
Kenneth D. Garbade

THE EMERGENCE OF “REGULAR AND PREDICTABLE” AS A TREASURY DEBT MANAGEMENT STRATEGY

- In 1975, the U.S. Treasury had to finance a rapidly growing federal deficit with sales of new notes and bonds on an offering-by-offering basis.
- Because the timing and maturities of these “tactical” offerings did not follow a predictable pattern, the issuances sometimes caught investors off guard and disrupted the market.
- Treasury officials, recognizing the need for more regularized offerings, revised the framework within which they selected the maturities of new notes and bonds.
- By 1982, the Treasury had abandoned tactical issuance and was following a “regular and predictable” schedule of new note and bond offerings.
- The move to regular and predictable issuance was widely credited with reducing market uncertainty, facilitating investor planning, and lowering the Treasury’s borrowing costs.

1. INTRODUCTION

Treasury debt management is the set of actions taken by U.S. Treasury officials in the course of financing the federal deficit and refinancing maturing debt. An important dimension of debt management is the decision of which maturity debt to sell. On the one hand, short-term financing can complicate budget planning because it raises the variability of near-term interest expenses; on the other, longer term borrowings have a higher expected cost because of term premia on intermediate- and long-term interest rates.

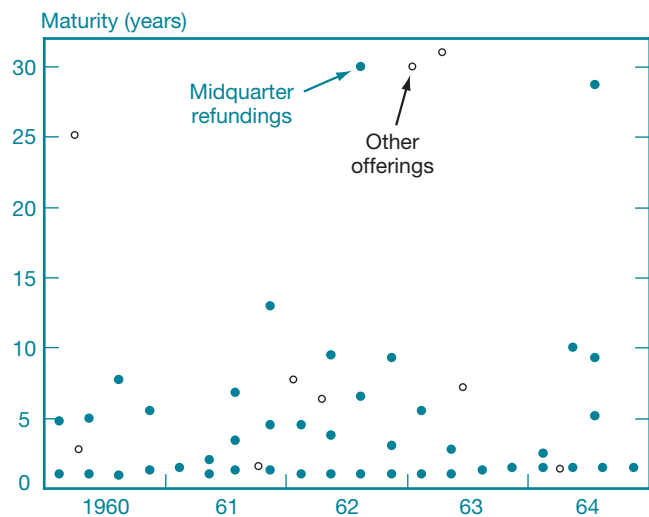
During the 1970s, Treasury officials revised the framework within which they selected the maturities of new notes and bonds. Previously, they chose maturities on an offering-by-offering basis, typically after surveying market participants to identify investor demand for different maturities. By 1982, the Treasury had abandoned this type of “tactical” debt management and was selling notes and bonds on a “regular and predictable” schedule, with monthly offerings of two-year notes and quarterly sales of longer term securities.

The switch from tactical to regular and predictable debt management is illustrated in Charts 1 and 2. Between 1960 and 1964, the Treasury made regular quarterly offerings, for cash or in exchange for maturing debt, of coupon-bearing securities in February, May, August, and November of each year (Chart 1).

Kenneth D. Garbade is a vice president at the Federal Reserve Bank of New York.
<kenneth.garbade@ny.frb.org>

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CHART 1
Maturities of Offerings of Coupon-Bearing Securities,
January 1960-December 1964



Source: Federal Reserve Bank of New York circulars (1960-64).

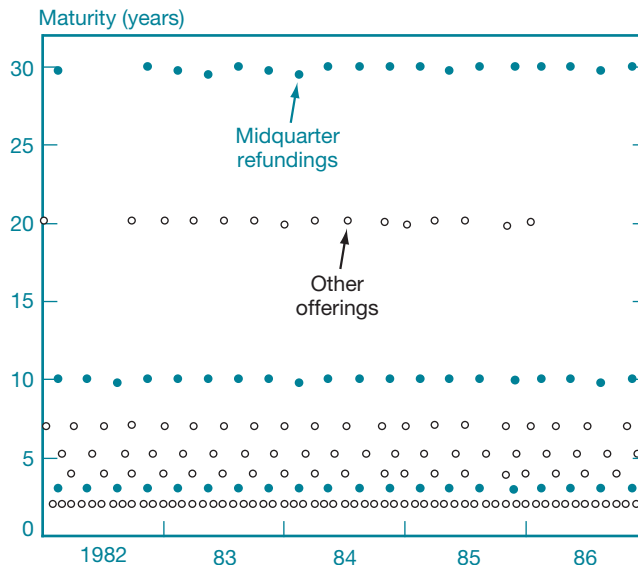
The number and maturities of these tactical “midquarter refundings,” though, varied from quarter to quarter. The only persistent feature was the appearance of an “anchor” issue maturing in one to one and a half years. As Chart 1 shows, the Treasury also sold coupon-bearing securities outside of midquarter refundings on nine occasions between 1960 and 1964. However, neither the timing of the nine issues nor their maturities followed any readily apparent pattern.

By comparison, the regularity of the Treasury’s offerings between 1982 and 1986 is striking (Chart 2). The Treasury continued to sell coupon-bearing securities in the middle of each quarter, but offered the same maturities in every refunding: a three-year note, a ten-year note, and, with two exceptions, a thirty-year bond.¹ Additionally, it sold two-year notes monthly; four-, five-, and seven-year notes quarterly; and, with two exceptions, twenty-year bonds quarterly until terminating the twenty-year series in the spring of 1986. The Treasury sold two-, three-, and ten-year notes and thirty-year bonds in amounts that did not vary substantially from offering to offering (Charts 3 and 4). Other series exhibited a similar pattern of substantially comparable amounts sold from offering to offering.

This article examines why, during the 1970s, Treasury officials changed the framework within which they made their

¹Following the February 1982 midquarter refunding, the Treasury exhausted its authority to issue bonds with coupon rates in excess of a statutory ceiling of 4¼ percent. It was limited to issuing bills and notes until Congress increased the exemption following the August 1982 refunding.

CHART 2
Maturities of Offerings of Coupon-Bearing Securities,
January 1982-December 1986



Source: U.S. Department of the Treasury, Bureau of the Public Debt.

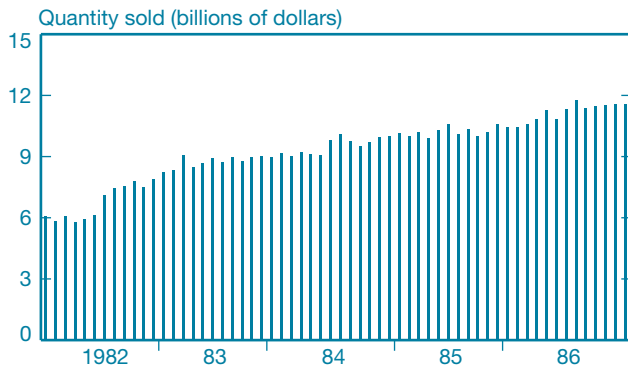
debt management decisions. We show that the Treasury financed an unusually rapid expansion of the deficit in 1975 with a flurry of tactical offerings. The offerings disrupted the market and provided the impetus to adopt a program of regular and predictable issuance that allowed investors to plan future commitments of funds with greater confidence.

The emergence of regular and predictable as a Treasury debt management strategy is important for three reasons. First, this type of issuance is one of the pillars of the modern Treasury securities market. In 1982, Mark Stalneck, Treasury Deputy Assistant Secretary for Federal Finance, expressed the view that “regularity of debt management removes a major source of market uncertainty, and assures that Treasury debt can be sold at the lowest possible interest rate consistent with market conditions at the time of sale.”² More recently, Gary Gensler, Treasury Assistant Secretary for Financial Markets, observed that “consistency and predictability in [the Treasury’s] financing program ... reduces uncertainty in the market and helps minimize our overall cost of borrowing.”³ Second, the circumstances that led to regular and predictable issuance illustrate the costs of tactical issuance, and the benefits of

²Committee on Banking, Finance, and Urban Affairs (1982, p. 5).

³Testimony before the House Committee on Ways and Means, June 24, 1998 (available at <<http://www.treas.gov/press/releases/rr2555.htm>>). Gensler went on to note that “in keeping with this principle, Treasury does not seek to time markets; that is, we do not act opportunistically to issue debt when market conditions appear favorable.”

CHART 3
Monthly Sales of Two-Year Notes,
January 1982-December 1986



Source: U.S. Department of the Treasury, Bureau of the Public Debt.

predictability, in an environment of large deficits. Finally, the emergence of regular and predictable issuance shows how a change in the economic environment can induce policymakers to alter the practices of the institutions they manage.

