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The Institutionalization of Treasury Note and Bond Auctions, 1970-75

- Despite the appeal of auctions as an effective way to offer securities, the U.S. Treasury failed in its first two attempts, in 1935 and 1963, to introduce a program of regular auction sales of long-term bonds.

- That pattern changed between 1970 and 1975, when the Treasury replaced its fixed-price offerings of notes and bonds with regular auctions—a practice that continues today.

- An analysis of the Treasury market suggests that the turnaround in the early 1970s owes to three key decisions: the Treasury closely imitated its successful and well-known bill auction process; it announced auctions for securities of gradually increasing maturity, rather than immediately auctioning long-term bonds; and it was willing to alter the auction process when improvements were called for.

1. Introduction

Since 1976, the U.S. Treasury has financed the federal deficit, and refinanced maturing debt, primarily with auction sales of bills, notes, and bonds. However, prior to 1970 the Treasury did not auction coupon-bearing securities. (It did auction bills, more or less as it does today.) Instead, it raised new cash, and refinanced maturing debt, with fixed-price subscription and exchange offerings of notes and bonds.

The substitution of market-driven auctions for fixed-price offerings between 1970 and 1975 was a milestone in the evolution of the Treasury market. However, the outcome of the effort was initially quite uncertain. The Treasury had tried twice before—in 1935 and 1963—to auction long-term bonds, but both attempts had failed. Although many observers believed that auctions would be a more efficient way to identify market-clearing prices, it was far from evident—especially in light of past experience—how to introduce successfully a program of regular auction sales.

This article examines the introduction of regular auction offerings of Treasury notes and bonds in the early 1970s. We do not take issue with the conventional wisdom that auctions are more efficient and less costly than fixed-price offerings. Rather, we seek to identify why the Treasury twice tried and failed to adopt the more efficient method but succeeded on its third attempt. We suggest that the success of the effort rested on

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three pillars. First, the Treasury closely imitated its successful and well-known bill auction process. This strategy gave dealers a familiar starting point for developing the risk management and sales programs needed to support auction bidding for coupon-bearing securities. Second, the Treasury announced auctions for securities of gradually increasing maturity, rather than jumping immediately to auctioning long-term bonds, as it did in 1935 and 1963. This action allowed dealers an opportunity to build up their risk management and sales programs in an orderly fashion. Third, the Treasury demonstrated a willingness to alter the auction process when shortcomings appeared—rather than simply jettisoning the entire effort, as it did in 1935 and 1963. By combining familiarity, gradualism, and a willingness to improvise, the Treasury successfully moved the primary market for coupon-bearing securities to a more efficient configuration.

The history of the Treasury's attempts to institutionalize auction offerings of notes and bonds is important in its own right, but also for its larger implications. It suggests that the mere prospect of greater efficiency may not necessarily effect change that requires a large number of actors to alter familiar patterns of behavior; change sometimes also depends on following a path that facilitates learning and implementation of new patterns. The Treasury accomplished its objectives in the early 1970s because it gave dealers an opportunity to learn gradually about how to participate in note and bond auctions and because it was itself willing to learn from experience.

The article proceeds as follows. The next two sections set the stage by describing how the Treasury sold securities before 1970: Section 2 looks at fixed-price offerings of notes and bonds and Section 3 explains how bills were auctioned. Section 4 summarizes the debate over whether to auction coupon-bearing securities—a debate that flared up in the late 1950s with Milton Friedman's well-known criticism of fixed-price offerings. Section 5 describes the unsuccessful 1963 attempt to auction long-term bonds to competing syndicates of securities dealers. Section 6 relates the introduction of auction sales of notes and bonds in the early 1970s, and Section 7 shows how the Treasury fine-tuned the auction process in the mid-1970s.

2. Fixed-Price Offerings before 1970

Prior to 1970, the Treasury sold notes and bonds for cash in subscription offerings, and typically refinanced maturing notes and bonds by offering to exchange them for new notes and bonds.[1] This section describes the two types of offerings and identifies their shortcomings.

2.1 Subscription Offerings

In a subscription offering, the Treasury set the maturity date and coupon rate of a new issue, announced how much of the security it wanted to sell, and invited public subscriptions at a fixed price. It typically announced that it would accept all subscriptions for amounts below some stated threshold and that it would allocate the remaining notes or bonds to larger subscribers in proportion to the amounts sought. For example, on July 31, 1968, the Treasury announced that it would sell approximately $5.1 billion of 5 5/8 percent notes maturing on August 15, 1974, at a price of 99.62 percent of principal. The subscription books would be open for a single day, on August 5; subscriptions for $250,000 or less would be filled in full and the notes would be issued on August 15. The Treasury received subscriptions for $23.5 billion—4.6 times the amount offered. Subscriptions for more than $250,000 were allotted 18 percent of the amounts subscribed for, subject to a minimum allocation of $250,000.

In a subscription offering, the Treasury set the maturity date and coupon rate of a new issue, announced how much of the security it wanted to sell, and invited public subscriptions at a fixed price.

Before setting the terms of an offering, Treasury officials consulted with banks, insurance companies, and securities dealers to assess the prospective demand for notes and bonds of different maturities and to identify the yield needed to sell a given amount of a particular issue.[2] The Treasury set the coupon rate on a new issue to the nearest one-eighth of a percent below the intended offering yield and then reduced the offering price below 100 to fine-tune the yield to the desired level.[3] A Treasury economist (Baker 1976, p. 147) observed that a debt manager "succeeded perfectly in his pricing effort if the volume of subscriptions . . . just cover[ed] the amount . . . offered."

