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The Treasury Market Practices Group: Creation and Early Initiatives

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Abstract

Modern money and capital markets are not free-form bazaars where participants are left alone to contract as they choose, but rather are circumscribed by a variety of statutes, regulations, and behavioral norms. This paper examines the circumstances surrounding the introduction of a set of norms recommended by the Treasury Market Practices Group (TMPG) and pertinent to trading in U.S. government securities. The TMPG is a voluntary association of market participants that does not have any direct or indirect statutory authority; its recommendations do not have the force of law. The recommendations do, however, carry the cachet of respected market participants and are targeted to behaviors that are widely acknowledged to impinge on market liquidity and that risk damaging the reputation of the market.

Key words: Treasury Market Practices Group, behavioral norms, fails charge, dealer time, margin

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Modern money and capital markets are not free-form bazaars where participants are left alone to contract as they choose, but rather are circumscribed by a variety of statutes, regulations, and behavioral norms. This paper examines the circumstances surrounding the introduction of a set of norms recommended by the Treasury Market Practices Group (TMPG) and pertinent to trading in U.S. government securities.

The TMPG was formed in 2007, largely at the behest of the Federal Reserve Bank of New York, to address a variety of "questionable trading practices" in the Treasury market. The group is a voluntary association of market participants that does not have any direct or indirect statutory authority; its recommendations do not have the force of law. The recommendations do, however, carry the cachet of respected market participants and are targeted to behaviors widely acknowledged to impinge on market liquidity, that risk damaging the reputation of the market, and that risk attracting more onerous regulatory responses.

One can reasonably ask whether the prompting of the New York Bank was necessary, or merely helpful, or perhaps unneeded, to the organization and effectiveness of the TMPG. The historical narrative in Section I, as well as two antecedents to the TMPG discussed in the appendix, suggests the Bank's participation was certainly helpful, and probably necessary, in overcoming impediments to collective action.

However, the Bank should not be seen as some sort of informal regulator but rather as an exceptionally large market participant interested, as an agent of the Federal Open Market Committee and as a fiscal agent of the United States, in fostering a liquid, competitive, and smoothly-functioning government securities market. The full scope of the Bank's interests are evident in the expansion of the TMPG's focus beyond behavioral norms to include market infrastructure issues like settlement fails (a matter of long-standing concern to the Bank) and a further expansion in 2010 to include agency debt securities and agency mortgage-backed securities. The expansions are discussed in Sections II and III, respectively.

I. The Initial Focus on Treasury Market Practices

In 2006, Randal Quarles, the Under Secretary of the Treasury for Domestic Finance, and James Clouse, the Deputy Assistant Secretary for Federal Finance, addressed what they described as "questionable trading practices" in the cash, financing, and futures markets for U.S. Treasury securities. Their remarks evidenced concern with an increasing incidence of ill-conceived and borderline-manipulative trading activities and the prospective undermining of public confidence in the markets.[1]

Speaking at a Bond Market Association meeting in May 2006,[2] Under Secretary Quarles observed that the Treasury market "operates remarkably well virtually all of the time, but there have been a few instances over the last twenty years that have been quite disruptive, including episodes of attempted manipulation or questionable trading behavior, spikes in delivery fails during periods of very low short-term interest rates, and periods of severe market stress during major crises such as the fall of 1998 and the aftermath of the 9/11 attacks." He suggested that "questionable behavior in the financing and futures markets" had increased since the end of 2004 and warned traders who accumulate "especially large positions" to tread "very carefully."

Speaking four months later, Deputy Assistant Secretary Clouse elaborated on Quarles's remarks.[3] Clouse began by reminding his listeners of the importance of the Treasury market:

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1 Many of the issues of concern to Quarles and Clouse were anticipated a decade earlier in a pair of speeches by Peter Fisher when he was the Manager of the System Open Market Account. See press release, Federal Reserve Bank of New York, "Remarks by Peter R. Fisher, Manager of the System Open Market Account and Executive Vice President of the Federal Reserve Bank of New York, before the Money Marketeers of New York University," October 8, 1996, and press release, Federal Reserve Bank of New York, "Remarks by Executive Vice President Peter R. Fisher before the PSA's Second Annual Repo and Securities Lending Conference," January 16, 1997.

2 U.S. Department of the Treasury Press Center, "Statement of Under Secretary for Domestic Finance Randal K. Quarles to Bond Market Association Annual Meeting," May 19, 2006. The Bond Market Association became the Securities Industry and Financial Markets Association (SIFMA) on November 1, 2006.

3 U.S. Department of the Treasury Press Center, "Remarks of Deputy Assistant Secretary for Federal Finance James Clouse, U.S. Department of the Treasury, before the Bond Market

> The liquidity and depth of the Treasury market have made it a critical national asset: It affords the U.S. government unparalleled access to funding at the lowest possible cost over time; it is the primary market employed by the Federal Reserve in conducting open market operations and implementing monetary policy; and it conveys important so-called public good benefits to investors around the globe. Active and continuous trading in the Treasury market provides market participants with real-time readings on the "risk-free" rate that, in turn, is both a key benchmark in pricing a broad array of private instruments and a cornerstone for efficient financial portfolios.

Clouse suggested that official concern centered on the acquisition and use of market power:

> … we have observed instances in which firms appeared to gain a significant degree of control over highly sought after Treasury issues and seemed to use that market power to their advantage. In the process, prices in the cash, repo and futures markets appear to have been distorted to varying degrees.

and gave two examples:

> In the so-called "futures squeeze" … a firm acquires control in the repo market or cash market over a security that is cheapest-to-deliver into a Treasury futures contract. In addition, the firm establishes a position in the futures market in which it is due to receive securities at settlement. Ordinarily, firms close out their open positions in an expiring Treasury futures contract and roll into the subsequent contract. But a firm attempting a futures squeeze instead insists on taking delivery with the intent of using its control over the cheapest-to-deliver security to force other market participants to settle their futures obligations by delivering more expensive securities.
>
> Another common strategy is the "repo squeeze" in which firms reverse in very large positions in highly-sought after securities in the term repo market. At the same time, they limit the availability of the security to other market participants by financing only a portion of their term repo position in the specials market. The balance of their position is financed at higher rates in tri-party repo or similar arrangements.

Finally, Clouse laid out the basis for his concern:

Association, Government Securities and Funding Division," September 27, 2006. See also "Repo men – Treasury bonds," *The Economist*, November 4, 2006.

> If the integrity of the secondary market were to be compromised by manipulative trading behavior, many investors could well migrate away from Treasuries in favor of other instruments. Left unchecked, that process could impair many of the special attributes of the Treasury market and raise the Treasury's cost of borrowing over time.

He suggested that it was "incumbent upon all of us … to exercise due diligence in guarding against developments that could pose a serious threat to the integrity of the Treasury market."

Indicia of Problematic Behavior

There are two particularly visible indicia of questionable trading practices: distorted yields on, and elevated settlement fails in, particular securities. Either can limit market liquidity, leading to higher Treasury borrowing costs, higher costs of implementing monetary policy, and similarly higher transactions costs for other market participants.

Broadly stated, Treasury securities with similar maturities and similar coupon rates are close substitutes. Market participants have long observed that similar securities typically have similar yields and rely on that regularity as the basis for constructing yield curves and for identifying mispriced securities. [4] At times, however, individual securities exhibit yields that appear significantly out of line compared to yields on other similar securities, suggesting that specific issue identity – as well as maturity and coupon rate – matters. The prospect of such distortions introduces an element of idiosyncratic risk in addition to ordinary interest rate fluctuations that can lead dealers to limit their willingness to accommodate investor purchase and sale interests.

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[4] See, for example, McCulloch (1971), Vasicek and Fong (1982), Shea (1984, 1985), Nelson and Siegel (1987), Langetieg and Smoot (1989), Fisher, Nychka, and Zervos (1995), and Sack (2001). There are numerous additional characteristics that can also affect yield, such as the liquidity of a security (Amihud and Mendelson, 1991; Warga, 1992; Kamara, 1994; and Elton and Green, 1998) and whether it is in demand in the collateral markets (Duffie, 1996; Keane, 1996; and Jordan and Jordan, 1997).

Elevated settlement fails are the second indicator of questionable trading practices. Some fails are inevitable as a result of normal market frictions and misunderstandings between counterparties. However, there have been instances where particular securities have exhibited atypically high volumes of fails that expose one or the other of the counterparties to a trade to credit risk – buyers when prices rise, sellers when prices fall. *Chronic*, i.e., severe and persistent, settlement fails can lock an investor who bought (but did not receive) a security into a bi-lateral relationship with the seller, where the investor has to bargain with the failing seller if it wants to liquidate its position. The prospect of failing to receive securities on a timely basis can, consequently, undermine market liquidity.

Several instances of yield distortions and settlement fails have been attributed to purposeful activities by market participants. Two particularly well-known episodes revolved around the May 1991 auction of 2-year notes and the settlement of the June 1993 10-year Treasury note futures contract.[5]

The May 1991 2-Year Note Auction

On May 15, 1991, Treasury officials announced that they would auction $12¼ billion of 2-year notes on Wednesday, May 22, for settlement on Friday, May 31. Prior to the close of bidding Paul Mozer, the head of government trading at Salomon Brothers, submitted three large tenders at a yield of 6.81 percent, including one in Salomon's name for $4.2 billion (slightly less than 35 percent of the $12¼ billion offering), one in the name of Quantum Fund for $4.287 billion (exactly 35 percent of the offering), and one in the name of Tiger Investments for $2 billion.[6] The Quantum tender was duly authorized by Salomon's customer but subsequently

5 See, in addition to the works cited below, Ben-Abdallah and Breton (2016).

6 The description of activities related to the May 1991 2-year note auction is based on the written statement of Warren Buffett in Committee on Energy and Commerce (1991, pp. 33-43), the written statement of Deryck Maugham in Committee on Ways and Means (1991, pp. 10-11), and Exchange Act Release no. 34-31554, "In the Matter of John H. Gutfreund, Thomas W. Strauss, and John W. Meriwether," December 3, 1992.

uncovered evidence indicated that Tiger Investments had authorized a tender for only $1.5 billion and that Mozer intended to keep any notes awarded on the additional $500 million for Salomon's account. Salomon also submitted smaller tenders on behalf of other customers for a total of $130 million, all at a yield of 6.81 percent. In addition, Salomon had, but failed to report, a net long position (attributable to contracts for when-issued settlement) in the 2-year note of $485 million.

After the close of bidding Treasury officials announced that the auction had "stopped" at 6.83 percent and that, subject to reduction as a result of the rule that limited the maximum total award to an auction participant to 35 percent of the amount offered, less the participant's net long position if that position exceeded $200 million, all tenders bidding a yield lower than 6.83 percent would be filled in full. Tenders bidding 6.83 percent would be allocated 14 percent of the tender amount.

Mozer's activities in the 2-year note auction breached Treasury's auction rules in three ways. First, he represented that a customer was bidding for $2 billion of the notes when, in fact, the customer had authorized a tender for only $1.5 billion. Second, he failed to report Salomon's net long position. Third, Salomon was awarded more than the difference between 35 percent of the offering and the firm's net long position.

On May 30 Tiger Investments sold all $1.5 billion of its 2-year note award to Salomon Brothers in a conventional when-issued transaction and Salomon sold $600 million of the award to Quantum. As a result, Salomon received $5.6 billion of the notes and Quantum received $4.887 billion on May 31. Salomon and Quantum had previously agreed that Salomon would finance their combined position following settlement.[7] Salomon's repo desk thus controlled 85 percent of the new issue.

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7 Such agreements between Salomon and its customers were not uncommon. Committee on Energy and Commerce (1991, pp. 41-42, written testimony of Warren Buffet).

Initial reports on the May 2-year auction were favorable. *The New York Times* reported that the auction "went well" and *The Wall Street Journal* reported that "bidding … was strong." [8] More ominously, the *Journal* also reported "a lot of rumors surrounding the … note sale," including rumors that "several dealers had sought to buy large amounts of the two-year notes to try to 'squeeze' other dealers."

At the close of trading on the day of the auction the new note was offered at 6.78 percent in the when-issued market, 5 basis points through the auction stop. By the end of the week the note was offered at 6.66 percent. By the middle of the following week the note was at 6.58 percent. Mead Briggs, the head of risk trading at Deutsche Bank Government Securities, called it "a classic short squeeze." [9] The market for the new note remained stressed on Thursday, May 30, when the note closed at 6.56 percent. The *Wall Street Journal* reported "market talk" that more than half of the issue was "controlled by speculators and dealers." [10]

Chart 1 shows the yield on the 2-year note, the 6¾'s of May 31, 1993, from the date of its auction to the beginning of August. Also shown are contemporaneous yields on two older issues with similar maturities: an old 3-year note (the 8⅝'s of May 15, 1993) and an old 5-year note (the 7⅝'s of the same date). **Chart 2** shows the difference between the average yield on the older notes and the yield on the 2-year note. Up through the beginning of the fourth week of July, the 2-year note was persistently and materially more expensive than the two older securities – at one point by 30 basis points. The squeeze abated at the end of July.[11]

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8 "Demand for Notes Spurs Bond Selloff," *New York Times*, May 23, 1991, p. D1, and "Bond Prices Are Mixed as Short-Term Notes Rise on Good Response to Treasury Note Sale," *Wall Street Journal*, May 23, 1991, p. C17.

9 "Short-Term Treasurys Post Fresh Price Gains As Two-Year Notes Become Especially Attractive," *Wall Street Journal*, May 30, 1991, p. C22.

10 "Treasury's 30-Year Issue Surges as Dealers Sell Short-Term Securities to Buy Long-Term Bonds," *Wall Street Journal*, May 31, 1991, p. C19.