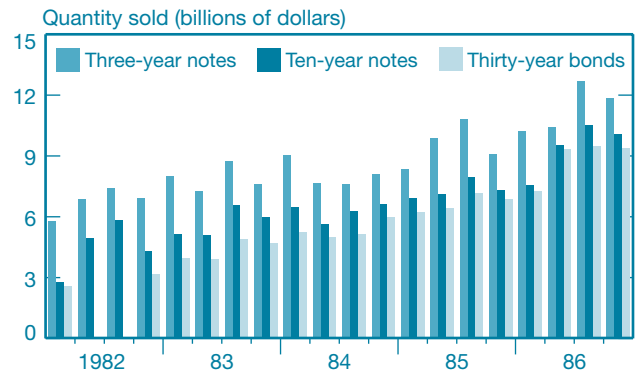
The first half of the 1970s also witnessed the successful introduction of auction sales of notes and bonds. There is an important connection between this development and the emergence of regular and predictable issuance: Treasury bills

The Treasury did try to institutionalize auction sales of Treasury bonds in 1935 and again in 1963, but failed in both attempts.

provided a template for both actions. This raises the question of why, since the Treasury had been auctioning bills on a regular and predictable basis for decades, it did not introduce regular auction sales of notes and bonds at an earlier date.⁴ In fact, the Treasury did try to institutionalize auction sales of Treasury bonds in 1935 and again in 1963, but failed in both attempts.⁵ The earlier attempts suggest that officials appreciated the advantages of auction sales of notes and bonds long before they were able to institutionalize such sales. Conversely, the absence of any attempt to introduce regular and predictable

⁴The Treasury first issued bills in 1929; it began auctioning bills on a regular and predictable basis in the early 1930s. Some of the same observers who advocated auction sales of notes and bonds in the late 1950s and early 1960s also advocated regular and predictable sales of those securities. See Joint Economic Committee (1959, p. 3024, testimony of Milton Friedman), Friedman (1960, pp. 60-5), and Gaines (1962, ch. 8).

CHART 4
Sales of Three-Year Notes, Ten-Year Notes,
and Thirty-Year Bonds in Midquarter Refundings,
January 1982-December 1986



Source: U.S. Department of the Treasury, Bureau of the Public Debt.

sales of notes and bonds before 1972 suggests that, prior to that time, tactical flexibility may have been perceived as more beneficial.

Our study proceeds as follows. Section 2 presents an overview of the goals and instruments of Treasury debt management and the choice between tactical and regular and predictable issuance. In Section 3, we explain how the Treasury conducted financing operations in the 1960s. The Treasury's initial steps toward "regularizing" short-term notes in 1972 are examined in Section 4. We explain in Section 5 how rapid growth of the deficit in 1975 led the Treasury to begin embracing regular and predictable issuance more completely. Section 6 presents empirical evidence consistent with the hypothesis that regular and predictable issuance mitigated a cost of tactical issuance. Finally, we briefly describe in Section 7 the subsequent development of debt management policy within the framework of regular and predictable issuance.

2. GOALS AND INSTRUMENTS OF DEBT MANAGEMENT

Debt management has goals, or objectives, and it has decision variables that managers have to choose to advance toward their stated goals.

⁵Garbade (2004) suggests that the Treasury failed in its earlier attempts primarily because it began by auctioning long-term bonds. The Treasury was more successful when, in the early 1970s, it began by auctioning short-term notes and then gradually extended the maturities of its offerings. The gradual extension gave dealers an opportunity to build up their risk management and sales programs in an orderly fashion.

Financing at least cost over time is the most frequently and consistently cited goal of Treasury debt management. Andrew Mellon, Secretary of the Treasury from March 1921 to February 1932, was said to manage the public debt “by providing various types of securities suited to the needs of various classes of lenders, thereby obtaining funds for needed periods at minimum cost.”⁶ Robert Roosa, Treasury Under Secretary for Monetary Affairs from January 1961 to December

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1964, observed that Treasury debt “must be placed at an interest cost that will stand up to the critical test of both the Congress and the public who do not want to have any more money devoted to the debt service . . . than is necessary.”⁷

The Treasury has sometimes announced debt management goals in addition to least-cost financing. During the 1960s, Treasury officials sometimes made debt management decisions to maintain upward pressure on short-term interest rates (to support the value of the dollar in foreign exchange markets) and/or to limit upward pressure on long-term interest rates (to promote economic growth).⁸ In the 1990s, officials focused on three debt management goals, including ensuring the availability of adequate cash balances and promoting efficient capital markets as well as financing at least cost.⁹

More recently, however, Peter Fisher, Under Secretary of the Treasury from August 2001 to October 2003, observed that ensuring the availability of adequate cash balances is a constraint on, rather than a goal of, debt management and that the single objective of financing at least cost best describes the basis for Treasury debt management decisions.¹⁰

⁶Simmons (1947, p. 334).

⁷Roosa (1963).

⁸The resulting decisions to sell short-term debt in lieu of long-term debt were typically made in the context of some version of the “segmented markets” theory of the term structure of interest rates, which implies that debt securities of different maturities are imperfect substitutes and that exogenous variation in the maturity composition of the debt can affect the shape of the yield curve. See Culbertson (1957). See also the “preferred habitat” theory proposed by Modigliani and Sutch (1966, 1967) and the analysis in Modigliani and Sutch (1966) of the attempt by Treasury and Federal Reserve officials to alter the shape of the yield curve by raising short-term rates and reducing, or at least maintaining, long-term rates in what became known as “Operation Twist.”

⁹Testimony of Gary Gensler, Treasury Assistant Secretary for Financial Markets, before the House Committee on Ways and Means, June 24, 1998 (available at <<http://www.treas.gov/press/releases/tr2555.htm>>), and testimony of Lewis Sachs, Treasury Assistant Secretary for Financial Markets, before the House Committee on Ways and Means, September 28, 1999 (available at <<http://www.treas.gov/press/releases/ls128.htm>>).

The primary decision variables of Treasury debt management are the quantities of debt to be sold at different maturities. Other important decision variables include the type of offering, that is, a fixed-price subscription offering or an auction offering in either a single-price or multiple-price format, and whether the Treasury is obligated to repay fixed nominal amounts or amounts indexed to current prices (as has been the case with inflation-protected securities issued since 1997).

This article examines the emergence of a self-imposed constraint on the Treasury’s method of choosing the timing and maturities of new issues. As illustrated in Section 7, the constraint limits the frequency with which the timing and maturities of new offerings are changed. Treasury officials adopted the constraint to advance the always important (and, more recently, unique) goal of financing at least cost. As we show in the next section, prior to 1970, tactical issuance preserved a high level of managerial discretion that allowed debt managers to shift the focus of their decision-making

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literally from offering to offering. It also allowed debt managers substantial flexibility as to when they would raise new money with sales of coupon-bearing debt. However, tactical issuance had a downside: investors could not readily anticipate what maturity debt the Treasury would choose to sell and they could not easily anticipate when the Treasury would sell notes and bonds outside of the midquarter refundings. The downside became excessively costly when Treasury officials had to finance unprecedented peacetime deficits after 1974. In order to facilitate investor planning and thereby reduce Treasury borrowing costs, the officials began to adopt a more regular and predictable issuance schedule.

3. DEBT MANAGEMENT IN THE 1960S

In mid-1960, the marketable public debt of the United States was \$184 billion, including \$33 billion in bills, \$18 billion in certificates of indebtedness, and \$133 billion in notes and

¹⁰Remarks of Under Secretary of the Treasury Peter Fisher to the Futures Industry Association, March 14, 2002 (available at <<http://www.treas.gov/press/releases/po1098.htm>>). See also remarks of Assistant Secretary of the Treasury Brian Roseboro to the UBS Eighth Annual Reserve Management Seminar for Sovereign Institutions, June 3, 2002 (available at <<http://www.treas.gov/press/releases/po1349.htm>>).

bonds. Bills were single-payment instruments maturing in a year or less; the other three instruments made semi-annual coupon payments. A certificate of indebtedness matured in no more than a year from its date of issue; notes matured in no more than five years. A bond could have any term but could not be issued with a coupon rate in excess of 4¼ percent.¹¹

There were four distinct types of Treasury financings at the beginning of the 1960s: bill financings, midquarter refundings, stand-alone offerings, and advance refundings. All but the last were mechanisms for borrowing money to finance the federal deficit and to refinance maturing debt.¹²

3.1 Bill Financings

The Treasury used bills to bridge the gap between cash management and debt management and to finance a portion of the debt at low short-term interest rates. Thirteen-week bills had been auctioned on a regular weekly basis since 1937. In late 1958, the Treasury began a parallel program of regular weekly auctions of twenty-six-week bills “to place on a routine basis, so far as practicable, the roll-over of ... debt maturing within one year.”¹³ The sizes of the thirteen- and twenty-six-week-bill auctions varied from time to time, but investors knew the auctions would be held and they knew the amounts offered would be comparable to what was maturing—perhaps a bit less if the government was flush with cash or a bit more if cash balances were low. In early 1959, the Treasury further expanded its bill offerings by introducing regular quarterly sales of one-year bills, to be issued on or about the fifteenth of the first month of a quarter and to mature a year later.¹⁴

¹¹The 4¼ percent ceiling on Treasury bond rates was established by the Third Liberty Bond Act (April 4, 1918). A brief history of the rate ceiling appears in Committee on Ways and Means (1967, pp. 25-8).