2.2 Drawbacks to Subscription Offerings

Friedman (1960, p. 65) characterized the process of setting the terms of an offering as "crystal gazing . . . and plain guesswork." In setting terms, the Treasury bore the risk of misjudging market demand. If it set the offering yield too low, the issue would be undersubscribed and the offering would fail. The risk of a failed offering was compounded by the possibility that market yields might rise between the time the Treasury announced a new issue and the time it opened the subscription books—usually an interval of several days to a week.[4]

To limit the likelihood of an undersubscribed offering, the Treasury added a premium to contemporaneous market yields when it set the terms of an offering.[5] Friedman (1964, p. 513) noted that this premium sometimes led to unduly generous yields. Generous yields in turn led to substantial oversubscriptions and low allotment ratios. Cecchetti (1988, pp. 1117-8) reports that the average allotment ratio between 1932 and 1940 was 15.4 percent. Substantial oversubscriptions were clear signs that the Treasury was giving away yield at taxpayer expense. Not surprisingly, some market participants would subscribe for new issues and then seek to sell their allotments quickly at a premium to the subscription price. This practice, known as "free-riding," was widely criticized because it hindered direct sales to final investors and was believed to contribute to price volatility.[6]

2.3 Exchange Offerings

In an exchange offering, the Treasury announced maturity dates and coupon rates for one or more new notes and/or bonds and invited the public to exchange one or more maturing issues for an equal principal amount of the new securities.[7] For example, in the summer of 1970, the Treasury faced the imminent maturity on August 15 of $5.6 billion of notes and bonds. On July 29, it offered to exchange either a three-and-a-half-year note or a seven-year note for the maturing securities. Following the close of the offering, the Treasury announced that investors had tendered $4.8 billion (85 percent) of the maturing securities and had redeemed the balance ($0.8 billion). In exchange for the maturing debt, investors took $3.0 billion of the three-and-a-half-year notes and $1.8 billion of the seven-year notes.

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To finance "attrition," or cash redemption of unexchanged securities, the Treasury sometimes announced a cash subscription concurrently with an exchange offering. For example, when the Treasury announced the exchange offering described above, it also announced that it would sell $2.75 billion in eighteen-month notes "to pay for the August 15 maturities not exchanged and to raise new cash."[8] At other times, the Treasury's cash balances were large enough to fund the redemption of unexchanged securities.

2.4 Drawbacks to Exchange Offerings

In setting the terms of an exchange offering, the Treasury bore the risk that it might set the yields on its new issues too low and that investors would choose to redeem an unexpectedly large fraction of the maturing debt. This outcome could expose the Treasury to a cash-flow crisis as it scrambled to meet investor demands for cash redemption.[9] As with subscription offerings, the risk of misjudging the market was compounded by the potential for market yields to rise between the time the Treasury announced the terms of an offering and the time the subscription books were opened. To limit the risk of an unexpectedly high attrition rate, the Treasury added a premium to contemporaneous market yields when it set the terms of an offering.[10]

A second problem with exchange offerings was that holders of maturing issues were not "natural" buyers of new issues with longer maturities. Accepting an exchange offer materially altered the risk exposure of the holder of a maturing issue. In any particular offering, some investors could be expected to be uninterested in such a sharp change in risk. Sophisticated holders who wanted cash sold their debt shortly before maturity, thereby capturing the exchange option value of the debt. This strategy, however, required the (costly) market-making services of a securities dealer.[11]

Finally, because exchange offerings usually gave investors a choice of several different securities, the Treasury lost direct control of the maturity structure of its debt. For example, in the August 1970 exchange offering described earlier, investors could have opted for as much as $5.6 billion of the three-and-a-half-year note (and none of the seven-year note), or as much as $5.6 billion of the seven-year note (and none of the three-and-a-half-year note). The Treasury was prepared to accommodate either extreme, as well as any intermediate outcome. Gaines (1962, p. 79) noted that "In a very real sense, the maturity distribution of the debt was left in the hands of the investors."[12]

3. Treasury Bill Auctions before 1970

Throughout the 1950s and 1960s, the Treasury was auctioning bills even while it wrestled with the risks and uncertainties of fixed-price offerings of notes and bonds. By 1970, the Treasury was auctioning four different series of bills on a regular basis. Thirteen-week bills had been offered weekly since before World War II and a weekly offering of twenty-six-week bills was added in 1958. Year bills were first offered in 1959 on a quarterly basis, and then on a monthly basis beginning in 1963. Monthly offerings of nine-month bills were added in 1966.

Bill auctions before 1970 were much like the bill auctions of today. An investor could submit one or more competitive tenders or a single noncompetitive tender. A competitive tender specified a bid price (as a percentage of face amount) and the quantity of bills desired at that price.[13] A noncompetitive tender specified only a quantity (limited to some specified maximum amount) and agreed to pay the average accepted competitive bid. The Treasury accepted all noncompetitive tenders for the full amount sought. Competitive tenders were accepted in order of declining bid price until the balance of the offering was accounted for. Tenders specifying prices in excess of the stop-out, or minimum accepted, price received the full amount sought and were invoiced at their respective bid prices.[14] The remaining bills were distributed in proportion to the quantities sought among those who bid at the stop-out price.

4. The Debate over Whether to Auction Notes and Bonds

The argument for auctioning notes and bonds was well-known by the early 1960s. Friedman (1960, pp. 64-5) had pointed out the practical difficulty of setting the yield on a new issue at a level where investors would buy the full amount offered but hardly any more. He recommended that the Treasury eliminate fixed-price offerings and sell all of its marketable debt through regularly scheduled public auctions.[15]

The most extensive defense of the Treasury's reliance on fixed-price offerings came in testimony by Secretary of the Treasury Robert Anderson before the Joint Economic Committee in 1959 (Joint Economic Committee 1959a, pp. 1147-61). Anderson observed that bills had been sold at auction ever since they were introduced in 1929, that the Treasury had extended the auction method of sale to twenty-six-week bills and year bills when those series were introduced, and he acknowledged (p. 1150) that bill auctions were "an efficient mechanism." Anderson further acknowledged (p. 1148) that auction offerings of notes and bonds would "relieve [the Treasury] of a major responsibility in pricing and selling coupon issues" and noted that the Treasury had introduced auction offerings of year bills to reduce the quantity of one-year certificates of indebtedness that it had to price.

Nevertheless, Anderson argued that fixed-price offerings of notes and bonds were preferable to auction sales of those securities. His analysis rested on the premise that many of the small banks, corporations, and individuals who subscribed to fixed-price offerings did not have the "professional capacity" to bid in an auction. Lacking professional expertise, they were liable to either bid too high and pay too much or bid too low and be shut out, and therefore were likely to avoid note and bond auctions altogether and to buy new securities in the secondary market. Anderson suggested that the withdrawal of small investors from the primary markets for notes and bonds would have several adverse consequences:

> *The failure of an auction offering of Treasury-guaranteed federal agency bonds in late August 1935 was widely noted and led the Treasury to abandon the auction method.*

1. Small investors would lose the opportunity to buy securities directly from the Treasury on the same terms as large investors.
2. The Treasury's ability to distribute its debt as widely as possible would be impaired. (He characterized broad distribution as a "major objective" of Treasury debt management policy.)
3. Since relatively few market participants had the expertise to bid for notes and bonds, the auctions might not be competitive. Indeed, there might be so few bidders that auctions might fail from time to time. (The Treasury viewed this as a particular risk for long-term bonds.)