11 Jordan and Jordan (1996) present a careful analysis of the squeeze and conclude (p. 27) that the May 2-year note "was significantly overpriced for approximately six weeks following the auction. A conservative estimate of the typical overpricing during this period is … [about

The highly visible squeeze attracted the attention of regulators. In mid-July the *Wall Street Journal* reported that the Securities and Exchange Commission had initiated an investigation.[12]

The June 1993 10-Year Treasury Note Futures Contract

Monday, June 21 was the last day of trading in the June 1993 ten-year Treasury note futures contract.[13] Fenchurch Capital Management, Ltd. (Fenchurch), a commodity trading advisor and commodity pool operator that traded extensively in the cash and futures markets for U.S. government securities, was long 12,700 contracts at the close of trading – about three-quarters of the total open interest – and thus obligated to receive and pay for about $1.3 billion of 10-year notes on or before Wednesday, June 30.

Futures market participants who were short at the close of trading could deliver any of several notes originally issued as 10-year notes. On Friday, June 25, the cheapest-to-deliver note was the 8½ percent note of February 15, 2000. Fenchurch controlled, through cash and repo transactions, about $1.4 billion of that note. The next-cheapest-to-deliver note, by about five thirty-seconds of a percent of principal, was the 8⅞ percent note of May 15, 2000.

The Commodity Futures Trading Commission subsequently found that between June 25 and June 30 Fenchurch borrowed additional amounts of the 8½ percent notes in the special collateral repo market, accepting increasingly low interest rates on the funds it lent in return, and financed those notes in the general collateral repo market, at substantially higher rates, through

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five thirty-seconds of a percent of principal], and [eight thirty-seconds] is probably more realistic. On certain days, the mispricing was closer to [fourteen thirty-seconds].” See also the related article by Jegadeesh (1993).

12 “Treasury May Tighten Note-Sales Rules Following a ‘Squeeze’ at May Auction,” *Wall Street Journal*, July 10, 1991, p. C8.

13 The description of events related to the June 1993 10-year Treasury note futures contract is based on Commodities Future Trading Commission, “In the Matter of Fenchurch Capital Management, Ltd.,” July 10, 1996.

channels that ensured the notes would not be relent in the specials market. The Commission further found that over the same period Fenchurch intentionally failed to return 8½ percent notes that it had previously borrowed.

The Commission found that "as a result of Fenchurch's activities in the repo market, Fenchurch withheld from the markets a dominant portion of the available supply of the 8½ percent notes." Unable to obtain enough 8½ percent notes to settle their contract obligations, futures market participants with short positions in the June contract were forced to acquire and deliver the next-cheapest-to-deliver 8⅞ notes. About a third of the notes Fenchurch received consisted of the latter notes. The Commission concluded that, "as a result of Fenchurch's actions in the repo market, Fenchurch increased substantially the value of its futures position …"

Dysfunctional Market Architecture and Bad Luck

Although not noted by Quarles and Clouse, distorted prices and settlement fails can also result from dysfunctional market architecture and just plain bad luck. Particularly well-known examples include the squeeze in the 9¼ percent 30-year Treasury bond of February 15, 2016, prior to and following the offering of a new 30-year bond in May 1986,[14] the chronic settlement fails following the terrorist attacks on September 11, 2001,[15] and the chronic settlement fails in the 3⅝ percent 10-year Treasury note of May 2013 beginning in late June 2003.[16] In all three cases, strong demand to borrow securities (relative to the available supply) drove special collateral repo rates to near zero, at which point – for reasons explained in **Box 1** – sellers

[14] Cornell and Shapiro (1989, p. 300) report that, in late May 1986, the yield on the 9¼ percent bond maturing in February 2016 was as much as 50 basis points lower than the yield on the 9⅞ percent Treasury bond maturing three months earlier. See also Burstein (1987), Department of the Treasury, Securities and Exchange Commission, and Board of Governors of the Federal Reserve System (1992, pp. 10 and B-1), and Mayer (1993, p. 198).

[15] Fleming and Garbade (2002) report settlement fails in excess of $200 billion per day following the 9/11 attacks.

[16] Fleming and Garbade (2004) describe the 2003 episode.

became essentially indifferent to failing. None of the three cases involved a purposeful intent to distort prices or cause settlement fails.

Getting the Ball Rolling

In his September 2006 speech, Clouse remarked that Treasury officials were "working to raise the awareness [of problematic behavior] at the highest levels of financial firms." However, Treasury's natural connection to the Treasury market was to the *primary* market for new offerings, rather than to the cash and financing markets for outstanding issues, where most (but not all) of the questionable activities took place.

The Federal Reserve Bank of New York, on the other hand, had a deep and long-standing connection to the secondary market for U.S. Treasury securities stemming from its role as agent for the Federal Open Market Committee. In particular, the Bank had relied on a network of primary dealers as counterparties in its open market operations since the late 1930s.[17] Additionally, as described in the appendix, the Bank had twice had experience with voluntary associations of primary dealers.

On November 6, 2006, Dino Kos, the Manager of the System Open Market Account and an executive vice president of the New York Reserve Bank, met with senior managers and compliance officials from the twenty-two primary dealer firms. Kos got right to the point:

> We all have an interest in the efficient and effective functioning of the Treasury markets. But, as is evident in the [speeches by Quarles and Clouse], integrity and fairness are essential attributes of the Treasury markets which suffer when market participants lose sight of their importance. We are confident that no one here wants to see the Treasury market become subject to additional regulation in response to practices that erode investor confidence …
>
> … It should be emphasized that, for the most part, the Treasury market functions incredibly well, and we recognize your many efforts to that end.

17 Garbade (2016).

> Historically, the response by the official sector to the high standards perceived in the Treasury market has been to impose as little regulatory burden as possible. I would like to discourage you from taking the current regulatory framework for granted and suspect you all realize the possibility that a more onerous regulatory structure could emerge if questionable or inappropriate behavior became more common. I believe the possible forfeiture of the current regulatory regime is adequate incentive to redouble (or renew) our efforts to maintain market practice standards that work to minimize incidents that might harm the market's reputation.[18]

Having given the dealers a peak at the iron fist of formal regulation, Kos put his velvet glove back on and offered "several observations to help you and your firms in understanding behaviors that might damage Treasury market integrity and concurrently risk raising market surveillance scrutiny of individual firms." Kos suggested,

- strengthening oversight by senior trading managers and compliance officials, paying close attention to situations where a firm controlled more than fifty percent of an issue, where an issue was in strong and persistent demand in the collateral markets, where there was an elevated level of delivery fails, and where a trading desk was recording unusual levels of profitability;
- improving the access of compliance officials to trading operations, and increasing their awareness of trading strategies that could open a firm to criticism, such as financing large positions in the general collateral tri-party repo market when they could be financed at lower cost in the markets for specific collateral; and
- adopting clear policies on making deliveries late in the day and, in particular, avoiding large last-minute deliveries that cannot be redelivered by the recipient – a practice known as "slamming the wire."

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18 "FRBNY Perspective on Recent Behavior in the Government Securities Market," remarks prepared for delivery by Dino Kos, Manager of the System Open Market Account, at a meeting of primary dealers at the Federal Reserve Bank of New York on November 6, 2006.

Kos further noted that "settlement fails are a matter of primary concern for the New York Fed,[[19]] because they prevent the market from clearing and can damage market liquidity and function." He suggested that "firms should take care that their internal policies do not exacerbate [settlement fails] or contribute to market congestion," i.e., overloading Federal Reserve book-entry and securities transfer systems.

Kos ended by making it clear that he had no intention of dropping the matter of questionable trading practices any time soon. He expressed a willingness "to explore the formation of a panel to continue the dialogue we start here today in order to ensure an ongoing forum for wholesale Treasury market participants to discuss market functioning and acceptable market behavior" and suggested that the panel might issue "sound practice guidance" from time to time.[20]

Following the November 2006 primary dealer meeting, Treasury and Federal Reserve officials considered what sort of group would be most appropriate for discussing and promulgating guidelines on acceptable market activities. There was broad agreement that the group should include institutional investors and representatives of industry utilities such as the Fixed Income Clearing Corporation and custodian and clearing banks as well as primary

[19] Settlement fails have been a matter of concern to the Federal Reserve Bank of New York for five decades and were the specific and sole reason for the introduction of a securities lending facility (from the portfolio of the System Open Market Account) in 1969. Memo from Trading Desk Officers to Alan Holmes, "The Need for System Lending of Securities," Federal Reserve Bank of New York, May 14, 1969; memo from Spencer Marsh and Peter Sternlight to Alan Holmes, "'Fails' in the Government Securities Market," Federal Reserve Bank of New York, August 15, 1969; memo from Alan Holmes to Federal Open Market Committee and Presidents not now serving on the Committee, "System Lending of Securities," August 22, 1969; minutes of the Federal Open Market Committee, September 9, 1969, pp. 79-85, and October 7, 1969, pp. 94-97; and *Federal Reserve Bulletin*, January 1970, p. 32.

[20] A press release describing the meeting similarly stated that the Bank looked forward "to further discussion with the primary dealers and other market participants" and that it would "continue to promote and encourage ways to improve industry practices and strengthen market integrity." Federal Reserve Bank of New York press release, "Statement Regarding New York Fed Meeting with Primary Dealers," November 6, 2006.

dealers.[21] The Federal Reserve Bank of New York volunteered to sponsor the group and provide administrative support and an outlet, on its public website, for the distribution of group materials including white papers, best practice recommendations, FAQs, and practice guidance documents.

On February 9, 2007, the Bank announced the formation of the Treasury Market Practices Group (TMPG), a voluntary private-sector group formed to "strengthen market integrity by promotion of best practices in the Treasury market." [22] **Box 2** identifies the founding members. The announcement included a draft of *Treasury Market Best Practices*, a compilation of recommended practices intended "to promote trading integrity and market efficiency." A final version appeared on May 11, 2007.

<u>Treasury Market Best Practices</u>

Treasury Market Best Practices [23] was a compilation of recommended best practices and practices to avoid in trading and financing U.S. Treasury securities. The compilation focused on firm and trader behavior, emphasizing timely trade settlement and maintenance of competitive market conditions. Recommendations were grouped into four thematic areas: promoting market making and liquidity, maintaining a robust control environment, special obligations associated with managing large positions, and promoting efficient market clearing.[24] Taken as a whole, *Best Practices* was an effort to enhance liquidity and market efficiency, bring some questionable

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21 From inception, and continuing to this day, the Federal Reserve Bank of New York has emphasized the value of a broad and inclusive membership, as expressed in "The Role of Best Practices in Supporting Market Integrity and Effectiveness," remarks by Simon Potter, Executive Vice President, at the 2016 primary dealers meeting, Federal Reserve Bank of New York, September 7, 2016.

22 Federal Reserve Bank of New York press release, "Statement on Formation of Private-Sector Treasury Market Best Practices Group," February 9, 2007.

23 Treasury Market Practices Group, *Treasury Market Best Practices*, May 11, 2007.

24 Market clearing refers to the steps involved in preparing executed trades for settlement, including exchange of trade details between counterparties to a trade and submission of settlement instructions.

trading practices out of the shadows and into the sunlight of public scrutiny, and limit the prospect of overly burdensome regulation.

Promoting Market Making and Liquidity

Best Practices stated that "dealers, in particular, should promote market making, and all market participants should avoid trading strategies that hinder market clearance. Examples of strategies to avoid include those that cause or exacerbate settlement fails, those that inhibit the provision of liquidity by others, [and] those that restrict the floating supply of a particular issue in order to generate price movements in that security or related markets." The reference to restrictions on floating supply referred to strategies to finance positions in securities on demand in the special collateral markets with repo contracts that precluded rehypothecation of the collateral or with counterparities that did not lend securities.

Best Practices further stated that market participants should be "responsible in quoting prices," should "promote overall price transparency in the inter-dealer brokers' market," and should "avoid pricing practices that do not have an objective of resulting in a transaction," such as submitting and then quickly retracting bids and offers in the inter-dealer market.

Maintaining a Robust Control Environment

Best Practices was keen to promote the active involvement of compliance officers in the trading process and suggested that firms consider a lengthy but non-exhaustive list of indicators that should prompt further review. The list included:

- ownership of a large concentration of the floating supply of a particular security;
- elevated delivery or receive fails in a particular security;
- persistent and deep "specialness" of a security;
- an appreciable or unusual amount of market turnover in a particular security;
- unusual levels or patterns of either profits or losses;

- changes in a market participant's normal securities lending or borrowing patterns in a security in which the participant has a large position; and
- when securities are trading "special," the placement of a substantial percentage of floating supply in general collateral funding arrangements such as GCF Repo® or tri-party repo, or the placement of large blocks of collateral with select counterparties that typically do not recirculate collateral.

Managing Large Positions with Care

Best Practices acknowledged that large positions in a particular security were "not necessarily problematic" but recommended that such positions "be managed responsibly to avoid market disruptions." In particular,

- "Market participants should avoid trading strategies that create or exacerbate settlement fails. Such vigilance should be intensified when a large position predominantly or entirely results from proprietary positioning since the market participant had more control over that position's size and growth."
- "When a participant controls a significant percentage of the floating supply of an issue that is trading deeply special, it should ensure that it making a good faith attempt to lend the security into the specials market rather than choosing to finance large portions of this collateral in relatively more expensive funding arrangements."
- "Firms should adopt a strong presumption against using relatively more expensive funding arrangements to finance large portions of an issue trading special, even on an overnight basis. If such financing is used, senior management should fully understand why the exception is appropriate. Management and legal and compliance functions should be notified of such activity in a timely manner."