¹²An advance refunding was an offer to exchange a new security for an equal principal amount of an existing, shorter term security that was *not* close to maturity. For example, an advance refunding in October 1960 gave investors an opportunity to exchange a bond maturing in nine years for an equal principal amount of a bond maturing in thirty-eight years. Treasury officials introduced advance refundings in 1960 when they became concerned that a growing concentration of Treasury indebtedness in short-term securities might be contributing to inflation (U.S. Treasury Department 1960, p. 4; Beard 1966, p. 7). See also Committee on Finance (1962) and Bryan (1972). Advance refundings did not play any substantial role in the emergence of regular and predictable issuance.

¹³Federal Reserve Bank of New York Circular no. 4663, November 18, 1958.

¹⁴The Treasury also used irregular offerings of “tax anticipation bills” to smooth seasonal variations in tax receipts. Tax anticipation bills were first introduced in 1951 (Nelson 1977).

3.2 Midquarter Refundings

By 1960, maturing coupon-bearing debt was refinanced exclusively in midquarter refundings. Offerings were sometimes in exchange for maturing debt and sometimes for cash. New issues were always set to mature on the fifteenth of the second month of a quarter so they could be refinanced in subsequent refundings.

An *exchange offer* was an offer to exchange a new issue for an equal principal amount of a maturing issue and was available only to holders of the maturing debt. An investor who was not

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interested in exchanging a maturing issue could either sell the debt to another investor who wanted to acquire the new issue or present the debt for redemption. The fraction of a maturing issue presented for redemption was known as “attrition.”

A *cash offering* was made at a fixed price and was open to all investors. Subscriptions were filled on a pro-rata basis. Cash refundings allowed the Treasury to raise modest amounts of new cash by offering somewhat more than what was needed to redeem maturing debt.

Midquarter refundings followed a regular routine. Toward the middle of the first month of each quarter, Treasury officials solicited the advice of market participants on what maturities were currently in demand and then held a press conference to announce what would be offered.¹⁵ Subscription books opened within a week of the announcement and remained open for several days, after which the Treasury announced the results and began to fill subscriptions. The entire process was completed by the middle of the second month of the quarter. Box 1 describes the origin of midquarter refundings.

¹⁵Although the Treasury kept in regular contact with a variety of market participants (Committee on Government Operations 1956, p. 113), it particularly solicited the views of several advisory committees when it contemplated a major operation. Committee members reflected their “impressions of what the market demand and supply is” (p. 50) and what they thought “could best be sold” (p. 63).

The Origin of Midquarter Refundings

The Treasury introduced midquarter refundings during the 1950s to ease constraints on the conduct of monetary policy. Both cash subscription offerings and exchange offerings were made on fixed terms: an investor could only accept or reject the terms proposed by the Treasury. A decision by Federal Reserve officials to tighten monetary policy during the five to seven days between the announcement of a new offering and the close of the subscription books therefore was liable to jeopardize the success of the offering.

Following the Treasury-Federal Reserve Accord of March 1951 and the restoration of Federal Reserve control of monetary policy, Federal Reserve officials adopted a policy of maintaining a fixed monetary policy during Treasury offerings.^a Concentrating the Treasury's longer term financings in four quarterly windows minimized the amount of time that the Treasury was in the market and thus maximized the amount of time during which monetary policy could be changed. Quarterly refundings also reduced direct competition with other issuers by providing constructive notice about when the Treasury would be in the market. By late 1958, 80 percent of coupon-bearing Treasury debt was scheduled to mature on the fifteenth of February, May, August, or November of some future year.^b

^aThis policy was sometimes known as "even keeling." See Gaines (1962, pp. 241-3, 264), Struble and Axilrod (1973), and Committee on Banking, Finance, and Urban Affairs (1982, pp. 32-3, testimony of Stephen Axilrod, Staff Director for Monetary and Financial Policy, Board of Governors of the Federal Reserve System).

^bFederal Reserve Bank of New York Circular no. 4663, November 18, 1958. ("For some time, the Treasury has been working towards scheduling its maturities on these quarterly dates to reduce the number of times each year its financing will interfere with other borrowers such as corporations, states, municipalities, etc.; to minimize the 'churning' in the money markets on the major quarterly corporate income tax dates; and to facilitate the effective execution by the Federal Reserve of its monetary policy.")

3.3 Stand-Alone Cash Subscription Offerings

A stand-alone offering was an offering of a coupon-bearing security on a cash subscription basis outside of a midquarter refunding. The Treasury made stand-alone offerings when it needed funds to finance a deficit or to rebuild its cash balance following heavy attrition on a midquarter exchange offering. New issues sold in stand-alone offerings, like new issues sold in midquarter refundings, were set to mature on the fifteenth of the second month of a quarter to facilitate refinancing.

3.4 Debt Management Decisions

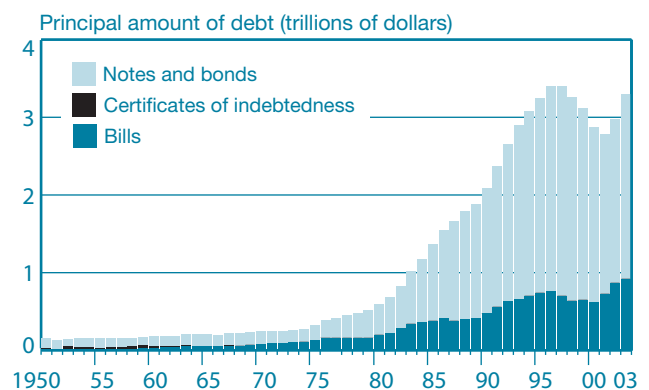
The variation in marketable Treasury debt in the 1960s is illustrated in Chart 5. Indebtedness did not decline, so midquarter refundings remained important. However, indebtedness did not grow rapidly, so stand-alone cash subscription offerings remained relatively unimportant. Marketable debt increased from \$184 billion in 1960 to \$226 billion in 1969, or less than \$5 billion per year. The Treasury financed \$17 billion of the \$42 billion increase with bills and with certificates of indebtedness and \$25 billion with notes and bonds.

As we observed, there was considerable irregularity in terms of the maturities offered in midquarter refundings in the first half of the 1960s. Table 1 summarizes the justifications provided by Treasury officials for their maturity choices. Two features are significant:

- As we discussed in Section 2, officials sometimes chose to issue short-term securities to maintain upward pressure on short-term interest rates (to support the value of the dollar) and to moderate upward pressure on long-term rates (to promote economic growth). At other times, officials emphasized the importance of maintaining or extending the average maturity of the debt. Box 2 discusses the importance that Treasury officials attached to maturity extension.
- Maturity decisions were sometimes based on the character of contemporaneous demand. For example, investor preferences were important in the decision to offer 28¼-year bonds in July 1964, when Under Secretary Roosa stated that the bond market was "strong," "eager," and "indicating an actual need" for long-term bonds.¹⁶

CHART 5

Marketable Treasury Debt, 1950-2003



Source: *Treasury Bulletin* (various issues).

Note: The chart depicts outstanding marketable debt at the end of each fiscal year—on June 30 until and including June 30, 1976, and on September 30 thereafter.

TABLE 1

Midquarter Refundings, 1960-64

Offering	Years to Maturity			Amount Offered (Billions of Dollars) ^a	Comment
	Anchor Issue	Intermediate Issues	Long-Term Bond		
Feb. 1960	1	4¾	—	11.36e	
May 1960	1	5	—	6.41e	
Aug. 1960	1	7¾	—	8.75c	
Nov. 1960	1¼	5½	—	10.84e	The Treasury reduced the term of the intermediate-term issue from seven years to five and a half years to make the offering “a little more attractive.”
Feb. 1961	1½	—	—	6.90c	The refunding offered only a single short-term note to maintain upward pressure on short-term interest rates and to limit upward pressure on long-term rates.
May 1961	1	2	—	7.75c	The refunding offered two short-term issues to maintain upward pressure on short-term rates.
Jul. 1961 ^b	1¼	3, 6¾	—	12.20e	Surveys indicated investor interest in securities out to seven years, but no interest in any longer maturities.
Nov. 1961	1¼	4½, 13	—	6.96e	
Feb. 1962	1	4½	—	11.18e	A four-and-a-half-year issue was offered because surveys indicated bank interest in higher yielding (even if longer term) securities.
May 1962	1	3¾, 9½	—	11.68e	A nine-and-a-half-year issue was offered because of continuing bank demand for higher yielding securities.
Aug. 1962	1	6½	30	8.75c	The thirty-year bond was a surprise. The Treasury cited the need for “balanced financing” (referring to a need to avoid contraction of average maturity).
Nov. 1962	1	3, 9¾	—	10.98e	A “plain vanilla” financing in the midst of the Cuban Missile Crisis.
Feb. 1963	1	5½	—	9.47e	
May 1963	1	2¾	—	9.49e	The refunding offered two short-term issues to maintain upward pressure on short-term rates.
Aug. 1963	1¼	—	—	6.64e	The refunding offered a single short-term note to maintain, and possibly even lift, short-term interest rates.
Nov. 1963	1½	—	—	7.60c	The refunding offered a single short-term note to maintain upward pressure on short-term rates.
Feb. 1964	1½	2½	—	8.38e	The maturities were selected to fill relatively open dates.
May 1964	1½	10	—	10.61e	Market participants expected a five-year note. The Treasury offered a ten-year bond to avoid “over-loading” the front end.
Jul. and Aug. 1964 ^c	1½	5¼, 9¼	28¼	10.13e, c	Treasury surveys indicated a “strong” market, investors “eager” to acquire long-term bonds.
Nov. 1964	1½	—	—	9.25c	The refunding offered a single short-term note to maintain upward pressure on short-term rates.