Anderson asserted (p. 1153) that "The present practice of offering [notes and bonds] at prices and interest rates determined by the Treasury . . . result[s] in an effective distribution of new . . . issues at minimum cost to the taxpayer."

He also pointed out that the Treasury had tried auctioning long-term bonds in 1935. Between May and August of that year, the Treasury auctioned $500 million of thirteen- and twenty-five-year bonds in a series of five auctions (see the box for details). The auctions were generally successful but

The 1935 Bond Auctions

Between May and August 1935, the Treasury auctioned $200 million of thirteen-year bonds and $300 million of twenty-five-year bonds in five auctions of $100 million each. The auctions were part of a plan to move away from a debt management program of large quarterly financings and toward a program of selling smaller amounts in more frequent offerings.[a] (There is also some indication that the Treasury may have planned to replace large, infrequent, regularly scheduled subscription offerings with small, frequent, discretionary auction offerings in order to "time" offerings to when demand for Treasury securities was strong and to stay out of the market when demand was weak.[b])

The table below shows the terms and results of the five auction offerings. The first offering was widely characterized as experimental, although the Treasury was reported to be ready to use the auction method more frequently if the offering succeeded.[c] The auction attracted tenders for $270 million of bonds and was viewed as a modest success.[d] The next two auctions attracted greater interest. The Secretary of the Treasury was quoted as being "very pleased" with the second and characterized the third as "very satisfactory."[e] The fourth offering fared a little worse than the second and third, and the fifth, in mid-August, received a distinctly less enthusiastic reception.[f]

Auction Offerings of Treasury Bonds, 1935

Auction Date	Issue	Quantity Bid (Millions of Dollars)	Range of Accepted Prices	Average Accepted Price
5/29	3 percent bonds of 6/15/48	270	103 1/32 to 103 26/32	103 4/32
6/26	3 percent bonds of 6/15/48	461	Not reported	103 18/32
7/17	2 7/8 percent bonds of 3/15/60	511	101 19/32 to 101 27/32	101 19/32
7/31	2 7/8 percent bonds of 3/15/60	321	101 7/32 to 101 24/32	101 18/32
8/14	2 7/8 percent bonds of 3/15/60	147	100 21/32 to 101 8/32	100 25/32

Sources: Federal Reserve Bank of New York circulars (1935, various dates); *New York Times* (1935, various issues).

Notes: All five auctions were for $100 million principal amount of bonds, reopened bonds previously sold in subscription offerings, and used a multiple-price format. Competitive bids below 100 and noncompetitive bids were not accepted.

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[a] "Treasury Plans Large Refinancing," *New York Times*, May 28, 1935, p. 39 ("[Secretary of the Treasury Morgenthau] said that the plan of issuing securities at only the quarterly financing periods of June 15, Sept. 15, Dec. 15 and March 15 had been abandoned and the issues would be ordered when it appeared that the Treasury needed the money").

[b] "Treasury Retains Bond Auction Plan," *New York Times*, September 14, 1935, p. 14, and U.S. Treasury (1940).

[c] "Treasury Plans Large Refinancing," *New York Times*, May 28, 1935, p. 39 (auction offering "a feeler"), and "A Treasury Experiment," *New York Times*, May 29, 1935, p. 20.

[d] "New Bond Bids Treble Offering," *New York Times*, May 31, 1935, p. 25.

[e] "Subscriptions of $461,341,000 Are Received for $100,000,000 Offer of Treasury Bonds," *New York Times*, June 28, 1935, p. 31, and "New Federal Issue Subscribed 5 Times," *New York Times*, July 19, 1935, p. 25.

[f] "Treasury Bond Sale Sets Premium Mark," *New York Times*, August 2, 1935, p. 26, and "Bids Show Decline on Federal Bonds," *New York Times*, August 16, 1935, p. 23.

investors and dealers expressed dissatisfaction with the auction process. In particular, the Treasury's practice of announcing and holding auctions on short notice and on no regular schedule made participation risky for dealers, dealers believed the profit opportunities did not justify the risks of participation, and banks and investors outside of the largest financial centers were reluctant to participate because they believed the auctions favored market professionals.[16] The failure of an auction offering of Treasury-guaranteed federal agency bonds in late August 1935 was widely noted[17] and led the Treasury to abandon the auction method.[18]

Responding to Anderson's analysis, Friedman (1960, pp. 64-5) noted that the analysis implicitly assumed that notes and bonds would be auctioned the same way as bills: in a multiple-price format, where a successful tender is invoiced at its bid price.[19] (The 1935 bond auctions had used this format.) Friedman claimed (p. 64) that the multiple-price format established a "strong tendency for the [primary] market to be limited to specialists" and suggested that small investors would be more willing to participate if the Treasury adopted a single-price format, where all accepted tenders pay the stop-out price.

Following Friedman's suggestion for single-price auctions, the Treasury faced a choice among three methods for selling securities: fixed-price offerings (already used for notes and bonds), single-price auctions, and multiple-price auctions (already used for bills). Friedman's principal point was that fixed-price offerings were inferior to either of the two auction alternatives.[20] He recommended the single-price auction format in lieu of the multiple-price format primarily to counter the Treasury's claim that small investors would not participate in auction offerings of notes and bonds.[21]

5. The 1963 Syndicate Auctions

In 1963, the Treasury tried to combine the benefits of an auction with a fixed-price format that would preserve direct participation by small investors. Emulating contemporary market practice in the sale of some municipal and power company bonds, it twice offered long-term bonds in all-or-none auctions to syndicates of securities dealers, where the winning syndicate was required to reoffer the bonds to public investors on a fixed-price basis (at a price of the syndicate's choosing). The Treasury hoped that moving the locus of bond pricing to competing dealer syndicates would enhance the efficiency of the primary market without jeopardizing the benefits of fixed-price offerings for small investors. It characterized the new program as a "trial" intended to "explore the practicality" of syndicate auctions for selling bonds "at the lowest possible interest cost."[22]

In 1963, the Treasury tried to combine the benefits of an auction with a fixed-price format that would preserve direct participation by small investors.

