

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO**

IN RE CREDIT DEFAULT SWAPS
AUCTIONS LITIGATION

Case No. 21-CV-00606 (KJG) (JHR)

JURY TRIAL DEMANDED

FIRST AMENDED CLASS ACTION COMPLAINT

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	JURISDICTION & VENUE.....	14
III.	THE PARTIES.....	15
A.	Plaintiffs.....	15
1.	New Mexico State Investment Council.....	15
2.	Public Employees Retirement Association of New Mexico	17
3.	New Mexico Educational Retirement Board.....	18
B.	Defendants	20
1.	Bank of America/Merrill Lynch Defendants.....	20
2.	Barclays Defendants	23
3.	BNP Paribas Defendants	24
4.	Citi Defendants	26
5.	Credit Suisse Defendants.....	28
6.	Deutsche Bank Defendants.....	31
7.	Goldman Sachs Defendants.....	33
8.	JPMorgan Defendants.....	34
9.	Morgan Stanley Defendants	37
10.	RBS Defendants	39
11.	Jane Doe Unknown Defendants	40
C.	Relevant Non-Parties	40
1.	ISDA.....	40
2.	Creditex	41
3.	Markit	44

IV. FACTUAL ALLEGATIONS	45
A. Background	45
1. Credit Default Swaps and the Credit Default Swap Market.....	45
2. Index Credit Default Swaps.....	47
3. Defendants’ Role in the Credit Default Swap Market.....	49
4. Pre-Conspiracy Settlement of Credit Default Swaps	52
5. Defendants Introduce the Credit Default Swap Auction Process to the Market	54
6. The Determinations Committee.....	56
7. How the Auctions Work	59
a) Part I: The Morning Phase of the Auction and Determining the Initial Market Midpoint and Net Open Interest	60
b) Part II: The Afternoon Phase of the Auction and the Limit Orders.....	65
8. Credit Default Swap Auctions Have a Direct, Necessary Impact on Single-Name CDS and Index CDS	68
B. Defendants’ Conspiracy to Manipulate the CDS Final Auction Price	71
1. The Toys “R” Us CDS Auction Demonstrates the Effectiveness of Defendants’ Conspiracy	75
2. Econometric “Screens” are Critical for the Identification and Prosecution of Anticompetitive and Manipulative Conduct in the Financial Markets	80
3. Econometric Analysis Demonstrates Defendants’ Conspiracy to Artificially Manipulate the CDS Final Auction Price	82
a) An Overview of Plaintiffs’ Econometric Proof	83
b) Regression Analysis Demonstrates that the Dominant Defendant’s Initial Market Artificially Skews the Final Auction Price and that the Other Defendants Support the Dominant Defendant’s Manipulative Effort	90
c) Application of the Instrumental Variable Technique Confirms that the Dominant Defendant’s Initial Market Causes the Other Defendants to Artificially Skew Their Initial Markets in the Same Direction as the Dominant Defendant.....	99

d) Regression Analysis Demonstrates that Each Defendant is a Loyal Follower in the Bid-Rigging and Price-Fixing Conspiracy That Supports the Manipulative Efforts of the Dominant Defendant	103
e) Regression Analysis Demonstrates That Defendants Benefit from the Bid-Rigging and Price-Fixing Conspiracy When They Serve as the Dominant Defendant Dealer	117
f) Defendants’ Pricing Behavior is Different From Non-Defendant Dealers’ Pricing Behavior, Consistent With the Existence of a Bid-Rigging and Price-Fixing Cartel Amongst Defendants.....	126
g) Defendants Continue Their Manipulative Scheme to Create Artificial Limit Order Prices in the Afternoon Session and Final Auction	128
C. Additional Factors Show the Defendants’ Conspiracy to Manipulate the Final Auction Price	136
1. Led by Goldman Sachs, JPMorgan, and Deutsche Bank, Defendants Intentionally Designed the Auction as a Collusive Process	136
2. Defendants’ Sharing of Price Information Through Bloomberg.....	143
3. Defendants’ Common Motives.....	145
4. The High Degree of Interdealer Communication in the CDS Market.....	147
5. Defendants Acted Against Their Economic Self-Interest	149
6. Certain Dealers Have Discontinued their Determinations Committee Membership and Participation in the Auction Process for Fear of Antitrust and Regulatory Audits.....	150
7. Defendants Contemporaneously Used the Same Modus Operandi to Collusively Manipulate Other Financial Markets	153
D. Defendants’ Conduct Constitutes a Per Se Violation of the Antitrust Laws	155
1. It is a <i>Per Se</i> Violation of the Antitrust Laws for the Defendants to Collude to Manipulate a Benchmark Price	155
2. Even Under a Quick Look or Rule of Reason Analysis, Defendants’ Conduct Violates the Antitrust Laws	157
a) Defendants Possess Market Power in the Dealer-to-Client CDS Market.....	158
b) Defendants and the CDS Market Perceive and Recognize the Dealer-to-Client CDS Market	163

c)	The Anticompetitive Effects of Defendants’ Information Sharing Practices Demonstrate Their Market Power in the Dealer-to-Client CDS Market	164
d)	The Dealer-to-Client CDS Market is Susceptible to the Exercise of Market Power	165
e)	The Antitrust Laws Prohibit Defendants’ Exchange of Real-Time and Future Auction Price Information	167
f)	Defendants’ Information Sharing Practices Cause Artificial Final Auction Prices	168
E.	Plaintiffs Were Injured as a Result of Defendants’ Manipulation.....	169
1.	Plaintiff SIC was Harmed by Defendants’ Manipulation.....	171
a)	September 3, 2014 – Argentine Republic CDS Auction	171
b)	February 19, 2015 – Caesars Entertainment Operating Co., Inc. CDS Auction..	172
c)	March 5, 2015 – RadioShack Corp. CDS Auction	173
d)	May 4, 2016 – Peabody Energy Corp. CDS Auction	174
e)	February 2, 2017 – iHeart Communications, Inc. CDS Auction.....	175
f)	October 11, 2017 – Toys ‘R’ Us, Inc. CDS Auction	176
g)	January 23, 2019 – Parker Drilling Co. CDS Auction.....	177
h)	April 23, 2020 – Lebanese Republic CDS Auction.....	178
i)	May 6, 2020 – Whiting Petroleum Corp. CDS Auction.....	178
j)	June 9, 2020 – J.C. Penney Co., Inc. CDS Auction.....	179
k)	August 4, 2020 – Chesapeake Energy Corp. CDS Auction.....	180
2.	Plaintiff PERA Was Harmed by Defendants’ Manipulation.....	181
a)	November 29, 2011 – Dynegy Holdings, LLC CDS Auction	181
b)	May 21, 2014 – Texas Competitive Electric Holding Company LLC CDS Auction	182
c)	July 24, 2019 – Weatherford International Ltd. CDS Auction	183

d)	December 10, 2019 – Dean Foods Company CDS Auction.....	184
e)	March 10, 2020 – The McClatchy Company CDS Auction.....	185
f)	May 22, 2020 – Diamond Offshore Drilling, Inc. CDS Auction.....	186
g)	May 29, 2020 – The Neiman Marcus Group LLC CDS Auction.....	187
h)	September 15, 2020 – Matalan Finance plc CDS Auction	188
3.	Plaintiff ERB Was Harmed by Defendants’ Manipulation	189
a)	October 6, 2008 – Federal National Mortgage Association CDS Auction.....	189
b)	October 6, 2008 – Federal Home Loan Mortgage Corp. CDS Auction	190
c)	October 23, 2008 – Washington Mutual Inc. CDS Auction	191
d)	January 6, 2009 – Tribune Company CDS Auction	192
e)	February 19, 2009 – Smurfit-Stone Container Enterprises, Inc. CDS Auction....	192
f)	April 17, 2009 – Abitibi-Consolidated Inc. CDS Auction.....	193
g)	April 21, 2009 – Charter Communications Holdings, LLC CDS Auction	194
h)	April 23, 2009 – Idearc Inc. CDS Auction	195
i)	November 20, 2009 – CIT Group Inc. CDS Auction	196
F.	Equitable Tolling Due to Defendants’ Concealment	197
1.	Defendants Actively and Effectively Concealed Their Collusion and Misconduct From Plaintiffs and the Class and Committed Acts in Furtherance of Their Concealment	197
2.	Defendants Have Propagated a Variety Of Pretextual Justifications That Mask Their Conspiracy to Manipulate the Final Auction Price	206
3.	Plaintiffs Were Able to Uncover Defendants’ Conspiracy Only Through a Sustained and Extensive Investigation That Similarly Situated Entities do not Have the Resources to Undertake	210
4.	Defendants Have Operated Without Meaningful Government Oversight and Have Not Been Caught.....	212
5.	Defendants’ Conduct Constitutes A Continuing Violation Of The Antitrust Laws.	213

V. CLASS ACTION ALLEGATIONS	213
VI. CLAIMS FOR RELIEF	216
FIRST CLAIM FOR RELIEF	216
SECOND CLAIM FOR RELIEF	217
THIRD CLAIM FOR RELIEF	219
FOURTH CLAIM FOR RELIEF	219
FIFTH CLAIM FOR RELIEF	220
VII. PRAYER FOR RELIEF	222
VIII.DEMAND FOR A JURY TRIAL	223

Plaintiffs New Mexico State Investment Council (“SIC”), Public Employees Retirement Association of New Mexico (“PERA”), and the New Mexico Educational Retirement Board (“ERB” and collectively, “Plaintiffs”) complain upon knowledge as to themselves and their own actions and upon information and belief as to all other matters against Defendants Bank of America/Merrill Lynch, Barclays, BNP Paribas, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, JPMorgan, Morgan Stanley, and RBS (collectively, “Defendants” or “Defendant Dealers”). Plaintiffs’ allegations and claims made on information and belief are based on the investigation conducted by and under the supervision of Plaintiffs’ counsel. Counsel’s investigation into the factual allegations contained herein is continuing, and many of the relevant facts are known only by the Defendants or are exclusively in their possession. Plaintiffs make the following allegations on behalf of themselves and other similarly situated members of the class they represent.

I. INTRODUCTION

1. A group of Wall Street banks have been rigging a little known, but critically important part of the credit default swaps (“CDS”) market, known as the “credit default swap auctions.” Defendants, ten (10) of the world’s largest investment banks, worked together to manipulate this market for their own financial benefit. While Defendants have profited handsomely off their control and manipulation of the CDS auctions, Plaintiffs – pension funds that represent the interests of millions of ordinary citizens – have paid a dear price. This lawsuit is about stopping the banks from cheating pension funds and others out of billions of dollars and bringing transparency and fair dealing to the CDS auctions.

2. CDS offer participants in financial markets the ability to hedge credit risk by shifting it to other market participants. CDS are contracts that transfer a credit exposure on a

specific “reference entity” (such as a bond issued by a corporation or government) or a “reference portfolio” (bundles of those instruments). The buyer of the CDS (and the protection that comes with it) makes a periodic payment to the seller of the CDS in exchange for the seller’s agreement to make a payment to the buyer if a “credit event” occurs, such as a reference entity’s bankruptcy or default. Thus, CDS are often used as a hedge by investors to protect themselves from their exposure to a particular reference entity.

3. The CDS market is large and very profitable for Defendants. The total amount of CDS outstanding is more than \$1.4 trillion dollars. Defendants are market makers, or “dealers,” of CDS. They control approximately 80% of the CDS market. This litigation, however, does *not* concern Defendants’ role in structuring and issuing new CDS. Rather, Plaintiffs allege that Defendants rigged the CDS auction process when so-called “credit events” occur.

4. Determining the real value of a defaulted bond is critically important to the CDS market. This is because the value of the defaulted bond determines the amount of insurance that each CDS protection seller must pay out to each CDS protection buyer. Even small nudges in the defaulted bond value can cause a sea change in the amount of protection dollars that change hands between protection buyers and protection sellers when a bond defaults and the corresponding CDS are “triggered.”

5. Defendants capitalized on their dominance of the CDS market by creating the CDS auction process and hard-wiring their control of it. Conceptually, the idea was to use an auction to assign a single price to defaulted bonds to determine precisely how much insurance, or “protection,” is owed by each party to the CDS contract. That single price is known as the “final

auction price.” It functions as a benchmark that determines how much each protection seller must pay each protection buyer when the CDS contract is triggered.

6. Knowing this, Defendants rigged the CDS auction process for their own benefit. They did so because Defendants were hardly impartial “auctioneers”; rather, Defendants actively participated in the CDS auctions as market participants. In addition to buying and selling CDS as market makers, Defendants also take sizable CDS positions on underlying bonds they own by buying and selling large amounts of protection themselves. The banks therefore had (and continue to have) a substantial financial interest in setting the relevant final auction price during CDS auctions.

7. This creates a conflict. When Defendants are net protection buyers on certain bonds, they have a financial interest in valuing the bonds as low as possible in the auction to maximize the protection payment they will receive under their CDS, and when they are net protection sellers on certain bonds, their interest is to price the bonds as high as possible in the auction to minimize the protection payment they have to make under their CDS.

8. Rather than create a system that protects counterparties from the banks’ conflict of interest, Defendants created a system that worked to their advantage no matter which side of the equation they were on. Led by representatives of Goldman Sachs, Deutsche Bank, and JPMorgan, Defendants created the auction process and wrote its rules, passing them off as the product of industry consensus when in reality they were just written by the banks. Under those rules, *only* CDS dealers were allowed to participate directly in the auctions. Because Defendants are the largest and most powerful CDS dealers, they thus always permitted themselves the exclusive right to participate directly in the CDS auctions. A non-dealer who wants to participate directly can do

so only if the dealer members of a committee Defendants created to oversee the CDS market, the “Determinations Committee,” vote to permit it. Conveniently, Defendants are the repeat, long-standing, dominant members of the Determinations Committee. Unsurprisingly, no non-dealer has ever been voted to be a direct participant in any auction. Non-dealers know better than to even ask.

9. Because Defendants stood to gain or lose on their own CDS positions, they – as the exclusive CDS auction participants themselves – were strongly incentivized to make sure that the CDS final auction price ended up making them money, either by maximizing the protection paid out when they bought protection on defaulted bonds or minimizing the protection paid out when they sold protection on defaulted bonds.

10. Plaintiffs’ factual and economic evidence shows Defendants have used their exclusive access to and power over the auctions to conspire and artificially manipulate the auctions to Defendants’ decided advantage again and again.

11. Plaintiffs suffered direct financial injuries because of Defendants’ collusive manipulation. Plaintiffs buy, sell, and settle CDS contracts with Defendants. Like all CDS market participants, they are directly impacted by the final auction price. Every bit that Defendants skewed the final auction price down was another dollar that Plaintiffs had to pay Defendants on their CDS contracts with them, and every bit that Defendants skewed the final auction price up was another dollar that Defendants cheated out of having to pay Plaintiffs directly. As detailed throughout this Amended Complaint, the CDS auction process was corrupted and collusively manipulated by and for Defendants in violation of federal antitrust and market manipulation laws.

12. In antitrust and market manipulation cases like this one, economic analyses are routinely used to identify the existence of anticompetitive and manipulative behavior in a market.¹ Here, the economic evidence shows that when it was in Defendants' interest to skew the CDS final auction price down, Defendants did so and benefited. And when it was in Defendants' interest to skew the CDS final auction price up, Defendants again did so and benefited.

