

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

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IN RE:

TREASURIES SECURITIES AUCTION
ANTITRUST LITIGATION

Case No. 1:15-md-02673-PGG

**AMENDED CONSOLIDATED CLASS
ACTION COMPLAINT**

This Document Relates To All Actions

JURY TRIAL DEMANDED

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Plaintiffs Alaska Electrical Pension Fund, Bank of Jerusalem Ltd., Boston Retirement System, City of Atlanta Firefighters' Pension Plan, City of Pontiac Police & Fire Retirement System, Cleveland Bakers and Teamsters Health and Welfare Fund, Cleveland Bakers and Teamsters Pension Fund, Employees' Retirement System of Rhode Island, Erie County Employees' Retirement System, The Government Employees' Retirement System of the Virgin Islands, IBEW Local 640/ Arizona Chapter NECA Pension Trust Fund, MASTERINVEST Kapitalanlage GmbH, Oklahoma Police Pension and Retirement System, Rock Capital Markets, LLC, Torus Capital, LLC, UFCW Local 1500 Pension Fund, UNIQA Capital Markets GmbH, and United Food and Commercial Workers Union and Participating Food Industry Employers Tri-State Pension Fund ("Plaintiffs"), individually and on behalf of all others similarly situated, bring this class action for injunctive relief and treble damages and allege as follows:

OVERVIEW OF THE ACTION

1. The U.S. Treasury securities market is the world's deepest, most liquid, and most important securities market. The U.S. government funds its most essential operations, such as the U.S. military and public works projects, by issuing Treasury bills, notes, bonds, and other securities ("Treasuries"). These securities represent an obligation by the U.S. government to repay money it borrows, together with interest. Because these securities are backed by the full faith and credit of the United States, and have effectively zero risk of default, Treasuries are viewed as the world's safest investment for investors at home and abroad, including many foreign nations. Treasuries represent the sovereignty of the United States in a tradeable asset.

2. The volume of Treasuries traded is massive. The public holds more than \$14 trillion-worth of Treasuries. Approximately \$510 billion in Treasuries change hands each day in the secondary market according to the Federal Reserve Bank of New York ("New York Fed"), nearly twice the average daily volume of all stocks traded on the New York Stock Exchange,

NASDAQ, and all other equity venues combined.¹ Yields on Treasuries also serve as a benchmark for other financial products. They influence interest rates for many types of instruments, including Treasury futures and options, home mortgages, mortgage-backed securities, corporate bonds, asset-backed bonds and municipal bonds, as well as rates in U.S. dollar interest rate swaps.

3. Treasuries are issued in market auctions conducted throughout the year at scheduled intervals. A select group of banks (currently, twenty-four)—known as “primary dealers”—bids in every one of those auctions. Primary dealers place some bids on their own behalf, and other bids on behalf of their customers. The primary dealers occupy a privileged position in those auctions, and are the largest collective group of Treasury purchasers. It is an “insiders club.”

4. Despite its significance to the global economy, the Treasury market is lightly regulated. Until 2017, Treasury transactions were not reported to any government regulator; they still are not made public. Regulatory authority is split among multiple agencies, leaving a situation in which, as one official of the U.S. Department of the Treasury (the “Treasury Department”) put it, some players are regulated and some are not.² The rules governing the Treasury market also have gone largely untouched over the past three decades, despite the financial crisis and the rise of electronic trading. The regulators and rules offered only patchwork protection against manipulation, collusion, and improper use and sharing of customer information. The absence of meaningful regulation in the Treasury market has allowed the Defendants to act with impunity to enrich themselves through collusive conduct, to the detriment of other market participants.

¹ Treasury Dep’t, *A Financial System That Creates Economic Opportunities: Capital Markets* (Oct. 2017) <https://www.treasury.gov/press-center/press-releases/Documents/A-Financial-System-Capital-Markets-FINAL-FINAL.pdf>.

² Antonio Weiss, Counselor, *Treasury Markets: Data, Oversight and Transparency*, Treasury Dep’t, Remarks at the Evolving Structure of the U.S. Treasury Market: Second Annual Conference (Oct. 24, 2016) <https://www.treasury.gov/press-center/press-releases/Pages/jl0591.aspx>.

5. This case is about two interrelated conspiracies in the Treasury market.

6. ***Colluding in Treasury auctions.*** As detailed below, the primary dealers have a long and infamous history of building and exploiting inside-information advantages at the Treasury auctions. The current single-price auction system—where *all* “winning” bidders pay the same price³ no matter what they bid—was implemented in the 1990s specifically to “level[] the playing field by reducing the importance of [] specialized knowledge” that had been acquired over time by the top primary dealers.⁴ The change in auction rules was effective (at least for a few years): the top dealers began receiving a lower percentage of Treasuries in the auction.

7. The Auction Defendants (Bank of America, Barclays, BNP Paribas, Credit Suisse, Citi, Goldman Sachs, JP Morgan, Morgan Stanley, RBS, and UBS) decided to regain their advantage by banding together. Though the redesign of the auction system may have reduced the value of each piece of information, the value of the Auction Defendants’ *collective* pools of information was still enough to give them a leg up during and around the auction process. The Auction Defendants thus began routinely sharing confidential customer orders and other competitively sensitive information ahead of the auction.

8. On June 8, 2015, it was first reported that the U.S. Department of Justice (“DOJ”) had begun an investigation into possible manipulation of the Treasury market by the primary

³ As detailed below, the cost of a Treasury security can be expressed in terms of either its yield or its price. When prices go down, yields go up, and vice-versa.

⁴ See Paul F. Malvey, Christine M. Archibald & Sean T. Flynn, *Uniform-Price Auctions: Evaluation of the Treasury Experience*, U.S. Treasury Office Mkt. Fin. at 24 (1995), <https://www.treasury.gov/resource-center/fin-mkts/Documents/final.pdf>; Paul F. Malvey & Christine M. Archibald, *Uniform-Price Auctions: Update of the Treasury Experience*, U.S. Treasury Office Market Finance, U.S. Treasury Office Mkt. Fin. at (1998), <https://www.treasury.gov/press-center/press-releases/Documents/upas.pdf>.

dealers.⁵ According to industry insiders interviewed by Bloomberg, “[t]raders at some of these dealers . . . have talked with counterparts at other banks via online chatrooms . . . with one of them adding that the traders swapped gossip about clients’ Treasury orders.”⁶ Such conversations occurred “both inside banks and among them,” and gave the Auction Defendants “information useful for making bets” on the Treasury market.⁷

9. Plaintiffs have obtained documents from a U.S. Treasury primary dealer that confirm that such communications occurred. These materials include online chat transcripts in which some of the Auction Defendants and their co-conspirators shared, among other things, the details of their proprietary trading positions, bidding and trading strategies, and order flow. Absent an intent to cooperate with each other, traders would not share such information with their competitors at other primary dealers, as it would allow those competitors to obtain an informational advantage.

10. As further detailed below, a former senior executive of a subsidiary of Defendant UBS has confirmed that Fixed Income traders at both UBS and those employed by other primary dealers communicated about US Treasuries prices/yields. He described that the US Treasury primary dealers acted as an “old boys club.” The former senior executive confirmed that UBS’s fixed income traders discussed US Treasury yields and spreads to When Issued yields and bid quantities with traders at other primary dealers ahead of the auction in order to determine where

⁵ See Kevin Dugan, *Justice Department Probes Banks for Rigging Treasuries Market*, The New York Post (June 8, 2015) <http://nypost.com/2015/06/08/department-of-justice-probes-treasuries-market/>.

⁶ Alexandra Scaggs, Daniel Kruger & Keri Geiger, *As U.S. Probes \$12.7 Trillion Treasury Market, Trader Talk Is a Good Place to Start*, Bloomberg (June 24, 2015) <https://www.bloomberg.com/news/articles/2015-06-24/trader-talk-is-an-open-secret-as-u-s-probes-treasuries>.

⁷ *Id.*

the pricing might be in order to obtain their desired pricing and allocation. The former senior executive said traders at UBS spoke to traders at Defendants Bank of America, Barclays, BNP Paribas, Credit Suisse, Goldman Sachs, JP Morgan, Morgan Stanley, and RBS, as well as non-defendant Bank of New York Mellon, regarding the yields, bid quantities, and direction ahead of the Treasury auctions. Discussions of dealers' respective "appetites" for specific US Treasuries to be auctioned and "where the desire was" referring to a specific sector and/or pricing occurred to "get everyone on the same page" and to make sure the "dealer community" did not hurt themselves financially in the US Treasury auctions. He explained that traders at the primary dealers acted as a group by deciding whether to bid higher or lower than the rates in when-issued rate.

11. A group of the largest primary dealers effectively sharing order information like one trading bloc, in advance of a singularly important point in time in the market (an auction), presented many opportunities for illicit profiteering. Each conspirator, armed with a much clearer picture of where the auction was heading, was able to pay the least possible price for the desired result. For auctions where demand was comparatively low, this would mean the Auction Defendants would collectively know how high of yields/low of prices they could bid in order to not be stuck with too large of an allocation or to accidentally raise the auction price paid on that allocation. For auctions where demand was comparatively high, this would mean the Auction Defendants would collectively know how low of yields/high of prices they had to bid in the auction to still get their desired allocation.

12. This practice of using shared inside information to rig the results of the auction has been confirmed by industry sources reported in the media. Although the Treasury Department does not make public the identities of individual bidders, a source with direct knowledge of the bid data stated that Goldman Sachs' bids in particular "'would be very close' but just above" bids

by their competitors, and typically came “at the end of the auction.”⁸ As a result, Goldman Sachs “didn’t lose many bids.”—i.e., it was consistently successful in obtaining its desired allocation.⁹

13. According to a source familiar with the DOJ’s ongoing investigation, Goldman Sachs’ success was the result of sharing information with the other top dealers: “At the center of the case are chats and emails believed to show Goldman traders sharing sensitive price information with traders at other banks—a sign of possible price fixing and collusion.”¹⁰ In addition, Treasury officials were “aware that other major investors, including some central banks, had concerns that banks were front-running their own customers in order to make more money off them.”¹¹

14. The Auction Defendants’ manipulations are also confirmed by a review of publicly available pricing data. Time after time, across many metrics, economic indicators were acting one way during the Auction Class Period, and another way after the governmental investigations were announced in June 2015. For example, a regression using controls to account for the financial crisis, market volatility, and even expected inflation found a statistically significant difference between the conspiratorial and non-conspiratorial period in terms of how successful the primary dealers were in getting the Treasuries they wanted as compared to other auction participants. Plaintiffs ran tests to determine, statistically speaking, what the best “fit” was in the data for when the auction behavior changed. The accuracy of the model peaks when the conspiracy is presumed to have begun breaking up in the latter half of 2015, confirming the changes in behavior were not

⁸ Kevin Dugan, *Goldman Sachs Win Streak Is Focus of Treasury-Rigging Probe*, The New York Post (May 3, 2017) <https://nypost.com/2017/05/03/dojs-treasury-rigging-probe-is-zeroing-in-on-goldman-sachs/>.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

the result of long-term trends but rather the result of the breaking up of the auction conspiracy when regulators began focusing on the Auction Defendants' behavior.

15. Similarly, even after accounting for the financial crisis, market volatility, and expected inflation, Plaintiffs found statistically significant differences in how well spot yields were at forecasting the auction results before and after June 2015. Plotting out the results shows a clear change in behavior around that time.

16. By way of another example, the data shows that in auctions where demand was low, the gap between the high and low accepted auction bids was significantly larger during the Auction Class Period than it was after—which indicates that the auction price was artificially low on low demand auctions during the Auction Class Period. In auctions where demand was high, the opposite pattern was seen: the gap between high and low bids was significantly smaller during the Auction Class Period than it was after—indicating that the auction price was artificially high on high demand auctions during the Auction Class Period.

17. Similar patterns are seen in the difference between the auction price and the end of day price reported by Bloomberg, which is another comparison point by which to measure relative changes in the auction price. In low demand auctions, the auction price was significantly lower, relative to the end of day price, during the Auction Class Period than it was after—indicating, again, that the auction price was suppressed in low demand auctions during the Auction Class Period. In high demand auctions, the auction price was significantly higher, relative to the end of day price, during the Auction Class Period than after—again indicating that the auction price was artificially inflated on high demand auctions during the Auction Class Period.

18. Additional metrics further confirm the break in the Auction Defendants' conspiracy. For instance, just as the move to a single-price auction system was marked by a

decrease in the percentage of securities allocated to the top dealers, so too was the announcement of the governmental investigations of the Auction Defendants' manipulation of the Treasuries market. These are just a few of the many examples of metrics that demonstrate both the effect of the Auction Defendants' conspiracy on the auction and related markets, and the break in their scheme once the governmental investigations were announced.

19. ***Colluding in the secondary market.*** Recently-issued Treasuries (also called “on-the-run” Treasuries) also trade extensively in a secondary market, as do older issues, known as off-the-run Treasuries, albeit to a smaller degree. Primary dealers trade the Treasuries purchased at auction, and these Treasuries are sold to all types of investors, including pension funds, corporations, hedge funds, municipalities, foreign governments, university endowments, and individuals (collectively, the “buy side”). Treasuries purchased in the secondary market are a staple in many investor portfolios.

20. The Boycott Defendants (Goldman Sachs, JP Morgan, Barclays, Citi, Bank of America, Morgan Stanley, and Credit Suisse) exploit the market power they have as the dominant sellers of Treasuries in the secondary market to block technological innovation at the expense of investors. The Boycott Defendants have done so by boycotting any new or existing electronic trading venue that plans to launch an anonymous, “all-to-all” platform—a platform on which all market participants could execute trades, like the exchanges on which equities or Treasury futures trade.

21. Few, if any, markets are more mature, liquid, and standardized than the secondary market for on-the-run Treasuries. Treasuries carry near zero credit risk and trades in Treasuries typically settle in one business day. All of these characteristics naturally lend themselves to an anonymous, all-to-all marketplace in which any entity should be able to trade with any other entity.

22. Instead, the secondary Treasury market is bifurcated. In the wholesale dealer-to-dealer (“D2D”) segment, state-of-the-art electronic trading platforms display all bids and offers made available by the platform participants. A participant can execute a trade at the best price instantaneously and has access to the prices and quantities of all trades completed on the platform. The dominant D2D platforms are BrokerTec and eSpeed (now called NASDAQ Fixed Income and, as of February 2021, part of Tradeweb).

23. “Buy-side” investors trade with dealers in a dealer-to-client (“D2C”) segment. In that segment, investors use a “request-for-quote” protocol, or “RFQ.” Under that protocol, an investor interested in buying or selling a Treasury must reach out to a dealer—thereby disclosing the investor’s identity, the specific Treasury sought, direction of the trade (i.e., buy or sell), and the size of the trade. Regardless of whether an investor seeks to trade by telephone (as some still do) or electronically (using a trading platform such as Bloomberg or Tradeweb), the investor is forced to disclose this information as a pre-condition to obtaining a dealer quote.

24. The RFQ protocol thus, at best, makes electronic a protocol that dates from when Treasuries traded in an over-the-counter market by telephone. Being compelled to use this archaic protocol deprives the buy-side firm of access to the best available quotes in the market. Prices that are transparent in the D2D segment are opaque to buy-side investors in the D2C segment. Dealers also are able to use the information investors disclose in making their request, and to exploit the time lag between the request and the trade, for the dealers’ own benefit and even against the interests of their own customers. For example, dealers use information that an investor is planning a large purchase of Treasuries in the D2C segment to make purchases in the D2D segment at a price that will ensure that the dealer profits on its trade with the investor. This “front-running” moves the market and has the effect of increasing the price paid by the customer.

25. The Boycott Defendants force investors to use the RFQ protocol by threatening to collectively boycott any new or existing trading platform that takes steps to become an anonymous, “all-to-all” platform. During the Boycott Class Period—and indeed since the first D2D platform was developed nearly twenty years ago—the dealers have acted together to punish BrokerTec and eSpeed whenever either platform has suggested that it might open to the buy side. The Boycott Defendants have done this by threatening to jointly transfer, from the targeted platform to another platform, the liquidity and fees without which the targeted platform cannot survive. The Boycott Defendants have used Tradeweb Markets, a company that they control, to launch an electronic trading platform called Dealerweb in the D2D segment, solely to ensure that they control a vessel into which they can transfer their liquidity, if either BrokerTec or eSpeed crosses the line of going “all-to-all.” And recently, in February 2021, the Boycott Defendants solidified their control of eSpeed by using Tradeweb to purchase eSpeed for \$190 million and bring it under their control.

26. Jonah Crane, the former Deputy Assistant Secretary of the Treasury Department, testified to Congress, after noting the rise of electronic trading in the secondary market: “The Treasury market’s current bifurcated structure makes little sense.”¹² The reason bifurcation persists is the Boycott Defendants’ overriding objective of blocking the development of an all-to-all exchange that would “disintermediate” them—i.e., eliminate them as a necessary party to the purchase of Treasuries by the buy side. The Boycott Defendants have succeeded in protecting their own interests at the expense of the interests of investors, by blocking the anonymous, all-to-

¹² *A Review of Fixed Income Market Structure: Hearing Before the Subcomm. on Capital Markets, Securities, and Investment of the Comm. on Fin. Serv.*, 115th Cong. (2017) (statement of Jonah Crane Before H. Fin. Serv. Comm.) <https://www.govinfo.gov/content/pkg/CHRG-115hrg28749/pdf/CHRG-115hrg28749.pdf>.

all market that otherwise would have arrived, and flourished, in the secondary Treasury market as it has in markets for other financial instruments.

JURISDICTION AND VENUE

27. This Court has subject matter jurisdiction over this action pursuant to Sections 4 and 16 of the Clayton Act (15 U.S.C. §§ 15(a) and 26), and pursuant to 28 U.S.C. §§ 1331 and 1337(a). This Court also has jurisdiction over the state law claims under 28 U.S.C. § 1367, because those claims are so related to the federal claims that they form part of the same case or controversy, and under 28 U.S.C. § 1332; because the amount in controversy for each of the Classes¹³ exceeds \$5,000,000; and because there are members of the Classes who are citizens of a different state than Defendants.

28. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a) and 22, as well as pursuant to 28 U.S.C. § 1391(b), (c), and (d), because during the relevant period all the Defendants resided, transacted business, were found, or had agents in this District; a substantial part of the events or omissions giving rise to these claims occurred in this District; and a substantial portion of the affected interstate trade and commerce discussed herein was carried out in this District.

29. Defendants' activities, and those of their co-conspirators, were within the flow of, were intended to affect, and had a substantial effect on, interstate commerce.

30. Pursuant to the nationwide contacts test provided for by 15 U.S.C. § 22, many Defendants are subject to personal jurisdiction in the United States because they, as set forth below, were formed in or have their principal places of business in the United States. In addition, all Defendants are subject to personal jurisdiction in the United States because both the Auction and Boycott conspiracies were directed at, carried out in substantial part in, and had the intended effect

¹³ The "Classes" are defined in Part Three below.

of causing injury to Plaintiffs and Class members residing in, located in, or doing business throughout the United States. For instance, the Auction Defendants' manipulative scheme was carried out primarily through their collusive bidding practices in the Treasury auctions, which were held in the United States.

31. The Defendants are also subject to personal jurisdiction here because they each transacted business throughout the United States, including in this District, that was directly related to the claims at issue in this action. Many of the Defendants are registered as primary dealers with the New York Fed, and participated in Treasury auctions in the United States, both on their own behalf, and on behalf of their indirect bidder customers, many of which were located in this District. The Treasuries at issue in this action were regularly traded through desks of the major sell-side banks located in New York. The bank Defendants are also subject to personal jurisdiction here because their affiliates and subsidiaries traded Treasuries in the United States as their agents, and if they did not, those Defendants would have made those trades themselves.

32. The Platform Defendants Tradeweb Markets LLC ("Tradeweb Markets"), Tradeweb IDB Markets ("Tradeweb IDB"), and Dealerweb Inc. are similarly subject to personal jurisdiction here because each operated or controlled electronic trading platforms used in this District and each transacted business in and targeted to this District that was directly related to the claims at issue in this action. The Tradeweb D2C electronic trading platform owned by Platform Defendant Tradeweb Markets ("Tradeweb") and the Dealerweb D2D electronic trading platform owned by the three Platform Defendants ("Dealerweb") were accessed and used by financial institutions, trading firms, and customers located and doing business in the United States. Many of these financial institutions and trading firms have their principal places of business inside this District. The Platform Defendants are controlled and directly or indirectly owned by the Boycott

Defendants, who do business in this District. Further, the datacenters that house electronic trading platforms Tradeweb and Dealerweb are located in the United States, and the trading desks that bought and sold Treasuries on the platforms are located in this District. Finally, Tradeweb Markets has its principal place of business in this District, and Dealerweb Inc. is incorporated in New York State.

33. Additionally, the Court has jurisdiction over Defendants pursuant to N.Y. C.P.L.R. § 302, because Defendants are present and/or transact business in New York State; each Defendant had substantial contacts with New York State; each Defendant committed overt acts in furtherance of Defendants' conspiracy in New York State; each Defendant is an agent of the other Defendants; and Defendants' conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business in New York State.

PARTIES

A. Plaintiffs

34. *Plaintiff Alaska Electrical Pension Fund* ("AEPF") is headquartered in Anchorage, Alaska. Established in 1968, AEPF is maintained and administered by a joint labor-management Board of Trustees and governed by ERISA. AEPF provides retirement benefits to approximately 10,500 participants and beneficiaries. As of December 31, 2016, AEPF managed approximately \$1.8 billion in assets on behalf of its participants and beneficiaries. From January 1, 2007 through June 8, 2015 (the "Auction Class Period"), AEPF transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

35. From November 15, 2013 to the present (the "Boycott Class Period"), AEPF traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by

the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, AEPF suffered injury to its business and property.

36. ***Plaintiff Bank of Jerusalem Ltd.*** (“Bank of Jerusalem”) is headquartered in Jerusalem, Israel. Established in 1963, it is a commercial bank specializing in real estate, capital markets, savings, and international banking, and it is governed by Israeli law. As of December 31, 2016, Bank of Jerusalem managed a balance sheet of approximately NIS (Israeli new shekel) 14.2 billion (\$3.69 billion); approximately NIS 10 billion (\$2.6 billion) of Bank of Jerusalem’s assets were in securities portfolios held by approximately 15,000 customers, including households, Israeli residents, and foreign residents. During the Auction Class Period, Bank of Jerusalem transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and it was harmed by the Auction Defendants’ conspiracy alleged herein.

37. During the Boycott Class Period, Bank of Jerusalem traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, Bank of Jerusalem suffered injury to its business and property.

38. ***Plaintiff Boston Retirement System*** (“BRS”) is a governmental defined benefit plan located in Boston, Massachusetts. Established in 1923, it is a governmental defined benefit plan governed by Massachusetts law and regulations. BRS actively manages more than \$6.2 billion (market value) in assets on behalf of more than 34,000 members and beneficiaries associated with the City of Boston, Boston Planning & Development Agency, Boston Housing Authority, Boston Water & Sewer Commission, Boston Public Health Commission, and others.

In addition, Massachusetts PRIM manages over \$2 billion (market value) in assets on behalf of the Boston Schoolteachers.

39. During the Auction Class Period, BRS transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or exchange-traded Treasuries options, and was harmed by the Auction Defendants' conspiracy alleged herein.

40. During the Boycott Class Period, BRS traded Treasuries in the secondary D2C segment and was harmed by the economic boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, BRS suffered injury to its business and property.

41. ***Plaintiff City of Atlanta Firefighters' Pension Plan*** ("Atlanta Firefighters") is headquartered in Atlanta, Georgia, and is a governmental defined benefit plan sponsored by the City of Atlanta. Atlanta Firefighters provides retirement, disability, and survivor benefits to firefighters employed by the City of Atlanta. As of July 1, 2019, Atlanta Firefighters managed more than \$725 million in net assets on behalf of more than 2,000 pension plan participants. During the Auction Class Period, Atlanta Firefighters transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

42. During the Boycott Class Period, Atlanta Firefighters traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott

Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, Atlanta Firefighters suffered injury to its business and property.

43. ***Plaintiff The City of Pontiac Police and Fire Retirement System*** is headquartered in Troy, Michigan. Established in 1962, it is a retirement system governed by Michigan law. The City of Pontiac Police and Fire Retirement System provides benefits to more than 700 participants and as of December 31, 2016, managed more than \$250 million in net assets. During the Auction Class Period, The City of Pontiac Police and Fire Retirement System transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

44. During the Boycott Class Period, The City of Pontiac Police and Fire Retirement System traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, The City of Pontiac Police and Fire Retirement System suffered injury to its business and property.

45. ***Plaintiff Cleveland Bakers and Teamsters Health and Welfare Fund*** ("CBTWF") is a collectively bargained health and welfare fund, established in 1952, which administers benefits for thousands of participants. CBTWF has almost six thousand participants and tens of millions of dollars in assets. CBTWF is located at 9665 Rockside Road, Suite C, Valley View, Ohio 44125. During the Auction Class Period, CBTWF transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or

exchange-traded Treasuries options, and was harmed by the Auction Defendants' conspiracy alleged herein.

46. During the Boycott Class Period, CBTWF traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, CBTWF suffered injury to its business and property.

47. ***Plaintiff Cleveland Bakers and Teamsters Pension Fund*** ("CBTPF") is a collectively bargained pension fund, established in 1962, which administers benefits for thousands of participants. CBTPF has almost ten thousand participants, and hundreds of millions of dollars in assets. CBTPF is located at 9665 Rockside Road, Suite D, Valley View, Ohio 44125. During the Auction Class Period, CBTPF transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or exchange-traded Treasuries options, and was harmed by the Auction Defendants' conspiracy alleged herein.

48. During the Boycott Class Period, CBTPF traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, CBTPF suffered injury to its business and property.

49. ***Plaintiff Employees' Retirement System of Rhode Island*** ("ERSRI") is headquartered in Warwick, Rhode Island. Established in July 1936, it is a governmental defined benefit plan governed by Rhode Island law. ERSRI provides retirement, disability, and survivor benefits to state employees, public school teachers, judges, state police, participating municipal

police and fire employees, and general employees of participating municipalities. As of September 27, 2017, ERSRI managed approximately \$8.17 billion in net assets on behalf of approximately 32,000 active members. During the Auction Class Period, ERSRI transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

50. During the Boycott Class Period, ERSRI traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, ERSRI suffered injury to its business and property.

51. ***Plaintiff Erie County Employees' Retirement System*** ("Erie County") is headquartered in Erie, Pennsylvania. Established in January 1942, it is a contributory retirement system governed by Pennsylvania law. Erie County provides retirement, disability, and survivor benefits to employees of Erie County, Pennsylvania. As of January 1, 2017, Erie County managed more than \$242 million in net assets on behalf of more than 2,000 employees of Erie County, Pennsylvania. During the Auction Class Period, Erie County transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

52. During the Boycott Class Period, Erie County traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, Erie County suffered injury to its business and property.

53. *Plaintiff the Government Employees' Retirement System of the Virgin Islands* ("GERS") is headquartered in St. Thomas, U.S. Virgin Islands. Enacted by the Third Legislature of the Virgin Islands on June 24, 1959 by Act 479, GERS was created as a defined benefit pension plan for officials and employees of the Government of the Virgin Islands, and for their dependents and beneficiaries, for the payment of retirement annuities, disability annuities, and other benefits. GERS serves over 8,761 retirees and pensioners and approximately 9,368 active members and it is today one of the oldest pension systems under the American flag. As of year-end 2016, GERS managed almost \$1 billion in assets on behalf of its more than 18,000 participants. During the Auction Class Period, GERS transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

54. During the Boycott Class Period, GERS traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, GERS suffered injury to its business and property.

55. *Plaintiff IBEW Local 640/Arizona Chapter NECA Pension Trust Fund* is headquartered in Phoenix, Arizona. Established in December of 1970, it is a multi-employer Pension Trust governed by the Taft-Hartley laws that was established to provide retirement benefits to its participants, who are employees in the electrical construction industry in central and northern Arizona. As of December 31, 2016, the Trustees of the Trust managed nearly \$126 million in net assets in its defined benefit pension plan, and an additional \$69 million in net assets in its individual account retirement plan. During the Auction Class Period, IBEW Local

640/Arizona Chapter NECA Pension Trust transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

56. During the Boycott Class Period, IBEW Local 640/Arizona Chapter NECA Pension Trust traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, IBEW Local 640/Arizona Chapter NECA Pension Trust suffered injury to its business and property.

57. *Plaintiff MASTERINVEST Kapitalanlage GmbH* ("MASTERINVEST") is an Austrian investment company. It was founded in 1985 as HYPO-Kapitalanlage-Gesellschaft m.b.H. by Austria's eight state mortgage banks and changed its name in 2010. MASTERINVEST has approximately \$7.5 billion in assets under management. It is located at Landstraßer Hauptstraße 1 / Top 27, Vienna, Austria. During the Auction Class Period, MASTERINVEST transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or exchange-traded Treasuries options, and was harmed by the Auction Defendants' conspiracy alleged herein.

58. During the Boycott Class Period, MASTERINVEST traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, MASTERINVEST suffered injury to its business and property.

59. ***Plaintiff Oklahoma Police Pension and Retirement System*** (“OPPRS”) is headquartered in Oklahoma City, Oklahoma, and is governed by the law of the State of Oklahoma. Established in 1980, OPPRS is the public pension system for municipal police officers in Oklahoma providing pension benefits, including normal retirement, disability retirement, surviving spouse benefits, and death benefits. As of June 30, 2017, OPPRS managed more than \$2.4 billion in assets on behalf of more than 8,000 retired and active members. During the Auction Class Period, OPPRS transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants’ conspiracy alleged herein.

60. During the Boycott Class Period, OPPRS traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, OPPRS suffered injury to its business and property.

61. ***Plaintiff Rock Capital Markets, LLC*** (“Rock Capital”) is an Illinois limited liability company headquartered in Chicago, Illinois. Rock Capital, a proprietary trading firm, was established in 2001 and traded tens of thousands of related relevant Treasury instruments on a daily basis during the relevant period. During the Auction Class Period, Rock Capital transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or exchange-traded Treasuries options, and was harmed by the Auction Defendants’ conspiracy alleged herein. As a direct and proximate result of these illegal acts, Rock Capital suffered injury to its business and property.

62. **Plaintiff Torus Capital, LLC** (“Torus”) is a principal trading firm with its headquarters in Greenwich, Connecticut. During the Auction Class Period, Torus transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or exchange-traded Treasuries options, and was harmed by the Auction Defendants’ conspiracy alleged herein. As a direct and proximate result of these illegal acts, Torus suffered injury to its business and property.

63. **Plaintiff UFCW Local 1500 Pension Fund** (“Local 1500”) is headquartered in Westbury, New York. Established in 1956, it is a non-contributory retirement system governed by New York law. Local 1500 provides retirement, disability, and survivor benefits. As of 2017, Local 1500 managed more than \$428 million in assets on behalf of more than 36,000 employees and beneficiaries. During the Auction Class Period, Local 1500 transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants’ conspiracy alleged herein.

64. During the Boycott Class Period, Local 1500 traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, Local 1500 suffered injury to its business and property.

65. **Plaintiff UNIQA Capital Markets GmbH** (“UNIQA Capital Markets”), appearing here on behalf of the fund UNIQA Dollar Bond (“UNIQA Dollar Bond Fund”), is a corporation organized under the laws of Austria, with its principal place of business at Untere Donaustraße 21, 1029 Vienna, Austria. UNIQA Capital Markets is part of the UNIQA Group, which also includes

Austria's largest health insurer, one of Austria's leading providers of life assurance, and one of Austria's top three property and accident insurance companies. UNIQA Dollar Bond Fund is an investment fund according to the Austrian Investment Fund Act. UNIQA Capital Markets is the delegated fund manager of UNIQA Dollar Bond Fund. During the Auction Class Period, UNIQA Dollar Bond Fund transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries, when-issued securities, or Treasuries options with an Auction Defendant, and/or transacting in Treasury futures or exchange-traded Treasuries options, and was harmed by the Auction Defendants' conspiracy alleged herein.

66. During the Boycott Class Period, UNIQA Dollar Bond Fund traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, UNIQA Dollar Bond Fund suffered injury to its business and property.

67. ***Plaintiff United Food and Commercial Workers Union and Participating Food Industry Employers Tri-State Pension Fund*** ("UFCW TriState") is headquartered in Plymouth Meeting, Pennsylvania. Established in 1958, it is a Taft-Hartley, multi-employer, defined benefit pension trust fund. All questions pertaining to the fund's validity, construction, and administration are determined in accordance with the laws of the Commonwealth of Pennsylvania except to the extent such laws are superseded by Federal Law. UFCW TriState provides retirement benefits to present and former unionized employees of numerous food and service employers including Acme Markets, Shop Rite, and others. As of December 31, 2016, UFCW TriState managed more than approximately \$400 million in net assets on behalf of more than 33,000 plan participants. During the Auction Class Period, UFCW TriState transacted in Treasuries or related relevant instruments, including purchasing Treasuries in an auction, transacting in Treasuries or when-issued securities

with an Auction Defendant, and/or transacting in Treasury futures or options, and was harmed by the Auction Defendants' conspiracy alleged herein.

68. During the Boycott Class Period, UFCW TriState traded Treasuries in the secondary D2C segment and was harmed by the group boycotts carried out by the Boycott Defendants and Platform Defendants. As a direct and proximate result of these illegal acts, UFCW TriState suffered injury to its business and property.

B. Defendants

1. The Dealer Defendants

69. ***Bank of America Defendants.*** Defendant Bank of America Corporation ("BAC") is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business in Charlotte, North Carolina. BAC is also the successor by merger to Merrill Lynch Government Securities Inc. ("MLGS"), a financial services company with its principal place of business in New York, New York. MLGS was a primary dealer for Treasuries registered with the New York Fed during the Auction Class Period. Defendant Bank of America, N.A. ("BANA") is a federally chartered national banking association with its principal place of business in Charlotte, North Carolina, and branch locations in New York, New York. Defendant Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPFS"), formerly known as Banc of America Securities LLC, is a financial services company organized and existing under the laws of the State of Delaware with its principal place of business in New York, New York. During the Auction Class Period, MLPFS was a primary dealer for Treasuries registered with the New York Fed.¹⁴

70. Merrill Lynch became an investor in Tradeweb Markets before 2002, sold its shares in 2004, and repurchased an ownership interest in 2008. This interest became Bank of America's

¹⁴ MLPFS has since been replaced by BofA Securities Inc.

interest when the two companies merged in early 2009. Bank of America and the other Boycott Defendants jointly controlled Tradeweb and Dealerweb within the Boycott Class Period.

71. As used herein, the term “**Bank of America**” includes Defendants BAC, BANA, MLPFS, and their subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Boycott Class in the United States, including as a dealer. During the Auction Class Period, Bank of America bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, Bank of America engaged in a collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

72. Bank of America regularly transacts business in and has substantial contacts with New York, New York. For instance, one of BANA’s largest branch offices is located at the “Bank of America Tower,” in New York, New York. As discussed above, MLPFS has its principal place of business in New York, New York, and both MLPFS and MLGS were registered as primary dealers with the New York Fed. In addition, BAC, BANA, and MLPFS each traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

73. ***Barclays Defendants.*** Defendant Barclays Bank PLC (“BBPLC”) is a corporation organized and existing under the laws of England and Wales, with its principal place of business in London, England, and branch locations in New York, New York. In 2008, BBPLC acquired the core business unit—including the government securities trading desk—of Lehman Brothers Inc. (“Lehman”), a financial services company with its principal place of business in New York, New York. Lehman was a primary dealer for Treasuries registered with the New York Fed during the Auction Class Period. Defendant Barclays Capital Inc. (“BCI”) is a corporation organized and

existing under the laws of the State of Connecticut, with its principal place of business in New York, New York. BCI is a primary dealer for Treasuries registered with the New York Fed.

74. Lehman became an investor in Tradeweb Markets in 1998, by the latest, and sold its shares in 2004. In 2009, following Lehman's bankruptcy and the acquisition of its government securities trading desk by Barclays, Barclays bought an ownership interest in Tradeweb Markets. Barclays and the other Boycott Defendants controlled Tradeweb and Dealerweb within the Boycott Class Period.

75. As used herein, the term "**Barclays**" includes Defendants BBPLC, BCI, and their subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, Barclays bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, Barclays engaged in a collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

76. Barclays regularly transacts business in and has substantial contacts with New York, New York. For instance, BBPLC has two major branch offices located in New York, New York. As discussed above, BCI has its principal place of business in New York, New York, and is registered as a primary dealer with the New York Fed. In addition, BBPLC and BCI both traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

77. **BNP Defendants.** Defendant BNP Paribas Securities Corp. ("BNPPS") is a financial services company incorporated in Delaware, with its principal place of business in New York, New York. BNPPS is a primary dealer for Treasuries registered with the New York Fed.

78. As used herein, the term “**BNP**” includes Defendant BNP Paribas Securities Corp. and its subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes located in the United States, including as a dealer. During the Auction Class Period, BNP bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members.

79. BNP regularly transacts business in and has substantial contacts with New York, New York. As discussed above, BNP has its principal place of business in New York, New York, and is registered as a primary dealer with the New York Fed. In addition, BNP traded Treasuries with members of the Auction Class located in New York, New York, during the relevant period.

80. *Citi Defendants.* Defendant Citigroup Global Markets Inc. (“CGMI”) is a corporation organized and existing under the laws of the State of New York, with its principal place of business in New York, New York. CGMI is a primary dealer for Treasuries registered with the New York Fed.

81. Salomon Smith Barney, Inc. (which was later acquired by Citi) became an investor in Tradeweb Markets by 1998, at the latest. After the Boycott Defendants sold their shares in Tradeweb Markets in 2004, Citi purchased an ownership interest in Tradeweb Markets in 2008. Citi and the other Boycott Defendants jointly controlled Tradeweb and Dealerweb within the Boycott Class Period.

82. As used herein, the term “**Citi**” includes Defendant CGMI and its subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, Citi bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, Citi engaged in a

collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

83. Citi regularly transacts business in and has substantial contacts with New York, New York. As discussed above, CGMI has its principal place of business in New York, New York, and is registered as a primary dealer with the New York Fed. In addition, Citi traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

84. *Credit Suisse Defendants.* Defendant Credit Suisse Securities (USA) LLC (“CSSUSA”), formerly known as Credit Suisse First Boston LLC, is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business in New York, New York. During the Auction Class Period, CSSUSA was a primary dealer for Treasuries registered with the New York Fed.¹⁵ Defendant Credit Suisse International (“CSI”) is a bank organized and existing under the laws of England and Wales, with its principal place of business in London, England.

85. Credit Suisse became an investor in Tradeweb Markets by 1998, at the latest. After the Boycott Defendants sold their shares in Tradeweb Markets in 2004, Credit Suisse repurchased an ownership interest in 2008. Credit Suisse and the other Boycott Defendants jointly controlled Tradeweb and Dealerweb within the Boycott Class Period.

86. As used herein, the term “**Credit Suisse**” includes Defendants CSSUSA, CSI, and their subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, Credit Suisse bought Treasuries at the auction, both on its own behalf and on behalf of its

¹⁵ CSSUSA has since been replaced by Credit Suisse AG, New York Branch.

indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, Credit Suisse engaged in a collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

87. Credit Suisse regularly transacts business in and has substantial contacts with New York, New York. As discussed above, CSSUSA has its principal place of business in New York, New York, and is registered as a primary dealer with the New York Fed. In addition, CSSUSA and CSI each traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

88. ***Goldman Sachs Defendants.*** Defendant Goldman Sachs & Co. (“GS&C”) is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business in New York, New York. GS&C (n/k/a Goldman Sachs & Co. LLC) is a primary dealer for Treasuries registered with the New York Fed. Defendant Goldman Sachs Execution & Clearing L.P. (“GSE&C”) is a corporation organized and existing under the laws of the State of New York, with its principal place of business in New York, New York.

89. Goldman Sachs became an investor in Tradeweb Markets by 1998, at the latest. After the Boycott Defendants sold their shares in Tradeweb Markets in 2004, Goldman Sachs repurchased an ownership interest in 2008. Goldman Sachs and the other Boycott Defendants jointly controlled Tradeweb and Dealerweb within the Boycott Class Period.

90. As used herein, the term “**Goldman Sachs**” includes Defendants GS&C, GSE&C, and their subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, Goldman Sachs bought Treasuries at the auction, both on its own behalf and on behalf of

its indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, Goldman Sachs engaged in a collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

91. Goldman Sachs regularly transacts business in and has substantial contacts with New York, New York. As discussed above, GS&C and GSE&C each have their principal place of business in New York, New York, and GS&C is registered as a primary dealer with the New York Fed. In addition, GS&C and GSE&C each traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

92. ***JP Morgan Defendants.*** Defendant JP Morgan Securities LLC (“JPMS”) (also known as “JP Morgan Securities Inc.”) is a corporation organized and existing under the laws of Delaware, with its principal place of business in New York, New York. JPMS is a primary dealer for Treasuries registered with the New York Fed. In 2008, JPMS acquired Bear Stearns & Co., Inc. (“Bear Stearns”), a financial services company with its principal place of business in New York, New York. Bear Stearns was a primary dealer for Treasuries registered with the New York Fed during a portion of the Auction Class Period.

93. Defendant JP Morgan Chase Bank, N.A. (“JPMCB”) is a federally chartered national banking association with its principal place of business in New York, New York. Defendant JP Morgan Clearing Corp. (“JPMCC”) is a corporation organized and existing under the laws of Delaware, with its principal place of business in New York, New York.

94. JP Morgan became an investor in Tradeweb Markets in 2002. After the Boycott Defendants sold their shares in Tradeweb Markets in 2004, JP Morgan repurchased an ownership

interest in 2008. JP Morgan and the other Boycott Defendants jointly controlled Tradeweb and Dealerweb within the Boycott Class Period.

95. As used herein, the term “**JP Morgan**” includes Defendants JPMS, JPMCB, and JPMCC, and their subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, JP Morgan bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, JP Morgan engaged in a collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

96. JP Morgan regularly transacts business in and has substantial contacts with New York, New York. As discussed above, JPMS, JPMCB, and JPMCC each have their principal place of business in New York, New York, and JPMS is registered as a primary dealer with the New York Fed. In addition, JPMS, JPMCB, and JPMCC each traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

97. ***Morgan Stanley Defendants.*** Defendant Morgan Stanley & Co. LLC (“MS&C”), formerly known as Morgan Stanley & Co., is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business in New York, New York. MS&C is a primary dealer for Treasuries registered with the New York Fed.

98. Morgan Stanley became an investor in Tradeweb Markets before 2002. After the Boycott Defendants sold their shares in Tradeweb Markets in 2004, Morgan Stanley repurchased an ownership interest in 2008. Morgan Stanley and the other Boycott Defendants jointly controlled Tradeweb and Dealerweb within the Boycott Class Period.

99. As used herein, the term “**Morgan Stanley**” includes Defendant MS&C and its subsidiaries and affiliates, including Morgan Stanley Capital Group Inc. and Morgan Stanley Capital Products LLC, that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, Morgan Stanley bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members. During the Boycott Class Period, Morgan Stanley engaged in a collective boycott within this District to prevent the emergence of an anonymous, all-to-all electronic trading platform in the secondary market for Treasuries.

100. Morgan Stanley regularly transacts business in and has substantial contacts with New York, New York. As discussed above, MS&C has its principal place of business in New York, New York, and is registered as a primary dealer with the New York Fed. In addition, MS&C traded Treasuries with members of the Classes located in New York, New York, during the relevant period.

101. **RBS Defendants.** Defendant RBS Securities Inc. (“RBSS”) (n/k/a NatWest Markets plc) is a corporation organized and existing under the laws of Delaware, with its principal place of business in Stamford, Connecticut. RBSS is a primary dealer for Treasuries registered with the New York Fed.

102. As used herein, the term “**RBS**” includes Defendant RBSS and its subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, RBS bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members.

103. RBS regularly transacts business in and has substantial contacts with New York, New York. RBSS is registered with the New York Fed as a primary dealer, and is licensed to do business in New York. In addition, RBSS traded Treasuries with members of the Auction Class located in New York, New York, during the relevant period.

104. **UBS Defendants.** Defendant UBS AG is a corporation organized and existing under the laws of Switzerland with its principal places of business in Basel and Zurich, Switzerland, and regional offices in New York, New York, and Stamford, Connecticut. Defendant UBS Securities LLC (“UBS Securities”) is a corporation organized and existing under the laws of Delaware, with its principal place of business in New York, New York, and is an indirect wholly-owned subsidiary of UBS AG. UBS Securities is a registered primary dealer for Treasuries with the New York Fed.

105. As used herein, the term “**UBS**” includes Defendants UBS AG, UBS Securities, and their subsidiaries and affiliates that bought Treasuries at the auction and traded Treasuries with members of the Classes in the United States, including as a dealer. During the Auction Class Period, UBS bought Treasuries at the auction, both on its own behalf and on behalf of its indirect bidder customers, and traded Treasuries with Auction Class members.

106. UBS regularly transacts business in and has substantial contacts with New York, New York. For instance, UBS AG has a major branch office, which serves as one of its U.S. headquarters, located in New York, New York. As discussed above, UBS Securities has its principal place of business in New York, New York, and is registered as a primary dealer with the New York Fed. In addition, UBS AG and UBS Securities both traded Treasuries with members of the Auction Class located in New York, New York, during the relevant period.

2. The Platform Defendants

107. Defendant Tradeweb Markets is a limited liability company organized and existing under the laws of the State of Delaware, with its principal place of business in New York, New York. Tradeweb Markets is the principal operating subsidiary of Tradeweb Markets Inc., a corporation organized and existing under the laws of the State of Delaware.

108. Defendant Tradeweb IDB is a holding corporation organized and existing under the laws of the State of Delaware. Tradeweb IDB is a wholly-owned subsidiary of Tradeweb Markets and the parent company of Defendant Dealerweb Inc.

109. Defendant Dealerweb Inc. is a corporation organized and existing under the laws of New York, with its principal place of business in Jersey City, New Jersey, and is a wholly-owned subsidiary of Tradeweb IDB.

110. In 1998, Tradeweb Markets launched an electronic trading platform for the secondary D2C Treasury segment called “Tradeweb.” During the Boycott Class Period, Tradeweb has been jointly owned by, among others, a consortium comprising the Boycott Defendants. During the Boycott Class Period, each of the Boycott Defendants was a shareholder in Tradeweb Markets.

111. Dealerweb Inc., then known as Hilliard Farber, was bought by Tradeweb in 2008. Dealerweb Inc. commenced operating the electronic trading platform Dealerweb in the secondary on-the-run Treasury market, in the D2D segment, in mid-2014.

112. During the Boycott Class Period, the Boycott Defendants collectively controlled Tradeweb Markets and its indirect, wholly-owned subsidiary Dealerweb Inc. through appointments to Tradeweb Markets’ Board of Directors and its governance and operating committees, and by virtue of being prominent customers.

113. In April 2019, Tradeweb became a publicly traded company, and the equity stakes in Tradeweb held by the Dealer Defendants fell substantially. However, the Dealer Defendants have continued to exercise influence over the Tradeweb Board of Directors. Representatives of both JP Morgan and Goldman Sachs currently sit on Tradeweb's Board.¹⁶ Other members of Tradeweb's Board have previously worked for Defendants, including Martin Brand (formerly Goldman Sachs), Von Hughes (formerly Goldman Sachs), and Murray Roos (formerly Citi). Tradeweb's senior management is also closely affiliated with Defendants. For example, Simon Maisey (Managing Director, Global Head of Business Development) and Enrico Bruni (Managing Director, Head of Europe and Asia Business) both previously worked for JP Morgan.

114. Tradeweb Markets and Dealerweb Inc. regularly transact business in and have substantial contacts with New York, New York. Further, the datacenters of the Tradeweb and Dealerweb electronic trading platforms are located in the United States and the principal place of business of Tradeweb Markets is in this District. Many of the physical trading desks that bought and sold Treasuries using Tradeweb and Dealerweb, including the trading desks of the Boycott Defendants, are located in this District.

115. Whenever this Complaint refers to any Defendant entity, such reference includes that entity, its parent companies, subsidiaries, affiliates, predecessors, and successors. In addition, whenever this Complaint alleges that any Defendant entity engaged in any act, deed, or transaction, the allegation means that the entity engaged in the act, deed, or transaction by or through its officers, directors, agents, employees, or representatives while they were actively engaged in the management, direction, control, or transaction of the entity's business or affairs.

¹⁶ *E.g.*, Tradeweb: Leadership, <https://www.tradeweb.com/who-we-are/leadership/>

PART ONE: THE AUCTION DEFENDANTS' CONSPIRACY TO LEVERAGE THEIR INFORMATIONAL ADVANTAGE IN THE AUCTION

I. BACKGROUND ON THE TREASURIES AUCTION

A. General Background On Treasuries

116. Treasuries are debt instruments issued by the U.S. Government. They are one of the primary ways the United States borrows to finance the federal government's operations. Because Treasuries are backed by the full faith and credit of the United States, their risk of default is effectively zero.