Sources: Federal Reserve Bank of New York circulars (1960-64); *New York Times* (1960-64); *Wall Street Journal* (1960-64).

^aAmounts are total amount offered in a cash subscription offering (denoted “c”) or total amount of maturing securities eligible for exchange in an exchange offering (denoted “e”).

^bThis refunding was accelerated because the security being refunded was a note that matured on August 1, 1961.

^cThe exchange portion of this refunding was accelerated to July to take advantage of favorable market conditions. See “Treasury Offers Giant Refunding,” *New York Times*, July 9, 1964, p. 43, and “Treasury Offers Advance Refund of \$41.7 Billion,” *Wall Street Journal*, July 9, 1964, p. 3. Attrition was financed with a cash subscription offering in August 1964.

Taken as a whole, midquarter refundings between 1960 and 1964 evidenced a debt management process in which officials made maturity decisions on an offering-by-offering basis.

¹⁶“Treasury Offers Giant Refunding,” *New York Times*, July 9, 1964, p. 43, and “Treasury Offers Advance Refund of \$41.7 Billion,” *Wall Street Journal*, July 9, 1964, p. 3.

Midquarter refundings in the second half of the 1960s exhibited greater regularity than those in the preceding five years (Chart 6). However, the greater regularity was largely a by-product of the statutory prohibition on issuing bonds with coupon rates in excess of 4¼ percent. The rate ceiling kept the Treasury out of the bond market after May 1965. In the

Box 2

Treasury Concerns with Debt Maturity

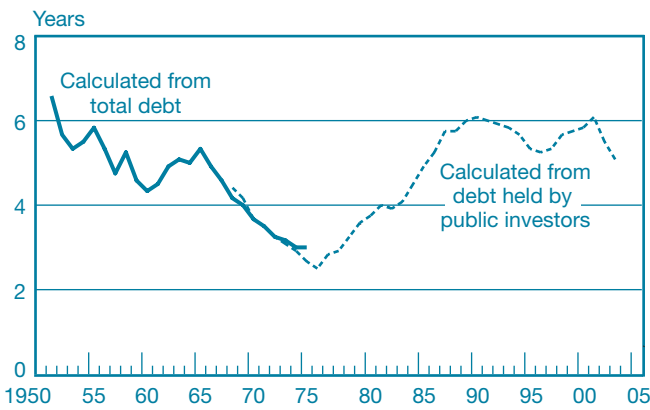
The average maturity of marketable Treasury debt fell from 6.6 years in 1950 to 4.6 years in 1959 (see chart below). The decline was an inevitable result of the reluctance of Treasury officials to issue longer term debt. They did not want to issue longer debt when economic activity was strong and interest rates were high because such issuance would commit the Treasury to paying high rates for a long time, and they did not want to issue longer debt when activity was weak for fear of stifling a recovery.^a

At the end of the 1950s, Treasury officials became concerned that the growing concentration of indebtedness in securities

maturing in fewer than five years—and viewed as close substitutes for money—was contributing to price inflation. They introduced advance refundings in 1960 in an attempt to reverse the steady decline in average maturity.^b As noted in Table 1, extending the average maturity of Treasury debt was also important from time to time in the Treasury’s maturity choices in midquarter refundings. The chart shows that the average maturity of marketable Treasury debt increased to 5.3 years by mid-1965.

Between mid-1965 and early 1973, the statutory 4¼ percent ceiling on Treasury bond coupon rates kept the Treasury from issuing bonds and led to a renewed decline in average maturity. Congress extended the maximum maturity of a note to seven years in 1967 and provided some exemptive relief from the 4¼ percent ceiling in 1971, but the renewed decline in average maturity was not reversed until Congress further extended the maximum maturity of a note to ten years in 1976.

Average Maturity of Marketable Debt

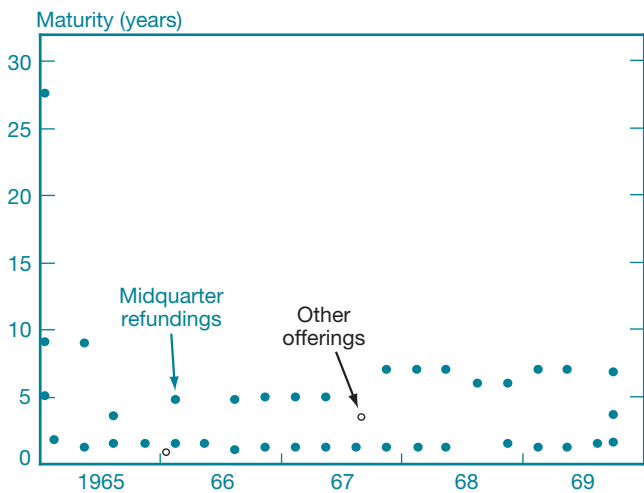


Source: *Treasury Bulletin* (various issues).

^aBeard (1966, p. 10) observed that “the cost of lengthening the debt [during periods of strong economic activity] appeared to be excessive since the Treasury would be saddled for extended periods with securities sold at cyclically high rates of interest” and that “many economists held that extensive sales of longer maturities during recessionary periods were contrary to desirable stabilization policies.” Volcker (1972) noted that “no time seems to be a good time for offering long-term Treasury securities—either rates are too high or there is a desire to maximize the flow of funds to other borrowers.” See also U.S. Treasury Department (1960, p. 3).

^bAdvance refundings are described in footnote 12.

CHART 6
Maturities of Offerings of Coupon-Bearing Securities, January 1965-December 1969



Source: Federal Reserve Bank of New York circulars (1965-69).

refundings between August 1965 and August 1967, officials typically offered only two securities: a short-term anchor issue and a note with a maturity at or near the five-year maximum. Following Congressional action in June 1967 to extend the maximum maturity of a note to seven years, officials began offering an anchor issue and a note maturing in six or seven years.

The Treasury also sold coupon-bearing securities in stand-alone cash subscription offerings on nine occasions during the 1960s.¹⁷ Table 2 summarizes the justifications for the maturities of the nine issues. As in the midquarter refundings, Treasury officials were sometimes concerned with maintaining or extending the average maturity of the debt and were sometimes explicitly responsive to the character of contemporaneous demand.

¹⁷Additionally, in two auctions in 1963, the Treasury offered a total of \$550 million of long-term bonds to competing syndicates of securities dealers.

TABLE 2

Stand-Alone Cash Subscription Offerings, January 1960-December 1969

Offering	Years to Maturity	Amount Offered (Billions of Dollars)	Comment
Apr. 1960	2.1	2.00	
Apr. 1960	25.1	1.50	The Treasury was “testing” public demand for long-term bonds.
Oct. 1961	1.6	2.00	
Jan. 1962	7.7	1.00	The maturity of the offering came as a surprise to the market. Dealers had expected an offering with a maturity of two to three years but the Treasury, feeling no immediate need to put upward pressure on short-term rates, took advantage of an opportunity to lengthen the average maturity of the debt.
Apr. 1962	6.3	1.00	The offering came earlier than expected (it had been expected for late May or early June) because individual income tax refunds ran ahead of expectations. The Treasury again felt no immediate need to put upward pressure on short-term rates and again took advantage of the opportunity to lengthen average maturity.
Jun. 1963	7.2	1.25	The Treasury felt the market was “clearly ready” to accept an intermediate-term issue.
Mar. 1964	1.3	1.00	The Treasury chose a short-term issue to do the financing “in an inconspicuous way” because the market was “trying to find itself.”
Jan. 1966	0.8	1.50	The maturity was kept short to make the offering more appealing to banks.
Aug. 1967	3.5	2.50	Dealers had expected a longer (five-to-seven-year) issue. They conjectured that the Treasury was reluctant to issue longer because that would have required a higher coupon rate and provoked more disintermediation from thrift institutions.

Sources: Federal Reserve Bank of New York circulars (1960-67); *New York Times* (1960-67); *Wall Street Journal* (1960-67).

4. DEBT MANAGEMENT BETWEEN 1970 AND 1974

The first half of the 1970s was a time of transition for Treasury debt management. The changes that occurred reflected concern with the continuing decline in the average maturity of Treasury debt and the need to provide some measure of predictability in note offerings outside of midquarter refundings.

4.1 The Renewal of Bond Issuance and a Growing Regularity in Midquarter Refundings

In 1971, Treasury officials became concerned with the continuing decline in the average maturity of Treasury debt (Box 2 chart) and petitioned Congress to eliminate the 4¼ percent ceiling on bond rates. Congress declined to remove the ceiling but did authorize the Treasury to issue up to \$10 billion of bonds at interest rates in excess of 4¼ percent.¹⁸

¹⁸Committee on Ways and Means (1971, pp. 3, 5-7) and U.S. Treasury Department (1971, p. 10). Congress increased the amount of bonds that could be issued at interest rates in excess of 4¼ percent from time to time after 1971 and eliminated the rate ceiling altogether in November 1988.