The first offering of $250 million of thirty-year bonds on January 8, 1963, attracted bids from four syndicates; the second offering of $300 million of thirty-one-year bonds on April 9 attracted three bids. Bidding was extraordinarily competitive. In both cases, less than 1 basis point separated the yield on the winning bid from the yield on the third-best bid. The Treasury stated that the results of the first auction were "highly satisfactory" and indicated that the auction "provided the base for the potential development of an important new instrument for debt management."[23]

The first offering was also a success for the members of the winning syndicate: the public reoffering sold out within a matter of hours.[24] The second reoffering, however, was not well received. Less than half of the issue was sold by the close of trading on the auction day and few, if any, additional bonds were sold before the winning syndicate disbanded in late April.[25] Market participants suggested that a third offering would produce a wider distribution of bids than the first two and that participating syndicates were certain to try to protect themselves by building larger underwriting spreads into their bids.[26] Robert Roosa, Treasury Under Secretary for Debt Management, remarked that the next auction offering was "a long time" off.[27] The Treasury never again sold securities through syndicate auctions.

6. A Renewed Effort to Auction Coupon-Bearing Securities

After the demise of the 1963 attempt, the Treasury had twice tried to implement regular auction offerings of long-term bonds and had twice failed. Nevertheless, Friedman's basic criticism, that fixed-price offerings were inefficient, remained.[28] The inefficiencies became more apparent as interest rate volatility increased in the mid- and late 1960s. As shown in the bottom panel of Table 1, the standard deviation of the daily change in yield on a five-year note increased from about 1 basis point in 1963 to almost 6 basis points in 1970. Volatility in the three-year and ten-year sectors increased similarly. Treasury officials recognized that heightened volatility increased the likelihood that a fixed-price offering might fail and increased the likelihood that the Treasury would overpay on a new issue (Baker 1979, p. 204). A Treasury economist later summarized why the Treasury found auctions increasingly attractive by the end of the 1960s (Baker 1979, p. 204): "Auction pricing . . . eliminated the awkward delays in pricing and subscribing for the issue, allowed the market itself to determine the price, and thus removed the Treasury from the necessity of having to guess the price and the likely course of the market until the financing was complete."

In late 1970, the Treasury decided to try yet again to auction coupon-bearing debt on a regular basis, but this time it

Table 1
Level and Volatility of Treasury Yields, 1963-70

Year	Three-Year Note	Five-Year Note	Ten-Year Bond
Average yield during calendar year (percent per annum)			
1963	3.67	3.83	4.00
1964	4.03	4.07	4.19
1965	4.22	4.25	4.28
1966	5.23	5.11	4.93
1967	5.03	5.10	5.07
1968	5.68	5.70	5.64
1969	7.02	6.93	6.67
1970	7.29	7.38	7.35
Standard deviation of yield change over one business day (basis points)			
1963	1.32	1.07	0.92
1964	1.43	1.07	0.84
1965	1.76	1.58	1.11
1966	4.59	3.59	3.24
1967	4.27	3.96	3.31
1968	4.66	4.16	3.34
1969	5.46	4.59	4.13
1970	6.44	5.89	5.53

Source: Author's calculations, based on data from Federal Reserve Statistical Release H.15 (various years).

designed the auctions to resemble its successful and widely accepted bill auctions. This decision gave dealers a familiar starting point from which to develop the risk management and sales programs needed to support auction bidding for notes and bonds. Additionally, the Treasury borrowed from its experience with introducing longer term bill auctions in 1958 and 1959: it first auctioned short-term notes, then progressively longer notes and bonds. This sequencing gave dealers an opportunity to develop their risk management and sales programs gradually.

6.1 The November 1970 Refunding

The November 1970 refunding[29] got off to an unexceptional start when the Treasury announced on October 22 that it was prepared to exchange either a three-and-a-half-year note or a five-and-three-quarter-year note for $6.0 billion of Treasury securities maturing on November 15. Following the close of the subscription books, the Treasury announced that investors had tendered $5.3 billion of the maturing securities, leaving $0.7 billion to be redeemed in cash. However, rather than financing the attrition with a subscription offering, the Treasury announced that it would auction $2.0 billion of 6 3/4 percent eighteen-month notes.

The auction was held on November 5 and followed closely the format of a bill auction. In light of the failure of the syndicate auction scheme seven years earlier, the Treasury was careful to remind participants that it was not doing anything novel: "the use of the auction method of sale represents an adaptation of the technique used successfully for many years in marketing Treasury bills" and "bidding and other procedures

In light of the failure of the syndicate auction scheme [in 1963], the Treasury was careful to remind participants that it was not doing anything novel.

[will] very closely follow the standard procedures used in regular Treasury bill auctions."[30] Auction participants could submit one or more competitive tenders or a single noncompetitive tender (limited to $200,000) that would be filled at the average accepted competitive bid. Competitive tenders had to specify a bid price of at least 99.76 percent of principal value and were accepted in order of declining price until all of the notes were accounted for or all of the tenders were filled. Tenders specifying bid prices in excess of the stop-out price received the full amount sought and were invoiced at their respective bid prices. The remaining notes were distributed among those who bid at the stop-out price in proportion to the quantities sought. The Treasury characterized the auction as a "test," part of a "continuing effort . . . to develop more efficient debt management techniques."[31]

On November 6, the Treasury announced that it had received tenders for $5.2 billion of notes—2.6 times the amount offered. It accepted bid prices ranging from 100.93 (to yield 6.09 percent) down to a stop-out price of 100.69 (to yield 6.26 percent), where there was a 32 percent allocation. The average accepted competitive price was 100.76 (to yield 6.21 percent).

6.2 Subsequent Early Auctions

The Treasury followed up its successful auction of eighteen-month notes with additional auction offerings, but it initially used auctions sparingly and only to sell short-term notes. This infrequent and limited use of the auction method contrasts sharply with the 1935 attempt, where five issues of thirteen- and twenty-five-year bonds were auctioned in a two-and-a-half-month interval, and with the 1963 attempt, where two auctions of long-term bonds came only three months apart. As shown in Table 2, the second auction (of sixteen-month notes) took place in June 1971, more than seven months after the first auction, and the third auction (in August 1971) was another offering of eighteen-month notes.