117. Treasuries are used for investing and hedging purposes, and also serve as a benchmark for pricing many other asset types, including interest rates for home mortgages, mortgage-backed securities, corporate bonds, and municipal bonds, among others.

118. As of the date of the Consolidated Complaint, there were more than \$14 trillion in Treasuries outstanding to the public.¹⁷ In 2004, the Treasury Department issued \$3.9 trillion in Treasuries. In comparison, in 2016 the Treasury Department issued Treasuries of more than twice that value, or \$8 trillion.¹⁸

119. Treasuries come in a wide range of maturities, from as short as a few days to as long as thirty years. Treasuries with maturities of one year or less are referred to as *Treasury bills* or *T-bills*; securities with maturities of between one and ten years are referred to as *Treasury notes* or *T-notes*; and securities with maturities of greater than ten years are called *Treasury bonds* or *T-*

¹⁷ Treasury Dep't, *supra* note 1, at 5.

¹⁸ TreasuryDirect, *Debt Positions and Activity Report*, (Sept. 2017) https://www.treasurydirect.gov/govt/reports/pd/pd_debtposactrpt_0917.pdf.

bonds.¹⁹ Bills do not pay interest prior to maturity. Instead, they are sold at a discount to par value. Notes and bonds make coupon payments every six months.

120. Treasuries prices are quoted using the following conventions. Treasury bills are quoted on a discount basis.²⁰ An investor's return on a bill is the difference between the purchase and subsequent sale price or, when held to maturity, the face value paid by the Treasury Department. Consequently, bills are quoted at a discount from face value, with the discount expressed as an annual rate based on a 360-day year. For example, a T-bill with a bid (or offer) of "5.08" means that the dealer is willing to buy (or sell) the instrument at a discount rate of 5.08%.

121. Coupon-bearing notes and bonds, however, are quoted using slightly different conventions. These Treasury securities are quoted in dollars and fractions of a dollar. By market convention, the normal fraction used for Treasury security prices is 1/32. For example, a bid (or offer) quote of "105-08" means \$105 plus 8/32 of a dollar, or \$105.25 for each \$100 face value of a note (or bond).

122. The value of T- notes and bonds is a function of their par value, the public demand for debt, the coupon, and the market interest rate (yield).

123. "Par value" means the face value of the note or bond. Usually notes and bonds are sold at a discount to par value. For example, a Treasury security may have a par value of \$1,000,

¹⁹ The Treasury Department also issues more specialized securities, including Treasury Inflation-Protected Securities ("TIPS"), cash management bills ("CMBs"), and Floating Rate Notes ("FRNs"). With TIPS, the principal amount of debt adjusts according to whether there is inflation or deflation, as measured by the Consumer Price Index. Upon maturity, TIPS holders are paid the adjusted principal or the original principal, whichever is greater. CMBs are occasionally offered by the Treasury Department to meet short-term financing needs, with their maturities ranging from one-day to approximately one-year. However, most are issued with maturities of less than three months.

²⁰ See New York Fed, *Understanding U.S. Government Securities Quotes*, <https://www.newyorkfed.org/aboutthefed/fedpoint/fed07> (last visited Nov. 15, 2017).

but sell for \$980. At the Treasury security’s maturity, the holder of the Treasury will receive the par value (i.e., \$1,000), plus any accrued interest.

124. A “coupon” is the interest rate that the issuer of the debt is willing to provide to the holder of the note or bond. Coupons on Treasury notes and bonds are usually paid semi-annually (i.e., every six months). The coupon is expressed as a percentage of the par value. For example, if a Treasury bond pays a yearly coupon of 10% and its par value is \$1,000, then the United States will pay the bond or note holder \$50 in interest every six months (\$100 every year).

125. Further, coupon rates may add a premium to the par value of the bond depending on prevailing interest rates. For example, if the coupon rate for a 10-year Treasury note at issuance is 6%, while prevailing market interest rates are 2%, that 10-year Treasury note will trade at a significant premium above its par value because the purchaser will receive coupon payments at 6% of par value instead of 2% on a note with the same par value at prevailing rates.

126. With respect to Treasury notes and bonds, the coupon rate is determined by the Treasury Department upon completion of the auction.

127. The “yield” reflects the return on a Treasury security. Although yield can be measured in a variety of ways, it is often expressed as the “yield to maturity,” which is the average percentage rate of return on the security, if it were held to maturity. There is an inverse relationship between the price of Treasuries and their yields. If the price of the Treasury falls, then the yield on that same bond increases. Conversely, if the price of the note increases, the yield falls.

B. The Auction Process

128. *When auctions are held.* The Treasury Department sells securities through a regular auction process:

Security	Time of Offering
4-week T-bills	Weekly (Tuesdays)

13-week and 26-week T-bills	Weekly (Mondays)
52-week T-bills	Every 4 weeks (Tuesdays)
2-year T-notes	Monthly (end of month)
3-year T-notes	Monthly (middle of month)
5-year T-notes	Monthly (end of month)
7-year T-notes	Monthly (end of month)
10-year T-notes	Monthly (middle of month)
30-year T-bonds	Monthly (middle of month)
5-year TIPS	Three times per year (April, August, December)
10-year TIPS	Bimonthly (January, March, May, July, September, November)
30-year TIPS	Three times per year (February, June, October)
2-year FRN	Monthly (end of month)

129. With respect to certain Treasuries, the Treasury will have “re-openings” in which the Treasury Department issues additional amounts of a previously issued Treasury security.

130. *How to participate in an auction.* There are three general categories of competitive bidders in the Treasury auctions: primary dealers, direct bidders, and indirect bidders.

131. *Primary dealers* are institutions that have a formal trading relationship with the New York Fed. The New York Fed has designated each Auction Defendant as one of the current stock of twenty-four primary dealers.²¹ Primary dealers can bid on their own behalf, as well as submit bids on behalf of indirect bidders.

132. Primary dealers are usually the most active participants in the purchase and sale of Treasuries, and are the only market participants that are required to bid for a specified percentage of the Treasuries offered at every auction. Unlike other bidders, during the auctions, each primary dealer is required to bid, at a minimum, no less than its pro rata share, based on the number of primary dealers at the time of the auction—currently, around 4.17% (or 1/24).

²¹ See New York Fed, *Primary Dealers*, <https://www.newyorkfed.org/markets/primarydealers> (last visited May 3, 2021).

133. By virtue of their ability to bid on behalf of themselves and indirect bidders, as well as their dominant share of the auction process, the primary dealers—and the Auction Defendants in particular—are uniquely together situated to see order flows and estimate demand for any given Treasury auction issuance. This gives the Auction Defendants significant influence over the outcome of any auction.

134. The second most active participants in the Treasury auctions are *indirect bidders*, which bid on Treasuries through the primary dealers as intermediaries. Indirect bidders include domestic money managers making bids through primary dealers, as well as foreign central banks and sovereign monetary funds. Particularly large and active indirect bidders include large pension and employee retirement funds, large asset managers, and the national banks of China, Japan, and France.

135. The last category of bidders are *direct bidders*, which include institutional investors and individuals that bid directly in the auctions. Unlike primary dealers, direct bidders are not required to bid in any auction. They are also not particularly active participants in the auctions when compared to primary dealers or indirect bidders. Typically, direct bidders are allotted on average around 10% of any auction.

136. ***How Treasuries are allocated.*** The Treasury Department typically announces the following details for an auction one week in advance: (i) the amount of the security being offered for each maturity; (ii) the auction date; (iii) the date of delivery of the auctioned securities; (iv) the maturity date; (v) the terms and conditions of the offering; (vi) the noncompetitive and competitive bidding close times; and (vii) any other pertinent information.

137. Participants submit bids through the Treasury Automated Auction Processing System (“TAAPS”). Bids are supposed to be confidential, and can be either non-competitive or competitive.

138. *Non-competitive bids* are generally submitted by small investors and individuals. Non-competitive bidders are guaranteed to receive securities at the auction, but individual non-competitive bidders are limited by federal regulation to \$5 million per auction. With a non-competitive bid, a bidder agrees to accept the discount rate (in the case of bills) or yield rate (in the case of notes, bonds, FRNs, and TIPS) determined at auction. Non-competitive bidding typically closes at 11:00 a.m. ET for bills and FRNs and 12:00 p.m. ET for notes, bonds, and TIPS.

139. *Competitive bids* are typically submitted by large financial institutions, including the Auction Defendants, for their own accounts or on behalf of customers. Competitive bidding typically closes at 11:30 a.m. ET for bills and FRNs, and 1:00 p.m. ET for notes, bonds, and TIPS. The bids are submitted in terms of a discount rate for bills and a yield for coupon-bearing securities, stated in three decimal places. Winning bids are assessed by determining which bidders offered to accept the lowest yields—and thus, the highest prices—on the offered security.

140. Winning bids are determined by first subtracting the non-competitive bids from the offering amount to arrive at the pool of securities available for competitive bidders. Treasuries are then allocated to the competitive bidders. “Winning” bidders are determined based on which bidder will accept the lowest yield (i.e., highest price) for its purchase. TAAPS works its way down the list of competitive bids and accepts competitive bids going in order from the lowest rate, yield, or discount margin (as applicable), to the highest, until the quantity of awarded bids reaches the offering amount. All bidders then receive the same rate, yield, or discount margin as the lowest accepted yield bid (the “stop-out yield”), which thus sets the price for the auction. Bidders who

submitted a lower yield (i.e., a higher price) than the stop-out yield will receive the full amount they submitted. Bidders who submitted the same yield (i.e., the same price) as the stop-out yield will receive a pro-rata share of the remaining securities.

141. The following is an example of the determination of the winning bid and the consequences for bidders: The Treasury Department announces an auction of \$11 billion worth of 5-year notes. On the date of the auction, the Treasury Department determines that there were \$1 billion in non-competitive bids and \$10 billion in competitive bids. During the competitive bidding process there are six bidders providing the following bids:

NAME	YIELD	AMOUNT
Bidder 1	2.998%	\$3.5 billion
Bidder 2	2.999%	\$2.5 billion
Bidder 3	3.000%	\$3.0 billion
Bidder 4	3.000%	\$3.0 billion
Bidder 5	3.001%	\$2.0 billion
Bidder 6	3.002%	\$1.0 billion

142. “Winning” bidders are determined based on which bidder demands the lowest yield (highest price) for its purchase of Treasuries. This helps ensure that the U.S. government achieves the lowest costs to finance its debt. TAAPS works its way down the list of competitive bids and accepts the lowest possible yields until the full offering amount has been awarded. Thus, in the hypothetical auction above, Bidder 1 receives the full amount bid for (i.e., \$3.5 billion). So does Bidder 2 (\$2.5 billion). However, Bidder 3 and Bidder 4 requested the same amount of Treasuries for the same yield. Under these circumstances, the Treasury Department will allocate the remaining Treasuries (\$4 billion) equally to Bidder 3 and Bidder 4—i.e., providing each \$2 billion worth of Treasuries at 3.000% or 2/3 of their original bid. Bidders 1 and 2, who were willing to buy Treasuries on less favorable terms (i.e., lower yield, higher price) get the benefit of the higher stop-out yield of 3.000%. Bidder 5 and Bidder 6 receive nothing because the Treasury

Department was able to successfully allocate the total auction amount to Bidders 1, 2, 3, and 4, all for a yield of 3.000%. In this example, all non-competitive bidders who comply with the auction rules are awarded their requested amount at the same yield of 3.000%.

143. Competitive bidders in the Treasury auctions are limited to an allocation of no more than 35% of the offering, net any long positions in either the cash or futures markets. Subject to the 35% cap on allocation, bidders can also submit multiple bids in any given auction, with each bid requesting different quantities or offering different yields or rates. This bidding strategy of submitting multiple bids at different yields and volumes is known as “laddering.” Bidders, including primary dealers, can “ladder” their bids such that they can submit, for example, one bid of \$50 million at 1.98%, another bid of \$100 million at 2.00%, and so on.

144. Within minutes upon completion of an auction, the Treasury Department publishes limited aggregate information about the auction results, including: (i) as applicable, the discount rate or interest rate; (ii) the price; (iii) the highest yield offered; (iv) percentage of Treasuries allotted at the high yield; (v) the median yield offered; (vi) the low yield offered; (vii) aggregate figures of bids tendered and accepted at both competitive and non-competitive auctions; and (viii) figures breaking down the bids tendered and accepted based on bidder type (*e.g.*, primary dealer, direct bidder, and indirect bidder).

145. The Treasury Department does not identify the individual winners or losers, or their bids. Accordingly, the public is unable to observe who is receiving an allocation from the auction, how much anyone else is receiving, or at what yield/price anyone else bid in the auction.

C. The Pre-Auction and Post-Auction Markets

146. During the period after the auction announcement through the time the security is issued and beyond, there is active trading in the Treasury security that is subjected to the auction.

147. *The pre-auction market.* Before a given Treasury issuance, there is an active market for the to-be-issued securities. This “when-issued” period begins at the time the Treasury Department announces the amount of Treasuries to be auctioned in each maturity on the auction date, and continues beyond the auction date to the date the Treasury Department issues (delivers) the auctioned securities.

148. In the pre-auction market, participants (including the Auction Defendants) buy and sell obligations to deliver the Treasuries after they have been issued to winning bidders. If someone “sells” in the pre-auction market, it must be able to cover its short position by eventually obtaining the necessary Treasuries, either through the auction itself or in the secondary market. If someone “buys” Treasuries in the pre-auction market, it is obligated to pay the price calculated based on the agreed yield and take possession of the Treasuries, regardless of how the auction itself actually unfolds.

149. Investors during the pre-auction market can also “roll” positions in existing Treasury securities to obtain when-issued securities. These roll transactions are in effect two transactions: the sale of an existing Treasury and the purchase of the when-issued security. For example, an investor who has a long position in the current 10-year note, can before the upcoming 10-year note auction, roll her long position by selling her current 10-year note and simultaneously purchasing the when-issued 10-year note.

150. Even though the when-issued market begins upon announcement (usually, around seven days prior to the auction), the volume of trading increases significantly during the two days immediately preceding the auction.

151. Primary dealers are very active in the when-issued market. Often primary dealers take short positions, which then obligate them to cover these positions by obtaining Treasuries at

an auction. For example, primary dealers—including the Auction Defendants—will often take the other side of roll transactions both to accommodate their customers and position themselves for bidding in the Treasury auctions. Of the primary dealers, the Auction Defendants are the most active in this space.

152. *The post-auction market.* After the auction results are announced—usually within a few minutes of the conclusion of competitive bidding—trading in the when-issued market continues, even though the Treasury Department itself will not deliver the auctioned security until a few days later (usually within three to five days). But because the auction yield is known, the to-be-delivered Treasury securities now trade off of the auction yield (and at this point, trading is done on the basis of price because a coupon for the auction securities will have been calculated by the Treasury Department). As a result, trading during this period is, in effect, the start of the secondary market.

153. Just as in the pre-auction when-issued market, the Auction Defendants, as market makers in Treasuries generally, are active in this post-auction market and trade with investors and other dealers alike.

D. Treasury Futures and Options

154. Many instruments bought and sold by market participants are linked to Treasuries yields/prices. These include, among others, Treasury futures and options.

155. *Treasury futures* are typically traded on the Chicago Board of Trade (“CBOT”). In 2013, the average daily volume of Treasury futures traded on the CBOT was 2.69 million contracts, with a notional value in excess of \$250 billion. As of the filing of the Consolidated Complaint, there were seven types of Treasury futures traded on the CBOT: (i) Ultra US Treasury Bond Futures; (ii) Bond Futures; (iii) 10-year Note Futures; (iv) Ultra 10-year Note Futures; (v) 5-year Note Futures; (vi) 3-year Note Futures; and (vii) 2-year Note Futures.

156. As with all futures, there are two sides to any Treasury futures transaction: a long (buy) side and short (sell) side. The holder of the short position agrees to deliver the underlying Treasury security at the expiry of the futures contract, and the holder of the long position agrees to take delivery at expiry. Short-sellers, if they choose to effect a physical settlement, must cover their short position by purchasing Treasuries in the open market that will satisfy the terms of delivery.

157. Instead of effecting a physical settlement, many futures market participants will instead enter into offsetting positions. For example, if a short seller wishes to close out a position without delivery of the actual Treasury security, it can simply enter into an offsetting long position. The difference between the values of its short and long positions will determine whether it lost or gained money on the trade. This can be done because futures trades are done over the exchange—i.e., the clearinghouse acts as the buyer to every seller, and the seller to every buyer, allowing investors to “net out” positions because the counterparty on every position is the clearinghouse.

158. Unique to Treasury futures is that delivery can be satisfied not only by different issuances of the same maturity (e.g., 10-year notes from May 2003 and 10-year notes from May 2004), but also issuances of different maturities. For example, delivery of the underlying Treasury security in 10-year Note Futures can be satisfied with a Treasury note with a “remaining term to maturity” of between 6.5 and 10 years, which would include issuances of 7-year T-notes as well as 10-year T-notes. As a result, decisions as to what Treasury security to actually deliver for these futures must factor in the different coupons associated with these various Treasury issuances. This is done by industry-standard “conversion factors,” which identify the eligible security that is “cheapest to deliver” (i.e., the Treasury security that costs the least to purchase and deliver for purposes of covering a short position).

159. Treasury futures prices are highly correlated to the yields/prices of Treasuries sold at auction, and transacted in the secondary market. This close connection has been widely documented. For instance, a Joint Staff Report by the Treasury Department, New York Fed, Securities and Exchange Commission (“SEC”), and Commodity Futures Trading Commission (“CFTC”), observed the “very tight linkages between activity in cash and futures prices at a lead-lag of about 5 milliseconds, strongly suggesting that price discovery and liquidity provisions in both markets are tightly linked[.]”²² The Joint Staff Report includes a series of studies documenting those linkages.²³

160. *Treasury options* include over-the-counter (“OTC”) options on a given Treasury security and options on Treasury futures contracts. Options on Treasury futures contracts are traded on the CBOT and the underlying security for these options contracts is one Treasury future.

161. OTC options and options on Treasury futures can be written as either “calls” or “puts.” A call option gives the holder the right, but not the obligation, to buy a Treasury (or Treasury futures contract, in the case of options on Treasury futures) at a specified price, known as the “strike price,” prior to or at some date in the future, when the option contract “expires.” One may either (a) buy a call option, paying a negotiated price or premium to the seller, writer, or grantor of the call, or (b) sell, write, or grant a call, thereby receiving that premium. A person who buys a call benefits if the market price of the Treasuries (or Treasury futures) increases beyond that need to pay the premium.

²² Treasury Dep’t, et al., *Joint Staff Report: The U.S. Treasury Market on October 15, 2014*, at 14 n.13 (July 13, 2015) https://www.treasury.gov/press-center/press-releases/Documents/Joint_Staff_Report_Treasury_10-15-2015.pdf

²³ *Id.* at 70.

162. Conversely, a put option gives the holder the right, but not the obligation, to sell a Treasury (or Treasury futures contract, in the case of options on Treasury futures) at the strike price prior to or at the expiration of the option contract. Similarly, one may buy or sell a put option, either paying or receiving a negotiated premium or price. A person who buys a put benefits if the market price of the Treasuries (or Treasury futures) decreases beyond that need to pay the premium.

163. Because Treasury option contracts are priced on the same underlying Treasury security as the corresponding Treasury futures, the prices of options on these futures contracts are also directly impacted by Treasury security yields/prices in the same way as Treasury futures prices.

E. The Auction Defendants Are Dominant Participants

164. The primary dealers were a stratified group, when it comes to both the auction market and secondary market. Within the primary dealers' group, certain primary dealers take far more of the auction allocation than other primary dealers do. Although there were as many as twenty-three primary dealers during the Auction Class Period, auction participation and allocations were highly concentrated among the Auction Defendants.

165. Although the amounts that individual primary dealers bid and obtain at the auction is not publicly available directly from the Treasury Department, the New York Fed provides individualized data on the Treasuries that it purchases directly from the primary dealers as a result of open market operations. Those open market operations represent a level of Treasury market involvement sufficient to distinguish the Auction Defendants from the other primary dealers. Plaintiffs analyzed all of the open market operations data available from the New York Fed, which covers the period from July 2010 to the end of 2014. The data show that each of the ten Auction Defendants was among the top thirteen primary dealers, by total aggregate amount traded with the

New York Fed. The Auction Defendants were responsible for, on average, 76% of all Treasury trades with the New York Fed (including 73% of all trades of on-the-run Treasuries).

166. One way to look at the data is to focus on the “permanent” open market operations. These involve outright purchases or sales for the Federal Reserve’s portfolio. These operations are conducted only with primary dealers. As seen in the table below, for every year the data is available, the Auction Defendants collectively dominated the market.

**Percentage of Transaction Value of Treasury Securities Traded in Permanent Open Market Operations
Attributable to Defendants and All Other Primary Dealers**

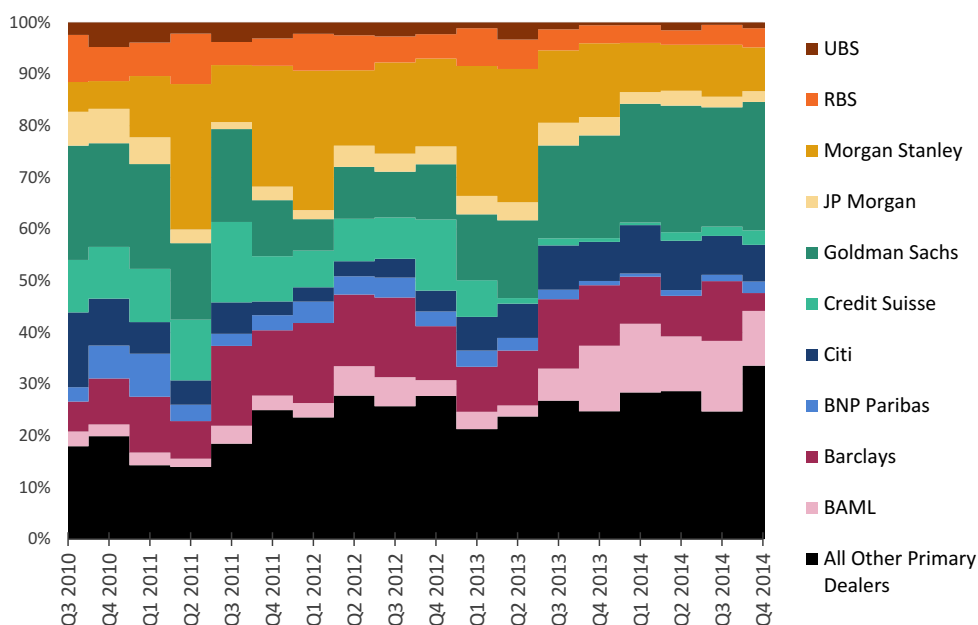
August 2010 - December 2014

Quarter	Defendants (In Decreasing Order of Average Quarterly Market Share)										All Other Primary Dealers
	Goldman Sachs	Morgan Stanley	Barclays	Credit Suisse	Citi	BAML	RBS	JP Morgan	BNP Paribas	UBS	
Q3 2010	22%	6%	6%	10%	14%	3%	9%	7%	3%	2%	18%
Q4 2010	20%	5%	9%	10%	9%	2%	7%	7%	6%	5%	20%
Q1 2011	20%	12%	11%	10%	6%	2%	6%	5%	8%	4%	14%
Q2 2011	15%	28%	7%	12%	5%	2%	10%	3%	3%	2%	14%
Q3 2011	18%	11%	15%	16%	6%	3%	4%	1%	2%	4%	18%
Q4 2011	11%	23%	13%	9%	3%	3%	5%	3%	3%	3%	25%
Q1 2012	6%	27%	16%	7%	3%	3%	7%	2%	4%	2%	24%
Q2 2012	10%	15%	14%	8%	3%	6%	7%	4%	4%	2%	28%
Q3 2012	9%	18%	15%	8%	4%	6%	5%	4%	4%	3%	26%
Q4 2012	11%	17%	10%	14%	4%	3%	5%	3%	3%	2%	28%
Q1 2013	13%	25%	9%	7%	7%	3%	7%	4%	3%	1%	21%
Q2 2013	15%	26%	11%	1%	7%	2%	6%	4%	2%	3%	24%
Q3 2013	18%	14%	13%	1%	9%	6%	4%	4%	2%	1%	27%
Q4 2013	20%	14%	12%	1%	8%	13%	4%	4%	1%	1%	25%
Q1 2014	23%	10%	9%	1%	9%	13%	3%	2%	1%	0%	28%
Q2 2014	25%	9%	8%	2%	10%	11%	3%	3%	1%	2%	29%
Q3 2014	23%	10%	12%	2%	8%	14%	4%	2%	1%	0%	25%
Q4 2014	25%	8%	3%	3%	7%	11%	4%	2%	2%	1%	34%
Average: Q3 2010 - Q4 2014	17%	15%	11%	7%	7%	6%	6%	3%	3%	2%	24%

167. The same data can be depicted on a graph to visualize just how much of the market the Auction Defendants were responsible for.

Proportion of Transaction Value of Treasury Securities Traded in Permanent Open Market Operations

August 2010 - December 2014



F. Best Practices and Guidelines Applicable to the Auction Defendants

168. Under its “Business Standards” for primary dealers, the New York Fed states that the dealers’ “bid prices should be reasonable when compared to the range of rates trading in the when-issued market, taking into account market volatility and other risk factors.”²⁴ If primary dealers “repeatedly provide bids and offers in the . . . Treasury auctions that are not reasonably competitive, or that fail to provide useful market information and commentary,” then such dealers “are not meeting the New York Fed’s expectations of a primary dealer. In those situations, the New York Fed may limit a primary dealer’s participation in any or all operations, and may suspend or terminate a primary dealer if it continues to fail to meet these business standards.”²⁵

²⁴ New York Fed, *Operating Policy: Administration of Relationships with Primary Dealers*, (Mar. 24, 2016) https://www.newyorkfed.org/markets/pridealers_policies.

²⁵ *Id.*

169. Representatives from the Auction Defendants belong to the Treasury Market Practices Group (“TMPG”), a committee of Treasury dealers that is sponsored by the New York Fed. Currently the TMPG includes members from Auction Defendants Bank of America, Barclays, Credit Suisse, JP Morgan, Morgan Stanley, and UBS. During the Auction Class Period, Auction Defendant Goldman Sachs, Citi, Morgan Stanley, and UBS were also members of the TMPG.²⁶ These individuals met at various times with representatives of the New York Fed and the Treasury Department to discuss issues affecting the Treasury markets.

170. The TMPG periodically publishes “best practices” and “antitrust guidelines” on acceptable and unacceptable behavior in the Treasury markets. Among the current best practices, is an admonition against “disclos[ing] confidential information related to [a market participants’] own trading positions with the intent to influence market prices or negatively impact market functioning.” Under the guidelines, “Market participants should exercise particular care when sharing confidential information related to their own trading positions, especially when it is a large position relative to floating supply. Confidential information related to trading positions may include, but is not limited to, individual trades, open orders, positions or investments, axes, and inventory.”²⁷

171. The antitrust guidelines state that the antitrust laws exist “to promote competition by ensuring that business activities are conducted in an open and competitive atmosphere, and that

²⁶ Current and former TMPG members Bank of America, Barclays, Citi, Goldman Sachs, JP Morgan, and Morgan Stanley are also Boycott Defendants.

²⁷ TMPG, *Best Practices For Treasury, Agency Debt, and Agency Mortgage-Backed Securities Markets*, (July 2019) https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/TMPG_BestPractices_071119.pdf.

no unreasonable restraints are placed on competition.”²⁸ The guidelines further note that “[e]nforcement of the antitrust laws can come from not only the U.S. Department of Justice and state authorities, but also private individuals or entities who feel aggrieved by a particular course of conduct.”²⁹ Among the behaviors described as “per se” illegal under the antitrust laws are price fixing agreements, sharing pricing information, and boycotts:³⁰

- **Price fixing agreements.** TMPG members should never agree to fix prices, fees, commissions, or any other element of the price or terms of a transaction. They should also never make agreements that could have the effect of fixing prices, fees, or commissions. Discussions concerning these issues should always be avoided.
- **Sharing pricing information.** TMPG members should never share or compare information concerning their firms’ prices or fees, or the process of setting prices or fees, including costs that impact **pricing** or bidding, as this may be seen as an implicit attempt to fix prices, fees, or commissions.
- **Boycotts.** “Boycotts” refers to agreements among competitors to refuse to deal with someone, or to deal with a particular firm (or firms) differently than others. Members should never agree either to treat a particular individual, firm, or group of firms in a prescribed manner, or to boycott any individual, firm, or group of firms. Members may not discuss setting prices for any particular customer or

²⁸ See TMPG, *Antitrust Guidelines for Members of the Treasuries Market Practice Group and Associated Working Groups*, (Jan. 14, 2016) https://www.newyorkfed.org/medialibrary/microsites/tmpg/files/tmpg_antitrust_guidelines_01142016.pdf.

²⁹ *Id.*

³⁰ *Id.* at 1-2.

customers, nor should they agree to deal or not to deal with particular customers in a specific product.

172. The TMPG Antitrust Guidelines also warn members that while the antitrust laws permit members to “discuss common problems and challenges of a general, administrative, or logistical nature,” they forbid any discussions that “have as its purpose encouraging uniform action or eliminating competition.”³¹ In addition, the Guidelines caution members that “information-sharing among members concerning confidential, proprietary, or competitively sensitive information . . . can raise antitrust concerns.”³²

173. Similarly, in its best practices guideline, the TMPG offers the following “best practices,” among others:³³

- All market participants should behave in a manner that supports market liquidity and integrity.
- Market participants should be responsible in quoting prices and should promote overall price transparency across trading platforms.
- Market participants should not plan or make sudden changes to trading strategies with the intention to disrupt market liquidity or functioning.
- Market participants should ensure adequate oversight of their Treasury trading activity.

³¹ *Id.* at 2.

³² *Id.* at 2-3.

³³ See TMPG, *Best Practices for Treasury, Agency Debt, and Agency Mortgage-Backed Securities*, (Jan. 2017) <https://www.newyorkfed.org/medialibrary/microsites/tmpg/files/best-practices-treasury-agencydebt-ambs-170124.pdf>

- Market participants should avoid any strategies that create or exacerbate settlement fails.
- When evaluating trading strategies for large positions, market participants should take care that sudden changes in those strategies do not adversely affect the liquidity or settlement of the Treasury issue in the marketplace.

174. Under the TMPG Charter, each member is required to “[r]eaffirm adherence to this Charter and to the Group’s Antitrust Guidelines at least annually.”³⁴

G. Governmental Investigations into the Auction Defendants’ Manipulation of the Treasury Market

175. On June 8, 2015, the New York Post first reported that the DOJ had begun an investigation into possible manipulation of the Treasury market.³⁵ Two days later, Bloomberg confirmed the development,³⁶ with subsequent reports revealing that “most or all” of the primary dealers had received information requests from the DOJ.³⁷

176. The Department of Justice’s Antitrust Division Manual (5th Ed.) outlines the rigorous standards the Division follows to open a preliminary investigation into possible anticompetitive conduct. Such investigations are not opened on a whim, hunch or speculation—a substantial amount of work and analysis is undertaken prior to opening an antitrust investigation.

³⁴ See TMPG, *Charter*, (Feb. 24, 2016) https://www.newyorkfed.org/medialibrary/microsites/tmpg/files/tmpg_charter_02242016.pdf

³⁵ See Dugan, *supra* note 5.

³⁶ See Keri Geiger & Matthew Leising, *Treasuries Collusion Said to Be Hunted in New Wave of Probes*, Bloomberg (June 10, 2015) <https://www.bloomberg.com/news/articles/2015-06-10/treasuries-collusion-said-to-be-hunted-in-next-wave-of-probes>.

³⁷ See Keri Geiger & Alexandra Scaggs, *U.S. Probes Treasuries Niche That Investors Claim Is Rigged by Big Banks*, Bloomberg (Nov. 9, 2015) <https://www.bloomberg.com/news/articles/2015-11-09/u-s-probes-treasuries-niche-that-some-investors-claim-is-rigged>.

There are also multiple levels of approval required by senior members of the Division. In authorizing a preliminary investigation, the Division considers whether there is a reason to believe that an antitrust violation may have been committed. The Division does not begin a formal investigation until it determines there is probably cause and government resources should be committed.

177. “The most effective investigations are very often the result of carefully planned strategies that are well developed at the outset of the investigation[,]” and a preliminary investigation can only begin after a DOJ attorney has developed a sufficient factual and legal basis for an investigation. “All investigation plans should address, at least, candidate theories of competitive harm; evidence that would support each theory, and from where the evidence could be obtained; the specific tasks that are necessary to obtain the necessary evidence; when staff plans to accomplish those tasks; and which staff members will be primarily responsible for those tasks.”

178. A DOJ attorney typically begins preliminary investigation by drafting an outline of proof. The outline “normally start[s] with a recommendation outline and end[s] in findings of fact.” It might also include an investigative plan which “should be carefully tailored to the investigation and . . . established on a case-by-case basis.” Because “[i]nvestigating antitrust violations is a multi-stage process, [] staff’s investigative plan should be a ‘living’ document. Staff should ensure that [] the focus of []investigative plan[s is updated] at each stage of the investigative process. As the investigation develops, staff should expand [] investigative plan[s] to more completely address all of the potentially relevant issues. . . .”

179. Following this, attorneys are required to draft a “preliminary investigation memo;” in the civil context, a memo is developed only after an attorney consults with an economist in the Division’s Economic Analysis Group, and it contemplates a multitude of factors, including:

- The commodities or services to be investigated;
- The alleged illegal practices, including an outline of the specific practices if practicable;
- All relevant statutes;
- The parties involved;
- The amount of commerce affected on an annual basis;
- The geographic areas involved;
- Whether the investigation would be an international matter; and
- The identity of any non-U.S. jurisdictions that have expressed an interest in the investigation.

180. A preliminary investigation memo should also provide a factual summary of the potential violation. In civil non-merger investigations, such a summary should be described via a thorough analysis of:

- The evidence supporting a potential antitrust violation;
- Any contrary evidence;
- Any special considerations, such as the existence of private litigation, the possible precedential or deterrent impact of the matter, or other legal or factual circumstances relevant to the decision-making process;
- Potential defenses;
- Relevant economic issues;
- Consideration into the availability of an effective and administrable remedy;
- The proposed course of the investigation, including the estimated duration, anticipated developments; and
- Important or dispositive issues.

181. After a preliminary investigation memo is completed, it is sent to a section or field office chief for review, who must approve it before sending it to multiple other individuals and/or units for approval. Only after all of these steps have been taken, the matter is sent back to the

section or field office that sought the preliminary investigation, and the investigation, including economic and statistical analyses, may finally, officially proceed.

182. The focus of the DOJ probe is reported to be conduct surrounding and including the auction, with Auction Defendant Goldman Sachs confirming it received requests from regulators for information regarding “[t]he offering, auction, sales, trading and clearance of . . . government securities.”³⁸ Reports also state that the focus of the Treasuries investigation is similar to that of successful (and ongoing) examinations of the foreign exchange (“FX”) and other financial markets, by inquiring into whether inside information was shared improperly—*e.g.*, the Auction Defendants’ use of electronic chat-rooms and similar means to coordinate their trading positions and exchange confidential customer information.³⁹

183. On September 9, 2015, the Financial Times and Reuters revealed that the New York State Department of Financial Services (“DFS”) had joined the DOJ by commencing its own probe. The DFS is reported to have sent letters to multiple dealers—including Auction Defendants Barclays, Goldman Sachs, Credit Suisse, and BNP Paribas—seeking information on potential manipulation of Treasury auctions.⁴⁰ In addition, Auction Defendant UBS has confirmed, in its

³⁸ See Goldman Sachs Group, Inc., Quarterly Report (Form 10-Q) (Nov. 2, 2015) <https://www.goldmansachs.com/investor-relations/financials/archived/10q/third-quarter-2015-10-q.pdf>.

³⁹ See Scaggs, Kruger & Geiger, *supra* note 6.

⁴⁰ See Karen Freifeld & Rachel Chitra, *New York Seeks Info from Banks in Treasury Auction Probe*, Reuters (Sept. 9, 2015) <https://www.reuters.com/article/globalbanks-probe/new-york-seeks-info-from-banks-in-treasury-auction-probe-source-idUSL1N11F0XO20150909>; Gina Chon & Martin Arnold, *Watchdog in US Treasury Market Probe*, Financial Times (Sept. 9, 2015) <https://www.ft.com/content/fbb913c2-5650-11e5-a28b-50226830d644>.

securities filings, that it is “responding to investigations and requests for information from various authorities regarding U.S. Treasury securities and other government bond trading practices.”⁴¹

184. Later reports have confirmed that these governmental investigations continued, and may in fact have intensified and moved to more formalized stages as regulators learned more. For instance, on May 1, 2017, nearly two years after the investigations were first announced, Bloomberg reported that Auction Defendants BNP, Morgan Stanley, RBS, and UBS each received subpoenas in April 2017 from federal prosecutors investigating potential manipulation of the Treasury market.⁴² On May 3, 2017, the New York Post confirmed that the DOJ had sent subpoenas to at least BNP, Goldman Sachs, RBS, and UBS. The fact that subpoenas were sent to a list of targeted banks two years after the initial investigation began is a strong sign that regulators had found evidence of collusion or other wrongdoing, and set their sights on the Auction Defendants.

185. The New York Post also reported that “at least four other agencies—the Securities and Exchange Commission, the Commodity Futures Trading Commission, and the New York Department of Financial Services, as well as the European Commission” were continuing to investigate the banks’ “rigging” of the Treasury market.⁴³

⁴¹ Tom Schoenberg, *UBS, BNP, RBS Get Subpoenas in U.S. Treasuries Probe*, Bloomberg (May 1, 2017) <https://www.bloomberg.com/news/articles/2017-05-01/ubs-bnp-rbs-said-to-get-subpoenas-in-u-s-treasuries-probe>.

⁴² *Id.*

⁴³ See Dugan, *supra* note 8.

II. OVERVIEW OF THE AUCTION CONSPIRACY

A. The Auction Defendants Share Valuable Private Customer Order Information Ahead of the Auction

186. A unique function of a primary dealer is to act as the conduit for the auction bids of their indirect bidder customers. An indirect bidder would tell a primary dealer the price and quantity to bid for a particular security, and the primary dealer would place that bid at the auction on behalf of the customer. This order information was private and confidential; it contained the customers' identities and investment interests. Indeed, indirect bid order information was particularly sensitive because of the dual roles played by the primary dealers as agents for indirect bidders, and as competitive bidders in their own right.

187. Despite the obvious potential for abuse, which the primary dealers recognized in their TMPG "best practices," the Auction Defendants lacked any adequate internal safeguards to actually prevent the wrongful disclosure or use of private customer order information. Some primary dealers expressly allowed their traders and salespeople—including those responsible only for the dealer's own competitive bids—to access the confidential order information of the dealer's indirect bidder customers.

188. For example, Bloomberg reported that traders would often get a pre-auction rundown of customers' levels of interest.⁴⁴ At other primary dealers, there was no clear set of rules. Bloomberg reported that at many dealers, there was no "consistent understanding among traders and salespeople about whether they can share information about orders before auctions."⁴⁵ While some primary dealers reportedly have rules prohibiting employees from discussing prices

⁴⁴ See Scaggs, Kruger & Geiger, *supra* note 6.

⁴⁵ *Id.*

or sizes of client bids before an auction, “[i]n many cases, such guidelines aren’t always followed, monitored, or enforced.”⁴⁶ At some dealers, the personnel responsible for placing customer indirect bids and for placing the bank’s own proprietary bids were part of the same trading desk—and in some instances, were even the same person.

189. As a result, confidential customer order information was routinely shared—both within and between the Auction Defendants. According to Mark MacQueen, a former government bond trader at primary dealer Merrill Lynch, the “primary dealers are an insiders club.”⁴⁷ These industry “insiders” would routinely communicate with each other using Bloomberg chats, and also established permanent chat-rooms where they would meet electronically to exchange sensitive customer order flow information. For instance, in June 2015, several people familiar with the auction process informed Bloomberg that “[t]raders working at some of these financial institutions have the opportunity to learn specifics of those bids hours ahead of the auctions.”⁴⁸ According to those sources, “[t]raders at some of these dealers also have talked with counterparts at other banks via online chatrooms . . . with one of them adding that the traders swapped gossip about clients’ Treasury orders as recently as last year” (i.e., in 2014).⁴⁹ Such conversations occurred “both inside banks and among them,” and gave “traders information useful for making bets” on the Treasury market.⁵⁰

⁴⁶ *Id.*

⁴⁷ *See id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Id.*

190. Similarly, the New York Post has reported that governmental investigations have revealed “chats and emails believed to show Goldman traders sharing sensitive price information with traders at other banks.”⁵¹ Those other banks reportedly include Auction Defendants BNP Paribas, RBS, and UBS.

191. The Auction Defendants did not tell customers that their bidding information was being shared as part of a bid-rigging conspiracy to benefit themselves to the detriment of their customers.

192. Treasuries traders used tools such as Bloomberg chat to communicate with other banks. For instance, UBS Treasury traders chatted with traders at Goldman, Citi, and RBS. In general, traders at all the dealers talk in chat rooms all the time. Surveillance is limited. For instance, while surveillance employees monitored all communications JP Morgan’s traders participated in while at the office or on JP Morgan-issued devices, the surveillance employees did not monitor traders’ personal email accounts or communications the traders engage in outside the JP Morgan office or on personal devices, like cell phones.

193. There is no legitimate business justification for traders from competing dealers to be communicating about confidential trading positions, strategy, and order flow in a private, electronic chatrooms. Indeed, as more and more conspiracies have been uncovered where the primary mode of communication among the co-conspirators has been through private, electronic chatrooms (e.g., Bloomberg chats), many dealer banks have changed their policies to now forbid their traders from being in such chatrooms with their competitors.

194. The use of inter-dealer chatrooms and communications has been confirmed by a former senior executive at a subsidiary of Defendant UBS, who reported to the Chief Executive

⁵¹ Dugan, *supra* note 8.

Officer of that subsidiary Allen Braithwaite. He oversaw the purchase of U.S. Treasuries at auction and on the secondary market for his bank's investment holdings. As part of his job responsibilities, he regularly communicated with the traders at UBS's US Treasury desk, who made all the trades.

195. According to this former senior executive, Treasuries traders at UBS and other primary dealers communicated about US Treasuries yields and that such communications were "typical" because the traders needed to have a sense of pricing "to look good with their bosses by being connected in the marketplace" and to avoid taking financial losses. These communications between traders at the primary dealer banks occurred by telephone, and over chats, including but not limited to via Bloomberg. While chatrooms typically included most of the major dealers, there were also side discussions either by chat or phone between specific dealers and US Treasury brokers (like Garban, GuyButler, EuroBrokers, ICAP and Tradition Berisford). US Treasury brokers were sometimes used to spread the "auction talk" amongst the primary dealers. The former executive stated that Mac Budd, Joe Simpson, and Bryan Scarfone of UBS said that they participated in "auction talk."

196. These traders routinely discussed yields and spreads to When Issued yields and bid quantities ahead of the US Treasury auctions in order to obtain their desired bond allocation and yield/pricing.

197. According to this former executive, traders from the following banks communicated on Bloomberg chat about Treasuries yields and spreads to When Issued yields and bid quantities ahead of the actual auctions: Defendants Bank of America, Barclays, BNP Paribas, Credit Suisse, Goldman Sachs, JP Morgan, Morgan Stanley, RBS, and UBS, as well as non-defendant Bank of New York Mellon. The chats concerning the auctions mostly occurred on the day of the auction beginning around at 7 a.m. and continuing through the time the auction was

held (which was typically 1 pm). The banks would also chat after the auction was completed, where the traders discussed “who got what” in terms of US Treasury bond allocation and pricing.

198. The former executive explained that there were constant communications over the years among the dealers and there could be as many as two to three auctions in one week (for example, separate auctions for 2-year, 3-year, and 10-year US Treasuries). He said there were communications among dealers surrounding and ahead of each auction in which they shared information about their respective “appetites” for the specific US Treasuries to be auctioned and “where the desire was,” which referred to the specific sector and/or pricing.

199. The former executive stated that Treasuries traders would also discuss other economic factors that might affect decisions to purchase Treasuries at auction. He used the example of an auction on a Thursday, and a non-farm payroll report being issued on a Friday. If there were some uncertainties about the numbers in the upcoming US non-farm payroll report, it would be a reason for them to bid at lower price levels—higher yields (e.g., “bid back” a couple of basis points) and purchase lower quantities. He explained that traders generally communicated in order to “get everyone on the same page.” He noted that since the “dealer community” “puts up” the capital, there was an interest in making sure the dealer community did not hurt themselves in the US Treasury auction. He explained that the traders at the primary dealers acted as a group by deciding whether to bid higher or lower than the when-issued yield rate.

200. With respect to whether traders discussed or shared information about specific clients, the senior executive said, traders typically phrased it in terms of what they were “hearing” and “seeing” to “disguise” those details and avoid detection by in-house attorneys. He said that traders also used code names or words for clients that everyone would understand and so they could all “come in line.” He described it as the traders using their “poker face.” For example, he

said the word “Snoopy” would be used for MetLife and big West Coast buyer being PIMCO and/or CALPERS.

201. The former executive said this effort to avoid detection for discussing specific clients became more necessary after the LIBOR price fixing investigation. He explained that prior to LIBOR, traders, as well as the dealer banks did not think it was possible to be held responsible. He said the primary dealers acted as an “old boys club” such that the idea of anyone/any traders getting in trouble or going to jail was a “joke.” The former executive said that after the LIBOR news stories/scandal, the traders had to be more careful, but the chatting did not stop. He said traders received warnings from in-house attorneys to be careful, but that at the same time, they were told by management to make money trading or be fired. And, higher profits meant higher trading bonuses for the US Treasury traders.

202. Such discussions are improper and serve no legitimate business purpose other than to further the coordination of bidding and trading strategies ahead of the Treasury auction—in short, to facilitate a conspiracy to rig the Treasury auctions in their collective favor. As TMPG’s current antitrust guidelines state: “Members should never share or compare confidential, proprietary or competitively sensitive information concerning their firms’ prices or fees or the process of setting prices or fees, including costs that impact pricing or bidding, as this may be seen as an attempt to fix prices, fees, or commissions.”⁵²

203. Plaintiffs have also obtained documents from a primary dealer relating to the DOJ’s investigation, which similarly confirm that interdealer trader communications occurred.

⁵² New York Fed, *Antitrust Guidelines for Members of the Federal Reserve Bank of New York’s Advisory and Sponsored Groups*, (Mar. 2, 2018) https://www.newyorkfed.org/medialibrary/media/aboutthefed/Antitrust_Guidelines.pdf.

204. These materials include online Bloomberg chat transcripts in which the Auction Defendants shared, among other things, the details of their proprietary trading positions, bidding and trading strategies, and customer order flow (also known as their “books”). Absent an intent to cooperate with each other, traders would not share such proprietary, confidential information with traders at competing primary dealers. Such sharing would be against the economic interest of the dealer providing the information, as it would allow its competitors to obtain a competitive advantage heading into an auction. Indeed, the TMPG best practices guidelines admonish the disclosure of such information.

205. Of equal importance, because primary dealers—and particularly, the Auction Defendants—are the dominant participants in the auctions (*see* Section I.E *supra*), when a dealer obtains this kind of competitively sensitive information from even one dealer it is highly valuable. For example, learning from a fellow dealer his or her “book is light” (i.e., they do not have a large amount of customer bids for the auction) or that an auction for a particular Treasury security will “tail” (i.e., will not generate a high degree of demand) or “trade through” (i.e., will generate a high degree of demand)⁵³ gives significant information about the potential outcome of an auction. It informs the dealer receiving the information how it can position itself ahead of, during, and even after the auction. By way of example, a dealer who learns ahead of the auction that the auction will tail can take a short position in the when-issued market; conversely, if the

⁵³ Specifically, when an auction “tails,” it means that the auction clearing yield is higher than the “snap price,” or the difference between auction clearing yield and the when-issued yield just before the auction bidding deadline. A tailing auction is usually indicative of an auction with a poor or low demand for the auctioned security. By contrast, when an auction “trades through” the auction clearing yield is lower than the “snap price.” Thus, unlike a tailing auction, an auction that trades through is indicative of an auction with high demand for the auctioned security.

auction trades through, the dealer can take a long position in the when-issued market. The effects are magnified when information is obtained from additional dealers.

206. For instance, in an August 2011 Bloomberg chat, a trader from a primary dealer (“Primary Dealer X”)⁵⁴ and a trader at Defendant Credit Suisse Securities discussed trading strategy and order books. The Credit Suisse trader told Primary Dealer X his views on the auction and how he planned to trade on a strong auction. He specifically revealed a butterfly trade⁵⁵ he intended to execute if there was a strong auction (“5-10-30”, which reflects positions in the 5-year, 10-year, and 30-year Treasuries). The Primary Dealer X trader responded that he had sold \$200 million of 5-year Treasury notes at a price of 103-01 (i.e., 103 and 1/32nds). As noted in the TMPG best practices, the exchange of such proprietary trading positions and strategies is improper and not in the economic self-interests of traders at competing primary dealers.