13. Likewise, the economic evidence shows how CDS final auction prices moved contrary to what should have happened in a competitive market and an auction process that functioned without collusion and price manipulation. In a competitive market, knowing more than your competition gives you a competitive advantage, one that allows you to set prices at the expense of your competition. In a rigged market like this one, non-public information is wrongfully used and shared between competitors. The data demonstrates that when one Defendant had the most information about a bond and how it should be priced, and had the most to gain or lose at auction, it did not use that superior information to differentiate itself from its competitors. Rather, its co-Defendants set their respective prices *as if that same information was known to them*, submitting prices into the auction that skewed the auction in the same direction as the Defendant who had the most to gain or lose at auction. In short, the economic evidence shows that the CDS auction market was rigged.

¹ See Ai Deng and Priyank Gandhi, "The Analytics of Financial Market Misconduct," CORRUPTION AND FRAUD IN FINANCIAL MARKETS, at 441–66 (2020); Rosa M. Abrantes-Metz and D. Daniel Sokol, "The Lessons from Libor for Detection and Deterrence of Cartel Wrongdoing," 3 HARV. BUS. L. REV. ONLINE 10, 12 (2012) ("Worldwide investigations have been launched on allegations of a possible conspiracy by several major banks to manipulate the U.S. dollar Libor and Libor rates denominated in other currencies. These investigations followed the application of empirical screens that flagged unexpected patterns in the Libor setting, representing the latest example of the power of screens to flag potentially illegal behavior in the antitrust context.")

14. This is hardly surprising when juxtaposed against Defendants’ contemporaneous wrongdoing observed in other financial markets. These same Defendants leveraged their market dominance to artificially manipulate the London Interbank Offered Rate (“LIBOR”), the foreign exchange currency market and its related benchmarks (“FOREX”), and the “ISDAfix.” Defendants’ playbook in these markets follows a familiar rhythm: dealers made themselves the exclusive gatekeepers of the benchmarks, and then using that control, shared competitively sensitive pricing information with each other to artificially skew a benchmark price up or down to the benefit their own trading positions. Defendants’ common motive in maintaining their control over LIBOR, FOREX, and ISDAfix maintained and incentivized their participation in each conspiracy.

15. Here is how the conspiracy works: Defendants start the auction bidding by submitting an “initial market” – a two-way price that is supposed to represent each dealer’s confidential, independently determined, good faith view of the price at which it would buy or sell a predetermined amount of defaulted bonds (typically, \$2 million of bonds). Those initial markets are then used to calculate the “initial market midpoint” in each CDS auction, from which the ceiling or floor on the final auction price is derived.

16. In the second stage of the auction, Defendants submit “limit orders” – orders to buy or sell specific quantities of bonds at specific prices – until the limit order that exhausts the supply or demand of bonds in the auction sets the “final auction price.”

17. Plaintiffs’ econometric analysis of hundreds of Defendants’ initial markets across auctions show that Defendants’ initial markets and limit orders are neither confidential, independently determined, nor made in good faith. Instead, they are the product of collusion and

blatant information sharing. The Defendant with the most to gain or lose in each auction (the “dominant Defendant Dealer” or “dominant Defendant”) submits an artificial initial market that skews the final auction price in the direction that favors its financial interest at the expense of non-dealers like Plaintiffs and the Class members. Most frequently, because the dominant Defendant is a net CDS protection buyer on the bonds, it skews its initial market downward to a supra-competitively low, artificial price.

18. The econometric analyses show that *the other Defendants* know the dominant Defendant Dealer’s artificial initial market, *and* that those Defendants then coordinate *their own* initial markets in response to that purportedly secret price information, submitting two-way prices and limit orders that support the dominant Defendant’s effort to artificially skew the final auction price in the same direction that the dominant Defendant skewed its initial price.

19. The results of Plaintiffs’ econometric analyses are systematic, persistent, and statistically significant findings that show that contrary to what should happen in a truly competitive auction operating without information sharing and price manipulation, Defendants rally around the dominant Defendant’s artificial initial market price, helping push the final auction price in the direction that best serves the dominant Defendant. These results persist even when the other Defendants have no financial interest in the outcome of that particular auction. The results persist even when the analysis is individualized to spotlight specific Defendants. They persist even when Defendants seek to skew the final auction price *upward*, not just downward. And, notably, the results show that Defendants’ pricing behavior is materially more clustered together than non-Defendant dealers like UBS, Société Générale, Nomura, and HSBC. In other words, Defendants as a group price differently than their non-Defendant peers, even across the same auctions.

20. Why would Defendants do this? As the economic and factual evidence shows, while certain Defendants tend to be the dominant Defendant Dealer more than others, each Defendant ultimately benefits from the conspiracy when it has the most at stake, *i.e.*, when it is its turn to be the dominant Defendant in a specific auction. Everyone in the cartel has a turn at making money. Ultimately, it is easier for Defendants to collude rather than compete even if on certain days it results in actions against their self-interest.

21. Without collusive manipulation, the auction results would not be so ordered and consistently skewed in the same direction that the dominant Defendant's artificial initial market is skewed. Defendants' pricing would have been different when measured across auctions because they would not have advance knowledge of the dominant Defendant's purportedly secret initial market price.

22. Defendants' conspiracy works. Measured against an economically appropriate benchmark – the prior day's bond price on the same bonds that are being valued in the auction – the final auction price in those auctions where the dominant dealer is a Defendant is consistently and materially skewed away from the prior day's bond market price *in the direction that favors the dominant Defendant*.

23. Plaintiffs' independent investigation has uncovered that there are multiple private channels through which Defendants can and do share pricing and commercially and competitively sensitive information relevant to the auction.

24. **The Bloomberg “back door” for price information sharing.** Defendants access each other's CDS and bond prices quoted to each other's clients – those individuals or entities who might invest in Defendant-proffered opportunities and offerings – by virtue of a Bloomberg

terminal “back-door.” Specifically, each Defendant has a credit derivatives business. Inside that credit derivatives business are different “desks.” There is the “sell-side” desk – the traditional CDS “dealer” market-making desk that provides liquidity to clients like pension funds and asset managers. There are also, however, “buy-side” desks at each of the dealer banks, *e.g.*, structured credit and/or correlation trading desks, that are *clients of other Defendants’* CDS market-making desks. Because all those desks are housed at each Defendant under the “credit derivatives” business, Bloomberg treats those desks as one business – and so a trader on a Defendant’s CDS market-making desk can access in real-time all the pricing that a trader on the same Defendant’s buy-side structured credit desk was receiving from *other* Defendants. This is so even though Defendants are horizontal competitors in the CDS market-making business, even though Defendants have been alerted to this improper channel for sharing of real-time pricing information, and even though it was against each Defendant’s policies and codes of conduct to obtain this type of real-time access to competitor pricing. Notwithstanding this, Defendants have been improperly exploiting this information flow for years, enabling them to quickly cross-check their own pricing to clients with the pricing of their competitor Defendants in real-time, knowing that each Defendant can do the same thing at the same time with the same information flow. At no time have Defendants segregated or walled off the information that their market-making desks could receive from their “buy-side” desks, intentionally leaving wide open the channel for Defendants’ traders to use to improperly share pricing information among themselves.

25. **Market Chatter and “Inside Baseball.”** Defendants routinely communicate with each other informally and privately about the CDS auctions and the CDS and bond markets. For example, a Defendant will sometimes send out via Bloomberg or other channels its view of the

final auction price the night before an auction. These “inside baseball” views by a purportedly knowledgeable Defendant about what the final auction price may be signal to the other direct participants in the CDS auctions – the Defendants – what the final auction price *should* be. These communications are in addition to Defendants’ culture of communicating with each other over-the-phone (via calls and text messages), by computer (via instant messaging and email), and in-person (at industry events, dinners, drinks, poker games, and board meetings).²

26. As recently as 2020, Defendant JPMorgan fired one of its lead CDS/bond traders – who had been with the firm for 20 years – when it was discovered that he had created a WhatsApp group and used it “to discuss market chatter with other trading employees.”³ “Market chatter” is often a euphemism for insider discussions about confidential and commercially sensitive information, including and especially information from competitors. In December 2021, the same bank – JPMorgan – was fined \$200 million by the U.S. Securities & Exchange Commission and U.S. Commodity Futures Trading Commission because of the widespread use of personal devices (instead of work communication devices) by JPMorgan traders and even compliance personnel to communicate sensitive business matters, thereby avoiding detection and eliminating any audit trail for those sensitive communications.⁴

² See Liz Rappaport and Serena Ng, “Spotlight Shines on Swap Brokers,” *The Wall Street Journal* (Nov. 13, 2008) (“Lacking any central regulator or industrywide rules, the CDS market has long had a freewheeling culture, where information is swapped in offhand remarks in instant-message chats.”).

³ See Michelle F. Davis and Sridhar Natarajan, “JPMorgan Fires Credit Trader and Cuts Staff Bonuses for WhatsApp Use,” *Bloomberg* (April 8, 2020) (stating that WhatsApp is encrypted, can’t be easily monitored by bank compliance departments, and that other traders followed Koo’s lead in using the WhatsApp group).

⁴ Thomas Franck and Hugh Son, “JPMorgan hit with \$200 million in fines for letting employees use WhatsApp to evade regulators’ reach,” *CNBC* (Dec. 17, 2021) (“At JPMorgan, the practice of going offline to communicate was firm-wide, and even the managers and senior personnel responsible for compliance used their personal devices to communicate sensitive business matters, the SEC said.”).

27. **Determinations Committee Meetings.** Defendants share material, non-public information with each other during “Determinations Committee” meetings. Created by Defendants and a trade association they dominate called the International Swaps and Derivatives Association (“ISDA”), the Determinations Committee is a committee of ten (10) Defendant representatives and five (5) non-dealer representatives that largely in secret decides whether CDS contracts have been triggered by a “credit event,” whether a corresponding CDS auction will be held, which bonds will be subject to that auction, and the rules for each auction. While the Determinations Committee has five (5) non-dealer representatives on it, it has historically been dominated by Defendants’ representatives, who outnumber the non-dealers 2-to-1. While the Determinations Committee meetings are private and not open to the public, there is significant material, non-public information shared amongst Defendants during those meetings.

a. Within the first few minutes of the Determinations Committee meetings on a particular “name,” each Defendant understands whether the other Defendants are net CDS protection buyers or sellers on the bonds that will eventually be up for auction. (Traders refer to the bond and the CDS covering that bond as the “name.”)

b. In discussing whether certain bonds will or will not be included in a particular auction, Defendants gain additional, private, shared insights into the value of the bonds, the pricing for those bonds in advance of the auction, and how specific Defendants view the value of those bonds.

c. The Determinations Committee members routinely conduct secret “straw polls” on particularly controversial issues that come before them, which provide an additional mechanism for information sharing. Because the Determinations Committee rules require that the

result of any formal vote be published to the entire market, the members agreed in the early days of the Determinations Committee that they would conduct “straw polls” to avoid having to report the results of votes that are not unanimous or have a supermajority. Because some time elapses between the straw poll votes and the final votes – sometimes hours, sometimes days, sometimes even over a month – the Defendant members of the Determinations Committee know the likely outcome of a vote *before* that vote is publicized to the rest of the market, and they trade on that shared, material, non-public information. With the knowledge of what is going to happen on the Determinations Committee, Defendants position themselves in the CDS and bond markets in preparation for the upcoming auction – often before the rest of the market knows whether there will even be an auction, what bonds will be subject to that auction, or what the rules of the auction will be.

28. Defendants’ representatives on the Determinations Committee have often been the heads of the CDS market making businesses at each respective Defendant. Some Defendant representatives have even called in to Determinations Committee meetings *from the Defendant’s trading floor*. This creates the perfect storm of conditions in which the individual who has the most to gain (or lose) from a Determinations Committee vote and corresponding auction sits on the Determinations Committee with all of his (it is frequently only men) largest horizontal competitors, uses the information gleaned from those meetings to the Defendant’s trading advantage, and learns critical information about whether and how the auction is going to operate before the rest of the market.

29. After the LIBOR and foreign exchange scandals cost many Wall Street institutions – including Defendants – billions of dollars in penalties and damaged their reputations with clients,

certain dealers observed that the CDS auctions had all the hallmarks and antitrust and regulatory risks of a similar playground for Defendant bad behavior. Certain dealers became concerned that it was only a matter of time until regulators audited the CDS auction process, uncovered the activity that would give rise to Defendants' liability, and imposed heavy fines on Defendants. Despite these concerns, the profits that control, of the auctions provided, were too attractive to Defendants and so they have to this day dismissed any possibility of reforming the auction process, even using their control of the board of directors of ISDA to shut down any talk of reforming the CDS auction process.

30. Even ISDA, which nominally chairs the Determinations Committee, has sought to camouflage its role on the committee to protect itself from regulatory action. It did this by removing itself formally from the Determinations Committee process and instead creating a new entity – DC Administration Services, Inc. (“DCAS”) – to replace ISDA as the Determinations Committee secretary. DCAS, though controlled by ISDA, is bankruptcy remote from ISDA, so as to protect ISDA's assets in the event of a substantial regulatory penalty or liability.

31. Through these means and others, Defendants communicated regarding the CDS auctions, colluded on pricing, and profited at the expense of Plaintiffs and the Class.

32. Plaintiffs bring this class action to stop Defendants' violations of federal antitrust law and federal market manipulation law, to obtain compensation for putative Class members who have suffered billions of dollars in injuries over the life of Defendants' scheme, and to bring much-needed reform to the CDS auction process.

II. JURISDICTION & VENUE

33. 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), Section 22 of the Commodity Exchange Act (7 U.S.C. § 25), and pursuant to 28 U.S.C. §§ 1331 and 1337(a).

34. This Court has jurisdiction over the state law claim (1) under 28 U.S.C. § 1367, because the state law claim is so related to the federal claims that it forms part of the same case or controversy, and (2) under 28 U.S.C. § 1332, because the amount in controversy for the Class exceeds \$5,000,000 and because there are members of the Class who are citizens of a different state than Defendants.

35. Defendants are subject to personal jurisdiction in this Court under (without limitation): 15 U.S.C. § 22; 7 U.S.C. §§ 13a-1, 13a-2(4) and 18(b); New Mexico's long-arm statute; and the conspiracy theory of jurisdiction. Each Defendant (i) was formed in or has its principal place of business in the United States; (ii) transacted business – *e.g.*, settling CDS with Plaintiffs and Class members via reference to the CDS final auction price and transacting other CDS business directly related to the claims in this action – throughout the United States, including in this District; and/or (iii) had substantial contacts with the United States, including in this District; and/or committed overt acts in furtherance of their illegal scheme and conspiracy – *e.g.*, communicating with each other about the CDS auctions and engaging in price-fixing and price manipulation of those auctions – in the United States. The conspiracy was carried out in substantial part in the United States, and was directed at, and had the intended and actual effect of causing injury to, Plaintiffs and Class members residing in, located in, or doing business in the United States. The majority of CDS auctions were held in the United States electronically, including those

auctions where Plaintiffs suffered injury due to Defendants' collusive and manipulative scheme. See Section IV.E *infra*. U.S. CDS market participants whose CDS were settled via reference to CDS auction prices experience domestic injuries.

36. Defendants' activities, and those of their co-conspirators, were within the flow of, and were intended to and did have a substantial effect on, foreign and interstate commerce.

37. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a) and 22 and 28 U.S.C. §§ 1391(b) and (c) because, during the Class Period, Defendants transacted business and/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 has been carried out in this District.