Promoting Efficient Market Clearing

Finally, *Best Practices* observed that "smooth and predictable settlement and clearing are crucial for preserving the liquidity and efficiency of the Treasury market. Settlement fails prevent the market from clearing efficiently and can damage the market's liquidity and function. While some settlement fails are inevitable, market participants should take care that their internal policies promote practices that support efficient and timely clearing and that avoid unnecessary market congestion." In particular,

- "Market participants should avoid practices that intentionally inhibit the efficient clearing of the market, such as 'slamming the wire' – the practice of holding back securities until immediately before the close of the securities wire with the intention of causing settlement fails in the market."
- "A market participant's policies and systems should ensure that trades are entered promptly into trading systems by the trading desk staff and made available to the operations area as quickly as possible in order to promote efficient settlement."
- "A request to 'hold the box' – to hold settlement of an executed trade for a period of time – should warrant high scrutiny from trading management, settlement staff, and compliance staff. 'Holding the box' is appropriate only in very specific and limited circumstances, such as ensuring a futures contract delivery obligation."
- "Incoming securities from counterparties that are to be delivered to other counterparties should be turned around quickly to minimize fails and promote market clearing and settlement."

II. Expanding the Focus to include Market Architecture

The financial crisis of 2007-2009 validated the proposition that threats to the liquidity and structural integrity [25] of the government securities market could arise from infrastructure issues as well as from questionable trading practices and that resolution might require structural remedies.

Responding to Settlement Fails During the Financial Crisis

In the early stages of the financial crisis, before the fall of Lehman Brothers in September 2008, the TMPG sought to address a growing incidence of settlement fails with appeals to better behavior. In February 2008 it published a recommendation that firms establish "internal controls that measure and quickly alert management to significant settlement fails in a security," [26] noting that,

> The establishment of well-calibrated internal controls designed to provide timely notice of CUSIP-specific fails within individual firms can play an important role in enabling the market to resolve settlement fails before they become systemic.

and that,

> Internal controls that immediately bring significant fails in an individual CUSIP to management's attention allow managers to respond before fails age or become systemic, thereby helping to improve overall market liquidity and functioning for all participants.

Two months later, as the fails problem continued to fester, the TMPG reiterated its *Best Practices* recommendation that firms "adopt a strong presumption against using GCF Repo or tri-party repo to finance large portions of an issue trading deeply special" and suggested that

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25 The term "structural integrity" here refers to the ability of the market to absorb shocks, such as large price movements or unexpected firm failures, and continue to function effectively.

26 TMPG announcement, "Treasury Market Practices Group Amends its Best Practices," February 19, 2008.

"market participants with large positions make a good faith attempt to lend a security trading deeply special into the specials market." [27]

The explosive increase in settlement fails following the failure of Lehman Brothers –to a daily average volume of nearly $400 billion by mid-October 2008 (**Chart 3**) – convinced the TMPG that it had to pursue structural, rather than behavioral, remedies. On November 12, 2008, it endorsed several measures intended "to remediate the prevalence of widespread and persistent fails and to prevent their recurrence," including the adoption of a novel fails charge. [28]

The proposed fails charge was intended to replace the long-standing convention that the only cost to a seller of failing to deliver securities on the originally contemplated settlement date of a trade was the loss of interest on the proceeds due upon delivery.[29] The TMPG recommended that, in addition, the seller pay the buyer a fee assessed (on the amount due upon delivery) at a daily rate equal to the greater of (a) three percent per annum minus the target federal funds rate on the preceding business day and (b) zero.[30] There would be no explicit penalty to failing if the

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[27] TMPG announcement, "TMPG, Fixed Income Clearing Corporation, and Clearing Banks Discuss Best Practices for General Collateral Financing," April 28, 2008.

[28] TMPG announcement, "Treasury Market Practices Group Endorses Several Measures to Address Widespread Settlement Fails," November 12, 2008. The fails charge was initially termed a "fails penalty" that reduced the proceeds due upon delivery but the name was changed in early 2009 and the penalty was separated from the amount due. Garbade, Keane, Logan, Stokes and Wolgemuth (2010) recount the introduction of the fails charge in some detail. The TMPG also recommended that the parties to a long-lived settlement fail attempt to reach a mutually agreeable cash settlement and that market participants study the feasibility of (a) margining settlement fails to limit credit exposures, (b) a securities lending facility by the U.S. Treasury, and (c) a multilateral trade netting facility. The first was little more than a suggestion; the study recommendations were unlikely to bear fruit in the near future.

[29] Chapter 8, Paragraph C, of the 1993 Public Securities Association *Government Securities Manual* provided that, with respect to failed transactions, "If securities are not delivered on the agreed upon settlement date, there is a fail. Regardless of the date the securities were actually delivered, the buyer of the securities pays the seller the original settlement date figures."

[30] The target federal funds rate was adopted as a "rough, but easily observed, proxy for the general collateral repo rate." When the FOMC targets a range, rather than a level, for the

target funds was greater than or equal to three percent. If the target rate was below three percent the fails charge rate would vary inversely with the target rate up to a maximum of three percent, thereby putting a floor of roughly three percent on the total costs, implicit and explicit, of failing.[31] The TMPG believed that the recommended out-of-pocket cost to the seller would provide "a compelling incentive to resolve fails promptly. If a failing counterparty is unable to find a security to make delivery, it will be motivated to pursue voluntary settlement options, such as bilateral cash settlement …" The TMPG further noted that the fails charge would give sellers an incentive to offer to borrow securities in the special collateral repo markets at negative interest rates, something that would, in turn, give securities lenders a greater incentive to lend.

Short-term interest rates declined during the winter of 2008-2009 and the TMPG became anxious that the absence of an adequate incentive to cure settlement fails would continue to threaten orderly trade settlement. In January 2009 the TMPG suggested full implementation of the proposed fails charge by the following summer,[32] an aggressive schedule that was nevertheless adhered to. In the interest of reducing the burden of complying with the new market convention and encouraging widespread adoption, the TMPG suggested that charges for less than $500 over the life of a settlement fail be waived.[33]

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federal funds rate, the TMPG recommended using the bottom end of the range. The three percent rate was adopted because "experience shows that fails have not become widespread and chronic if the general collateral repo rate is above about 3 percent per annum." TMPG white paper, "Claiming a Fails Charge for a Settlement Fail in U.S. Treasury Securities," January 5, 2009. In 2016 the TMPG revised its recommendation to provide that the fails charge rate should reflect the current target federal funds rate or range. TMPG announcement, "TMPG Clarifies When Changes to Reference Rate Used for Fails Charge Take Effect," February 25, 2016.

[31] The exact cost of failing was the general collateral repo rate plus the fails charge rate.

[32] TMPG announcement, "Timeline for New Market Practices to Address Widespread Settlement Fails in U.S. Treasury Securities," January 5, 2009.

[33] TMPG announcement, "Treasury Market Practices Group Announces Updates to Fails Charge Recommendation," March 30, 2009. The waiver threshold was lowered in June 2016 to $500 per month for all transactions with a given counterparty. TMPG

The decision to recommend a fails charge to mitigate settlement fails marked an important expansion of the scope of TMPG objectives, to include market infrastructure issues as well as questionable trading practices.

Dealer Time

The Fedwire securities system [34] is the backbone of the settlement system for U.S. government securities. It provides for the wire transfer of book-entry Treasury and Federal agency securities among commercial banks, most commonly on a "deliver-versus-pay" basis, where immediately available funds, in an amount specified by the sender of securities, are transferred from the reserve account of the recipient to the reserve account of the sender simultaneous with the securities transfer.[35]

In spring 2009 the Fedwire securities system closed at 3:30 p.m. each business day. A market participant could originate a securities delivery up until 3:15 p.m., either on its own (if it had an account at a Federal Reserve bank) or through a custodial bank. The interval from 3:15 to 3:30 p.m. was reserved for "reversals" – returns of securities sent in error earlier in the day, or against incorrect payment amounts, coupled with returns of related funds.

Market participants, acting on their own and without the involvement of the Federal Reserve System, observed the additional convention that between 3:00 and 3:15 p.m.,

- a customer could not originate a delivery to a dealer,
- a dealer could originate a delivery to another dealer with the permission of the dealer, but

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announcement, "TMPG Revises U.S. Treasury and Agency Debt Securities Fails Charge Trading Practices," June 29, 2016.

34 See *Book-Entry Securities Account Maintenance and Transfer Services*, Federal Reserve Banks Operating Circular No. 7, June 30, 2016.

35 Securities can also be transferred "free," without any offsetting transfer of funds.

- a dealer could, in many (but not all) cases, originate a delivery to a customer *without* the permission of the customer.

The fifteen minute interval between 3:00 and 3:15 p.m. was commonly known as "dealer time."

Dealer time originated in the mid-1970s to mitigate settlement fails.[36] At that time there was a sharp distinction between dealers in government securities and non-dealer customers (such as corporate and municipal cash managers, non-dealer banks, pension funds, and insurance companies). Dealers were in the business of providing liquidity – quoting bid prices at which they were willing to buy and offer prices at which they were willing to sell – and seeking to acquire, in the process, information on evolving supply and demand conditions. Customers

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[36] See Memorandum to Participants in the Government Securities Clearing Arrangement, Memo no. 59, Federal Reserve Bank of New York, May 21, 1974, accommodating a request for dealer time because some dealers were "experiencing difficulties arising out of their inability to 'turn around' transfers received by them just prior to the existing closing hour."

Dealer time was included in Federal Reserve operating procedures until 1995. See, for example, Appendix A to Federal Reserve Bank of New York Operating Circular No. 21A, "Closing Hours for On-Line Transactions in Book-Entry Securities," January 25, 1984, providing 15 minutes for turnaround (redelivery) transactions from a dealer to a customer, and "Federal Reserve Bank Services," *Federal Register*, October 11, 1989, pp. 41,681-41,683, noting, on p. 41,682, 15 minutes "for dealer turnaround."

Federal Reserve provisions for dealer time began to encounter resistance in the mid-1990s. See, for example, letter from Joseph Acer, Vice President, State Street Bank and Trust Company, to William Wiles, Board of Governors of the Federal Reserve System, April 19, 1995, requesting review of Federal Reserve provisions related to dealer time and stating in an attachment that "we believe the original reasons for granting broker/dealers additional delivery time to customers are no longer valid in today's automated environment."

The Federal Reserve withdrew its provisions for dealer time in 1995 but stated also that it would not object to continuation of the practice pursuant to an industry standard. See "Federal Reserve Bank Services," *Federal Register*, August 15, 1995, pp. 42,410-42,413, stating, at footnote 9, that "the Federal Reserve Banks' book-entry securities operating circulars will be modified to eliminate reference to a separate deadline for dealer-to-customer deliveries" but stating also, in the text on p. 42,411, that "the Board's action does not preclude the continuation of an industry standard for a dealer-turnaround time if the industry believes it is needed." See also "PSA Amends Good Delivery Deadlines for Extended Fedwire Book-Entry System," *PSA Government Securities Newsletter*, November 27, 1995, p. 2, providing for 15 minutes of dealer time.

shopped their purchase and sale interests among competing dealers, looking for the most attractive bids and offers.

A large fraction of dealer trades were with other dealers, undertaken to test their competitors' appetite to buy and sell, to take advantage of the price discrepancies that sometimes appear in incompletely integrated markets, and to off-load positions acquired from customers. Trading between dealers was facilitated by inter-dealer brokers [37] and purchases and sales were commonly offset with sales and purchases of the same securities later in the same day, particularly in trading on-the-run securities. Customers, on the other hand, were far less likely to offset a transaction later in the same day. As a result, securities delivered in settlement of an inter-dealer trade were far more likely to be redelivered by the recipient dealer later in the same day than securities delivered to a customer.

Dealer time was intended to mitigate settlement fails by forcing customers to complete deliveries to dealers (deliveries that augmented the pool of securities available for redelivery) before dealers had to complete deliveries of securities to customers (deliveries that drained the pool of securities available for redelivery). It also gave a dealer control of its inventory for the last fifteen minutes of settlement time, reducing the likelihood that the dealer would be unable to "turn around" securities received before 3:15 p.m. and forced to finance the securities until the next business day. Customers, on the other hand, had little need to turn around deliveries because they hardly ever bought and sold the same security on the same day. Dealer time was, therefore, an efficient market convention given the trading patterns of dealers and customers in the mid-1970s.

By the late 1990s the trading patterns of some customers had begun to resemble dealer trading patterns. In particular, there was a rising incidence of two-way customer trading that

[37] See Garbade (1978a, b).

generated delivery and receive obligations in the same security on the same day. Dealer time left those customers unable to redeliver securities received between 3:00 and 3:15 p.m.[38]

To cure the inconsistency between a market convention adopted in an earlier time and the contemporary market environment, the TMPG and the Securities Industry and Financial Markets Association (SIFMA) recommended, in May 2009, that, as a default position, *all* market participants should observe a 3:00 p.m. closing time for originating Fedwire securities transfers.[39] However, both institutions recognized that "some participants may find it beneficial to negotiate, bilaterally with some of their counterparties, alternative arrangements to cover settlements between themselves and their counterparties." In particular, "market participants with sophisticated inventory control systems may prefer to originate and receive securities with each other up until the 3:15 cutoff time … prescribed by the Federal Reserve System." The TMPG/SIFMA announcement allowed that "such mutually-agreed arrangements would not violate the general closing time recommendations," thereby leaving room for "beneficial agreements while eliminating the non-consensual asymmetry in current closing time practices."

The closing time recommendation was important as the TMPG's second foray into effecting change in the infrastructure of the government securities market.

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38 An April 2009 joint TMPG and SIFMA announcement observed that dealer time "can sometimes leave a customer who had, at 3:00 p.m., an uncompleted obligation to receive securities and a matching uncompleted obligation to deliver the same securities in the position of taking in the securities after 3:00 p.m. without being able to turn the securities around and redeliver them on the same day." Joint TMPG and SIFMA white paper, "Recommended Closing Time Practices for Delivering U.S. Treasury Securities," April 28, 2009.