Credit Suisse Trader 1

I think it [the auction] goes fine. if 5-10-30 gets up to -18/-19 on strong auction I am going to sell it

Primary Dealer X Trader 1

I sold 200 5s at 103-01

207. Later in that same chat, the traders continued to discuss their respective positions and prices for recently executed trades and what their order books looked like.

Credit Suisse Trader 1

doing alright. Long some 3yrs on the curve. 1-2 is 3bps in

⁵⁴ Plaintiffs are not permitted reveal the source of the chat transcripts and thus have anonymized the participants involved.

⁵⁵ A butterfly trade takes a position in a combination of short-, medium-, and long-term bonds.

coups, 2-3 is 14. I think 3yrs
have some room to go

....

Primary Dealer X Trader 1 just filled pie holes at 19

....

Primary Dealer X Trader 1 ANY BOOK

Credit Suisse Trader 1 nothing notable

Primary Dealer X Trader 1 NOTHING HERE

The disclosure of such proprietary information between traders at competing primary dealers is improper and not in their economic self-interests in the absence of an agreement to cooperate.

208. In an August 2011 Bloomberg chat room, a trader from Primary Dealer X and a trader from Credit Suisse discussed their perceptions about the upcoming 7-year Treasury auction—including whether it would tail—as well as who was active in the market. Specifically, the Credit Suisse trader disclosed his and the bank’s view about the demand going into the auction. This is competitively sensitive information that should not be disclosed to a trader at another primary dealer, as allows the recipient to obtain an advantage in determining his own position. They also discussed their respective order books at the time, which as noted above is also improper.

Credit Suisse Trader 2 what you think for 7yr? I’m thinking tail if we here at 21+....

Credit Suisse Trader 2 other guys on our desk think it will go better than that

.....

Primary Dealer X Trader 1 i dont know what to think

Primary Dealer X Trader 1 there has been a lot of buyign by japan today

Credit Suisse Trader 2 in 7s? I did not see any of that

Primary Dealer X Trader 1 5s and 7s

Primary Dealer X Trader 1 about 600 [million] 7s

Credit Suisse Trader 2 ok thanks

Primary Dealer X Trader 1 so far no book

Credit Suisse Trader 2 same here

209. In a January 2012 Bloomberg chat, a trader from Primary Dealer X discussed an upcoming the 30-year Treasury bond auction with a trader from RBS Securities. As with the previous chats, the exchange of confidential information concerning order books prior to the auction is highly improper and would be against the economic self-interests of these competing traders.

Primary Dealer X Trader 2 no bids. no interesting client chatter. one big buyer of zeroes. got some backup, probably get a bit more, and she goes fine, you?

RBS Securities Trader 1 same, underwhelmed by interest so far

210. In an August 2012 Bloomberg chat, Morgan Stanley discussed with another trader from Primary Dealer X the Treasuries market and the projected performance of an upcoming auction. They also specifically discussed which indirect bidders (i.e., pension and insurance funds) would be participating.

Morgan Stanley Trader 1

still dont think guys are short enough, although the level brings in the real money wildcard

Primary Dealer X Trader 3

i agree with you. still not sure how much RM^[56] wants to load up here. i think they are a little scared by the price action. i think we tail small and see pension insurance scooping some. what u think

Morgan Stanley Trader 1

big tail is a chance

Primary Dealer X Trader 3

8/2011 style? would take it

Morgan Stanley Trader 1

not that big. but from here 2+ is a chance. st has no bid here.

Here, the Morgan Stanley trader noted that there was a chance for a big tail because it was unlikely that primary dealers (“st has no bid here”) would be bidding aggressively for their own accounts. By comparing notes as to where primary dealers would bid for their own book, competing dealers could use that confidential information either to push the auction to a “big tail” or position themselves to take advantage of such a tail (by, for example, going short in the when-issued market). By comparing confidential notes and opinions ahead of an auction on how others would behave in the auction, traders can bid in a way to affect the auction results themselves, especially if the dealers are starting to build their auction book with their indirect customers.

⁵⁶ “RM” stands for “real money,” which is a reference to institutional investors like insurance and pension funds.

211. In another August 2012 Bloomberg chat, a trader from Credit Suisse Securities and another trader from Primary Dealer X agreed to establish a “persistent” chat where they could regularly share information about the market, client activity and their own books.

Credit Suisse Securities Trader 3	Figured we should make a persistent chat
Primary Dealer X Trader 3	love it
Primary Dealer X Trader 3	seeing buying here man
Primary Dealer X Trader 3	in 10s
Primary Dealer X Trader 3
Primary Dealer X Trader 3	FM [fast money, e.g., proprietary trading firms] and RM [real money, e.g., institutional investors] painful
Credit Suisse Securities Trader 3	I wonder if its guys covering shorts... get em out of the auciton process could be good
Credit Suisse Securities Trader 3	We have a light book
Primary Dealer X Trader 3	no book

212. In the chat above, the Credit Suisse trader disclosed that it had a “light book.” The trader from Primary Dealer X responded that it had “no book.” These traders’ disclosures of their “book” levels is improper and would not be in their economic self-interests because it would provide competitively sensitive information that the other trader could use to his competitive advantage.

213. In addition, many of these same banks have admitted to using the same types of inter-bank electronic chat-rooms to share customer information as part of their manipulation of other financial markets and benchmarks, including in the FX, Libor, and ISDAfix markets. *See*

Part Three, Section I. These revelations have led the TMPG to propose additional “best practice recommendations on information handling,” which contain more detailed practices relating to “the sharing and use of confidential information in the Treasury, agency debt, and agency MBS markets[.]”⁵⁷ The TMPG made this recommendation because “there have been a number of serious cases of inappropriate and illegal conduct involving certain communication practices and the misuse of confidential information. The misuse of confidential information adversely affects the integrity of the market by undermining trust and confidence and, moreover, may constitute illegal activity.”⁵⁸

B. The Auction Defendants Use Their Shared Information to Profit in and Around the Auction

214. Confidential customer information has value. The informational advantage is magnified when a group pools their resources, so each conspiracy member has more information than they would have in isolation. Collectively, they can then leverage this information against the less-informed market participants—including the indirect bidders who asked the Auction Defendants to place bids on their behalf. That is precisely what the Auction Defendants did. They maximized the value of their confidential customer information by sharing it with each other. By doing so, the Auction Defendants built a collective pool of knowledge that allowed them to predict the level of prices and demand in the upcoming auction as a whole, with far greater certainty. This increased certainty was instrumental to the Auction Defendants developing and executing collusive bidding and trading strategies based on their inside information.

⁵⁷ TMPG, *Proposed Best Practice Recommendations on Information Handling with Illustrative Examples*, (Aug. 15, 2017) <https://www.newyorkfed.org/medialibrary/microsites/tmpg/files/TMPG-Info-Sharing-Pub-081517.pdf>.

⁵⁸ *Id.*

215. As competitive bidders in the auction, the Auction Defendants had two main objectives: to obtain the specific desired allocation of securities, and to do so at the best possible price. There is naturally a tension between these two goals. On the one hand, the desire for allocation standing alone may lead the investor to bid an overly low yield/high price in order to ensure that it receives the desired allocation. On the other hand, auction bidders would not want to submit too low of yields/high of prices, in order to avoid being allocated too many securities (for a higher price on each) than they thought they could profit from.

216. While ordinary auction participants were forced to pick between these conflicting principles, the Auction Defendants developed a third choice: their information-sharing scheme allowed them to consistently achieve the optimal balance between both allocation and price, until scrutiny from governmental regulators heightened and the conspiracy broke around June 2015. By sharing private customer order information with each other in the period leading up to the auction, the Auction Defendants developed a collective pool of inside knowledge on how the auction would play out. This collective knowledge allowed them to predict, with a high level of accuracy, the overall level of demand in the auction, and where the winning and losing bids were likely to fall. The Auction Defendants put this knowledge to use by coordinating on how they would bid at the auction, to ensure that they achieved both goals: the desired allocation at the optimal price.

217. For instance, the New York Post has reported that the DOJ focused its investigation of the Treasury market on Auction Defendants' misconduct during the auction. The Post reported that Auction Defendant Goldman Sachs "won almost all auctions for US Treasury bonds"—i.e., it almost always obtained its desired allocation.⁵⁹ According to sources familiar with the DOJ's

⁵⁹ See Dugan, *supra* note 8.

investigation, “at the center of the case are chats and emails believed to show Goldman traders sharing sensitive price information with traders at other banks.”⁶⁰ The Post reported that the following additional Auction Defendants are “being investigated for colluding with Goldman traders: . . . Royal Bank of Scotland, UBS, and BNP Paribas.”⁶¹

218. The Post has also received some partially redacted bid data from the Treasury Department, which showed that bids had been frequently changed leading up to the auction, another sign of manipulation. According to a source familiar with the DOJ’s investigation, Treasury officials were “aware that other major investors, including some central banks, had concerns that banks were front-running their own customers in order to make more money off them.”⁶²

C. **The Auction Defendants Drive Prices Higher on High Demand Auctions, and Lower on Low Demand Auctions**

219. As discussed above, by having a clearer picture of not just general market “color,” but rather specific bidding strategies, and by coordinating efforts, the Auction Defendants were able to plot the perfect course between the twin evils of bidding too high (pushing the auction price higher and/or being allocated more Treasuries than could be offloaded profitably) or being left out (bidding too low, and not getting the desired allocation thus missing out on the opportunity to profit on resale). The Auction Defendants adjusted their bid schedules at auctions, and ultimately were able to manipulate the stop-out yields, which they then exploited by either adjusting and capitalizing existing positions or taking new positions ahead of the post-auction trading market.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

220. Specifically, on days where the Auction Defendants knew demand was low, the Auction Defendants knew they had to avoid bidding too high prices/low yields as to not be stuck with more than they truly desired. Further, submitting unnecessarily high bids on a low demand auction would crowd out other participants thus raising the final auction price—leaving the Auction Defendants with more-than-desired Treasuries at higher-than-necessary prices. By sharing the necessary information to identify these auctions and agreeing to alter their bidding strategies accordingly, the Auction Defendants were able to submit higher yields and thus get both their desired allocation and a lower price.

221. On the other hand, on days where the Auction Defendants knew demand was high, the Auction Defendants would know they would have to bid more aggressively to get their desired allocation, and thus they bid higher prices/lower yields than they would have absent that information. By bidding higher prices/lower yields as a group, they crowded out other bidders submitting lower price/higher yield bids, thus raising the auction price (lowering the auction yield) for everyone—but ensuring the Auction Defendants got their desired allocation, which could then be resold in the (hot) secondary market (including via the antiquated OTC systems discussed in Part Two below).

222. As discussed above, the practice of using inside information to target bids with a high degree of accuracy and consistency has been confirmed by industry sources interviewed by the New York Post. Although the Treasury Department has not made public the identities of the bidders in its historical bidding data, a source with direct knowledge of the bid data stated that Auction Defendant Goldman Sachs' bids in particular “‘would be very close’ but just above” the bids of others—i.e., that Goldman Sachs would bid at a level that would be just high enough to be accepted by the Treasury. Its bids typically came “at the end of the auction.”

223. As a result, Goldman Sachs “didn’t lose many bids”—i.e., its targeted and coordinated bidding strategy was highly successful in obtaining the desired allocation at the best possible price. Again, Goldman Sachs is not suspected of having acted alone. Rather, they are reportedly under investigation of “sharing sensitive price information with traders at other banks,” which include the other Auction Defendants.

III. CURRENT DATA SHOWS A “BREAK” IN PRICING BEHAVIOR IN RESPONSE TO THE GOVERNMENTAL INVESTIGATIONS

224. As has been documented by congressional testimony and academic publications, “screens” are statistical tools based on economic models that use data such as prices, bids, quotes, spreads, market shares, and volumes to identify the existence, causes, and scope of manipulation, collusion, or other illegal behavior. For instance, “screens” were part of an analysis that led to the discovery of the Libor rate-setting scandal that is still roiling the banking industry. In the context of Libor, journalists and economists uncovered anomalous behavior in the benchmark as compared to movements in other publicly available data points (data points that were independent of the banks’ purported individualized judgment).⁶³ Screens also led to the initial detection, in the summer of 2013, of FX market collusion and manipulation, which resulted in over \$3 billion in settlements by banks in the U.S., the U.K., and Switzerland in November 2014.⁶⁴

225. It is standard practice for economists and econometricians to measure effects by comparing averages. Taking averages over several observations of noisy data allows economists to better isolate the real underlying effect of an alleged conspiracy. Simply knowing that the price

⁶³ See generally Testimony of Rosa M. Abrantes-Metz on behalf of the Office of Enforcement Staff, Federal Energy Regulatory Commission (Sept. 22, 2014) http://elibrary.ferc.gov/idmws/doc_info.asp?document_id=14274590.

⁶⁴ See Liam Vaughan & Gavin Finch, *Currency Spikes at 4 P.M. in London Provide Rigging Clues*, Bloomberg (Aug. 27, 2013) <https://www.bloomberg.com/news/articles/2013-08-27/currency-spikes-at-4-p-m-in-london-provide-rigging-clues>.

on Tuesday is higher than the price on Monday is not sufficient evidence to conclude that a conspiracy is in effect. Economists instead require several observations to conclude that on average prices are moving higher. The more observations available, the stronger the statistical argument becomes.

226. The same is true when considering whether a conspiracy has ended. Even if a conspiracy to raise prices was in effect on Monday and dissolved on Tuesday, economists would not expect that prices on Tuesday would necessarily be lower than they were on Monday, and neither would they expect that all prices after Tuesday would be lower than all prices prior. It is not uncommon for the effects of a conspiracy to be visually difficult to detect in data. The same sources of noise in the data may make it difficult to pinpoint, to the naked eye, the exact date and time a conspiracy breaks, even when it has quickly evaporated. The unavailability of data also can make it difficult to determine a conspiracy may have crashed.

227. The use of “screens” here reveals significant breaks in several key Treasury patterns on June 8, 2015, when media outlets first reported that the DOJ was investigating potential manipulation of the Treasury market.⁶⁵ More specifically, studies of publicly available data confirm that the effect of the Auction Defendants’ scheme was to artificially inflate auction prices on high demand auctions, and to artificially suppress auction prices on low demand auctions.⁶⁶ Only collusion and market manipulation can explain these structural breaks.

⁶⁵ See Dugan, *supra* note 5.

⁶⁶ For purposes of this Complaint, both high and low demand auctions were determined by calculating the median bid-to-cover ratio (i.e., the ratio of the dollar volume of bids tendered over the dollar volume of bids accepted). Auctions with bid-to-cover ratios greater than the median, were designated “high demand” auctions and auctions with bid-to-cover ratios lower than the median, were designated “low demand” auctions.

A. The Primary Dealers Were More Successful During the Conspiracy Period than After

228. If the Auction Defendants consistently gained an advantage during the conspiracy period that was lost when the government investigated their auction behavior, one would expect to see a difference in how successful their bids were—in terms of how many Treasuries they actually received, compared to how many they bid to obtain—before the regulatory spotlight was shining on their actions.

229. To determine whether there was a change in behavior in mid-2015, Plaintiffs analyzed the *difference* between the primary dealers' success rate⁶⁷ and those of other competitive-bidding auction participants. For example, to keep the numbers simple, presume the primary dealers sought to purchase \$100 worth of bonds (\$100 was “tendered”) but received only \$40 worth (\$40 was “accepted”). Assume also that all competitive bidders collectively tendered \$150, of which only \$50 was accepted. The *primary dealer success rate* here would be 40% ($\$40/\100); the *auction success rate* would be 33% ($\$50/\150). The primary dealer's *relative success rate*, then, would be 7% ($40\%-33\%$).

230. Data on auction success is not available for individual participants. But as discussed above, the Auction Defendants dominate this market. The conspiracy among this group would thus be expected to have a material impact on the success rate of “primary dealers” generally. Indeed, if anything this methodology will *understate* the success of the conspiracy by having the conspiracy-period success rates pulled *down* by the primary dealers who did not share in the same advantage. In addition, primary dealers have a floor for their bidding activity due to

⁶⁷ “Success rate” as used here is interchangeable with the “bid-to-cover ratio,” which is used elsewhere in this Complaint, insofar as they measure the same information—the relative amount of bids accepted verses the amount of bids tendered.

their obligations as a primary dealer. For this and other reasons, the specific success-rate figures are not themselves important—other market participants may regularly bid more aggressively for reasons unrelated to the conspiracy. Rather, what matters is whether there is a *change* in the figures around the time Plaintiffs allege the conspiracy broke.

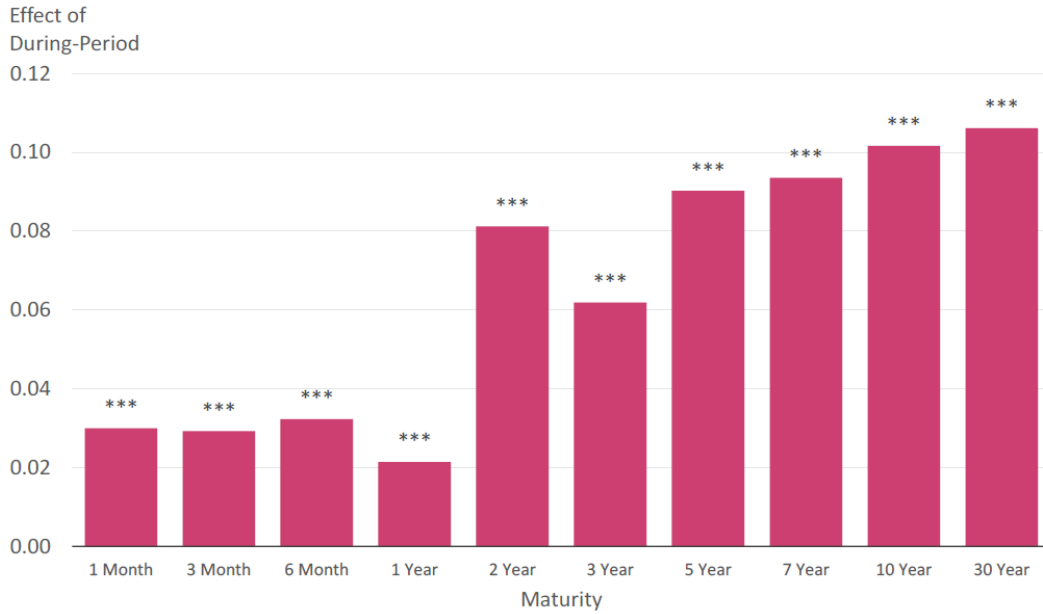
231. Plaintiffs sought to determine whether there was a meaningful difference in the relative success rates using a regression analysis that included a variable controlling for the so-called “financial crisis,” defined here as the period between September 1, 2008, and March 31, 2009. Specifically, the following regression formula was used for each maturity (“M”):

$$\begin{aligned} \text{primarySuccess}_t^M - \text{competitiveSuccess}_t^M \\ = \alpha + \beta_1 \text{ConspiracyPeriod} + \beta_2 \text{CrisisPeriod} + \varepsilon_t^M \end{aligned}$$

232. This allows for a determination of whether, even after controlling for the financial crisis, the primary dealers’ relative success rate was higher during the conspiracy period than it was after. That is, whether they held some unexplained power during the alleged conspiracy period, that they later lost.

233. In fact, the data show that the primary dealers were more successful to a statistically significant degree across *every* maturity, again even after controlling for the financial crisis. Below, the bars represent the increase in primary dealer relative success rate seen in the conspiracy period, compared to after. Every finding is statistically significant.

Amount by Which Primary Dealer Relative Success Rate is Higher in the During-Period Versus the Post-Period, After Having Taken Into Account the Financial Crisis



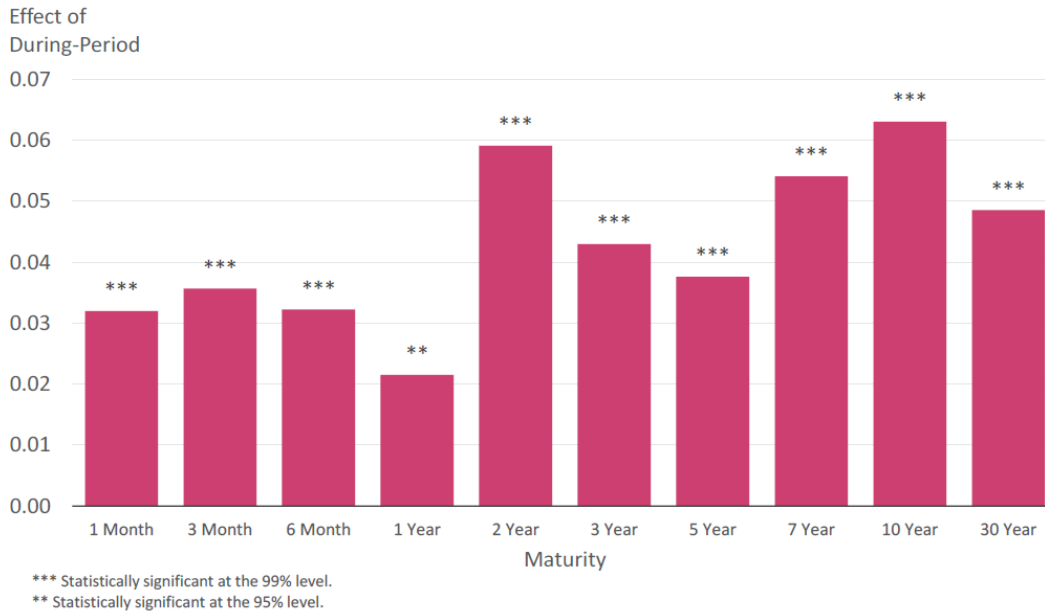
*** Statistically significant at the 99% level.

234. Plaintiffs next added additional control variables, including some to measure macroeconomic volatility (using the “VIX” index) and expected inflation (using the difference between the nominal 10 year Treasury yield and the real 10 year Treasury yield). As a formula, this regression equation is as follows:

$$primarySuccess_t^M - competitiveSuccess_t^M = \alpha + \beta_1 ConspiracyPeriod + \beta_2 CrisisPeriod + \beta_3 VIX + \beta_4 ExpectedInflation + \varepsilon_t^M$$

235. Even after adding these additional controls, we still see statistically significant differences during and after the conspiracy period, for every single maturity.

Amount by Which Primary Dealer Relative Success Rate is Higher in the During-Period Versus the Post-Period, After Having Taken Into Account the Financial Crisis and Other Legitimate Market Factors



236. To confirm whether this change in behavior was plausibly the result of a break in the conspiracy, rather than an unrelated long-term trend, Plaintiffs conducted yet another analysis. In essence, Plaintiffs ran the same regression above, but defined the “break” at different points in time. Plaintiffs then measured the “R-squared” for each resulting version of the model—a measurement of how well the model does at explaining the variations seen in the noisy real-world results.

237. As seen in the below chart, a model that accounts for the presence of the financial crisis, volatility, and inflation has some baseline level of predictive power even if one were to define the conspiracy as ending on day zero, i.e., not existing at all. If the conspiracy variable was merely picking up noise, or long-term trends, it would matter little when the “break” line was drawn. To the contrary, the data show that *when* the “break” line is put matters greatly.

238. When the model is run with a conspiracy variable presuming a conspiracy ending at any time prior to 2014, the conspiracy variable provides virtually no discernible increase in the

power of the model to explain variability in the primary dealers' relative success rates across auctions. Similarly, when the model is run with a conspiracy variable presuming a conspiracy ending later in time, the conspiracy variable provides some, but not as much, explanatory power.

239. Running the model over and over in such a way finds that the model works best—the explanatory power of the model is at its peak—in mid-to-late 2015. This confirms that the changes in the primary dealers' relative success rate were not the result of the financial crisis, or long-term trends, but rather the result of something changing in the primary dealers' behavior around that time—the breaking of the conspiracy as their auction behavior became under increased scrutiny. The results are statistically significant.

240. The graph below plots the predictive power of the model using each possible break point from 2007 through August 2017. The model's predictive power, as measured by the R-squared of the model, is about five percentage points higher using the break date of June 2015, versus not controlling for a break at all. This is a substantial increase in explanatory power, given that the model otherwise controls for all of the exact same factors.

Testing for Different Definitions of the Conspiracy Period Confirms a Break Around Mid- to Late-2015



241. The chart above shows that the regression is at its peak efficacy if the regression is allowed to divide the data before and after mid to late 2015. This demonstrates that the relevance of the conspiracy variable in the regression is not the result of a smooth long-term shift, but rather is more consistent with a major shift in behavior occurring around mid to late 2015.

242. While the line starts to slope upward in late 2013, it is important understand that the above chart is not measuring the level of artificiality in the auctions. Rather, the chart is measuring the relative efficacy of the regression by re-running different versions with different assumptions of where to divide the data into “during” and “after” categories. The slope of the line is thus not an indication that auction behavior actually began to change in, say, 2014. Nor does it mean that the conspiracy returned in 2017. Rather, the slope of the line just means the test is getting closer and closer to the “best fit” dividing line.

243. Consider, for example, placing the dividing line in 2009. As seen in the above chart, a regression with a 2009 break date does essentially no better than a regression with no conspiracy variable at all. In a sense, a model assuming a 2009 break date is miscategorizing the years 2010 through 2015 as being part of the “after”. Consider again placing the dividing line in mid-2014. Even if there was no change in behavior as of that exact date, we would expect to still see an increased explanatory power of the regression with a 2014 break as compared to one with a 2009 break date—as the above chart shows, the R-squared value for a break date in 2014 is higher than for a break date in 2009. In a sense, a shorter period of time is being miscategorized as belonging to the “after” period.

244. Put another way, even if there was literally an overnight change in behavior—which is not, in any event, what one would always expect with the breaking up of a conspiracy—a “best fit” test like this would nonetheless yield the results above. As you shift the break date closer and

closer to the point that actually divides the data in the most meaningful way, the regression's efficacy would start to improve because it is categorizing more data correctly and less data incorrectly. To a econometric statistician, the above results demonstrate a clear change in behavior occurring in mid- to late-2015.

B. The Relationship Between Spot and Auction Yields Also Changes After the Conspiracy Period

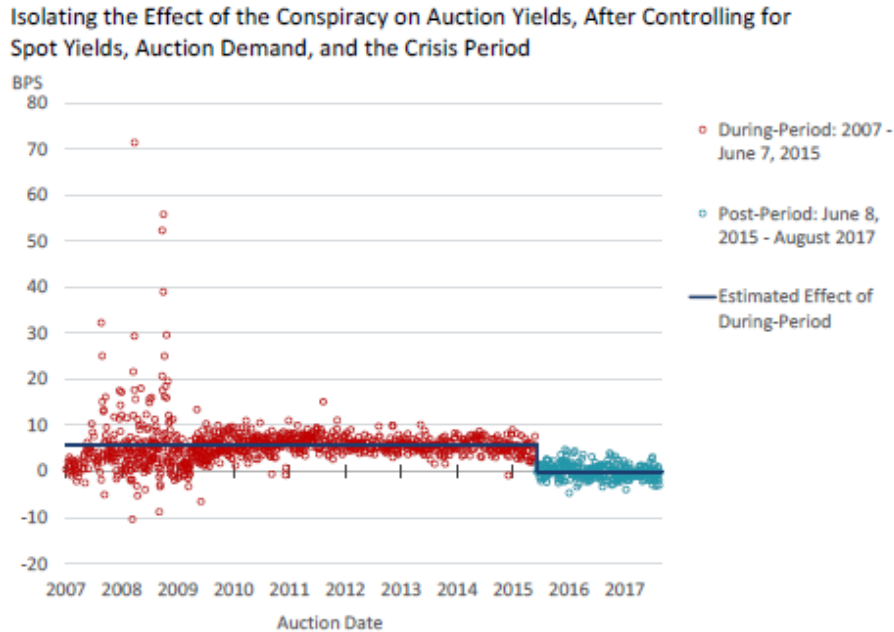
245. Plaintiffs calculated the difference between the spot yield and auction yield for each maturity on an auction date. This is akin to a forecasting error—how well (or poorly) is the spot market anticipating the results of the auction? For various reasons, one would not expect the numbers to always perfectly align. But a *change* in the relationship between the spot and auction yields would further confirm the presence of a conspiracy. That is, if a conspiracy to gain an unfair advantage within the auction were present, one would expect there to be otherwise unexplained gaps between the auction results, and the market's anticipation of those results. After such a conspiracy broke down, one would expect to see this forecast error shrink as the artificial pressure on the auction is relieved.

246. Plaintiffs again used a regression, here to measure the *yield difference* between the auction yield and the spot yield at the time of the auction even after controlling for the financial crisis and relative demand (as measured as the ratio of competitive amounts tendered to accepted for the maturity in question):

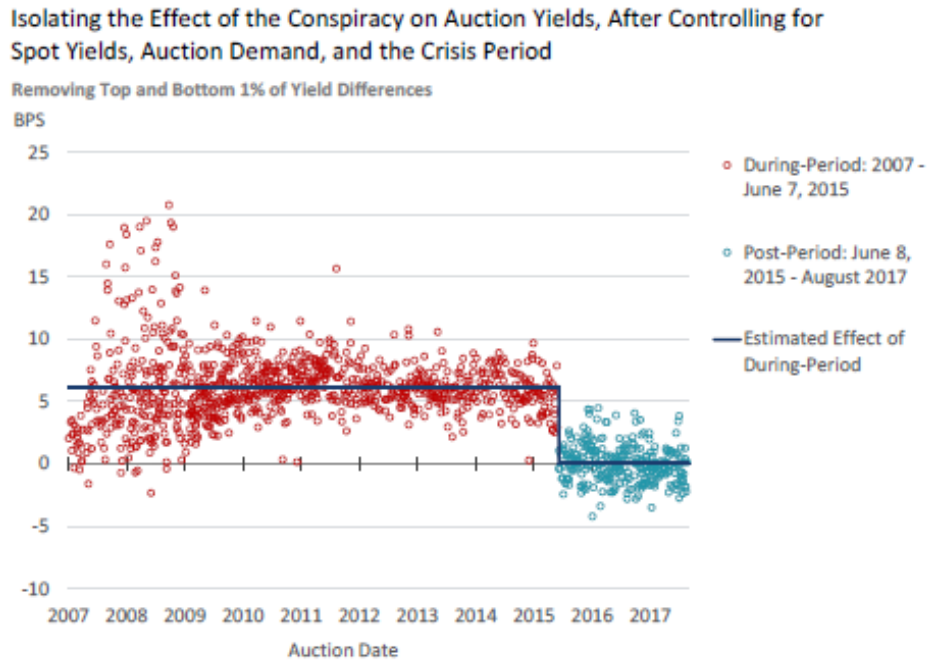
$$\begin{aligned} \text{AuctionYield}_t^M - \text{SpotYield}_t^M \\ = \alpha_m 1(\text{Maturity} = m) + \beta_1 \text{ConspiracyPeriod} + \beta_2 \text{CrisisPeriod} \\ + \beta_3 \log(\text{CompetitiveDemand}_t^M) + \beta_4 \text{ConspiracyPeriod} \\ \cdot \log(\text{CompetitiveDemand}_t^M) + \varepsilon_t^M \end{aligned}$$

247. The following chart shows the effect being in the conspiracy period had on the size of the gap between auction and spot yields. The red circles—representing the size of the gap for

each auction during the conspiracy period—are consistently above zero. But the blue circles—representing the size of the gap for each auction outside the conspiracy period—are clearly lower on average.



248. The clear break in this pattern was found to be around mid-2015. Unsurprisingly, then, the conspiracy variable was found to have a statistically significant impact on the model. To confirm this was not driven by possible outliers, the top and bottom 1% of yield differences were winsorized, a statistical technique meant to eliminate the effects of outlier data points. The same break is still apparent, both visually and in terms of statistical significance.

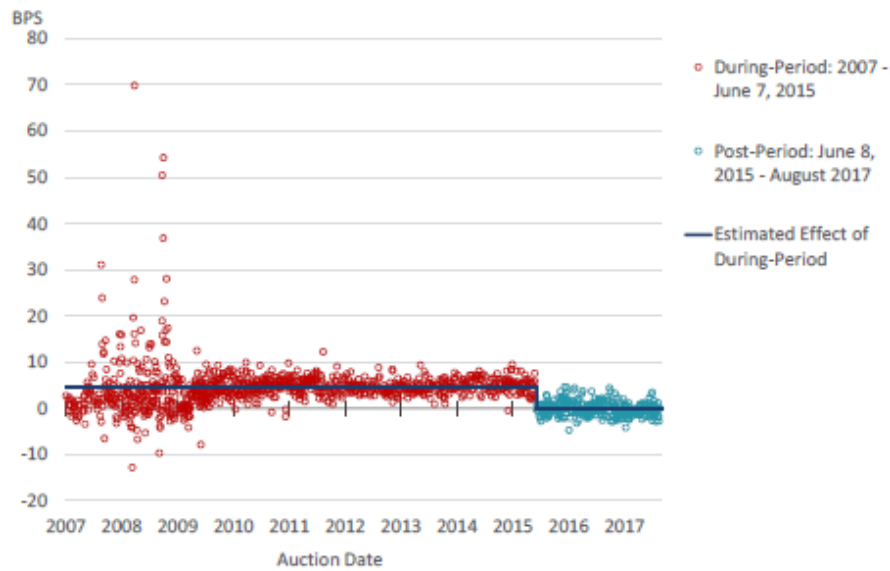


249. Additional “control” variables were added into the analysis, resulting in the below regression formula that also accounts for macroeconomic volatility (measured by the VIX index) and expected inflation (measured as the difference between the nominal 10 year Treasury yield and the real 10 year Treasury yield):

$$\begin{aligned}
 \text{AuctionYield}_t^M - \text{SpotYield}_t^M &= \alpha_m 1(\text{Maturity} = m) + \beta_1 \text{ConspiracyPeriod} + \beta_2 \text{CrisisPeriod} \\
 &\quad + \beta_3 \log(\text{CompetitiveDemand}_t^M) + \beta_4 \text{ConspiracyPeriod} \\
 &\quad \cdot \log(\text{CompetitiveDemand}_t^M) + \beta_5 \text{ExpectedInflation}_t + \beta_6 \text{Volatility} + \varepsilon_t^M
 \end{aligned}$$

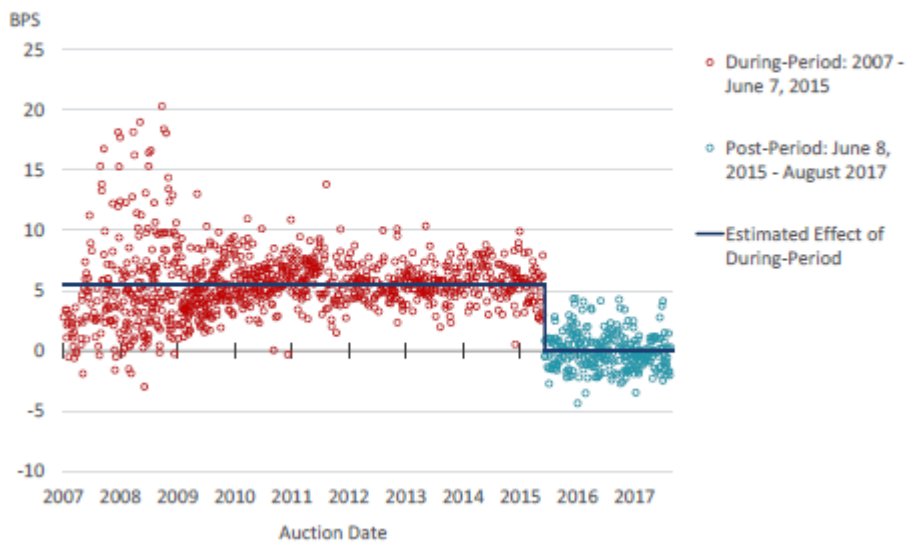
250. Adding these additional controls does not qualitatively change the results. As seen in the following charts, whether looking at all the data points, or only the winsorized set, there remains a clear break in the relationship around mid-2015. The conspiracy variable was found to be statistically significant, even to the 99% level, under both tests.

Isolating the Effect of the Conspiracy on Auction Yields, After Controlling for Spot Yields, Auction Demand, Legitimate Economic Drivers, and the Crisis Period



Isolating the Effect of the Conspiracy on Auction Yields, After Controlling for Spot Yields, Auction Demand, Legitimate Economic Drivers, and the Crisis Period

Removing Top and Bottom 1% of Yield Differences

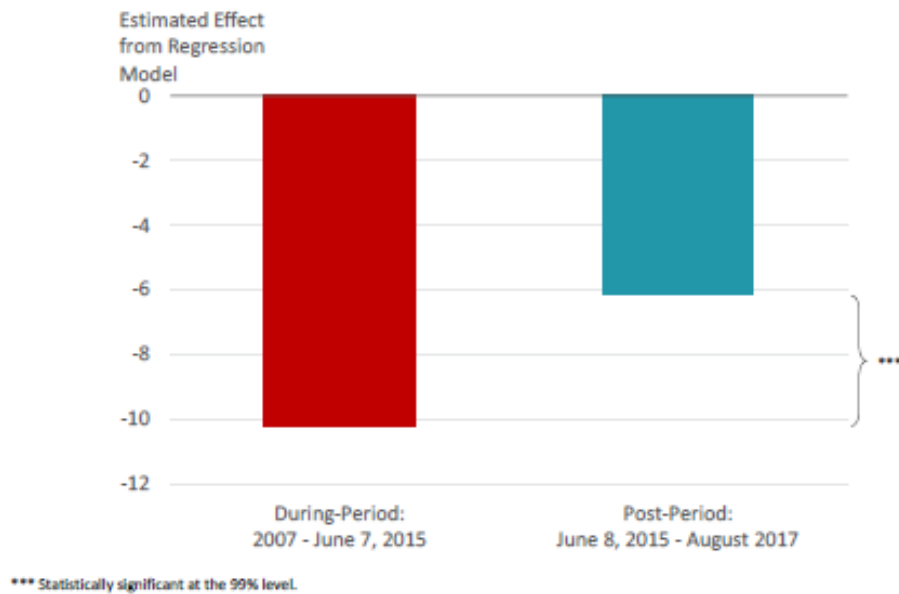


251. As discussed above, one variable used in the regression is the relative level of demand in the auction, as measured by the ratio of competitive amounts tendered to accepted for the maturity in question. If a group of dominant primary dealers were altering their behavior because they had insider knowledge as to what that demand would be, the conspiracy would in

effect be magnifying the impact of the level of demand on the forecasting error, i.e., the yield differential between the spot and auction yields. If the conspiracy broke with the result that the dominant primary dealers had less insider knowledge as to the level of demand for an upcoming auction, they would no longer act as such a magnifying effect, and the sensitivity of auction yields to this measure of demand would be expected to shrink.

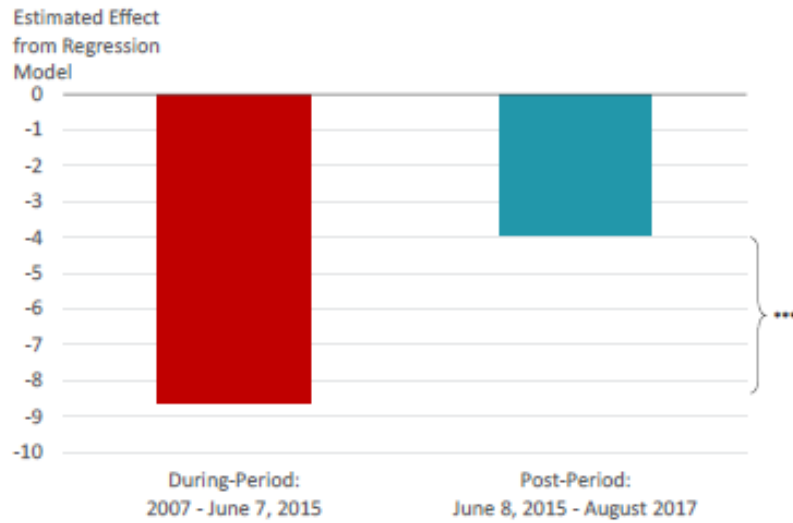
252. That is, again, what the data show. The following charts compare the impact of the demand-variable in the conspiracy period, to after, for the first regression model discussed above. Even after controlling for the financial crisis, the differences are statistically significant even to the 99% level —whether estimated on the full sample or the winsorized sample.

Auction Yields are Significantly More Sensitive to Competitive Demand During the Conspiracy Period, After Controlling for Spot Yields and the Crisis Period



Auction Yields are Significantly More Sensitive to Competitive Demand During the Conspiracy Period, After Controlling for Spot Yields and the Crisis Period

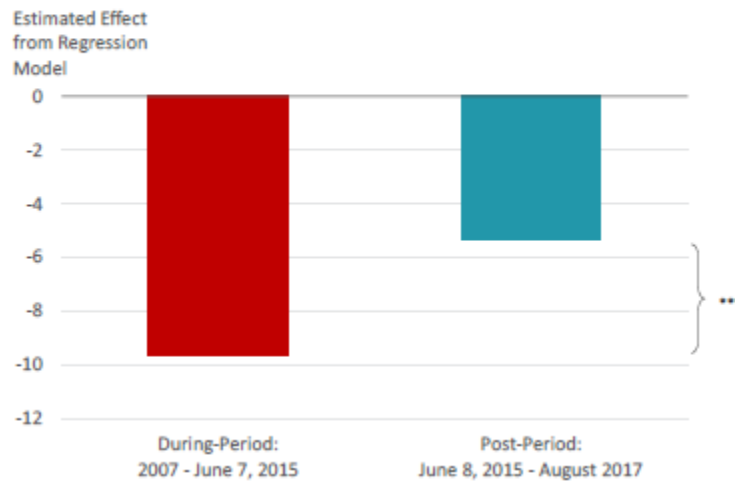
Removing Top and Bottom 1% of Yield Differences



*** Statistically significant at the 99% level.

253. The following two charts compare, based on all data points on the winsorized dataset, the impact of the demand-variable in the conspiracy period, to after, for the second regression model discussed above. Even after controlling for volatility and expected inflation, the differences are both statistically significant, even to the 99% level.

Auction Yields are Significantly More Sensitive to Competitive Demand During the Conspiracy Period, After Controlling for Spot Yields, Legitimate Economic Drivers, and the Crisis Period

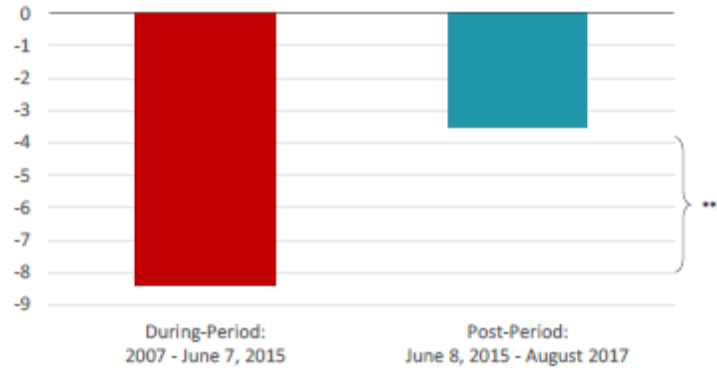


*** Statistically significant at the 99% level.

Auction Yields are Significantly More Sensitive to Competitive Demand During the Conspiracy Period, After Controlling for Spot Yields, Legitimate Economic Drivers, and the Crisis Period

Removing Top and Bottom 1% of Yield Differences

Estimated Effect
from Regression
Model



*** Statistically significant at the 99% level.

254. In sum, the data show that during the conspiracy period the market was *worse* at anticipating the auction results, than it was after the conspiracy ended. As seen in the red and blue circle charts further above, this was not a steady decline, but a clear break. That this break aligns with the time the DOJ began investigating the primary dealers' auction behavior further confirms that the artificial pricing seen in all of Plaintiffs' studies is the result of a conspiracy to tip the playing field unfairly to the Auction Defendants' advantage.

C. The Relationships Between Dealer Allocation and Bidding Practices Break Down After the Governmental Investigations Are Announced

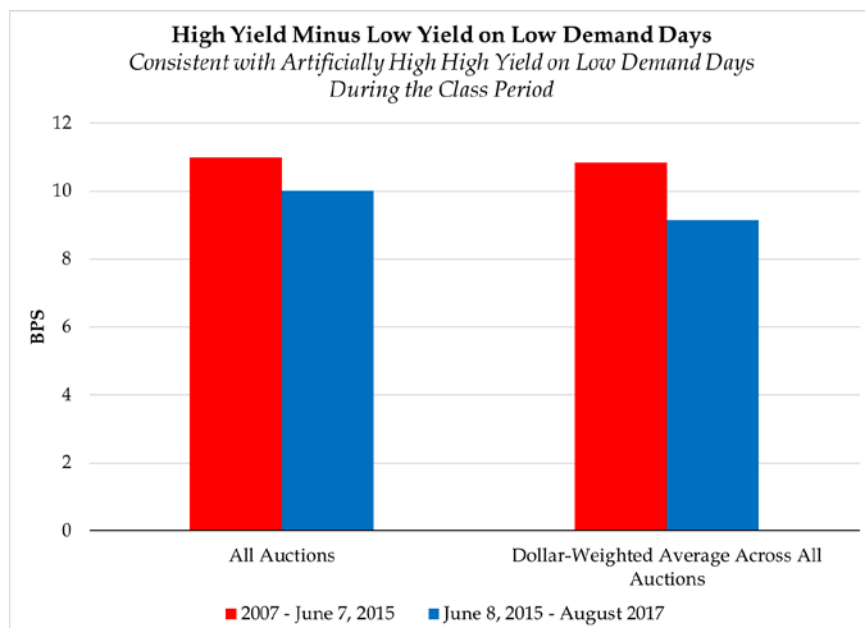
255. Another study Plaintiffs performed involved analyzing the dispersion between auction bids. The Treasury Department does not publish the specific bids placed by bidders at auction. It does, however, publish "Treasury Auction Results" that contain for each auction the "high" or stop-out yield, which reflect the highest yield/lowest price accepted bids. The public data also includes the auction's "low" yield, which is the level of yields that 5% of the amount of accepted competitive tenders was tendered at or below. And it includes the median yield, which

is the mid-point of the accepted bids at the auction. Measuring the relationships between the high, low, and median bids reveals how tightly grouped or dispersed the bidding at an auction was.

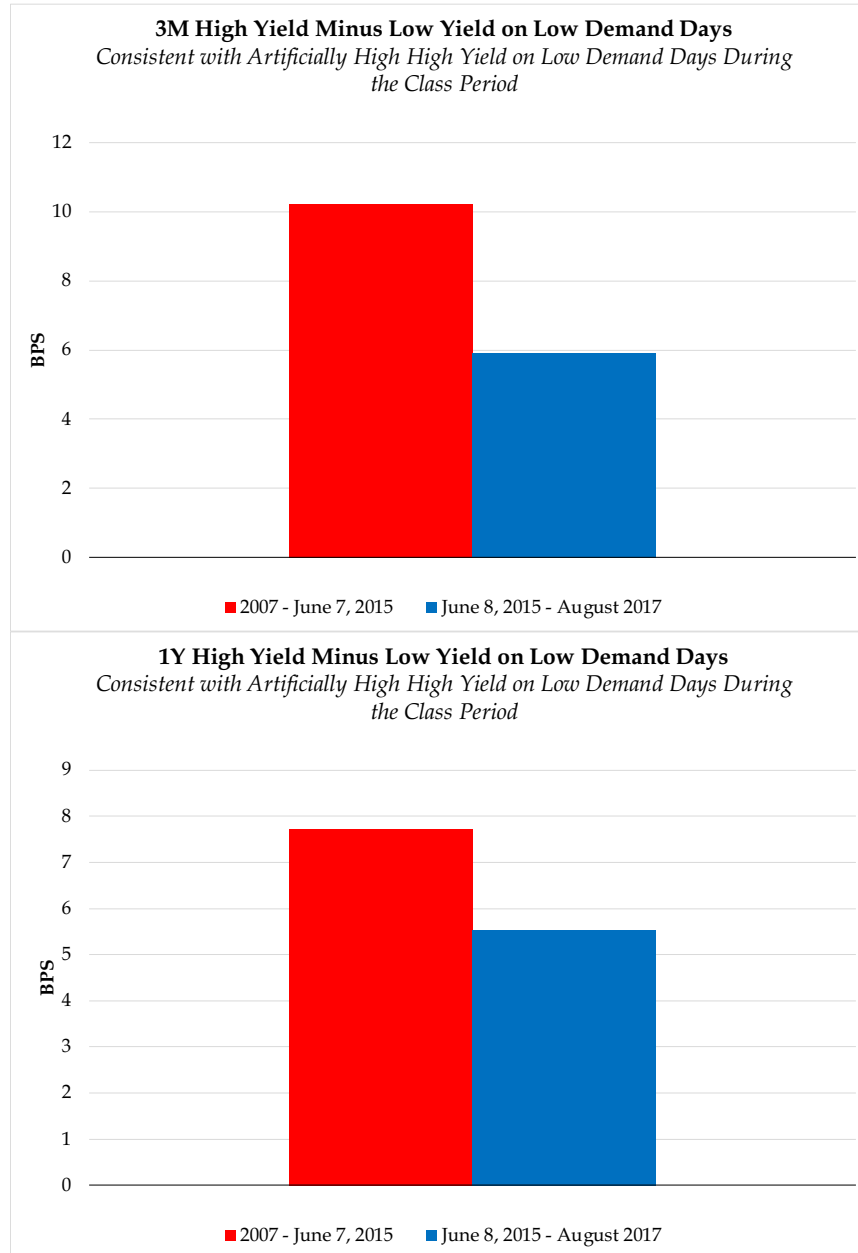
1. Low demand auctions

256. As discussed above, on low demand auctions, to maximize profits by obtaining the desired quantity for the lowest price, the Auction Defendants submitted lower price/higher yield bids than they would have absent the conspiracy, secure in the knowledge they would still be accepted. This would have the effect of widening the difference between the high and low submissions. When the conspiracy broke, the Auction Defendants no longer knew with confidence how low (in prices) they could go, while still securing the desired allocation. In that situation, one would expect the difference between the high and low bids to shrink.