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After the August auction, the Treasury increased the frequency and maturities of its auction offerings. By the end of 1971, it had conducted six successful auctions of notes maturing in as much as five years. The Under Secretary of the Treasury for Monetary Affairs, Paul Volcker, characterized auction sales of short- and intermediate-term coupon-bearing debt as a “striking innovation” in debt management: “I cannot claim that the approach has yet been fully tested in adversity, but I can say it has met or surpassed every expectation so far, to the advantage of the Treasury and the market. I am confident it will pass further testing with larger amounts and longer maturities.”[32]

6.3 Pushing the Envelope

The Treasury continued to expand its use of auction sales in 1972. As Table 3 shows, the Treasury auctioned midquarter refunding issues for the first time in May; in October, it began to auction two-year notes on a regular basis. (The latter was the first series of regular note offerings to be auctioned from inception.)

In late 1972, the Treasury announced the first auction offering of long-term bonds since 1963: $625 million of twenty-year bonds. In a striking departure from prior practice, it adopted the single-price format recommended by Friedman more than a decade earlier, observing that “This procedure will provide an incentive to bid at prices sufficiently high to be sure of awards, while also assuring

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TABLE 2
Auction Offerings of Treasury Notes, 1970-71

Auction Date	Issue	Term	Quantity Offered (Billions of Dollars)	Quantity Bid (Billions of Dollars)	Range of Accepted Yields (Percent)	Average Accepted Yield (Percent)
11/5/70	6 3/4 percent notes of 5/15/72	Eighteen months	2.00	5.2	6.09 to 6.26	6.21
6/22/71	6 percent notes of 11/15/72	Sixteen months	2.25	4.0	5.71 to 6.05	6.00
8/5/71	6 1/2 percent notes of 2/15/73	Eighteen months	2.50	4.1	6.44 to 6.59	6.54
8/31/71	6 1/4 percent notes of 11/15/76	Five years, two months	1.25	3.4	5.92 to 6.02	5.98
10/15/71	5 7/8 percent notes of 2/15/75	Three years, four months	2.00	4.6	5.46 to 5.61	5.58
11/9/71	4 7/8 percent notes of 2/15/73	Fifteen months	2.75	4.0	4.79 to 4.96	4.91

Source: Federal Reserve Bank of New York circulars (1970-71, various dates).

Table 3

Auction Offerings of Treasury Notes and Bonds, 1972

Auction Date	Issue	Term	Quantity Offered	Quantity Bid	Range of Accepted Yields	Average Accepted Yield
			(Billions of Dollars)		(Percent)	
3/28	5 7/8 percent notes of 5/15/75	Three years	1.75	3.8	5.69 to 5.80	5.78
5/2	4 3/4 percent notes of 5/15/73	One year	1.25	3.3	4.23 to 4.47	4.44
5/2	6 3/8 percent bonds of 2/15/82	Nine years, nine months	0.50	1.3	6.23 to 6.32	6.29
10/11	6 percent notes of 9/30/74	Two years	2.00	4.8	5.77 to 5.89	5.86
11/1	6 1/4 percent notes of 11/15/76	Four years	3.00	7.1	6.16 to 6.21	6.20
12/20	5 7/8 percent notes of 12/31/74	Two years	2.00	5.6	5.72 to 5.85	5.83

Source: Federal Reserve Bank of New York circulars (1972, various dates).

each bidder that, if he bids at a price within the range of accepted prices, he will be awarded bonds at the same price as every other bidder."[33] In response to complaints that the single-price format would deprive dealers of an opportunity to buy bonds slightly cheaper than other auction participants, a Treasury official pointed out that "the objective is to encourage widespread and confident bidding," and a "broader distribution of our securities. We're appealing to a type of investor who will be able to bid what he thinks the bond is worth to him without worrying about whether somebody else may get it cheaper."[34] Over the next fifteen months, the Treasury offered long-term bonds in single-price auctions five more times (Table 4). However, the single-price format never became popular with dealers. Henry Kaufman, a well-known economist at Salomon Brothers, stated that the single-price format "provides no incentives to . . . dealers to help in the distribution process."[35]

7. Fine-Tuning the Auction Process

By mid-1973, auction sales of notes and bonds had replaced fixed-price offerings. The Treasury had not announced a subscription offering since August 1970 and the last mid-quarter refunding to rely on an exchange offering was in February 1973. However, the form of the auction process did not remain unchanged, evolving first in response to the only outright failure of a Treasury auction offering and then to simplify and enhance the efficiency of the process.

Table 4

Auction Offerings of Long-Term Treasury Bonds in a Single-Price Format, 1973-74

Auction Date	Issue	Term	Quantity Offered	Quantity Bid	Yield (Percent)
			(Billions of Dollars)		
1/4/73	6 3/4 percent bonds of 2/15/93	Twenty years	0.63	1.7	6.79
5/2/73	7 percent bonds of 5/15/98	Twenty-five years	0.65	1.2	7.11
8/1/73	7 1/2 percent bonds of 8/15/93	Twenty years	0.50	0.3	8.00
10/31/73	7 1/2 percent bonds of 8/15/93	Nineteen years, nine months	0.30	1.3	7.35
2/7/74	7 1/2 percent bonds of 8/15/93	Nineteen years, six months	0.30	1.1	7.46
5/8/74	8 1/2 percent bonds of 5/15/94	Twenty-five years	0.30	0.9	8.23

Source: Federal Reserve Bank of New York circulars (1972-74, various dates).

7.1 A Failed Auction

The first setback in the Treasury's third attempt to auction coupon-bearing securities on a regular basis occurred in the August 1973 refunding. To refinance $4.7 billion of maturing notes and bonds, the Treasury announced on July 25 that it would auction $2.0 billion of 7 3/4 percent four-year notes, $500 million of 7 1/2 percent twenty-year bonds, and $2.0 billion of thirty-five-day bills.