39 Joint TPMG and SIFMA announcements, "TMPG and SIFMA Finalize Closing Time Practice Recommendations for Delivering Fedwire-Eligible Securities," and "Recommended Closing Time Practices for Delivering Fedwire-Eligible Securities," May 28, 2009.

III. Expanding the Focus to include Federal Agency Securities

On November 25, 2008, in the midst of the largest financial crisis in three-quarters of a century, the Federal Open Market Committee announced that the Federal Reserve System would purchase up to $100 billion of debt securities issued by Fannie Mae, Freddie Mac, and the Federal Home Loan Banks (agency debt securities) and up to $500 billion of mortgage-backed securities issued by Fannie Mae, Freddie Mac, and Ginnie Mae (agency MBS).[40] The Committee stated that "spreads of rates on [agency debt securities and agency MBS] have widened appreciably of late" and that the initiative was intended "to reduce the cost and increase the availability of credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally."

The contemplated scale of agency debt and agency MBS operations was unprecedented. The Federal Reserve System had had statutory authority to purchase securities issued by federal agencies since 1966 [41] but System operations had never provided more than marginal support to the agency markets. At the end of August 2008, shortly before the failure of Lehman Brothers, the System Open Market Account held $473 billion of Treasury debt but no agency debt. The System had never acquired mortgage-backed securities on an outright basis.[42]

Agency debt purchases began immediately; agency MBS purchases began two months later. In March 2009 the FOMC announced a program expansion, to $200 billion of agency debt securities and $1.25 trillion of agency MBS.[43] **Chart 4** shows the resulting expansion in System Open Market Account holdings of agency debt and agency MBS.

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40 Federal Reserve press release, November 25, 2008.

41 Act of September 21, 1966, section 6. The original authority to purchase and sell federal agency securities was limited to one year but was subsequently made permanent.

42 System repos on agency MBS started in 1999. *Domestic Open Market Operations during 1999*, Federal Reserve Bank of New York, February 2000, p. 3. The initial, temporary, authority was renewed several times and made permanent in 2003. *Domestic Open Market Operations during 2003*, Federal Reserve Bank of New York, January 2004, p. 3.

43 Federal Reserve press release, March 18, 2009.

The FOMC initiative sparked greater official interest in the liquidity and efficiency of the markets for agency debt securities and agency MBS. An internal New York Reserve Bank memorandum written in February 2010 remarked that, "given the SOMA's sizable holdings of agency debt and agency MBS, the Federal Reserve now has a direct interest in maintaining liquid and well-functioning markets in these securities." [44]

On March 30, 2010, the TMPG announced that it was expanding its scope to include "the promotion of market best practices related to trading and settlement in the agency debt and agency [MBS] markets." [45] It stated that the expansion was "natural for the TMPG given the importance of the effective functioning of the Treasury, agency debt, and agency MBS markets, the extensive overlap of trading and settlement structures and investors across the markets, and the TMPG's experience in promoting best practices." The TMPG also stated that it did not plan to further expand its scope beyond the Treasury, agency debt, and agency MBS markets because "there is a natural division between these and other markets. The Treasury, agency debt, and agency MBS markets are all liquid products that are transferred over the Fedwire system and that may be used in open market operations by the Federal Reserve Bank of New York." [46]

In July 2010 the TMPG published a draft update of *Best Practices* that extended the group's best practice recommendations to the agency markets.[47] The focus remained on the four original topics: promoting market making and liquidity, maintaining a robust control

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44 Memo from Joshua Frost, Frank Keane, and Amanda Stokes to Brian Sack, Federal Reserve Bank of New York, "Expansion of the Scope of Focus for the Treasury Market Practices Group," February 24, 2010.

45 TMPG announcement, "Treasury Market Practices Group Expands Role to Promote Best Practices in Agency Debt and Agency Mortgage-Backed Securities Markets," March 30, 2010.

46 TMPG announcement, "Frequently Asked Questions: Expansion of the TMPG's Role," March 30, 2010.

47 TMPG announcement, "Treasury Market Best Practices Group Releases Best Practices for Treasury, Agency Debt and Agency Mortgage-Backed Securities Market," July 15, 1010.

environment, managing large positions with care, and promoting efficient market clearing. A final version was published on September 14, 2010.[48]

<u>A Fails Charge for Agency Debt Securities and Agency MBS</u>

Settlement fails in the agency MBS market were on an upward trajectory in early 2010 (**Chart 5**). Observers attributed the increase to the same factors that had precipitated chronic fails in the Treasury market: a market convention that a failing seller could deliver securities after the originally scheduled settlement date at an unchanged invoice price and with no additional penalty and low short-term interest rates that left sellers with little economic incentive to cure settlement fails.[49] At the January 28, 2010, meeting of the TMPG, during a discussion of whether to expand the Group's aegis to include agency debt securities and agency MBS, several members suggested that the rising level of fails in the MBS market warranted imposition of a fails charge similar to what had been adopted in the Treasury market.[50]

Following the March 2010 decision to cover agency debt securities and agency MBS and the publication of an expanded *Best Practices* in September 2010, the TMPG turned its attention to the matter of a fails charge for the two classes of agency securities. Settlement fails in agency debt securities were not unusually high (**Chart 6**) but expanding the fails charge to those securities presented no special problem. Except for the issuer, the securities were identical to Treasury debt: book-entry securities that promised to make specified payments on specified dates. As was the case for Treasury debt, trades in agency debt were negotiated for particular

48 Treasury Market Practices Group, *Best Practices for Treasury, Agency Debt, and Agency Mortgage-Backed Securities Markets*, September 14, 2010.

49 TMPG white paper, "Understanding Settlement Fails in Agency Mortgage-Backed Securities," April 29, 2011, p. 2.

50 Memo from Joshua Frost, Frank Keane, and Amanda Stokes to Brian Sack, Federal Reserve Bank of New York, "Expansion of the Scope of Focus for the Treasury Market Practices Group," February 24, 2010.

securities identified by CUSIP and mostly settled the next business day, on a deliver-versus-pay basis through the Fedwire securities system.

Agency MBS were quite different. Individual pools of mortgages were identified by CUSIP (as well as by pool numbers) but trades were usually negotiated on the basis of summary pool characteristics – issuer, maturity, and coupon rate. A seller had the option of delivering any pool that satisfied the summary characteristics specified in a trade.[51] Most agency MBS settlements were concentrated on a single day each month that varied with the issuer and the type of MBS – see **Table 1**. A seller was obliged to notify its counterparty about the specific terms of the mortgage-backed securities that the seller intended to deliver, including pool numbers and CUSIPs, two days before the settlement date of a trade. Trading was thus said to be on a "to be announced," or "TBA," basis.[52]

Since a seller had the option to deliver any pool that satisfied the summary characteristics specified in a trade, it had an economic incentive to deliver the least valuable, or "cheapest-to-deliver," pool. If a seller had obligations to both receive and deliver pools with the same characteristics on a given settlement date, it had an incentive to see what it received before completing its deliveries, because it might be more advantageous to redeliver arriving securities than delivering what it had told its counterparties. However, since two-day notice was required, the substitution could only be effected by strategically failing on its original commitment.

The TMPG published a draft version of a proposed fails charges for agency debt securities and agency MBS on April 29, 2011.[53] The fails charge for agency debt tracked the

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[51] Futures contracts for Treasury notes and bonds, and for commodities like wheat and soybeans, have similar delivery features. See, for example, Garbade and Silber (1983).

[52] Vickery and Wright (2013) explain trading conventions in the TBA market. See also TMPG white paper, "Understanding Settlement Fails in Agency Mortgage-Backed Securities," April 29, 2011.

[53] TMPG announcement, "Treasury Market Practices Group Proposes Fails Charge Recommendations for Agency Debt and Agency MBS Markets and Seeks Public Comment," April 29, 2011.

Treasury fails charge but the MBS fails charge had a wrinkle. The draft proposed that the fails charge on an MBS trade should run from the date of the initial delivery failure to the ultimate settlement date but that it would not become effective until the third business day after the initial delivery failure, thus providing a two-day "resolution period" in recognition of the widespread acceptance of strategic fails.[54]

The final version of the fails charge, announced in July 2011 with a suggested effective date of February 1, 2012, made only one change from the draft version: it suggested that the MBS fails charge accrue at a rate equal to the greater of (a) 2 percent (rather than 3 percent) per annum minus the target federal funds rate and (b) zero. The TMPG recommended a lower charge rate for MBS in light of the potential for the monthly settlement cycle to make it more challenging to resolve fails quickly, but reserved the right to revisit the charge rate in the future if needed.[55]

<u>Margining Agency MBS Transactions</u>

Purchases and sales of agency MBS in the TBA market are forward transactions that typically settle one or two months in the future. Prices can rise or fall significantly during the

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54 The proposed fails charge recommended the resolution period "in recognition of the nature of clearance and settlement in the agency MBS market." TMPG announcement, "Treasury Market Practices Group Proposes Fails Charge Recommendation for Agency Debt and Agency MBS Markets and Seeks Public Comment," April 29, 2011. In March 2013 the TMPG removed the resolution period, stating that the change would "eliminate incentives market participants may have had to intentionally fail to deliver securities in order to 'sort the box' during the resolution period …" TMPG announcement, "TMPG Revises Agency MBS Fails Charge Trading Practice," March 1, 2013.

55 The TMPG stated that it had "recommended a lower charge level for the agency MBS market, given structural differences in this market compared to the agency debt and Treasury markets. These differences include monthly settlement conventions that make fails more persistent and more challenging to resolve quickly. The TMPG believes that a lower charge can be effective in reducing agency MBS fails, while at the same time supporting liquidity in the market. If fail levels do not decline satisfactorily within a few months after the charge takes effect, the TMPG will consider raising the charge level." TMPG announcement, "Frequently Asked Questions: TMPG Fails Charges," July 6, 2011.

interval between when a trade is negotiated and when it settles, giving rise to material counterparty credit risk. If prices rise and a seller is unable to deliver securities as promised, the buyer faces the prospect of negotiating a new purchase with another seller at a higher price. If prices fall and a buyer is unable to pay for securities as promised, the seller faces the prospect of negotiating a new sale with another buyer at a lower price.

Counterparty credit risk is liable to morph into broader systemic problems if a large buyer or seller fails, or if a number of smaller buyers or sellers fail at the same time. A TMPG white paper observed that,

> The default of one or more market participants, especially large ones, on an uncleared bilateral transaction could result in chaotic trading. If the first party to default had a large net long or net short position outstanding, market functioning could deteriorate amid one-sided trading and price volatility as its counterparties sought to replace their trades at the same time.

and that,

> If the losses had or were perceived to have a destabilizing effect on these counterparties, there could be a contagion effect through ex post margin calls, reluctance to establish new transactions, or redemptions by investors.[56]

On November 14, 2012, the TMPG published for public comment a draft recommendation that "forward-settling agency MBS transactions be margined in order to prudently manage counterparty exposures." Citing the credit risk associated with unmargined forward trading, the TMPG noted that "counterparties can help mitigate this risk by exchanging margin as the market value of the deliverable securities fluctuates," and further noted that "widespread use of margining for unsettled MBS transactions would enhance financial system stability and support market function during periods of market stress." The TMPG

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[56] TMPG white paper, "Margining in Agency MBS Trading," November 2012, p. 4. The phrase "redemptions by investors" refers to the risk that credit losses incurred by an asset manager could precipitate a run by the beneficiaries of the assets under management.

recommended that "market participants exchange two-way variation margin on a regular basis to mitigate counterparty credit risk" and that "written master agreements should describe the parties' agreement on all aspects of the margining regime, including collateral eligibility, timing and frequency of margin calls and exchanges, thresholds, valuation of exposures and collateral, and liquidation." [57]

Margining TBA trades in agency MBS proved to be a heavy lift. The required infrastructure and legal documentation is far more complicated than what was required for a fails charge and a sense of urgency, such as that which propelled adoption of the fails charge for Treasury securities, was lacking. A TMPG white paper remarked that "the TBA market has yet to experience the same types of disruptions or to transmit the same kinds of counterparty risk as some OTC derivatives markets not adequately margined in 2008." [58] Margining MBS transactions appeared to be a matter best left to an agency with statutory authorities.

On June 15, 2016, the Securities and Exchange Commission approved a rule proposed by the Financial Industry Regulatory Authority (FINRA) requiring that registered broker-dealers collect margin from their counterparties on unsettled TBA trades.[59] The revised rule differed from the TMPG recommendation as it required only one-way margining designed to protect broker-dealers, although the Commission did point out that it would serve to cordon off contagion: "Margin collected by a FINRA member may mitigate a broker-dealer's financial losses in the event of a counterparty default, and, in turn, serve to protect the broker-dealer's other customers." [60] FINRA also stated that it planned to revisit the matter of two-way margins after the Commission had completed its rulemaking with respect to margin requirements for

57 TMPG announcement, "TMPG Recommends Margining of Agency MBS Transactions to Reduce Counterparty and Systemic Risks," November 14, 2012.

58 TMPG white paper, "Margining in Agency MBS Trading," November 2012, p. 7.

59 Securities and Exchange Commission Release No. 34-78081, June 15, 2016.

60 Securities and Exchange Commission Release No. 34-78081, June 15, 2016, p. 42.

security-based swaps.[61] Additionally, at least some large firms have implemented two-way margin programs with their counterparties.

Concluding Remarks

Liquidity is just shy of motherhood as an object of veneration – at least in the eyes of participants in the markets for U.S. government securities. Liquidity can be degraded by opportunistic behavior and as a result of outdated market conventions, but can be preserved when the actions of market participants are circumscribed by appropriate statutes, regulations, and behavioral norms and when market infrastructures are revised in light of changing economic conditions. During the past decade, the TMPG has worked to recommend appropriate norms and to promote needed revisions in market architecture.