257. As seen in the following chart, that is exactly what the publicly available data shows. The red bars below show—first for all auctions jointly, and then on a dollar weighted average basis across all auctions—the difference between the high and low bids during the Auction Class Period. The blue bars show the same thing, but after the governmental investigations were reported. The red bars are taller than the blue bars to a statistically significant degree.



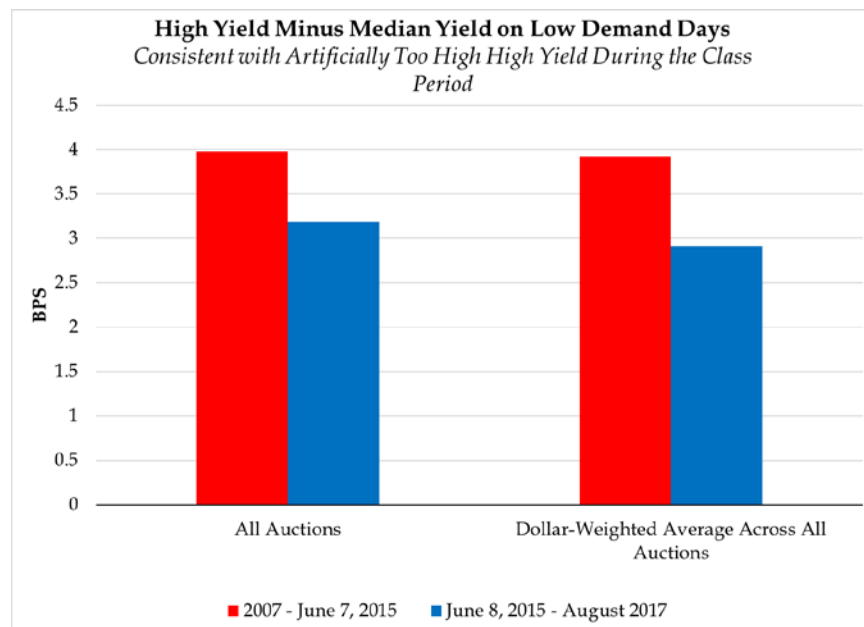
258. The decrease in the difference between the high and low bids was especially pronounced for certain tenors. For example, the below charts show the results of the analysis for the three-month and one-year tenors.



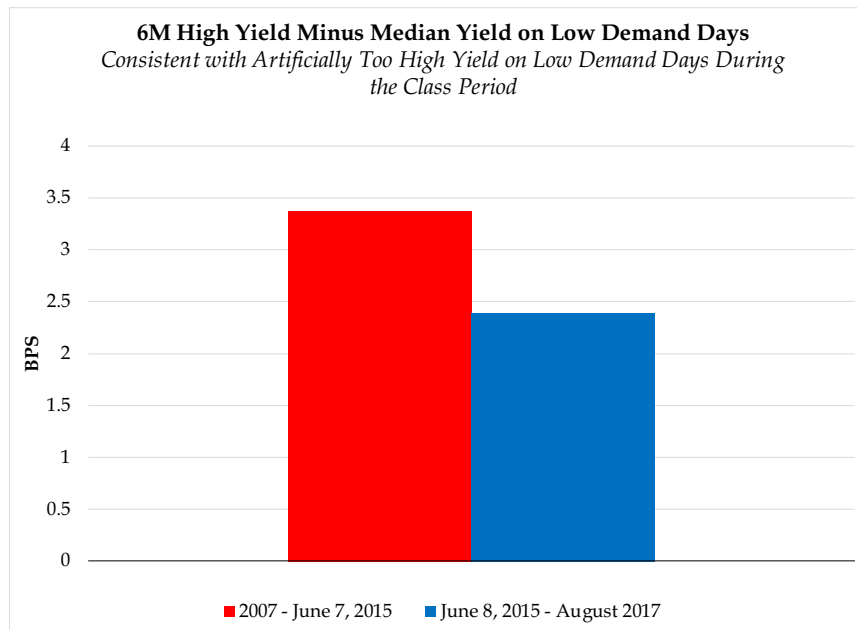
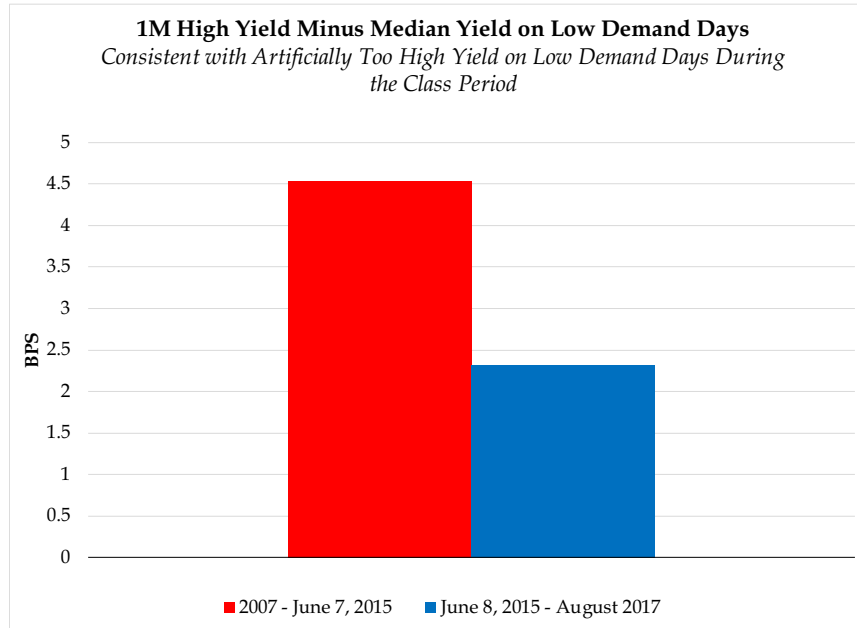
259. Confirming that this break in pricing behavior was the result of a change by the Auction Defendants, Plaintiffs analyzed the correlation between the size of the difference between the high and low bids, and the share that the primary dealers were allocated in any given auction.

This analysis showed that the relationship between primary dealers' allocation and the size of the gap changed, to a statistically significant degree, before and after the governmental investigations. More specifically, during the conspiracy a larger auction allocation being made to the primary dealers was positively correlated to the size of the gap. Afterwards, this was no longer the case. This helps confirm that it was the Auction Defendants' higher yield/lower price bids on low demand auctions that was driving the larger Auction Class Period gap.

260. To confirm that these results—showing the difference between the high and low bids shrank after the Auction Class Period on low demand auctions—were not the result of the most aggressive (i.e., low yield/high price) bidders suddenly becoming more cautious, Plaintiffs also analyzed the difference between the high yield bids and the *median* bid. Again, if the Auction Defendants were conspiring to submit the most conservative (i.e., high yield/low price) bids possible while still winning the desired allocation, one would expect this difference to also be wider with the conspiracy than without. As seen in the following chart, that is exactly what the data shows—the red bars are taller than the blue bars, to a statistically significant degree.



261. As seen in the below charts, the decrease in the difference between the median and high yield/low price bids was especially pronounced for many individual tenors, including the one-month and six-month tenors.



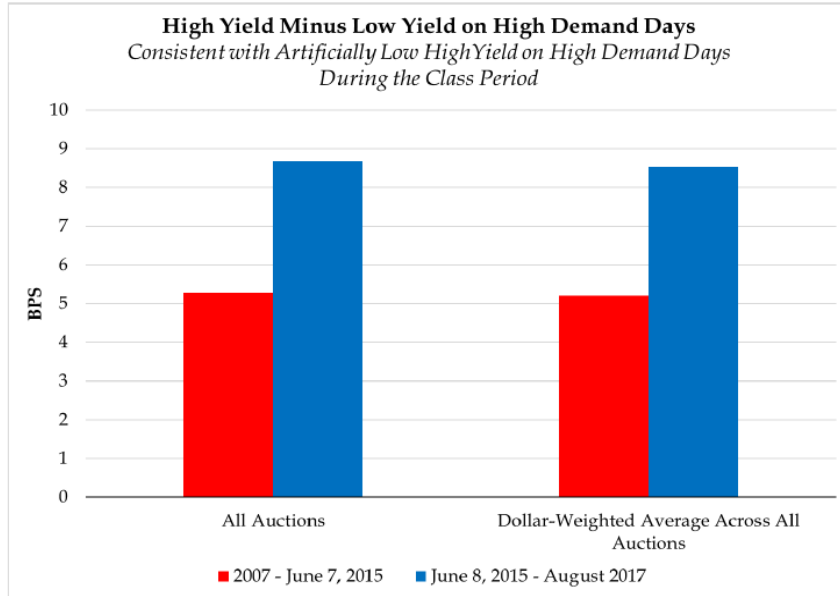
262. Confirming that this break in pricing behavior was also the result of a change by the Auction Defendants, Plaintiffs also analyzed the correlation between the size of the difference,

and the share that the primary dealers were allocated in any given auction. This analysis showed that the relationship between primary dealers' allocation and the size of the gap changed, to a statistically significant degree, before and after the governmental investigations. More specifically, during the conspiracy a larger auction allocation being made to the primary dealers was positively correlated to the size of the gap. Afterwards, this was no longer the case. This further confirms that it was the Auction Defendants' high yield/low price bids on low demand auctions that was driving the larger Auction Class Period gap.

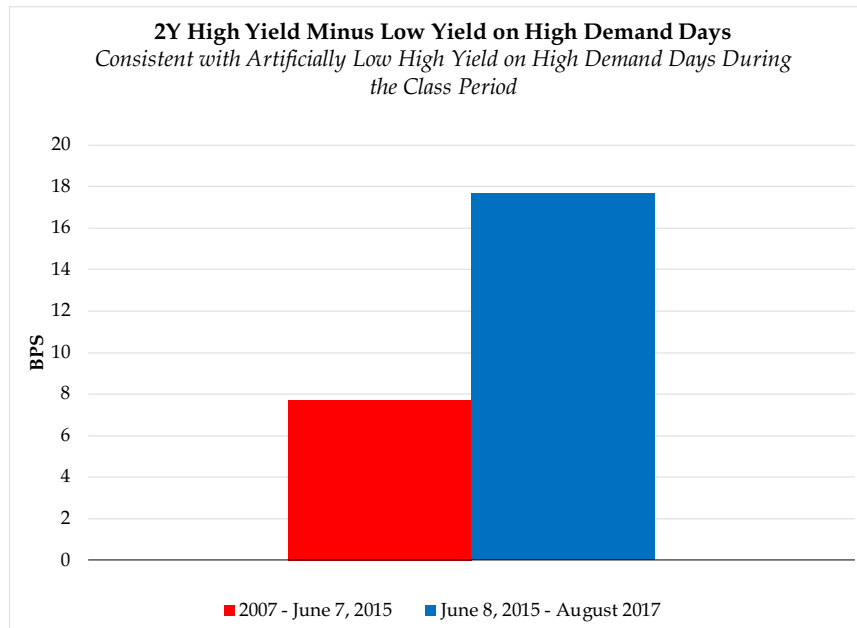
2. High demand auctions

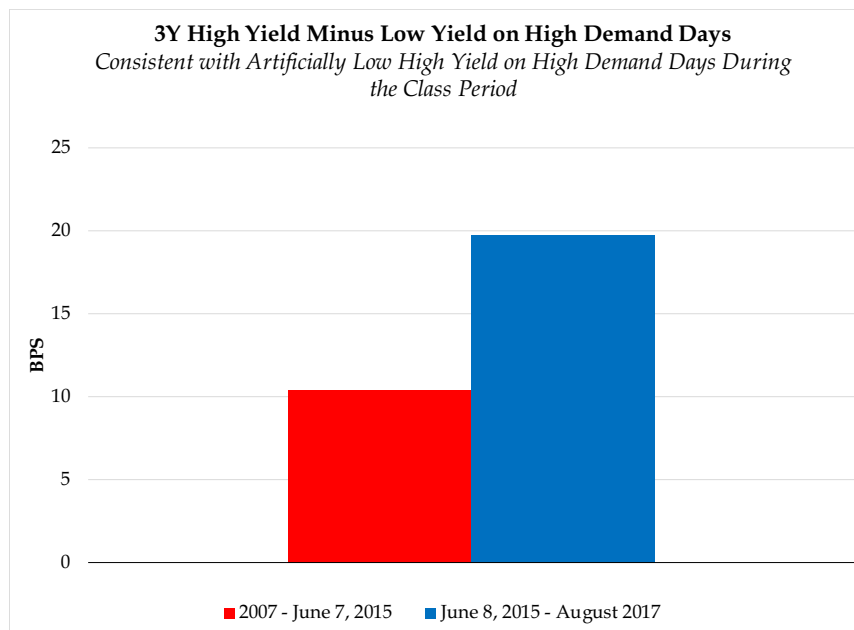
263. On high demand auctions, the Auction Defendants were "crowding out" other bidders to ensure they got the desired allocation instead. Without the benefit of the conspiracy, their bids would be more within the pack. Thus, unlike with low demand auctions (where the conspiracy *increased* the difference between the highest and lowest bids because the Auction Defendants were putting in higher yield/lower price bids), on high demand auctions we would expect to see a *decrease* in the gap between the high and low bids.

264. As seen in the following chart, that is exactly what the publicly available data shows. The red bars below show, first for all auctions jointly, and then on a dollar weighted average basis, the difference between the high and low bids during the Auction Class Period. The blue bars show the same thing, but after the governmental investigations were reported. The red bars are *shorter* than the blue bars to a statistically significant degree.



265. The increase in the difference between the high and low bids was especially pronounced for certain tenors. For example, the below charts show the results of the analysis for the two-year and three-year tenors.





266. Confirming that this break in pricing behavior was the result of a change by the Auction Defendants, Plaintiffs again analyzed the correlation between the size of the gap between the high and low bids changed, and the share that the primary dealers were allocated in any given auction. This analysis again showed that the relationship between primary dealers' allocation and the size of the gap changed, before and after the governmental investigations. More specifically, during the conspiracy a larger auction allocation being made to the primary dealers was associated with a *smaller* gap. This relationship changed, to a statistically significant degree, after the Auction Class Period. This helps confirm that it was the Auction Defendants' "crowding out" other competitive bidders—including Plaintiffs and Auction Class Members—that was driving the smaller Class Period gap.

D. The Relationship Between Auction Price and End of Day Price Changes After the Governmental Investigations Are Announced

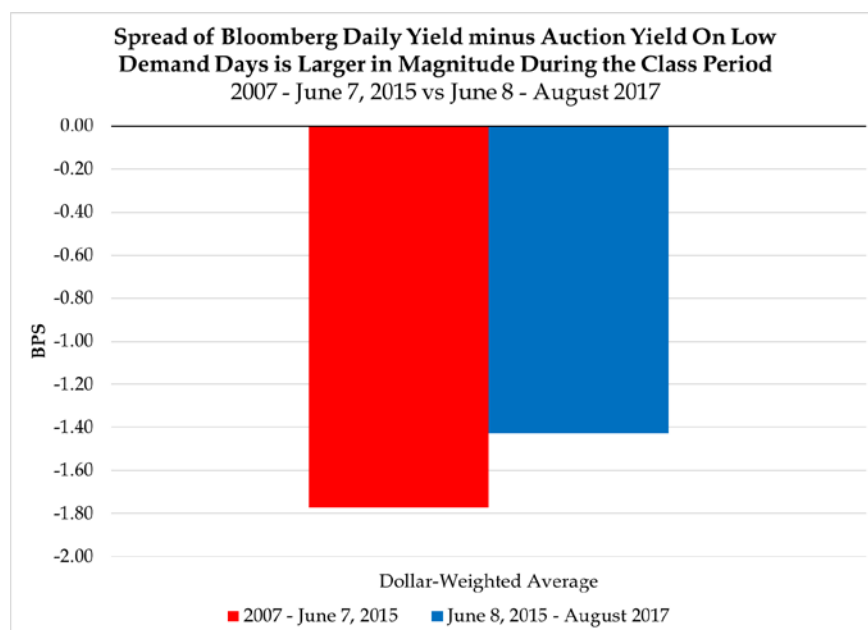
267. Plaintiffs also analyzed the relationship between the auction stop-out price/yield, and the price/yield at the end of the auction day, as reported by Bloomberg. The end of day price

is another comparison point by which to measure relative changes in the auction stop-out price across many different auctions.

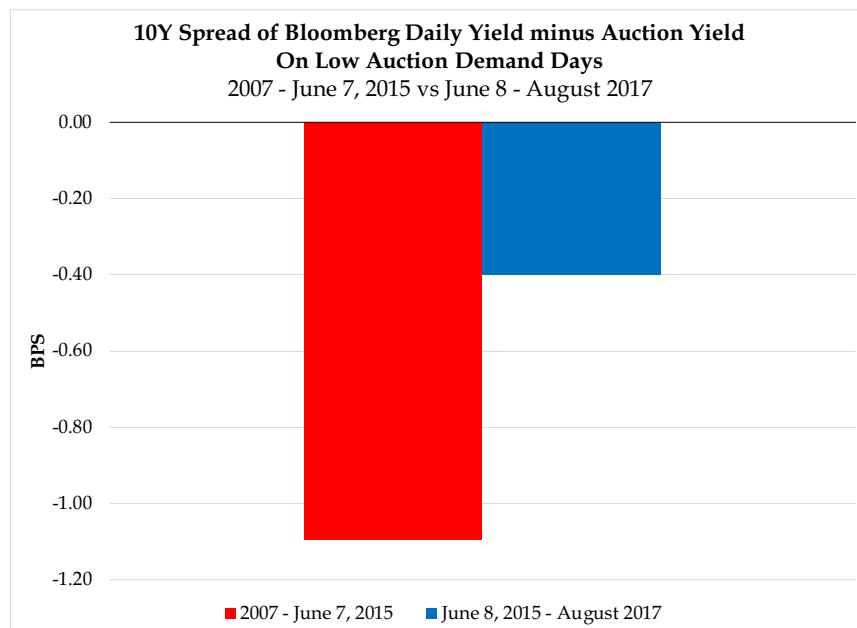
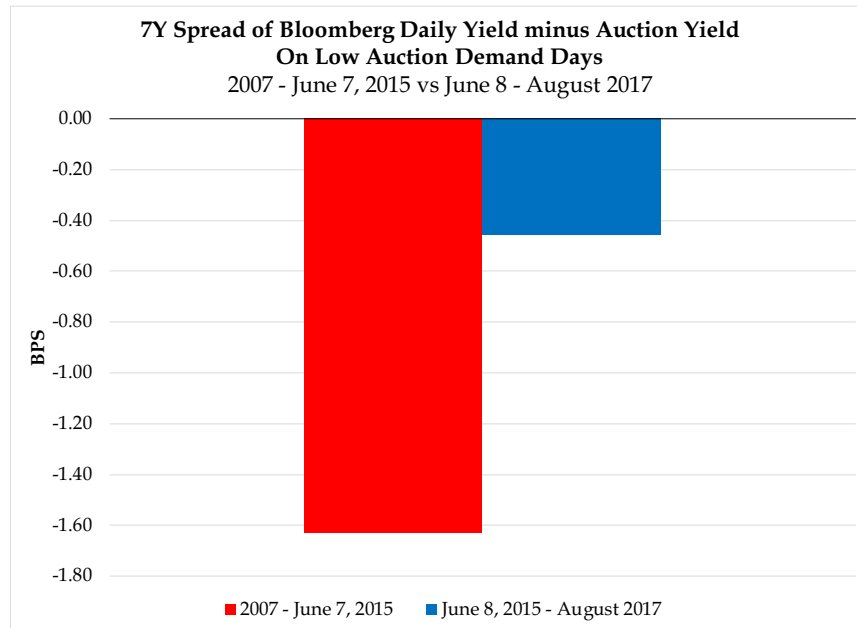
1. Low demand auctions

268. If on low demand auctions the auction stop-out price was being suppressed during the Auction Class Period but not after, one would expect to see the auction price go up relative to the end of day price since the break of the conspiracy as compared to the Auction Class Period. Put another way, the difference between the stop-out prices and the end-of-day prices would be greater during the Auction Class Period than after.

269. As seen in the following chart, that is in fact what the data shows. The red bar represents the difference between the end of day yield and the auction yield, during the Auction Class Period. The blue bar represents the same thing, but after the Auction Class Period. In both instances, the bars are negative, indicating that the end of day yield was lower than the auction yield—i.e., the end of day price was higher than the auction price. However, the difference was greater during the Auction Class Period. This indicates that the auction stop-out price was under downward pressure during the Auction Class Period, but not after.

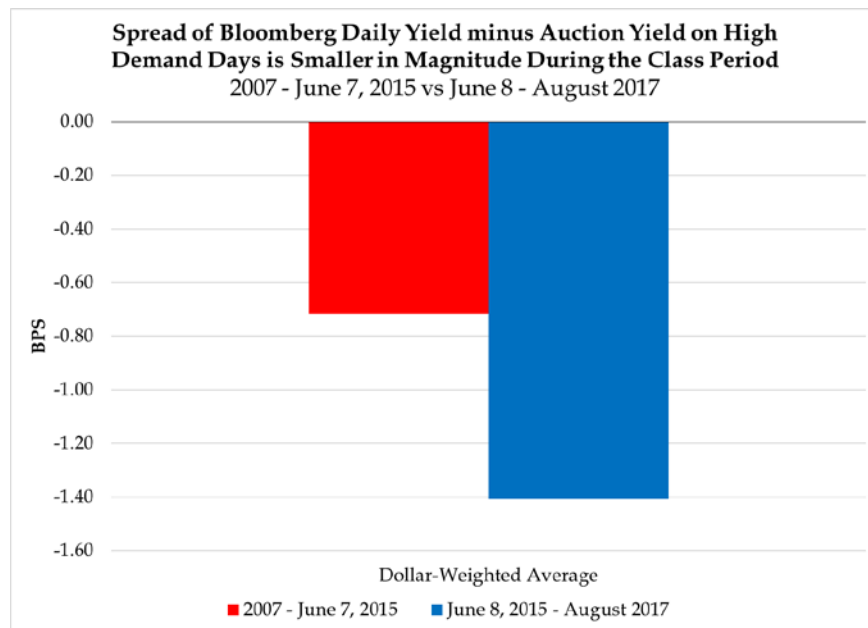


270. The decrease in the difference between the end of day price and the auction price was especially pronounced for certain tenors. For example, the below charts show the results of the analysis for the seven-year and ten-year tenors.



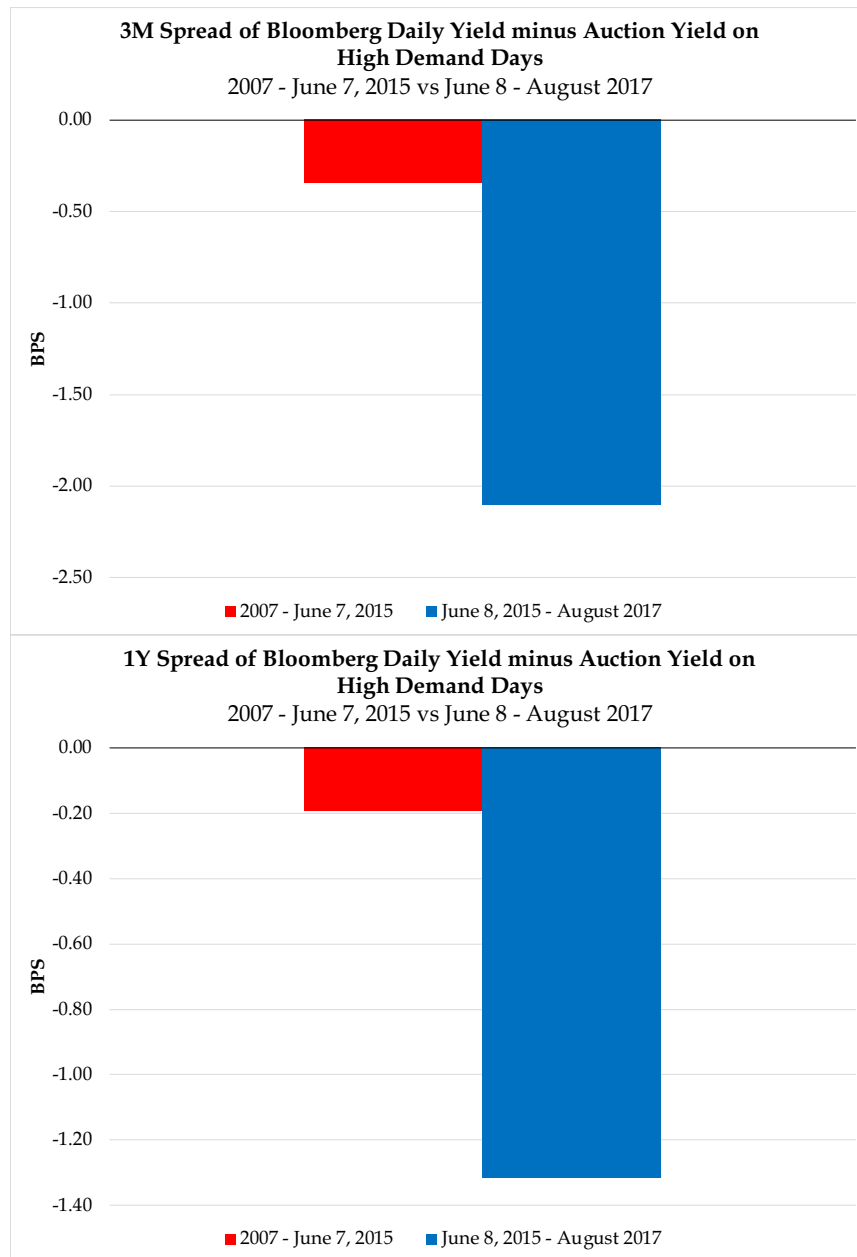
2. High demand auctions

271. Plaintiffs also analyzed the difference between the end of day yield and the auction yield on high demand auctions. Again, overall, for both low and high demand auctions, yields tend to go down/prices tend to go up following an auction. But again, the magnitude of this trend changed after the Auction Class Period. Specifically, in high demand auctions, the difference between the stop-out prices and the end-of-day prices was smaller during the Auction Class Period than after. On high demand auctions, the Auction Defendants' artificial upward pressure on auction prices during the Auction Class Period left less room for prices to move up following the auction. This can be seen in the following chart. Again, the red bars represent the gap in the Auction Class Period, and the blue bars represent the gap after governmental investigations were announced. Though they are both negative, the red bar is much shorter than the blue bar, to a statistically significant degree.



272. The data is consistent with the Auction Defendants submitting higher price bids at these auctions to ensure they received their desired allocation, which they could then resell profitably in the post-auction secondary market. The increase in the difference between the end

of day price and the auction price was especially pronounced for certain tenors. For example, the below charts show the results of the analysis for the three-month and one-year tenors.



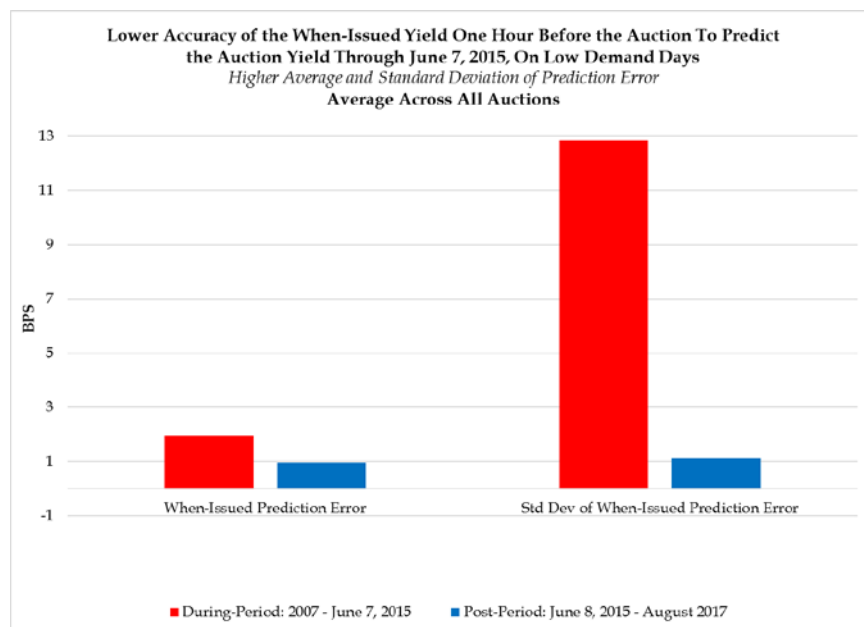
E. The Relationship Between the Auction Price and the When-Issued Price Changes After the Governmental Investigations Are Announced

273. As explained above, the when-issued market allows people to take “positions” in the auction, even before it takes place. It thus can be seen as the market making a prediction of

what will happen at the auction. As discussed below, the relationship between the when-issued market and the auction price changed after governmental investigations were announced.

1. Low demand auctions

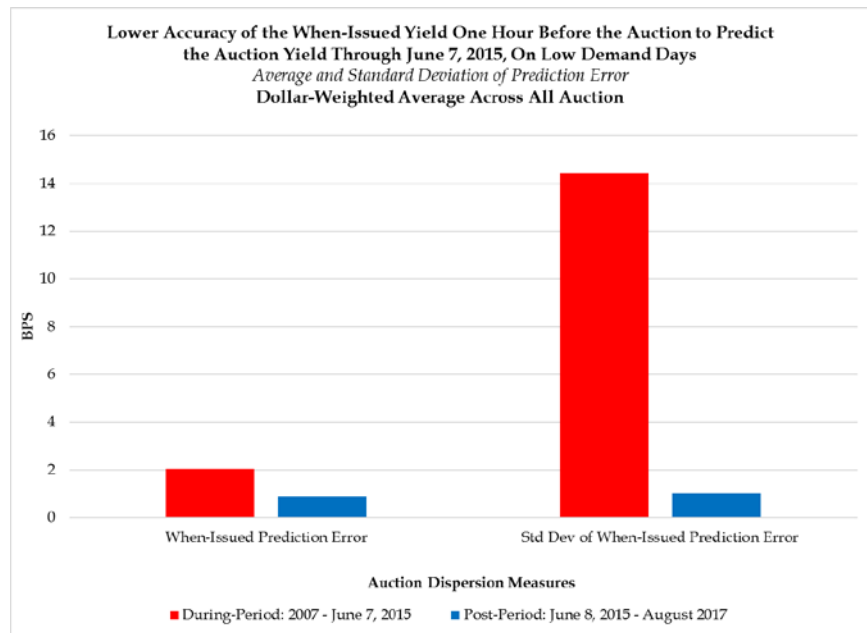
274. The following chart tracks how well the when-issued yield/price an hour in advance of the auction predicted the eventual auction yield/price. The bars on the left (red for the Auction Class Period and blue for after) measure the simple gap. As can be seen, the gap shrinks, meaning the when-issued price became better at predicting the auction price after governmental investigations were announced, even by this simple measure. Both bars are positive numbers, meaning that the when-issued yield was consistently higher than the eventual auction yield. In other words, in both periods, the when-issued price predicted a higher auction price than what actually occurred. However, the red bar is taller than the blue bar, meaning that during the Auction Class Period, the prediction was off to a greater degree.



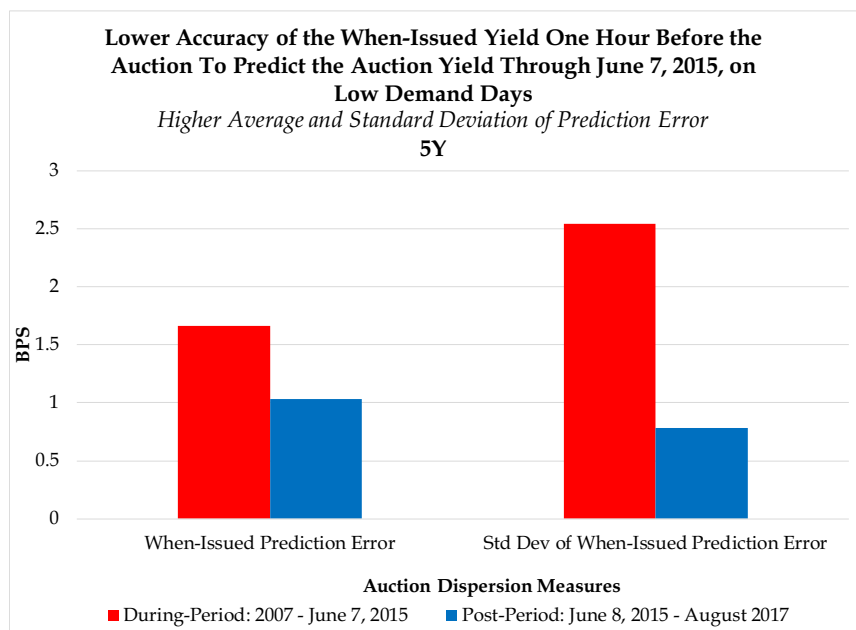
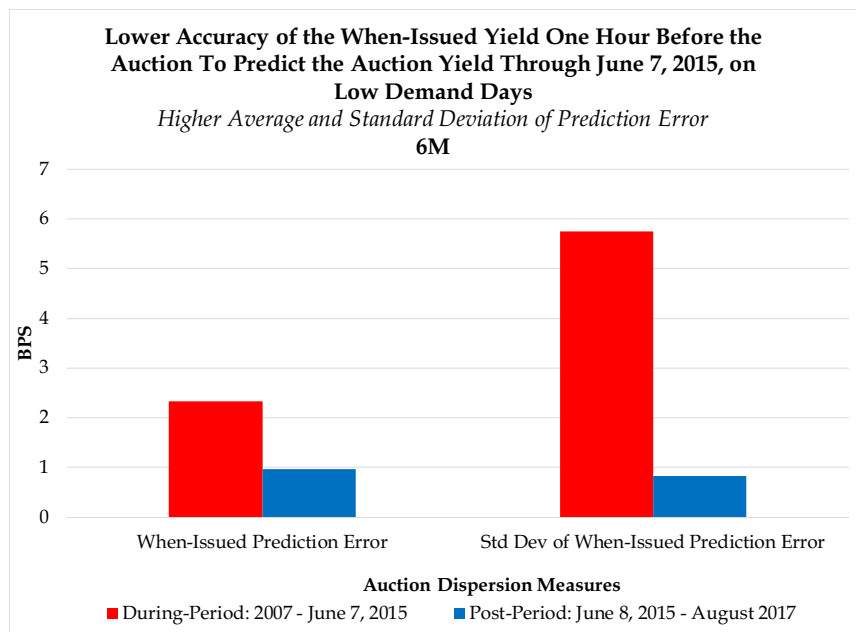
275. The bars on the right side of the above chart measure the standard deviation of the “prediction error” between the one hour when-issued yield and the auction yield, indicating the variation of this prediction error (i.e., is it often far off and by how much). The red bar is much

taller than the blue bar. This indicates that the accuracy level of the when-issued yield as a predictor of the auction yield during the Auction Class Period was all over the map. In contrast, the shorter blue bar indicates the predictive value of the when-issued market was stable (produced less large errors in prediction) from auction to auction after the governmental investigations were announced.

276. The following chart presents the same comparison, but on a dollar-weighted average basis.

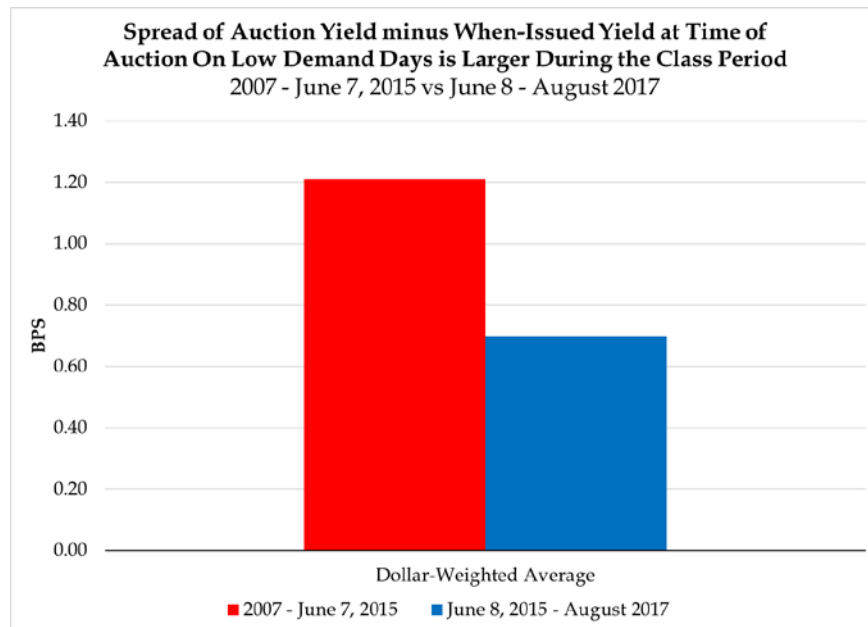


277. The change in the stability of the “prediction error,” as seen by a lower standard deviation of the “prediction error,” was especially pronounced for certain tenors. For example, the below charts show the results of the analysis for the six-month and five-year tenors.

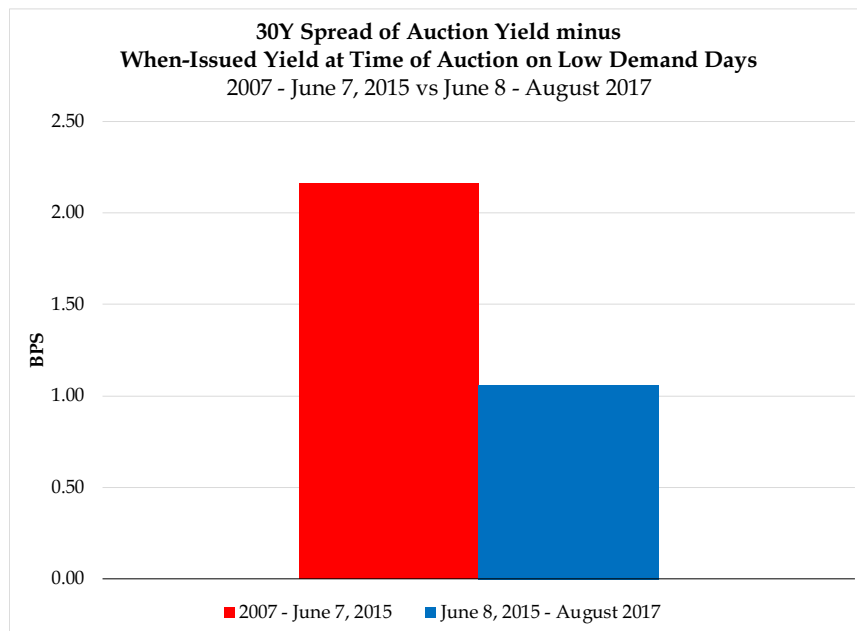
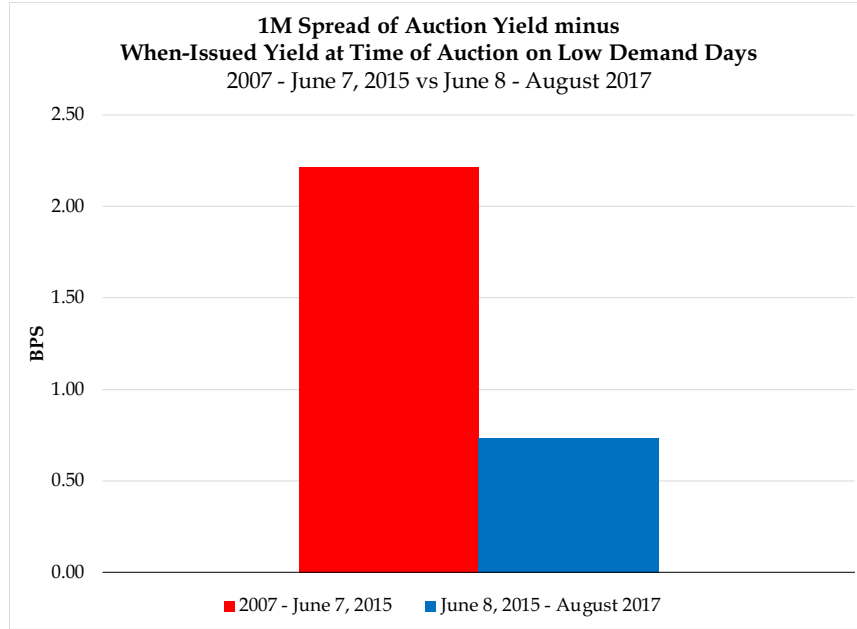


278. Another way to use when-issued yields to compare the relative movement of auction yields over time is to use the when-issued yield at the exact moment of the auction. As seen in the following chart, in low demand auctions, before and after the Auction Class Period, the auction yield was higher than the when-issued yield. In other words, the auction price was consistently lower than the price available in the when-issued market. However, this difference

shrunk (the red bar is taller than the blue bar) after the governmental investigations were announced. This is the result of the auction prices on low demand auctions no longer being subject to downward pressure by the Auction Defendants.



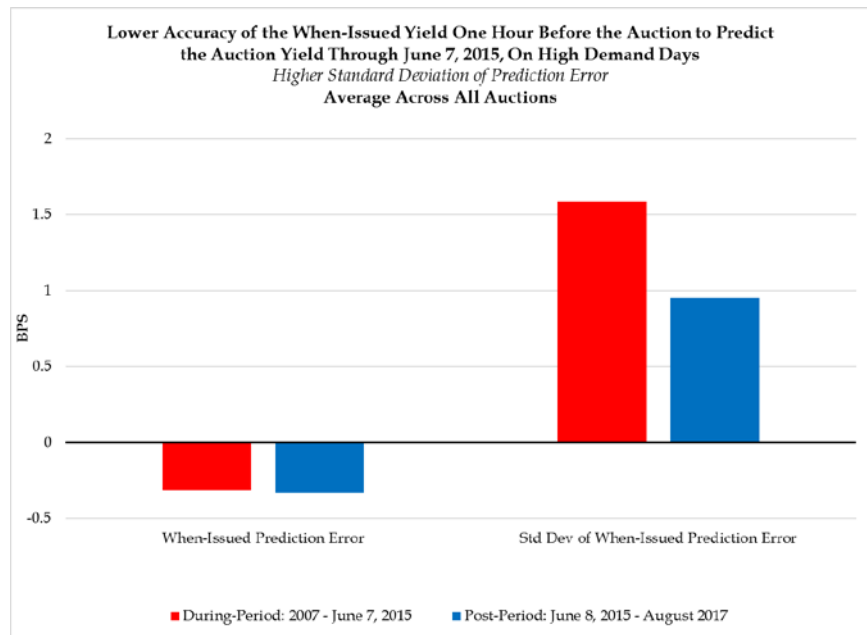
279. The decrease in the difference between the when-issued and auction yield was especially pronounced for many individual tenors. For example, the below charts show the results of the analysis for the one-month and thirty-year tenors.



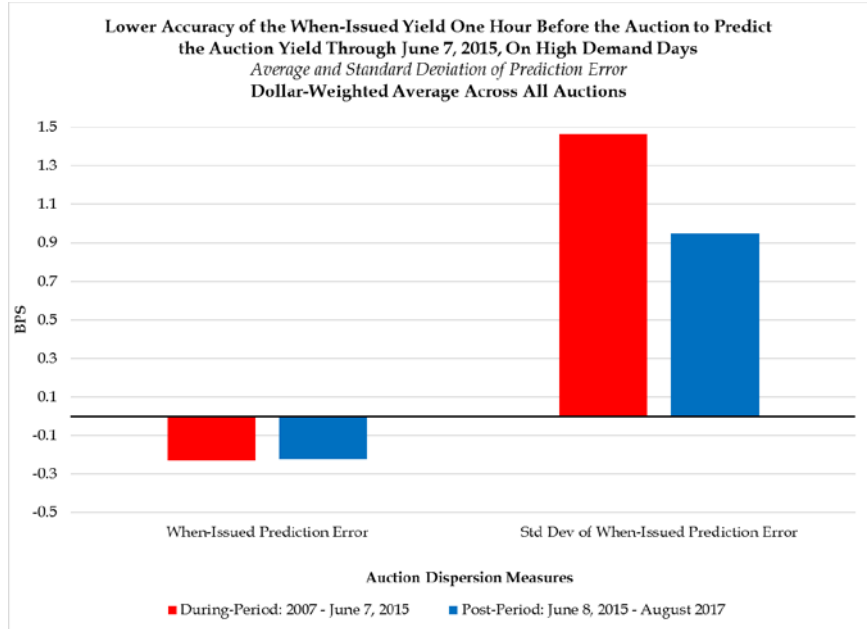
2. High demand auctions

280. Similar to the above studies, the following chart analyzes how good the when-issued market was at predicting the auction yield/price. Here, on high demand auctions, the absolute gap (the left bars) are both negative. This means that on high demand auctions, when-issued yields were on average lower than the auction yields. In other words, on high demand

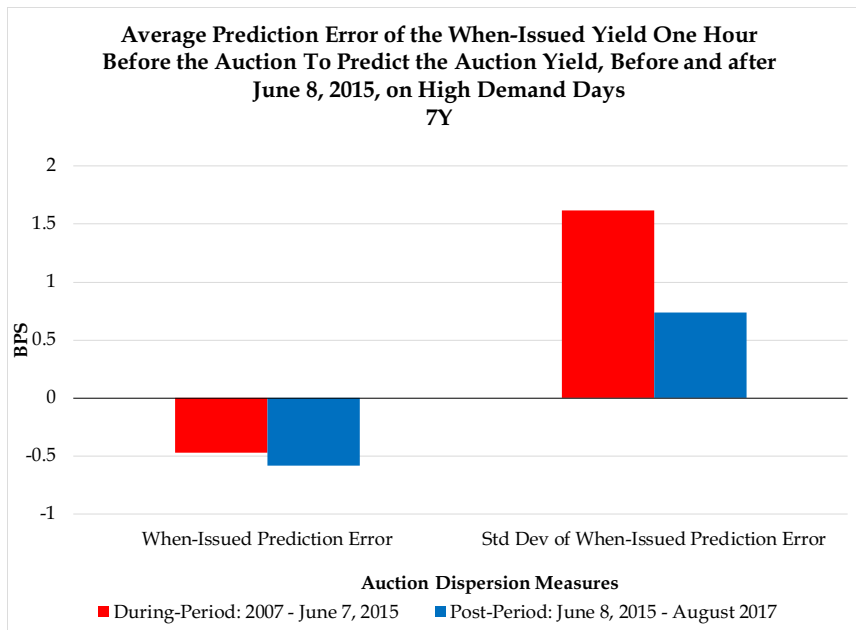
auctions, auction prices were higher than the market predicted. In the chart immediately below, the two bars on the left are about the same size. However, in the right bars measuring the standard deviation from auction to auction, the red bar is much taller than the blue. As with low demand auctions, this indicates that the accuracy of the when-issued market on high demand auctions fluctuated much more during the Auction Class Period than after governmental investigations were announced.

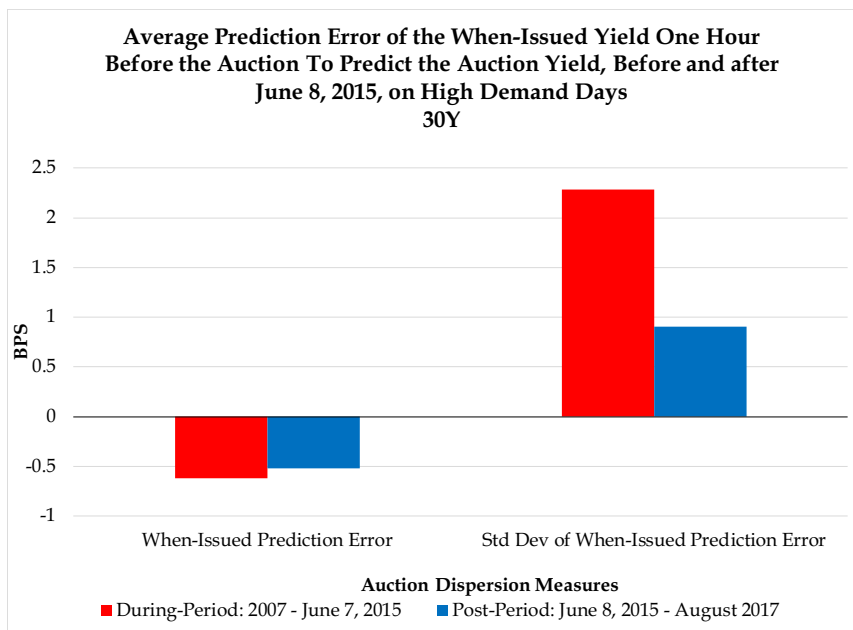


281. The following chart performed the same analysis, except on a dollar-weighted basis.



282. The change in the stability of the “prediction error” was especially pronounced for many individual tenors. For example, the below charts show the results of the analysis for the seven-year and thirty-year tenors.