In the August 1971 midquarter refunding, Treasury officials used their new bond issuance authority to give holders of maturing securities an opportunity to exchange the securities for ten-year bonds. The Treasury offered a bond in virtually every subsequent refunding (Chart 7).¹⁹ It first offered a long-term bond in a refunding in May 1973, and it continued to offer a long-term bond in every subsequent refunding. By mid-1974, the Treasury was offering a short-term anchor note, an intermediate-term note of six or seven years, and a long-term bond on a fairly regular basis in its midquarter refundings.

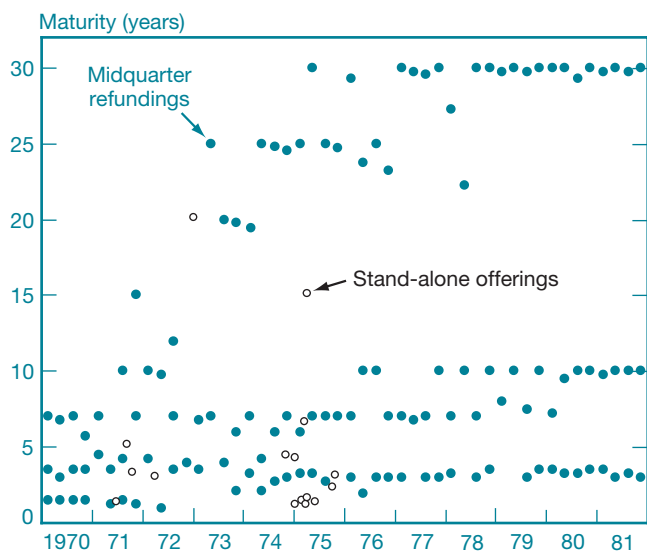
4.2 The Introduction of Two-Year Cycle Notes

Between 1970 and the first half of 1972, midquarter refundings experienced unusually high attrition. In contrast to the 10 percent attrition that was considered normal in the 1960s,²⁰ the average rate of attrition in nine exchange offerings between

¹⁹The only exceptions were November 1972, when only a small amount of securities had to be refinanced, and February 1973. The February 1973 refunding followed the first sale of a long-term Treasury bond—a stand-alone offering of twenty-year bonds in January 1973—in eight years. Officials promised that they would let the twenty-year bonds “get fully digested” before they offered more bonds for sale (“U.S. to Offer 20-Year Bonds By New Method,” *Wall Street Journal*, December 29, 1972, p. 2).

CHART 7

Maturities of Offerings of Coupon-Bearing Securities, January 1970-December 1981



Source: Federal Reserve Bank of New York circulars (1970-81).

Note: Cycle notes are not shown.

February 1970 and February 1972 was 24.3 percent. The high attrition forced the Treasury to rebuild its cash balances by issuing additional securities, including a total of \$7.25 billion of new notes in four stand-alone cash offerings between June 1971 and April 1972.

The spate of stand-alone offerings—there had been only eleven in the 1960s—led Treasury officials to begin to think about “regularizing” their note offerings. In March 1972, Under Secretary of the Treasury Paul Volcker revealed that Treasury officials were considering whether “to routinize or regularize the handling of more of our debt, as we have done for many years in the bill area.”²¹ In particular, officials were considering whether, “in contrast to building up the present concentration of note and bond maturities at quarterly intervals [that is, on the fifteenth of the second month of each quarter], to be handled flexibly at the Treasury’s discretion at maturity,” it might not be better to adopt a scheme of “more frequent but also more routine rolling over of relatively short-

²⁰The average rate of attrition for all exchange offerings in midquarter refundings between February 1960 and November 1969 was 13.4 percent. The average falls to 9.8 percent if the refundings in the third quarter of 1964 and the first quarter of 1965 are excluded. Those two refundings were accelerated several weeks, to mid-July and mid-January, respectively, and were not representative of other refundings. They had respective attrition rates of 67.0 percent and 54.5 percent.

²¹Volcker (1972). See also “Proposals on Reform of Debt Management Offered by Volcker,” *New York Times*, March 8, 1972, p. 57, and “Treasury Seeking to Put More Borrowing on Regular Basis, as With Bill Auctions,” *Wall Street Journal*, March 8, 1972, p. 2.

term notes.” Such a scheme might “reduce market uncertainties . . . caused by large intermittent financing operations.”

Treasury officials took the first step toward putting short-term note sales on a regular schedule when they announced in early October 1972 that they would begin shortly to auction two-year notes at regular quarterly intervals. The first tranche—\$2 billion of notes maturing on September 30, 1974—was auctioned on October 11. One market participant praised the new program as “safe, simple, and not at all damaging to the market.”²²

Although Treasury officials initially intended to sell subsequent issues of two-year notes at the end of every quarter, the new program got off to a somewhat irregular start. A second offering came at the end of December but, because the Treasury’s cash balances grew unexpectedly in the next six months, officials canceled the offerings that had been expected in March and June 1973.²³ The Treasury returned to issuing quarterly two-year notes in September 1973.

The Treasury’s two-year note program broke new ground in two ways. Most important, it was the first program of regular and predictable sales of coupon-bearing securities with a specified term to maturity. Additionally, it broke the pattern of

Treasury officials took the first step toward putting short-term note sales on a regular schedule when they announced in early October 1972 that they would begin shortly to auction two-year notes at regular quarterly intervals.

coupon-bearing securities always maturing on the fifteenth of the second month of a quarter. Debt management officials clearly intended that two-year notes should be on their own self-sustaining cycle, separate and apart from the midquarter refundings that had previously dominated Treasury finance.²⁴

The introduction of two-year cycle notes put short-term note sales on a regular schedule but it did not signal that longer term notes and bonds would soon be sold on a regular and predictable basis. Volcker commented in his March 1972 speech that “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

²²“Treasury Treads Lightly At Outset of Big Funding,” *New York Times*, October 6, 1972, p. 59.

²³U.S. Treasury Department (1973, pp. 12, 22) and “Treasury Postpones \$2 Billion Note Offering,” *Wall Street Journal*, April 2, 1973, p. 17.

times in which particular market or economic objectives may influence the Treasury's thinking as to the form of a particular financing."²⁵ His comments suggest that Treasury officials were not prepared to abandon tactical discretion in 1972. The cancellation of the two-year note auctions in March and June 1973 support that conjecture.

5. EMBRACING REGULAR AND PREDICTABLE AS A DEBT MANAGEMENT STRATEGY

The pattern of growth in marketable Treasury debt changed dramatically in fiscal year 1975. Outstanding notes and bonds increased by \$25 billion between June 30, 1974, and June 30, 1975, an increase substantially in excess of the increases in prior years. The rapid expansion of the deficit led Treasury officials to regularize note sales beyond the two-year sector.

5.1 The Increasing Pace of Treasury Financings

Forecasts of the federal budget deficit deteriorated rapidly during the winter of 1974-75. In November 1974, officials estimated that the deficit for the fiscal year ending June 30, 1975, would be about \$9 billion and that the deficit for fiscal year 1976 would be \$10 billion-\$20 billion.²⁶ By mid-March 1975, the deficit projections had grown to \$45 billion and \$80 billion, respectively.²⁷

The five-fold growth in the two-year deficit, from \$25 billion to \$125 billion, meant that the Treasury would

²⁴The introduction of two-year cycle notes had two knock-on effects. First, it led officials to replace monthly sales of one-year bills (issued at the end of a month and maturing at the end of the same month one year later) with quad-weekly sales of fifty-two-week bills. This released end-of-month maturity dates for the new two-year notes. Additionally, beginning in August 1972, the Treasury extended the maturities of anchor issues in midquarter refundings from less than two years to about three years. By the end of 1972, the Treasury was offering fifty-two-week bills once every four weeks, two-year notes at the end of every quarter, and notes with about three years to maturity in the middle of each quarter.

²⁵Volcker (1972). Similarly, Edward Roob, Special Assistant to the Treasury Secretary for Monetary Affairs, remarked in 1973 that despite the benefits of regular and predictable note offerings, "we cannot tie down our debt-management strategy too much" (Roob 1973, p. 184).

²⁶"Fiscal '76 Budget Deficit is Now Likely, In a Range of \$10 Billion to \$20 Billion," *New York Times*, November 11, 1974, p. 3, and "Estimate of Fiscal '75 U.S. Deficit Raised By Ford Aides as Recession Cuts Revenues," *Wall Street Journal*, November 21, 1974, p. 2.

²⁷"\$37-Billion Rise in Deficit Is Seen," *New York Times*, March 18, 1975, p. 15, and Committee on the Budget (1975, pp. 996, 1030, 1033, testimony of Secretary of the Treasury William Simon).