The TMPG is a study in contrasts. It recommends best practices – and practices to avoid – and suggests revisions in market conventions, yet it is a wholly voluntary organization operating without statutory authority. Its ability to influence behavior is based on three features: broad acceptance of its recommendations, the credibility and reputation of its members in addressing the needs of the government securities market – even, on occasion, at the expense of the parochial interests of their firms – and the credibility and reputation of its sponsor, the Federal Reserve Bank of New York.

Broad acceptance is important because of the voluntary nature of the TMPG's recommendations: violations of best practice recommendations do not risk a penalty – only the approbation of colleagues and counterparties – and participants cannot be forced to adopt suggested structural reforms. This means that the TMPG may not be able to call out every type of misbehavior and correct every market flaw. Nevertheless, in a number of instances the TMPG has gone a long way in overcoming the collective action problem that exists when no one wants

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[61] Securities and Exchange Commission Release No. 34-78081, June 15, 2016, p. 34.

to be the first mover in a direction that may be disadvantageous if no one else follows but generally beneficial to market stakeholders if all market participants move together.

The credibility and reputation of the members and sponsor of the TMPG are important for limiting the perception that a recommendation was put forth in the absence of careful review or as a matter of self-interest. Credibility and reputation signal that the members and sponsor are invested in the successful functioning of the government securities market over the long term. The diversity of the TMPG – the decision to include institutional investors, representatives of industry utilities, and clearing banks – was especially important in limiting perceptions of self-interest that might have attached to the recommendations of a more narrowly constituted group.

Appendix: Dealer Associations Prior to 2006

The Federal Reserve Bank of New York supported the formation of dealer associations on two occasions prior to 2006: in 1940, at the dawn of the primary dealer system, and again in 1969, in response to disclosures of insider and secret trading in Treasury securities. The two episodes are instructive because, in both cases, the Bank's concerns were strikingly similar to the concerns that prompted the formation of the TMPG.

The Government Security Dealer Group

In late 1939, at about the time that the New York Reserve Bank was formalizing a system of "recognized" dealers (now called primary dealers),[62] the Bank began to contemplate its peculiar position with respect to the government securities market: it was more than an ordinary participant but hardly a full-fledged regulator. The Bank had been supervising primary market offerings of Treasury securities for some time (as a result of its position as a fiscal agent of the United States) but its authority was derived from its principal (the Treasury) and fell well short of the explicit statutory authorities of the Securities and Exchange Commission.

Looking for a more robust way to influence the behavior of market participants, the Bank encouraged the formation of a voluntary association of dealers – the Government Security Dealer Group (GSDG) – willing to act in concert under the Bank's tutelage.[63] A Bank study suggested that,

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[62] Garbade (2016).

[63] In an April 30, 1943 presentation to the board of directors of the New York Reserve Bank, Robert Rouse, the Manager of the System Open Market Account, stated that the development of the GSDG was "encouraged by this Bank." J.S. Baker of Harriman Ripley & Co. stated in 1943, when he was the chairman of the GSDG, that the group was formed "at the request" of the president of the New York Bank. "Statement as to Origin and Purpose of Government Security Dealer Group by Current Chairman Mr. J.S. Baker of Harriman Ripley and Company, Inc.," March 30, 1943, attached to "Dealers in the Government Security Market," unpublished paper by E.A. Goldenweiser, Board of Governors of the Federal Reserve System, April 6, 1943. See similarly Childs (1947, p. 372). A 1960 Treasury-Federal Reserve study of the government securities market states

> Informal supervision of dealers' activities by the Federal Reserve Bank of New York would … become more effective and comprehensive if, as has been suggested by this Bank to the "recognized" dealers, a voluntary association of Government security dealers were formed to attempt to improve market practices wherever possible. The Federal Reserve Bank of New York, in its capacity both as agent of the System Open Market Account and of the Treasury, would then be able to make its influence felt on the whole membership of the association, which presumably would include both large and small dealers, and, through their various connections and branches, dealers in all parts of the country.[64]

Robert Rouse, the Manager of the System Open Market Account, stated in 1941 that "the recognized Government security dealers decided [in late 1939] to organize themselves on an informal basis, with a view to eradicating undesirable practices which had developed in the market, and generally police themselves." The group made "a number of suggestions to us, as Fiscal Agents of the Treasury, looking to the clearing up of abuses in connection with subscriptions for new issues." [65] Similarly, the chairman of the GSDG, J.S. Baker of Harriman, Ripley & Co., stated in 1943 that the group met "from time to time to discuss Government security market problems, and to take common action in connection therewith whenever advisable" and that,

> The primary objective of the Group is to cooperate more closely and effectively with the United States Treasury and the Federal Reserve System in dealing with problems connected with Treasury finance and open market operations. Another objective is to provide machinery to establish policies designed to maintain broad and orderly markets in Government securities.[66]

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that the GSDG "was formed under the informal auspices of the Federal Reserve Bank of New York." U.S. Treasury and Federal Reserve System (1960, p. 105).

64 Federal Reserve Bank of New York (1940, p. 59).

65 Robert Rouse, notes for "Special Report" to the executive committee of the Federal Reserve Bank of New York on the status of non-recognized dealers, January 9, 1941, p. 5.

66 "Statement as to Origin and Purpose of Government Security Dealer Group by Current Chairman Mr. J.S. Baker of Harriman Ripley and Company, Inc.," March 30, 1943, attached to "Dealers in the Government Security Market," unpublished paper by E.A. Goldenweiser, Board of Governors of the Federal Reserve System, April 6, 1943.

A 1952 study of open market operations stated that,

> The principal objectives of the Group have been to direct the market machinery toward the maintenance of a broad and orderly market for Government securities; to adopt and follow uniform trading practices and a high order of business ethics; to enhance the appreciation by its members of the public trust which they carry in their responsibility of making and maintaining the market for Government securities; to provide for more effective and closer cooperation with the Treasury and the Federal Reserve System; and to improve the principal market for Government securities.[67]

GSDG accomplishments ranged widely, some relatively simple, two more significant, and one that was remarkable. Minor accomplishments included an agreement to quote certificates of indebtedness (coupon-bearing securities with a maturity not greater than one year) on a yield basis rather than a price basis and an agreement on calculating accrued interest. An agreement to close trading at 4 p.m. each day and an agreement not to quote or trade a new issue until after the subscription books had closed were more significant.[68]

The most remarkable accomplishment, undertaken in the spirit of limiting price volatility and promoting an orderly Treasury market, was an agreement to limit daily trading in coupon-bearing Treasury securities to a ½ point range centered on the previous day's closing prices, so that the price at which a security changed hands could not vary, up or down, by more than ¼ point per day. A leading member of the GSDG later opined that, "Never before had dealers united in a policy so efficacious in stopping market manipulations and radical fluctuations. It simplified orderly market management." [69]

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[67] Federal Reserve Bank of New York (1952, pp. 13-18 to 13-19).

[68] "Statement as to Origin and Purpose of Government Security Dealer Group by Current Chairman Mr. J.S. Baker of Harriman Ripley and Company, Inc.," March 30, 1943, attached to "Dealers in the Government Security Market," unpublished paper by E.A. Goldenweiser, Board of Governors of the Federal Reserve System, April 6, 1943, and Childs (1947, pp. 373 and 375).

[69] Childs (1947, p. 375).

Federal Reserve and Treasury Thinking About a Dealer Association in the 1960s

The GSDG atrophied in the late 1940s but it was not forgotten.[70] To the contrary, the idea of a regular channel of communication with the government securities market – in particular, with the major dealers – was never far from the thinking of System officials.

The 1960 Treasury-Federal Study of the Government Securities Market examined whether "an organization of Government Securities dealers might improve the functioning of the market." [71] Possible activities included,

- standardizing trading practices, such as trading for when-issued and deferred settlement, treatment of settlement fails, quotation conventions, and trading hours,
- promulgating regulations aimed at curbing speculative activity,
- sponsoring an interdealer brokerage facility,
- promulgating minimum capital requirements, and
- encouraging the underwriting of Treasury offerings,[72]

However, the study warned that a dealer organization was liable to "rigidify market practices" and that "it is not certain that innovations and adjustments in the market to changing conditions would develop as rapidly as under the present unregulated setup." [73] The study also noted that

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70 A 1952 Reserve Bank staff study contemplated re-invigorating the group. The study considered the possibility that a re-invigorated Government Security Dealer Group might help to advance important regulatory objectives, but concluded that "to achieve success in this undertaking the Group would have to adopt formally a code or agreement concerning business practices with appropriate enforcement procedures." The study further concluded that "it is very doubtful whether the dealers would be willing to have a formal code and accept its implications because of (a) possible conflict with the anti-trust laws, (b) the need to abandon the informal status which [permits] almost complete independence of dealer activity, and (c) a reluctance on competitive grounds to disclose information about their activities and their customers." Federal Reserve Bank of New York (1952, p. 13-19).

71 U.S. Treasury and Federal Reserve System (1960, p. 96).

72 U.S. Treasury and Federal Reserve System (1960, pp. 97-104). The report noted (p. 98) that "the participation of individual dealers in [Treasury] financings varies and on occasion has been limited."

73 U.S. Treasury and Federal Reserve System (1960, pp. 110-111).

the *form* of a dealer association – the inclusiveness of its membership, its relationship (formal or informal) with the Treasury and the Federal Reserve System, and the degree to which compliance with its standards could be enforced – would be an important determinant of its ability to accomplish its objectives.

One possibility was a voluntary association. However, the study noted that "if a voluntary organization were to exercise even mild disciplinary influence over its members, it would have to offer its members significant privileges as an inducement for joining." The study suggested

- the privilege of trading with the Federal Reserve System,
- preferential treatment in allotments of new securities,
- exemption from standard or required margins on loans collateralized with Government securities, and
- improved access to financing,

as possible benefits of membership.[74]

Alternatively, the Federal Reserve or the Treasury could pro-actively designate members of the contemplated organization. The study pointed out that "since the Federal Reserve is constantly transacting business in the market, it necessarily has a general understanding of which firms perform as true dealers and which ones do not," and that "management of the public debt requires the Treasury Department to keep in close touch with the market."[75] However, the study noted the view of some that "Federal Reserve conduct of open market operations and Treasury management of the public debt require an impersonal approach to the market" and that "neither [agency] should be entangled with a supervisory relationship to this market."[76]

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74 U.S. Treasury and Federal Reserve System (1960, p. 106).

75 U.S. Treasury and Federal Reserve System (1960, p. 106).

76 U.S. Treasury and Federal Reserve System (1960, p. 107).

In early 1966 Treasury and Federal Reserve officials initiated a second study of the government securities market, the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market (Joint Study).[77] The Joint Study was conducted under the guidance of a steering committee chaired by William McChesney Martin, the chairman of the Board of Governors, that included Under Secretary of the Treasury Joseph Barr, Under Secretary of the Treasury for Monetary Affairs Frederick Deming, Governors (of the Federal Reserve System) George Mitchell and J. Dewey Daane, and Reserve Bank presidents Alfred Hayes (New York) and George Ellis (Boston). Treasury Secretary Henry Fowler participated as an *ex-officio* member.[78]

In July 1967 the steering committee convened to discuss a staff memo on the "official relationship" between the Treasury and Federal Reserve System and the government securities market. The memo proposed the formation of a committee of senior Federal Reserve and Treasury officials that would consult with dealers from time to time. Albert Koch, the Deputy Director of the Division of Research and Statistics at the Board of Governors, stated during the course of the discussion that "there was a need for better communications between officials and dealers" and that the proposal "was intended to steer a middle course between the present informal contacts … and a somewhat more organized formal surveillance of the market." Alan Holmes, the Manager of the System Open Market Account since 1965, believed the proposed committee "should prove far less upsetting to the dealers than a committee formally charged with the task of market surveillance." [79]

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[77] The final report of the Joint Study appears in U.S. Treasury and Federal Reserve System (1969). A set of published staff studies appear in U.S. Treasury and Federal Reserve System (1970, 1971, and 1973).

[78] U.S. Treasury and Federal Reserve System (1969, p. i)

[79] Minutes of the Steering Committee for the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, July 5, 1967, pp. 6-7.

There was immediate push-back from the steering committee. Governor Daane thought the existing system of informal contacts "worked satisfactorily" and Chairman Martin was "skeptical that any net gain could be derived from the proposed committee." Secretary Fowler though it would be better to have the dealers take the initiative, observing that "it seemed preferable to encourage the dealers to form their own formal group which could designate a committee to meet with appropriate Government officials." [80]

A revised memo focusing on the formation of a voluntary dealer association began by reciting the importance of public confidence in the government securities market: "a diminution of confidence … as a result of undesirable market practices, speculative excesses or financial difficulties would have widespread repercussions on all financial markets and would seriously inhibit the effectuation of Treasury and Federal Reserve policy." In view of the importance of public confidence, the memo suggested that the Treasury and the Federal Reserve System *officially* promote the "formation of a dealer association to encourage more self-regulation." [81]

The need for additional regulation was, at the time, far from evident. The memo acknowledged that "no major problems of undesirable market practices or dealer financial difficulties have developed in recent years" and that "the present informal surveillance and at times moral suasion exercised by Treasury and System officials has thus far worked reasonably well." Nevertheless, the memo recommended that the Treasury and Federal Reserve encourage "some form of dealer organization – to concern itself with such matters as quotation and trading practices, trading agreements, hours of trading, and the like."

Taken by itself, the revised recommendation addressed little more than market plumbing – an important matter to be sure but hardly a matter of high policy. However, the memo went on to point out that "such an organization could provide a basis for self-regulation in the industry

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80 Minutes of the Steering Committee for the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, July 5, 1967, pp. 7-8.