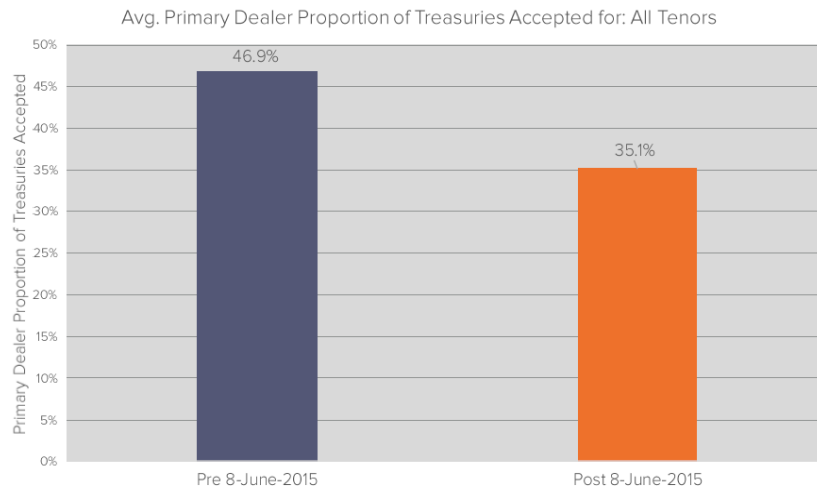
IV. ADDITIONAL ANALYSES SHOWING THE BREAKING OF A CONSPIRACY

A. The Dealers Win More Before the Governmental Investigations Are Announced

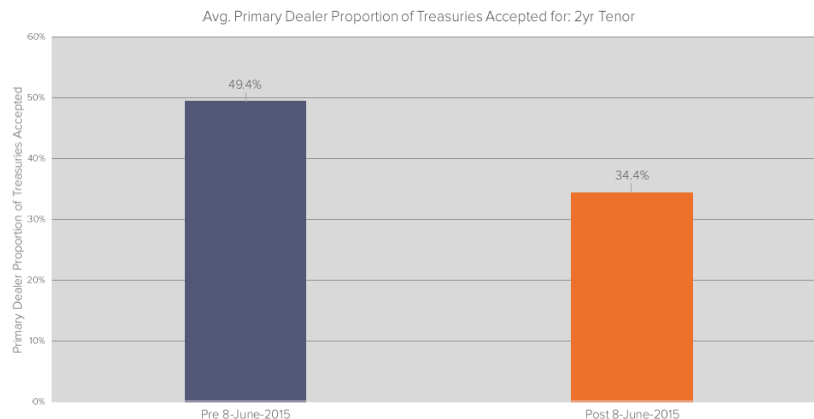
283. Using auction results data obtained from the Treasury Department, Plaintiffs tracked the average proportion of available Treasuries that were allocated to the dealers⁶⁸ at the auction, before and after June 8, 2015. If a subset of the primary dealers were acting as a group in order to more consistently be allocated their desired share based on a coordinated strategy, then one would expect to see the dealers win a higher and more consistent allocation percentage during the time the cartel was active, than after its activities had abated. That is precisely what the data shows.

⁶⁸ As discussed above, information about the allocation to specifically identified auction participants, and other more granular data beyond that discussed herein, is not made public. A Freedom of Information Request for additional auction-related information by Plaintiffs was denied.

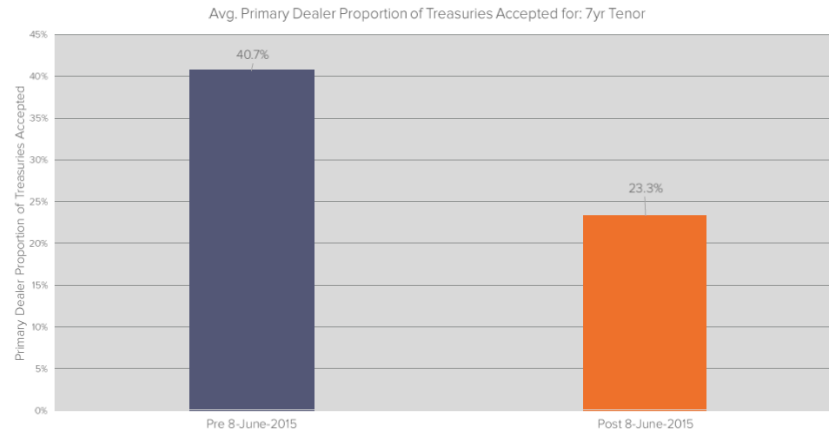
284. As seen in the below chart, the average proportion of available Treasuries allocated to the primary dealers, across all tenors, dropped from 46.9% prior to June 8, 2015, to 35.1% after June 8, 2015. These changes were statistically significant.



285. The drop in the allocation percentage to the primary dealers was particularly pronounced for certain tenors. For example, as seen in the below chart, for the 2-year note, the primary dealers' allocation dropped by 15 percentage points, from 49.4% to 34.4%.



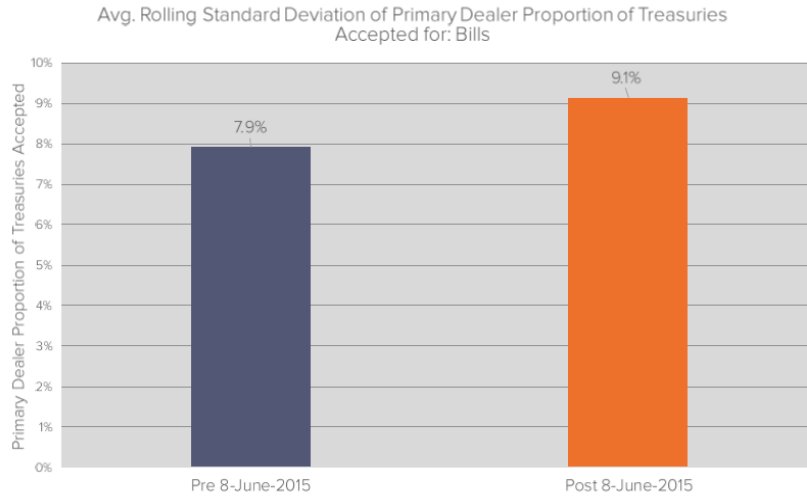
286. By way of further example, for the 7-year note, the primary dealers' allocation percentage dropped by sixteen percentage points, from 40.7% to only 23.3%.



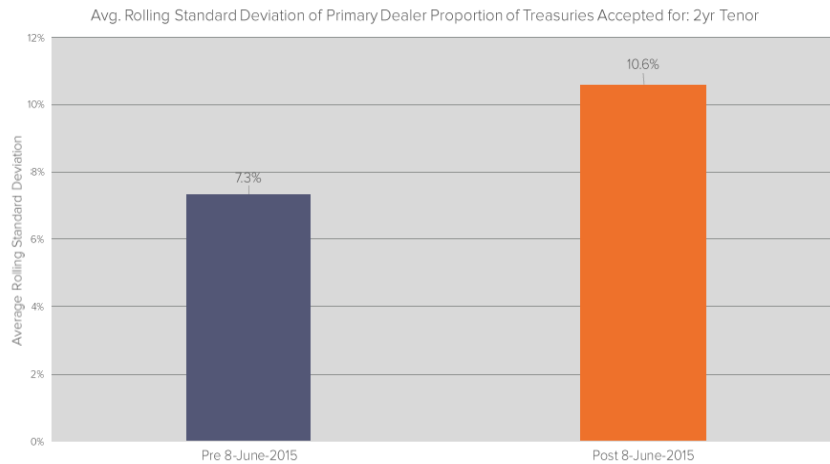
B. The Dealers Win More Consistently Before the Governmental Investigations Are Announced

287. Just as the allocation percentage that the primary dealers won at auction decreased after June 8, 2015, so did the level of consistency in their allocation percentage. Specifically, Plaintiffs measured the standard deviation of the primary dealers' allocation percentage, which measures the level of fluctuation between the percentage share that the dealers won from auction to auction. The standard deviation of the primary dealers' proportion of accepted Treasuries, across all tenors, increased (i.e., the consistency of the dealers' win percentage decreased) after June 8, 2015 in a statistically significant way.

288. For instance, as seen in the below chart, there was an increase in the standard deviation of the dealers' allocation of across all Treasury bills.



289. The standard deviation also increased across Treasury notes. For example, as show in the chart below, for the 2-year tenor, the standard deviation increased by over three percentage points, from 7.3% before, to 10.6% after June 8, 2015.

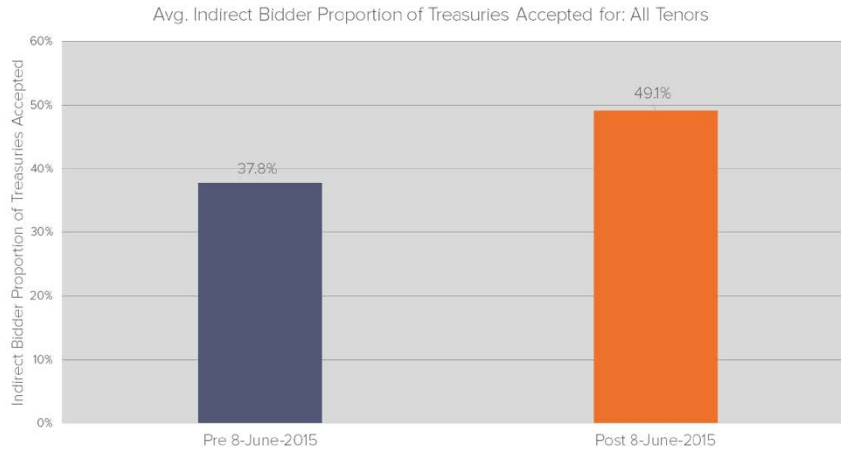


C. Indirect Bidders Win Less Before the Governmental Investigations Are Announced

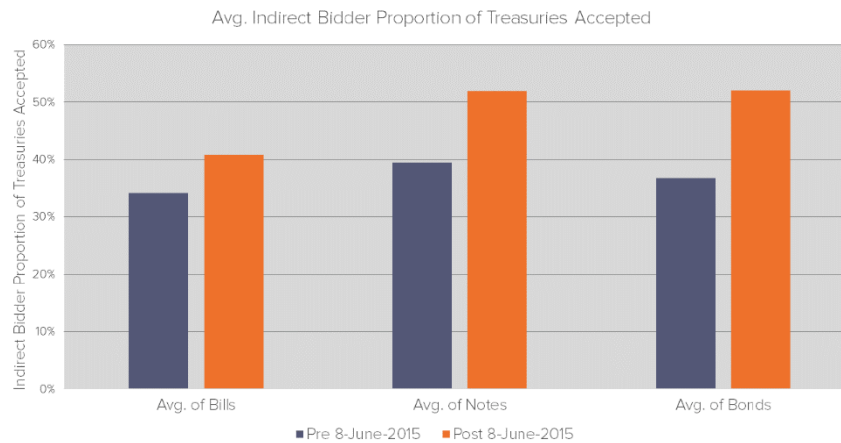
290. As a corollary to the above studies tracking the proportion of Treasuries allocated to the dealers, Plaintiffs also tracked the proportion of available Treasuries allocated to indirect bidders, before and after June 8, 2015. If the Auction Defendants were acting as a group to maximize their own allocation through their exploitation of, *e.g.*, indirect bidder data, then one

would expect to see indirect bidders win a lower allocation percentage during the time the cartel was active, than after its activities had abated. That is precisely what the data shows.

291. As seen in the below chart, the average proportion of available Treasuries allocated to indirect bidders, across all tenors, increased from 37.8% prior to June 8, 2015, to 49.1% after June 8, 2015. This increase is statistically significant.



292. As seen in the below chart, the increase in indirect bidders’ rate of success at the auction was felt across Treasury bills, notes, and bonds alike.

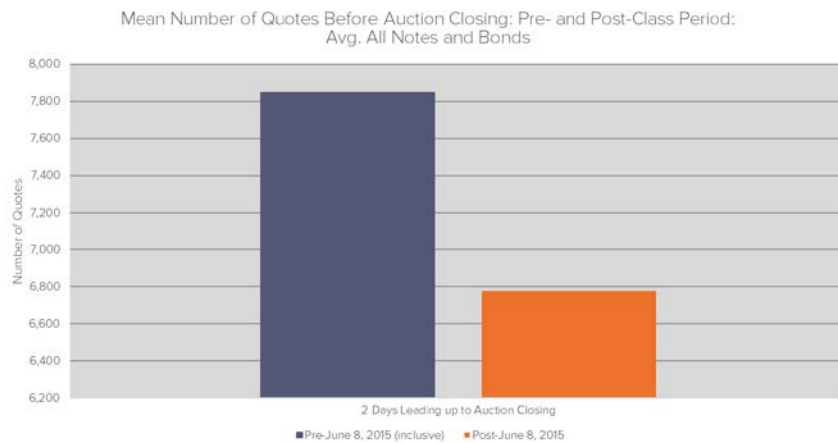


D. When-Issued Activity Levels Also Show a Break of an Information-Sharing Conspiracy After the Governmental Investigations Are Announced

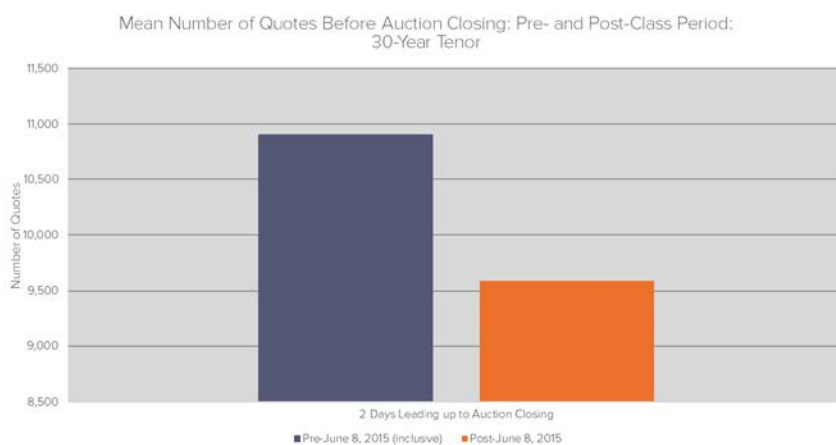
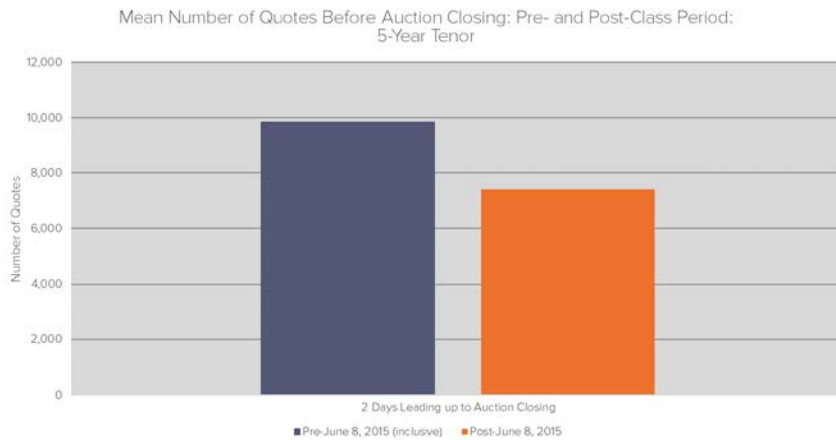
293. Another way to show the break in the conspiracy is to analyze the when-issued market. Greater shared knowledge about the future outcome of the auction would lead to greater

trading activity in order to profit from that knowledge. The data in fact show that the level of pre-auction activity in the when-issued market decreased following the announcement of the government's investigation. This is further evidence of a break in the Auction Defendants' information-sharing conspiracy, because pre-auction trading in the when-issued market is inherently an attempt to estimate the price and demand for an upcoming auction issuance.

294. If the dominant market participants have greater knowledge of price and demand in the upcoming auction, such as via the sharing of private customer bid information, then one would expect to see greater activity in the when-issued market leading up to the auction. Conversely, if those market participants suddenly lose that informational advantage, such as because their activities are targeted by regulators, then one would expect to see a decrease in when-issued activity. The data again bears out both of these trends. As shown in the below chart, across all notes and bonds, the mean number of quotes in the when-issued market was significantly higher before June 2015, than it was after June 2015.



295. This trend was particularly pronounced for certain tenors. For instance, the charts below show the results of this analysis for five-year and thirty-year tenors.



E. Futures and Spot Activity Also Show a Break of an Information-Sharing Conspiracy After the Governmental Investigations Are Announced

296. Plaintiffs also analyzed the behavior of prices before and after the Auction Class Period in the futures and spot market. For instance, Plaintiffs looked at whether there was a difference in futures bid-ask spreads on days when an auction was held, versus days when an auction was not held, around the same time of day. For many tenors, the difference in behavior between auction and non-auction days was greater during the Auction Class Period than after. This often included a large spike in futures bid-ask spreads around the time of the auction on auction days—a spike that was not there, or muted, on auction days after the Auction Class Period.

297. Plaintiffs similarly found that bid-ask spreads in the spot market for many tenors behaved differently after the governmental investigations were announced. Again, consistent with

the studies above, the results from this study show anomalous activity surrounding the auction that was not present after the governmental investigations were announced.

F. The Uncanny Parallels in “Breaks” to Where the Treasury Last Tried to Decrease the Dealers’ Informational Advantage

298. The Treasury Department has itself documented the links between dealer success rates, bid dispersion, and bidder certainty, when studying prior changes to the auction system. In 1992, the Treasury Department began to implement the current single-price auction system, which replaced the prior multiple-price system in which winning bidders each paid the individual price that they bid, rather than the price of the lowest accepted bid. In a pair of studies that it conducted regarding the consequences of the change, the Treasury Department observed that because the single-price system was “strategically simpler,” it “level[ed] the playing field by reducing the importance of [the] specialized knowledge” held by the primary dealers, who had “a technical edge in the resources devoted to sophisticated financial analysis of the general factors moving the market, and in particular, the strength of demand for a given issue.”⁶⁹

299. The Treasury Department observed that the decrease in the level of certainty about auction results should be accompanied by an increase in bid dispersion: “[T]here is a direct relationship between uncertainty regarding the common value of a good and the dispersion of bids: the greater the uncertainty, the greater the dispersion of bids; or alternatively, the lower the uncertainty, the tighter the dispersion of bids.”⁷⁰ This relationship was borne out by the data: bid dispersion in fact increased after the move to the single-price system. Significantly, the more “level playing field” was also marked by a major decrease in the amount of awards to the top primary dealers.

⁶⁹ See Malvey, Archibald & Flynn, *supra* note 4, at 24; *id.* at 4.

⁷⁰ *Id.* at 22.

300. In a 1998 update to the 1995 report, the U.S. Treasury found that bid dispersion had steadily decreased, and the top primary dealers' level of success had steadily increased, in the three years since its initial study.⁷¹ These changes were attributed to "a learning pattern on the part of primary dealers. As they have become increasingly experienced with the uniform-price technique, they have become more adept at gauging the relevant bidding ranges for the auctions."⁷² Thus, the dealers began to back up their informational advantage over their competitors, and as a result the dealers' win rates increased, and bid dispersion decreased.

301. Regardless of what form the top dealers' "learning pattern" initially took, by no later than the beginning of the Auction Class Period, it had taken the form of pooling private customer information and using that collective knowledge to rig the auction. It was not until June 2015 that the playing field was leveled once again, when the DOJ announced its investigation into the Auction Defendants' manipulation of the Treasury market. For instance, just like in 1992, there was a decrease in allocation percentage for the top primary dealers. Again, what changed was a drop in certainty about auction results.

302. The key difference between the events of 1992 and those giving rise to the claims here, is that in 1992, the decrease in certainty could be attributed to a structural overhaul of the auction system, which required all auction participants to go back to the drawing board. Here, however, there was no such overhaul of the auction system. Rather, the only "change" was the public announcement that the Auction Defendants were being investigated for colluding to manipulate the Treasury market. It is thus only the break in that conspiracy that explains the drop

⁷¹ *Id.* at 10.

⁷² *Id.*

in certainty, and the attendant drops in the Auction Defendants' success at auction, and the increase in dispersion.

V. **OTHER "PLUS FACTORS" INDICATIVE OF COLLUSIVE INFORMATION SHARING AROUND THE AUCTION**

303. Additional features of the Treasury auction process, and the ways the Auction Defendants operated within the market, have created conditions that invite and promote manipulation and collusion, allowing such behavior to go unnoticed until June 2015.

304. *First*, as observed by James Cox, a professor at Duke University School of Law who studies financial markets, "[i]n the Treasury market, where you have a small number of participants and the sales volume is very high, *it is a fertile area for harmful collusive behavior.*"⁷³ In the auction, so long as there was the veneer of a competitive process, the Treasury Department would sell its offered securities regardless of the final auction price. Compounding this was that *all* of the issuance of new Treasuries goes through an auction process—one in which the Auction Defendants were dominant participants. The Auction Defendants thus knew they had a consistent supply of Treasuries, and that there were processes in place in which the Auction Defendants were the small group of dominant market players.

305. *Second*, despite its size and importance, the Treasury market, and particularly the Treasury auction process, is only lightly regulated. According to *Bloomberg* in 2014, the last time the government took a "hard look" at the Treasury auction was 1998.⁷⁴ Since then, massive technological developments—including, among other things, the advent of high-frequency

⁷³ See Scaggs, Kruger & Geiger, *supra* note 6.

⁷⁴ See Matthew Leising, *If Treasuries Are Manipulated, Good Luck Finding Any Cops*, *Bloomberg* (Dec. 8, 2014) <http://www.bloomberg.com/news/articles/2014-12-08/light-speed-treasury-trading-governed-by-rules-dating-to-1998>.

trading, new trading platforms, and new means of electronic communication across the banks—have “left government overseers in the dust.”⁷⁵

306. In fact, many of the rules still governing the Treasury market were first enacted as far back as 1986, and had “gone virtually untouched” as of 2014.⁷⁶ In an interview conduct by Bloomberg, Craig Pirrong, a finance professor at the University of Houston, reflected that it was “rather remarkable that the Fed and Treasury have taken little interest in the dramatic change in market microstructure and trading technology.”⁷⁷

307. At least as of the filing of the original Consolidated Complaint, there was a mishmash of agencies responsible for overseeing the Treasury auction process, with “ample space between” their limited areas of authority.⁷⁸ The Treasury Department could write rules, and the New York Fed could audit auctions, but neither body was primarily responsible for enforcement. Enforcement responsibility instead fell to the SEC, the Financial Industry Regulatory Authority (“FINRA”), and the CFTC—each of which had only a slice of responsibility, depending on whether a Treasury security was sold at auction, traded on the secondary market, or packaged in a mutual fund or derivative, or whether exchange-traded Treasury futures or options were involved. This patchwork approach to governmental oversight is one of the reasons why the Auction Defendants’ price-fixing conspiracy went undetected for so long.

308. **Third**, as discussed above, there is a high level of communications between the Auction Defendants, in which they shared confidential customer information and coordinated on auction bidding strategies. For instance, it has been reported that traders “talked with counterparts

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ *See* Scaggs, Kruger & Geiger, *supra* note 6.

at other banks via online chatrooms,” “swapped gossip about clients’ Treasury orders,” and that regulators are analyzing “chats and emails” showing Goldman Sachs and other Auction Defendants “sharing sensitive price information.” As the Bloomberg chats in Section II.A above demonstrate, dealers shared proprietary trading position and book information. Such information is competitively sensitive, and absent an agreement to cooperate, it would be inappropriate to disclose such information because it would place the sharer at a competitive disadvantage. The latest TMPG “best practices” were proposed to curtail “the sharing and use of confidential information in the Treasury” and other markets.

309. *Fourth*, the Treasury dealer community is relatively close knit with traders moving between dealers frequently, where they established cordial relations with their fellow traders that remained long after a given trader left a particular dealer. “They all know each other. People hopped around from bank to bank.” The close relationships traders developed with their fellow traders at competing dealers is demonstrated by the comfort each had in entering interdealer chatrooms in the first place. Even when certain traders left dealers to go to non-dealers, they continued to maintain open lines of communication with their former colleagues and continued to swap information learned from other dealers. For example, in one chat between former colleagues at Primary Dealer X, a trader who recently left Primary Dealer X offered insights to Trader 3 into Goldman Sachs’s and Credit Suisse’s books:

Primary Dealer X Trader 3

nightmare

Primary Dealer X Trader 3

my worst day since you left

Former Primary Dealer X Trader

hang in there. but make sure you have some sort of long exposure should this thing stop short

Primary Dealer X Trader 3

yeah that thing goes through will just keep going

Former Primary Dealer X Trader

any book? none at GS/CS

Primary Dealer X Trader 3

0 for now

310. *Fifth*, the Auction Defendants had strong motives to leverage their shared customer flow information against less-informed market participants, to obtain their desired allocation of securities, at the best possible price. As discussed above, the Auction Defendants' collective pool of knowledge allowed them to predict the level of prices and demand in the upcoming auction, which they used to generate profits through collusive bidding and trading strategies. These strategies allowed the Auction Defendants to avoid both missing out on the desired allocation by under-bidding, and from paying too much for a Treasury by over-bidding. Through their collusive conduct, the Auction Defendants generated profits for themselves both in the auction, and in the related markets before and after the auction.

311. *Sixth*, the Auction Defendants' practice of sharing private customer information would have been against the apparent economic self-interest of the Auction Defendants standing individually. Absent a conspiracy to leverage that information to generate profits through collusive bidding and trading strategies, the Auction Defendants would have been better served by maintaining the confidentiality of their customer order flow. The Auction Defendants were each competitive bidders in the auction, and competitors in the Treasuries and financial markets more broadly. It would be contrary to the economic self-interest of each Auction Defendant to give its competitors access to its own private and proprietary information, absent a scheme to collectively deploy that information to the benefit of all co-conspirators.

312. In addition, the Auction Defendants had obligations to their customers to maintain the confidentiality of their customers' identities and order flow. Flouting those obligations risked damaging their customer relationships, and incurring liability for violating their contractual and

other obligations to their customers. It was against the economic interest of each Auction Defendant to breach those obligations and incur those risks.

313. *Seventh*, the Treasury market, and the auction process in particular, has been the subject of manipulation in the past. For instance, in 1992, the Treasury Department, Federal Reserve, and SEC issued a joint report finding that Salomon Brothers (then, a major participant in Treasury auctions) had submitted false or unauthorized bids in order to purchase more securities than were permitted by any one buyer.⁷⁹ The result was that 94% of a particular auctioned Treasury security were sold to Salomon Brothers and its customers, which created a “short squeeze” from which Salomon Brothers reaped supracompetitive profits.⁸⁰

314. Regulators found that improper trading activity was not limited to Salomon Brothers, but rather was systemic. For example, the SEC, Office of the Comptroller of the Currency (“OCC”), and Federal Reserve initiated administrative proceedings against 98 other dealers, brokers, and banks. Those proceedings found nearly all respondents “engaged in one or more improper practices in connection with the primary distribution of [government] securities,” such as making and keeping inaccurate records.⁸¹ Salomon Brothers itself paid \$290 million to settle the charges against it, including a charge of antitrust conspiracy brought by the DOJ.

315. Top personnel at the Auction Defendants have also been found to have engaged improper trading practices. For instance, the N.Y. Times reported that in 2009, Goldman Sachs placed prominent Treasuries trader Glenn Hadden on leave because he had engaged in improper

⁷⁹ See Treasury Dep’t, SEC & Bd. of Governors of the Federal Reserve Sys., *Joint Report on the Government Securities Market*, (Jan. 1992) <https://www.treasury.gov/resource-center/fin-mkts/Documents/gsr92rpt.pdf>.

⁸⁰ *Id.* at 5.

⁸¹ *Id.* at C-7.

trading activities, including trades in December 2008 that violated CME rules.⁸² Hadden, who was reportedly “known throughout his career for aggressive and profitable risk-taking,” left Goldman Sachs in 2011, and joined Morgan Stanley, which appointed Hadden as “global head of rates.”⁸³ In 2013, the CME fined and suspended Hadden, and imposed sanctions on Goldman Sachs, for the improper trading that Hadden had engaged in, in 2008.

316. *Finally*, the veneer of a “competitive” “auction” process allowed the Auction Defendants to continue their conspiracy for years without detection. As discussed above, the Treasury Department publishes the overall results of each auction, including the final yields, rates, or discounts. However, the actual bidding activity that led to those final figures—including all of the Auction Defendants’ actual bids—are still not available to the public. Similarly, the electronic chat-rooms and similar methods the Auction Defendants used to communicate customer information and coordinate their bidding strategies were also kept strictly private.

VI. PLAINTIFFS AND MEMBERS OF THE AUCTION CLASS WERE HARMED

317. As discussed above, the Auction Defendants used their inside knowledge and coordinated bidding strategies to bid lower prices/higher yields in low demand auctions and higher prices/lower yields in high demand auctions.

318. *In low demand auctions*, this resulted in the auction price being set lower than it otherwise would have been, to the detriment of the U.S. Treasury. However, the Auction Defendants capitalized on their collusive trading strategies leading up to the auction, causing harm to members of the Auction Class. For instance, in both the when-issued and secondary markets,

⁸² Susan Craig, *Former Goldman Sachs Partner Fined for Unauthorized Trades*, N.Y. Times (May 31, 2013) <https://dealbook.nytimes.com/2013/05/31/cme-group-sanctions-goldman-sachs-and-top-wall-street-trader/>.

⁸³ *Id.*

both during the Auction Class Period and after, prices in the hour leading up to the auction trended downwards. During the Auction Class Period, this trend was more steep. This not only shows a difference before and after the announcement of the governmental investigations, but also shows that the Auction Defendants' wrongdoing caused harm even outside of the auction itself through coordinated dumping in advance of a known cold auction, resulting in artificially low when-issued and secondary market prices.

319. Similarly, individuals taking long positions in when-issued securities were harmed because they were receiving an undervalued security by virtue of the Auction Defendants' collusive price suppression.

320. *In high demand auctions*, the conspiracy resulted in all of the auction participants paying a too-high price for the allocated Treasuries. In addition, the conspiracy reduced the supply of Treasuries available at the auction to non-conspirators. Those who wished to obtain the Treasuries—including but not limited to those who were directly “crowded out”—were forced to purchase in the secondary market, making prices there artificially high too.

321. Also like the studies above for low demand auctions, the data also shows price effects before the auction on high demand days. An analysis of when-issued and secondary market prices find them, both during the Auction Class Period and after, trending downwards in the hour leading up to the auction. However, during the Auction Class Period, this trend was less steep on high demand auctions. This not only shows a difference before and after the announcement of the governmental investigations, but also shows that the Auction Defendants' wrongdoing caused harm even outside of the auction itself. In high demand auctions, rather than dumping ahead of a cold auction, the Auction Defendants were coordinating to buy up Treasuries ahead of a known hot auction, resulting in artificially high secondary and when-issued prices.

322. In both high and low demand auctions, these effects were all magnified by the eventual announcement of artificial auction prices. Further, given the tight linkage between the Treasury auction, spot prices, futures prices, and options prices, the Auction Defendants' conduct also impacted the prices of related instruments, including Treasury futures and options.

VII. DEFENDANTS' CONDUCT IS A PER SE VIOLATION OF THE ANTITRUST LAWS

323. The Auction Defendants' conduct constitutes a *per se* violation of the antitrust laws because of its clear and obvious risk of inflicting anticompetitive impact and economic injury. The Auction Defendants operated as a secretive cartel and engaged in a price-fixing scheme that reduced the free and unfettered competition the Sherman Act was designed to promote. Their scheme to fix Treasury auctions at artificial levels directly impacted the market for Treasuries (a market in which the Auction Defendants participate). To the extent certain types of Treasuries may be considered distinct segments of the market, the Auction Defendants' scheme directly impacted those segments as well.

324. The Auction Defendants are considered to be, and hold themselves out as, horizontal competitors (as buyers, sellers, and brokers) in the market for Treasuries. As such, they are expected to compete against each other when submitting bids for Treasuries and trading either their own proprietary books or the assets and investments of their clients. The integrity of the auctions depends on the Auction Defendants competing in the secondary market and in the auction itself. Instead of competing, however, the Auction Defendants and their co-conspirators agreed to restrain trade in order to pursue collective goals and to manipulate the market by collusion and coordination. This collusive price fixing was inimical to competition and restrained trade in the affected markets.

325. Treasury auctions were supposed to be—and were understood by market participants as being—a reliable process to establish the prices for Treasuries. The auctions were supposed to reflect actual market conditions, as reflected by the actual bids of the primary dealers themselves and bids submitted on behalf of their clients. But the Auction Defendants—with the combined power to manipulate the results of those auctions—repeatedly colluded to manipulate the price of Treasuries. Trade was accordingly restrained and competition decreased in the market for Treasuries.

326. For the reasons set forth above, the Auction Defendants’ conduct extended beyond the mere sharing of information. Even Defendants’ information-sharing, however, has all the red flags indicative of a naked restraint of competition that can be condemned without further inquiry.

327. These competitors shared information with the anticompetitive purpose and effect of deriving artificially high profits at the expense of other, less-informed market participants, including by way of allowing the select few participants to have an unfair advantage in a bidding process. Sharing information surrounding a bidding process is an indicia of a naked restraint.

328. The information-sharing was done privately, without formal controls, including directly through horizontal competitors in a way designed to avoid detection. Such sharing of information by horizontal competitors is another indicia of a naked restraint.

329. The type of information shared was current, specific pricing and customer flow information. The sharing of such information—as opposed to stale information about the market generally—is another indicia of a naked restraint. It was also conduct against self-interest, and as such is a recognized plus factor under established Second Circuit law.

330. Alternatively, if the Auction Defendants’ actions are not condemned per se, they are anticompetitive under a quick look or a full-blown rule of reason analysis. The relevant market

here is the market for U.S. Treasuries and related instruments, including U.S. Treasury when-issued securities, futures, and options. These related financial products are all derived from the underlying U.S. Treasury bonds, for which there are no good substitutes, on either the supply or demand side. Regulators and industry practice groups—including the Auction Defendants—recognize that trading in Treasuries is a separate market. To the extent there are unique segments of the Treasuries market, Defendants’ anticompetitive behavior was designed to, and did in fact, impact them as well. The relevant geographic market is the United States, but the Auction Defendants also dominate more broadly defined geographic markets as well, including the global market.

331. The Auction Defendants had sufficient power to influence the relevant market, particularly at key times such as in and around the auction process where their combined volume of bidding could easily influence the auction results. Indeed, that they are *required* to bid for a certain minimum level of Treasuries confirms their importance to the auction process. As discussed in Part I Section I.E above, the Auction Defendants are among the world’s largest financial institutions and are the dominant primary dealers. And the fact that data show signs of artificiality in and around the auction itself demonstrates the ability to make prices artificial.

332. The anticompetitive effects of the Auction Defendants’ conspiracy outweigh any potential procompetitive benefits that the Auction Defendants can be expected to identify. The purpose and effect of the conspiracy was to allow the Auction Defendants to enjoy artificially high profits, at the expense of the U.S. Treasury and other market participants. Every extra dollar they earned was at the expense of someone else. In high-demand auctions, the Auction Defendants’ behavior was anticompetitive because, among other things, it allowed them collectively to jump in line to secure Treasuries they could resell to skim profits they would not have been able to

otherwise secure in a fair auction. In low-demand auctions, the Auction Defendants' behavior was anticompetitive because, among other things, it allowed them to secure the amount of U.S. Treasuries they desired at a price lower than what would have occurred in a fair auction not tainted with their illegal coordination and information sharing.

333. That the Auction Defendants shared sensitive and valuable customer "flow" information, pricing information, and other information ahead of the auction confirms their purpose was to profit by such coordination, and thus to harm competition by tilting the market towards this insider's club. The Auction Defendants would not have engaged in such information sharing without an expectation of reciprocity. The act of sharing information was thus not only an act against self-interest, but also confirms the agreement was anticompetitive.

334. There is no procompetitive justification for the sharing of confidential and competitive information in advance of an auction. There is no procompetitive justification in allowing large auction participants who would otherwise be competitors both inside and outside the auction, to skim profits off the marketplace, to the detriment of other market participants including Defendants' own counterparties. To the extent the Auction Defendants identify any procompetitive benefits, they could have been achieved through less restrictive means, and they are outweighed by the anticompetitive harm of the Auction Defendants' conspiracy.

**PART TWO: THE BOYCOTT AND PLATFORM DEFENDANTS'
CONSPIRACY TO ENGAGE IN GROUP BOYCOTTS**

I. OVERVIEW OF THE BOYCOTT CONSPIRACY

335. A group of dealers—Boycott Defendants Goldman Sachs, JP Morgan, Barclays, Citi, Bank of America, Morgan Stanley, and Credit Suisse—colluded to limit competition in the secondary market for Treasuries. Specifically, as described below, these Boycott Defendants

conspired to boycott electronic trading platforms to prevent any new or existing platform from offering anonymous, all-to-all trading in Treasuries.

336. The Boycott Defendants are seven of the primary dealers most active in the secondary Treasury market. For decades now, these dealers joined forces to prevent any dealer-to-dealer (“D2D”) electronic trading platform from permitting buy-side investors to trade on those platforms.

337. The dealers fear all-to-all trading that would permit investors to buy Treasuries from sources other than the Defendants, including from other investors, at lower prices. When the first anonymous, all-to-all platform (then known as eSpeed) began operating in the D2D segment in 1999,⁸⁴ the Boycott Defendants responded by forming a consortium to launch a competitive platform, called BrokerTec, which they would jointly own and control. To cement their control, they signed anticompetitive agreements that obligated the Boycott Defendants to trade Treasuries on BrokerTec instead of eSpeed, upon pain of financial penalties.

338. It took the intervention of the DOJ’s Antitrust Division to stop that practice. And this intervention also lent urgency to negotiations by the Boycott Defendants to sell BrokerTec. But the Boycott Defendants’ economic incentives remained the same, and their collusive conduct did not stop. It just went underground.

339. Since the sale of BrokerTec in 2003, when it has appeared that either BrokerTec or eSpeed might be planning to allow buy-side participation, the Boycott Defendants have responded with group boycotts and economic coercion, threatening collectively to “pull liquidity” from the offending platform—that is, to transfer to a competing platform a volume of liquidity and fees

⁸⁴ For convenience the platform formerly called eSpeed (now known as NASDAQ Fixed Income) is referenced as “eSpeed” herein.

sufficient to inflict economic harm on the targeted platform. As just one recent example, in 2013, the Boycott Defendants pulled liquidity from eSpeed *en masse*, after NASDAQ purchased eSpeed and indicated that NASDAQ might turn eSpeed into an all-to-all platform, creating a “NASDAQ for Treasuries.” As a result, eSpeed’s market share dropped from approximately 45% to approximately 30% by the end of 2015, and has fallen even further since then. Notably, eSpeed buckled to this pressure and refused to let various buy-side entities join the platform – including PIMCO, Blair Franklin (a Toronto investment bank), the Canadian Pension Plan Investment Board, and the Ontario Teachers’ Pension Fund.

340. That same event so alarmed the Boycott Defendants that they agreed in mid-2014 to launch a D2D electronic platform for trading in on-the-run Treasuries called Dealerweb. Dealerweb is a subsidiary of Tradeweb Markets, a company that the Boycott Defendants control and partially own. Dealerweb has no leading technology and is, in fact, an unsuccessful platform. It has negligible market share (approximately 2%) and makes no profits in its market. Instead of making money for its owners, Instead, Dealerweb’s *raison d’être* is to hang like a Sword of Damocles over BrokerTec and eSpeed. Those platforms know that if they take any steps to displease the dealers (like inviting buy-side investors onto their platforms), the Boycott Defendants can easily and quickly move their liquidity to Dealerweb. Absent the Boycott Defendants’ threat to remove liquidity, BrokerTec and eSpeed would include investors on their platforms to maximize trading fees.

341. Since the original filing of this Complaint in 2017, another platform — OpenDoor — attempted to bring economic efficiency to the Treasuries market via all-to-all trading. Founded by a former head of Morgan Stanley and Deutsche Bank’s Treasuries desks, OpenDoor eventually

had over seventy buy-side firms and numerous dealers trading on the platform.⁸⁵ OpenDoor was integrated into, and supported by, State Street and Bloomberg.⁸⁶ Some of the largest asset managers were on board as well as some second-tier dealers like Scotia Bank and Société Générale.⁸⁷ In January 2021, shortly after expanding its all-to-all platform to the Boycott Defendant dominated “on-the-run” Treasury marketplace, OpenDoor ceased operations.⁸⁸

342. In February 2021, the Boycott Defendants further consolidated their control of the U.S. Treasuries trading market by having Tradeweb purchase NASDAQ’s fixed income trading program, formerly known as eSpeed, for \$190 million.

343. The Boycott Defendants want collectively to preserve the existing market structure by preventing “disintermediation”—i.e., being eliminated as the middleman. Under the existing bifurcated structure, buy-side investors are forced to trade with dealers in the D2C segment of the market. In that segment, investors trade with dealers, even when trading electronically, using an archaic RFQ protocol. That protocol forces investors, as a condition of executing a trade, to reveal their identities, the specific Treasury sought, the direction of their trade (buy or sell), and the quantity they wish to trade.

344. Disintermediation would mean the end of the Boycott Defendants’ ability to exploit this information for their own financial gain, at the expense of their clients. So valuable is this

⁸⁵ OpenDoor, *OpenDoor Introduces Continuous Order Book for Illiquid U.S. Treasuries*, Press Release (Jan 23, 2020) <https://www.opendoorllc.com/opendoors-introduces-continuous-order-book-for-illiquid-us-treasuries/>.

⁸⁶ *Id.*

⁸⁷ OpenDoor, *OpenDoor Re-Boots U.S. Treasury Market with Dedicated All-to-All Trading Platform*, Press Release (Apr. 25, 2017) <https://www.opendoorllc.com/2017425opendoor-re-boots-us-treasury-market-with-dedicated-all-to-all-trading-platform/>.

⁸⁸ Dan Barnes, *OpenDoor closes for business*, The Desk (Jan. 13, 2021) <https://www.fi-desk.com/opendoor-closes-for-business/>.

information that it is not uncommon for dealers in the D2C segment to “bid to miss”—to submit a bid knowing that it is not likely to win the trade, just to obtain the information.

345. The consequence of the boycotts has been to halt what would otherwise be the natural progression towards an anonymous, all-to-all trading venue. Such a venue would be similar to those operating in the equities, Treasury futures markets, and dozens of other financial markets. It would lower prices and execution costs for investors. And it would eliminate the dealers’ ability to misuse valuable client information. As one leading institutional investor has put it, the dealers are “privileged” and “intransigent” intermediaries who have been successful at “preserv[ing] their competitive moat around what has been a very lucrative business.”⁸⁹

II. THE SECONDARY MARKET FOR TREASURIES

A. The Types of Treasuries, the Participants, and the Way Dealers Profit

346. The secondary Treasury market includes what are known as “on-the-run” and “off-the-run” Treasuries. On-the-run Treasuries are the most recently issued Treasuries of a particular maturity. Off-the-run Treasuries are securities issued before the most recent issue of that maturity and remain outstanding.

347. On-the-run Treasury trades currently account for most of the trading in the secondary Treasury market—hundreds of billions of dollars’ worth of Treasuries daily. They also serve as a benchmark for other securities.

348. Because the default risk for Treasuries is effectively zero and the market is so deep, a wide variety of investors buy and sell Treasuries. These include, among others, asset managers, corporations, pension funds, hedge funds, endowments, central banks, and individuals. These

⁸⁹ Ken Griffin, *Overlooking the Other Sources of Liquidity*, Wall Street Journal (July 26, 2015) <https://www.wsj.com/articles/overlooking-the-other-sources-of-liquidity-1437950015>.

investors are the primary dealers' traditional customers, and are referred to as the "buy side," "customers," "clients," or "investors."

349. Primary dealers, like the Boycott Defendants, are the dominant component of the "sell side" of the secondary Treasury market. Those dealers are the *de facto* greatest single source of continuous liquidity for the buy side. Investors are reliant on primary dealers to supply on- and off-the-run Treasuries.

350. As liquidity providers, dealers provide price quotes to the buy side upon request. Typically, a dealer will provide a "bid" price at which it will purchase a specific Treasury security or an "offer" price at which it will sell the security. Dealers generally keep their offer prices higher than their bid prices, capturing the "spread" as their profit. This is called the bid-offer spread. Because they control the buy-side customer order flow, dealers are able in the aggregate to capture the spread, enabling them to profit. The wider the spread, the greater the profit that a dealer can extract from the buy side. Conversely, more compressed bid-offer spreads generally benefit buy-side investors.

B. Bifurcation in the Secondary Treasury Market

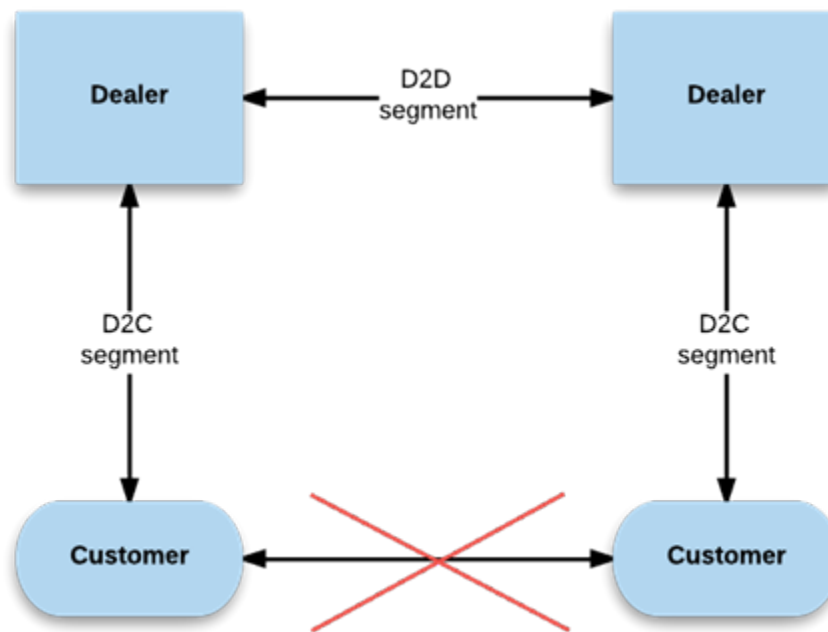
351. Jonah Crane, former Deputy Assistant Secretary of the U.S. Treasury Department, testified before the House Financial Services Committee's Subcommittee on Capital Markets, Securities, and Investment. In that testimony, he stated that the "single most important transformation in financial market structure over the past 20-plus years" has been the "shift, in virtually every asset class, towards electronic trading."⁹⁰ Crane also identified as a "notable" and

⁹⁰ Statement of Jonah Crane Before H. Financial Services Committee, *supra* note 12.

puzzling characteristic of the secondary Treasury market, in particular, “the degree to which [that market] remains bifurcated between the client market and the inter-dealer market.”⁹¹

352. The bifurcation in the secondary Treasury market is visually depicted in the graphic below. As indicated, dealers trade with each other and other sell-side participants in the D2D segment, while buy-side customers trade with dealers in the D2C segment. There is no platform or central marketplace where clients can trade with each other.

Secondary Treasury Market Structure



353. Since 2000, as voice trading has evolved into electronic trading, the Boycott Defendants have maintained this bifurcation through use of different trading protocols. Dealers trade with each other and other sell-side participants (increasingly, principal trading firms (“PTFs”)),⁹² on modern, efficient trading platforms that utilize a central limit order book

⁹¹ *Id.*

⁹² PTFs, which are also often called “high frequency traders,” or “HFTs,” are discussed further *infra* at ¶¶ 402-04, 409-10.

(“CLOB”) protocol. There are three such platforms on which nearly all trades in the D2D segment are carried out: BrokerTec, eSpeed, and Dealerweb.