III. THE PARTIES

A. Plaintiffs

1. New Mexico State Investment Council

38. Plaintiff New Mexico State Investment Council ("SIC") is an institutional investment firm that manages New Mexico's \$31 billion permanent endowment, as well as investments from twenty-three (23) other New Mexico state agencies. SIC appears by and through the Office of the Attorney General of the State of New Mexico. The Attorney General for the State of New Mexico is statutorily authorized to provide counsel to the State's agencies, including SIC. Pursuant to New Mexico State law, the Attorney General has the discretion to initiate or participate in litigation on behalf of the State and its agencies, when in the Attorney General's judgment the interest of the State so requires.

39. SIC transacted in both single-name and index CDS during the Class Period, as both a buyer and seller of credit protection (depending on the particular CDS transaction). SIC's index CDS transactions referenced multiple series of various CDS indices, including (but not limited to) the North American investment grade CDX index (CDX.NA.IG), the North American high yield CDX index (CDX.NA.HY), the Emerging Markets CDX index (CDX.EM), the European investment grade iTraxx index (iTraxx Europe), the European high yield iTraxx index (iTraxx Crossover), and the Asia ex-Japan investment grade iTraxx index (iTraxx Asia ex-Japan IG).

40. With respect to certain of its index CDS transactions, SIC had open index CDS positions as a protection seller (*i.e.*, SIC had entered into CDS in which it sold protection on a notional amount of the index) on dates when a CDS auction was held to determine the settlement price for a CDS reference entity that was a constituent of that CDS index. As a result, SIC was obligated to make credit protection payments by applying (1) the CDS auction final prices, against (2) the portion of the notional index position comprised by the index constituent subject to the auction.

41. Likewise, with respect to certain of its index CDS transactions, SIC had open index CDS positions as a protection buyer (*i.e.*, SIC entered into CDS in which it bought protection on a notional amount of the index) on dates when a CDS auction was held to determine the settlement price for a CDS reference entity that was a constituent of that CDS index. As a result, SIC received credit protection payments set by applying (1) the CDS auction final prices, against (2) the portion of the notional index position comprised by the index constituent subject to the auction.

42. During the Class Period, SIC participated in either single-name or index CDS transactions that were subject to a CDS auction directly with one or more Defendants, including

Barclays Bank plc; Barclays Capital Inc.; Citibank N.A.; Citigroup Global Markets Inc.; Credit Suisse AG; Credit Suisse Securities (USA) LLC; Deutsche Bank AG; Morgan Stanley & Co., LLC; and Morgan Stanley & Co., International. SIC suffered monetary losses and injury as a direct result of Defendants' conspiracy alleged herein. Defendants' collusive and illegal activities deprived SIC of the ability to transact in a lawful, non-manipulated, competitive market. As a direct and proximate result of Defendants' unlawful conduct, SIC suffered injury to its business and property.

2. Public Employees Retirement Association of New Mexico

43. Plaintiff Public Employees Retirement Association of New Mexico ("PERA") is a cost-sharing, multiple employer, defined benefit pension fund that manages the retirement system for New Mexico state, county, and municipal employees including police, firefighters, volunteer firefighters, judges, magistrates, and legislators. PERA manages assets of more than \$18 billion on behalf of its members, retirees, and beneficiaries.

44. PERA transacted in both single-name and index CDS during the Class Period, as both a buyer and seller of credit protection (depending on the particular CDS transaction). PERA's index CDS transactions reference multiple series of various CDS indices, including but not limited to the North American investment grade CDX index (CDX.NA.IG), the North American high yield CDX index (CDX.NA.HY), the Emerging Markets CDX index (CDX.EM), and the iTraxx Europe and iTraxx Crossover indices.

45. With respect to certain of its index CDS transactions, PERA had open index CDS positions as a protection seller (*i.e.*, PERA sold protection on a notional amount of an index) on dates when a CDS auction was held to determine the settlement price for a CDS reference entity

that was a constituent of that CDS index. As a result, PERA was obligated to make credit protection payments by applying (1) the CDS auction final prices, against (2) the portion of the notional index position comprised by the index constituent subject to the auction.

46. PERA also had open index CDS positions as a protection buyer (*i.e.*, PERA had entered into CDS in which it bought protection on a notional amount of the index) on dates when a CDS auction was held to determine the settlement price for a CDS reference entity that was a constituent of that CDS index. As a result, PERA received credit protection payments set by applying (1) the CDS auction final prices, against (2) the portion of the notional index position comprised by the index constituent subject to the auction.

47. During the Class Period, PERA participated in either single-name or index CDS transactions that were subject to a CDS auction directly with one or more Defendants, including Barclays Capital Inc.; BNP Paribas S.A.; BNP Paribas Securities Corp.; Citibank N.A.; Credit Suisse Securities (USA) LLC; Deutsche Bank AG; Goldman Sachs & Co. LLC; J.P. Morgan Chase Bank, N.A.; and Morgan Stanley & Co., LLC. PERA suffered monetary losses and injury as a direct result of Defendants' conspiracy. Defendants' collusive and illegal activities deprived PERA of the ability to transact in a lawful, non-manipulated, competitive market. As a direct and proximate result of Defendants' unlawful conduct, PERA suffered injury to its business and property.

3. New Mexico Educational Retirement Board

48. Plaintiff New Mexico Education Retirement Board ("ERB"), headquartered in Santa Fe, New Mexico, is a pension trust fund of the State of New Mexico that manages the retirement system for New Mexico school districts and other state educational institutions. ERB

manages assets of more than \$16.4 billion and provides retirement and disability benefits for more than 163,000 members and 216 public educational employers.

49. ERB transacted in both single-name and index CDS during the Class Period, as both a buyer and seller of credit protection (depending on the CDS transaction). ERB's index CDS transactions referenced multiple series of various CDS indices, including but not limited to the North American investment grade CDX index (CDX.NA.IG) and the North American high yield CDX index (CDX.NA.HY).

50. ERB had open index CDS positions as a protection seller (*i.e.*, ERB sold protection on a notional amount of the index) on dates when a CDS auction was held to determine the settlement price for a CDS reference entity that was a constituent of that CDS index. As a result, ERB was obligated to make credit protection payments by applying (1) the CDS auction final prices, against (2) the portion of the notional index position comprised by the index constituent subject to the auction.

51. ERB had open index CDS positions as a protection buyer (*i.e.*, ERB bought protection on a notional amount of the index) on dates when a CDS auction was held to determine the settlement price for a CDS reference entity that was a constituent of that CDS index. As a result, ERB received credit protection payments set by applying (1) the CDS auction final prices, against (2) the portion of the notional index position comprised by the index constituent subject to the auction.

52. During the Class Period, ERB participated in either single-name or index CDS transactions that were subject to a CDS auction directly with one or more Defendants, including Barclays Capital Inc. and J.P. Morgan Chase Bank, N.A. ERB suffered monetary losses and injury

as a direct result of Defendants’ conspiracy alleged herein. Defendants’ collusive and illegal activities deprived ERB of the ability to transact in a lawful, non-manipulated, competitive market. As a direct and proximate result of Defendants’ unlawful conduct, ERB suffered injury to its business and property.

B. Defendants

53. Whenever in this Complaint reference is made to any act, deed, or transaction of any entity, the allegation means that the corporation 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.

1. Bank of America/Merrill Lynch Defendants

54. Defendant Bank of America, N.A. (“BANA”) is a federally chartered national banking association with its principal place of business located at Bank of America Corporate Center, 100 N. Tryon Street, Charlotte, North Carolina 28255, and branch locations in New York, New York. BANA is a wholly owned subsidiary of BAC. BAC’s banking activities are operated primarily through BANA.⁵ As of December 31, 2019, BANA reported: (1) having sold \$173.44 billion of credit protection through CDS and a further \$49.0 billion of credit protection through CDS options, and (2) having purchased \$187.04 billion of credit protection through CDS and a further \$47.68 billion through CDS options.⁶

55. Defendant BofA Securities, Inc. (“BofA Securities”) is a corporation organized and existing under the laws of the State of Delaware, with a principal place of business located at One

⁵ Bank of America Corporation 2019 10-K, at 22.

⁶ BANA 2019 FFIEC Consolidated Reports of Condition and Income, at 40.

Bryant Park, New York, New York 10036. BofA Securities is a wholly owned subsidiary of NB Holdings Corporation, which is a wholly owned subsidiary of BAC. BofA Securities, one of BAC's two principal U.S. broker-dealers, focuses on institutional clients.⁷ During the Class Period, BofA Securities entered into credit derivatives including CDS to facilitate client transactions and to manage credit risk exposures.⁸ As of December 31, 2019, BofA Securities reported having purchased \$1.842 billion of protection and sold \$716 million of protection via CDS.⁹ BofA Securities is registered as a broker-dealer and investment adviser with the SEC and as a futures commission merchant with the CFTC.

56. Furthermore, BofA Securities is a foreign corporation authorized to transact business in New Mexico pursuant to Article 17 of New Mexico's Business Corporation Act, and it therefore purposefully avails itself under New Mexico law of the "same, but no greater, rights and privileges as a domestic [New Mexico] corporation."¹⁰ To transact its business in New Mexico, BofA Securities, as a registered foreign corporation, must continuously maintain a registered office and a registered agent in New Mexico,¹¹ and, unless exempt, must pay taxes in New Mexico.

57. On January 1, 2009, Bank of America merged with Merrill Lynch & Co., Inc., ("Merrill Lynch"), a holding company organized and existing under the laws of the State of Delaware, with a principal place of business located at 4 World Financial Center, New York, New

⁷ Bank of America Corporation 2019 10-K, at 50.

⁸ BofA Securities 2019 Financial Statements, at 24.

⁹ *Id.* at 22.

¹⁰ N.M. Stat. § 53-17-2.

¹¹ *Id.* § 53-17-9.

York 10080 (and together with its consolidated subsidiaries, “Merrill”), with Merrill Lynch becoming a wholly owned subsidiary of BAC. As of December 26, 2008, immediately prior to Merrill’s merger into Bank of America, Merrill reported total credit derivative notional exposure of \$2.077 trillion;¹² as of December 31, 2009, Merrill’s more detailed derivative disclosures showed Merrill to have purchased \$908.6 billion of credit protection through CDS and sold \$614.0 billion of credit protection through CDS.¹³

58. Defendant Merrill Lynch is also a foreign corporation authorized to transact business in New Mexico pursuant to Article 17 of New Mexico’s Business Corporation Act, and it therefore purposefully avails itself under New Mexico law of the “same, but no greater, rights and privileges as a domestic [New Mexico] corporation.”¹⁴ To transact its business in New Mexico, Merrill Lynch, as a registered foreign corporation, must continuously maintain a registered office and a registered agent in New Mexico,¹⁵ and, unless exempt, must pay taxes in New Mexico.

59. As used herein, the term “Bank of America/Merrill Lynch” includes Defendants BANA, and BofA Securities, and their affiliates, including the Merrill entities acquired by Bank of America on January 1, 2009, that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Bank of America/Merrill Lynch: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS

¹² Merrill Lynch 2008 Form 10-K, at 131.

¹³ *Id.* at 88.

¹⁴ N.M. Stat. § 53-17-2.

¹⁵ *Id.* § 53-17-9.

auctions; (3) was a member of the Determinations Committee; (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortia that owned a stake in Creditex and a controlling stake in Markit until mid-June 2014 and appointed representatives to Markit's board of directors; and (5) made markets in, transacted in, and held CDS.

2. Barclays Defendants

60. Defendant Barclays Bank plc ("Barclays Bank") is a public limited company organized and existing under the laws of England and Wales, with its principal place of business located at 1 Churchill Place, Canary Wharf, London E14 5HP, England. Barclays Bank operates a foreign branch in New York, New York, licensed by the New York Department of Financial Services (NYDFS), at a registered address of 745 Seventh Avenue, New York, New York 10019. Barclays Bank is a wholly owned subsidiary of Barclays PLC. As of December 31, 2019, Barclays Bank reported outstanding credit derivative positions, including single name and index CDS, in a notional amount of £825.5 billion.¹⁶ Barclays Bank is a registered swap dealer with the CFTC.

61. Defendant Barclays Capital Inc. ("Barclays Capital") is a corporation organized and existing under the laws of the State of Connecticut, with its principal place of business located at 745 Seventh Avenue, New York, New York 10019. Barclays Capital is ultimately wholly owned by Barclays PLC.¹⁷ Barclays Bank's U.S. securities broker-dealer and investment banking operations are primarily conducted through Barclays Capital.¹⁸ Barclays Capital is registered with

¹⁶ Barclays Bank 2019 Ann Rep. at 164; Barclays PLC 2019 Annual Report at 272.

¹⁷ Barclays Capital 2019 Ann Rep. at 3.

¹⁸ Barclays Bank 2019 Ann Rep. at 112.

the SEC as a securities broker-dealer, and with the CFTC as a swap dealer, futures commission merchant, commodity pool operator, and commodity trading advisor.

62. As used herein, the term “Barclays” includes Barclays Bank, Barclays Capital, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Barclays: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from their inception to the present); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortium that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

3. BNP Paribas Defendants

63. Defendant BNP Paribas S.A. is a public limited company organized and existing under the laws of France with its principal place of business in Paris, France. BNP Paribas operates a foreign branch in New York, New York, licensed by the New York Department of Financial Services (NYDFS), at a registered address of 787 Seventh Avenue, New York, New York 10019. Through its Corporate and Institutional Banking (CIB) division, BNP Paribas S.A. provides various corporate banking services, including financing, cash management and financial advisory services, a range of securities services (execution services, derivatives clearing, and settlement and custodial services), and a broad range of investment, financing, hedging, and market intelligence services across all asset classes, including market-making and trading in credit, equity, interest

rate, foreign exchange, and commodity derivatives.¹⁹ As of December 31, 2019, BNP Paribas S.A. reported credit derivative positions totaling €940.7 billion.²⁰

64. Defendant BNP Paribas Securities Corp. (“BNP Securities”) is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business located at 787 Seventh Avenue, New York, New York 10019. BNP Securities is ultimately wholly owned by BNP Paribas S.A.²¹ BNP Securities engages in market-making transactions and brokerage activities for institutional clients, other broker-dealers, and BNP affiliates.²² BNP Securities engages in derivatives trading, and clears derivatives on behalf of BNP Paribas, other BNP affiliates, and external customers.²³ BNP Securities is registered as a broker-dealer with the SEC, as a futures commission merchant with the CFTC, and is approved by ICE Clear Credit LLC as a clearing member for credit default swaps products and by the Chicago Mercantile Exchange to clear OTC swap derivative transactions.²⁴

65. As used herein, the term “BNP Paribas” includes Defendants BNP Paribas S.A. and BNP Securities, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, BNP: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a

¹⁹ BNP 2018 Resolution Plan, at 7, 18.

²⁰ BNP 2019 Financial Statements, at 65.

²¹ BNP Securities 2019 Ann Rep. at 3.

²² *Id.*

²³ BNP 2018 Resolution Plan, at 18.

²⁴ BNP Securities 2019 Ann Rep. at 3.

member of the Determinations Committee (serving on all five regional DCs from their inception to the present); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortium that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit's board of directors; and (5) made markets in, transacted in, and held CDS.

4. Citi Defendants

66. Defendant Citibank N.A. ("Citibank") is a federally chartered national banking association with its principal place of business located at 399 Park Avenue, New York, New York 10022. Citibank is ultimately wholly owned by Citigroup. Citibank is a market maker in, and trades a range of, credit derivatives, including CDS, through which Citibank either purchases or writes protection on either a single name or a portfolio of reference credits.²⁵ As of December 31, 2019, Citibank reported holding credit derivative positions totaling \$1.859 trillion, and having sold \$885.6 billion of credit protection through CDS and CDS options transactions.²⁶

67. 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 located at 388 Greenwich Street, New York, New York 10013. CGMI is ultimately wholly owned by Citigroup. CGMI is Citigroup's primary broker-dealer (both globally and in the U.S.). CGMI transacts and makes markets in a range of credit derivatives, through which CGMI either purchases or writes protection on either a single name or a portfolio of reference credits.²⁷ As of December

²⁵ Citibank 2019 Financial Statements, at 93.