Fixed-income securities prices declined sharply in late July 1973. Between July 16 and July 30, the yield on five-year notes rose from 7.21 percent to 7.80 percent and the yield on twenty-year bonds rose from 7.21 percent to 7.56 percent. On July 31, the Treasury received tenders for only $2.1 billion of its new four-year notes, barely more than the amount offered. It accepted all bids above 99.01 (the lowest price it had said it would accept) and 75 percent of the bids at 99.01. On the following day, the auction of twenty-year bonds failed: the Treasury received public tenders for only $260 million of the bonds. It accepted all of the tenders submitted at or above 95.05, the lowest price it had said it would accept. The balance of the offering went into "Government Accounts."[36]

7.2 Modification of the Auction Process

The failure of the August bond sale did not deter the Treasury from continuing to auction securities, but it did lead to some important changes in auction procedures. Immediately after the failure, the Treasury began to announce the coupon rate on a forthcoming issue after the announcement of the issue itself and closer to the time of the auction. For example, on August 20, 1973, the Treasury announced that it would auction two-year notes on August 24, but it did not announce the coupon rate on the new notes until August 22. This action reduced (but did not eliminate) the likelihood that the Treasury would offer another bond with a substantially off-market coupon.

The Treasury continued to delay coupon announcements on new notes and bonds until September 1974, when—in a further modification of prior practice—it replaced bidding in terms of price (on a security with a specified coupon) with bidding in terms of yield (on a security with no specified coupon). In the new framework, competitive tenders were accepted in order of increasing yield until all of the securities not taken by noncompetitive bidders were accounted for. Following the auction, the Treasury set the coupon rate at the highest rate—in increments of one-eighth of a percent—that gave an average price on the accepted competitive tenders not greater than par. Each accepted tender was then invoiced at its own bid yield. Noncompetitive tenders were invoiced at the average accepted competitive price. The Treasury remarked that "The new bidding method will permit pricing close to par and eliminate the risk of setting a coupon which, because of a change in the market between the coupon announcement date and the auction date, would result, on the one hand, in a price so far above par as to discourage bidders or, on the other hand, result in a price so low that the sale would have to be canceled."[37]

The failure of the August bond sale did not deter the Treasury from continuing to auction securities, but it did lead to some important changes in auction procedures.

7.3 The End of Single-Price Auctions

In mid-1974, the Treasury switched its long-term bond auctions to a multiple-price format—thus putting all of its auctions in a common format. The Treasury did not state publicly the reason for the change. However, one money market newsletter reported at the time that "Debt managers found no evidence that [the single-price format] was attracting enough additional or different bidders for the bonds to make its use worthwhile."[38] Under Secretary of the Treasury for Monetary Affairs, Jack Bennett, subsequently stated that "The Secretary of the Treasury at that time, William E. Simon, made the decision to discontinue the [single-price format] as a result of his judgment, based on his extensive experience in the market for Treasury securities, that the [single-price format] would bring in fewer dollars to the Treasury."[39]

7.4 Removal of Restrictions on When-Issued Trading

When-issued, or "WI," trading is trading in an unissued security for settlement on the issue date. Beginning with the first note auction in 1970 and continuing until early 1975, the Treasury effectively precluded WI trading in notes and bonds prior to the close of bidding. Bidders were required to agree "not to buy or sell, or to make any agreements with respect to the purchase or sale or other disposition of any [securities] of this issue at a specific rate or price, until [after the auction close]."[40] The restriction continued a similar restriction on WI trading in connection with subscription offerings that dated back to 1940.[41] The Treasury did not generally prohibit WI trading in bills prior to the close of an auction.

Market participants found pre-auction WI trading in bills useful for two reasons. First, public dissemination of the discount rate at which a new bill was trading in the WI market provided information about the market's collective appraisal of the prospective value of the bill and enhanced the efficiency of the bidding process. A 1992 study (U.S. Treasury Department et al. 1992, p. A-6) pointed out that WI trading "reduces uncertainties surrounding Treasury auctions by serving as a price discovery mechanism. Potential . . . bidders look to when-issued trading levels as a market gauge of demand in determining how to bid at an auction." Additionally, pre-auction WI sales facilitated distribution of a bill. The 1992 study noted (p. 9) that WI trading "benefits the Treasury by . . . stretching out the actual distribution period for each issue."

In early 1975, the Treasury removed the restriction on pre-auction [when-issued] trading in notes and bonds . . . . This was an important step in enhancing the efficiency of auction bidding and facilitating the distribution of new issues.

In early 1975, the Treasury removed the restriction on pre-auction WI trading in notes and bonds in the course of revising its offering circulars to eliminate "obsolete" provisions.[42] This was an important step in enhancing the efficiency of auction bidding and facilitating the distribution of new issues.[43]

8. Conclusion

The Treasury's success in institutionalizing regular auction sales of notes and bonds in the early 1970s was surprising. Two prior attempts, in 1935 and 1963, had failed and the third attempt came at a time when fixed-income securities prices had become more volatile. That the Treasury even made a third attempt testifies to the significance of Friedman's (1960, pp. 64-5) criticism of fixed-price offerings. However, the two failed attempts demonstrated that the advantages of market-driven auctions were not enough to guarantee that regular auction offerings would succeed: the process of moving from fixed-price offerings to auction sales also had to be managed carefully.

There were three important differences between the coupon-bearing securities auctions of the early 1970s and the 1935 and 1963 auctions. First, the auctions of the early 1970s were closely patterned on the successful and familiar bill auctions and did not introduce any novel bidding rules (as in 1963) or issuance patterns (as in 1935). This structure gave dealers a familiar base for developing their sales and risk management programs.

Second, auctions of coupon-bearing debt in the early 1970s were extended gradually to securities of increasing maturity and did not immediately offer long-term bonds. The extension gave dealers an opportunity to build up their risk management and sales programs gradually.

Finally, the Treasury was willing to modify the auction process when experience suggested that the existing structure could be improved. Most prominently, following the failure of the twenty-year bond auction in August 1973, the Treasury first began to delay announcement of the coupon rate on a new issue until closer to the auction day and then switched to a yield auction format. Similarly, in 1975, the Treasury removed the restriction on when-issued trading before an auction to enhance bidding efficiency and new-issue distribution.

Endnotes

1. Beginning in 1960, the Treasury sometimes refinanced maturing debt by issuing new debt in one or more subscription offerings and using the proceeds to redeem the maturing debt. These operations were called "cash refundings." See Gaines (1962, pp. 174-6) and Banyas (1973, pp. 8-10, 27-30). The subscription offerings in a cash refunding were not different from the subscription offerings used to raise new money.

2. Gaines (1962, pp. 156-7, 165) briefly describes the consultative process. Also see the detailed description in Committee on Government Operations (1956).

