, they did not want to replace fixed-price offerings of coupon-bearing securities on a wholesale basis, but rather were looking for a *supplemental* way to sell *long-term* bonds.[86]

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83 Joint Economic Committee (July 1959, pp. 1148-1153).

84 Garbade (2012, p. 292).

85 See, for example, the discussion of the 1898 offering of Spanish-American War bonds in Garbade (2012, pp. 41-44).

86 Federal Reserve Bank of New York (1962, p. 2). See also Federal Reserve Bank of New York Circular no. 5224, September 14, 1962, stating that "the Treasury's objective is to explore the possibility of [the auction] technique for *occasionally* placing *moderate amounts*

Drawing on a well-established method of selling municipal and utility bonds, they proposed to offer Treasury bonds to competing *syndicate*s of securities dealers on an *all-or-none* basis. In response to a question about why the Treasury didn't use the individual bidder, multi-price auction process used in bill auctions, Roosa replied that there were "few if any [market participants] who felt themselves big enough in capital and risk-absorbing capacity to back up their judgment on what the appropriate price might be in a free-for-all auction. They individually felt that they needed the comfort of sharing the decision with some other informed and skilled investment men and resources." [87]

Treasury announced the first bond auction in more than a quarter century on December 20, 1962: $250 million of bonds to be dated and issued on January 17, 1963, and scheduled to mature on February 15, 1993.[88] Two weeks later, Treasury gave participating syndicates the option of putting either a 4 or a 4⅛ percent coupon rate on the bonds.[89] Bidding would be on a price basis, with five digits of precision to the right of the decimal point. Tenders would be evaluated on a yield basis.

Bidding closed at 11:00 a.m. on Tuesday, January 8, by which time four syndicates had submitted bids. Soon thereafter, the Treasury announced that a 75-member syndicate headed by C.J. Devine and Company, Salomon Brothers and Hutzler, Bankers Trust Company, The Chase Manhattan Bank, First National City Bank, Chemical Bank New York Trust Company, and the

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of marketable *long-term* Government bonds in the hands of the public," and that if initial efforts "prove successful, subsequent applications of this technique for selling long-term bonds will be made … whenever the general economic environment and capital market conditions seem appropriate for such an offering." Emphasis added.

87 Federal Reserve Bank of New York (1962, pp. 22-23). Roosa further noted (p. 23) that he "had the feeling that while eventually some use of an 'ordinary' auction technique might develop, that the wear and cost would be high now. This was clearly a case where resort to something analogous with known procedures in related fields, the corporate and municipal area, would be the best way to try at first."

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

89 Federal Reserve Bank of New York Circular no. 5280, January 2, 1963.

First National Bank of Chicago, had won the auction with a bid of 99.85111 percent of principal and a coupon rate of 4 percent. The second best bid, 99.85100 percent of principal with a 4 percent coupon, came from a 52-member syndicate headed by Morgan Guaranty Trust Company, Bank of America, Blyth & Co., Halsey Stuart & Co., and Aubrey G. Lanston & Co. Secretary Dillon stated that,

> The bidding by the four syndicates 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. The winning bid is highly satisfactory to the Treasury from the standpoint of interest cost; the second bid was within $275 of the winning bid.
>
> The experience in the distribution of these securities, of course, will be of great interest to the Treasury in demonstrating the efficacy of this approach to the wider distribution of Treasury offerings for cash in the long-term area.
>
> The bidding of the various syndicates indicates their combined judgment that borrowing of this amount can be readily fitted into the existing rate structure. It clearly indicates that it is possible for the Treasury to tap the long-term market in this amount with a minimum impact on the supply of funds related to the needs of the economy.[90]

In a matter of hours, investors bought all $250 million of bonds from the winning syndicate.[91]

Three months later the Treasury announced a second auction offering of long-term bonds: $300 million of bonds to be auctioned on April 9, 1963, dated and issued on April 18, and scheduled to mature on May 15, 1994.[92] Bidding was again extraordinarily tight. The winning syndicate, led by substantially the same firms that led the winning syndicate in the first auction, bid 100.55119 percent of principal and a coupon rate of 4⅛ percent. The second best bid was 100.51259 percent of principal for the same coupon rate. The Treasury said "it was well

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90 Federal Reserve Bank of New York Circular no. 5282, January 8, 1963.

91 "Treasury to Sell 300-Million Issue," *New York Times*, March 21, 1963, p. 9, stating that the sale "was swift and overwhelming. It was completed within a couple of hours."