²⁶ *Id.* at 85 and 94.

²⁷ CGMI 2019 Ann Rep. at 25.

31, 2019, CGMI had purchased \$63.6 billion of credit protection and sold \$43.8 billion of credit protection through CDS and CDS options transactions.²⁸ CGMI is registered as a securities broker dealer and investment adviser with the SEC, and registered swap dealer and futures commission merchant with the CFTC.

68. Defendant CGMI is a foreign corporation authorized to transact business in New Mexico pursuant to Article 17 of New Mexico’s Business Corporation Act, and it therefore purposefully avails itself under New Mexico law of the “same, but no greater, rights and privileges as a domestic [New Mexico] corporation.”²⁹ To transact its business in New Mexico, CGMI, as a registered foreign corporation, must continuously maintain a registered office and a registered agent in New Mexico,³⁰ and, unless exempt, must pay taxes in New Mexico.

69. Defendant Citigroup Global Markets Limited (“CGML”) is a corporation organized and existing under the laws of England and Wales, with its principal place of business located at Citigroup Centre, Canada Square, Canary Wharf, London E14 5LB. CGML is ultimately wholly owned by Citigroup. CGML, a CFTC-registered swap dealer, is Citigroup’s primary international broker-dealer, operating globally but generating the majority of its business from the Europe, Middle East, and Africa (EMEA) region. CGML is a market maker in equity, fixed income, and commodity products across cash, over-the-counter (OTC) derivatives, and exchange-traded markets, and provides investment banking capital markets and advisory services.³¹ As of

²⁸ *Id.* at 26.

²⁹ N.M. Stat. § 53-17-2.

³⁰ *Id.* § 53-17-9.

³¹ CGML 2019 Ann Rep. at 2.

December 31, 2019, CGML had purchased \$24.0 billion of credit protection and sold \$23.9 billion of credit protection through credit derivative transactions.³²

70. As used herein, the term “Citi” includes Defendants Citibank, CGMI and CGML, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Citi: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through to the present, save the Japan DC between April 2010 and April 2012); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortium that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

5. Credit Suisse Defendants

71. Defendant Credit Suisse AG is a corporation organized and existing under the laws of Switzerland with its principal place of business in Zurich, Switzerland. Credit Suisse AG operates a foreign branch in New York, New York, licensed by the New York Department of Financial Services (NYDFS), at a registered address of 11 Madison Avenue, New York, New York 10010. Credit Suisse AG operates *inter alia* as market maker in public and private cash debt across the credit spectrum, including leveraged loans as well as high yield and investment grade, and as a market maker in the credit derivatives market, including for CDS indices, liquid single-name

³² *Id.* at 53.

CDS, sovereign CDS, and credit default swaptions.³³ As of December 31, 2019, Credit Suisse AG reported outstanding credit derivative positions, “primarily credit default swaps,” in a notional amount of CHF 538.1 billion.³⁴

72. Defendant Credit Suisse Securities (USA) LLC (“CS USA”) is a limited liability corporation organized and existing under the laws of the State of Delaware, with its principal place of business located at 11 Madison Avenue, New York, New York 10010. CS USA is ultimately a wholly owned subsidiary of Credit Suisse Group.³⁵ CS USA is registered as a securities broker dealer with the SEC, and as a registered swap dealer and futures commission merchant with the CFTC. As of December 31, 2019, CS USA reported having entered into \$10.9 billion of credit derivative transactions, including CDS, through which CS USA sold \$1.3 billion of credit protection and purchased \$9.6 billion of credit protection.³⁶

73. Defendant CS USA is a foreign corporation authorized to transact business in New Mexico pursuant to Article 17 of New Mexico’s Business Corporation Act, and it therefore purposefully avails itself under New Mexico law of the “same, but no greater, rights and privileges as a domestic [New Mexico] corporation.”³⁷ To transact its business in New Mexico, CS USA, as a registered foreign corporation, must continuously maintain a registered office and a registered agent in New Mexico,³⁸ and, unless exempt, must pay taxes in New Mexico.

³³ Credit Suisse Group 2019 Ann Rep. at 12.

³⁴ *Id.* at 330.

³⁵ CS USA 2019 Ann Rep. at 3.

³⁶ *Id.* at 25,28.

³⁷ N.M. Stat. § 53-17-2.

³⁸ *Id.* § 53-17-9.

74. Defendant Credit Suisse Capital LLC (“CS Capital”) is a limited liability corporation organized and existing under the laws of the State of Delaware, with its principal place of business located at 11 Madison Avenue, New York, New York 10010. CS Capital is ultimately wholly owned by Credit Suisse Group. CS Capital is utilized by Credit Suisse AG as its U.S. OTC non-bank derivatives dealer entity, and transacts OTC derivatives with corporate clients, high net worth individuals and affiliates.³⁹ CS Capital uses CS USA as its clearing broker-dealer. CS Capital is registered with the CFTC as swap dealer, and with the SEC as a broker-dealer and OTC derivative dealer.

75. Defendant Credit Suisse International (“CS International”) is a bank organized and existing as a private unlimited company under the laws of England and Wales, with its principal place of business located at One Cabot Square, London, E14 4QJ. Credit Suisse utilizes CS International as one of its primary non-U.S. and/or international derivative dealer entities,⁴⁰ and as one of its “principal booking entities” for Credit Suisse’s investment banking business.⁴¹ More particularly, Credit Suisse deploys CS international “as a global hub for [Credit Suisse’s] derivative products.”⁴² CS International is registered with the CFTC as a swaps dealer.

76. As used herein, the term “Credit Suisse” includes Defendants Credit Suisse AG, CS USA, CS Capital and CS International, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Credit Suisse: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex,

³⁹ Credit Suisse Group 2019 Ann Rep. at 29.

⁴⁰ *Id.*

⁴¹ CS International 2019 Ann Rep. at 9.

⁴² *Id.*

the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through to the present); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortia that owned a stake in Creditex and that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit's board of directors; and (5) made markets in, transacted in, and held CDS.

6. Deutsche Bank Defendants

77. Defendant Deutsche Bank AG is a corporation organized and existing under the laws of Germany with its principal place of business in Frankfurt, Germany. Deutsche Bank AG operates a foreign branch in New York, New York, licensed by the New York Department of Financial Services (NYDFS), at a registered address of 60 Wall Street, New York, New York 10005. Deutsche Bank AG also operates a foreign branch in London England, at a registered address of Winchester House, 1 Great Winchester Street, London EC2N 2DB. As of December 31, 2019, Deutsche Bank AG reported having entered credit derivative positions in a total notional amount of €743.2 billion.⁴³ Six years earlier, as of December 31, 2013, Deutsche Bank's credit derivative positions were approximately three times larger: €2.112 *trillion*, including €1.195 *trillion* in single-name CDS and €905.2 billion in multi-name CDS).⁴⁴

⁴³ Deutsche Bank AG 2019 Ann Rep. at 131.

⁴⁴ Deutsche Bank AG 2014 Ann Rep. at 111 and 113.

78. Defendant Deutsche Bank Securities Inc. (“DB Securities”) is a corporation organized and existing under the laws of the State of Delaware with its principal place of business located at 60 Wall Street, New York, New York 10005. DB Securities is ultimately a wholly owned subsidiary of Deutsche Bank AG.⁴⁵ DB Securities is registered as a securities broker-dealer with the SEC, and as a futures commission merchant with the CFTC, and in these capacities clears securities and derivatives products for its customers, affiliates or itself.⁴⁶ As of December 31, 2014, DB Securities reported having sold \$15.7 billion of credit protection through CDS, and having purchased \$16.4 billion of credit protection.⁴⁷

79. As used herein, the term “Deutsche Bank” includes Defendants Deutsche Bank AG and DB Securities, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Deutsche Bank: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through to the present); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortia that owned a stake in Creditex and that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

⁴⁵ DB Securities 2019 Ann Rep. at 2.

⁴⁶ *Id.*

⁴⁷ DB Securities 2014 Ann Rep. at 26-27.

7. Goldman Sachs Defendants

80. Defendant Goldman Sachs & Co. LLC (“Goldman US”) is a limited liability company organized and existing under the laws of the State of Delaware, with its principal place of business located at 200 West Street, New York, New York 10282-2198. Goldman US is a wholly owned subsidiary of The Goldman Sachs Group, Inc. (“GS Group”). Goldman US is utilized by GS Group as its principal U.S. broker-dealer.⁴⁸ Goldman US, typically acting as a principal, makes markets in a broad range of derivatives, including single name CDS, CDS options, and CDS indices, tranches, and baskets, *inter alia* to provide liquidity to clients and to maintain positions in response to or in anticipation of client demand.⁴⁹ As of December 31, 2019, Goldman US reported having entered into credit derivative positions with a notional amount of \$223.3 billion, including having sold \$110.4 billion of credit protection and having purchased \$112.82 billion of credit protection.⁵⁰

81. Defendant Goldman Sachs International (“Goldman International”) is a private unlimited company organized and existing under the laws of England and Wales, with its principal place of business located at Plumtree Court, 25 Shoe Lane, London EC4A 4AU, United Kingdom. Goldman International is ultimately wholly owned by GS Group. GS International makes markets in both cash and derivative instruments for interest rate products, credit products, mortgages, currencies and commodities.⁵¹ As of November 30, 2019, Goldman International reported having

⁴⁸ GS Group 2019 Ann Rep. at 8, 72.

⁴⁹ Goldman US 2019 Ann Rep. at 13, 16-17.

⁵⁰ *Id.* at 14, 17.

⁵¹ Goldman International 2019 Ann Rep. at 5.

sold \$31.4 billion of credit protection and having purchased \$33.6 billion of credit protection through credit derivative transactions.⁵²

82. As used herein, the term “Goldman Sachs” includes Defendants Goldman US and Goldman International, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Goldman Sachs: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through to the present); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortium that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

8. JPMorgan Defendants

83. Defendant J.P. Morgan Chase Bank, N.A. (“JPM Chase”) is a federally chartered national banking association with its principal place of business located at 270 Park Avenue, New York, New York 10017. JPM Chase is a wholly owned subsidiary of J.P. Morgan Chase & Co. (“JPMC”) and JPMC’s principal bank subsidiary.⁵³ JPM Chase is both a purchaser and seller of credit protection through CDS and other credit derivatives. In its capacity as a market maker, JPM Chase actively manages a portfolio of credit derivatives by purchasing and selling credit

⁵² *Id.* at 71.

⁵³ J.P. Morgan Chase & Co. (“JPMC”) 2019 Ann Rep. at 42.

protection, predominantly on corporate debt obligations, to meet the needs of customers.⁵⁴ Additionally and as an end-user, JPM Chase uses credit derivatives to manage credit risk associated with lending exposures, counterparty exposures, and financial instruments and exposures arising from JPM Chase's market-making businesses.⁵⁵ As of December 31, 2019, JPM Chase reported having sold \$548.0 billion of credit protection via CDS (and a further \$45.1 billion through other credit derivatives such as credit swap options and total return swaps), and having purchased \$556.6 billion of credit protection via CDS (and a further \$53.6 billion through other credit derivatives).⁵⁶

84. Defendant J.P. Morgan Securities LLC ("JPMS") is a limited liability company organized and existing under the laws of the State of Delaware, with its principal place of business located at 383 Madison Avenue, New York, New York 10179. JPMS, an indirect wholly owned subsidiary of JPMC, is JPMC's principal non-bank subsidiary and JPMC's principal U.S. broker-dealer subsidiary.⁵⁷ JPMS makes markets in single name, index, and tranche CDS, and uses credit derivatives to manage credit risk arising in connection with other financial instruments, including corporate debt securities.⁵⁸ As of December 31, 2019, JPMS reported having sold \$14.41 billion of credit protection through CDS and having purchased \$15.03 billion of credit protection through CDS.⁵⁹ JPMS is a registered broker-dealer and investment adviser with the SEC, is registered

⁵⁴ JPM Chase 2019 Consolidated Financial Statements, at 46.

⁵⁵ *Id.*

⁵⁶ *Id.* at 48.

⁵⁷ JPMC 2019 Ann Rep. at 42, 92, 269.

⁵⁸ JPM Securities 2019 Ann Rep. at 23.

⁵⁹ *Id.*

with the CFTC as a futures commission merchant, and is provisionally registered with the National Futures Association as a swap dealer.

85. Defendant JPMS is a foreign corporation authorized to transact business in New Mexico pursuant to Article 17 of New Mexico’s Business Corporation Act, and it therefore purposefully avails itself under New Mexico law of the “same, but no greater, rights and privileges as a domestic [New Mexico] corporation.”⁶⁰ To transact its business in New Mexico, JPMS, as a registered foreign corporation, must continuously maintain a registered office and a registered agent in New Mexico,⁶¹ and, unless exempt, must pay taxes in New Mexico.

86. As used herein, the term “JPMorgan” includes Defendants JPM Chase, JPMS, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, JPMorgan: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through to the present); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortia that owned a stake in Creditex and a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

⁶⁰ N.M. Stat. § 53-17-2.

⁶¹ *Id.* § 53-17-9.

9. Morgan Stanley Defendants

87. Defendant Morgan Stanley & Co., LLC (“MS&Co.”) is a limited liability company organized and existing under the laws of the State of Delaware, with its principal place of business located at 1585 Broadway, New York, New York 10036. MS&Co. is ultimately a wholly owned subsidiary of MS.⁶² MS&Co. is MS’s primary U.S. broker-dealer subsidiary. As of December 31, 2019, MS&Co. reported having sold \$1.72 billion of credit protection via CDS and having purchased \$4.0 billion of credit protection via CDS.⁶³ MS&Co. is registered with the SEC as an institutional securities broker-dealer and is registered with the CFTC as a futures commission merchant and, provisionally, a swap dealer.⁶⁴

88. Defendant MS&Co. is a foreign corporation authorized to transact business in New Mexico pursuant to Article 17 of New Mexico’s Business Corporation Act, and it therefore purposefully avails itself under New Mexico law of the “same, but no greater, rights and privileges as a domestic [New Mexico] corporation.”⁶⁵ To transact its business in New Mexico, MS&Co., as a registered foreign corporation, must continuously maintain a registered office and a registered agent in New Mexico,⁶⁶ and, unless exempt, must pay taxes in New Mexico.

89. Defendant Morgan Stanley & Co. International plc (“MS International”) is a company organized and existing under the laws of England and Wales, with its principal place of business located at 25 Cabot Square, Canary Wharf, London E14 4QA, United Kingdom. MS

⁶² MS&Co. 2019 Ann Rep. at 3.

⁶³ *Id.* at 14.

⁶⁴ *Id.* at 3.

⁶⁵ N.M. Stat. § 53-17-2.

⁶⁶ *Id.* § 53-17-9.

International is wholly owned by MS. As of December 31, 2019, MS International reported having sold \$6.18 billion in credit protection through credit derivatives and having purchased \$6.38 billion of credit protection through credit derivatives.⁶⁷ MS International is a registered swap dealer with the CFTC.