TABLE 3
Stand-Alone Cash Offerings, January 1974-December 1975

Auction Date	Issue Date	Maturity Date	Years to Maturity	Amount Offered (Billions of Dollars)
Oct. 23, 1974	Nov. 6, 1974	May 15, 1979	4.5	1.00
Dec. 30, 1974	Jan. 7, 1975	May 15, 1979	4.4	1.25
Jan. 2, 1975	Jan. 9, 1975	Mar. 31, 1976 ^a	1.2	0.75
Feb. 19, 1975	Mar. 3, 1975	Aug. 31, 1976 ^b	1.5	1.65
Mar. 11, 1975	Mar. 19, 1975	Nov. 15, 1981	6.7	1.75
Mar. 13, 1975	Mar. 25, 1975	May 31, 1976 ^b	1.2	1.60
Mar. 20, 1975	Apr. 7, 1975	May 15, 1990	15.1	1.25
Apr. 1, 1975	Apr. 8, 1975	Nov. 30, 1976 ^b	1.6	1.50
May 22, 1975	Jun. 6, 1975	Oct. 31, 1976 ^b	1.4	1.60
Sep. 24, 1975	Oct. 7, 1975	Feb. 28, 1978	2.4	2.10
Oct. 7, 1975	Oct. 22, 1975	Dec. 31, 1978	3.2	2.50

Source: Federal Reserve Bank of New York circulars (1974-75).

^aOffering reflects the reopening of an outstanding two-year note.

^bDate represents an end-of-month maturity date not already filled by an outstanding two-year note.

have to sell an unprecedented (for a peacetime economy) volume of new securities. As early as December 1974, economists at one large dealer firm were predicting that stand-alone cash offerings would "most likely be [made] in nearly each month of [the next] half year."²⁸ The Treasury made a total of nine such offerings in fiscal year 1975 (Table 3), easily breaking the previous record of four stand-alone offerings in fiscal year 1972.

Treasury officials struggled to cope with the growing financing requirements. In January 1975, they announced an offering of two-year notes outside of the quarterly cycle established in 1972-73. Under Secretary of the Treasury Jack Bennett stated that "in the coming months, we will be studying the possibility of establishing regular month-end, rather than quarter-end, two-year notes."²⁹ Officials confirmed the new monthly frequency in early April.³⁰

The Treasury also began to give market participants more notice of when it would offer securities. In late February 1975, Under Secretary Bennett announced that it would auction four new issues in a three-week interval between mid-March and early April. The *New York Times* commented that the "unusual

²⁸"Treasury Plans Big Borrowings," *New York Times*, December 30, 1974, p. 39 (forecast of Henry Kaufman and Albert Gross of Salomon Brothers).

²⁹Committee on Ways and Means (1975, p. 16, transcript of news conference on Treasury financing plans by Under Secretary Jack Bennett on January 22, 1975).

³⁰"Official of Treasury Discloses Need for \$41-Billion," *New York Times*, April 1, 1975, p. 62.

advance disclosure ... was aimed at giving the ... market some idea of how the Treasury will be coping with the large present and impending budget deficit.” Bennett said he wanted to give investors an opportunity to “get ready and find a place” for the coming issues.³¹

In spite of their efforts, Treasury officials soon reached the limit of what could be accommodated within the existing debt management framework. On March 20, 1975, the Treasury auctioned \$1.25 billion of fifteen-year bonds at the same time that an underwriting syndicate led by Morgan Stanley & Co. brought to market the largest industrial debt offering in history: \$300 million of ten-year notes and \$300 million of thirty-year debentures from AAA-rated General Motors Corporation. The simultaneous offerings left the bond market in “chaos.” One dealer described the market as a “disaster,” another said it was a “shambles,” and the *New York Times* reported that “the head-on competition between the most credit-worthy borrowers from the public and private sectors left the ... market in disarray.”³² The chairman of the Joint Economic Committee, Senator Hubert Humphrey of Minnesota, characterized Treasury debt management as “being conducted in an inexplicable and seemingly highly inappropriate fashion.”³³

5.2 A Change in Strategy

The deficit had to be financed, but Treasury officials and other market participants appreciated that head-on competition and closely spaced tactical offerings could be reduced by replacing stand-alone sales with regular and predictable offerings.³⁴

In June 1975, Treasury officials announced \$1.75 billion of four-year notes that “might be the first of a ‘cycle’ of four-year notes maturing at the end of a quarter.”³⁵ “Might” turned to “would” when officials announced a second tranche of four-year notes in August.³⁶

³¹“\$7-Billion in Borrowing Is Planned by Treasury,” *New York Times*, February 25, 1975, p. 45, and “Treasury to Raise Total of \$7 Billion Via Spring Issues,” *Wall Street Journal*, February 25, 1975, p. 3.

³²“Treasury Bond Auction Creates Chaos; Supply of Money Shows a Record Rise,” *New York Times*, March 21, 1975, p. 53, and “Financier for the U.S. Debt,” *New York Times*, April 20, 1975, p. F7.

³³“Financier for the U.S. Debt,” *New York Times*, April 20, 1975, p. F7. See also Joint Economic Committee (1975).

³⁴As early as February 1975, two Treasury advisory committees had recommended expanding the use of cycle notes to maturities beyond two years (Committee on Ways and Means 1975, pp. 25, 31, transcript of news conference by Under Secretary Jack Bennett, February 24, 1975).

³⁵“2 New Notes, More Bills Set but No Long-Term Issue,” *New York Times*, June 19, 1975, p. 63.

Five months later, in January 1976, shortly after what initially looked like a stand-alone auction of five-year notes, Under Secretary of the Treasury Edwin Yeo announced that officials were “seriously considering” adopting a new series of five-year notes.³⁷ In early April, the Treasury issued a second tranche of five-year notes without additional comment, but when it announced a third tranche for settlement in early July an official stated that investors could henceforth expect the Treasury to issue five-year notes at the beginning of each quarter.³⁸ Thus, by mid-1976, the Treasury was issuing two-year notes monthly and four- and five-year notes quarterly.

Observers pointed out that the Treasury did not have any immediate need for the proceeds of the third five-year note offering in July 1976, but that it had nevertheless proceeded with the offering to maintain a regular and predictable auction

Regularization of coupon offerings proved enormously popular.

schedule.³⁹ That decision—the reverse of the tactical decisions to cancel the two-year note auctions in March and June 1973 because of ample cash balances—was an important step in the adoption of a strategic approach to Treasury debt management. The Treasury never again canceled an auction merely because it had no immediate need for additional funds.

Instead, it sold securities on a regular and predictable basis and managed any undesirably large cash balances through its Treasury Tax and Loan program,⁴⁰ by reducing the amounts offered or, as we discuss in Section 7, by terminating a series.

Box 3 describes the subsequent extension of regular and predictable issuance in the late 1970s and early 1980s. By the beginning of 1982, the Treasury had added a seven-year note series and a twenty-year bond series and it had standardized the midquarter refundings with regular offerings of three- and ten-year notes and thirty-year bonds.

³⁶The *Wall Street Journal* referred to the second tranche of four-year notes as “the second four-year cycle note.” “Treasury Boosts Earlier Estimate of Its Cash Needs,” *Wall Street Journal*, August 7, 1975, p. 3.

³⁷“Treasury Plans Heavy Borrowing,” *New York Times*, January 28, 1976, p. 58, and “Treasury to Sell \$13.8 Billion Bills, Notes and Bonds,” *Wall Street Journal*, January 28, 1976, p. 25.

³⁸“Treasury to Sell Notes To Raise \$2.5 Billion New Cash Next Week,” *Wall Street Journal*, March 17, 1976, p. 27, and “Treasury Refines Its Management of Federal Debt,” *New York Times*, June 28, 1976, p. 50.

³⁹“Treasury to Raise \$2.5 Billion by Selling 61-month Notes Despite Bulging Coffers,” *Wall Street Journal*, June 28, 1976, p. 15.

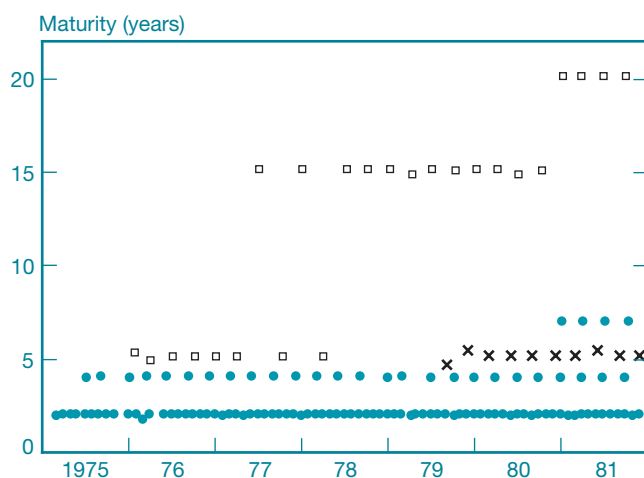
⁴⁰Brockschmidt (1975), McDonough (1976), and Lovett (1978) describe the Treasury Tax and Loan program in the 1970s. Garbade, Partlan, and Santoro (2004) describe the present program.

Debt Management between 1977 and 1982

Marketable Treasury debt continued to grow rapidly in the late 1970s and early 1980s (Chart 5). That growth led Treasury officials to expand further their new program of regular and predictable issuance.