3. Banyas (1973, p. 7) and Gaines (1962, p. 82). Prior to World War II, the Treasury was required to sell bonds at par and notes at not less than par (Cecchetti 1988, p. 1119). This requirement precluded fine-tuning bond offerings, and made it difficult to fine-tune note sales because investors were sometimes reluctant to purchase notes at a premium (Banyas 1973, p. 7). Legislation enacted at the beginning of World War II allowed the Treasury to sell bonds at prices other than par and to sell notes at a discount (Banyas 1973, p. 7). The first nonpar bond offering came in June 1958 (U.S. Treasury Department 1959, p. 24; Hallowell and Williamson 1961, p. 82). The first discount note offering came in January 1959 (U.S. Treasury Department 1960, pp. 22-3).

4. Faced with the prospect of an undersubscribed offering, officials sometimes pressured banks and dealers to take up the slack. See "The Under-Subscribed Loan," *New York Times*, September 1, 1935, p. 8 (reporting that "voluntary subscriptions [to a 1931 Treasury bond offering] did not cover the full amount, and official pressure had to be applied to the larger banks to make up the deficiency"), and "Bids Fall Short on U.S. Bond Issue," *New York Times*, August 2, 1973, p. 49 (reporting that "heavy official pressure had been applied to dealers [to increase their subscriptions] on some issues in 1969-70").

5. See, for example, "Treasury Offers $100,000,000 Issue in Financing Test," *New York Times*, May 27, 1935, p. 1 ("under the policy of selling [Treasury] bonds at [fixed prices] it has been necessary for the Treasury so to gauge the market's appetite as to assure the success of an offering, with the result that the interest rate usually has been slightly above the market"), and Gaines (1962, p. 184, "the rate of interest selected should be somewhat above current market rates").

6. See "New Bond Bids Treble Offering," *New York Times*, May 31, 1935, p. 25 ("a profit has usually been realized by those who speculate in Treasury bond offerings, as [the bonds] usually have commanded a premium in the open market immediately after their sale"), Childs (1947, pp. 389-93), Gaines (1962, pp. 171-2, 293), and Friedman (1960, p. 64; 1964, p. 513).

7. The Treasury introduced the option for a holder to choose any of several alternative issues in 1953, following Roosa's (1952, p. 234) suggestion that "Treasury might . . . 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." See also Hallowell and Williamson (1961, p. 82).

8. Federal Reserve Bank of New York Circular no. 6582, July 29, 1970.

9. On at least two occasions, the Federal Reserve directly supported floundering exchange offers. In November 1955, the Treasury offered a one-year certificate of indebtedness and a two-and-a-half-year note in exchange for $12.2 billion of securities maturing on December 15. When market conditions deteriorated sharply on the last day of the subscription period, the Federal Reserve purchased $167 million of the certificates on a when-issued basis. In July 1958, the Treasury offered a one-year certificate of indebtedness in exchange for $16.3 billion of maturing securities. When market conditions became "disorderly" during the subscription period, the Federal Reserve purchased $110 million of the maturing securities and $1,090 million of the certificates on a when-issued basis (Hallowell and Williamson 1961, p. 84).

10. Cecchetti (1988, p. 1117). Hallowell and Williamson (1961, p. 82) state that the Treasury introduced the option to choose any of several new issues specifically to limit attrition: "Treasury runs less risk of attrition on an exchange with a choice, because all its eggs are not in one basket."

11. Hallowell and Williamson (1961, p. 82) remark that "The rights to the long-term issue are likely to be largely in the hands of . . . short-term investors and have to be transferred through the market to those who want them." Gaines (1962, pp. 163-4) points out that, in practice, dealers bought maturing securities, sold the new securities for when-issued settlement, and covered their delivery obligations on the new securities by tendering the old securities in exchange for the new ones.

12. See also Gaines (1962, p. 174) (the decision of investors in June 1958 to exchange $7.4 billion out of $9.6 billion of maturing debt for an intermediate-term bond rather than a one-year certificate of

indebtedness resulted in an "over-issue" of bonds and precipitated a "disorderly market collapse"), and Federal Reserve Bank of Richmond (1961, p. 4) (in the June 1958 refunding, "holders of rights . . . set the size of the respective issues, and . . . took far more of the longer obligation than they wished for investment purposes only").

13. The Treasury did not auction bills on a discount-rate basis until April 1983 ("Treasury Bill Auctions to Use New Bidding Method Effective April 18, 1983," *Treasury News*, March 15, 1983).

14. The Treasury did not auction bills in a single-price format until October 1998 ("Treasury Offers 13-Week and 26-Week Bills," *Treasury News*, October 29, 1998).

15. See also Eckstein and Kareken (1959), Carson (1959, p. 441) (auctions would relieve the Treasury of responsibility for "determining an interest rate which will clear the market . . . [and] eliminate attrition arising from inaccurate estimation of what the market will accept"), and Goldstein (1962, p. 386) ("the auction technique . . . has the virtue of freeing the Treasury from the task of having to set the effective yield on its obligations").

16. U.S. Treasury Department (1940, p. 1157). Dealer unhappiness with the auction process was reported in "New Federal Issue Subscribed 5 Times," *New York Times*, July 19, 1935, p. 25, and "Treasury Retains Bond Auction Plan," *New York Times*, September 14, 1935, p. 14.

17. "Federal Bond Sale Fell Short of Goal," *New York Times*, August 30, 1935, p. 1, "The Under-Subscribed Loan," *New York Times*, September 1, 1935, p. 8, and "Borah Sees Danger Signal," *New York Times*, September 2, 1935, p. 22.

18. "Treasury Announces $50,000,000 Bill Issue," *New York Times*, October 25, 1935, p. 31 (stating that "it was learned . . . today that the Treasury intends to drop, for the time being at least, the auction method of selling bonds"), and "Debt Over $300,000,000 as Treasury Announces Financing of $1,318,000,000," *New York Times*, December 22, 1935, p. 1 (stating that the failed federal agency issue had "brought the use of the [auction] method into question").

19. See also Friedman's testimony before the Joint Economic Committee (Joint Economic Committee 1959b, pp. 3023-6).

20. Friedman (1964, p. 513) ("the [fixed-price] method now used to sell long-term securities . . . makes the Treasury's cost . . . appreciably higher than it would be under either alternative method of bidding").