92 Federal Reserve Bank of New York Circular no. 5317, March 20, 1963. See also Circular no. 5321, April 3, 1963.

satisfied with the results of this second offering of bonds at competitive bidding. It again demonstrates that this new technique provides another effective method through which the Treasury can utilize the skills and judgment of the principal participants in the securities markets throughout the country – both to determine a price that is closely related to current supply and demand conditions in the market and to develop facilities for the broadest distribution of long-term Government securities at attractive prices to investors."[93]

However, the second offering was not well-received by investors. Chilled by an unexpected announcement of an offering of $250 million of highly-rated long-term debentures by the American Telephone and Telegraph Company, they look up less than half of the Treasury issue prior to the close of trading on April 9.[94] Market professionals anticipated "a wider variation in bids, and certainly a much larger underwriting commission to compensate for the risk," should Treasury decide to bring a third auction offering.[95] More than half of the bonds remained unsold when the syndicate broke on April 25. Roosa was quoted as saying that the next auction sale of long-term bonds was "a long time" off.[96]

In fact, Treasury did not bring another auction offering of coupon-bearing debt in the 1960s. When it finally tried, for a third time, to auction coupon-bearing debt (in 1970, when David Kennedy was Secretary of the Treasury and Paul Volcker was Under Secretary for Monetary Affairs), officials started at the short end of the yield curve and gradually worked their

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93 Federal Reserve Bank of New York Circular no. 5322, April 9, 1963.

94 "Treasury Raises 300 Million In Auction of Long-term Bonds," *New York Times*, April 10, 1963, p. 51, "Bonds: Market Unsettled by $300,000,000 Long-Term Offering by U.S. Treasury," *New York Times*, April 10, 1963, p. 56, noting the "less-than-enthusiastic reception" accorded the offering, and "Reception is Cool to U.S. Bond Issue," *New York Times*, April 14, 1963, sec. 3, p. 1.

95 "Reception is Cool to U.S. Bond Issue," *New York Times*, April 14, 1963, sec. 3, p. 1. See similarly "U.S. to Try Again on Underwriting," *New York Times*, April 21, 1963, section III, p. 1.

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

way out, giving dealers time to adapt their risk management and marketing skills to note and bond auctions.[97]

The 4¼ Percent Ceiling and the Fate of Maturity Extension

Bond issuance in general, and advance refundings in particular, came to a halt in mid-1965 when secondary market bond yields rose above a 4¼ percent statutory ceiling on primary market offerings that had been in place since 1918.[98] Following the cessation of bond issuance, the average maturity of marketable Treasury debt declined from 5⅓ years in mid-1965 to 2⅔ years in mid-1975 (Chart 3). Congress attempted to ameliorate the damage – the Act of June 30, 1967, increased the maximum maturity of a note to seven years and the Act of March 17, 1971, authorized Treasury officials to issue up to $10 billion of bonds with interest rates in excess of 4¼ percent – but the consequences were hardly visible.

The turning point came in 1976 (when William Simon was Secretary of the Treasury and Edwin Yeo was Under Secretary for Monetary Affairs). The Act of March 15, 1976, increased the maximum maturity of a note to ten years and increased the quantitative exemption to the 4¼ ceiling to $12 billion. Three months later the Act of June 30, 1976, increased the exemption to $17 billion. Succeeding legislation increased the exemption to $270 billion by the end of 1987.[99] Although the 4¼ ceiling continued to prevent bond issuance from time to time,[100] it never again

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97 See Garbade (2004).

98 The Second Liberty Bond Act of September 24, 1917, imposed a ceiling of 4 percent. The ceiling was raised to 4¼ percent by the Third Liberty Bond Act of April 4, 1918.

99 After 1976 the ceiling was raised to $27 billion (Act of October 4, 1977), $32 billion (Act of August 3, 1978), $40 billion (Act of April 2, 1979), $50 billion (Act of September 29, 1979), $70 billion (Act of October 3, 1980), $110 billion (section 289c of the Tax Equity and Fiscal Responsibility Act of September 3, 1982), $150 billion (Act of May 26, 1983), $200 billion (Act of May 25, 1984), $250 billion (Consolidated Omnibus Budget Reconciliation Act of 1985, enacted April 7, 1986), and finally to $270 billion (Omnibus Budget Reconciliation Act of December 22, 1987).