In April 1977, Under Secretary of the Treasury Anthony Solomon announced that in the interest of extending the average maturity of the debt, officials were considering substituting a fifteen-year bond for the five-year note that they would normally auction for settlement in early July.^a They made the change and thereafter alternated fifteen-year bonds and five-year notes for

Maturities of Cycle Notes and Regularized Notes and Bonds, January 1975-December 1981



Source: Federal Reserve Bank of New York circulars (1975-81).

Note: Monthly two-year and quarterly four- and seven-year cycle notes are depicted as circles; regularized beginning-of-quarter offerings (initially five-year notes, then alternating five-year notes and fifteen-year bonds, then fifteen-year bonds, then twenty-year bonds) are depicted as squares; regularized beginning-of-third-month-of-quarter offerings of five-year notes are depicted as crosses.

another four quarters (see chart below). In September 1978, the Treasury eliminated five-year notes and began offering fifteen-year bonds exclusively for settlement at the beginning of every quarter.

The replacement of five-year notes with fifteen-year bonds left the five-year sector open. When the Treasury needed to raise new funds in August 1979 it announced a stand-alone five-year issue. Under Secretary Solomon stated explicitly that officials did not anticipate issuing five-year notes on a regular basis.^b However, the press of financing requirements led the Treasury to continue to auction five-year notes for settlement in the beginning of the third month of every quarter.

In March 1976, Congress extended the maximum maturity of a note to ten years. Thereafter, the Treasury twice offered ten-year notes in lieu of seven-year notes in its midquarter refundings (Chart 7). In November 1977, it began to alternate the two maturities and in August 1980 it made ten-year notes a regular part of the midquarter offerings.

The replacement of seven-year notes with ten-year notes in midquarter refundings left the seven-year sector open. When the Treasury needed to raise still more funds at the beginning of 1981, it introduced a seven-year cycle note. At the same time, it replaced the fifteen-year bond with a twenty-year bond, reportedly because fifteen-year bonds had not been popular with investors.^c

^a“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.

^b“Treasury Schedules a \$7.25 Billion 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.

^c“Yields of Treasury Bills Tumble,” *New York Times*, December 23, 1980, p. D5. See also Committee on Banking, Finance, and Urban Affairs (1982, p. 78, reporting the opinion of a Treasury advisory committee that “the fifteen-year bond has not had an auspicious history in the market”).

Regularization of coupon offerings proved enormously popular. The *Wall Street Journal* described it as a “widely applauded campaign to finance the nation’s debt in a more orderly manner” and an observer noted that “regularity makes a lot of sense from a debt management view. Making ... new issues available on a regular basis gives market participants a better feel for the securities when they are sold.”⁴¹ A dealer

⁴¹“Treasury to Raise \$2.5 Billion by Selling 61-month Notes Despite Bulging Coffers,” *Wall Street Journal*, June 28, 1976, p. 15.

stated that cycle notes “have enabled the Treasury to raise enormous amounts of money, have minimized any impact on the securities markets, have reduced uncertainty, have extended the average maturity of the national debt, and produced a better defined yield curve.”⁴²

⁴²“New Interest in Treasury Yields,” *New York Times*, October 30, 1977, p. 120. See also “Decoding the Treasury’s Auction Agenda,” *New York Times*, May 20, 1979, p. F2.

6. THE COST OF TACTICAL ISSUANCE

Treasury officials began to switch from tactical issuance to regular and predictable issuance when the fiscal environment changed. Officials had found tactical issuance useful in the 1960s—it allowed them to advance any of a variety of policy objectives, depending on the circumstances of the moment—and there is no reason to believe that this aspect of tactical issuance became less important.⁴³ This suggests that the change to regular and predictable issuance occurred because of an increase in some cost associated with tactical offerings. We now present empirical evidence consistent with that proposition.

Our data are the constant maturity Treasury (CMT) yields reported in Federal Reserve Statistical Release H.15. Daily yields on three-, five-, and ten-year coupon-bearing Treasury securities are available from January 1, 1962. We divided the data into four periods. The first period—January 1, 1962, to December 31, 1970—ends before the Treasury reentered the bond market in 1971 and before it had to rebuild its cash balances with four stand-alone cash offerings between June 1971 and April 1972. The second period—January 1, 1971, to May 31, 1975—includes the stand-alone offerings of 1971-72, the rapid increase in the deficit during the first half of 1975, and the nine stand-alone cash offerings in fiscal year 1975. The third period—June 1, 1975, to December 31, 1981—begins with the introduction of four-year cycle notes in June 1975 and includes the subsequent extensions of regular and predictable issuance to five- and seven-year notes and twenty-year bonds. We are not sure when market participants finally concluded that the Treasury had wholeheartedly adopted a strategy of regular and predictable issuance,⁴⁴ but it seems reasonable to believe that they reached that understanding no later than 1982.⁴⁵ Thus, the third period concludes at the end of 1981. The last period—January 1, 1982, to December 31, 1986—includes offerings made following the unambiguous adoption of a regular and predictable strategy.

⁴³See, for example, Volcker's 1972 comment on the value of discretion quoted in the text at footnote 25.

⁴⁴Prior to 1982, Treasury officials sometimes denied, and sometimes failed to confirm, that an offering was the first in a new series rather than a stand-alone offering. See, for example, the discussion in the preceding section and in Box 3 of the initial introduction of a five-year note series in 1976 and the reintroduction of a five-year series in 1979. In addition, some series were changed too quickly to justify characterizing them as regular and predictable offerings. See the discussion in Box 3 of the partial (and subsequently complete) substitution of fifteen-year bonds for five-year notes in 1977 and 1978, the partial (and subsequently complete) substitution of ten-year notes for seven-year notes in midquarter refundings between 1976 and 1980, and the introduction of seven-year cycle notes and replacement of fifteen-year bonds with twenty-year bonds in 1981.

⁴⁵See Chart 2 and the remarks of Deputy Assistant Secretary Stalneckner quoted in the text at footnote 2.

The Treasury announced offerings of coupon-bearing securities on thirty-eight different days between January 1, 1971, and May 31, 1975 (Table 4, panel B). The root-mean-square (RMS) change in the five-year CMT yield over the interval from the close of business one business day before an announcement to the close of business one business day after an announcement was 10.8 basis points.⁴⁶ Over the same

TABLE 4
Root-Mean-Square (RMS) Changes in Constant Maturity Treasury Yields over Two-Day Intervals that Include Treasury Offering Announcements and over Other Two-Day Intervals

Interval	Sector			Number of Observations
	Three-Year	Five-Year	Ten-Year	
Panel A: January 1, 1962-December 31, 1970				
Announcement intervals	5.7	5.7	4.2	43
Other intervals	6.3	5.4	4.8	416
Panel B: January 1, 1971-May 31, 1975				
Announcement intervals	11.6*	10.8**	6.7	38
Other intervals	9.3	7.9	5.6	192
Panel C: June 1, 1975-December 31, 1981				
Announcement intervals	21.0**	18.9**	16.4**	152
Other intervals	14.7	14.2	12.0	209
Panel D: January 1, 1982-December 31, 1986				
Announcement intervals	12.0	11.1	11.2	120
Other intervals	12.1	11.9	11.7	143
Panel C1: June 1, 1975-October 7, 1979				
Announcement intervals	8.4	7.0	5.9	97
Other intervals	7.4	7.0	5.2	142
Panel C2: October 8, 1979-December 31, 1981				
Announcement intervals	33.2**	30.0*	26.1*	55
Other intervals	23.7	22.9	19.8	67

Source: Author's calculations.

Note: RMS changes are expressed in basis points.

**Statistically significantly greater than the RMS yield change over two-day intervals that did not include a Treasury offering announcement at a 1 percent confidence level.

*Statistically significantly greater than the RMS yield change over two-day intervals that did not include a Treasury offering announcement at a 5 percent confidence level.

period, there were 192 disjoint intervals of two consecutive business days, each of which was disjoint from the two-day intervals associated with the thirty-eight offering announcements. The RMS change in the five-year yield over the 192 nonannouncement intervals was 7.9 basis points. The “excess”

[Our results suggest] that investors were, on average, surprised by—or, equivalently, did not fully anticipate—Treasury offering announcements between January 1971 and May 1975.

yield volatility for the thirty-eight announcement intervals was therefore 2.9 basis points ($2.9 = 10.8 - 7.9$). We can reject the null hypothesis that the volatility of five-year CMT yields was the same for the thirty-eight announcement intervals and the 192 nonannouncement intervals at a confidence level in excess of 1 percent.⁴⁷ Similar comments apply to yield changes in the three-year sector.

This result implies that, on average, more new information became available to market participants on days when the Treasury announced a new offering than on other days, and is consistent with the proposition that offering announcements contained new information relevant to the valuation of Treasury securities. More generally, the result is consistent with the proposition that investors were, on average, surprised by—or, equivalently, did not fully anticipate—Treasury offering announcements between January 1971 and May 1975. It is not unreasonable to conjecture that the inability of investors to anticipate and plan for new issues led to higher financing costs for the Treasury.