90. Defendant Morgan Stanley Capital Services, LLC (“MS Capital”) is a limited liability company organized and existing under the laws of the State of Delaware, with its principal place of business located at 1585 Broadway, New York, New York 10036. MS Capital is ultimately a wholly owned subsidiary of MS. MS Capital is used by other Morgan Stanley entities as a booking entity for interest rate, foreign exchange, credit and equity derivative transactions with Morgan Stanley’s Institutional Securities segment customers and clients. MS Capital is provisionally registered as a swap dealer with the CFTC.

91. As used herein, the term “Morgan Stanley” includes Defendants MS&Co., MS Capital, and MS International, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, Morgan Stanley: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through at least April 2017); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortia that owned a stake in Creditex and a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

⁶⁷ MS International 2019 Financial Statements, at 93.

10. RBS Defendants

92. Defendant NatWest Markets Plc (“NatWest Markets”), formerly known as The Royal Bank of Scotland plc, is a company organized and existing under the laws of the United Kingdom, with its principal place of business located at Gogarburn, PO Box 1000, Edinburgh EH12 1HQ, United Kingdom. NatWest Markets operates as NatWest Group’s primary banking subsidiary, and as NatWest Group’s primary booking entity for CDS. NatWest Markets’ credit derivative exposures exceeded £275 billion in 2008, £80 billion in 2009, and £52 billion in 2010.

93. Defendant NatWest Markets Securities, Inc. (“NWMSI”), formerly known as RBS Securities Inc., is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 600 Washington Boulevard, Stamford, CT 06901. NWMSI is ultimately wholly owned by NatWest Group. NWMSI operated as NatWest Group’s primary U.S. broker-dealer subsidiary.

94. As used herein, the term “RBS” includes Defendants NatWest Markets, NWMSI, and their subsidiaries and affiliates that participated in CDS auctions and/or made markets in, transacted in, and/or held CDS. During the Class Period, RBS: (1) developed, together with the other Defendants and ISDA, Markit, and Creditex, the CDS auction protocol and enforced its market-wide adoption by market participants; (2) participated in CDS auctions; (3) was a member of the Determinations Committee (serving on all five regional DCs from inception through at least April 2012); (4) was, together with the other Defendants, a member of ISDA and part of the shareholding consortium that owned a controlling stake in Markit until mid-June 2014, and appointed representatives to Markit’s board of directors; and (5) made markets in, transacted in, and held CDS.

11. Jane Doe Unknown Defendants

95. Jane Doe Defendants Nos. 1-100 (“Jane Doe Defendants”) are other entities or persons, including banks, broker-dealers, interdealer brokers, and other co-conspirators whose identities are currently unknown to Plaintiffs. The Jane Doe Defendants participated in, furthered, and/or combined, conspired, aided and abetted, or agreed with others to perform the unlawful acts alleged herein.

96. Various other entities and individuals unknown to Plaintiffs at this time – including other financial institutions – participated as co-conspirators in the acts complained of and performed acts and made statements that aided and abetted and were in furtherance of the unlawful conduct alleged herein. Plaintiffs reserve the right to identify other co-conspirators and to name subsequently some or all co-conspirators, whether identified here or not, as defendants.

97. Defendants are jointly and severally liable for the act of their co-conspirators whether named or not named as Defendants in this complaint. Each Defendant acted as the agent or joint-venturer of or for the other Defendants with respect to the acts, violations, and common course of conduct alleged herein.

C. Relevant Non-Parties

1. ISDA

98. The International Swaps and Derivatives Association, Inc. (“ISDA”) is a financial trade association formed in 1985 purporting to represent the interests of derivatives market participants. ISDA, together with Creditex, Markit, and the Defendants, developed the CDS auction protocol, and the related Determinations Committees.

99. Defendants are members of ISDA. Defendants’ employees/representatives sit on ISDA’s board of directors and historically have been the most dominant directors.

100. Defendants have previously used their dominance on ISDA’s board of directors to cause ISDA to make decisions against its purported interest in “representing all market participants globally” and “promoting high standards of commercial conduct that enhance market integrity.”⁶⁸ For example, the European Commission has found that Defendants used their representation on ISDA’s board of directors to cause ISDA to block the expansion of competition in the CDS market – specifically by preventing ISDA from licensing the use of the final auction price to other trading platforms that wanted to launch exchange-trading of CDS, and that needed the final auction price to do so.⁶⁹ ISDA subsequently reached an agreement with the European Commission prohibiting it from consulting the Defendants on individual licensing requests by exchanges.⁷⁰

101. ISDA served as the Determinations Committee Secretary from the Determinations Committee inception through approximately October 2018. Beginning no later than 2016, ISDA sought to extricate itself from this role, but found no takers for it.

2. Creditex

102. Creditex Group Inc. (“CGI,” and together with its subsidiaries, “Creditex”) is an interdealer broker in the credit derivatives market that was founded in 2000 by Sunil Hirani, a

⁶⁸ See ISDA, “Strategy Statement,” <https://www.isda.org/mission-statement> (date accessed: January 14, 2022).

⁶⁹ Decision of the European Commission Addressed to The International Swaps and Derivatives Association, Inc., C(2016) 4583, Case AT.39745 – CDS Information Market, at 7 (July 20, 2016) (“The Statement of Objections moreover reached the preliminary conclusion that ISDA’s Board of Directors, where the CDS dealers were represented, refused licences for the Final Price to Eurex in 2007 and to CMDX in 2009 for exchange traded credit derivatives.”).

⁷⁰ *Id.* at 10 (“ISDA has given a commitment to modify its procedures for considering applications/requests for licenses regarding the Final Price to exclude CDS dealers from ISDA’s licensing decisions.”).

former derivatives trader at Deutsche Bank. Mr. Hirani served as Creditex's CEO until Creditex was sold to Intercontinental Exchange, Inc. in 2008.

103. Creditex was only able to get off the ground with the backing of Defendants, who backed Creditex as a "strategic investment." Defendants sometimes refer to these transactions as "dealer consortium" or "club" transactions, in which the various members of the club – Defendants – collectively choose to support (and not support) companies that form critical market infrastructure in the financial markets, like trading platforms, clearinghouses, trade processing businesses, and brokerages. Each dealer has a dedicated team focused on making these "strategic investments," and they are frequently "intensely secretive" about their operations.⁷¹ The most dominant and active group is Goldman Sachs' principal strategic investments group, but Bank of America/Merrill Lynch, Credit Suisse, JPMorgan, and Morgan Stanley each have strategic investments teams, as do the other Defendants.

104. Defendants' strategic investments are not necessarily intended to generate a profit or a return. Often, Defendants use these investments to shape a financial market so that it favors Defendants' collective, incumbent interests in that market, such as by preventing the development of a market in a certain way, or by ensuring that any technological innovation in a specific market is controlled by Defendants. Defendants' strategic investments often involve some form of equity in the company, in exchange for the promise of control – frequently, Defendants are guaranteed seats on the target company's board of directors and occupy seats on the target company's most important committees that make development decisions about how the business will operate and

⁷¹ See Philip Georgiadis and Tim Cave, "Strategic investment units driving the evolution of trading," *Financial News* (March 31, 2015).

evolve. The board of directors and committee meetings then become a forum for the Defendants' representatives to meet and share their views about overall market structure and how they think it should develop to protect their collective interests.

105. Creditex was one such strategic investment by Defendants.⁷² Carefully controlled by its dealer investors, Creditex, together with Markit, ISDA and Defendants, developed the CDS auction protocol. Creditex and Markit have jointly administered CDS auctions since the auctions' inception in 2005, and Creditex provides the platform through which CDS auctions are conducted. Additionally, Creditex, through its U.S.-domiciled, SEC-registered, wholly owned broker-dealer subsidiary, Creditex Securities Corporation, and through its U.K. broker-dealer subsidiary Creditex Brokerage, L.L.P., provides electronic trade execution services and interdealer brokerage services for CDS.

106. Creditex's success as a CDS interdealer broker – an intermediary broker that facilitates trades between Defendants – grew after Defendants JPMorgan, Morgan Stanley, Deutsche Bank, Bank of America/Merrill Lynch, and Credit Suisse invested in Creditex and took equity stakes in it.⁷³ Creditex's success was dependent on having CDS trades and liquidity on its platform, and the various Defendants' decisions to take an equity stake in Creditex thus ensured its dominance in the market. It also meant that Creditex could not take business positions contrary to the interests of Defendants, who held considerable power over Creditex's success or failure due to their status as the major liquidity providers in the CDS market.

⁷² See Paul M. Sherer, "Big Financial Firms Buy Equity Stakes In Credit Derivatives Trading Venture," *The Wall Street Journal* (Oct. 14, 1999) ("The Creditex investment reflects a general trend by Wall Street to band together when launching online trading ventures of all types.").

⁷³ See Paul M. Sherer, "Credit-Derivatives Venture Gets Investments From Major Firms," *The Wall Street Journal* (Sept. 20, 2000).

3. Markit

107. IHS Markit, Ltd. was incorporated on January 16, 2014 under the name Markit Ltd., for purposes of Markit’s June 2014 initial public offering, and changed its name following the June 2016 completion of its merger with IHS, Inc. As used herein, “Markit” includes IHS Markit, Ltd. and its predecessors, subsidiaries, affiliates, and assigns – including Markit Group Holdings Limited and Markit Group Limited – whose operations concerned CDS auctions, CDS pricing/valuation, CDS trading, CDS processing, and/or CDS indices.

108. Like Creditex and prior to its 2014 IPO, Markit was a strategic investment of Defendants. Until 2014, Markit was owned by sixteen (16) shareholder banks, including Bank of America/Merrill Lynch, Barclays, BNP Paribas, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, JPMorgan, Morgan Stanley, and RBS.⁷⁴ Each dealer was entitled to (and occupied) a seat on Markit’s board of directors.

109. As with Creditex, Defendants’ control of Markit was rooted in Markit’s dependence on the Defendants for the continuation and success of Markit’s business, in Defendants’ ownership of Markit, and in Defendants’ role as Markit’s directors. Defendants’ control of Markit was so total that the European Commission found that Markit had in one instance related to the auction process “acted as a tool of the CDS dealers and followed their advice even when that advice was contrary to Markit’s own commercial interests, that is to say, to maximize revenues from [CDS]

⁷⁴ See Philip Georgiadis and Tim Cave, “Strategic investment units driving the evolution of trading,” *Financial News* (March 31, 2015) (“Financial information provider Markit, electronic fixed income platform Tradeweb and the instant messaging initiative Symphony, backed by 14 banks, are all examples of companies spawned by the [principal strategic investments] divisions.”); *In re Interest Rate Swaps Antitrust Litigation*, Case No. 16-MD-2704, ECF No. 338, Ex. A, at 68 (S.D.N.Y. Feb. 21, 2018).

index licensing.”⁷⁵ As a result of the European Commission’s finding, Markit was required to install a monitoring trustee to ensure compliance with various commitments Markit made to resolve the European Commission’s antitrust investigation into its auction-related licensing practices with Defendants.

110. In this context, Defendants, Markit, Creditex, and ISDA developed the CDS auction protocol. Markit and Creditex have jointly administered CDS auctions since the auctions’ inception in 2005, with Markit reviewing CDS auction order submissions and corroborating CDS auction results, including auction final prices. Markit is a leading provider of CDS pricing and valuation services (it currently prices approximately 3,800 CDS entities and all major CDS indices) and also provides CDS trade processing services. Markit also owns, manages, and administers the leading CDS indices, including the CDX and iTraxx indices, both of which Markit acquired in November 2007 from bank-owned consortiums.⁷⁶

IV. FACTUAL ALLEGATIONS

A. Background

1. Credit Default Swaps and the Credit Default Swap Market

111. A credit default swap is a contract that transfers financial risk between two parties. It works much like insurance: the CDS “protection buyer” makes premium-like payments to the

⁷⁵ Decision of the European Commission Addressed to Markit Limited, Markit Group Holdings Limited, Markit Indices Limited, Markit North American, Inc., and Markit Group Limited, C(2016) 4585, Case AT.39745 - CDS Information Market, at 8 (July 20, 2016).

⁷⁶ Markit acquired the CDX indices from CDSIndexCo LLC, an entity established and wholly owned by a consortium of 16 of the largest global derivatives dealers: ABN AMRO, Bank of America, Barclays Capital, Bear Stearns, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JPMorgan, Lehman Brothers, Merrill Lynch, Morgan Stanley, UBS and Wachovia. Markit acquired the iTraxx indices from International Index Company Limited, an entity established and wholly owned by a similar consortium of large European and global financial institutions: ABN AMRO, Barclays Capital, BNP Paribas, Deutsche Bank, Deutsche Boerse, Dresdner Kleinwort, Goldman Sachs, HSBC, JPMorgan, Morgan Stanley, and UBS.

CDS “protection seller” over the life of the CDS contract and in exchange the “protection seller” promises to cover the “protection buyer’s” losses if its underlying investment – in this case, corporate and sovereign bonds – fails.

112. These failures are called “credit events.” Typical credit events are the bond issuer’s filing for bankruptcy or missing a coupon payment on the bond. Specific bonds covered by the CDS contract are called “deliverable obligations,” and the issuer of those bonds is often referred to as the “reference entity.” If an investor were to purchase CDS on J.C. Penney bonds, J.C. Penney would be the “reference entity” and the specific bonds issued by J.C. Penney that are covered by the CDS contract would be the “deliverable obligations.”

113. In exchange for this promise of compensation from the protection seller, the protection buyer makes premium-like payments to the protection seller over the life of the CDS contract.

114. However, a CDS is different than the typical insurance contract because the protection buyer can purchase CDS on bonds that it does not actually own. This is known as a “naked” swap. Naked swaps allow investors to speculate on the creditworthiness of a bond issuer.

115. Aside from differences in the type of reference entity covered by CDS (corporate bonds, corporate loans, sovereign debt, asset-backed and/or mortgage-backed securities, etc.), there are three different CDS products that are traded and relevant to Plaintiffs’ claims:

a. “Single-name” CDS insure a protection buyer against the credit risk of a single issuer, *e.g.*, a CDS referencing a senior unsecured debt obligation issued by Hertz Corporation.

b. CDS can also be transacted in “multi-name” form to cover a basket, portfolio, or standardized index of *multiple* reference entities. In the overwhelmingly most common version of these, known as “index CDS,” protection buyers obtain protection on each index constituent in an amount equal to the notional amount of the CDS index transacted divided by the number of “names” in the index. For example, if a particular CDS index is comprised of 100 equally-weighted “names,” a market participant purchasing \$100 million of protection on the index obtains \$1 million notional of credit protection on each of the 100 names in the index.

c. “Swaptions” are credit default swap options. With a swaption, transactors have the right, prior to or at option expiry, to buy or sell protection, on a single reference entity or index CDS, at a pre-specified strike price.

2. Index Credit Default Swaps

116. CDS indices are various standardized portfolios of single-name CDS reference entities. Index CDS operate the same way as single-name CDS, with the protection buyer paying quarterly coupons to the protection seller for the promise of insurance by the protection seller against credit events experienced by any constituent in the specified CDS index’s portfolio. The protection buyer obtains protection on each index constituent in an amount equal to the notional amount of the CDS index transacted divided by the number of “names” in the index. For example, if a particular CDS index is comprised of 100 equally-weighted “names,” a market participant purchasing \$100 million of protection on the index obtains \$1 million notional of credit protection on each of the 100 names in the index.

117. As of mid-2019, more than 80% of all CDS index gross notional trades involved a dealer as a counterparty.⁷⁷ Defendants are the dominant dealers in the CDS market and thus represent the overwhelming market share of index CDS.