354. A CLOB is the essence of state-of-the-art, anonymous, efficient electronic trading. On a CLOB, every participant sees the best available prices and can execute at those prices. The ability to participate anonymously via the CLOB protocol prevents counterparties from misusing the other party’s trading information or from engaging in price discrimination. The CLOB also provides post-trade price discovery, because the terms of completed trades are reported immediately.⁹³

355. By contrast, trading in the D2C segment is limited to the RFQ protocol. An RFQ replicates the same inefficient trading protocol that existed in the over-the-counter (“OTC”) market, when all trading was by telephone. Under that protocol, even to obtain a quote, a buy-side firm must reveal such basic information as its identity, the specific Treasury sought, the direction in which it wishes to trade (buy or sell), and the quantity sought. In addition, dealers retain a “timing option”; they can walk away from a quote if the buy-side firm does not accept it within a time limit set by the dealer. There is also no post-trade price discovery, because terms of completed trades are not published on a real-time basis.

356. There are two widely used electronic trading platforms in the D2C segment: dealer-owned Tradeweb and Bloomberg, LP (“Bloomberg”). Both were developed in the late 1990s.

357. About half of the daily volume of trades in on-the-run Treasuries are in the D2D segment, and half in the D2C segment. The Boycott Defendants—most notably JP Morgan, Goldman Sachs, Citi, and Barclays—have been among those consistently executing the highest

⁹³ While referred to as “centralized” limit order books, the CLOBs are not centralized to the extent of being a single electronic market, as in equities. As just described, several platforms exist in the D2D segment. Each has its own CLOB.

average daily volume of trades in the secondary Treasury market during the Boycott Class Period. The other Boycott Defendants have been consistently among the top eight dealers executing the highest daily volume of trades in that market for the same period.

C. The Contrast Between the CLOB And RFQ Protocols

358. The exclusion of investors from the D2D platforms leaves them with a far inferior, and outdated, method of trading. Neither Tradeweb nor Bloomberg displays actionable quotes, and both condition the receipt of quotes on pre-trade name “give up.” Of equal, if not greater, concern is that the RFQ protocol enables the Boycott Defendants to exploit for their own gain the information investors are forced to disclose on these platforms.

359. By contrast, under the sophisticated CLOB protocol to which dealers and other sell-side entities have access through BrokerTec and eSpeed, the best outstanding bids and offers are visible to all. Those bids and offers are pre-trade transparent, meaning that any participant can “hit” a bid or “lift” an offer. Below is a simplified illustration of a CLOB screen, showing the bids, offers, and corresponding volumes for a hypothetical security.

Bid Volume	Price	Offer Volume
	\$100.03	20
	\$100.02	30
	\$100.01	40
	\$100.00	50
50	\$99.31	
40	\$99.30	
30	\$99.29	
20	\$99.28	

360. Viewing this screen, a market participant would know that the best available bid in this hypothetical security was \$99.31, and the best available offer was \$100.00. The participant also would know how many securities were being bid at \$99.31 and how many were being offered

at \$100.00 (in each case, 50 securities). The participant would also be able to see the price and quantity for the second-best, third-best, and fourth-best bids and offers, and so on. Thus, a market participant would have immediate knowledge not only of market prices, but also of market depth (the “stack of liquidity”).

361. More basically, a CLOB participant is able to trade *without* first disclosing its identity or the direction or size of its trade. As Defendant Tradeweb Markets has explained, this anonymity protects participants by, among other things, “reduc[ing] the costs associated with the market knowing a particular participant is looking to buy or sell a certain quantity of [Treasuries].”⁹⁴ Anonymity is one of the most significant benefits enjoyed by participants on the D2D electronic platforms.

362. To execute a trade in the D2D segment, a buyer electronically accepts a displayed bid or offer. The investor can also post its own bid or offer in the order book. The platform matches bids and offers at the best available price. The counterparty has no opportunity to delay the trade or change its bid or offer. The prices and sizes at which trades are executed are disclosed immediately after the trade is complete (though the identities of the traders remain anonymous). This post-trade transparency allows investors to better understand and forecast price movements.

363. By contrast, Tradeweb and Bloomberg do not use a CLOB protocol. They instead force investors to use the RFQ protocol.⁹⁵ To execute a trade on Tradeweb or Bloomberg, the investor must first make a request, which requires the customer to disclose its identity, the specific

⁹⁴ Lee Olesky, CEO of Tradeweb, Letter to the Dep’t of Treasury, *Comments on the Evolution of the Treasury Market Structure* (Apr. 22, 2016) <https://www.regulations.gov/document?D=TREAS-DO-2015-0013-0035>.

⁹⁵ While Tradeweb and Bloomberg continuously “stream” quotes, these quotes function essentially as advertisements. Even purportedly “firm” streamed quotes are ones that the dealer can refuse to honor, if the investor makes an inquiry.

Treasury the investor seeks to trade, the trade's direction (buy or sell), and the proposed quantity. Only then can an investor receive an executable quote. These platforms also limit the number of dealers from which an investor may solicit quotes, to not more than five. Dealers are also permitted to exercise a "timing option" which enables them to pull a quote if the investor does not respond within a certain period of time. When that happens, the investor is forced to start over, at additional time and expense, and may pay a higher price.

364. These restrictions mean that dealers can pick and choose the counterparties with whom they will deal. They also mean that the customer may not get the best price because the dealer with the best quote may not have been among the five queried. The RFQ protocol also favors the largest dealers, who are almost always among the five asked to quote.

365. The RFQ protocol thus largely preserves for dealers the same advantages, including information advantages, they possessed before electronic trading platforms were available. Buy-side customers are forced to "pay the spread," or buy and sell at prices quoted by the dealers, rather than the best prices available.⁹⁶

366. Even worse, dealers can and do use knowledge gained from customers to trade against the interests of those customers. A dealer can "front-run" a client's trades or otherwise position itself to profit, by knowing the direction the client is trading and the size of its trade. To accomplish this, a dealer simply trades in the D2D segment to buy or sell Treasuries at a price that

⁹⁶ Because of the differences in functionality, the technology necessary to run an RFQ is also far less sophisticated than that used by BrokerTec and eSpeed. Bloomberg, for example, has capitalized on the near ubiquitous presence of its hundreds of thousands of terminals at the dealers' workplaces to enter and operate an RFQ in the D2C segment. It is not, however, an interdealer-broker and has not developed the technology that is characteristic of CLOBs in the D2D segment. Nor has it ever been Bloomberg's business plan to operate an all-to-all platform, which is entirely logical given its dependence on revenue from dealers.

locks in the dealer's profit, before executing the client's trade. By moving the market ahead of the clients' trade, the dealer makes a certain profit at the client's expense.

367. The value of the information dealers gain from RFQs is demonstrated by the phenomenon of "bidding to miss." In this scenario, dealers provide quotes to clients not for purposes of winning the bid, but just to gain access to client information. This information can be used for many purposes, including to front-run the client, to predict future price movements (in Treasuries or other instruments), or to hedge the dealer's overall position, whether or not the dealer wins the trade. The dealer can disclose information gained from one client to another, as a way of touting its knowledge of the market. And so long as the dealer quotes reasonably close to the best price, the client is likely to include the dealer in subsequent requests, allowing the dealer to misuse the client's information on an ongoing basis.

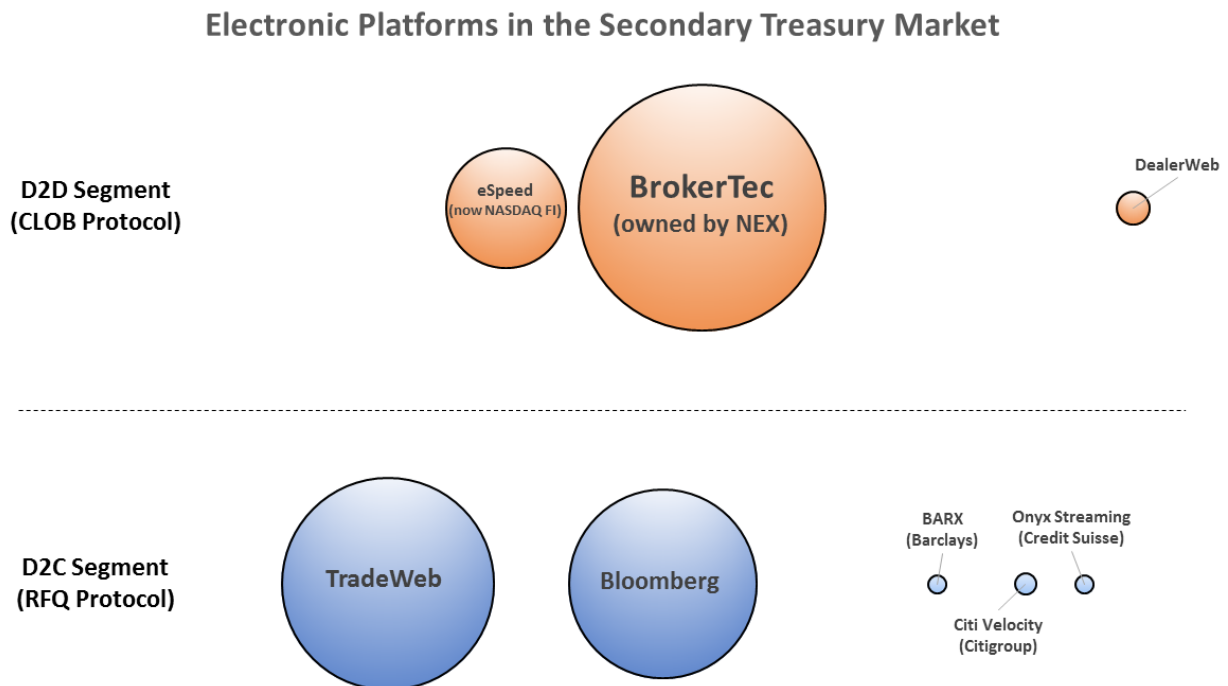
368. A small percentage of trades in the D2C segment occur on "single-dealer platforms." These are platforms owned and controlled by a single dealer, and on which that dealer is the single liquidity provider. Boycott Defendants Citi, Credit Suisse, and Barclays are among the Boycott Defendants which operate such platforms. Dealers who operate single-dealer platforms also participate in Tradeweb and Bloomberg.

369. At the time of filing the original Consolidated Complaint, BrokerTec had approximately 75% of D2D trading volume; eSpeed had approximately 18%; and Dealerweb had approximately 2%.⁹⁷ Although the electronic trading platforms rarely disclose trading volume by

⁹⁷ Small IDBs account for the rest of the volume.

dealer, in 2015, Boycott Defendants JP Morgan and Barclays were identified by the online publication Risk.Net as the two primary dealers with the highest trading volume on BrokerTec.⁹⁸

370. The electronic platforms in the D2D and D2C segments can be visually depicted as follows:



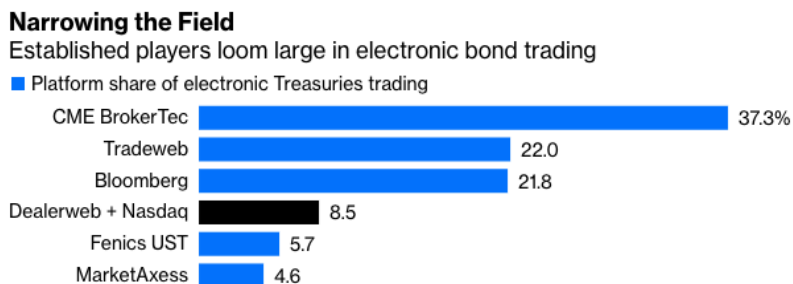
371. In short, the secondary market for Treasuries is bifurcated between, on the one hand, the anonymous CLOBs used by the Boycott Defendants on BrokerTec, eSpeed, and Dealerweb, and, on the other, the antiquated, name-disclosed RFQ protocols used by investors on Tradeweb, Bloomberg, and the single-dealer platforms. This bifurcation prevents customers from

⁹⁸ Robert Mackenzie Smith, *Client List Reveals HFT Dominance on BrokerTec*, Risk.net (Sept. 23, 2015) <https://www.risk.net/derivatives/interest-rate-derivatives/2426923/client-list-reveals-hft-dominance-brokertec>.

receiving the pre-trade price transparency and anonymous execution that exists in the D2D segment and has permitted the Boycott Defendants to exploit and monetize the information they receive in the D2C segment from the buy side.

III. DEFYING ECONOMIC THEORY AND PUBLIC POLICY, THE TREASURY MARKET REMAINS BIFURCATED TO THIS DAY

372. Due to the recent volatility in the Treasury market, a large number of policy makers and analysts contend that major structural changes are necessary to guarantee that the market can function without the U.S. Federal Reserve needing to intervene. Despite all-to-all Treasuries trading currently being discussed as a potential major solution to the burdens that the Treasuries market faces⁹⁹, no platform has yet succeeded in offering this basic service which exists profitably in numerous other financial markets. Instead, there are a few established players in the electronic Treasuries trading market that are either exclusively Dealer to Dealer or Dealer to Client – none are all-to-all. Established players by market share (based on notional volume traded in 2020) include:



⁹⁹ Liz McCormick, *The World's Biggest Bond Market Needs a Revamp, Why?*, Bloomberg (Apr. 1, 2021) <https://www.bloomberg.com/news/articles/2021-04-01/the-world-s-biggest-bond-market-needs-a-revamp-why-quicktake-kmz0rmsz>.

373. **BrokerTec** is a D2D platform. BrokerTec Direct is a D2C platform. BrokerTec migrated to CME Globex in February 2021. As discussed above and below, BrokerTec does not allow the buy-side onto its D2D platform.

374. **TradeWeb Markets: Tradeweb** offers only an all-to-all platform in the corporate bonds market – a much more complicated and less liquid market than the Treasuries market. TradeWeb’s DealerWeb Treasuries platform is strictly a D2D platform. TradeWeb acquired NASDAQ’s fixed-income electronic trading platform - formerly eSpeed - in February 2021, but eSpeed is D2D and will be integrated into DealerWeb. TradeWeb’s purchase of eSpeed also eliminates the danger, described below, of eSpeed allowing buy-side entities onto its platform. Tradeweb was, and remains, a D2C platform.¹⁰⁰

375. **Bloomberg:** Bloomberg is a major electronic Treasuries trading platform, but it is D2C only.

376. **FENICS:** USTreasuries (created by BGC, a leading global brokerage company) is a major player in electronic trading of Treasuries, but does not offer an all-to-all trading Treasuries market.

377. **MarketAxess / LiquidityEdge:** MarketAxess has a tool called Open Trading, which is an all-to-all platform for various fixed income products – but Treasuries is not included. In August 2019, MarketAxess entered the Treasury trading market after acquiring the LiquidityEdge platform (from State Street), a minor player in D2D Treasuries trading. Following that, in December 2020, MarketAxess “combin[ed] credit and rates trading capabilities into a

¹⁰⁰ In January 2021, Tradeweb “launched Multi-Client Net Spotting, a new tool that significantly enhances how credit market participants access the U.S. Treasury market to hedge their risk.” This tool, while dealing with electronic trading of Treasuries, is not an all-to-all Treasury trading platform.

single workstation, [giving] existing [] investor and dealer clients [] greater flexibility in trading across the fixed income universe and [more] efficient access to streaming, [and] click-to-trade liquidity for on- and off-the-run U.S. Treasuries.” Additional forthcoming enhancements to MarketAxess’s platform include “expanding the trading protocols available to customers by exposing RFQ inquiries alongside click-to-trade streams.” Although MarketAxess’s acquisition of LiquidityEdge and planned expansions in the Treasuries space deal with the electronic trading of Treasuries, MarketAxess does not offer an all-to-all Treasuries trading platform.

378. While, no platform currently offers all-to-all trading in Treasuries, numerous platforms do that offer all-to-all trading in a host of other financial products. All or almost all of these products – ranging from mainstream products like equities to esoteric ones like biofuels futures, bitcoin, and hog futures – are traded at dramatically lower volumes than Treasuries and are similarly or even less fungible. There is no legitimate economic reason that Treasury Futures, corporate bonds, and carbon allowances should trade all-to-all while Treasuries are not.

Platform Name	Year Established	Products Traded	Volume
MarketAxess	2000	Corporate bonds; credit default swaps	\$16 billion average daily liquidity 25,000 average daily orders ¹⁰¹
Liquidnet	2001	Investment grade & high yield corporate bonds; emerging market sovereign	More than \$21B average daily liquidity ¹⁰²

¹⁰¹ <https://www.marketaxess.com/trade/open-trading>

¹⁰² <https://www.liquidnet.com/discover-liquidnet-fixed-income>

Platform Name	Year Established	Products Traded	Volume
MTS Bonds	2010	Corporate bonds (USD and non-USD denominated); emerging market corporate	Over 15,000 bonds priced daily ¹⁰³
Market Hub	2008	Investment grade & high yield corporate bonds; supra-nationals; asset-backed securities	
Bloomberg BBX	2015	European corporate bonds	
Trumid	2014	Corporate bonds	54,568 trades (March 2021) ¹⁰⁴
CME Globex (CBOT, COMEX, NYMEX)	1992	Futures and options on various commodities: Agriculture (corn, soybean, wheat, cattle, hog, milk, cheese, butter, rice, palm oil, oats, cotton, coffee, sugar, etc.) Energy (crude oil, natural gas, gasoline, ethanol, propane, coal, electricity, kerosene, jetfuel, freight, etc.) Equity indices (S&P 500, Bitcoin, Russell 1000, Nasdaq 100, Dow Jones Industrial, etc.) FX (major currency pairs, merging market currency pairs, cross-currency pairs)	15,400,814 futures, options, and forward contracts traded on April 27, 2021, of which: - 2,678,052 contracts traded for Agricultural products - 1,861,860 contracts traded for Energy products - 3,524,925 contracts traded for Equity products

¹⁰³ <https://www.mtsmarkets.com/products/about-mts-bondspro>

¹⁰⁴ Trumid Labs, *March 2021 Performance Report*.
https://www.trumid.com/files/reports/FVMP_March_2021_Perf_Report.pdf

Platform Name	Year Established	Products Traded	Volume
		Interest rates (US Treasury notes and bonds, Federal funds rate, SOFR, SOFR swaps, Eurodollar) Metals (aluminum, copper, zinc, gold, silver, platinum, palladium, iron ore, cobalt, coil steel, uranium)	- 572,405 contracts traded for FX products - 6,204,883 contracts traded for Interest Rate products - 558,689 contracts traded for Metal products ¹⁰⁵
New York Stock Exchange	1792	Equities	5,270,100,000 equities traded daily on April 27, 2021 ¹⁰⁶
NASDAQ	1971	Equities	1,481,417,561 equities traded on April 28, 2021 ¹⁰⁷
Intercontinental Exchange (ICE)	1997	Futures and options on various commodities: Agriculture (canola, cocoa, coffee, cotton, sugar, feed wheat, frozen orange juice) Credit (CDX credit futures) Digital assets (Bitcoin) Energy (coal, natural gas, liquified natural gas, natural gas liquids,	6,345,726 futures and options, contracts traded on April 28, 2021, of which: - 361,887 contracts traded in Agriculture and Metals products - 3,327,128 contracts traded

¹⁰⁵ <https://www.cmegroup.com/market-data/volume-open-interest/exchange-volume.html>

¹⁰⁶ <https://www.nyse.com/markets/us-equity-volumes>

¹⁰⁷ <http://www.nasdaqtrader.com>

Platform Name	Year Established	Products Traded	Volume
		<p>crude oil, electricity, biofuels, petrochemicals)</p> <p>Equity derivatives (FTSE, IFSG, IFUS, and MSCI indices)</p> <p>FX (major currency pairs, merging market currency pairs, cross-currency pairs)</p> <p>Freight (dry and wet freight)</p> <p>Interest rates (Euribor, gilt/sterling futures, Eurodollar, Swapnotes®, bund futures, sovereign government bonds,</p> <p>Metals (gold, silver, iron ore)</p> <p>Environmental (carbon allowance, state-specific renewable energy certificates)</p>	<p>in Energy products</p> <p>- 2,398,246 contracts traded in Interest rate products</p> <p>- 225,933 contracts traded in Equity derivative products</p> <p>- 32,532 contracts traded in FX and other products¹⁰⁸</p>
CBOE	1973	VIX options, VIX futures, S&P 500 options, Russell 2000 options, corporate bond futures, DJX index options, etc.	<p>36,051,130 in equities, options, and futures traded on April 28, 2021:</p> <p>- 34,699,357 in U.S. equities traded¹⁰⁹</p> <p>- 1,188,167 in equity options traded</p>

¹⁰⁸ <https://www.theice.com/marketdata/reports/176>.

¹⁰⁹ https://www.cboe.com/us/equities/market_statistics/

Platform Name	Year Established	Products Traded	Volume
			- 163,606 in futures contracts traded ¹¹⁰

IV. THE BOYCOTT AND PLATFORM DEFENDANTS BOYCOTT ELECTRONIC PLATFORMS TO PREVENT THE EMERGENCE OF ANONYMOUS, ALL-TO-ALL TRADING

379. Treasuries are standardized, fungible securities traded in extremely high volumes by a broad array of institutional and individual investors. Markets with these characteristics naturally tend to migrate to an anonymous, all-to-all structure.

380. For years, the buy side has been demanding anonymous, all-to-all trading, seeking the same transparency and price competition the Boycott Defendants have long enjoyed. For example, Rick Chan, a portfolio manager at PIMCO, the most prominent fixed income investment firm in the market, commented in an article Risk.net published in early 2016. That article reported that the “U.S. Treasury market is behind the curve” in developing an all-to-all trading venue and that “buy-side firms” were among those who “want to see all-to-all trading venues for US Treasuries take off.”¹¹¹ Chan elaborated that from PIMCO’s perspective: “We’re just looking for liquidity We have no preference as to who is on the other side of the trade.”¹¹²

381. Ken Griffin, the founder and CEO of Citadel LLC, another prominent global asset management firm, advocated at a Roundtable on Treasury Markets and Debt hosted by the

¹¹⁰ https://www.cboe.com/us/futures/market_statistics/daily/

¹¹¹ Robert Mackenzie Smith, *Start-Up UST Trading Venues Face Clearing Hurdles*, Risk.net (June 17, 2016) <https://www.risk.net/derivatives/2460460/start-ust-trading-venues-face-clearing-hurdles>.

¹¹² *Id.*

Treasury Department in late 2015, a “relentless[.]” drive for “nondiscriminatory access” to liquidity in the D2D segment.¹¹³ Griffin spoke approvingly of the emergence of a unified market in which, by the operation of economic forces, “end customers will interact more and more with today’s wholesale liquidity providers.”¹¹⁴ Griffin noted, however, that one should not “underestimate” the “motivations of the current incumbent players to maintain a closed system”—one in which “new entrants cannot compete for customer business.”¹¹⁵ He analogized the Treasury market to the credit default swap market in which, he noted, dealers recently paid approximately \$1.87 billion to settle lawsuits alleging “anticompetitive behavior.”¹¹⁶

382. Potential Treasury platform operators have also called for an anonymous, all-to-all market. Convergenx, a provider of global agency brokerage services, did so in a submission to the Treasury Department in early 2016, in response to that Department’s “Notice Seeking Public Comment on the Evolution of the U.S. Treasury Market Structure.”¹¹⁷ After describing a “properly functioning U.S. Treasury market” as a “national priority,” given the importance of Treasuries to the U.S. government and to markets around the world, Convergenx wrote:

We believe the U.S. Treasury market would benefit from moving to an “all-to-all” marketplace, where every participant can interact with each other. This will improve the overall functioning of the market as market

¹¹³ Ken Griffin, Founder and CEO, Citadel LLC, *Remarks at 2015 Roundtable on Treasury Markets and Debt Management* (Nov. 20, 2015) <https://www.treasury.gov/about/organizational-structure/offices/Documents/11.20.2015-Ken-Griffin-Treasury-Roundtable-Remarks.pdf>.

¹¹⁴ *Id.*

¹¹⁵ In an editorial in the *Wall Street Journal*, in July 2015, Griffin similarly called for “impartial access to all fixed-income markets” and decried the “big banks”—who “are successful at keeping markets closed for their own benefit and to the detriment of retail and institutional investors.” Griffin, *supra* note 89.

¹¹⁶ *Id.*

¹¹⁷ Convergenx was acquired earlier in 2017 by Cowen, Inc.

participants with disparate points of view on interest rates, macro risk and other factors can find the other side of the trade more efficiently.¹¹⁸

383. As detailed below, instead of supporting or permitting the development of an anonymous, all-to-all trading venue, the Boycott Defendants have pooled their outsized market power to maintain and enforce the existing, bifurcated market structure. They have done this through threats, intimidation, and collective boycotts. Among the methods the Boycott Defendants have employed to prevent BrokerTec and eSpeed from allowing the participation of institutional investors have been threats to transfer liquidity from the platform, to pull the transaction fees earned from trading Treasuries, and even to deprive the platform's parent company of fees earned from the trading of financial instruments other than Treasuries.

384. Faced with this intimidation, BrokerTec and eSpeed have repeatedly given in. New platforms that have tried to break into the Treasuries market using the all-to-all model have all failed.

A. The Boycott Defendants Engage in Group Boycotts in the Early Years of Electronic Trading to Enforce Bifurcation

1. The Boycott Defendants react to the success of eSpeed by forming BrokerTec, an explicitly anticompetitive dealer consortium

385. The Boycott Defendants' conspiracy to block competing trading platforms has taken many forms over the past two decades. The earliest example of Defendants taking joint action against an electronic platform was their response to the launch of eSpeed nearly twenty years ago.

¹¹⁸ Eric Noll, President and CEO of Convergenx, Letter to the Dep't of Treasury, *Notice Seeking Public Comment on the Evolution of the U.S. Treasury Market Structure* (Mar. 16, 2016) <https://www.treasurydirect.gov/instit/statreg/gsareg/RFICommentLetterConvergenx.pdf>.

386. The rise of electronic trading platforms in the D2D segment kicked off when Howard Lutnick, CEO of prominent bond-trading firm Cantor Fitzgerald, foresaw the advent of electronic trading and moved to capitalize on Cantor's dominance in the voice interdealer broker ("IDB") market. eSpeed began operations in March 1999, after Cantor Fitzgerald took the extraordinary step of forcing its own army of voice brokers to shift their business *en masse* to the eSpeed platform. Within the first nine months of eSpeed's launch, it captured nearly all of the electronic trading in the D2D segment.

387. These events alarmed the Boycott Defendants. They did not trust Howard Lutnick, who was an aggressive innovator. To guard against the risk that eSpeed would disintermediate the dealers, a group of primary dealers, led by Goldman Sachs, invested at least \$160 million to launch BrokerTec as a competing platform, in mid-2000. The following Boycott Defendants owned and controlled BrokerTec, together with one other primary dealer: Goldman Sachs, JP Morgan, Morgan Stanley, Merrill Lynch (later acquired by Bank of America), Credit Suisse, Lehman (whose Government securities division was later acquired by Barclays), and Salomon Smith Barney, Inc. (later acquired by Citi). Defendant Goldman Sachs installed Hal Hinkle, its senior fixed income executive, as the CEO of BrokerTec.

388. In late 2001, the Boycott Defendants entered into explicitly anticompetitive written agreements called the "Activity Incentive Plan ('AIP')" designed to move market share from eSpeed to BrokerTec. BrokerTec's Board, controlled by representatives of the Boycott Defendants, approved the AIP. In the AIP, each of the Boycott Defendants agreed to transfer a specific volume of trades to BrokerTec or pay a sizeable fine for failing to do so. The Boycott Defendants each agreed to move, in lockstep, an aggregate volume sufficient to ensure that BrokerTec's market share would equal or exceed that of eSpeed's.

389. In accordance with the AIP and their anticompetitive agreement, the Boycott Defendants then transferred liquidity from eSpeed to BrokerTec, doubling BrokerTec's total market share from 20% to 40% and devastating eSpeed. But BrokerTec attracted the attention of the DOJ's Antitrust Division, which suspected, according to the Wall Street Journal, that "[a] big reason for BrokerTec's . . . success [was] that the big Wall Street firms that own[ed] BrokerTec often encourage[d] their traders to use the company's bond trading system, rather than rivals such as eSpeed."¹¹⁹

390. The DOJ investigation hastened the sale of BrokerTec to ICAP, a large interdealer broker (later renamed NEX Group plc). DOJ approved the sale, but again BrokerTec's written agreements attracted scrutiny.¹²⁰ Revenue Commission Agreements ("RCAs") among ICAP, the dealer-owners, and BrokerTec obligated the dealer-owners to pre-pay tens of millions of dollars in BrokerTec commissions to ICAP, providing a strong incentive to dealers to bring their trades to BrokerTec instead of a competitor, even after the sale of BrokerTec. The RCAs also contained a non-compete provision that prevented any group of three or more of BrokerTec's dealer-owners from taking an equity interest in a new electronic trading platform that allowed anonymous Treasury trading.

¹¹⁹ Steven Vames, *London Broker ICAP Will Buy BrokerTec in \$240 Million Deal*, Wall Street Journal (Aug. 5, 2002) <https://www.wsj.com/articles/SB1028585666731314960>.

¹²⁰ DOJ, Press Release, *ICAP Plc and BrokerTec LLC Restructure Deal After Justice Department Raises Antitrust Objections* (Apr. 22, 2003) https://www.justice.gov/archive/atr/public/press_releases/2003/200960.htm.

391. DOJ required, as a condition of BrokerTec's sale, that the RCAs be "restructured" to exempt Treasuries from their terms.¹²¹ Only after these revisions were made, in mid-2003, was the sale of BrokerTec to ICAP completed.

392. The Boycott Defendants were successful in collectively transferring trading volumes sufficient to make BrokerTec a market leader. ICAP announced when it acquired BrokerTec that the acquisition "transformed ICAP overnight from a modest electronic brokering operation of fixed-income securities into the clear global leader."¹²²

2. The Boycott Defendants threaten BrokerTec to prevent it from permitting the buy side on the platform via MarketAxess

393. While it apparently allowed them to avoid a DOJ prosecution, the sale of BrokerTec did nothing to change the Boycott Defendants' desire to preserve the bifurcated market structure that served them so well and prevent any electronic platform from offering anonymous, all-to-all trading in the Treasury market.

394. It also did not stop the Boycott Defendants from banding together to put down perceived threats that someone might offer such a venue. In 2004, shortly after BrokerTec was sold to ICAP, the Boycott Defendants again colluded, this time to coerce the company they had just sold, BrokerTec, to back out of a joint venture with a trading platform that proposed to make the CLOB protocol available to investors.

395. Like BrokerTec, MarketAxess was a company founded by a dealer consortium. It provided electronic trading services for a range of financial products, including corporate bonds.

¹²¹ *Id.*

¹²² Institutional Investor, *Power Player* (July 12, 2014) <https://www.institutionalinvestor.com/article/b15136gpx3v5fn/power-player>.

396. In March 2004, MarketAxess and ICAP forged a strategic alliance to offer trading in Treasuries on BrokerTec to MarketAxess' buy-side clients. This plan would have given the buy side access for the first time to live, executable prices for Treasuries via anonymous trading on a CLOB. As one commentator noted: "[F]or the first time, institutional investors will be able to electronically buy and sell on-the-run U.S. Treasury Securities as easily as they trade U.S. Equities at the same price as the U.S. Treasury Primary Dealers."¹²³

397. The alliance made economic sense for the partners. BrokerTec gained access to a new buy-side client base from MarketAxess, and MarketAxess and its clients gained access to the BrokerTec platform and fairer, more competitive pricing for Treasuries.

398. Observers initially speculated that the MarketAxess/BrokerTec alliance reflected a change of heart among dealers because one of the banks assisting the alliance was JP Morgan. They were wrong. The Boycott Defendants soon unified, as they had against eSpeed, to force the buy side to continue to trade Treasuries through an RFQ protocol.

399. The alliance launched in late 2004, at around the time that MarketAxess went public. Merrill Lynch (which was later acquired by Bank of America), among other Boycott Defendants, spoke directly with BrokerTec to demand that BrokerTec discontinue the partnership. The threat was, if you don't stop using MarketAxess, we will pull liquidity. BrokerTec knew the force of the threat. Its very success was due to the Boycott Defendants' blatant and successful boycotting of eSpeed. BrokerTec also knew that by collectively shifting their Treasury trading back to eSpeed, the Boycott Defendants could similarly starve BrokerTec of liquidity and fees. BrokerTec also got pressure from the other Boycott Defendants.

¹²³ Larry Tabb, *A New Market Structure for Bonds?*, InformationWeek (Apr. 15, 2004) <https://wallstreetandtech.com/a-new-market-structure-for-bonds-/d/d-id/1256459d41d.html>.

400. BrokerTec soon gave in to the Boycott Defendants' threat. It informed MarketAxess, approximately nine months after MarketAxess' launch, that BrokerTec would not renew the initial one-year contract. MarketAxess attempted to engage other interdealer brokers to keep the all-to-all concept alive, but was unsuccessful. Since the alliance ended, MarketAxess has focused on providing trading service for corporate bonds and other instruments, but not Treasuries.

401. Throughout the period 2000 through at least 2007 (and perhaps even through 2010), Goldman Sachs, Credit Suisse First Boston, and Merrill Lynch regularly threatened BrokerTec when they were unhappy with BrokerTec's actions. For instance, after some lousy discussions with Merrill Lynch, Merrill Lynch's trading disappeared because Merrill Lynch would have taken all its trading to eSpeed. Since pricing was identical between eSpeed and BrokerTec, if a primary dealer did not like BrokerTec's behavior, it could (and did) shift its trading to eSpeed.

3. The Boycott Defendants punish eSpeed for accepting the first PTFs and for introducing Price Improvement

402. Another episode in the early 2000s demonstrates the willingness of the Boycott Defendants to act swiftly and in lockstep to discipline market actors who threaten their dominance.

403. In 2003, eSpeed for the first time permitted two large PTFs—the Global Electronic Trading Company (known as “GETCO”) and Citadel—to trade on its platform.¹²⁴ At this early juncture, the dealers' electronic trading capabilities lagged behind the algorithmic trading of the PTFs and the dealers viewed GETCO and Citadel as a threat.

404. After eSpeed let GETCO and Citadel join the platform, the Boycott Defendants voiced their displeasure to eSpeed's owner, Cantor Fitzgerald. The strongest opposition came from Boycott Defendants Goldman Sachs, Morgan Stanley, and Citi. Cantor Fitzgerald met with

¹²⁴ At the time Citadel operated under the name Citadel Investment Group.

each dealer, hearing the same complaint from each: that the interdealer market was “broken” and that eSpeed’s decision had left the dealers “unable to compete.”¹²⁵

405. At around the same time, eSpeed further angered dealers by introducing a feature named “Price Improvement.” Price Improvement gave users the ability to improve their bids and offers, and thus skip to the front of the queue displayed on the CLOB, by paying higher fees. In the view of the dealers, Price Improvement resulted in dealers paying more, without winning more bids, because it created an endless cycle of each dealer paying more to outdo other dealers.

406. The Boycott Defendants punished eSpeed by collectively moving trades away from the platform. Together, the Boycott Defendants swiftly moved a large chunk of their liquidity from eSpeed to BrokerTec. eSpeed removed the Price Improvement feature in January 2005, but this did not stop the Boycott Defendants from reducing eSpeed’s interdealer market share, which had been as high as 70%, to under 40% by early 2005.

407. eSpeed has never since recovered the market share it lost after angering the Boycott Defendants.

B. The Boycott Defendants Collude in the Boycott Class Period to Block Anonymous, All-To-All Trading

408. Since the first years in which BrokerTec and eSpeed operated, some characteristics of the secondary Treasury market have evolved, but the bifurcation of the market between the D2D segment and the D2C segment persists.

¹²⁵ Recently, Citadel Securities, LLC, a broker-dealer, began to participate on a D2C electronic platform as a liquidity provider. The Boycott Defendants permitted Citadel’s entry reluctantly and only after demanding that Citadel take steps to become a primary dealer—an impossibility for most buy-side investors. See Kris Devasabai & Robert Mackenzie Smith, *Citadel Shut out of Tradeweb As It Makes US Treasury Move*, Risk.net (Sept. 16, 2015) <http://www.risk.net/risk-magazine/news/2426108/citadel-shut-out-of-tradeweb-as-it-makes-us-treasury-move>

409. The participants on BrokerTec and eSpeed have increasingly shifted to PTFs and high frequency trading (“HFT”) firms that typically engage in high-speed computerized algorithmic trading, using their own capital. After initially opposing the participation of PTFs on the D2D platforms, as they did when GETCO and Citadel attempted to join, the Boycott Defendants grew to tolerate the PTFs’ presence there, because it serves their own self-interest. Most fundamentally, dealers do not view PTFs to be in a position to disintermediate them from their customers, because PTFs are not buy-side clients and do not act on behalf of buy-side clients. In addition, PTFs have been an increasingly important provider of short-term liquidity on the D2D platforms, in a period when regulatory reforms made in response to the economic crisis of 2008 have made it more difficult for primary dealers to provide the same volumes of liquidity they provided in the past.

410. The collective predominance of the primary dealers in the secondary Treasury market, moreover, has not been changed by the rise of the PTFs and HFTs. According to the New York Fed, “primary dealers’ high customer activity causes them to remain the predominant players in the Treasury market, even though they account for a minority share in the interdealer market.”¹²⁶ The top five dealers in the secondary Treasury market have controlled between 50% to 60% of the secondary Treasury market within the Boycott Class period, and the top ten dealers between 80% to 90%. The Boycott Defendants have consistently been among these dealers.

¹²⁶ Michael Fleming, Frank Keane & Ernst Schaumburg, *Primary Dealer Participation in the Secondary U.S. Treasury Market*, New York Fed (Feb. 12, 2016) <https://libertystreeteconomics.newyorkfed.org/2016/02/primary-dealer-participation-in-the-secondary-us-treasury-market.html>.

411. In 2013, the Boycott Defendants were jolted by the emergence of a major threat to the continued relegation of the buy side to an RFQ protocol. Exchange-giant NASDAQ acquired eSpeed for \$1.2 billion, with the long-term intent of expanding to anonymous, all-to-all trading.

412. Since that event, the Boycott Defendants engaged in group boycotts of both eSpeed and BrokerTec. The Boycott Defendants also entered into illegal agreements to create a secondary on-the-run D2D Treasury platform on Dealerweb, which exists solely as a shell into which the dealers can transfer liquidity from BrokerTec or eSpeed, should the need arise. The Boycott Defendants also failed to provide substantial liquidity to a platform called Direct Match Holdings Inc. (“Direct Match”) that planned to offer all-to-all Treasuries trading on a CLOB.

413. In February 2001, Tradeweb cemented its control over the Treasuries market by purchasing the platform formerly known as eSpeed from NASDAQ in February 2021 for \$190 million – a tiny fraction of the \$1.2 billion NASDAQ paid for the platform in 2013.

1. After NASDAQ acquires eSpeed, the Boycott Defendants collectively boycott it

414. In April 2013, NASDAQ, operator of the NASDAQ equities trading platform, announced that it had agreed to pay \$1.2 billion to acquire eSpeed from BGC Partners (“BGC”), a Cantor Fitzgerald spinoff that merged with eSpeed in 2008. This announcement set off alarm bells among the Boycott Defendants that NASDAQ was planning to open eSpeed to the buy side and create a “NASDAQ for Treasuries”—i.e., an anonymous, all-to-all electronic trading platform for Treasuries.

415. Statements made by Bob Greifeld, NASDAQ’s CEO, signaled that precise move. Greifeld commented publicly on the day NASDAQ announced its acquisition that it was “important to recognise that the US Treasury market is the most similar to the US equity market

in its construction and operation,” and that “[t]he under-pining [sic] of technology is something we are familiar with and we believe is in our power zone.”¹²⁷

416. The high valuation of eSpeed—an acquisition cost of \$1.2 billion dollars—also telegraphed NASDAQ’s plan to open eSpeed to investors and create an anonymous, all-to-all marketplace. Eric Noll, then the head of NASDAQ’s trading business, said that NASDAQ had acquired eSpeed because it hit NASDAQ’s “sweet spot in terms of central clearing, providing data feeds, and a central limited order book—like our other transaction platforms.”¹²⁸

417. Almost immediately after announcing the acquisition, NASDAQ ran “into stiff resistance from the tight-knit group of big banks that dominate” the Treasury market (i.e., the Boycott Defendants).¹²⁹ As the Financial Times put it, NASDAQ’s purchase of eSpeed “stoked opposition from the dealers” according to multiple market participants, because they saw the purchase “as hastening greater electronic transaction of large bond deals that would replicate the transformation of equity trading.”¹³⁰ The dealers were afraid that NASDAQ would engage in “efforts to allow investors to participate on eSpeed.” This would, in turn, “narrow[] the difference

¹²⁷ Arash Massoudi & Michael Mackenzie, *Nasdaq OMX in \$1.2bn Deal to Buy eSpeed*, Financial Times (Apr. 1, 2013) <https://www.ft.com/content/eb679952-9b0f-11e2-97ad-00144feabdc0>.

¹²⁸ Helen Avery, *Ex-Nasdaq Trading Chief Reveals Exchange’s Fixed-Income Ambitions*, EuroMoney (Nov. 26, 2013) <https://www.euromoney.com/article/b12kjr04bgfp81/ex-nasdaq-trading-chief-reveals-exchanges-fixed-income-ambitions>.

¹²⁹ Michael Mackenzie & Arash Massoudi, *U.S. Traders Resist Nasdaq’s Treasury Push*, Financial Times (Jan. 29, 2014) <http://www.ft.com/intl/cms/s/0/33c3f458-8849-11e3-a926-00144feab7de>.

¹³⁰ *Id.*

between buy and sell prices” and threaten to “attract customers of many dealers” to the platform, thereby “further eroding [the dealers’] profit margins.”¹³¹

418. As they had in the past, the Boycott Defendants resorted to their favorite tactic, the group boycott. They did so in order to stop NASDAQ from permitting all-to-all trading on eSpeed. Within a few months of NASDAQ’s announcement, and before the deal was completed in July 2013, the Boycott Defendants collectively removed trading and liquidity from eSpeed, causing eSpeed to lose another 10% of total market share to its rival, BrokerTec.¹³² One trader at a dealer acknowledged that the dealers’ fear that NASDAQ was “going to make Treasuries look like equities,” was “absolutely affecting the flows they [i.e., NASDAQ] get.”¹³³

419. eSpeed desperately tried to stem the tide. Between July and August 2013, senior eSpeed personnel attended separate meetings with senior officials from each of the Boycott Defendants. In these meetings, eSpeed sought to allay these banks’ fears. Many of these meetings were with representatives of the Boycott Defendants’ influential “strategic investment groups,” described further below. For instance, eSpeed personnel met with Goldman Sachs’ Global Co-Head of Principal Strategic Investments Group, Paul Christensen, as well as with Beth Hammack, who was then the Global Head of Short Term Interest Rate Trading for the bank, and Josh Schiffrin, Head of U.S. Inflation Trading. eSpeed representatives also met with Morgan Stanley’s Head of US Government Bond Trading, Ben Seelaus, and Nicola White, who was Global Head of Rates eMarkets and the head of ecommerce at Barclays. Joe Noviello, Jamie Wakefield, and Eric Knoll of NASDAQ also attended these meetings.

¹³¹ *Id.*

¹³² Jim Greco, *CrossRate: What Happened*, Trading Places (July 31, 2017), <https://tradingplacesnewsletter.com/crossrate-what-happened-7805687946f6>.

¹³³ Mackenzie & Massoudi, *supra* note 129.

420. In each meeting, the Boycott Defendants registered identical complaints despite the fact that the meetings were with each bank separately. They told eSpeed that it could not be “trusted” and that “we heard you are going all-to-all.” They also said that “other dealers are telling us” that you are going to open to the buy-side and go to exchange. Beth Hammock of Goldman Sachs and the head of the E-Commerce at Barclays were two of the specific people that asked about all-to-all in these individual meetings. The Boycott Defendants (via their ecommerce guys) warned that they would continue to pull their liquidity if eSpeed allowed buy-side participation on its platform. At one meeting, the head of a trading desk at a different primary dealer (not Ben Seelaus, Nicola White, John Schiffrin or Beth Hammack) told eSpeed directly that “I better not find out that my customers are on your platform.”

421. In the face of the threat, eSpeed changed its message. eSpeed’s executives reassured the Boycott Defendants that eSpeed’s strategy was not to expand the user-base to the buy side. But the Boycott Defendants were not placated. Throughout the Boycott Class Period, the Boycott Defendants continued to complain about eSpeed being untrustworthy. And they continued to drain liquidity and fees from eSpeed, during a period when eSpeed’s strategy and offerings did not change. By October 2015, analysts at Raymond James & Associates Inc. reported that eSpeed “appears to be in a tailspin” and “continues to see lackluster volumes and deteriorating market share.”¹³⁴

422. Following NASDAQ’s acquisition of eSpeed, Defendant Morgan Stanley, for example, refused to trade on eSpeed for nearly two years. RBC (Royal Bank of Canada) ceased trading on eSpeed after the acquisition, with only occasional exceptions.

¹³⁴ Bradley Hope & Sarah Krouse, *Nasdaq Tackles High-Speed Trading in Treasuries*, Wall Street Journal (Oct. 12, 2015) <http://www.wsj.com/articles/nasdaq-tackles-high-speed-trading-in-treasuries-1444694409>.

423. As of the filing of the original Consolidated Complaint, eSpeed's market share is approximately 18%, making it a remote second to BrokerTec, largely because of the Boycott Defendants' group boycott.

424. In February 2021, NASDAQ sold eSpeed to Tradeweb for \$190 million – a fraction of the \$1.2 billion it paid for eSpeed in 2013.

2. The Boycott and Platform Defendants use Dealerweb to threaten and coerce BrokerTec and eSpeed

425. NASDAQ's entry into the D2D segment prompted the Boycott Defendants to launch a competing IDB under the banks' control, just like they did in 2000 when they created BrokerTec after eSpeed's launch.

426. The vehicle they employed this time was Tradeweb Markets, a company owned by a consortium of dealer-owners until 2004, sold to the mass media and information firm Thomson Reuters in 2004, and then repurchased by the Boycott Defendants in 2008. Since that time, and within the Boycott Class Period, the Boycott Defendants controlled Tradeweb Markets' Board and operating committees.

427. The history of Tradeweb Markets was intertwined with the Boycott Defendants. Tradeweb Markets initially had been created in 1998 by a consortium of the Boycott Defendants: Goldman Sachs, Credit Suisse, Salomon Brothers (which was later acquired by Citi), and Lehman (whose Government securities division was later acquired by Barclays). In the next several years, JP Morgan, Morgan Stanley, Merrill Lynch (which was later acquired by Bank of America), and Deutsche Bank also bought stakes.

428. The D2C platform operated by Tradeweb Markets was also launched in 1998, the same year as the company's creation. In 2004, after BrokerTec had attracted the attention of DOJ's

Antitrust Division, the Tradeweb Markets owner consortium sold their respective ownership stakes to Thomson Reuters.

429. In 2008, however, the primary dealers, including Boycott Defendants Goldman Sachs, JP Morgan, Morgan Stanley, Merrill Lynch (later acquired by Bank of America), Lehman (a division of which was sold to Barclays), Credit Suisse, Deutsche Bank, and two other primary dealers, bought back an ownership interest of approximately 40% in Tradeweb Markets. The dealer consortium expanded in 2008 and 2009, when Boycott Defendants Citi and Barclays, respectively, bought interests. The dealer-owners assured their control of Tradeweb Markets by placing their own executives on the Board of Directors and on governance and operating committees. For example, Brad Levy, who was then serving as head of Goldman Sachs' Principal Strategic Investments Group, became the Chairman of the Board of Tradeweb Markets. While Tradeweb Markets has not often made the information publicly available, it reported in 2010 that the Boycott Defendants and other primary dealers collectively held sixteen of the twenty-six seats on Tradeweb Markets' Board of Directors.¹³⁵

430. Since the Boycott Defendants re-acquired ownership of Tradeweb Markets, the company has not undertaken any strategic initiative without the consent of the Boycott Defendants. As market leaders, Boycott Defendants Goldman Sachs and JP Morgan take the lead in planning

¹³⁵ Boycott Defendant executives on the Tradeweb Markets board have included Brad Levy (the Co-Head of Goldman Sachs' PSI group), who was Chairman of Tradeweb Markets' Board of Directors, Colin Corgan (Goldman Sachs), Simon Maisey (JP Morgan), Kemal Askar (JP Morgan), Dexter Senft (Barclays and later Head of Morgan Stanley's Fixed Income E-Commerce division), Shea Wallon (a member of Bank of America's Global Strategic Capital Investments group), Andrew Challis (Head of eFICC Distribution and Market Strategic Investments for Barclays), Sandeep Arora (Citi), Nicholas Brophy (Citi), Sean Flynn (Credit Suisse), and Timothy Blake (Credit Suisse). Dealerweb has not made public the identity of the members of its Board of Directors.

Tradeweb Markets' strategies and operations, and they consult with the other Boycott Defendants before embarking on initiatives and implementing them.

431. In 2008, Tradeweb Markets bought Hilliard Farber, a mortgage interdealer voice broker, and thereafter operated it as a wholly-owned subsidiary called Dealerweb Inc. Dealerweb Inc. ran a platform for financial products including mortgage-backed securities and agency bonds, although not initially in on-the-run Treasuries.

432. Within approximately six months of NASDAQ's acquisition of eSpeed, the Boycott Defendants determined to launch a Dealerweb platform in the D2D segment for on-the-run Treasuries. Testing began in the new platform in the first quarter of 2014.