100 The 4¼ ceiling prevented the issuance of bonds in the spring and summer of 1982 and in the spring of 1986.

had a sustained impact on average maturity. Congress abolished the ceiling in 1988.[101] The average maturity of marketable Treasury debt reached six years in 1989.

Treasury officials were able to increase average maturity from the low of 2⅔ years in mid 1975 to 6 years in 1989 without issuing any bonds longer than 30 years. Instead, they relied on two key innovations in Treasury debt management: auction offerings of coupon-bearing debt, and regular and predictable issuance of that debt. As anticipated by Roosa in 1962, bond auctions allowed officials to issue at market prices, limiting (albeit not eliminating) the twin risks of a failed offering and excessive speculative participation and facilitating larger offerings. Regular and predictable issuance allowed long-term investors to plan their investments in light of the Treasury's likely future offerings and gave the Treasury access to more than the funds that those investors happened to have available when it came to market with a long-term bond. The ability to sell a lot more long-term debt on a regular basis proved to be was more important than the ability to sell really long-term debt on a sporadic basis.

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

Appendix: Two Pre-World War I Long-Term Bonds

The two bonds discussed in this appendix, a perpetuity issued in 1900 and a 50-year bond issued in 1911, are interesting as representatives of a different era in Treasury finance, when Congress authorized bond issuance to finance specific activities and designated the maturity and coupon rate, and sometimes the price, in the enabling legislation.

The 2 Percent Consols Redeemable in 1930. Prior to the creation of the Federal Reserve System in 1913, circulating currency consisted of gold certificates (essentially warehouse receipts for gold held in Treasury vaults), silver certificates, U.S. notes (sometimes known as greenbacks) and national bank notes.[102] The latter notes were liabilities of the respective issuing banks, backed by Treasury bonds deposited with the Treasury. The other three were emissions of the U.S. Treasury.

As part of the political bargain that led to the adoption of a uni-metallic gold standard at the beginning of the twentieth century (and that extinguished any hope of a bi-metallic gold and silver standard), Section 11 of the Gold Standard Act of March 14, 1900, authorized the issuance of 2 percent Consols – perpetuities that were redeemable at the option of the Treasury after thirty years. The Consols were issued in par-for-par exchanges for any of three outstanding bonds: 5 percent bonds redeemable in 1904, 4 percent bonds redeemable in 1907, and 3 percent bonds maturing in 1918.[103] The outstanding bonds were valued at a yield of 2.25 percent per annum, calculated from the date an exchange tender was accepted. The excess over par, less accrued interest on the Consols, was paid in cash to a tendering bondholder.

Consols were attractive to national banks that had been pledging the older, higher coupon and higher value, bonds against their note issues because they could replace the older bonds with Consols on a par-for-par basis and monetize the difference in value. The bond swap was

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[102] Garbade (2012, chapter 2).

[103] The offering circular for the 2 percent Consols is reprinted in "Mr. Gage Ready for Business," *New York Times*, March 15, 1900, p. 1.

expected to reduce Treasury interest expenses, reduce the cost of collateral pledged against national bank notes, and provide national banks with access to collateral that would remain outstanding for at least thirty years. Consols accounted for two-thirds of the $969 million of Treasury debt outstanding at the end of 1914.[104]

The 3 Percent Panama Canal Bonds of 1961. The Spooner Act of June 26, 1902, authorized construction of the Panama Canal, the greatest engineering feat of its time. Construction began in 1904, and the canal officially opened in 1914.

Section 8 of the Spooner Act authorized the sale of up to $130 million of 2 percent thirty-year bonds to finance construction. That authority resulted in three bond sales:

(1) an auction sale in July 1906 of $30 million of bonds maturing in 1936,

(2) an auction sale in November 1907 of an additional $24.6 million of the same issue, and

(3) an auction sale in December 1908 of $30 million of bonds maturing in 1938.[105]

The 2's of 1936 and the 2's of 1938 were both receivable as collateral against the issue of national bank notes.

Section 39 of the Payne-Aldrich Tariff Act of August 5, 1909, authorized the issuance of another $290 million of 3 percent fifty-year bonds to cover additional construction expenses. On May 18, 1911, the Treasury announced an auction offering of $50 million of the fifty-year bonds.[106] Unlike the earlier Canal bonds, the new issue could not be used to secure national

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104 Statement of the Public Debt, December 31, 1914.