118. Among the most liquid and highly-traded CDS indices are: (1) the North American Investment Grade CDX index (known as the CDX.NA.IG, composed of 125 equally-weighted North American corporate issuers with investment grade credit ratings); (2) the North American High Yield CDX index (CDX.NA.HY, composed of 100 equally-weighted North American sub-investment grade issuers); (3) the CDX Emerging Markets index (CDX.EM, composed of approximately 14-18 emerging markets sovereign debt issuers); (4) the iTraxx Europe index (125 equally-weighted European investment grade issuers); and (5) the iTraxx Crossover index (75 sub-investment grade European issuers).⁷⁸

119. Markit acquired both the CDX and iTraxx index families in 2007, and has owned, operated, and administered them ever since.

120. Each of these CDS indices exists in the form of different “Series” – for example, the CDX.NA.IG Series 1, the CDX.NA.IG Series 2, etc. New index series are issued bi-annually in March and September of each year, with updated reference portfolios that consider relevant developments during the prior six (6) months. Each series remains unchanged throughout its lifetime, except in the instance, discussed below, that any of its constituent reference entities

⁷⁷ See ISDA, “Global Credit Default Swaps Market Study,” at 15 (Sept. 2019) (hereinafter, “ISDA 2019 Study”).

⁷⁸ Other CDS indices cover other regions (*e.g.*, Japan, Asia ex-Japan, Latin America), other categories of issuers (*e.g.*, sovereigns, municipals), and other reference entity asset classes (*e.g.*, mortgage-backed securities, leveraged loans). Additional CDS indices have been created as “sub-indices” of the main CDS indices (such as the CDX.NA.IG and CDX.NA.HY) that subdivide the main index portfolios based on industry sector (*e.g.*, financials, industrials, etc.), issuer credit ratings (*e.g.*, issuers with single-B credit ratings, issuers with double-B credit ratings), or other features (*e.g.*, issuers with highest CDS spreads).

experience a credit event. Prior series of an index continue to trade even as and after new series are created, but liquidity is concentrated in the current, “on the run” series.

121. If a CDS index constituent experiences a credit event, the index CDS is also settled through the CDS auction process and via reference to the final auction price. After the final auction price is determined, the index CDS protection seller becomes obligated to make a credit protection payment that applies (1) the CDS auction final price to (2) the portion of the index CDS notional that the auctioned reference entity represents.

122. In 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act”) amended and expanded the Commodity Exchange Act to include index CDS. The Dodd-Frank Act and implementing CFTC regulations require certain market participants entering into certain swap transactions, such as CDS, to submit those swaps for clearing to a derivatives clearing organization (“DCO”). Specifically, section 2(h) of the CEA and Regulation 50.4(b), 17 CFR § 50.4, imposed a clearing requirement on all trades referencing five primary CDS indices – the CDX.NA.IG, CDX.NA.HY, iTraxx Europe, iTraxx Europe Crossover, and iTraxx Europe HiVol. The Dodd-Frank Act also expanded Section 22(a) of the CEA, 7 U.S.C. § 25, to provide a private right of action to any person injured by the manipulation of the price of any swap, including CDS.

3. Defendants’ Role in the Credit Default Swap Market

123. Defendants have been, and continue to be, the dominant CDS market participants. They are supposed to be horizontal competitors who compete as market makers for client business (trades) in the dealer-to-client CDS market.

124. Defendants' CDS "market making" desks buy and sell CDS to other CDS market participants, including pension funds, corporations, insurance companies, hedge funds, and other institutions, and try to profit from the "spread" between the prices at which they buy and sell CDS protection. Defendants also buy and sell CDS to take speculative positions on the creditworthiness of a debt issuer.

125. Defendants also have other "desks" that trade CDS. Defendants' distressed debt, or "high-yield" desks, specialize in trading debt issued by companies or sovereigns facing financial distress, as well as the CDS on that debt. Defendants' "correlation" desks, also referred to as "structured credit" desks, use CDS to construct, issue, and trade complex, "structured" credit products, such as synthetic collateralized debt obligations.

126. While Defendants may have multiple "desks" that trade CDS, because each dealer participates in the CDS auctions through a single trader – typically, a trader on the CDS market making desk – each desk's participation in the CDS auctions is funneled through that single trader, who thus purports to represent the entire bank's "house" interest on the CDS in the auctions. The house interest is netted, so that the entire bank's position is generally as a net protection buyer or a net protection seller going into the auction.

127. Defendants' various desks engage in high-risk trading that carries the potential for outsized rewards and outsized losses. Even a single trader can generate substantial profits for a dealer. A single trader can also lose significant amounts of money for a dealer, making the stakes for each trader in executing his or her trading strategy very high. When there are losses, Defendants' traders urgently seek to contain and mitigate them.

128. Defendants compensate their traders lavishly when they generate profits for their respective desks, typically by paying bonuses that are tied to the profitability of a trader's desk. The bonuses can be well over one million dollars a year, and often multiples of that – far outstripping a trader's base salary. This environment encourages risk-taking, an excessive focus on profitability, and a celebration of traders who book big profits for their desks year after year.⁷⁹

129. Like bonds,⁸⁰ CDS are traded “over-the-counter” (“OTC”). There is no electronic exchange where trades happen between anonymous counterparties for CDS or bonds. Instead, because they are over-the-counter markets, a client contacts a dealer, requests a quote, and then (if both sides approve) trade at the quoted price. If a client wants multiple quotes, it submits a request for a quote to multiple Defendants, who then each quote that investor a price from which the client chooses.

130. The OTC markets for CDS and bond markets are opaque. There is no ticker tape for CDS or bonds like there is in equities. Who is trading which CDS or bonds is not publicly known, as market participants are typically careful to protect that information because disclosing it too widely could enable other market participants to trade on it. While transaction information for bonds is generally reported and available to the public, CDS transaction information is reported only to regulators and not available to the public.

⁷⁹ See Better Markets, “395 Major Legal Actions and \$195+ Billion in Fines and Settlements Over the Last 20 Years,” at 6 (Jan. 13, 2021) (observing that the global banks payment of nearly \$200 billion in regulatory fines, penalties, and legal settlements over the last 20 years does not change the culture in banking because “these fines and settlements are just a cost of doing business, a speed bump on the road to ever larger bonuses, however they are generated”).

⁸⁰ See LARRY HARRIS, *TRADING & EXCHANGES: MARKET MICROSTRUCTURE FOR PRACTITIONERS*, at 35 (Oxford University Press 2007) (“The corporate bond market is an example of a large market in which almost no trading takes place at organized exchanges.”).

131. In these opaque, OTC markets, information is valuable currency that Defendants use for their own proprietary trading (or “house”) positions. In the CDS market, Defendants seek to capitalize on information asymmetries. By becoming knowledgeable about a particular bond, the CDS covering that bond, and who is trading the CDS and that bond, a dealer can obtain commercially sensitive, market-moving information about a particular bond and the CDS covering that bond.

132. Sometimes, a dealer will take a significant *net* CDS position if it believes the information it has about a given name can make the dealer a profit. A dealer uses that information to make money for the “house,” *i.e.*, the dealer’s proprietary trading desk, by taking positions in the name itself. Because Defendants each compensate their CDS traders based on the profits and losses that each trader’s desk generates for that Defendant, traders have a strong incentive to deploy information advantageously to generate profits for Defendant’s “house” position.

133. This underscores the financial importance to Defendants of the settlement value of CDS contracts. A dealer who took a position on the creditworthiness of Toys “R” Us by buying CDS protection on Toys “R” Us bonds has a strong incentive to ensure that the settlement value of the CDS positions is high, to increase the amount of money that dealer will receive from counterparties who sold CDS protection on Toys “R” Us.

4. Pre-Conspiracy Settlement of Credit Default Swaps

134. Until 2005, CDS were settled following a credit event on a bilateral basis, according to the terms agreed to by the counterparties. There were two (2) primary methods of settlement: “physical” settlement and “cash” settlement.

135. In physical settlement, the protection buyer delivers the impaired financial asset (bonds of a bankrupt company) to the protection seller, and in exchange receives the full par value or notional amount in cash. CDS designating physical delivery for settlement would also specify the particular bond issues that could be acceptably delivered to the protection seller, termed “deliverable obligations.”

136. Alternatively, CDS counterparties could elect “cash settlement.” In cash settlement, the protection seller pays the protection buyer a sum equal to the difference between the par value of the deliverable obligation and the value of the deliverable obligation following a credit event. For example, in a \$10 million CDS referencing Company X, if the post-default value of Company X bonds was 60% of par value, the protection seller would pay the protection purchaser \$4 million – representing 40% principal impairment on the \$10 million notional specified in the CDS contract.

137. Cash settlement required a mechanism for establishing the post-credit event value of the reference obligation, usually specified in the CDS transaction documentation. The most common such mechanism was to conduct, on a given “valuation date,” a dealer poll in which dealers would submit bids and those bids would be used to calculate the post-credit event value of the underlying bonds.

5. Defendants Introduce the Credit Default Swap Auction Process to the Market

138. In 2005, Defendants introduced a third settlement mechanism to the market: auction settlement. They referred to this process as “Credit Event Fixings.”⁸¹

139. Generally, the process first involved having a committee of market participants decide whether CDS contracts had been triggered, *i.e.*, whether a credit event for a particular set of bonds had occurred. If the committee so decided, then they would hold an auction. At the auction, CDS market participants would submit bids or offers to buy or sell bonds, with the result of the auction being the announcement of a final price (*e.g.*, 65.5) that would value the bonds and then be used to settle all CDS issued on those bonds.

140. Defendants made the auction process a closed, dealer-only club. When the first auctions were held in June 2005, Defendants Bank of America (and Merrill Lynch), Barclays, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, JPMorgan, Morgan Stanley, and RBS were the only participants.

141. Defendants worked with an interdealer broker company they controlled, Creditex, to create the auction technology. As described above, *supra* ¶¶ 103–06, Creditex was a “consortium” managed by Defendants’ strategic investment groups.⁸² The critical goal of Defendants’ consortium investments is control, and it is typical for Defendants to take seats on the

⁸¹ See CreditFixings.com, “About this Service: Credit Event Fixings” (accessed June 3, 2021) (“The Fixings were developed by Creditex and Markit in close cooperation with ISDA and major credit derivatives dealers and are an integral part of the auction settlement process.”).

⁸² Paul M. Sherer, “Big Financial Firms Buy Equity Stakes In Credit Derivatives Trading Venture,” *The Wall Street Journal* (Oct. 14, 1999).

consortium investment company's board of directors, allowing them to direct the company's affairs and make policy.⁸³

142. Moreover, Creditex's day-to-day brokerage business was dependent on Defendants. Because Creditex was the dominant interdealer broker for CDS, Creditex's business was entirely dependent on its ability to stay in Defendants' favor. (An interdealer broker facilitates trades between dealers, and Defendants are the biggest dealers.) Creditex's connection to the "dealer community" – a term Defendants frequently use to define themselves and their interests apart from other CDS market participants – was substantial and controlling in Creditex's business.

143. Another company Defendants used to set up the auction process was Markit. Like Creditex, Markit was also controlled by Defendants. In the early 2000s, Markit was the dominant provider of data about bonds and credit derivatives to Defendants. As a result, its business was dependent on staying in Defendants' favor. Like Creditex, Markit was also financially backed by a group of Defendants, including Defendants Bank of America, Goldman Sachs, Deutsche Bank, and JPMorgan.⁸⁴ Until mid-2014, Markit was majority-owned and controlled by a consortium of approximately sixteen (16) global banks, including each of the Defendants (Bank of America and its now-subsiidiary Merrill Lynch, Barclays, BNP Paribas, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, JPMorgan, Morgan Stanley, and RBS). As a member of the consortium, each Defendant was entitled to, and did, fill one seat on Markit's board of directors. Defendants' control

⁸³ See Philip Georgiadis and Tim Cave, "Strategic investment units driving the evolution of trading," *Financial News* (March 31, 2015) (noting that Tradeweb, Symphony, Euroclear, and Bats Global Markets are similar bank consortium-style investments).

⁸⁴ See Shayndi Raice, Sarah Krouse, and Anne Steele, "IHS and Markit to Merge, Creating Data Heavyweight," *The Wall Street Journal* (March 21, 2016).

of Markit was so total that the European Commission found that Markit had in one instance related to the auction process “acted as a tool of the CDS dealers and followed their advice even when that advice was contrary to Markit’s own commercial interests.”⁸⁵

144. By 2006, the auction settlement process had become prevalent. Defendants sold the process as a useful standardization tool for the market. More importantly, because Defendants backed it, non-dealer market participants understood that if they did not agree to settle their CDS contracts via reference to the CDS auctions, Defendants would collectively cease trading CDS with them – and because Defendants collectively controlled nearly all CDS liquidity, they had the ability to freeze non-compliant market participants out of the CDS market entirely. In other words, to force adoption of the auction process, Defendants started using CDS liquidity to influence non-dealer clients’ acceptance of the auction process as the valuation mechanism for settling triggered CDS. Because Defendants controlled (and still control) nearly all the CDS liquidity available in the dealer-to-client CDS market, market participants accepted Defendants’ terms, agreeing to settle those contracts with reference to the final auction price as determined in the dealer-controlled auction process.

6. The Determinations Committee

145. In 2009, Defendants agreed to “hard-wire” the auction process they designed in 2005 into the standardized CDS contracts that virtually every CDS market participant uses to trade CDS. As a result, nearly all CDS contracts are settled via reference to what is now known as the

⁸⁵ Decision of the European Commission Addressed to Markit Limited, Markit Group Holdings Limited, Markit Indices Limited, Markit North American, Inc., and Markit Group Limited, C(2016) 4585, Case AT.39745 - CDS Information Market, at 8 (July 20, 2016).

“ISDA Credit Derivatives Determinations Committees and Auction Settlement Credit Default Swap Protocol.”

146. First, the Determinations Committee decides whether CDS contracts referencing a given entity have been triggered by asking whether the entity has experienced an adverse “credit event.” Triggering credit events include a bond issuer (or “reference entity”) filing for bankruptcy, defaulting on its bonds by failing to make a coupon payment, or (in some cases) restructuring its debt in a way that impairs debt investors. The Determinations Committee’s ultimate votes are published. For example:

Second question for vote:	Has a Bankruptcy Credit Event occurred with respect to Chesapeake Energy Corporation?
Vote result:	YES
Votes:	14 "YES" votes - Bank of America N.A. Barclays Bank plc BNP Paribas Citadel Americas LLC Citibank, N.A. Credit Suisse International Deutsche Bank AG Goldman Sachs International JP Morgan Chase Bank, N.A. Mizuho Securities Co., Ltd Pacific Investment Management Co., LLC AllianceBernstein L.P. Cyrus Capital Partners, L.P. Elliott Management Corporation
	0 "NO" votes

147. The Determinations Committee typically consists of ten (10) dealer representatives and five (5) non-dealer representatives (*e.g.*, hedge funds, asset managers).⁸⁶ Each dealer typically designates one (1) or two (2) people to serve as its representative(s) on the Determinations

⁸⁶ The Determinations Committee typically has (3) additional non-voting, “consultative” members (two dealers and one “buy side” member) and a secretary.

Committee. Often the representative has been a dealer's CDS trader or head of the dealer's credit derivatives business.

148. The Determinations Committee then makes decisions regarding the rules for each auction, what specific bonds (or "deliverable obligations") will be up for auction, the date of the auction, and other issues related to the auction's functioning.