81 U.S. Government Securities Market Study, "Official Relationship to the Market," Policy Issues # 7, no date. Emphasis added.

and could become a principle source of contact between the market and the Treasury-Federal Reserve" – functionalities that went well beyond mere plumbing.

The steering committee convened to discuss the revised memo on April 2, 1968. Holmes observed that the memo recommended an "*official* indication to the market that Treasury and Federal Reserve authorities would welcome the formation of an association of U.S. Government securities dealers" but remarked that "it was fully intended that the dealers themselves would take the initiative in organizing such an association." He reiterated the expectation that the association "could provide a basis for self-regulation … and could become a principal source of contact between the market and the authorities." [82]

Even the limited proposal for no more than an official indication of interest met with significance push-back. R. Duane Saunders, Special Assistant to the Secretary of the Treasury for Debt Management, observed that "an official endorsement would imply a commitment to establish a working relationship with, and to assume some responsibility for, any dealer association that was formed." Governor Daane stated that he was in favor of a dealer association but shared Saunders' reservations about official sponsorship. He wondered "if the Treasury and Federal Reserve could simply make their view known that such an association might be useful while stopping short of actual endorsement." Martin and Hayes concurred with that approach. The discussion ended with the suggestion of Secretary Fowler that "the Treasury and Federal Reserve not actively endorse a dealer association while still indicating the view that it could be useful." [83]

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[82] Minutes of the Steering Committee for the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, April 2, 1968, p. 4. Emphasis added.

[83] Minutes of the Steering Committee for the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, April 2, 1968, pp. 4-7.

The Association of Primary Dealers in United States Government Securities

A flood tide of embarrassing revelations in 1968 and 1969 swept away official reluctance to press for the formation of a voluntary dealer association.

In March 1968 the Treasury announced that Federal Reserve Banks would no longer receive advance notice of the terms of Treasury offerings.[84] Officials had previously released information on the department's offerings to the twelve Reserve Banks at about 1 p.m. on the day of an announcement and then followed up with a public announcement at 3:30 p.m. The change in policy stemmed from indications of anomalous trading shortly before public announcement of an August 1967 note offering. Market participants had been expecting a 5- to 7-year note but the Treasury surprised them by offering 3½-year notes maturing in February 1971. In the hour before the public announcement, outstanding notes maturing between November 1970 and May 1972 declined and notes maturing around August 1973 rallied.[85] The price action suggested that someone had leaked the terms of the offering. Subsequent investigation identified the head of the government bond and custody department at the Federal Reserve Bank of Philadelphia as the source of the leak.[86] The *Wall Street Journal* reported that the case involved "at least one major

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[84] "Treasury to Delay Telling Federal Reserve Its Bond Terms Due to Recent News Leak," *Wall Street Journal*, March 6, 1968, p. 8, "News of Borrowing Leaked, U.S. Finds," *New York Times*, March 6, 1968, p. 61L, "Washington Attracts Many Seeking to Profit from Inside Information," *Wall Street Journal*, March 14, 1968, p. 1, and "S.E.C. Commences New Enforcement, Disciplines Blyth," *Wall Street Journal*, January 20, 1969, p. 2.

[85] Federal Reserve Bank of New York Circular no. 6020, August 17, 1967, and Circular no. 6021, August 18, 1967, "U.S. Bond Issue Set for Tuesday," *New York Times*, August 18, 1967, p. F43, and "Treasury to Delay Telling Federal Reserve Its Bond Terms Due to Recent News Leak," *Wall Street Journal*, March 6, 1968, p. 8.

[86] "Treasury to Delay Telling Federal Reserve Its Bond Terms Due to Recent News Leak," *Wall Street Journal*, March 6, 1968, p. 8, and "S.E.C. Commences New Enforcement, Disciplines Blyth," *Wall Street Journal*, January 20, 1969, p. 2.

Wall Street securities concern" and that the matter was under investigation by the Justice Department and the Securities and Exchange Commission.[87]

Ten months later the SEC announced that Blyth & Co., a primary dealer since 1962, had agreed to close its government securities trading desk for fifteen days to settle charges of abuse of non-public information on Treasury offerings. The head of the desk was suspended for five days for his failure to supervise other desk employees.[88] A month later, in February 1969, the SEC announced that it had uncovered a separate scheme involving "secret" trading of Treasury securities by employees on the government desks at Morgan Guaranty Trust Co., Blyth & Co., and Second District Securities, all of which were primary dealers.[89]

The discovery of unauthorized disclosures of insider and secret trading in Treasury securities alarmed New York Reserve Bank officials. In a memo to senior Bank officers in March 1968, during an early stage of the investigation, Peter Sternlight, an officer in the Bank's Securities Department, wrote that,

> The injection of the Securities and Exchange Commission into this investigation is not necessarily the happiest development because we would not like to see this incident become a first step in a broader SEC role in the Government securities market. A self-policing Government securities market, with unobtrusive leadership exercised by the Treasury and Federal Reserve, would seem to be a preferable state of affairs in order to promote a broad, healthy market.[90]

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87 "Treasury to Delay Telling Federal Reserve Its Bond Terms Due to Recent News Leak," *Wall Street Journal*, March 6, 1968, p. 8.

88 "S.E.C. Closes Bond Unit of Blyth & Co. 15 Days," *New York Times*, January 18, 1969, p. 41, and "S.E.C. Commences New Enforcement, Disciplines Blyth," *Wall Street Journal*, January 20, 1969, p. 2.

89 "S.E.C. Acts to End Traders' Scheme in Federal Bonds," *New York Times*, February 14, 1969, p. 1, and "SEC Acts to End Alleged Schemes by Government-Securities Traders," *Wall Street Journal*, February 14, 1969, p. 3.

90 Memo from P.D. Sternlight to Messrs. Hayes, Treiber, Bilby, Guy, and Debs, Federal Reserve Bank of New York, March 19, 1968.

Prospective supervisory initiatives continued to be of concern as the SEC investigation unfolded. Notes prepared for a December 1968 presentation by Alan Holmes to the Bank's board of directors observed that, with respect to market supervision,

> There is … the longer run problem of the continuing surveillance or supervision of the market in which both the Treasury and the Federal Reserve have a stake. The SEC representatives did not appear anxious to take over supervision of trading in exempt securities. In fact they tentatively put forward a suggestion that the Federal Reserve might use its trading relationships with dealers to set up standards of dealer conduct.

In a February 1969 letter to primary dealers, Holmes stated that the recent disclosures "raise a serious question about the adequacy of procedures used by dealer firms to guard against the possibility of improper activity on the part of any employee. More broadly, the situation requires a review as to whether or not something more than the informal watch over the market that has been exercised by the Federal Reserve and the Treasury may be desirable." [91]

In the wake of the February 1969 disclosures and Holmes' letter, the primary dealers understood that they had to act. The *New York Times* reported that "the Government securities industry does not want any more regulation, and it fears the S.E.C. cases this year may result in stiffer controls." As a result, "there may be some drive to form a self-regulating group to police the Treasury market." [92]

Between mid-February and mid-April 1969 the primary dealers, led by Salomon Brothers & Hutzler, Discount Corp., First Boston Corp., and Aubrey G. Lanston & Co., agreed to form the Association of Primary Dealers in United States Government Securities.[93] Their agreement was memorialized with written articles of association that expressed the purposes of the Association:

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91 Letter from Alan Holmes, Senior Vice President, Federal Reserve Bank of New York, to senior officers of each of the primary dealers, February 13, 1969.

92 "U.S. Bond Market is Troubled," *New York Times*, February 16, 1969, p. F1.

93 "Dealers Weigh Forming Group," *New York Times*, April 16, 1969, p. 55, "Dealers in Securities of U.S. Government Form an Association," *Wall Street Journal*, April 24, 1969, p. 25, and "Officers Elected by Primary Dealers," *New York Times*, April 24, 1969, p. 77.

1. To foster high standards of commercial honor and business conduct among its members and to promote just and equitable principles of trade.

2. To promote practices conducive to efficient conduct of the business of its members.

3. To provide a medium through which its members may be enabled to confer, consult and cooperate with the Federal Reserve System, the Federal Reserve Open Market Committee, the United States Treasury Department and other United States Government agencies with respect to matters affecting the market for United States Government and Agency securities.[94]

The Association engaged in two principal activities in the 1970s and early 1980s, before it merged with the Public Securities Association in 1983:[95] articulating standards of behavior and promoting improvements in market infrastructure. Between 1969 and 1982, the Association adopted seven "policies." Six of the policies addressed what might be termed "ethical" matters; the seventh addressed when-issued trading in Treasury securities prior to an offering announcement by the Treasury. Five of the six ethical policies concerned relations between dealers and interdealer brokers; the sixth concerned the use of credit and other forms of leverage in connection with trading in U.S. government securities by officers, partners, and employees of member firms.

The Association also played an important role in facilitating communication between market participants and the Federal Reserve concerning matters of market infrastructure. Beginning in mid-1969 and continuing through most of the 1970s, the Federal Reserve worked to replace definitive Treasury bills, notes, and bonds with book-entry securities and to integrate the new book-entry system with its existing wire transfer system.[96] The effort required the

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94 Articles of Association of the Association of Primary Dealers in United Stated Government Securities.

95 "2 Dealer Groups Plan Merger," *New York Times*, March 21, 1983, p. D6. The Public Securities Association subsequently became The Bond Market Association in 1997, which became the Securities Industry and Financial Markets Association in 2006.

96 Garbade (December 2004).

cooperation of investors, dealers, clearing banks, and other securities custodians – cooperation immeasurably enhanced by the Association. As early as September 1969, officials from the Federal Reserve Bank of New York were meeting with Association representatives to discuss the introduction of a new computer message switch at the New York Bank and the expansion of an early stage book-entry system to include securities of bank dealers and non-bank dealers held at custodian banks.[97] The Association was also important in focusing the attention of Federal Reserve officials on the importance of upgrading the book-entry system to mitigate delays in securities transfers and frequent extensions of operating hours.[98]

However, the Association's most memorable achievement was its role in revising contract conventions for repurchase agreements following the failure of Drysdale Government Securities in 1982.[99]

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97 Memo from Matthew J. Hoey to files, Federal Reserve Bank of New York, "Meeting with William Chisolm – First Boston," September 12, 1969.

98 See minutes of the quarterly meeting of the Association of Primary Dealers in U.S. Government Securities, September 22, 1980, and letter from Paul Cieurzo, Charles E. Quincey & Co., to Thomas Strauss, Salomon Brothers, "Changes in Federal Reserve Policy," March 10, 1981.

99 See Garbade (2006).

References

Amihud, Yakov, and Haim Mendelson. 1991. "Liquidity, Maturity, and the Yields on U.S. Treasury Securities." *Journal of Finance* 46, no. 4 (September): 1411-1425.

Ben-Abdallah, Ramzi, and Michele Breton. 2016. "To Squeeze or Not to Squeeze? That is No Longer the Question." *Journal of Futures Markets* 36, no. 7 (July): 647-670.

Burstein, Richard. 1987. "Rising Sun on Wall Street." *New York Magazine*, March 2, pp. 32-38.

Childs, Charles. 1947. *Concerning U.S. Government Securities*. Privately published.

Cornell, Bradford, and Alan Shapiro. 1989. "The Mispricing of U.S. Treasury Bonds: A Case Study." *Review of Financial Studies* 2, no. 3: 297-310.

Committee on Energy and Commerce. 1991. "Salomon Brothers and Government Securities." *Hearing before the Subcommittee on Telecommunications and Finance of the Committee on Energy and Commerce*. U.S. House of Representatives, 102nd Cong., 1st Sess., September 4.

Committee on Ways and Means. 1991. "Review of Violations in the Marketing of Government Securities." *Hearing before the Subcommittee on Oversight of the Committee on Ways and Means*. U.S. House of Representative, 102nd Cong., 1st Sess., September 26.

Department of the Treasury, Securities and Exchange Commission, and Board of Governors of the Federal Reserve System. 1992. *Joint Report on the Government Securities Market*.

Duffie, Darrell. 1996. "Special Repo Rates." *Journal of Finance* 51, no. 2 (June): 493-526.

Elton, Edwin, and T. Clifton Green. 1998. "Tax and Liquidity Effects in Pricing Government Bonds." *Journal of Finance* 53, no. 5 (October): 1533-1562.

Federal Reserve Bank of New York. 1940. *The Place of the Dealer in the Government Security Market*. Unpublished study.

Federal Reserve Bank of New York. 1952. *Federal Reserve Open Market Operations*. Unpublished study.

Fisher, Mark, Douglas Nychka, and David Zervos. 1995. "Fitting the Term Structure of Interest Rates with Smoothing Splines." Board of Governors of the Federal Reserve System *Finance and Economics Discussion Series*, no. 95-1.

Fleming, Michael, and Kenneth Garbade. 2002. "When the Back Office Moved to the Front Burner: Settlement Fails in the Treasury Market after 9/11." Federal Reserve Bank of New York *Economic Policy Review* 8, no. 2 (November): 35-57.

Fleming, Michael, and Kenneth Garbade. 2004. "Repurchase Agreements with Negative Interest Rates." Federal Reserve Bank of New York *Current Issues in Economics and Finance* 10, no. 5 (April).

Fleming, Michael, and Kenneth Garbade. 2005. "Explaining Settlement Fails." Federal Reserve Bank of New York *Current Issues in Economics and Finance* 11, no. 9 (September).

Garbade, Kenneth. 1978a. "Electronic Quotation Systems and the Market for Government Securities." Federal Reserve Bank of New York *Quarterly Review* 3, no. 2 (Summer): 13-20.

Garbade, Kenneth. 1978b. "The Effect of Interdealer Brokerage on the Transactional Characteristics of Dealer Markets." *Journal of Business* 51, no. 3 (July): 477-498.