105 Offering statements are reprinted in "The Panama Canal Bonds," *Wall Street Journal*, July 3, 1906, p. 5 and "Federal Aid up to $150,000,000," *New York Times*, November 18, 1907, p. 1.

106 The offering statement is reprinted in "Treasury Bond Circular," *New York Times*, May 19, 1911, p. 13.

bank notes.[107] In light of the anticipated limited demand for the bonds by national banks, Treasury officials made a particular effort to market the bonds to individual investors, providing a four week interval between announcement and the close of bidding and allowing payment in forms convenient for individuals.[108] The Treasury received more than 10,000 tenders for more than $212 million of bonds.

[107] Anticipating the currency reforms that ultimately led to passage of the Federal Reserve Act, Congress removed the currency privilege from any bonds issued under authority of the Payne-Aldrich Tariff Act when it adopted the act of March 2, 1911.

[108] "Secretary M'Veagh Offers $50,000,000 Government 3% Bonds," *Wall Street Journal*, May 18, 1911, p. 5.

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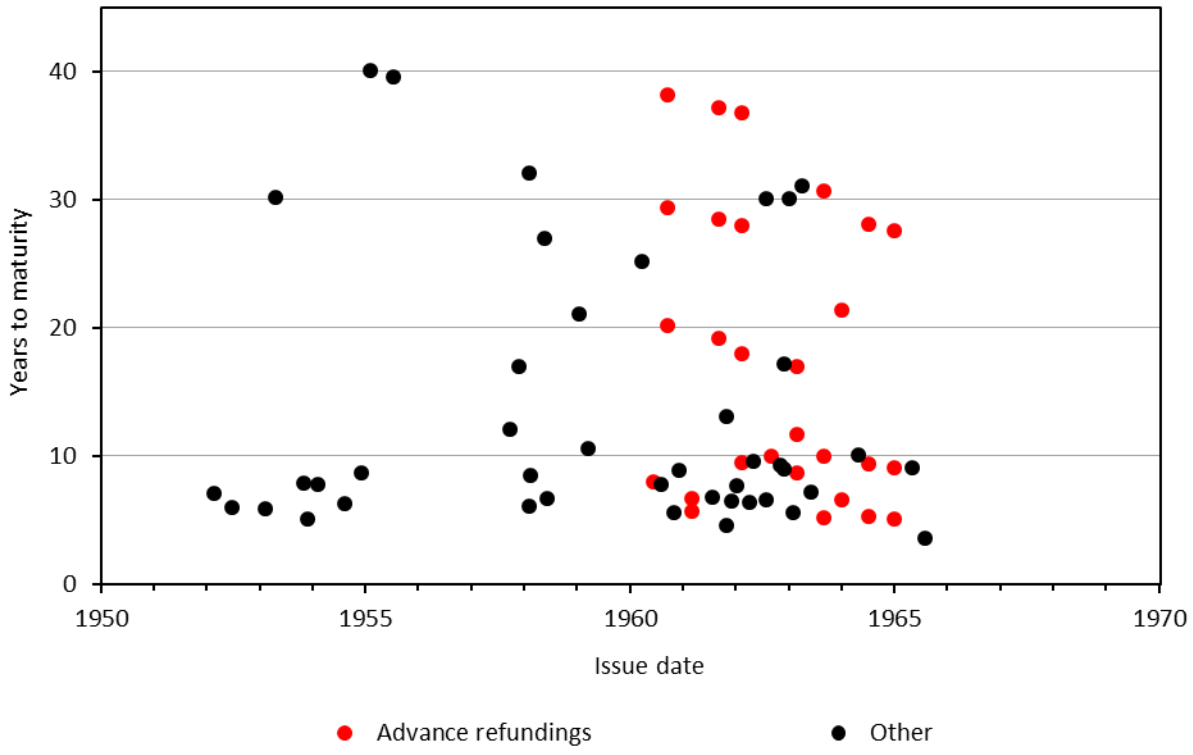
Table 1. **U.S. Treasury Bonds with at Least Thirty-One Years to Maturity Issued in the Third Quarter of the Twentieth Century.** All offerings were fixed-price offerings of *de novo* issues unless otherwise noted. Treasury Annual Reports, *New York Times*, *Wall Street Journal*, and circulars of the Federal Reserve Bank of New York.