433. The Boycott Defendants did so for the same reason they developed BrokerTec—to create a powerful, visible reminder to other IDB platforms that the Boycott Defendants controlled a platform to which they could move their combined liquidity, should they choose to do so. Dealerweb re-introduced into the D2D segment—on more subtle terms—the threat of the Boycott Defendants pulling liquidity and fees, if BrokerTec or eSpeed ever allowed buy-side investors on those platforms.

434. BrokerTec and eSpeed also knew from Dealerweb's track record that it was no idle threat. In 2009, the consortium of Boycott Defendants who then controlled Tradeweb launched a mortgage bond trading platform on Dealerweb to compete with a BrokerTec mortgage trading platform. Within just a few weeks of launching, that platform devastated BrokerTec, which had spent the prior seven years building a mortgage bond trading business that transacted \$40 billion in business daily.

435. As soon as Dealerweb was operational in mortgage bond trading, the Boycott Defendants shifted nearly all of their trading volumes in that market to Dealerweb. BrokerTec's

platform “lost 85 percent of its business over six weeks” as Dealerweb “basically walked away with the market.”¹³⁶ BrokerTec’s daily volume of transactions fell from \$40 billion in late February 2009, to \$6 billion less than six weeks later, by early April 2009.¹³⁷ The dealers’ “squeeze” had worked so well that they feared their collusion had been too obvious.

436. At the time Dealerweb crushed BrokerTec in mortgage bonds, it was also being reported that the dealers might use Dealerweb to wipe out competitors in other markets, including Treasuries. The Financial Times stated that “traders were unsettled by Dealerweb’s threat that it could replicate the model in markets such as US agency debt, *Treasuries* and interest rate swaps.”¹³⁸

437. The appearance of Dealerweb in the D2D segment of the secondary on-the-run Treasury market thus sent the strongest possible message to BrokerTec and eSpeed that the Boycott Defendants could through joint action, anytime they wished, extinguish their very existence. Indeed, at the time Tradeweb Markets announced Dealerweb’s launch, in June 2014, the Financial Times reported that the “duopoly” of BrokerTec and eSpeed in Treasuries “will now come under pressure from the Dealerweb platform.”¹³⁹ Tradeweb Markets’ President, Billy Hult, acknowledged that the company had launched Dealerweb as a response to “open questions about

¹³⁶ Matthew Leising & Jody Shenn, *ICAP Loses 85% of Mortgage Bond Trading to Dealerweb*, Bloomberg (Apr. 21, 2009) <https://perma.cc/F9Y3-ANN4>; see also Bryce Elder & Neil Hume, *Icap Hurt by Banks’ Platform*, Financial Times (Apr. 21, 2009) <http://www.ft.com/intl/cms/s/0/a4bf29a2-2ead-11de-b7d3-00144feabdc0.html#axzz419KBvtLz>

¹³⁷ Leising & Shenn, *supra* note 136.

¹³⁸ Elder & Hume, *supra* note 136 (emphasis added) (reporting that Dealerweb’s taking of most of BrokerTec’s TBA mortgage securities business sent message that, “[a]t the least, the banks will look to curb any market concentration should they perceive that any one broker is getting too powerful in that particular market.”).

¹³⁹ Michael Mackenzie, *Dealerweb Launch Shakes Up Treasuries Trading*, Financial Times (June 5, 2014) <https://www.ft.com/content/168da448-ec16-11e3-ab1b-00144feabdc0>.

the long-term feasibility of the current status quo market structure.”¹⁴⁰ The Financial Times elaborated that the “open questions” were concerns among the dealers it had become more difficult to “maintain[] separate ‘dealer to client’ and ‘dealer to dealer’ markets,” as BrokerTec and eSpeed threatened to go beyond admitting PTFs by “open[ing] up their Treasury platforms to more participants.”¹⁴¹ Tradeweb Markets’ president touted that the Dealerweb platform had “gained strong support from dealers.”¹⁴²

438. Dealerweb’s operations—or lack of operations—since its launch also have borne out that the Boycott Defendants launched Dealerweb solely to threaten the IDBs and maintain the D2D/D2C divide. Dealerweb’s D2D platform does not turn a profit and has only a paltry market share (approximately 2%). Dealerweb has no leading technology or even technology comparable to that of BrokerTec and eSpeed. For all their “support” of Dealerweb, the Boycott Defendants have never used it, except in token volumes.

439. The Boycott Defendants do not operate Dealerweb as a normal business. It exists solely as a Sword of Damocles that can be dropped on BrokerTec or eSpeed, should either ever threaten to disintermediate the dealers from their customers.

440. In February 2021, Tradeweb purchased eSpeed from NASDAQ for \$190 million, a small fraction of the \$1.2 billion that NASDAQ paid for it in 2013.

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

3. The Boycott Defendants coerce BrokerTec and eSpeed into refusing to allow PIMCO and other investors onto D2D platforms

441. Requests by investors to join D2D platforms have also triggered the Boycott Defendants into threatening BrokerTec and eSpeed to deny requests by particular buy-side firms to join their platforms. PIMCO, based in Newport Beach, California, is “one of the world’s premier fixed income investment managers.”¹⁴³ Because of its size and clientele, PIMCO is a major participant in the Treasury market. As a buy-side firm, however, PIMCO has traditionally been limited to trading in the OTC market or trading on Tradeweb or Bloomberg using an RFQ protocol. The Boycott Defendants enforced this limitation by pressuring BrokerTec and eSpeed to turn down requests from PIMCO (and other institutional investors) to trade on the D2D platforms.

442. PIMCO has compelling reasons to want to trade on the D2D platforms. PIMCO’s trades in Treasuries are typically for large quantities, and frequently move prices as they become known. In U.S. equity markets, PIMCO and other buy-side participants can conceal their identities and break up large orders into smaller trades to limit market impact. However, in the D2C Treasury segment, PIMCO cannot eliminate the risk of moving the market, including in ways that cause prices to move against PIMCO. For PIMCO, there is tremendous “toxicity,” or information leakage, in being forced to trade using an RFQ protocol.

443. For these reasons and others, PIMCO has attempted on multiple occasions to gain access to BrokerTec and eSpeed. For example, in 2008, PIMCO requested to participate on the BrokerTec platform, but the Boycott Defendants threatened a group boycott of the platform, as well as ICAP’s interdealer voice broker services in other asset classes. In 2013, PIMCO reached

¹⁴³ PIMCO, *Our Firm*, <https://www.pimco.com/en-us/our-firm> (last visited Nov. 15, 2017).

the verge of an agreement with eSpeed before the effort collapsed, again because of dealer intimidation of the platform. Eric Noll of NASDAQ, which owned eSpeed, said that NASDAQ could not onboard PIMCO at that time because “[t]his backlash is killing our market share” and that the dealers were boycotting eSpeed.

444. In 2014, PIMCO attempted a work-around by trading on BrokerTec through the broker-dealer subsidiary of Wells Fargo. Pursuant to an agreement with PIMCO, Wells Fargo agreed to act on behalf of PIMCO, thus enabling PIMCO to execute its trades on BrokerTec. PIMCO intended to use Quantitative Brokers, a global technology firm based in New York City, to support PIMCO’s trades through Quantitative Brokers’ trading algorithms. Wells Fargo, consistent with its self-interest, initially agreed to facilitate trading for PIMCO on BrokerTec.

445. After catching wind of this behind-the-scenes deal, however, the Boycott Defendants again threatened BrokerTec with a group boycott, unless BrokerTec refused to honor any deal between PIMCO and Wells Fargo. BrokerTec complied, and Wells Fargo was forced to cancel its agreement with PIMCO.

446. In 2015-2016, PIMCO tried yet again. Separate negotiations with each platform progressed to the point of an exchange of written agreements to formalize PIMCO’s participation. At the eleventh hour, however, after learning of the impending deals, Boycott Defendant JP Morgan and other Boycott Defendants intervened. Many of the Boycott Defendants began moving liquidity away from the platforms in order to communicate the point. In the end, BrokerTec and eSpeed caved to the pressure and reneged on their prior agreements with PIMCO.

447. As a result of the Boycott Defendants’ success in coercing BrokerTec and eSpeed not to allow PIMCO onto those platforms, and notwithstanding its prominence on the buy side, PIMCO to date has not been permitted to trade on a D2D platform.

448. PIMCO is but one example of the Boycott Defendants mobilizing collective boycotts of the IDBs. Other well-known pension plans (for example, the Ontario Teachers' Pension Plan, and the Canadian Pension Plan Investment Board) and hedge funds including Tiger, Moore Capital, BlueMountain, and Graham Capital sought access to BrokerTec and were also denied. With exceptions for funds that are high frequency traders who trade in small volumes, or engage in trades regarded as "toxic," or "unprofitable," by the dealers, the Boycott Defendants require the platforms to deny all such requests. The platforms well understand, from decades of experience, that if they admit buy-side firms onto their platforms, the Boycott Defendants will punish them. Indeed, new salespeople at the platforms were taught early on not to pursue or solicit the sell-side's major accounts.

4. The Boycott Defendants prevent Direct Match from launching an anonymous, all-to-all platform

449. While much of the battle to relegate the buy side to the RFQ protocol relates to access to BrokerTec and eSpeed, the Boycott Defendants have also taken steps to prevent any start-up from launching an anonymous, all-to-all trading platform. A recent example is Direct Match Holdings Inc. On the eve of its launch in March 2016, the Boycott Defendants blocked Direct Match before it could execute a single trade.

450. Direct Match sought to give asset managers and hedge funds on the buy side access to an anonymous, all-to-all trading platform, based on the model of the D2D platforms. Between 2014 and 2016, Direct Match executives solicited participants, receiving commitments or expressions of intent from approximately three dozen buy-side investors, including investors blocked from trading on BrokerTec or eSpeed. These firms included asset managers, large pension funds, large buy-side investment funds (including PIMCO), several PTFs, and small banks. Other major firms committed to utilizing Direct Match on day one included the market makers and high

frequency traders Virtu and Hudson River Trading along with a number of smaller hedge funds. In addition to PIMCO, who was fully committed and “ready to hook up” to the platform, other buy side entities that had expressed interest and/or signed intent forms with Direct Match included Western Asset Management Company, Wellington, and Prudential. The company began signing legal agreements with participants and also raised the millions of dollars necessary to build a functional all-to-all trading platform and to register as a broker-dealer. The buy side loved it and the high frequency traders loved it because they got access to the buy side.

451. Direct Match sought to bring liquidity providers, including the Boycott Defendants, onto its platform. To attract these participants, Direct Match planned to charge lower fees than the other D2D platforms. Direct Match executives also met with representatives of many of the Boycott Defendants including Adam Brown (Bank of America), Jonathan Lofthouse (Citi), Chris Pepe (Deutsche Bank), Ankur Kumar (JP Morgan), Ryan Sheftel (Credit Suisse), and Joseph Sarcona (Morgan Stanley). Some were open in their opposition. A Morgan Stanley representative, for example, stated that it would not participate in a platform that disintermediated the bank from its clients. Morgan Stanley executives repeated this comment to the founders of another venture who were attempting to enlist Morgan Stanley as a liquidity provider in Treasuries, remarking that Morgan Stanley would not participate in Direct Match because it would disintermediate them. Specifically, Mr. Sarcona told Direct Match executives that they were not going to get far. He said “*You don’t have a chance. We know this is where it’s going.*” And while Morgan Stanley acknowledged that this was a more efficient market, but it was not going to change absent a regulation or some other mandate forcing Morgan Stanley to participate. The “electronic people” at Morgan Stanley said that Morgan Stanley was not going to “*be the one to push the ball forward.*”

452. Other Boycott Defendants voiced their displeasure by complaining that Direct Match would not allow them to provide their customers with a “tailored experience.” Despite the fact that Direct Match was going to charge lower fees than BrokerTec and eSpeed, all of the top dealers declined to commit liquidity to Direct Match. While some of the smaller dealers, including Jeffries and TD Bank were interested in Direct Match, all of the top dealers (the Boycott Defendants) instead told Direct Match “we are going to watch you.” In one meeting, Adam Brown, co-head of Treasury Trading at Bank of America, told Direct Match point-blank: “*Why would we mess up what we have?*” All of the other major dealers had similar sentiments, with some laughing Direct Match out of the room.

453. To eliminate the threat posed by Direct Match, the Boycott Defendants complained to State Street Corp., a large investment manager headquartered in Boston, which had entered into a written agreement with Direct Match to provide access to the clearing services of the Fixed Income Clearing Corporation (“FICC”).¹⁴⁴ The dealers knew that State Street, which was heavily dependent on business from the dealers, would heed their instructions.

454. The FICC is a dealer-controlled company that acts as a clearing house, but only for trades conducted by FICC members. Because Direct Match lacked FICC membership and had no clearing relationship with a FICC member, it sought a FICC sponsor—a FICC member who could submit Direct Match’s trades to the FICC for netting and clearing, in return for a portion of the trading fees. Many FICC members refused to risk helping an innovator like Direct Match, anticipating backlash from the Boycott Defendants.

¹⁴⁴ A clearing house is an entity that stands in the middle of multiple trades and takes on the counterparty risk for each trade.

455. For example, NewEdge Group, which was at the time owned by primary dealer Société Générale and had agreed to provide clearing for Treasury trading on Dealerweb, turned Direct Match down, as did Cantor Prime Services, which clears for eSpeed. After nine months of negotiation, State Street agreed to act as a sponsor to Direct Match, which permitted Direct Match to “access the Treasury market’s clearing-and-settlement plumbing.”¹⁴⁵

456. After the technology platforms had been built and integrated between Direct Match and State Street, the new trading facility was set to open. Then, suddenly, in March 2016, State Street stopped returning Direct Match’s emails and phone calls. Ultimately, State Street told Direct Match that it was pulling out of their agreement because of a purported “conflict of interest” rooted in State Street’s part ownership of LiquidityEdge, another electronic platform for trading Treasuries. This last-minute “conflict” was a pretext. Direct Match and State Street had discussed State Street’s position in LiquidityEdge many times in negotiations, without State Street voicing any need to step back from Direct Match.

457. The real opposition came from the Boycott Defendants, who collectively threatened to boycott State Street by withdrawing trading and banking services from State Street were State Street to live up to its agreement with Direct Match. According to Direct Match’s CEO, Jim Greco, State Street’s withdrawal “was a decisive blow” because “[w]ithout a clearing solution, we could not launch.”¹⁴⁶

¹⁴⁵ Matthew Leising & John Detrixhe, *Demise of Direct Match Shows Bank Death-Grip on Treasury Market*, Bloomberg (Aug. 29, 2016) <http://www.bloomberg.com/news/articles/2016-08-29/demise-of-direct-match-shows-bank-death-grip-on-treasury-market>.

¹⁴⁶ Jim Greco, *Wall Street Startup Direct Match: ‘We Will Not Be Able to Execute on Our Vision Anytime Soon’*, Business Insider (Aug. 23, 2016) <http://www.businessinsider.com/direct-match-jim-greco-on-reason-for-closure-2016-8>.

458. State Street continued to be a partner of LiquidityEdge, which did not pose a threat of disintermediating the Boycott Defendants, as Direct Match did. LiquidityEdge offered technology that the Boycott Defendants could use to stream prices to the clients of their choice. Trades executed by LiquidityEdge are also disclosed to the parties involved and are cleared and settled bilaterally, not by the platform. As such, LiquidityEdge preserved for the Boycott Defendants the same capabilities they had in the RFQ protocol to control the prices shown to investors and to learn the identity of the investor and the direction and quantity of the trade before execution.

459. Since Direct Match failed, the Boycott Defendants' opposition to an anonymous, all-to-all marketplace for the trading of on-the-run Treasuries has been so well known that some new platforms or ventures avoid the space entirely.

460. For example, Howard Lutnick announced in mid-2016 that BGC, the successor to Cantor Fitzgerald, was planning to re-enter the D2D segment with a new Treasuries platform. Richard Winter, the global head of sales at BGC, was quoted in a Risk.net article on the topic of "integrating interdealer and client liquidity pools," that BGC "believe[d] the buy side should have full, anonymous access to the US Treasury market in a Clob format."¹⁴⁷ In meetings with prospective clients, BGC touted its new platform as "Direct Match with clearing."

461. As the platform neared launch, however, BGC clarified that it would in fact offer two distinct products to the D2D and D2C segments—an approach that would prevent buy-side access to pricing in the D2D segment. Lutnick commented publicly this past spring that no all-to-all platform was forthcoming and that he did not harbor any aspiration of transforming the

¹⁴⁷ Robert Mackenzie Smith, *Interdealer Brokers Embrace Buy Side as Bank Dominance Slips*, Risk.net (June 9, 2016) <https://www.risk.net/derivatives/2460945/interdealer-brokers-embrace-buy-side-bank-dominance-slips>.

secondary Treasury market to one in which “all participants will trade with each other, whether it be bank to bank, bank to client or client to client,” or buy-side firms will go “mano-a-mano” with sell-side entities.¹⁴⁸

V. OPENDOOR CLOSES

462. In early 2015, Susan Estes, along with others, founded OpenDoor which she intended to be an all-to-all marketplace for Off-the-Run Treasuries.¹⁴⁹ Prior to founding OpenDoor Ms. Estes managed fixed income trading at Deutsche Bank, Morgan Stanley and Countrywide Securities. She was also a member of the Treasury Borrowing Advisory Committee under Federal Reserve Chairmen Greenspan and Bernanke.¹⁵⁰

463. As Ms. Estes explained in a March 30, 2016 article titled “Investment Managers Need Access to Better Pricing in Treasury Market,” “the traditional principal-based dealer model is not working for either the dealers or the buy-side community.”¹⁵¹ According to Ms. Estes, when she ran Deutsche Bank’s bond trading desk in the early 2000s, “we were the overall market leader with a 10% share of all U.S. Treasury trading; the top quintile of dealers commanded an estimated 40% of the trading pie...[t]hat’s now climbed to around 60%, with the top trading desk

¹⁴⁸ Joe Rennison, *Howard Lutnick Aims for Electronic Treasury Trading Comeback*, Financial Times (May 15, 2017) <https://www.ft.com/content/89bfed44-3912-11e7-821a-6027b8a20f23>.

¹⁴⁹ OpenDoor, *OpenDoor Collaboration with Broadway Technology to Accelerate Treasury Platform Launch*, Press Release (June 7, 2016) <https://www.opendoorllc.com/201667opendoor-collaboration-with-broadway-technology-to-accelerate-treasury-platform-launch/>.

¹⁵⁰ OpenDoor, *Opening the Door to a Better Market Structure*, Press Release (Mar. 11, 2016) <https://www.opendoorllc.com/opening-the-door-to-a-better-market-structure/>.

¹⁵¹ Susan Estes, CEO of OpenDoor, *Investment Managers Need Access to Better Pricing in Treasury Market*. OpenDoor (Mar. 30, 2016) <https://www.opendoorllc.com/investment-managers-need-access-to-better-treasury-market-pricing/>.

commanding 25% of trading activity.” “This degree of market concentration and associated reduction in dealer inventory is also evident in the interdealer marketplace, in which dealers trade directly with each other to manage their risk.”¹⁵²

464. Ms. Estes and OpenDoor originally focused their attention on “off the run” Treasuries because that was the most archaic piece of the Treasuries market, where – as of 2016 – most of the trading is “still done by phone.”¹⁵³ According to Ms. Estes, the massive inefficiencies in the “off the run” Treasuries market alone cost the buy side around \$10 billion as measured by the bid/offer spread.¹⁵⁴

465. In April of 2017, OpenDoor launched an all-to-all trading marketplace for off-the-run treasuries and Treasury Inflation Protected Securities.¹⁵⁵ According to a April 25, 2017 OpenDoor press release, at that point it had more than three dozen firms with more than \$5 trillion of assets under management and six sponsor dealers onboarded to participate.¹⁵⁶ Two of these dealers were identified as the Bank of Nova Scotia and Société Générale. OpenDoor also stated that, in addition to the current participants, firms representing another \$16 trillion of assets under management and five additional sponsor dealers were preparing to join the platform by the end of Q2 2017.¹⁵⁷

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ OpenDoor, *supra* note 87.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

466. By June 16, 2017, after only a few months of trading, OpenDoor had more than \$60 billion in orders, with billions of matched trades.¹⁵⁸ At its first auction, buy-side crossed and matched with buy-side, resulting in better beneficial pricing to both accounts.

467. After six months of operations, OpenDoor's order volume exceeded \$200 billion, with a match trade volume of \$6.3 billion.¹⁵⁹ As of November 2018, the OpenDoor platform facilitated over \$1.3 trillion in orders, with nearly \$300 billion, or 23%, placed at or through mid-market pricing and with a buy-side to buy-side match of 17% on average.¹⁶⁰ While trades were anonymous and dark, the platform streamed reference prices in all 350+ CUSIPS, 24-hours daily, free for participants.¹⁶¹

468. On January 23, 2020, OpenDoor expanded its platform to being a continuous order book (it previously only offered session-based execution), with State Street Global Markets executing transactions matched on the platform and integrated with Bloomberg.¹⁶²

469. On June 22, 2020, OpenDoor expanded its all-to-all anonymous order book to cover on-the-run U.S. Treasuries.¹⁶³ This was a direct attack on the Broker Defendants as OpenDoor

¹⁵⁸ Susan Estes, *Keynote Speech | Big Data U.S. Fixed Income: Who's Your Daddy?*, Edited version of keynote delivered at the Big Data Finance Conference held at NYU 5/19/2017 (June 16, 2017) <https://www.opendoorllc.com/2017616big-data-us-fixed-income-whos-your-daddy/>.

¹⁵⁹ OpenDoor, *Charles River and OpenDoor Partner to Expand Fixed Income Liquidity Access*, Press Release (Nov. 6, 2017) <https://www.opendoorllc.com/charles-river-opendoor-partner-expand-fixed-income-liquidity-access/>.

¹⁶⁰ Susan Estes, *The Cost of Bilateral Trade Disclosure*, Press Release (Nov. 21, 2018) https://www.opendoorllc.com/the_cost_of_bilateral_trade_disclosure/.

¹⁶¹ *Id.*

¹⁶² OpenDoor, *supra* note 85.

¹⁶³ OpenDoor, *OpenDoor Launches Anonymous Trading Venue for On the Run U.S. Treasuries*, Press Release (June 22, 2020) <https://www.opendoorllc.com/opendoor-launches-anonymous-trading-venue-for-on-the-run>.

declared this expansion was designed to be in “direct response to voiced concerns regarding the negative impact of information arbitrage” and concerns “about information leakage.”¹⁶⁴ In the same press release, OpenDoor stated that its buy-side to buy-side match rate (which disintermediated the dealers) increased to a record 70% since the launch of its new protocols and continuous order book on January 6 of this year.

470. While information on who provided liquidity to OpenDoor does not appear to be publicly available, none of the Boycott Defendants, unlike Société Générale and Bank of Nova Scotia, have been publicly identified as being supporters of, or active participants in, OpenDoor. On January 13, 2021 – less than six months after OpenDoor attempted to cover on-the-run Treasuries, OpenDoor ceased operations. In her statement, Ms. Estes did not explain why OpenDoor was forced to close, but did say she “would also encourage those that have resisted change to think again, as the opportunity exists to lead the way to a brighter future for our industry and all who participate in it.”¹⁶⁵

VI. TRADEWEB PURCHASES ESPEED FROM NASDAQ

471. In February 2021, Tradeweb purchased the platform formerly known as eSpeed for \$190 million.¹⁶⁶ This was a tiny fraction of the \$1.2 billion paid by NASDAQ for eSpeed in 2013 for \$1.2 billion. In the press release accompanying the announcement, Tradeweb made it clear that the platform would remain dealer to dealer only, saying it “will become part of Dealerweb,

¹⁶⁴ *Id.*

¹⁶⁵ OpenDoor, *supra* note 88.

¹⁶⁶ Tradeweb Markets, *Tradeweb To Acquire Nasdaq’s U.S. Fixed Income Electronic Trading Platform*, Press Release (Feb. 2, 2021) <https://www.tradeweb.com/newsroom/media-center/news-releases/tradeweb-to-acquire-nasdaqs-u.s.-fixed-income-electronic-trading-platform/>.

serving the firm’s wholesale sector.”¹⁶⁷ In a public statement favoring the market’s continued bifurcation, Tradeweb President Billy Hult commented in the press release that “We don’t believe in one-size-fits-all trading protocols and neither do our clients.”¹⁶⁸

VII. THE BIFURCATION OF THE SECONDARY TREASURY MARKET IS THE RESULT OF THE BOYCOTT AND PLATFORM DEFENDANTS’ COLLUSION

A. Other than the Conspiracy, There Are No Barriers to the Emergence of An Anonymous, All-To-All Platform

472. As noted above, markets in financial instruments like Treasuries—standardized, fungible, and low-risk—naturally tend toward an anonymous, all-to-all marketplace.

473. Given the characteristics of Treasuries, and the technological feasibility of an anonymous, all-to-all trading platform, such a platform should have succeeded long ago. As noted by Hicham Hajhamou, Vice President at AQR Capital Management, an investment management firm: “The U.S. Treasury market functions mostly on RFQ . . . which is surprising because it is the simplest fixed-income instrument you will find, and the most liquid.”¹⁶⁹

474. Former Deputy Assistant Secretary of the U.S. Treasury, Jonah Crane, who opined in testimony before Congress that the Treasury market’s “bifurcated” structure “makes little sense,” described the puzzling phenomenon of clients being relegated to an “intermediated” and “largely opaque” D2C segment.¹⁷⁰ After noting the “fully-electronic” D2D marketplace, and naming BrokerTec and eSpeed, Crane stated:

The conundrum of the Treasury market is that, despite Treasuries being the most standardized security—issued by a single issuer, in large quantities, at regular intervals in benchmark maturities, carrying no credit risk—roughly

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ Smith, *supra* note 147.

¹⁷⁰ Statement of Jonah Crane Before H. Financial Services Committee, *supra* note 12.

half of all trading in cash Treasuries still occurs in the heavily intermediated and largely opaque dealer-to-client markets.¹⁷¹

475. The lack of an anonymous, all-to-all marketplace is striking by comparison to markets for other asset classes. For example, the market for Treasury futures is operated by the CME Group, the leading derivatives market, as an all-to-all marketplace, open to buy-side investors who can trade anonymously, with full pre-trade price transparency. It is a market anomaly that a robust, highly liquid, anonymous, all-to-all marketplace exists for Treasury futures, but not Treasuries themselves, which are less complicated instruments than futures.

476. The structure of the market for corporate bonds is also instructive. That market is far more complicated and heterogeneous than the Treasury market. The corporate bond market is populated by many different issuers, and bonds with a far greater diversity of terms than Treasuries. Nevertheless, since 2012, a platform operated by MarketAxess called “Open Trading” has offered an anonymous, all-to-all trading protocol for corporate bonds, with the platform standing in the middle of trades. In the first quarter of 2017, this platform recorded \$59 billion in trading volume and included 672 firms as participants. MarketAxess has estimated that as a result of its move to all-to-all trading in the corporate bond market, investors on the Open Trading platform have saved \$160 million in transaction costs over just a two-year period. Anonymous, all-to-all trading in the secondary Treasury market has likewise been feasible for many years.

477. To take the simplest example, BrokerTec and eSpeed already exist. Either could become an anonymous, all-to-all trading platform were it to take the step of permitting buy-side firms to join.

¹⁷¹ *Id.*

478. Clearing is not an impediment to that transition. Clearing is “plumbing” that exists to manage the risk that either party to a trade will fail to deliver the Treasury or payment for the Treasury. Treasuries are a much lower risk to trade than other instruments. For example, interest rate swaps are more risky to trade than Treasuries, yet they are currently cleared through a clearinghouse. The counterparty settlement risk in a Treasury trade is also short-lived (i.e. overnight), as compared, for example, to interest rate swaps, where counterparty risk can last up to thirty years.

479. At present, FICC clearing privileges extend to approximately 160 members—most of which are dealers and dealer affiliates and bank and bank affiliates. Both BrokerTec and eSpeed also have access to FICC clearing (eSpeed through a Cantor Fitzgerald affiliate, Cantor Prime Services, and BrokerTec through its parent BrokerTec Americas LLC).

480. The FICC excludes the buy side from FICC membership by imposing capital requirements and fees which were put in place decades ago and are outdated and disproportionate to the risk posed by buy-side trading of Treasuries.¹⁷² Further, the buy side has had little incentive to seek access to FICC clearing because buy-side entities cannot trade on anonymous, all-to-all platforms because of the Boycott Defendants’ actions.

481. If, however, the buy side were given access to BrokerTec or eSpeed, clearing solutions are readily available, which is entirely logical, given the low risk of trading Treasuries.

¹⁷² FICC is a wholly-owned subsidiary of Depository Trust & Clearing Corporation (“DTCC”). Neither the FICC nor its parent DTCC adopts strategies or launches projects without obtaining the approval of the Boycott Defendants. The Boycott Defendants owned a significant stake in the DTCC and also control the DTCC, and its subsidiary FICC, through placement of their representatives in a majority of the positions on the Board of Directors of DTCC and on various committees of the DTCC, including the Governance Committee, the Risk Committee, and the Business, Technology, and Operations Committee. The FICC’s board has the same members as the DTCC Board.

Buy-side entities who met the credit requirements for joining BrokerTec or eSpeed would trade in the same way that non-FICC members, like most PTFs, currently trade on those platforms.¹⁷³ The platforms would hold a margin from the buy-side firm, just as they do for current non-FICC participants, and each platform has access to FICC clearing.

482. Buy-side entities could also engage the services of a prime broker who is a member of the FICC and who could attest to the client's creditworthiness. The Boycott Defendants are also prime brokers, and as such offer trading services to clients, particularly hedge funds. Prime brokers, who are themselves FICC members, already have contracts in place with many buy-side entities that include mark-to-market and collateral provisions that could easily be extended to permit them to stand as principals for their client's trades on BrokerTec and eSpeed.¹⁷⁴

483. Finally, buy-side entities could also enter into a direct relationship with a clearing broker, like Pershing LLC, State Street, or ICBC. Clearing brokers typically deal with trades submitted to clearinghouses, are highly sophisticated in risk management, and offer segregated client accounts margined for risk and volatility. The clearing broker would provide a principal letter to the platform that states a credit limit for the buy-side entity that the platform would enforce. The buy-side entity would then trade directly on the platform in the name of the clearing broker, and the trades would be cleared through the FICC.

¹⁷³ In such trades, the trading venue stands for the non-FICC member, having vetted the financial soundness of the participants to the platform and obtained margins from participants when necessary to cover settlement risk.

¹⁷⁴ "Prime brokerage" refers to a package of core services offered by large banks to clients such as hedge funds and investment managers. These services include custody services, financing, securities lending, securities and derivatives trading, and clearing services. Prime brokers self-clear trades that they execute on behalf of their clients, and extend credit to their clients for trades that they accept from executing brokers on behalf of their clients. Clients are subject to margin and collateral requirements, which are netted across all the transactions handled by the prime broker for each client.

484. In short, an anonymous, all-to-all trading venue that is accessible to the buy side would exist today, absent the collective actions of the Boycott Defendants.

B. The Boycotts Would Not Have Existed Absent the Conspiracy

485. Ken Griffin of Citadel strongly hinted at the reason that an anonymous, all-to-all trading venue has not developed in Treasuries when he compared the “anticompetitive behavior” of the dealers in the credit default swap market, which recently led to those dealers paying \$1.87 billion to settle an antitrust suit, with the “motivations” of dealers in the secondary Treasury market “to maintain a closed system,” that is not “open” to new players.¹⁷⁵ That reason is the collusion of the Boycott Defendants and the Platform Defendants they control, Tradeweb and Dealerweb.

486. It is not plausible that the Boycott Defendants boycotted BrokerTec and eSpeed, refused to support platforms that offered or planned to offer all-to-all trading like Direct Match and OpenDoor, or created Dealerweb absent collusion. In a competitive marketplace, it would have been in the individual self-interest of the Boycott Defendants, and of the Platform Defendants, to support or offer anonymous, all-to-all trading in the secondary Treasury market.

487. For example, absent a conspiracy, it would have been in the individual interest of a Boycott Defendant to ally itself with BrokerTec or eSpeed and support expansion of the platform to encompass buy-side participation. A Boycott Defendant—particularly one that is not the top player—would rationally conclude that access to the entire buy side instead of the subset of customers who now elect to request quotes from the Defendant would bring financial rewards that outweigh any losses from increased price competition and lack of access to information about upcoming trades. By being a “first mover,” a Boycott Defendant would improve its own performance by taking market share and revenues from other Boycott Defendants.

¹⁷⁵ Griffin, *supra* note 113.

488. Absent a conspiracy, an individual Boycott Defendant would logically leverage its existing single-dealer platform to seize a “first mover” advantage. Dealers have already spent millions to develop and operate single-dealer platforms (which include, as described above, Barclays’ BARX platform, Citi’s Velocity platform, and Credit Suisse’s Onyx platform). If a dealer were to expand its single-dealer platform to stream the prices made available on IDBs, and therefore offer more competitive prices to the buy side, the dealer would enable its customers to access the full depth of liquidity of the D2D platforms and the platform to gain trading volume. The dealer could charge fees as an agent of buy-side participants (instead of extracting “fees” in the form of customer information, as dealers do now). The dealer could also earn fees from serving as a prime broker where a non-FICC member wished to rely on the creditworthiness of the bank to trade.

489. Similar self-interested strategies were embraced by dealers UBS and Credit Suisse in the equities markets in the early 2000s. UBS and Credit Suisse were minor players in the equities markets at the time, but they became market leaders by embracing technology as it became available and anticipating that more was to be gained by serving as an agent in the all-to-all marketplace, and capitalizing on the ability to see and execute on flows in that marketplace, than by clinging to the role of a principal.

490. It also would have been economically rational for the Boycott Defendants and Platform Defendant Tradeweb Markets either never to have launched Dealerweb in the D2D segment or to have operated Dealerweb as an anonymous, all-to-all platform, absent the Boycott Defendants’ conspiracy. Dealerweb has no capability that BrokerTec or eSpeed lack, and the Boycott Defendants have never used Dealerweb to conduct trades in any meaningful volume. This demonstrates that neither the Boycott Defendants, nor Platform Defendant Tradeweb Markets, had

any economic rationale for launching Dealerweb in the D2D segment, other than to further their enforcement of the bifurcated market.

491. If, however, any Boycott Defendant, or Tradeweb Markets, was genuinely interested in making a return on investment in Dealerweb, it would operate Dealerweb as an anonymous, all-to-all platform, to maximize the trading volume on Dealerweb and fees. For an individual Boycott Defendant, the financial rewards of doing so would outweigh any losses from increased price competition in the secondary Treasury market.

492. The circumstance that an anonymous, all-to-all trading venue has not successfully developed in the secondary Treasury market, in the manner that market forces ordinarily would dictate, is due solely to the conspiracy. Only a conspiracy that afforded each Boycott Defendant the assurance that anonymous, all-to-all trading would not occur can explain why no Boycott Defendant has yet seized on the “first mover” advantage.

493. One Boycott Defendant alone threatening to withdraw its liquidity or fees from either BrokerTec or eSpeed would not have had the necessary coercive effect, given that any single dealer accounts for only a relatively small portion of the trading volume or fees. It was only through a collective boycott that the Boycott Defendants could inflict an anticompetitive blow. The Boycott Defendants repeatedly demonstrated their willingness and ability to threaten a platform’s existence by depriving it of the liquidity and fees it needs to survive.

494. The Boycott Defendants also shared information about their plans and intentions in telephone calls and meetings, including meetings between and among representatives of the strategic investment groups, described further below. Boards and committees of entities like Tradeweb Markets and the FICC also provided opportunities for the Boycott Defendants to plan or coordinate their boycotting activity.

495. The Boycott Defendants and Platform Defendants’ agreements were *per se* illegal agreements to thwart competition among horizontal competitors. The Boycott Defendants’ collective refusals to deal with BrokerTec and eSpeed, unless they excluded buy-side participants, and their use of Platform Defendants to reinforce that it was feasible for the Boycott Defendants to carry out their refusals, are illegal under the antitrust laws. The same goes for the Boycott Defendants use of collective pressure on State Street to prevent Direct Match from succeeding and their collective refusal to put significant liquidity on any platform that opened up to the buy-side or offered all-to-all Treasuries trading. In addition, the Boycott Defendants’ collective use of Dealerweb to coerce BrokerTec and eSpeed into excluding buy-side investors from their platforms is a further violation of the antitrust laws.

C. Other “Plus Factors” Indicate Collusive Conduct by the Boycott Defendants in the Secondary Treasury Market

496. Additional features of the secondary Treasury market, and actions of the Boycott Defendants, support the inference of concerted action on the part of those Defendants to threaten D2D platforms, as a means of stopping the platforms from opening to the buy side.

497. *First*, the Boycott Defendants wield enormous power in the secondary Treasury market. Primary dealers, by virtue of their collective position as a single source of liquidity, “remain the predominant players in the Treasury market,” as recognized by the New York Fed.¹⁷⁶

498. The power of the Boycott Defendants to engage in collusive behavior in the secondary Treasury market is amplified by the fact that other players in that market—i.e., trading platforms, investors, other banks—depend on the Boycott Defendants for financial services, for loans, and for fees they make from the Boycott Defendants, in trading including but not limited to

¹⁷⁶ Fleming, Keane & Schaumburg, *supra* note 126.

the trading of Treasuries. No platform, for example, can risk alienating the Boycott Defendants without also risking loss of Treasury and non-Treasury-related revenues. Banks like State Street cannot lightly risk losing access to the financial services they obtain from the Boycott Defendants.

499. **Second**, the Boycott Defendants have the same, strong motive to conspire. Fundamentally, the Boycott Defendants want to prevent themselves from being “disintermediated” by platforms that would allow the buy-side investors to trade with each other. The ability to buy Treasuries in the D2D segment before selling to a customer, to lock in one’s own profits, is a privilege the Boycott Defendants have long enjoyed. The homework of modeling a price curve for Treasuries is helped along by knowing the flows in the D2C segment, and an accurate price curve for Treasuries in turn makes it possible to calculate more accurately yields and prices of financial instruments, other than Treasuries, that trade in markets from which the Boycott Defendants derive profits that may far exceed profits they earn by trading Treasuries. The Boycott Defendants have a common motive in preserving the pricing advantage and the information advantage to which voice RFQ accustomed them, long ago.

500. **Third**, as described in the prior section, the parallel acts of the Boycott Defendants and the Platform Defendants were against the economic self-interest of the individual alleged conspirators.

501. **Fourth**, as described above, the Treasury market is not well regulated—even by the admission of the regulators—and this emboldens collusive action. A recent keynote address by former SEC Chair Mary Jo White at the New York Fed addressed “Prioritizing Regulatory Enhancements for the U.S. Treasury Market.”¹⁷⁷ At this address, during the second annual

¹⁷⁷ Mary Jo White, Chair, SEC, *Keynote Address at the Evolving Structure of the U.S. Treasury Market: Second Annual Conference, Prioritizing Regulators Enhancements for the U.S.*

conference on “The Evolving Structure of the U.S. Treasury Market” in the fall of 2016, former Chair White noted that although the U.S. Treasury market bore a striking resemblance to parts of the U.S. equities market, the two markets had come to be regulated quite differently, and that the “historical divergence in regulation required revisiting in light of current market conditions.”¹⁷⁸

502. To take just one example, former Chair White stated in her speech at the same conference in 2015 that “there currently is not even post-trade transparency to the public or to regulators in the significant dealer-to-customer segment of the cash Treasury market.”¹⁷⁹ This issue has been only partly fixed to date; FINRA now requires its members to report trading data to FINRA, but Treasury trades by non-FINRA members still are not being reported, and none of the FINRA-maintained data is being made public. Lack of “post trade transparency” of trades in the secondary Treasury market—even to regulators—meant that dealers, including the Boycott Defendants, had no fear that regulators might track or investigate their trading practices. FINRA also has yet to follow through on plans it announced in 2016 to prohibit “Front Running of Block Transactions,” or “Prohibitions Against Trading Ahead of Customer Orders,” as applied to government securities.¹⁸⁰ Lack of regulation gives the Boycott Defendants, among other dealers, opportunities to collude while escaping detection.

503. *Fifth*, there is a high level of communications among the Boycott Defendants, including in the course of purposeful and ongoing collaboration about companies and ventures that

Treasury Market, SEC (Oct. 24, 2016) <https://www.sec.gov/news/speech/white-keynote-us-treasury-market-conference-102416.html>.

¹⁷⁸ *Id.*

¹⁷⁹ Mary Jo White, Chair, SEC, *Keynote Address at the Evolving Structure of the U.S. Treasury Market: First Annual Conference, Taking Stock of Treasury Market Regulation*, SEC (Oct. 20, 2015) <https://www.sec.gov/news/speech/taking-stock-of-treasury-market-regulation.html>.

¹⁸⁰ Weiss, *supra* note 2.

are either the target or the means of the Boycott Defendants' coercion of platforms or investors in the secondary Treasury market. The Boycott Defendants collaborate on financial technology ("fintech") ventures through the Strategic Investment Groups they operate. These financial technology ventures include trading platforms, meaning that the Boycott Defendants collectively assess new platforms and ways to make platforms profitable for them. Executives of the Boycott Defendants sit on the Board of Tradeweb Markets, as they sat on the board of BrokerTec (before it was sold to ICAP), and as they sit on the Board and the governing committees of the DTCC and FICC.

504. As a result, there is an extremely high level of interfirm discussions among the Boycott Defendants where the topic at hand is by design electronic platforms or the operation of those platforms. In the case of Tradeweb Markets, the launching of Dealerweb as a threat to BrokerTec and eSpeed was the product of inter-Defendant discussions.

505. Executives of the Boycott Defendants who were members of strategic investment groups or heads of trading desks also maintained an ongoing dialogue about market structure issues affecting the Treasury market. These executives regularly communicated with each other during the Boycott Class Period through email and Bloomberg messages. They met informally at lunches, dinners, industry conferences, and other events. Through these discussions, they shared information about who was trading on the D2D platforms and what the plans and intentions of those platforms were for the future. They discussed their mutual desire to maintain the status quo and coordinated their boycotting activities to ensure that those activities were effective in blocking any platform from disintermediating them from their customers.

VIII. THE BOYCOTT DEFENDANTS' STRATEGIC INVESTMENT GROUPS TOOK A LEADING ROLE IN THE CONSPIRACY

506. The Boycott Defendants have long operated strategic investment groups that served as one of the means by which those Defendants coordinated their collusive activity, in markets including but not limited to the Treasury market. The Boycott Defendants used their strategic investment groups, which had the stated purpose of developing and investing in “fintech,” to coordinate efforts to boycott electronic trading platforms that threatened their joint interests.

507. The largest and most organized of the strategic investment groups is run by Boycott Defendant Goldman Sachs. There, Paul Christensen and Darren Cohen co-headed the Principal Strategic Investments Group (“PSI”) during the Boycott Class Period until 2016 when Cohen took over as head. Other Boycott Defendants with strategic investment groups included JP Morgan, Morgan Stanley, Bank of America, Barclays, Citi, and Credit Suisse.

508. JP Morgan’s group, Strategic Investments, was founded and led by Luis Valdich from 2008 until 2015, when Ana Capella Gómez Acebo assumed leadership of the group.

509. Morgan Stanley’s group is called Strategic Principal Investments. Its fixed income division was led by Angel Rodriguez-Issa during the Boycott Class Period until Rodriguez-Issa’s departure to BNP in 2016. At that time, Morgan Stanley folded together its equities and fixed income strategic investment divisions and Zheng Wang became the new leader.

510. Bank of America’s group, called Global Principal Investments, was headed by Adam Battersby during the Boycott Class Period, until he left Bank of America in March 2017.

511. Barclays employs a group known as Market Strategic Investments, and it was headed by Andrew Challis during the Boycott Class Period.

512. Citi’s strategic investments group is headed by William Hartnett.

513. Credit Suisse’s group, known as Strategic Principal Investments for Global Markets, has an arm called NEXT Investors that “identifies minority growth equity investment opportunities” in financial technology. NEXT Investors is led by Alan Freudenstein.

514. The Boycott Defendants purposely hid the scope of the operations and investments of these internal groups from public scrutiny, leading observers to describe them as “intensely secretive.”¹⁸¹ Tellingly, when one industry publication contacted ten different dealers to research these groups for a 2015 article, they all refused to talk on the record.¹⁸² Another publication remarked that Goldman Sachs’ PSI “portfolio has rarely attracted outside scrutiny, mostly because the group’s existence isn’t publicized.”¹⁸³ The little information the banks do allow to “leak” out about these groups is nebulous. Goldman Sachs claims in “briefing notes” that the purpose of its PSI group—the most organized and active of the groups—is to “develop new markets, and make existing markets more efficient, by improving their underlying structure.”¹⁸⁴

515. The example of Tradeweb Markets launching Dealerweb as a threat to BrokerTec and eSpeed in mid-2014 demonstrates that the true purpose of the internal strategic investment groups is to work in concert through the strategic investment groups to coordinate actions that will preserve an *inefficient* market structure that serves the Boycott Defendants’ collective interest. JP Morgan—which like Goldman Sachs is considered a leader in “strategic investing”—has been

¹⁸¹ Philip Georgiadis & Tim Cave, *Strategic Investment Units Driving the Evolution of Trading*, Financial News (Mar. 31, 2015) <http://m.efinancialnews.com/story/2015-03-31/banks-strategic-investment-units-drive-the-evolution-of-trading>.

¹⁸² *See id.*

¹⁸³ Liz Moyer, *Goldman Group Takes Stakes in Market Evolution*, MarketWatch (Jan. 23, 2012) <http://www.marketwatch.com/story/goldman-group-takes-stakes-in-market-evolution-2012-01-23>.

¹⁸⁴ *See Georgiadis & Cave, supra* note 181.

closer to the truth in describing the objective of its Strategic Investments group, saying that it “*co-invest[s] with other strategic investors*, including banks and market structure firms to gain and sustain competitive advantage by developing and executing principal strategic investments.”¹⁸⁵

516. Throughout the Boycott Class Period, the Boycott Defendants collectively owned and controlled Tradeweb and maintained their control of the DTCC and FICC. The Boycott Defendants installed members of their market strategy groups and other senior personnel on the boards and committees of these companies to closely monitor the companies and ensure the dealers’ control of the companies’ activities. In the Treasury market, the Boycott Defendants continue to compel BrokerTec and eSpeed to agree not to let customers trade on their CLOBs, in exchange for their continued patronage of the platforms.

517. Also within the Boycott Class Period, members of the strategic investment groups regularly conducted secret discussions, either by meeting in person or by using telephone or electronic communications to develop and implement strategies to protect the Boycott Defendants’ privileged role and the continued bifurcation of the Treasury market. The members of these strategy groups also regularly corresponded with the respective heads of their Treasury trading desks, to obtain help in implementing the “pulling of liquidity,” or the threat to deprive platforms of fees they earn from trading Treasuries or other financial instruments for the dealers.¹⁸⁶

IX. THE BOYCOTT AND PLATFORM DEFENDANTS HARMED COMPETITION AND THE BOYCOTT CLASS

518. The Boycott Defendants and the Platform Defendants, through their conspiracy, have purposefully maintained an artificial bifurcation of the secondary Treasury market for the

¹⁸⁵ *See id.* (Emphasis added).

¹⁸⁶ *See id.* (“For these units to be successful, strong relationships, both with heads of trading across asset classes [and] externally, are key to success, according to people close to the units.”)

entirety of the Boycott Class Period. Through this enforced bifurcation, Boycott and Platform Defendants have limited the buy side to trading only on platforms employing an RFQ protocol, thereby preserving the dealers' privileged position in the secondary Treasury market. As such, the Boycott Defendants have been able to obtain information in the D2C segment that they can and do use to enrich themselves, at the expense of investors. The Boycott Defendants have also harmed investors by artificially inflating bid/offer spreads and imposing increased trading costs on the D2C segment.

519. There are several reasons why all-to-all trading increases transparency and efficiency and would reduce costs for investors. All-to-all trading lowers barriers to entry and increases liquidity, creating downward pressure on transaction costs, including commissions and execution costs. On an all-to-all platform, any participant can post limit orders, improving market depth and allowing non-traditional players (including buy-side firms) to enter and capture the spread when it is set at supracompetitive levels.

520. In addition, increased transparency in an all-to-all trading environment allows customers to avoid being overcharged by dealers with better market knowledge. Mitigating the asymmetric information advantage that dealers presently enjoy *vis-à-vis* customers is another benefit of moving to an all-to-all trading platform.

521. There is a virtual consensus among experts that bid/offer spread compression is a natural consequence of migration to anonymous, all-to-all trading platforms. The introduction of electronic trading to equity options and currency markets, for example, has led to a significant compression in bid/offer spreads and reduction in costs associated with those markets.