149. Only "Participating Bidders" may participate directly in an auction. Under the terms of Defendants' agreement in 2005 and memorialized in 2009, only the ten (10) dealer members of the Determinations Committee may vote on who gets to participate directly in each auction. Non-dealers have never participated in an auction; they know better than to even ask Defendants for the right of direct access to an auction. Before each auction, the dealer members of the Determinations Committee publish the list of Participating Bidders. It is nearly always comprised of Defendants. For example:

[Chesapeake Energy Corporation](#)

LIST OF PARTICIPATING BIDDERS IN CHESAPEAKE ENERGY CORPORATION CREDIT EVENT AUCTION:

- Bofa Securities, Inc.
- Barclays Bank PLC
- BNP Paribas SA
- Citigroup Global Markets, Inc.
- Credit Suisse International
- Deutsche Bank AG
- Goldman Sachs & Co. LLC
- J.P. Morgan Securities LLC
- Morgan Stanley & Co. LLC
- RBC Capital Markets LLC

150. At all relevant times, Defendants have dominated the Determinations Committee's dealer member seats, occupying at least eight (8) of the ten (10) dealer voting seats. Defendants

Bank of America/Merrill Lynch, Barclays, BNP, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, and JPMorgan have continuously occupied seats on the Determinations Committee throughout its existence, from 2009 until the present. Defendant Morgan Stanley occupied one of the remaining seats for most of this time (from 2009 through April 2017), and RBS had a seat from April 2009 to April 2012. Even though Morgan Stanley has not had a seat on the Determinations Committee since April 2017, Defendants have consistently voted to continue including Morgan Stanley as a dealer directly participating in the auctions.

7. How the Auctions Work

151. Once the Determinations Committee decides that a credit event has occurred, it schedules a corresponding auction. Typically, the auction is held approximately thirty (30) days after the credit event determination.

152. The purpose of the auction is to produce a single price that values all deliverable obligations (bonds) for purposes of CDS settlement. For example, after J.C. Penney filed for bankruptcy, the J.C. Penney CDS auction generated a single price (0.125% of par value) for J.C. Penney bonds to use as the basis for settling all CDS contracts referencing J.C. Penney. This price determines the settlement value of CDS contracts regardless of whether a CDS market participant is allowed to participate in the auction.

153. The auctions have two (2) stages. The first happens in the morning and involves the calculation of the “net open interest” and the “initial market midpoint.” After a break, the second stage then proceeds in the afternoon. At the end of the second stage, the final auction price is set and all Defendants’ previously (purportedly) private submissions into the auction are published on a website.

a) Part I: The Morning Phase of the Auction and Determining the Initial Market Midpoint and Net Open Interest

154. The first stage of the auction is completed during a half-hour window prior to 10 a.m. of the auction day. In the first stage, each dealer does two (2) things: (1) makes an initial *price* submission for the auctioned bonds (the “initial market”); and (2) makes an initial *quantity* submission (the “physical settlement request,” or “PSR”) indicating the amount of bonds the dealer commits to sell or buy in the auction.

155. The initial market is a two-way price (bid/offer) that is supposed to represent each dealer’s private, independent, good faith view of the price at which it would bid to buy or offer to sell a predetermined amount of bonds (typically, \$2 million of bonds). The initial markets are eventually published after the auction day is over but are supposed to remain secret during the auction.

156. Defendants have stated that their initial markets are meant to price the “cheapest-to-deliver” bond, which is typically the lowest value bond issued by the debt issuer among the bonds specified to be acceptable “deliverable obligations” in connection with the auction. Market participants typically look to the cheapest-to-deliver bond because a dealer who wants to sell or buy bonds in the auctions to settle CDS contracts will submit the lowest quality bond they have to deliver on their physical settlement request; the dealer will not want to give up their more valuable and higher-quality bonds which they can perhaps sell at a premium in the bond market.

157. For example, in the Whiting Petroleum auction, on May 6, 2020, the participating Defendants submitted the following initial markets:

Dealer Initial Markets

Dealer	Bid	Offer	Dealer
Bank of America	8.25	10.25	Bank of America
Barclays	8.75	10.75	Barclays
BNP Paribas	8.5	10.5	BNP Paribas
Citigroup	9.0	10.0	Citigroup
Credit Suisse	8.5	10.5	Credit Suisse
Deutsche Bank	8.5	10.5	Deutsche Bank
Goldman Sachs	8.5	10.5	Goldman Sachs
J.P. Morgan Securities LLC.	9.125	11.125	J.P. Morgan Securities LLC.
Morgan Stanley	7.5	9.5	Morgan Stanley

158. Defendants' physical settlement requests represent the quantity of bonds each Defendant commits to buy or sell in the auction. Like the initial markets, the physical settlement requests are eventually published after the auction is over but are supposed to remain secret during the auction.

159. For example, in the Whiting Petroleum auction, the participating Defendants submitted the following physical settlement requests:

Physical Settlement Requests

Dealer	Bid/Offer	Size
Bank of America	Offer	0.0
Barclays	Offer	25.0
BNP Paribas	Offer	33.5
Citigroup	Offer	5.0
Credit Suisse	Offer	6.9
Deutsche Bank	Offer	0.0
Goldman Sachs	Offer	8.918
J.P. Morgan Securities LLC.	Offer	110.205
Morgan Stanley	Offer	3.25

160. Auction rules impose certain restrictions on PSR submissions. First, PSRs can only be submitted by dealers to the extent they have actual CDS positions. Second, dealers who are net purchasers of CDS protection can only submit “to sell” PSRs, while net sellers of CDS protection can only submit “to buy” PSRs. Third, dealers’ PSR submissions cannot exceed the size of their net CDS position. Thus, a net purchaser of \$10 million of credit protection could submit a “to sell” PSR of anywhere from \$0 to \$10 million, but no greater.

161. These rules allow certain meaningful insights to be drawn from the PSR submissions, concerning the size and direction of CDS positions. In the Whiting Petroleum example above, where Defendants Barclays, BNP Paribas, Citi, Credit Suisse, Goldman Sachs, JPMorgan, and Morgan Stanley submitted PSRs to *sell* bonds in the auction (from a low of \$3.25 million of bonds for Morgan Stanley to a high of \$110.205 million of bonds for JPMorgan), each sell PSR necessarily indicates a net CDS protection purchase position in an amount equal to or larger than the PSR. For example: JPMorgan’s PSR of \$110.205 million “to sell” indicates an associated net CDS protection position of at least \$110.205 million on Whiting Petroleum, and BNP Paribas’ PSR of \$33.5 million “to sell” indicates an associated net CDS protection purchase position of at least \$33.5 million, and so on.

162. After these first round submissions, the auction administrators Creditex and Markit then use Defendants’ first round quantity (PSR) and price (initial markets) submissions to calculate a single quantity figure (the “net open interest,” or “NOI”) and a single price figure (the “initial market midpoint,” or “IMM”) to be carried into the auction’s second stage.

163. Markit and Creditex add up each dealer’s PSR submissions to calculate the NOI. The NOI represents the aggregate, excess quantity of supply (or demand) for bonds remaining

after the first stage, to be carried into the second stage.⁸⁷ The NOI determines the direction of the auction's second stage, *i.e.*, whether the auction is going to be one in which participants in the auction's second round will be bidding to buy bonds (known as a "sell" auction), or whether the auction is going to be one in which the participants will be making offers to sell bonds (known as a "buy" auction).

164. For example, in the Weatherford International auction, Defendants submitted the following physical settlement requests, which Creditex and Markit summed to calculate a net open interest of \$93.312 million to sell:

Physical Settlement Requests

Dealer	Bid/Offer	Size
Bank of America	Offer	0.0
Barclays	Offer	126.932
BNP Paribas	Offer	0.0
Credit Suisse	Offer	0.0
Deutsche Bank	Offer	0.0
Goldman Sachs	Offer	5.0
J.P. Morgan Securities LLC	Offer	0.0
Morgan Stanley	Offer	0.0
Citigroup	Bid	38.62

Net Open Interest: USD 93.312 million to sell

Sum of Buy Physical Requests	38.62m
Sum of Sell Physical Requests	131.932m
Sum of Physical Request Trades	38.62m
Sum of Limit Order Trades	93.312m

165. The NOI of \$93.312 million of bonds "to sell" meant that, following the Weatherford International auction's first stage, there still remained \$93.312 million of

⁸⁷ If the NOI is zero, no second stage is needed, and the initial market midpoint becomes the auction final price.

Weatherford International bonds offered for sale, which Defendants could bid for in the second stage of the auction.

166. In parallel with calculating the net open interest, the auction administrators use Defendants' initial markets to calculate and publish the "initial market midpoint," or "IMM." In substance, the IMM synthesizes a single "average" value from the dealers' initial markets, although intricacies in the IMM calculation methodology operate to exclude certain initial market submissions from the IMM's calculation.⁸⁸

167. For example, in the Chesapeake Energy auction, on August 4, 2020, the participating Defendants submitted their initial markets, and Markit and Creditex calculated the IMM at 4.5 using the method outlined above:

Dealer Initial Markets

Dealer	Bid	Offer	Dealer
Bank of America	3.0	5.0	Bank of America
Barclays	2.75	4.75	Barclays
BNP Paribas	3.0	5.0	BNP Paribas
Citigroup	3.5	5.5	Citigroup
Credit Suisse	4.5	5.5	Credit Suisse
Deutsche Bank	4.0	6.0	Deutsche Bank
Goldman Sachs	3.0	5.0	Goldman Sachs
J.P. Morgan Securities LLC	3.5	5.5	J.P. Morgan Securities LLC
Morgan Stanley	4.0	6.0	Morgan Stanley
RBC Capital Markets LLC	3.5	5.5	RBC Capital Markets LLC

Initial Market Midpoint: 4.5

⁸⁸ Creditex and Markit calculate the IMM by: (1) listing all dealer bids in descending price order (from highest to lowest); (2) listing all dealer offers in ascending price order (from lowest to highest); (3) discarding any of the resulting bid/offer pairings that "cross" (initial markets "cross" where one dealer's bid to buy is higher than or equal to another dealer's offer to sell, or where a dealer's offer to sell is lower than or equal to another dealer's bid to buy); and (4) then taking the "best half" of the bids and offers and calculating their average (the "best half" are, respectively, the highest half of the remaining bids, and the lowest half of the remaining offers).

168. The IMM is critical because, under auction rules, it acts as a ceiling on what the final auction price can be in a “sell” auction, and as the floor price in a “buy” auction. The ceiling is typically calculated as IMM plus one (1) in a “sell” auction. This capped the final auction price for the Chesapeake Energy auction at 5.5. In a “buy” auction, the floor is typically calculated as IMM minus one (1).

169. The auction administrators publish the IMM and the NOI at 11:00 a.m., after which a break follows. The break typically lasts a few hours.

b) Part II: The Afternoon Phase of the Auction and the Limit Orders

170. After the break, the auction resumes with the second stage. In the second stage of the auction, held in the afternoon of the same day as the morning session, the bonds that constitute the NOI are auctioned off through “limit orders” prepared and submitted by Defendants. When the auction is a “sell” auction, Defendants are only allowed to submit limit orders to buy bonds. When the auction is a “buy” auction, the Defendants are only allowed to submit limit orders to sell bonds. The overwhelming majority of auctions are “sell” auctions.

171. Each limit order specifies a quantity and price for bonds. Creditex and Markit collect all the limit orders, sort them (from highest to lowest price in a “sell” auction, or from lowest to highest in a “buy” auction), and then match them against the NOI until the NOI is exhausted. The price of the limit order that exhausts the NOI becomes the “final auction price,” subject to the IMM-derived price ceiling or floor.⁸⁹

⁸⁹ In a “sell” auction, if the limit orders fail to clear the NOI, the final auction price is 0. In a “buy” auction, if the limit orders fail to clear the NOI, the final auction price is 100.

172. For example, in the J.C. Penney auction (a “sell” auction) held on June 9, 2020, there were over twenty-five (25) limit orders submitted against the \$352.117 million net open interest to sell. The final auction price was set by the limit orders that exhausted the net open interest (the ones with the caret next to them):⁹⁰

Limit Orders

Dealer	Bid	Size
Barclays	2.375*	50.0
Barclays	2.375*	25.0
Barclays	1.5*	24.0
Barclays	1.5*	12.0
Goldman Sachs	1.125*	10.0
Barclays	1.0*	30.0
Barclays	1.0*	15.0
J.P. Morgan Securities LLC.**	1.0*	2.0
BNP Paribas**	1.0*	2.0
Goldman Sachs	0.875*	10.0
Goldman Sachs	0.75*	10.0
Goldman Sachs	0.625*	10.0
Goldman Sachs	0.5*	20.0
RBC Capital Markets LLC**	0.5*	2.0
Bank of America**	0.5*	2.0
Goldman Sachs	0.375*	20.0
Goldman Sachs	0.25*	20.0
Goldman Sachs**	0.25*	2.0
Citigroup**	0.25*	2.0
Morgan Stanley**	0.25*	2.0
Credit Suisse**	0.25*	2.0
Deutsche Bank**	0.25*	2.0
Goldman Sachs	0.125^	100.0
Citigroup	0.125^	25.0
Barclays	0.0	352.0
Goldman Sachs	0.0	252.0
Barclays**	0.0	2.0

⁹⁰ Defendants’ initial markets are carried through into the limit order phase. They are noted with double asterisks (“**”). In the J.C. Penney example, JPMorgan’s bid of 1.00 for \$2 million of J.C. Penney bonds was its initial market in the morning session of the auction. Bids noted with a single asterisk (“*”) indicate a limit order that was filled.

173. At the end of the auction, the final auction price is then published to the market, along with all the other submissions described above. In the J.C. Penney example, the final auction price was 0.125.

174. The final auction price is then used to calculate the settlement value for all outstanding CDS on the bonds that were the subject of the auction. Protection sellers pay, and protection buyers receive, an amount equal to the notional value of their CDS multiplied by $(1 - \text{final auction price})$. For example, where the final auction price was 0.125, a buyer of \$10 million of protection would receive \$9,987,500 on that one CDS contract: the \$10 million notional multiplied by $(1 - 0.00125)$.

175. There are a few additional features of the auction. *First*, Defendants are subject to financial penalties (termed “adjustment amounts”) when their initial markets are deemed to be “off market” and when dealers “cross” or “touch” with another dealer’s price. If, for example, the net open interest is “to sell,” and a dealer’s bid price is above the initial market midpoint, then that dealer is deemed on the “wrong” side of the market. If the net open interest is “to buy,” and a dealer’s offer price is below the initial market midpoint, then that dealer’s price is similarly deemed on the “wrong” side of the market (or “off-market”). An initial market “crosses” or “touches” when its bid price is higher than or equal to another dealer’s offer price, or when its offer price is lower than or equal to another dealer’s bid price. If both conditions occur – an initial market crosses or touches with another dealer’s initial market *and* that initial market is off-market – the dealer incurs a monetary penalty equal to the difference between their bid and the initial market midpoint (in an NOI sell auction) or the difference between the offer and the initial market

midpoint (in an NOI buy auction). That difference is then multiplied by their initial market notional amount (most frequently, \$2 million).

176. *Second*, the auctions are a closed process open only to CDS dealers and dominated by Defendants. By Defendants' design, only dealers are allowed to directly submit limit orders. Should other market participants, such as Plaintiffs, want to submit an initial market, physical settlement requests, or a limit order, they would have to make a request to a dealer, and the dealer ultimately controls participation. This situates Defendants as the gatekeepers to the auction. Defendants are the only CDS market participants who can exercise direct control over the initial market midpoint, the net open interest, and the final auction price.

177. *Third*, a representative from each dealer – typically, one trader on the CDS market making desk – will participate in each auction on behalf of each dealer. Because the number of Defendants participating in the auctions is typically ten (10) or more, this means there are approximately ten (10) traders participating in the auctions on behalf of their respective Defendant dealers.