Issue	Maturity	Coupon Rate	Years to Maturity	
Feb 15, 1955	Feb 15, 1995	3	40.00	
Jul 20, 1955	Feb 15, 1995	3	39.58	reopening
Feb 14, 1958	Feb 15, 1990	3½	32.00	
Oct 3, 1960	Nov 15, 1998	3½	38.12	
Sep 15, 1961	Nov 15, 1998	3½	37.17	reopening
Mar 1, 1962	Nov 15, 1998	3½	36.71	reopening
Apr 18, 1963	May 15, 1994	4⅛	31.07	auction

Chart 1. **Term to Maturity of U.S. Treasury Bonds Issued Between 1950 and 1969.** Treasury Annual Reports, *New York Times*, *Wall Street Journal*, and circulars of the Federal Reserve Bank of New York.



Box 1. Exchange Offerings in the Post-World War II Period

The Treasury began paying down debt soon after the successful completion of the Victory Loan drive in late 1945. Since it did not need to raise new cash, it switched to making exchange offerings when it wanted to refinance maturing debt.

In a simple exchange offering officials set the coupon rate on a new issue and offered it in exchange, on a par-for-par basis, for one or more maturing issues. Holders of exchange-eligible debt could tender that debt, receiving in return the new securities (tenders were almost always filled in full), or they could forego the exchange option and redeem their securities for cash. (Cash redemption was commonly known as "attrition.")

Exchange-eligible securities were called "rights" because holders had the right to exchange those issues for whatever new security the Treasury was offering. Rights usually traded above par because new offerings typically had coupon rates in excess of current market yields. (Rights couldn't trade much below par because they could always be redeemed at par at maturity.) The premium over par created an incentive to either tender or sell rights before the subscription books for the exchange offer closed.

An Example. On December 5, 1949, Treasury offered a new 4¼-year, 1⅜ percent note in exchange for any of four issues due to be redeemed on December 15, including,

- $519 million of a 1¼ percent certificate maturing December 15,
- $2,098 million of a 2 percent bond due December 15, 1951, and called for early redemption on December 15, 1949,
- $491 million of a 3⅛ percent bond due December 15, 1952, and called for early redemption on December 15, 1949, and

- $1,786 million of a 2½ percent bond due December 15, 1953, and called for early redemption on December 15, 1949.[109]

Treasury received tenders for $4,675 million of the new notes prior to the close of the subscription books on December 8. On December 15 it issued new notes to those who had accepted the exchange offer and made cash redemption payments of $219 million to those who had not.[110]

A key problem with exchange offers was that holders of maturing debt commonly had investment horizons about as short as their investments and were frequently uninterested in rolling over into appreciably longer-term debt.[111] Securities dealers bought the rights and either resold them to investors with longer-term horizons (for exchange into the new longer-term securities) or sold the new issue that the Treasury was offering for when-issued settlement, later covering their when-issued short sales by exercising the exchange option on the rights they had purchased. Both processes were cumbersome, placed a heavy burden on dealer financing arrangements, and required two separate transactions. Unless a new security was attractively priced, attrition was liable to be unacceptably high.[112]

In late 1951 Robert Roosa, then a manager in the Research Department at the Federal Reserve Bank of New York, suggested that the Treasury could reduce the risk of mispricing an

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109 Federal Reserve Bank of New York Circular no. 3517, December 5, 1949.

110 1950 *Treasury Annual Report*, pp. 17 and 18.

111 Gaines (1962, p. 272) states that "by the time a Treasury bond approaches maturity the long-term funds originally committed to it have been lost to the Treasury, and it is pointless to offer the current holders of the issue – who have short-term funds invested – an opportunity to exchange for a new long-term bond."

112 The Manager of the System Open Market Account, Robert Rouse, remarked to the Federal Open Market Committee on one occasion that "one factor involved in the relatively generous pricing of the new issues being offered [in a May 1960 exchange offering] was the Treasury's desire to avoid large-scale attrition." Minutes of the Federal Open Market Committee, May 3, 1960, p. 3.

exchange offer by giving investors a choice of any of several new issues.[113] Treasury officials adopted Roosa's suggestion and extended the first post-war multi-option exchange offer in February 1953, when holders of $8.9 billion of maturing certificates were given a choice between a 1-year certificate and a 5-year, 10-month bond.[114] Attrition amounted to a negligible 1.5 percent of the maturing principal. The *New York Times* reported an "authoritative source" as saying that "this first experience of the new Administration with [an exchange that offered] alternative types of investment had been satisfactory enough to warrant use again." [115] Forty of forty-seven exchange offerings between 1953 and 1958 were multi-option offers.