522. The Bank for International Settlements recently explained that anonymous, all-to-all trading has had just such an impact on other interdealer fixed income markets:

Electronification of trading platforms is often associated with increased competition over price, which ensures low transaction costs (at least for small tickets). A centralised trading platform can bring together a large set of traders with opposing trading interests, reducing search frictions and raising competition to fill an order.¹⁸⁷

523. In 1973, for example, the Chicago Board Options Exchange introduced all-to-all trading for equity options, leading to drastically tighter bid/offer spreads.¹⁸⁸ Similarly, the increased use of all-to-all electronic trading platforms in the FX market has caused bid/offer spreads for the less-liquid emerging market currencies to decline by over 50% between 2004 and 2013.¹⁸⁹ Likewise, the implementation of TRACE reporting for corporate bonds reduced trading costs in that market by as much as 50%, and similar improvements were seen more recently when interest rate swap markets were opened up to competition following Dodd-Frank.¹⁹⁰

524. Another example is the case of “Open Trading,” the platform operated by MarketAxess that makes available a protocol permitting anonymous, all-to-all trading of corporate bonds. This protocol has resulted in significant savings to investors. For example, using Open Trading to execute a \$5 million trade of high-grade corporate bonds saved an average of \$10,250

¹⁸⁷ See Market Committee, *Electronic Trading in Fixed Income Markets*, Bank for Int’l Settlements (Jan. 2016), <http://www.bis.org/publ/mktc07.pdf>.

¹⁸⁸ John C. Cox & Mark Rubinstein, *Options Markets* 23-24 (1985); see also Robert C. Klemkosky & Terry S. Maness, *The Impact of Options on the Underlying Securities*, J. Portfolio Mgmt., Winter 1980, at 12; Joseph Finnerty, *The Chicago Board Options Exchange and Market Efficiency*, J. Fin. & Quantitative Analysis, Mar. 1978, at 29-38.

¹⁸⁹ See Dagfinn Rime & Andreas Schrimpf, *The Anatomy of the Global FX Market Through the Lens of the 2013 Triennial Survey*, BIS Quarterly Review (Dec. 2013) http://www.bis.org/publ/qtrpdf/r_qt1312e.pdf.

¹⁹⁰ Statement of Jonah Crane Before H. Financial Services Committee, *supra* note 12, at 6-7.

in transaction costs.¹⁹¹ It has been estimated that institutions using Open Trading's all-to-all platform for corporate bonds saved \$160 million in transaction costs over a two-year period.¹⁹² The savings to investors of an all-to-all market for Treasuries would be far greater.

525. Since 2001, equities have been quoted using a decimal format (hundredths of a dollar) to denote price. The move from using fractional "ticks" to quote prices in equities to decimalization has generally been recognized as contributing to lower bid/offer spreads in that market. By contrast, Treasuries are still quoted in fractional amounts with spreads that have not changed in over twenty years. In an all-to-all market, Treasury prices would be expected to move toward decimalization.

526. Most or all investors in the D2C segment would necessarily experience even tighter bid/offer spreads than they do now were that market to move all-to-all. This is confirmed by an economic analysis commissioned by Plaintiffs' counsel, which concludes that moving Treasuries into an all-to-all trading platform would reduce bid/offer spreads beyond their current levels in the D2C segment.

527. Accordingly, the Boycott Defendants' anticompetitive acts have harmed investors such as Plaintiffs and the Boycott Class in their business and property, and resulted in supracompetitive profits for Boycott Defendants. Moving to a more transparent all-to-all system would compress bid/offer spreads of Treasury trades to the benefit of the Boycott Class.

¹⁹¹ Rick McVey, CEO of MarketAxess, *Liquidity in the Post-Crisis Era: The Difference a Decade Makes*, LinkedIn (June 14, 2017) <https://www.linkedin.com/pulse/liquidity-post-crisis-era-difference-decade-makes-rick-mcvey>.

¹⁹² *Id.*

PART THREE: ADDITIONAL ALLEGATIONS

I. DEFENDANTS' REPEATED USE OF THE SAME PRACTICES ALLEGED HERE IN OTHER FINANCIAL MARKETS

528. The acts alleged herein, in Parts One and Two, are part of a long-standing pattern and practice of Wall Street banks. The bank Defendants have conspired to rig Libor rates, manipulate the FX market, distort the ISDAfix interest-rate benchmark, illegally fix the price of gold, and—directly on point with the instant allegations in Part Two—boycott the development of an all-to-all market in the sale of credit default swaps. JP Morgan has even admitted to manipulating the U.S. Treasuries futures market itself. With each passing investigation, it becomes clear that these are not isolated events, but rather part of an ingrained mindset on the part of the banks to disregard laws that govern the marketplace and restrict their profits.

A. Defendant JP Morgan Admitted to Illegally Manipulating the Market for U.S. Treasury Futures During the Class Period

529. On September 25, 2020, Defendant JP Morgan admitted, as Part of a Deferred Prosecution Agreement, that “[d]uring the period from at least April 2008 until January 2016,” the head of JP Morgan’s U.S. Treasuries Desk in New York and multiple other JP Morgan traders who worked on its Treasuries Desk “engaged in a scheme to defraud in connection with the purchase and sale of (i) U.S. Treasury futures contracts, on and subject to the rules of a registered entity, specifically CBOT, and/or U.S. Treasury notes and bonds in the secondary cash market...”¹⁹³ Specifically, in “thousands of trading sequences,” JP Morgan’s U.S. Treasuries Desk inserted fake orders into the market intending to “inject false and misleading information about the genuine

¹⁹³ *United States v. JP Morgan Chase & Co.*, Case 3:20-cr-00175-RNC (D. Conn. Sept. 29, 2020), ECF No. 2 (“Deferred Prosecution Agreement”) <https://www.justice.gov/criminal-fraud/file/1323586/download>.

supply and demand for U.S. Treasury Products” and “trick other market participants” with the “intent to fraudulently and artificially move the price of” Treasuries Products resulting in “at least \$105,744,906” in losses.¹⁹⁴

530. Embedded in the Deferred Prosecution Agreement, in which JP Morgan agreed to pay a “total Criminal Monetary Amount of \$920,203,600” for its manipulation of the Treasuries market and related conduct manipulating certain commodities markets, are chats in which members of JP Morgan’s Treasury Desk discuss the manipulation and one particular chat in which one trader teaches another trader how to manipulate the market.¹⁹⁵ While not identified by name in the Deferred Prosecution Agreement, the JP Morgan employees manipulating the Treasuries Market during the Class Period included Andrew Stanley Lombara—JP Morgan’s head of US Treasury trading , who worked at JP Morgan from March 2005 until February 2016; Chi Wai Lee, a Treasury trader who worked at JP Morgan from May 2006 to February 2016 and Robert Ray Allen, head of U.S. treasury trading who worked at JP Morgan from November 2009 through October 2020.

B. The Dam Breaks: Economic “Screens” Like Those Here Prompt (Successful) Investigations into the Rigging of Libor, An Interest-Rate Benchmark

531. One of the first financial benchmarks to draw scrutiny from government regulators was the London Interbank Offered Rate (“Libor”), which was supposed to reflect the rate that banks would pay to borrow funds in the inter-bank market. Following reports in the media that Libor had been manipulated—based on the use of economic “screens” highly similar to the ones

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

used herein—regulators launched investigations into the conduct of the group of “panel banks” responsible for setting Libor.¹⁹⁶

532. Those investigations have revealed that instead of submitting their honest, expected borrowing costs, the Libor panel banks instead submitted deliberately false quotes for the purpose of manipulating the published Libor rate. The governmental investigations have resulted in both criminal and regulatory charges, and have been coordinated between agencies from the United States, the United Kingdom, Canada, Japan, and the European Union.

533. The first panel bank to be formally charged was Barclays. In June 2012, Barclays was fined over \$450 million by the CFTC, DOJ, and U.K. Financial Services Authority (“FSA”). Barclays admitted to a detailed Statement of Facts, which cited scores of emails and other communications, in furtherance of their scheme to manipulate and suppress the published Libor rates.¹⁹⁷

534. Later that year, the scandal widened when, for the first time, it was revealed that Libor manipulation was not restricted to traders within the panel banks, but also involved collusion *between* banks, and between banks and interdealer brokers. This revelation occurred in connection with UBS’s settlement agreements, wherein UBS was fined over \$1.5 billion for its role in manipulating Libor rates. Regulators found “[m]ore than 2,000 instances of unlawful conduct involving dozens of UBS employees, colluding with other panel banks, and inducing interdealer

¹⁹⁶ See Rosa Abrantes-Metz, *How to Use Statistics to Seek Out Criminals*, Bloomberg (Feb. 26, 2013) <https://www.bloomberg.com/opinion/articles/2013-02-26/how-to-use-statistics-to-seek-out-criminals>

¹⁹⁷ See DOJ, Barclays Statement of Facts (June 26, 2012) <https://www.justice.gov/iso/opa/resources/9312012710173426365941.pdf>

brokers to spread false information and influence other banks.”¹⁹⁸ UBS’s settlements “exposed the systemic problems with the rate-setting process.”¹⁹⁹

535. RBS was the next to fall. In early 2013, it was charged with felony counts of wire fraud and price-fixing in violation of the Sherman Act. RBS admitted that it colluded with other banks to manipulate Libor rates. In addition to the \$250 million in criminal fines imposed by the DOJ, RBS agreed to pay \$325 million in fines and disgorgement to the CFTC, and \$137 million to the FSA. Those regulators released many specific examples of RBS’s collusive communications, in the form of emails, instant messages, and telephone transcripts between traders at RBS and other panel banks. As stated before the British Parliament by Johnny Cameron, RBS’s former Chairman of Global Banking and Markets, Libor manipulation involved “a cartel of people across a number of banks.”²⁰⁰

536. On December 4, 2013, the European Commission issued its own set of findings, and fined JP Morgan, RBS, and other banks a total of \$1.7 billion for “participating in cartels in the interest rate derivatives industry.”²⁰¹ The European Commission found that each of these banks “coordinated with each other” to manipulate Libor and related benchmarks, which included

¹⁹⁸ See CFTC, *CFTC Orders UBS to Pay \$700 Million Penalty to Settle Charges of Manipulation, Attempted Manipulation and False Reporting of Libor and Other Benchmark Interest Rates*, Press Release (Dec. 19, 2012) <https://www.cftc.gov/PressRoom/PressReleases/6472-12>.

¹⁹⁹ See Mark Scott & Ben Protess, *As Unit Pleads Guilty, UBS Pays \$1.5 Billion over Rate Rigging*, N.Y. Times (Dec. 19, 2012) <https://dealbook.nytimes.com/2012/12/19/as-unit-pleads-guilty-ubs-pays-1-5-billion-in-fines-over-rate-rigging>.

²⁰⁰ See Parliament of the United Kingdom, *Parliamentary Commission on Banking Standards, Minutes of Evidence, HL 27-III/HL 175-III* (Feb. 11, 2013) <https://publications.parliament.uk/pa/jt201314/jtselect/jtpcb/27/130211a.htm>.

²⁰¹ See European Commission, *AMENDED—Antitrust: Commission Fines Banks € 1.49 Billion for Participating in Cartels in the Interest Rate Derivatives Industry*, Press Release (Dec. 4, 2013) http://europa.eu/rapid/press-release_IP-13-1208_en.htm.

discussions of “confidential and commercially sensitive information that they are not allowed to share with other market players,” and that they “exchanged on their pricing and trading strategies and trading positions.”²⁰²

C. The Banks’ Brazenness Is Further Revealed by Investigations into the Foreign Exchange Market

537. Beginning in the fall of 2013, media reports surfaced that government regulators were investigating potential manipulation of the FX market. These investigations quickly grew in scope to include authorities from across the globe. Many of the primary dealers here have been specifically targeted by regulators for their role in the manipulation of the FX market. Many of those investigations have already resulted in criminal guilty pleas, civil and criminal penalties totaling well over \$11 billion, and the release of damning reports detailing how many of these Auction Defendants actively colluded to manipulate the FX market through consistent, clearly improper cross-bank communications about orders and planned trading activities—the same type of “cross talk” used here to rig the Treasury auction.²⁰³ Again, many of these claims were uncovered in part through econometric analysis of the type performed here, i.e., an analysis of trading patterns and price movements around pivotal points in the day.

538. In May 2015, Citi, Barclays, JP Morgan, RBS, and UBS were fined a total of \$3 billion by the DOJ, and each pled guilty to criminal conspiracy charges for manipulating FX

²⁰² See Joaquín Almunia, *Vice President of the European Commission Responsible for Competition Policy, Introductory Remarks on Cartels in the Financial Sector*, Press Conference (Dec. 4, 2013) http://europa.eu/rapid/press-release_SPEECH-13-1020_en.htm.

²⁰³ See Karen Freifeld, David Henry & Steve Slater, *Global Banks Admit Guilt in Forex Probe, Fined Nearly \$6 Billion*, Reuters (May 20, 2015) <https://www.reuters.com/article/us-banks-forex-settlement/global-banks-admit-guilt-in-forex-probe-fined-nearly-6-billion-idUSKBN0050CQ20150520>.

rates.²⁰⁴ The DOJ has since brought criminal charges against individual employees and former employees of the banks for their role in manipulating the FX market, including a former Managing Director at JP Morgan.²⁰⁵ Also in May 2015, the Federal Reserve imposed more than \$1.8 billion in fines on UBS, Barclays, Citi, JP Morgan, RBS, and Bank of America, for their “unsafe and unsound practices in the foreign (FX) exchange markets,”²⁰⁶ and the DFS fined Barclays over \$400 million for conspiring with other banks, including JP Morgan, to manipulate FX prices.²⁰⁷

539. The DOJ settlements followed a series of Orders from November 2014, where the CFTC and FCA imposed over \$3 billion in fines on Citi, JP Morgan, RBS, and UBS for manipulating the FX market, the OCC fined Bank of America, Citi, and JP Morgan another \$950 million, and the Financial Market Supervisory Authority fined UBS \$141 million. As of the filing of the Consolidated Complaint, other authorities across the globe were also actively investigating the banks’ manipulation of the FX market, including the Federal Reserve, the SEC, the Brazilian Council for Economic Defense (“CADE”), which imposed fines on JP Morgan and several other

²⁰⁴ See Plea Agreement, *U.S. v. Barclays PLC* (D. Conn. May 20, 2015); Plea Agreement, *U.S. v. Citicorp* (D. Conn. May 20, 2015); Plea Agreement, *U.S. v. JP Morgan Chase & Co.* (D. Conn. May 20, 2015); Plea Agreement, *U.S. v. Royal Bank of Scotland PLC* (D. Conn. May 20, 2015); Plea Agreement, *U.S. v. UBS AG* (D. Conn. May 20, 2015); *In the Matter of Barclays Bank PLC*, CFTC Docket No. 15-24, Order Instituting Proceedings (May 20, 2015).

²⁰⁵ See DOJ, *Three Former Traders for Major Banks Indicted in Foreign Currency Exchange Antitrust Conspiracy*, Press Release (Jan. 10, 2017) <https://www.justice.gov/opa/pr/three-former-traders-major-banks-indicted-foreign-currency-exchange-antitrust-conspiracy>.

²⁰⁶ See Fed. Reserve, *Federal Reserve Announces Fines Totaling More Than \$1.8 Billion Against Six Major Banking Organizations for Their Unsafe and Unsound Practices in the Foreign Exchange (FX) Markets*, Press Release (May 20, 2015) <https://www.federalreserve.gov/newsevents/pressreleases/enforcement20150520a.htm>.

²⁰⁷ See NY State Department of Financial Services, Consent Order at ¶ 44, *In re Barclays Bank PLC* (Nov. 17, 2015) https://www.dfs.ny.gov/system/files/documents/2020/04/ea151117_barclays.pdf.

banks,²⁰⁸ the South African Competition Commission (“SACC”), which found that Bank of America, Credit Suisse, JP Morgan, and several other banks had a “general agreement to collude,”²⁰⁹ the Australia Securities and Investment Commission (“ASIC”),²¹⁰ and the Korea Fair Trade Commission (“KFTC”). Many of the governmental investigations of FX manipulation remain ongoing, including major inquiries by the European Commission.²¹¹

540. The settlements entered to date lay out the details of how the dealers colluded to manipulate FX prices to their benefit. For instance, the CFTC found that Citi, JP Morgan, RBS, and UBS “used private electronic chat rooms to communicate and plan their attempts to manipulate the FX benchmark prices.”²¹² The traders used those inter-bank chat-rooms to “coordinate[] their trading with certain FX traders at other banks to attempt to manipulate certain FX benchmark rates,” and to “disclose[] confidential customer order information and trading positions, alter[]

²⁰⁸ See Assessoria de Comunicação Social, *CADE Signs Five Agreements Regarding a Cartel Investigation in the Foreign Exchange Market and Opens a New Cartel Investigation in the Brazilian Exchange Market*, CADE (Dec. 9, 2016) <http://en.cade.gov.br/cade-signs-five-agreements-regarding-a-cartel-investigation-in-the-foreign-exchange-market-and-opens-a-new-cartel-investigation-in-the-brazilian-exchange-market>.

²⁰⁹ See Competition Commission South Africa, *Competition Commission Prosecutes Banks (Currency Traders) for Collusion*, Media Statement (Feb. 15, 2017) <http://www.compcom.co.za/wp-content/uploads/2017/01/Competition-Commission-prosecutes-banks-currency-traders-for-collusion-15-Feb-2016.pdf>.

²¹⁰ See Georgia Wilkins, *ASIC Launches Investigation into Foreign Exchange Benchmarks*, The Sydney Morning Herald (Mar. 21, 2014) <https://www.smh.com.au/business/asic-launches-investigation-into-foreign-exchange-benchmarks-20140320-355wo.html>.

²¹¹ See Gaspard Sebag & Stephanie Bodoni, *FX Probe Said to Emerge from Shadows as EU Seeks Bank Data*, Bloomberg (June 3, 2016) <https://www.bloomberg.com/news/articles/2016-06-03/currency-probe-said-to-emerge-from-shadows-as-eu-seeks-bank-data>.

²¹² See *In the Matter of Citibank, N.A.*, Order Instituting Proceedings, CFTC Dkt. No. 15-03 (Nov. 11, 2014) <https://www.cftc.gov/sites/default/files/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcitibankorder111114.pdf>.

trading positions to accommodate the interests of the collective group, and agree[] on trading strategies as part of an effort by the group to attempt to manipulate certain FX benchmark rates.” Those exclusive chatrooms were often given colorful names like “The Cartel,” “The Mafia,” “The Club,” “The Bandits’ Club,” “The Dream Team,” “One Team, One Dream,” and “The Sterling Lads.”

541. With customer information in hand, and a decision made to move prices in a particular direction, the colluding banks would equip each other with the tools to do so. For example, where one bank had a contrary book of orders, those orders would be “netted off” with third parties in order to reduce the number of adverse orders that were to be processed during the pivotal polling window—a process referred to as “taking out the filth” or “clearing the decks.” When the banks had orders going in the same direction, they would “build” the orders by transferring them between other conspirators—a process referred to as “giving you the ammo.” That way a subset of banks could more easily control the process of ensuring the trades had the maximum effect at just the right time.

542. Industry sources interviewed by Bloomberg have confirmed that Treasuries traders used the same types of private electronic chat-rooms to communicate with their counterparts at other banks, including to “swap gossip” about their clients’ Treasury orders. This was then used to coordinate bidding strategies at the auction.

D. The Banks’ Collusion to Manipulate the ISDAfix Interest-Rate Benchmark Reveals Evidence of Treasuries Manipulation

543. ISDAfix is another key interest-rate benchmark, as it is designed to represent current market fixed rates for interest rate swaps of various terms. In November 2012, the CFTC issued subpoenas focused on the issue of whether “ISDAfix was rigged.” In April 2013, it was revealed that the CFTC and other regulators were actively investigating the manipulation of U.S.

Dollar ISDAfix. The CFTC was reported to be sifting through over one million emails and instant messages, as it simultaneously interviewed current and former employees of banks and dealers as part of its ISDAfix investigation. Barclays, Citi, RBS, and UBS have all admitted in their recent regulatory filings to being subject to ISDAfix investigations, including having “ongoing obligations” to cooperate with authorities.

544. Between May 2015 and February 2017, the CFTC fined Barclays, Citi, Goldman Sachs, and RBS a total of \$570 million for their attempted manipulation of ISDAfix.²¹³ After reviewing thousands of documents and audio recordings of communications, the CFTC concluded that from at least 2007 through 2012, Barclays, Citi, Goldman Sachs, and RBS traders “attempted to manipulate [ISDAfix] . . . to benefit the[ir] Bank’s derivatives positions.” As described in the Order against Barclays, this manipulation took two main forms: (1) targeted transactions around the 11 a.m. fixing window in a manner designed to alter yields/prices; and (2) responding to the ISDAfix “poll” with submissions that did not in fact match the banks’ actual rates. Indeed, Barclays traders acknowledged, “ISDAfix is manipulated.”

545. The CFTC’s investigation has also led to revelations about manipulation of the Treasury market, to which the ISDAfix benchmark is closely linked. In its Orders against Barclays, Citi, Goldman Sachs, and RBS, the CFTC found that these banks’ traders engaged in manipulation through bidding, offering, or executing trades in U.S. Treasuries. The CFTC specifically described instances where Barclays, RBS, and Goldman Sachs derivatives traders

²¹³ See *In the Matter of Barclays Bank PLC*, CFTC Docket No. 15-25, Order Instituting Proceedings (May 20, 2015) (\$115 million fine); *In the Matter of Citibank N.A.*, CFTC Docket No. 16-16, Order Instituting Proceedings (May 25, 2016) (\$250 million fine); *In the Matter of The Goldman Sachs Group, Inc.*, CFTC Docket No. 17-03, Order Instituting Proceedings (Dec. 21, 2016) (\$120 million fine); *In the Matter of Royal Bank of Scotland plc*, CFTC Docket No. 17-08 (Feb. 3, 2017) (\$85 million fine).

coordinated with traders on the banks' Treasuries desk to bid on or execute Treasuries transactions for purposes of influencing ISDAfix.

546. In an S.D.N.Y. class action proceeding alleging manipulation of ISDAfix by many of the same Auction Defendants as here, settlements of over \$500 million were given final approval, including from Auction Defendants Bank of America, BNPP, Citi, Credit Suisse, Goldman Sachs, JP Morgan, Morgan Stanley, RBS, and UBS.

E. Investigations into Manipulation of the Gold Market

547. The DOJ, CFTC, FCA, the European Commission, the Swiss Competition Commission (WEKO), the Swiss financial regulator FINMA, and the German financial regulator BaFin all launched probes into whether certain banks (including Barclays, Goldman Sachs, JP Morgan, and UBS) also have sought to manipulate the market for gold.²¹⁴

548. In May 2014, the FCA released the results of its investigation of Barclays, which found that the bank failed to “create or implement adequate policies or procedures to properly manage the way in which Barclays’ traders participated in the Gold Fixing [a system used to set a benchmark price for gold] . . . and create systems and reports that allowed for adequate monitoring

²¹⁴ See Rosa Abrantes-Metz, *How to Keep Banks from Rigging Gold Prices*, Bloomberg (Dec. 19, 2013) <https://www.bloomberg.com/opinion/articles/2013-12-19/how-to-keep-banks-from-rigging-gold-prices>; Liam Vaughan, *Gold Fix Study Shows Signs of Decade of Bank Manipulation*, Bloomberg (Feb. 28, 2014) <https://www.bloomberg.com/news/articles/2014-02-28/gold-fix-study-shows-signs-of-decade-of-bank-manipulation>; Jean Eaglesham & Christopher M. Matthews, *Big Banks Face Scrutiny over Pricing of Metals: U.S. Justice Department Investigates Price-Setting Process for Gold, Silver, Platinum, and Palladium*, Wall Street J. (Feb. 23, 2015) <http://www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801>; Foo Yun Chee, *EU Antitrust Regulators Investigate Precious Metals Trading*, Reuters (Aug. 25, 2015) <https://www.reuters.com/article/uk-eu-metals-antitrust/eu-antitrust-regulators-investigate-precious-metals-trading-idUKKCN0QU1NW20150825>.

of traders' activity in connection with the Gold Fixing.”²¹⁵ As a result of these failures, “Barclays was unable to adequately monitor what trades its traders were executing in the Gold Fixing or whether those traders may have been placing orders to affect inappropriately the price of gold in the Gold Fixing.”²¹⁶

549. The FCA detailed a specific instance where Barclays traders intentionally drove down the Fix price of gold so as to avoid the payment it would have had to make to a customer pursuant to a digital option contract.²¹⁷ This was accomplished by the placement of several large, fictitious “sell” orders at the beginning of the auction period, which caused prices to drop during the auction, and the resulting Fixing price to drop as well. Traders interviewed by Bloomberg stated that this was not a one-off event, but rather was “common practice” among investment banks.²¹⁸

550. FINMA found similar problems at UBS, which was also a major participant in the gold market.²¹⁹ FINMA observed that UBS's FX and precious metals trading desks were closely integrated, and found that just as in foreign exchange trading, UBS's precious metals traders engaged in “serious misconduct,” including (1) sharing customer order information with other

²¹⁵ See Final Conduct Authority, Final Notice to Barclays Bank PLC (May 23, 2014) <https://www.fca.org.uk/static/documents/final-notice/barclays-bank-plc.pdf>.

²¹⁶ *Id.*

²¹⁷ The kind of a digital option (also sometimes referred to simply as a “digital”) at issue had only two potential values: a fixed payout to the customer if the option finished “in the money” (i.e., the price exceed the specific barrier price), or no payout if the option finished “out of the money” (i.e., the price was at or below the specific barrier price).

²¹⁸ Dave Michaels, Suzi Ring & Julia Verlaine, *Barclays Fine Spurs U.K. Scrutiny of Derivatives Conflict*, Bloomberg (June 5, 2014) <https://www.bloomberg.com/news/articles/2014-06-05/barclays-fine-leads-to-new-u-k-scrutiny-of-derivatives-conflict>.

²¹⁹ FINMA, *Foreign Exchange Trading at UBS AG: Investigation Conducted by FINMA* (Nov. 12, 2014) <https://www.finma.ch/en/news/2014/11/mm-ubs-devisenhandel-20141112/>.

banks, and (2) manipulative trading strategies in and around the Fixing window for the purpose of altering prices.²²⁰ FINMA found that this conduct was tolerated or even engaged in by managers with responsibility for overseeing precious metals traders. UBS has since secured immunity from criminal charges with respect to a DOJ investigation into misconduct connected to trading in the precious metals markets.²²¹

551. In September 2015, WEKO announced that it had found “indications that possible prohibited competitive agreements in the trading of precious metals were agreed among” several banks, including Auction Defendants Morgan Stanley and UBS.²²² As a result, it commenced further investigations into “possible collusion in the precious metals market by several major banks.”²²³ Also in September 2015, the FCA released the results of a review of a number of (unidentified) banks, brokers, interdealer brokers, and trading firms’ market abuse controls. It concluded that “awareness of market abuse risk was poor,” and there was an “unwillingness to consider how recent market manipulation cases such as those in [the] Gold fix could relate to the markets they traded.”²²⁴

²²⁰ *Id.*

²²¹ *United States v. UBS AG*, No. 3:15-cr-00076 (D. Conn. May 20, 2015) (“Plea Agreement”) at ¶¶ 6-7 (“In exchange for UBS’s guilty plea . . . the Criminal Division agrees that it will not file additional criminal charges against UBS [relating to] information disclosed by UBS . . . relating to precious metals trading markets”) <http://www.justice.gov/file/440521/download>.

²²² See Joshua Franklin & Jan Harvey, *Swiss Watchdog Opens Bank Probe into Precious Metal Collusion*, Reuters (Sept. 29, 2015), <https://www.reuters.com/article/us-precious-manipulation-swiss/swiss-watchdog-opens-bank-probe-into-precious-metal-collusion-idUSKCN0RS0DX20150929>.

²²³ *Id.*

²²⁴ See Financial Conduct Authority, *Commodities Trading Thematic (CT) Review* (Sept. 2015) <https://www.fca.org.uk/publication/newsletters/market-watch-49.pdf>.

F. Governmental Investigations and Settlements by Boycott Defendants for Boycotting All-To-All Platforms for Credit Default Swaps

552. The Boycott Defendants’ use of group boycott to maintain a bifurcated market is also consistent with prior collusive conduct—in this case, joint actions taken to prevent electronic exchanges from emerging in the market for credit default swaps (“CDS”). Indeed, certain of the collusive steps taken by the Boycott Defendants as to Treasuries occurred through the same individuals and groups, and at the same meetings, as the collusive conduct that has been documented in the CDS markets. This pattern of bad acts reveals that the conduct challenged in this action is not happenstance, but part of a calculated strategy by the Boycott Defendants to preserve supracompetitive profits for themselves at the expense of investors.

553. The Boycott Defendants’ misconduct in the CDS market has been well documented and is the subject of two separate investigations by the DOJ²²⁵ and the European Commission (“EC”).²²⁶ The DOJ and EC investigations were spurred by complaints of market participants that the Boycott Defendants, who were the major CDS dealers, were abusing their control of the market to limit price transparency and competition.²²⁷

554. The public statements made by the DOJ and EC describe anticompetitive conduct on the part of the Boycott Defendants similar to conduct described in this Action. For example, the EC stated that “the banks acted collectively to shut out exchanges from the market because they feared that exchange trading would have reduced their revenues from acting as intermediaries

²²⁵ Paul Murphy, *The DoJ Digs into the CDS Market*, Financial Times (July 14, 2009) <https://ftalphaville.ft.com/2009/07/15/62001/the-doj-digs-into-the-cds-market/?mhq5j=e5>.

²²⁶ European Commission, *Antitrust: Commission Probes Credit Default Swaps Market*, Press Release (April 29, 2011) http://europa.eu/rapid/press-release_IP-11-509_en.htm.

²²⁷ See Liz Rappaport, Carrick Mollenkamp & Serena Ng, *U.S. Tightens Its Derivatives Vise*, Wall Street Journal (July 15, 2009) <http://www.wsj.com/articles/SB124756743503138067>.

in the OTC market.”²²⁸ The EC believed that “the investment banks also sought to shut out exchanges . . . by coordinating the choice of their preferred clearing house.”²²⁹

555. There are also similarities in the means by which exchange-like trading was blocked—i.e., collective control over the system’s infrastructure, by way of group boycotts. For instance, the Boycott Defendants blocked an alternative trading platform, known as CMDX, jointly backed by the Chicago Mercantile Exchange (“CME”) and Citadel, even though the Boycott Defendants were offered equity in the venture, creating (in the absence of collusion) significant upside for those who would move first to support the migration to an exchange.²³⁰

556. CMDX was operationally ready by the fall of 2008²³¹ and was initially backed by several dealers.²³² CMDX ran into a brick wall, however, once the CDS dealers, including the Boycott Defendants, appreciated the platform’s potential.²³³ As here, the dealers enjoyed the benefit of being on the boards of entities that controlled the CDS system’s infrastructure. In CDS, the relevant entities were Markit Group Ltd. (“Markit”) and the International Swaps and

²²⁸ European Commission, *Antitrust: Commission Sends Statement of Objections to 13 Investment Banks, ISDA and Markit in Credit Default Swaps Investigation*, Press Release (July 1, 2013) http://europa.eu/rapid/press-release_IP-13-630_en.htm.

²²⁹ *Id.*

²³⁰ *CME Sees up to Six Dealers Backing Credit Swaps Platform*, Financial News (Dec. 23, 2008) <http://www.efinancialnews.com/story/2008-12-23/cme-sees-up-to-six-dealers-backing-credit-swaps-platform-1?ea9c8a2de0ee111045601ab04d673622>.

²³¹ Ciara Linnane & Karen Brettell, *NY Federal Reserve Pushes for Central CDS Counterparty*, Reuters (Oct. 6, 2008) <https://jp.reuters.com/article/instant-article/idUSN0655208920081006>,

²³² *CME Sees up to Six Dealers Backing Credit Swaps Platform*, *supra* note 230.

²³³ Serena Ng, *Friction on Swaps Response*, Wall Street Journal (June 3, 2009) <https://www.wsj.com/articles/SB124390301244674747>.

Derivatives Association (“ISDA”), whose boards were dominated by representatives of the dealer community.

557. Though CMDX announced operational readiness, it believed it first needed to seek licenses from Markit and ISDA to use certain intellectual property. But governmental investigators found that the dealers used their control over Markit and ISDA, and thus over licensing decisions, to prevent CMDX from launching with exchange-like features.²³⁴ The dealers insisted that a dealer stand on one side of every transaction, just as they did, and are doing, in the Treasury market, by and through the FICC and its rules.

558. A series of private class actions were filed against twelve CDS dealers, ISDA, and Markit, alleging that they had conspired to boycott the exchange trading of CDS. The cases were consolidated into a single action. Though the defendants never admitted liability, a class-action settlement was given final approval, pursuant to which the defendants collectively paid over \$1.87 billion, and agreed to injunctive relief that will help clear the way for exchange trading of CDS.²³⁵

II. CLASS ACTION ALLEGATIONS

559. Plaintiffs bring this action individually and as a class action under Rule 23(a) and (b)(3) of the Federal Rules of Civil Procedure, seeking relief on behalf of the following two classes of injured investors (the “Classes”).²³⁶

²³⁴ European Commission, *Antitrust: Commission Sends Statement of Objections to 13 Investment Banks, ISDA and Markit in Credit Default Swaps Investigation*, *supra* note 228.

²³⁵ See Katy Burne, *Big Banks Agree to Settle Swaps Lawsuit*, Wall Street Journal (Sept. 12, 2015) <http://www.wsj.com/articles/banks-wall-street-groups-agree-to-settle-credit-swaps-antitrust-case-1441988741>.

²³⁶ The proposed classes exclude wholly foreign transactions—that is, transactions involving foreign defendant entities and foreign plaintiff entities, with no connection to U.S. commerce.

560. With respect to the Auction Defendants' conspiracy to manipulate Treasury auction prices (the "Auction Class"):

All persons or entities who during the period from January 1, 2007 through June 8, 2015: (1) purchased Treasuries in an auction; (2) transacted in Treasuries, when-issued securities, or Treasury options with an Auction Defendant (or any affiliate thereof); or (3) transacted in Treasury futures or exchange-traded Treasury options.

561. Excluded from the Auction Class are the Auction Defendants and their employees, affiliates, parents, subsidiaries, and co-conspirators, whether or not named in this Complaint, and the United States Government and New York Fed.

562. With respect to Boycott and Platform Defendants' conspiracy to engage in group boycotts (the "Boycott Class"):

All persons or entities who, from November 15, 2013 to the present, transacted in Treasury Securities in the secondary Treasury market with a Boycott Defendant (or any affiliate thereof).

563. Excluded from the Boycott Class are the Boycott Defendants and the Platform Defendants, and their employees, affiliates, parents, subsidiaries, and co-conspirators, whether or not named in this Complaint, and the United States Government and New York Fed.

564. **Numerosity.** There are many thousands of Class Members of both Classes, making both Classes so numerous and geographically dispersed that joinder of all Class Members is impracticable. Members of both Classes are so numerous that joinder is impracticable. Plaintiffs do not know the exact size of the Classes, but believe that there are thousands of Class members geographically dispersed throughout the United States.

565. **Typicality.** Plaintiffs' claims are typical of the claims of the other Class Members, with respect to both Classes. Plaintiffs and the Class Members sustained damages arising out of Defendants' common course of conduct in violation of law as complained of herein. The injuries

and damages of each Class Member were directly caused by Defendants' wrongful conduct in violation of the laws as alleged herein.

566. ***Adequacy of Representation.*** Plaintiffs are represented by counsel who are experienced and competent in the prosecution of class action antitrust litigation. Plaintiffs and their counsel have the necessary financial resources to adequately and vigorously litigate this class action. Plaintiffs can and will fairly and adequately represent the interests of the Classes and have no interests that are adverse to, conflict with, or are antagonistic to the interests of the Classes.

567. ***Commonality.*** There are questions of law and fact common to the Classes, which questions relate to the existence of the conspiracy alleged, and the type and common pattern of injury sustained as a result thereof, including, but not limited to:

- a. Whether Defendants and their co-conspirators entered into and engaged in a horizontal contract, combination, or conspiracy in restraint of trade to restrict competition in the Treasury auction, and to jointly boycott entities that would introduce competition on Treasuries bid/offer spreads in the United States;
- b. The identity of the participants in the conspiracy;
- c. The scope and duration of the conspiracy;
- d. The nature and character of the acts performed by Defendants and their co-conspirators in furtherance of the conspiracy;
- e. Whether Defendants' conduct violated the antitrust laws;
- f. Whether the conduct of Defendants and their co-conspirators, as alleged, caused injury to the business and property of Plaintiffs and other members of the Classes;

- g. The effect of Defendants' alleged conspiracy on the prices associated with the purchase and sale of Treasuries sold in the United States during the Class Periods;
- h. The appropriate measure of damages sustained by Plaintiffs and other members of the Classes;
- i. Whether Plaintiffs and other Class members are entitled to injunctive relief; and
- j. The appropriate injunction needed to restore competition.

568. **Predominance.** Questions of law and fact common to the members of the Classes predominate over questions that may affect only individual Class members because Defendants have acted on grounds generally applicable to the entire Classes, thereby making a common methodology for determining class damages as a whole appropriate. Such generally applicable conduct is inherent in Defendants' wrongful conduct.

569. **Superiority.** Class action treatment is a superior method for the fair and efficient adjudication of the controversy. Such treatment will permit a large number of similarly situated, geographically dispersed persons or entities to prosecute their common claims in a single forum simultaneously, efficiently, and without the unnecessary duplication of evidence, effort, or expense that numerous individual actions would engender. The benefits of proceeding through the class mechanism, including providing injured persons or entities a method for obtaining redress on claims that could not practicably be pursued individually, substantially outweighs potential difficulties in management of this class action. The Classes have a high degree of cohesion, and prosecution of the action through representatives would be unobjectionable.

570. *Ascertainability.* The members of the Classes are ascertainable by applying objective criteria to business records.

571. Plaintiffs know of no special difficulty to be encountered in the maintenance of this action that would preclude its maintenance as a class action.

III. EQUITABLE TOLLING OF THE STATUTE OF LIMITATIONS FOR THE AUCTION CLASS DUE TO THE AUCTION DEFENDANTS' CONCEALMENT OF THEIR MISCONDUCT

572. The Auction Defendants concealed their wrongdoing in manipulating prices. Thus, the statute of limitations relating to the claims for relief alleged herein by the Auction Class was tolled, due both to the Auction Defendants' affirmative acts of concealment and the inherently self-concealing nature of their private, unregulated conduct.

573. The Auction Defendants' success in concealing their collusion was facilitated by their tremendous control over the Treasury market, which was aided in no small part by virtue of the Auction Defendants' positions as dominant primary dealers.

574. Neither Plaintiffs nor the Auction Class knew of the Auction Defendants' unlawful and self-concealing manipulative acts and could not have discovered them by the exercise of reasonable due diligence, if at all, at least prior to public reports of governmental investigations concerning possible manipulation of Treasury auctions in June 2015. Plaintiffs and the Auction Class also lacked any basis for identifying the wrongdoers or calculating damages before that date. Indeed, the Auction Defendants' conduct concerning Treasury auctions was so well-hidden that they kept global regulators unaware of such conduct for years.

575. Following the reports of the government's investigation becoming public, Plaintiffs retained counsel, who undertook an investigation into possible manipulation of Treasury auction prices and retained economic consultants to undertake sophisticated economic investigations of the Treasury market and whether it was subject to manipulation.

576. Reasonable due diligence could not have uncovered the Auction Defendants' manipulative conspiracy because: (i) the Treasury sale process was held out as being set by an impartial, competitive auction based on market factors; (ii) the Treasury auctions are conducted through confidential bids, which are not publicly available; (iii) the Auction Defendants' trading positions and strategies are also largely not public information; (iv) the bilateral, non-exchange traded nature of many of the transactions at issue; (v) the highly specialized nature of the various aspects of the Treasury markets make it extraordinarily difficult for an ordinary person to assess improprieties; and (vi) the Auction Defendants did not tell Plaintiffs or other Auction Class Members that they were conspiring to fix, stabilize, maintain, and/or otherwise manipulate Treasury auction prices.

577. The Auction Defendants also took active steps to conceal evidence of their misconduct from Plaintiffs, the Auction Class, regulators, and the public including, *inter alia*: (i) holding out the Treasury issuance process as an impartial, arms-length auction that reflected competitive market factors; (ii) stating that Treasury auction prices reflected normal market forces; (iii) maintaining the secrecy of the Treasury auction process; (iv) avoiding any discussion in public fora of manipulation of Treasury auction prices; (v) refusing to comment on, or affirmatively denying allegations of, manipulation reported by the press in or after June 2015; and (vi) using non-public proprietary electronic communication platforms (*e.g.*, electronic chatrooms, instant messaging, *etc.*) to exchange confidential customer information and coordinate their bidding strategies.

578. In addition, the Auction Defendants failed to have the proper internal controls in place to detect internal misconduct concerning Treasury auctions. Such internal failures made it all the more difficult for Plaintiffs, the Auction Class, government regulators, and the public to

become aware of the Auction Defendants' and their co-conspirators' misconduct. Indeed, even following government investigations concerning other financial benchmark manipulation that came to light in 2012 and 2013, the Auction Defendants did not examine their internal controls surrounding Treasury auctions and chose instead to continue to conceal their misconduct.

579. For example, many Auction Defendants did not ban their employees from using electronic chat-rooms to communicate with their counterparts at other banks, if they have banned their employees from engaging in such communications at any point, until 2014.²³⁷ Such failures are prevalent among the Auction Defendants. For instance, the Swiss financial regulator FINMA also found UBS to have failed to have adequate benchmarks surrounding precious metals benchmarks. FINMA noted that although many in UBS were aware of manipulation and the fact that internal controls were deficient, UBS employees voluntarily chose not to take any action and instead helped to conceal the activity.

580. As a result of the Auction Defendants' and their co-conspirators' affirmative steps to conceal their improper conduct, their willful decision not to put in place proper controls to detect improper conduct, the self-concealing nature of the price-fixing conspiracy, and the resulting lack of public information about material aspects of the conspiracy, collusion, and trading based on nonpublic information, the statute of limitations was tolled for Plaintiffs' claims.

²³⁷ See Scaggs, Kruger, and Geiger, *As U.S. Probes \$12.7 Trillion Treasury Market, Trader Talk Is a Good Place to Start*, *supra* note 6.

IV. CAUSES OF ACTION

FIRST CAUSE OF ACTION
(Conspiracy to Restrain Trade in Violation of Section 1 of the Sherman Act, for the Auction Class)

581. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein. This cause of action is against the Auction Defendants on behalf of the Auction Class, for the information-sharing and bid-rigging conspiracy alleged above.

582. The Auction Defendants and their unnamed co-conspirators entered into and engaged in a combination and conspiracy that was an unreasonable and unlawful restraint of trade in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, *et seq.*

583. During the Auction Class Period, the Auction Defendants agreed to reduce competition amongst themselves by fixing and/or manipulating prices.

584. The conspiracy is a *per se* violation of Section 1 of the Sherman Act. Alternatively, the conspiracy resulted in substantial anticompetitive effects in the Treasury market. There is no legitimate business justification for, or procompetitive benefits from, the Auction Defendants' conduct.

585. As a direct and proximate result of the Auction Defendants' violation of Section 1 of the Sherman Act, those who transacted in or held Treasuries or related instruments have suffered injury to their business and property throughout the Auction Class Period. Those harmed are entitled to treble damages for the violations of the Sherman Act alleged herein. They are also entitled to an injunction against the Auction Defendants preventing and restraining the violations alleged herein.

SECOND CAUSE OF ACTION
(Unjust Enrichment, for the Auction Class)

586. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein.

587. This cause of action is against the Auction Defendants, for their conspiracy to use shared private customer information to manipulate the results of Treasury auctions and manipulate the prices of investments linked to Treasury auction prices. This count is only against each Auction Defendant for those transactions in which it (or an affiliate) was the counterparty.

588. The Auction Defendants were unjustly enriched when they transacted with Plaintiffs at artificial levels. They sold Treasuries and related instruments at artificially high prices and purchased them at artificially low prices.

589. Those who transacted in or held such instruments have no adequate remedy at law for these misappropriated gains. The Court should issue a constructive trust compelling the Auction Defendants to disgorge to those Plaintiffs and members of the Class all unlawful or inequitable proceeds. Such counterparties are also entitled to rescission of the transactions or rescissory damages.

THIRD CAUSE OF ACTION
(Conspiracy by the Boycott Defendants and Platform Defendants to Restrain Trade in Violation of Section 1 of the Sherman Act, for the Boycott Class)

590. Plaintiffs hereby incorporate each preceding and succeeding paragraph as though fully set forth herein.

591. As alleged above, the Boycott Defendants and Platform Defendants entered into and engaged in a horizontal contract, combination, or conspiracy in restraint of trade to restrict competition in the D2C and D2D segments of the secondary market and to jointly boycott entities that would introduce competition to Treasury trades in the United States in violation of Section 1

of the Sherman Act, 15 U.S.C. § 1. Such contract, combination, or conspiracy constitutes a naked, *per se* violation of the federal antitrust laws and is, moreover, an unreasonable and unlawful restraint of trade that lacks any countervailing procompetitive rationale.

592. Alternatively, the conspiracy resulted in substantial anticompetitive effects in the secondary Treasury market. There is no legitimate business justification for, or procompetitive benefits from, the Boycott Defendants' conduct.

593. The Boycott Defendants' and Platform Defendants' contract, combination, agreement, understanding, or concerted action occurred within the flow of, and substantially affected, interstate commerce.

594. Treasuries are, and are widely perceived by those in the industry to be, a uniquely important financial product. The market for the purchase and sale of Treasuries in the United States is treated as a distinct financial market by market participants, government actors, and in economic literature. Derivative products are not adequate substitutes for Treasuries.

595. The relevant geographic market is the United States. The Boycott Defendants, however, dominate more broadly defined geographic markets as well, including the global market.

596. As a direct and proximate result of the Boycott Defendants' and Platform Defendants' scheme and concrete acts undertaken in furtherance thereof, competition in Treasury trades between the Boycott Defendants and their non-dealer customers has been severely curtailed. Plaintiffs and other Boycott Class members have been injured and financially damaged in their respective businesses and property, in amounts that are presently undetermined. Plaintiffs' and each Boycott Class member's damages are directly attributable to the Boycott Defendants' and Platform Defendants' conduct, which resulted in all Boycott Class members paying artificially inflated bid/offer spreads on every Treasury security they purchased or sold in the secondary

market during the Boycott Class Period. Plaintiffs' injuries also consist of artificially inflated transaction costs associated with the purchase and sale of Treasuries in the United States in the secondary market caused by the Boycott and Platform Defendants' misconduct. Plaintiffs' injuries are of the type the antitrust laws were designed to prevent, and flow from that which makes the Boycott and Platform Defendants' conduct unlawful.

FOURTH CAUSE OF ACTION
(Unjust Enrichment, for the Boycott Class)

597. Plaintiffs hereby incorporate each preceding and succeeding paragraph as though fully set forth herein.

598. Because of the acts of the Boycott Defendants and Platform Defendants as alleged herein, Defendants have been unjustly enriched at the expense of Plaintiffs and the Boycott Class.

599. Plaintiffs and the Boycott Class seek restitution of the monies of which they were unfairly and improperly deprived, as described herein, including as a result of being forced to transact at wider bid/offer spreads than would exist in a competitive market absent Boycott and Platform Defendants' collusive conduct, and as a result of information that the Boycott Defendants improperly obtained from investors in the D2C secondary Treasury market as a result of that market's bifurcated structure. Plaintiffs and the Boycott Class also seek restitution of the fees that the Boycott Defendants improperly collected from them through trades in the D2C segment.

600. The Boycott Class has no adequate remedy at law for these misappropriated gains. The Court should issue a constructive trust compelling the Boycott Defendants and Platform Defendants to disgorge to those Plaintiffs and members of the Boycott Class all unlawful or inequitable proceeds. Such counterparties are also entitled to rescission of the transactions or rescissory damages.

PRAYER FOR RELIEF

601. WHEREFORE, Plaintiffs, on behalf of themselves and the proposed Classes of similarly situated entities, respectfully request:

- a. That the Court certify this lawsuit as a class action under Rules 23(a), (b)(2), and (b)(3) of the Federal Rules of Civil Procedure, that Plaintiffs be designated as class representatives, and that Plaintiffs' counsel be appointed as Class counsel for the Classes;
- b. That the unlawful conduct alleged herein be adjudged and decreed to violate the Sherman Act;
- c. That the Boycott and Platform Defendants be permanently enjoined and restrained from continuing and maintaining the Boycott conspiracy alleged in the Complaint;
- d. That the Court award Plaintiffs and the Classes damages against Defendants for their violations of federal antitrust laws, in an amount to be trebled in accordance with such laws, plus interest;
- e. That the Court award monetary losses suffered by Class Members that were in contractual or quasi-contractual relationships with a Defendant or an affiliate thereof;
- f. That the Court award Plaintiffs and the Classes their costs of suit, including reasonable attorneys' fees and expenses, as provided by law; and
- g. That the Court direct such further relief it may deem just and proper.

JURY DEMAND

Pursuant to Federal Rule of Civil Procedure 38, Plaintiffs, on behalf of themselves and the proposed Class, demand a trial by jury on all issues so triable.

DATED: May 14, 2021

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