In contrast, panel D of Table 4 shows that offering announcements after 1981 were not associated with unusual yield changes. This result implies that, following the unambiguous adoption of a regular and predictable issuance strategy, no more new information became available to market participants on days when the Treasury announced a new offering than on other days, and is consistent with the proposition that announcements of regular and predictable

⁴⁶The Treasury sometimes made offering announcements before the close of trading and sometimes after the close. We used a two-day interval to ensure that each yield change occurred over an interval that included an offering announcement.

⁴⁷On the null hypothesis that yield changes over two-day intervals are normally distributed with a mean of zero and a common variance, the statistic $(10.8/7.9)^2$ is distributed as F with 38 and 192 degrees of freedom. There is no evidence of any statistically significant mean change, or drift, in interest rates during announcement intervals in any of the four periods.

offerings did not contain new information. More generally, the result is consistent with the proposition that regular and predictable issuance reduced the element of surprise in Treasury offering announcements and therefore facilitated investor planning.

Two other features of Table 4 are of interest. First, panel A shows that offering announcements before 1971 were, on average, not associated with unusual yield changes. It is outside the scope of this article to identify the reason for this result,⁴⁸ but the result is consistent with the evident absence of any incentive for Treasury debt managers to shift to regular and predictable issuance in the 1960s.

The second interesting feature of Table 4 is that panel C suggests that offering announcements between June 1975 and December 1981 were associated with unusual yield changes. This result is surprising because the transition to regular and

[Our results suggest that after 1981,] regular and predictable issuance reduced the element of surprise in Treasury offering announcements and therefore facilitated investor planning.

predictable issuance was well under way by the time the initial five-year series was formalized in July 1976. Nevertheless, panel C shows that excess yield volatility during announcement intervals was greater in the second half of the 1970s than in any of the other three periods.

One possible explanation for this result is that the reaction of market participants to Treasury offering announcements changed following the well-known change in monetary policy in October 1979 that placed greater emphasis on control of monetary aggregates.⁴⁹ Panels C1 and C2 of Table 4 divide the period from June 1975 to December 1981 into two subperiods. Panel C1 shows that after June 1975 but before the change in monetary policy, offering announcements were not associated with unusual yield changes. This is consistent with the proposition that the benefits of adopting a regular and predictable strategy accrued rather quickly. Panel C2, however, suggests that these benefits were negated when the Federal Reserve altered its approach to monetary policy. The relationship between debt management policy and monetary policy is

⁴⁸One possibility is that, during the 1960s, Treasury officials did a better job communicating their financing plans prior to making formal offering announcements. Assessing this hypothesis would require careful study of informal contacts between Treasury officials and market participants.

⁴⁹See Melton (1985, ch. 4).

left for future research. For the present, it suffices to observe that the benefits of regular and predictable issuance reemerged when the Federal Reserve began to reemphasize control of interest rates.

7. DEBT MANAGEMENT POLICYMAKING WITHIN THE FRAMEWORK OF REGULAR AND PREDICTABLE ISSUANCE

The regularity of coupon-bearing debt offerings between 1982 and 1986 (Chart 2) demonstrates that the Treasury had adopted a strategy of regular and predictable issuance by the beginning of 1982. The new strategy limited, but did not eliminate, the ability of Treasury debt managers to alter the timing and maturity of new issues.

Chart 8 shows offerings of coupon-bearing securities between 1987 and 2002. Several important debt management actions are evident, including:

- Termination of the four-year note series and initiation of monthly (in lieu of quarterly) five-year notes in January 1991. The Treasury made the change to shift some of its financing activity from bills to intermediate-term notes.⁵⁰
- Termination of the seven-year note series and reduction to semi-annual (in lieu of quarterly) issuance of thirty-year bonds in May 1993. The Treasury made the change to shift some of its financing activity from intermediate-term notes and long-term bonds to bills and shorter term notes in an effort to reduce interest expenses.⁵¹
- Termination of the three-year note series and reduction to quarterly (in lieu of monthly) issuance of five-year notes as part of the regular midquarter refundings in August 1998. Officials made the change in light of large and persistent federal budget surpluses and a material reduction in financing requirements.⁵²

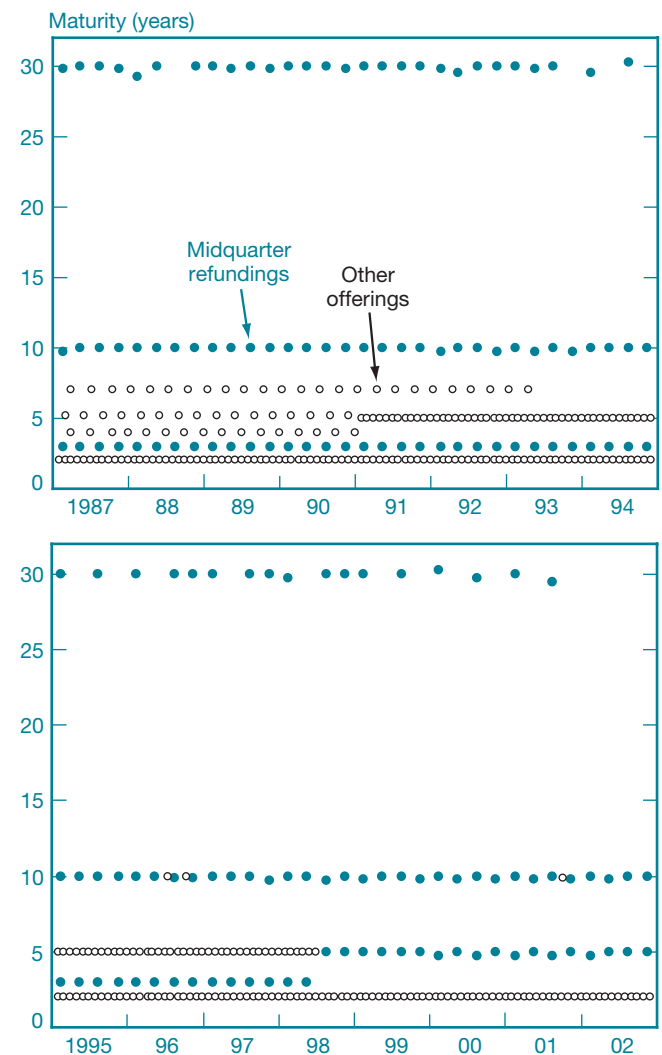
⁵⁰“Treasury Announces Change in Regular Quarterly Auction Cycles Beginning in January 1991,” *Treasury News*, December 11, 1990. The Treasury also wanted to reduce the build-up of issues maturing on midquarter refunding dates. Five-year notes had previously been issued in the beginning of the third month of a quarter and matured in the middle of the following quarter five years and two and a half months later. The new five-year notes were issued at the end of a month and matured at the end of the same month five years later.

⁵¹“Treasury Slashes Sales of Long-Term Bonds,” *Wall Street Journal*, May 6, 1993, p. C1, and “Treasury Maturities Shortened,” *New York Times*, May 6, 1993, p. D1.

⁵²“It’s Two Steps Back for Short-Term Treasury’s,” *Wall Street Journal*, May 7, 1998, p. C1.

These actions show that adherence to a regular and predictable issuance schedule did not foreclose the exercise of managerial discretion with respect to the maturity structure of new issues. Treasury debt managers have continued to alter the timing and maturities of new offerings in light of evolving fiscal conditions and their assessments of the costs and benefits of shorter term versus longer term financing, but they now choose the times and maturities of *series* of debt issues rather than of individual issues.

CHART 8
Maturities of Offerings of Coupon-Bearing Securities, January 1987-December 2002



Source: U.S. Department of the Treasury, Bureau of the Public Debt.

8. CONCLUSION

During the 1970s, Treasury officials changed the framework within which they made debt management decisions, transitioning from tactical issuance of notes and bonds to a regular and predictable schedule. The emergence of regular and predictable sales of Treasury notes and bonds reduced the element of surprise in Treasury offerings and allowed investors to plan future commitments of funds with greater confidence. Treasury officials have asserted repeatedly that regular and predictable issuance allows them to finance deficits and refinance maturing debt at the lowest possible interest rates consistent with contemporaneous market conditions.

Regular and predictable issuance was not a novel concept in the 1970s; the Treasury had been issuing bills on a regular schedule for decades. Nevertheless, debt managers had kept

note and bond offerings on a tactical basis—in part because financing at least cost was not the only objective of Treasury debt management. Debt managers sometimes chose to issue short-term debt to maintain upward pressure on short-term interest rates and limit upward pressure on long-term rates; they sometimes chose to issue longer term debt to limit further contraction in the average maturity of Treasury debt.

Regular and predictable issuance became more attractive after Treasury officials had to bring four stand-alone cash offerings in fiscal year 1972 as a result of unusually high attrition in midquarter exchange offerings. They introduced two-year cycle notes to put short-term note financings on a more routine basis. The much larger and more significant need to finance a rapid expansion of the deficit beginning in 1975 led them to phase in additional cycle notes in 1975 and 1976 and, ultimately, to abandon tactical issuance altogether.

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