In his ground-breaking analysis of Treasury debt management, Tilford Gaines pointed out an important problem with all exchange offers and a second problem unique to multi-option offers. The common problem was the quantity of securities retained for redemption rather than exchanged for new debt. If it was larger than expected, the Treasury might experience a cash flow emergency [116] – a risk graphically illustrated by a July 1958 exchange offering of 1-year certificates, where attrition ran to 17 percent [117] and triggered an emergency follow-on cash offering of 7-month certificates.[118]

Multi-option exchange offers presented the additional problem of shifting control of the maturity structure of the debt from government officials to private investors. In some cases (as

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[113] Roosa (1952, p. 234), stating that "the Treasury might also be able to vary its offering arrangements, and perhaps minimize the risks of miscalculating investor response in some situations, by using a package offering of several issues, thereby spreading the impact of a given operation over several sectors of the market."

[114] Federal Reserve Bank of New York Circular no. 3940, January 27, 1953, and Circular no. 3942, February 2, 1953.

[115] "New Refinancing Held Big Success," *New York Times*, February 10, 1953, p. 37.

[116] Gaines (1962, p. 174) states that "the uncertain size of [attrition] seriously complicated the scheduling of cash flows and of cash financing."

[117] Federal Reserve Bank of New York Circular no. 4672, August 1, 1958.

[118] Federal Reserve Bank of New York Circular no. 4623, July 23, 1958, and Circular no. 4624, July 25, 1958.

in the February 1953 refunding [119]) investors opted for a short-term certificate and in other cases (as in the June 1958 refunding [120]) they preferred a longer security, but in all cases they were the ones deciding what Treasury would issue.[121]

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[119] "New Refinancing Held Big Success," *New York Times*, February 10, 1953, p. 37, and "Treasury Refunds $8.9 Billion But Few Take Bonds," *Wall Street Journal*, February 10, 1953, p. 15.

[120] Federal Reserve Bank of New York Circular no. 4612, June 13, 1958.

[121] Gaines (1962, p. 174) states that "the loss of control over the maturity structure of the debt when holders of maturing issues were offered an option among securities of different maturity ... had become increasingly serious" by the late 1950s.

Chart 2. **Term to Maturity of Securities Eligible for Exchange and Securities Offered in Exchange in Advance Refundings.** Circulars of the Federal Reserve Bank of New York.