Garbade, Kenneth. 2004. "Origins of the Federal Reserve Book-Entry System." Federal Reserve Bank of New York *Economic Policy Review* 10, no. 3 (December): 33-50.

Garbade, Kenneth. 2006. "The Evolution of Repo Contracting Conventions in the 1980s." Federal Reserve Bank of New York *Economic Policy Review* 12, no. 1 (May): 27-42.

Garbade, Kenneth. 2016. "The Early Years of the Primary Dealer System." Federal Reserve Bank of New York *Staff Reports*, no. 777.

Garbade, Kenneth, Frank Keane, Lorie Logan, Amanda Stokes, and Jennifer Wolgemuth. 2010. "The Introduction of the TMPG Fails Charge for U.S. Treasury Securities." Federal Reserve Bank of New York *Economic Policy Review* 16, no. 2 (October): 45-71.

Garbade, Kenneth, and William Silber. 1983. "Futures Contracts on Commodities with Multiple Varieties: An Analysis of Premiums and Discounts." *Journal of Business* 56, no. 3 (July): 249-272.

Jegadeesh, Narasimhan. 1993. "Treasury Auction Bids and the Salomon Squeeze." *Journal of Finance* 48, no. 4 (September): 1403-1419.

Jordan, Bradford, and Susan Jordan. 1996. "Salomon Brothers and the May 1991 Treasury Auction: Analysis of a Market Corner." *Journal of Banking and Finance* 20, no. 1 (January): 25-40.

Jordan, Bradford, and Susan Jordan. 1997. "Special Repo Rates: An Empirical Analysis." *Journal of Finance* 52, no. 5 (December): 2051-2072.

Kamara, Avraham. 1994. "Liquidity, Taxes, and Short-Term Treasury Yields." *Journal of Financial and Quantitative Analysis* 29, no. 3 (September): 403-417.

Keane, Frank. 1996. "Repo Rate Patterns for New Treasury Notes." Federal Reserve Bank of New York *Current Issues in Economics and Finance* 2, no. 10 (September).

Langetieg, Terence, and J. Stephen Smoot. 1989. "Estimation of the Term Structure of Interest Rates," in *Research in Financial Services, vol. 1*, George Kaufman, ed. Jai Press: Greenwich, CN.

Mayer, Martin. 1993. *Nightmare on Wall Street: Salomon Brothers and the Corruption of the Marketplace*. Simon & Schuster: New York, NY.

McCulloch, J. Huston. 1971. "Measuring the Term Structure of Interest Rates." *Journal of Business* 44, no. 1 (January): 19-31.

Nelson, Charles, and Andrew Siegel. 1987. "Parsimonious Modeling of Yield Curves." *Journal of Business* 60, no. 4 (October): 473-489.

Sack, Brian. 2001. "Using Treasury STRIPS to Measure the Yield Curve." Board of Governors of the Federal Reserve System.

Shea, Gary. 1984. "Pitfalls in Smoothing Interest Rate Term Structure Data: Equilibrium Models and Spline Approximations." *Journal of Financial and Quantitative Analysis* 19, no. 3 (September): 253-269.

Shea, Gary. 1985. "Interest Rate Term Structure Estimation with Exponential Splines: A Note." *Journal of Finance* 40, no. 1 (March): 319-325.

U.S. Treasury and Federal Reserve System. 1960. *Treasury-Federal Reserve Study of the Government Securities Market, Part III: Supplementary Studies*.

U.S. Treasury and Federal Reserve System. 1969. *Report of the Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market*. Board of Governors of the Federal Reserve System.

U.S. Treasury and Federal Reserve System. 1970. *Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, Staff Studies – Part 1*. Board of Governors of the Federal Reserve System.

U.S. Treasury and Federal Reserve System. 1971. *Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, Staff Studies – Part 2*. Board of Governors of the Federal Reserve System.

U.S. Treasury and Federal Reserve System. 1973. *Joint Treasury-Federal Reserve Study of the U.S. Government Securities Market, Staff Studies – Part 3*. Board of Governors of the Federal Reserve System.

Vasicek, Oldrich, and H. Gifford Fong. 1982. "Term Structure Modeling Using Exponential Splines." *Journal of Finance* 37, no. 2 (May): 339-348.

Vickery, James, and Joshua Wright. 2013. "TBA Trading and Liquidity in the Agency MBS Market." Federal Reserve Bank of New York *Economic Policy Review* 19, No. 1 (May): 1-18.

Warga, Arthur. 1992. "Bond Returns, Liquidity, and Missing Data." *Journal of Financial and Quantitative Analysis* 27, no. 4 (December): 605-617.

Chart 1. **Yields on the 6¾'s of May 31, 1993, the 7⅝'s of May 15, 1993, and the 8⅝'s of May 15, 1993, from late May to early August 1991.** *New York Times.*

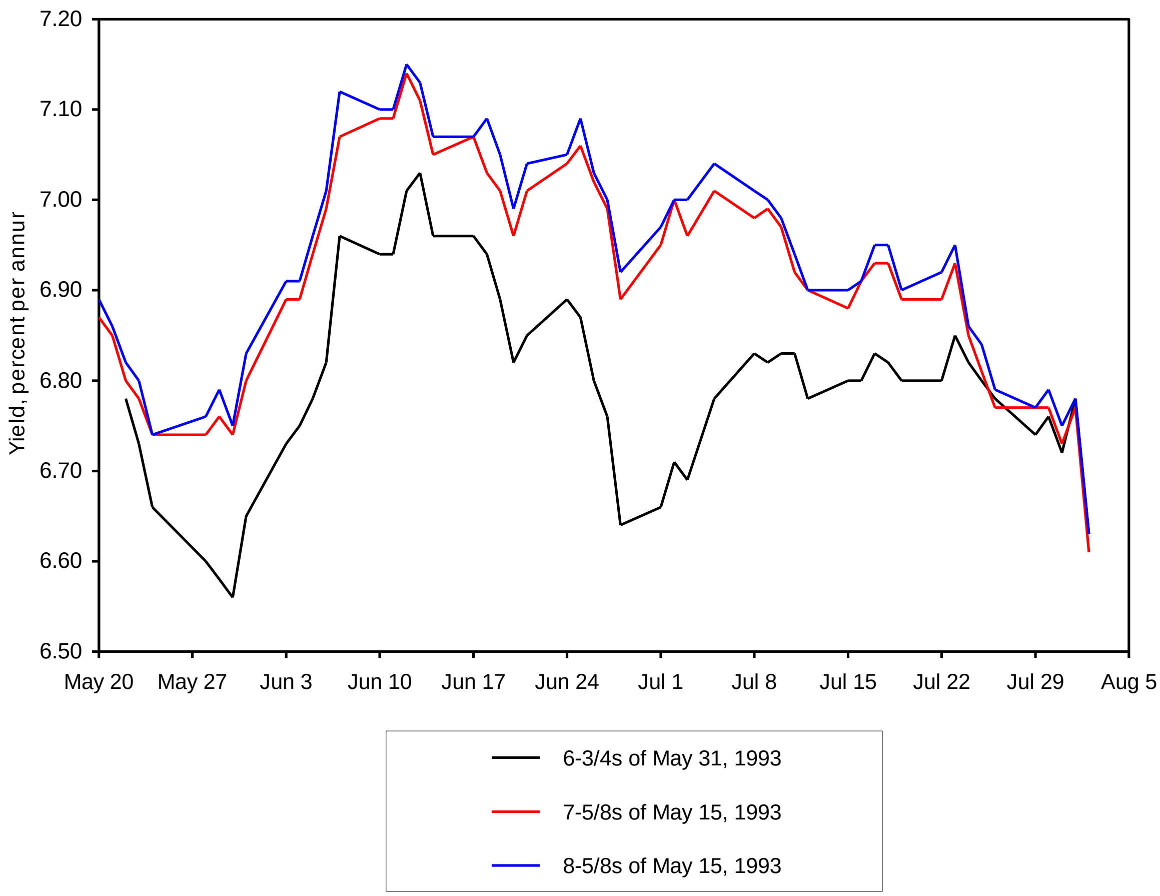
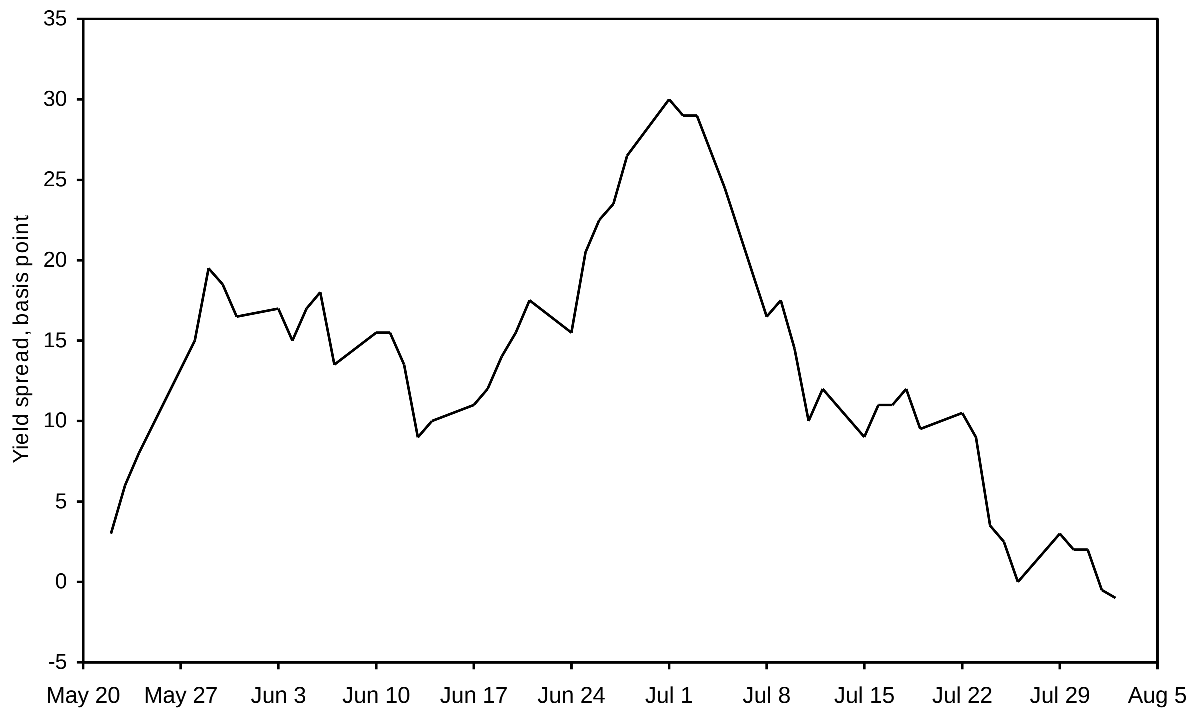


Chart 2. **Difference between the Average of the Yields on the 7⅝s of May 15, 1993, and the 8⅝s of May 15, 1993, and the Yield on the 6¾s of May 31, 1993, from late May to early August 1991.**



Box 1. The Economic Foundations of Chronic Settlement Fails [100]

Transactions in U.S. Treasury securities are settled on a "deliver-versus-payment" basis: buyers pay (in immediately available funds) for their purchases when, but only when, sellers deliver the agreed-upon securities. (Sellers always initiate the settlement process.) Prior to 2003 the loss of interest on the proceeds of a sale was, in most cases, adequate incentive to timely settlement. If a seller did not have immediate possession of the securities needed to settle a transaction, it had an economic incentive to borrow the securities on a special collateral repurchase agreement as long as it earned some interest on the money lent against the borrowing. Settlement fails certainly occurred, but mostly because of miscommunication or operational frictions.

However, if the special collateral repo rate for a security was zero, a seller was – under market conventions in existence prior to mid-2009 – no better off borrowing the security (and lending money at a zero rate of interest) than failing. (This follows because there was no economic penalty to failing *other than* the loss of interest.) In other words, the economic incentive to borrow a security to affect delivery vanished when the specials rate for the security went to zero. In that case, settlement fails could become chronic. Chronic fails were especially likely when an initial uptick in fails initiated a vicious cycle whereby the fails caused lenders of securities to refrain from lending for fear of not getting their securities returned, resulting in a self-fulfilling dynamic.

Market participants recognized that the specials rate for a security could go to zero under two circumstances: (1) if there was unusually strong demand to borrow the security relative to the supply available for lending, or (2) if the general collateral repo rate was near zero (because the special collateral repo rate for a security cannot, in a competitive market, exceed the general collateral rate). The former situation prevailed in May and June 1986, when the floating supply of the 9¼'s of February 2016 was materially and unexpectedly reduced by significant ownership of the bond by Japanese investors who did not normally lend securities.[101] The latter situation prevailed in the summer of 2003, when the general collateral repo rate was about 1 percent per annum.[102]

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100 The material in this box is based on TMPG white paper, "Claiming a Fails Charge for a Settlement Fail in U.S. Treasury Securities," January 5, 2009, pp. 5-7. See also Fleming and Garbade (2005).

101 See Burstein (1987), Cornell and Shapiro (1989), Department of the Treasury, Securities and Exchange Commission, and Board of Governors of the Federal Reserve System (1992, pp. 10 and B-1), and Mayer (1993, p. 198).

102 See Fleming and Garbade (2004).

Box 2. Founding Members of the Treasury Market Practices Group

Fran Bermanzohn	Goldman Sachs
Arthur Certosimo	Bank of New York Mellon
Jason Evans	Deutsche Bank Securities
Michael Haddad	Caxton Associates
Curt Hollingsworth	Fidelity Investments
James Hraska	Lehman Brothers
Gerald Pucci	Blackrock
John Roberts	Barclays Capital
Bill Santangelo	Countrywide Securities
Tom Wipf (Chair)	Morgan Stanley
James Whitelaw	Reserve Bank of Australia
Matthew Zames	JPMorgan Chase

Federal Reserve Bank of New York (Ex-Officio)

William Dudley	Markets Group
Frank Keane	Markets Group
Lorie Logan	Markets Group
Michael Nelson	Legal Group
Angela O'Connor	Markets Group
Debby Perelmuter	Markets Group

Chart 3. **Settlement Fails in U.S. Treasury Securities.** Federal Reserve Bank of New York.