21. Friedman (1960, p. 65) ("Treasury's published objections to using the auction method for long-term securities all derive from the assumption that the [multiple-price] technique would be used and would be met fully by the [single-price] technique"). As noted earlier, the Treasury's objections were generally matters of small investor participation in the primary market. The subsequent development of the Treasury auction literature focused on the different question of whether the Treasury would derive greater revenue by auctioning securities in a single-price format or in a multiple-price format. See Smith (1966, 1967), Bolten (1973, 1975), Boatler (1975), Goldstein and Kaufman (1975), Tsao and Vignola (1977), Reinhart (1992), Simon (1994), Malvey, Archibald, and Flynn (1995), and Malvey and Archibald (1998).

22. Federal Reserve Bank of New York Circular no. 5224, September 14, 1962.

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

24. "Treasury Experiment," *New York Times*, January 11, 1963, p. 6.

25. "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, "Bond Syndicate Being Broken Up," *New York Times*, April 26, 1963, p. 47, and "Bonds: Treasury's New Issue Declines after Restrictions End," *New York Times*, April 27, 1963, p. 32.

26. "Reception Is Cool to U.S. Bond Issue," *New York Times*, April 14, 1963, sec. 3, p. 1, and "U.S. to Try Again on Underwriting," *New York Times*, April 21, 1963, sec. 3, p. 1.

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

28. See, for example, "Auctioning U.S. Debt," *New York Times*, February 19, 1969, p. 61 ("there would appear to be no reason . . . why [Treasury] obligations of any maturity could not be sold at auction").

29. By the late 1950s, a large fraction of Treasury notes and bonds matured in mid-February, mid-May, mid-August, or mid-November. The midquarter maturities were intended to reduce "the number of times each year that Treasury financing interferes with other borrowers such as corporations, States, and municipalities," and to facilitate the execution of monetary policy (U.S. Treasury Department

Note 29 continued
1959, pp. 25-6). Exchange offerings to refinance these issues were commonly called "midquarter refundings."

30. Federal Reserve Bank of New York Circular no. 6629, October 30, 1970, and Circular no. 6631, November 2, 1970.

31. Federal Reserve Bank of New York Circular no. 6629, October 30, 1970. The Treasury limited bids to not less than 99.76 to preclude the possibility that different blocks of the notes might be taxed differently and would therefore not be fungible with each other. (This phenomenon occurred when the Treasury reopened the 3 7/8 percent note of August 13, 1965, in April 1964. See Banyas [1973, p. 8].) The original issue discount (OID) rule in effect at the time provided that if a fixed-income security was issued at a discount to principal value in excess of the number of full years to maturity times .25, the discount would be taxed as ordinary income rather than as a capital gain. An eighteen-month note has one full year to maturity, so the OID threshold was 99.75.

32. "Proposals on Reform of Debt Management Offered by Volcker," *New York Times*, March 8, 1972, p. 57.

33. Federal Reserve Bank of New York Circular no. 7071, December 27, 1972.

34. "Prices of Treasury Bonds Decline in Light Trading," *New York Times*, December 29, 1972, p. 39.

35. Kaufman (1973, p. 170).

36. Federal Reserve Bank of New York Circular no. 7201, August 2, 1973, and "Bond Prices Drop in Gloomy Market," *New York Times*, August 1, 1973, p. 51. The lowest prices the Treasury said it would accept were marginally above the OID thresholds of 99.00 for a four-year note and 95.00 for a twenty-year bond. See also Baker (1976, p. 148).

37. Federal Reserve Bank of New York Circular no. 7456, September 16, 1974. See also Carson (1959, p. 441) and Baker (1976, p. 148; 1979, p. 206).

38. *The Goldsmith-Nagan Bond and Money Market Letter*, August 3, 1974.

39. Subcommittee on Securities of the Committee on Banking, Housing, and Urban Affairs (1991, p. 409). Baker (1979, pp. 205-6) discusses in some detail the decision to adopt a single-price format in 1973 but does not comment on why the Treasury abandoned that format in mid-1974. Two papers (Tsao and Vignola 1977; Simon 1994) subsequently examined whether the Treasury received more aggressive bids in the six single-price auctions or the ten multiple-price auctions of long-term bonds held between February 1973 and August 1976. Neither paper comments on why the Treasury abandoned the single-price format. Chari and Weber (1992, p. 4) state that the Treasury "abandoned the experiment [with single-price auctions] as largely inconclusive," but do not cite a source. The Treasury returned to the single-price format for two- and five-year note auctions in 1992 and for the balance of its auction offerings in 1998.

40. Tender for 6 3/4 percent Treasury notes dated November 16, 1970, and due May 15, 1972.

41. The December 11, 1940, offering of five-year notes was the first offering to require that a subscriber certify that "no arrangements have been or will be made for the sale or other disposition of this subscription, or of the securities which may be allotted thereon, prior to the closing of the subscription books" (tender for three-quarter percent notes, series B-1945, National Defense Series, dated December 18, 1940, due December 15, 1945). The restriction subsequently appeared on some, but not all, subscription offerings of coupon-bearing securities during World War II. Childs (1947, pp. 372-3, 375-6, 389-92) recounts the origins of the restriction and states that it was intended to limit free-riding. The Treasury did not make any subscription offerings from 1946 to 1951 and it did not explicitly impose the restriction in connection with any subscription offerings from 1952 to 1958. However, the restriction appears on every subscription offering beginning with the January 1959 offerings of sixteen-month notes and twenty-one-year bonds.

42. The characterization of the restriction on WI trading as "obsolete" appears in a Treasury statement reprinted in Federal Reserve Bank of New York Circular no. 8147, July 15, 1977.

43. The Treasury reimposed the restriction in July 1977, "after monitoring the development and expansion of trading in Treasury securities prior to the actual auctions, and in some cases, prior even to the announcement of an offering" and after concluding that when-issued trading "does not contribute to the efficient marketing of

new . . . issues and may, in fact, facilitate undesirable speculative activity in Treasury securities" (Federal Reserve Bank of New York Circular no. 8147, July 15, 1977). However, greater volatility of interest rates after October 1979 and a rapidly growing federal deficit led to renewed suggestions from the dealer community that pre-auction WI trading would facilitate price discovery and new-issue distribution (author's conversation with Mark Stalnecker, Deputy Assistant Secretary for Federal Finance, 1981-82). The Treasury removed the restriction a second time in August 1981, characterizing it as "an unnecessary regulation which is believed to hinder the efficient adjustment of market prices to announcements of Treasury financing" (Federal Reserve Bank of New York Circular no. 9128, August 17, 1981).

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