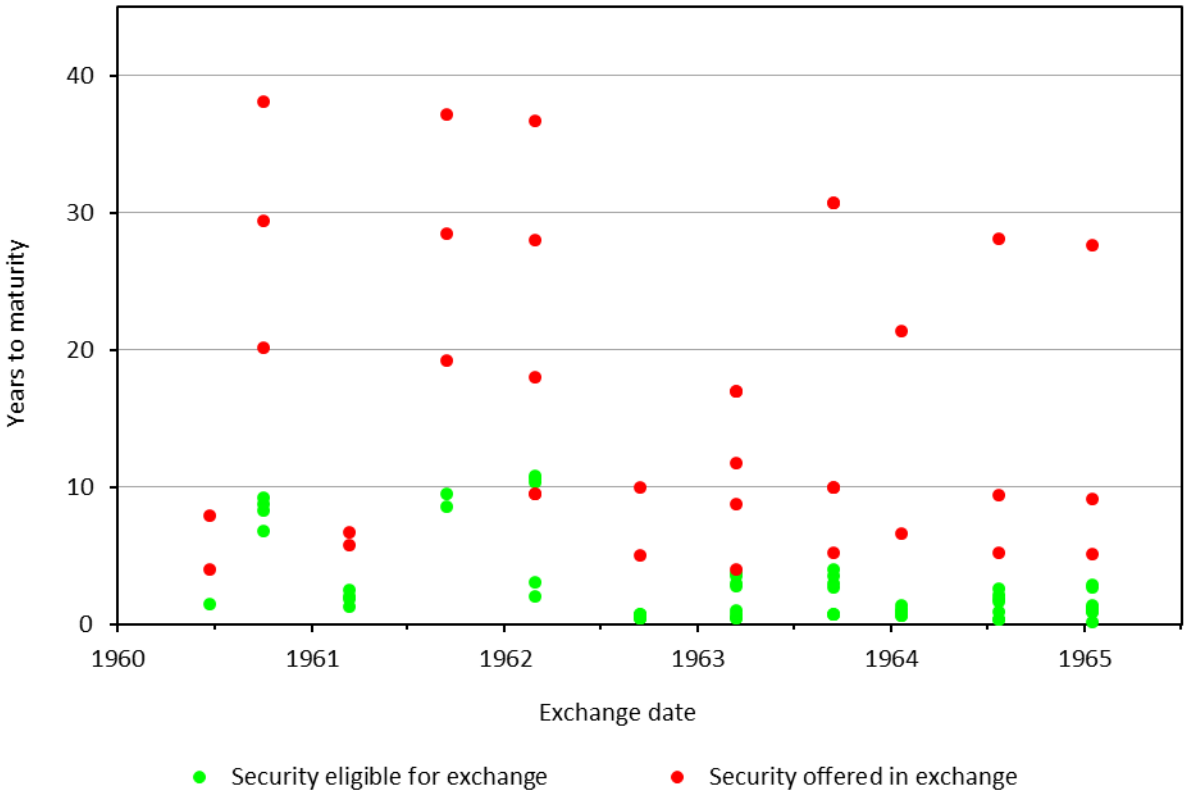
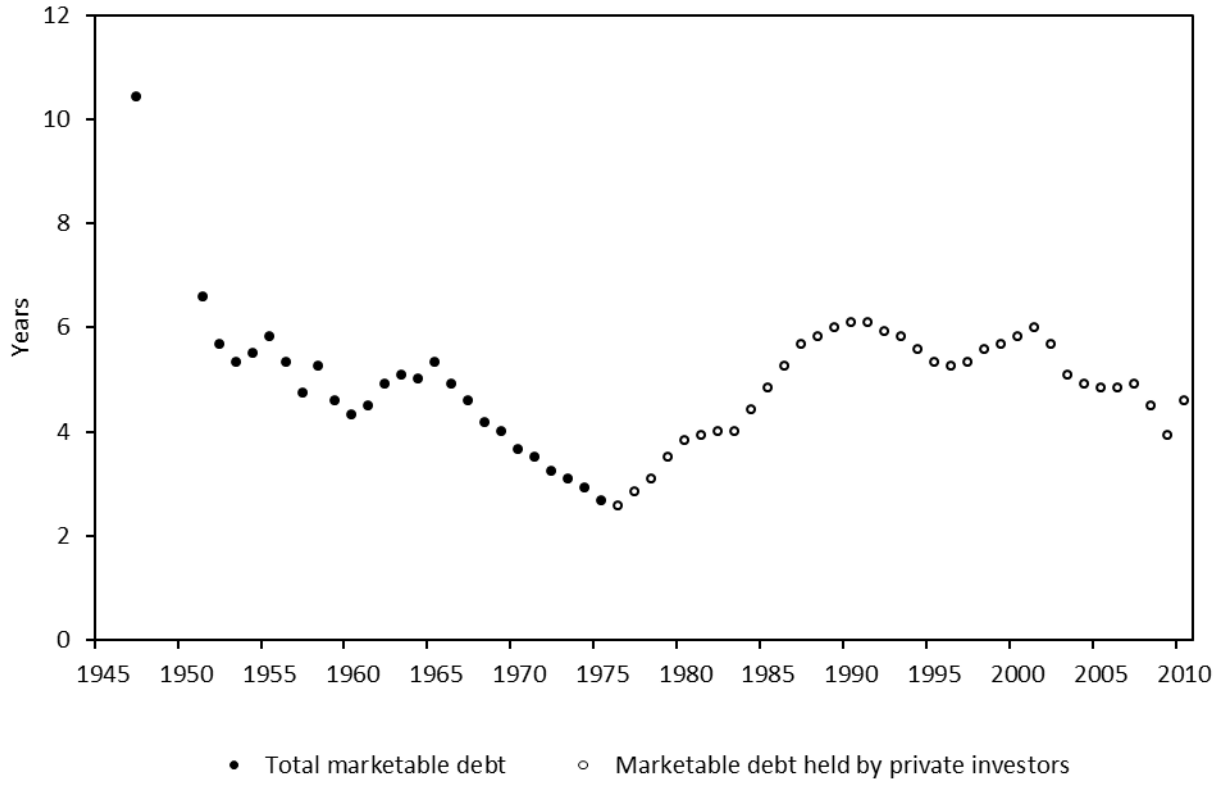
Chart 3. Average Term to Maturity of Marketable Treasury Debt. *Treasury Bulletin.*