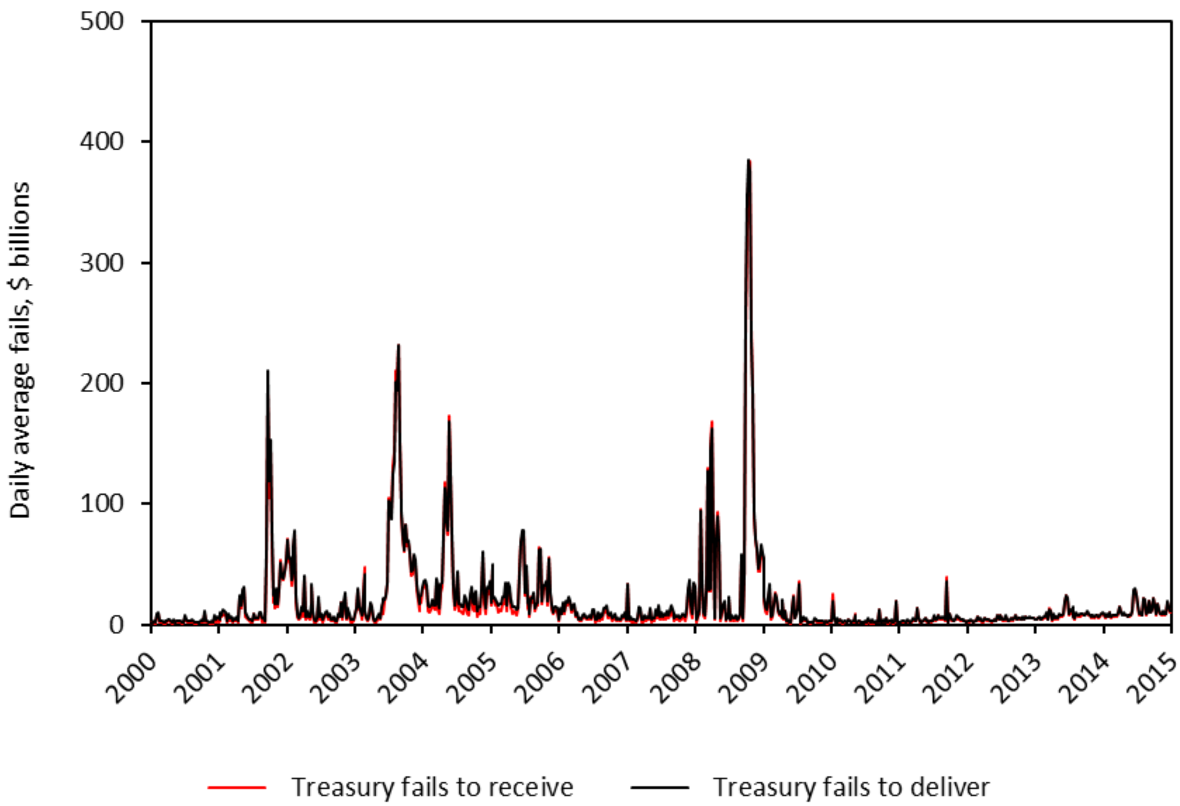

Chart 4. **System Open Market Account Holdings of Agency Debt Securities and Agency Mortgage-Backed Securities.** Federal Reserve Statistical Release H.4.1.

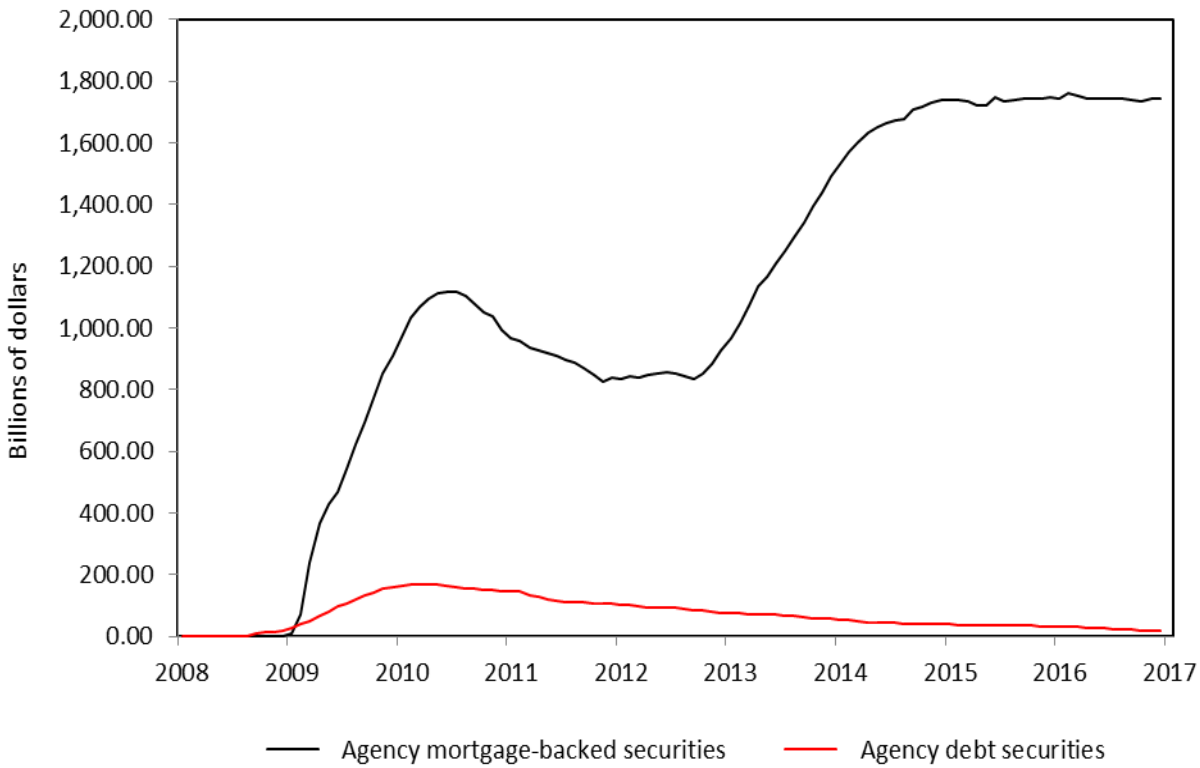

Chart 5. **Settlement Fails in Agency Mortgage-Backed Securities.** Federal Reserve Bank of New York.

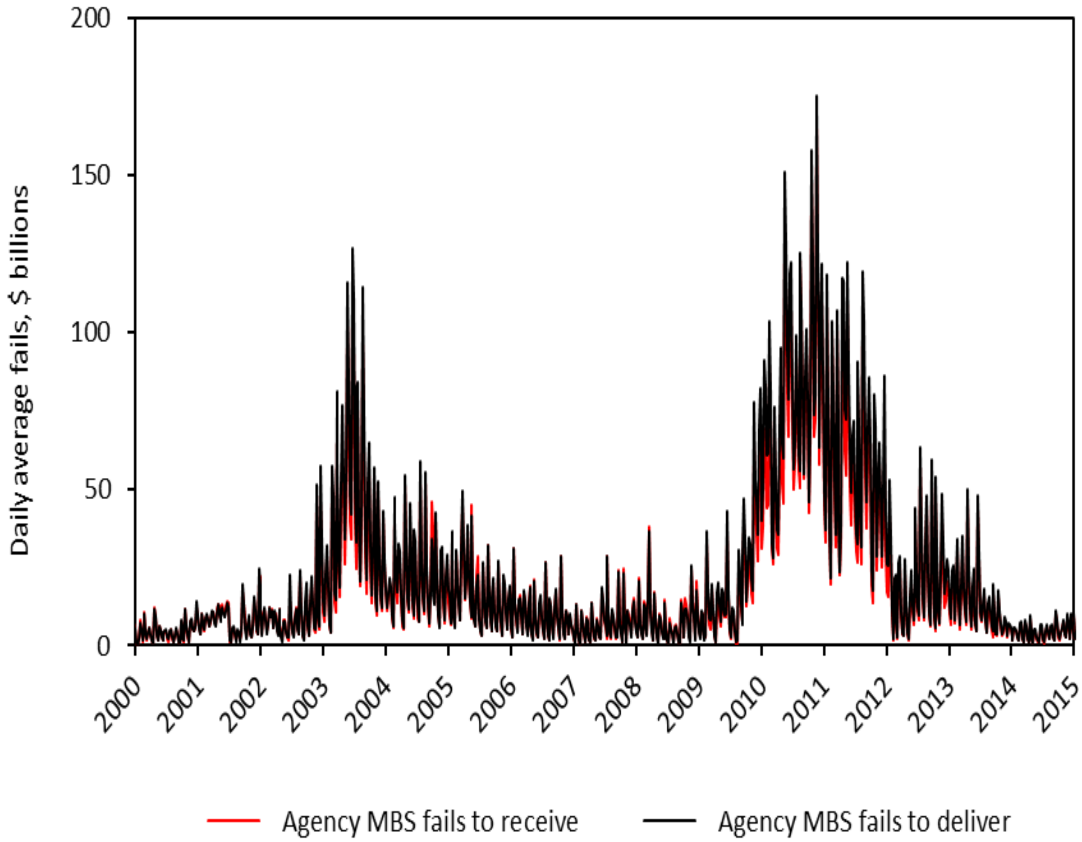

Chart 6. **Settlement Fails in Agency Debt Securities.** Federal Reserve Bank of New York.

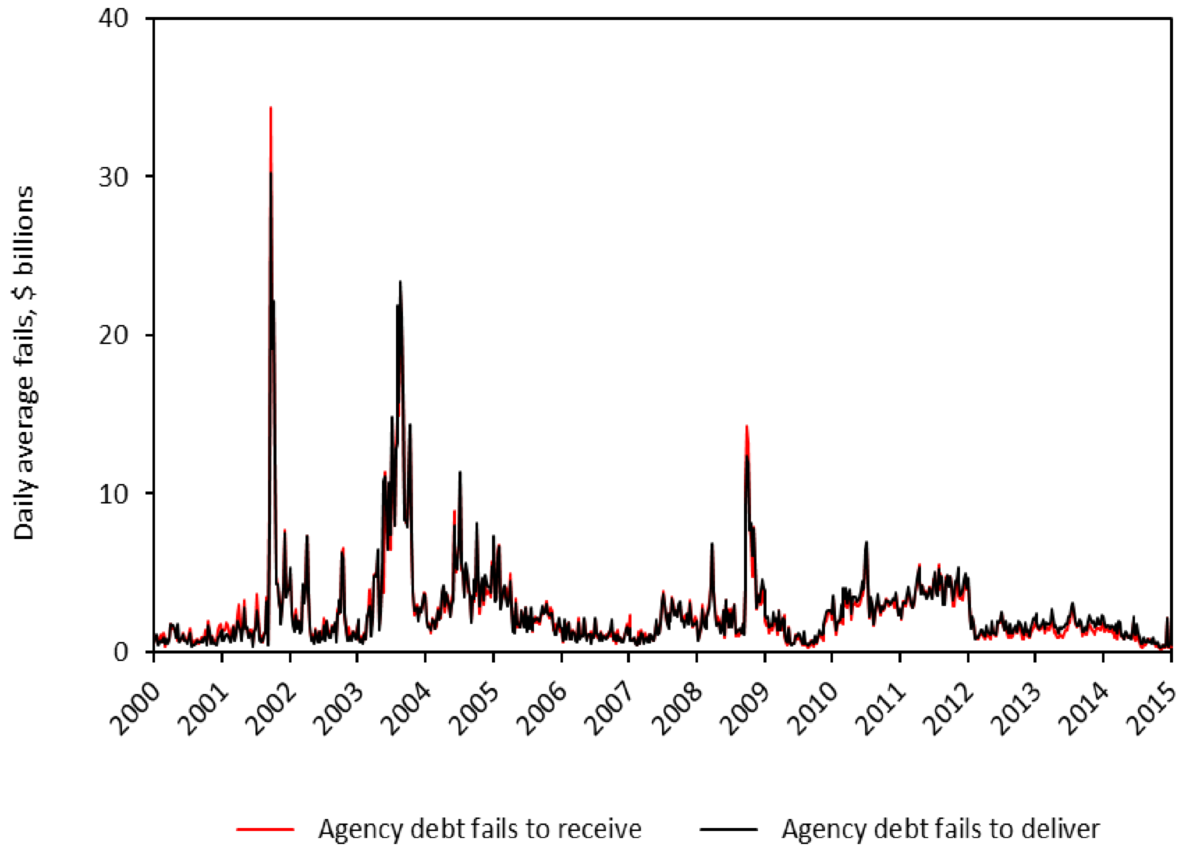

Table 1. Settlement Dates for Agency Mortgage-Backed Securities in the Third Quarter of 2017. Securities Industry and Financial Markets Association.

	Type of Mortgage-Backed Security			
	30 Year	15 Year	30 Year	Balloons
	Freddie Mac Fannie Mae	Freddie Mac Fannie Mae Ginnie Mae	Ginnie Mae	Freddie Mac Fannie Mae
				All RMs/VRMs/ Multifamily/GPMs/ Mobile Homes
Settlement month				Freddie Mac Fannie Mae Ginnie Mae
June	June 13	June 19	June 21	June 22
July	July 13	July 18	July 20	July 24
August	August 14	August 16	August 21	August 23