8. Credit Default Swap Auctions Have a Direct, Necessary Impact on Single-Name CDS and Index CDS

178. Defendants' manipulation of the CDS final auction price directly and necessarily harms two (2) sets of interlinked CDS market participants.

179. *First*, the final auction price (*e.g.*, for General Motors) applies to *all* single-name CDS referencing the reference entity (General Motors). When that final auction price is manipulated by misconduct, *all* CDS for that reference entity are automatically manipulated. The auction-produced settlement price arithmetically determines the amount of cash that CDS counterparties will receive or pay to settle their CDS. For example, if the auction produces a price

of 60% of par, then protection buyer counterparties to CDS referencing General Motors stand to receive a cash payment equal to 40% of their CDS notional value (*e.g.*, if \$10 million notional, then a payment of \$4 million), and protection seller counterparties must make that cash payment. But if misconduct nudges the final auction price down to 55% of par, then protection buyers stand to receive a higher payment, \$4.5 million, and protection sellers will be required to provide that higher payout. In sum, when misconduct pushes auction prices down, all sellers of single-name CDS protection on that reference entity are harmed; conversely, when misconduct operates to push auction prices up, all purchasers of single-name CDS protection on that reference entity are harmed.

180. *Second*, the CDS auction has exactly the same effect on all *index* CDS where the CDS index at issue has, as one of its constituents, the reference entity that is the subject of the auction. Just as with single-name CDS, the auction-produced settlement price arithmetically determines the amount of cash that index CDS counterparties will receive or pay to settle that portion of their index CDS notional exposure relating to the specific auction reference entity.

181. After a credit event occurs, a new version of the index with the defaulted constituent is published which assigns a zero percent weight on the relevant entity, but that new version starts trading the day after the auction. Up until the publication of the final auction price, “the index trades with the impacted entity in the index.”⁹¹ When the final auction price is determined, the index CDS protection seller pays out the “insurance” owed to the index CDS protection buyer

⁹¹ IHS Markit, “CDS Indices Primer,” at 22 (Nov. 2021).

based directly on the final auction price for the impaired reference entity in the index, in an amount weighted according to the index constituent's proportionate share in the index.⁹²

182. For example, if General Motors was one of the 100 equally-weighted reference entities in the CDX.NA.HY Series 10 (so that each reference entity had an equal 1.00% weight in the index), and as in the prior example, the General Motors CDS auction produces a price of 60% of par, then protection buyers on \$10 million notional of the CDX.NA.HY Series 10 stand to receive a cash payment of \$40,000 (applying, against the 1% of \$10 million index notional that relates to the General Motors constituent specifically, or \$100,000, the right to receive 40% of that notional amount), and protection seller counterparties must make that cash payment. But if misconduct nudges the final auction price down to 55% of par, then CDX.NA.HY Series 10 protection buyers stand to receive a higher payment, \$45,000, and CDX.NA.HY Series 10 protection sellers will be required to provide that higher payout.

183. To date, there have been over 1,600 instances where a CDS auction has thus affected any CDS index or series thereof. This is because any given reference entity can be included in multiple series of the same index (*e.g.*, CDX.NA.HY Series 20, 21, 22, 23), and can also be included in multiple indices and sub-indices (*e.g.*, not only the CDX.NA.HY, but also the CDX.NA.HY.B). For example, the final auction price in the August 4, 2020 CDS auction for Chesapeake Energy affected twenty (20) series of the CDX.NA.HY (series 15-34), each of which included Chesapeake Energy as a reference entity. In addition, there were also four (4) series of

⁹² *Id.* at 23.

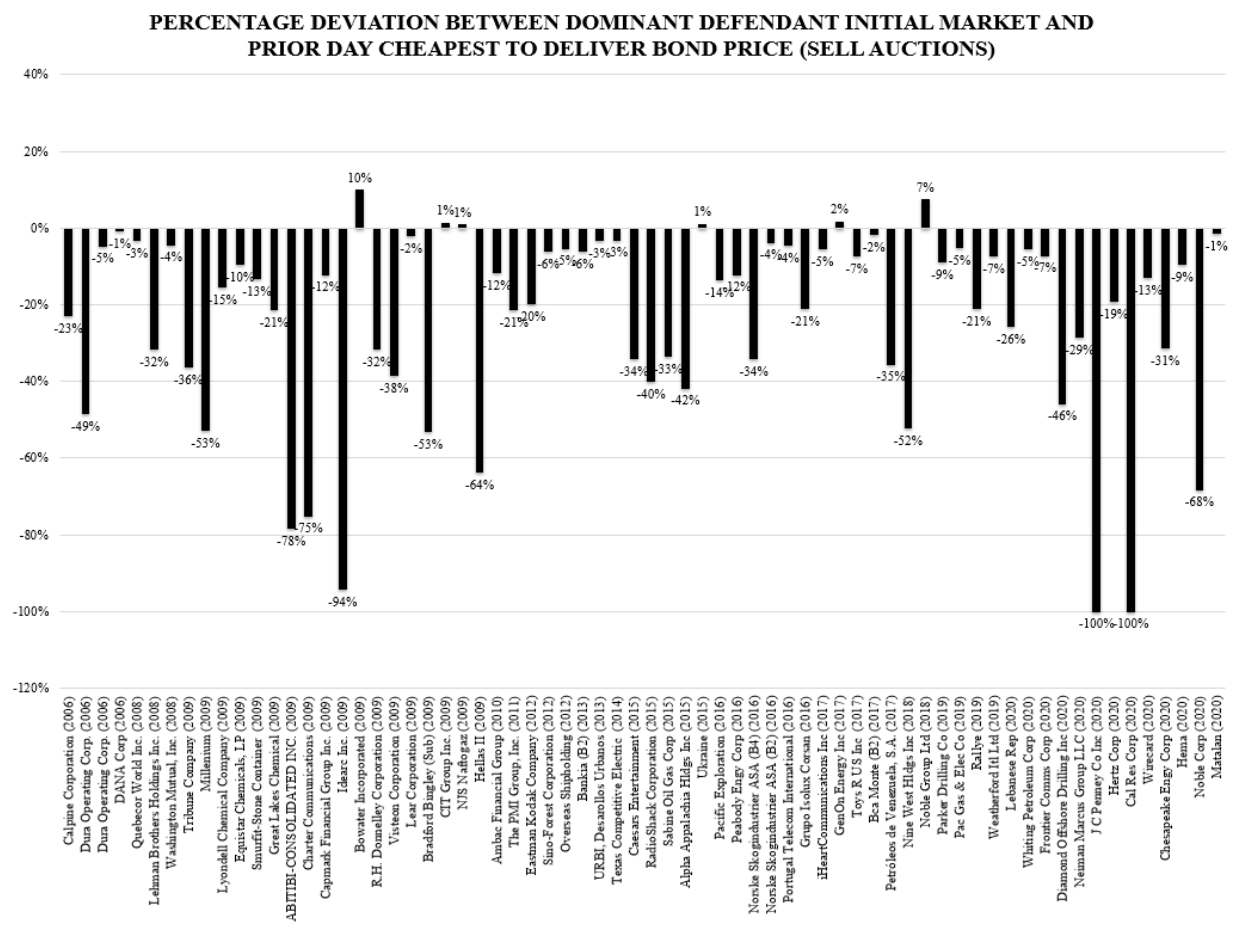
the CDX.NA.HY.B (series 30-33) and two (2) series of the CDX.NA.HY.BB (series 25 and 34) that were impacted.⁹³

B. Defendants’ Conspiracy to Manipulate the CDS Final Auction Price

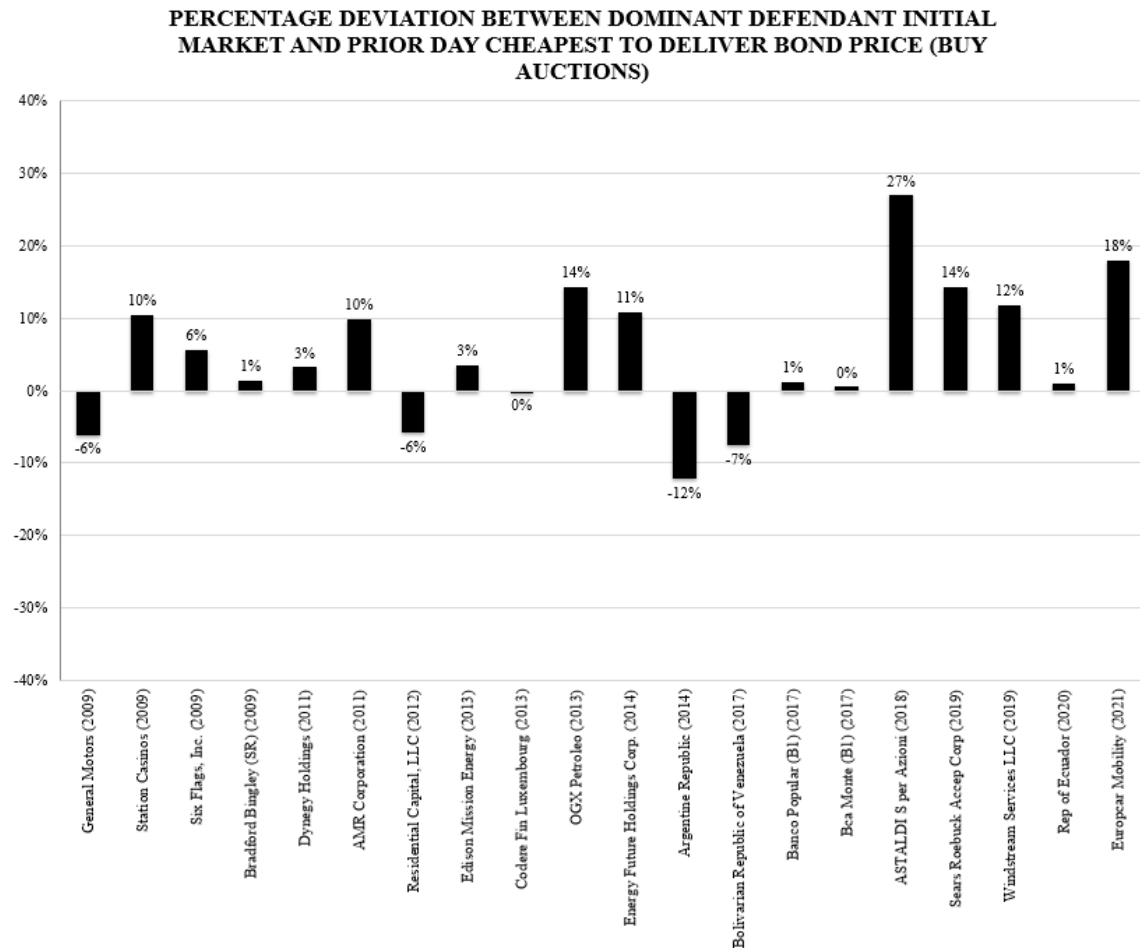
184. Defendants have for years been secretly colluding, since the auctions’ inception, to skew the CDS auctions in the direction that serves their financial interests, netting them billions of dollars in cartel profits. Econometric analyses commissioned by Plaintiffs show that Defendants have been consistently engaged in a multiyear bid-rigging and price-fixing scheme to artificially skew the final auction price in whichever direction suits their own financial interests. They demonstrate to a statistically significant degree that Defendants systematically collude across auctions, skewing their initial markets and their limit orders to artificially push the initial market midpoint and the final auction price in the direction that best serves the financial interest of Defendant with the greatest financial stake in the auction (the “dominant Defendant” or “dominant Defendant Dealer”). The power, consistency, and depth of Plaintiffs’ analyses demonstrate not just that Defendants’ pricing is *coordinated*, but that the dominant Defendant’s purportedly secret pricing is leaked to the other Defendants so that they can coordinate their own prices to support the dominant Defendant’s financial interest and preferred price.

185. The conspiracy works like this: Defendants collusively skew their initial markets and limit orders to push the final auction price in the direction that serves the financial interest of the dominant Defendant. The dominant Defendant submits an artificial initial market to (most frequently) skew the final auction price downward:

⁹³ The CDX.NA.HY.B is a sub-index of the CDX.NA.HY consisting only of single-B rated reference entities. Likewise, the CDX.NA.HY.BB is another sub-index of the CDX.NA.HY consisting only of BB-rated reference entities.

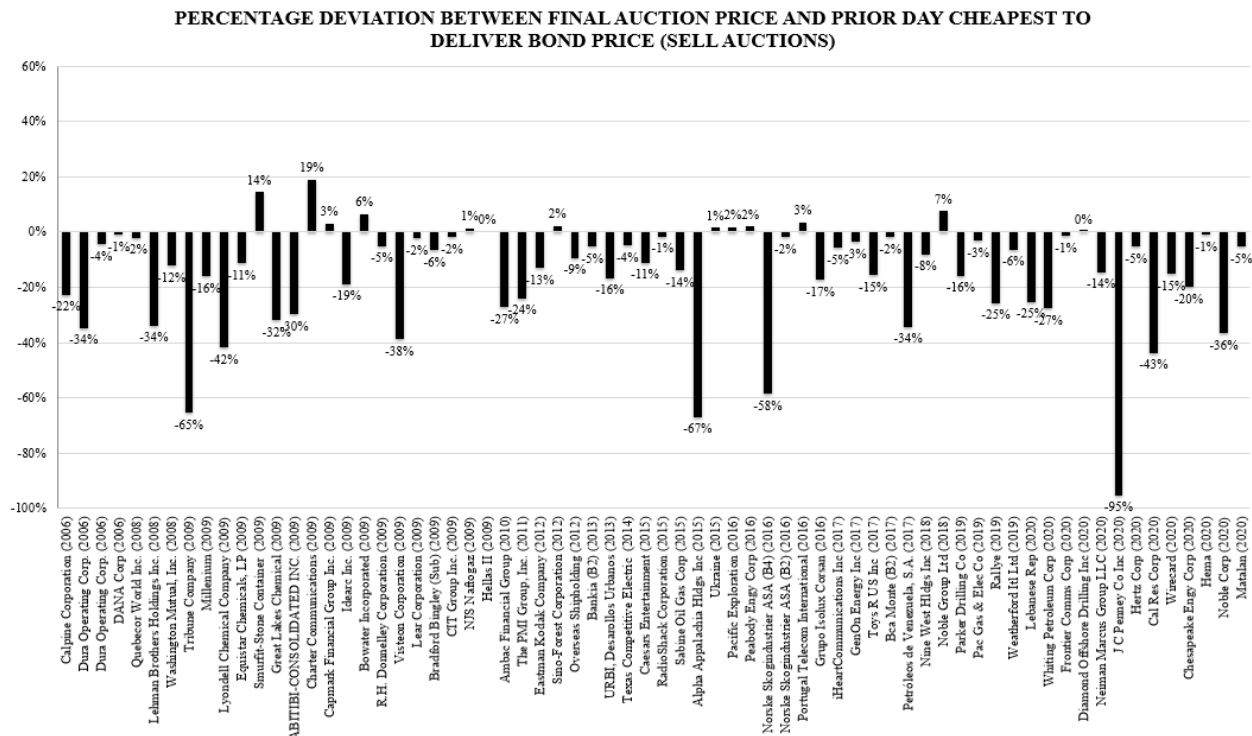


186. But in those circumstances where the dominant Defendant's goal is to skew the final auction price *upward*, it submits an initial market that is skewed upward from the prior day's bond price on the same bonds being valued in the auction:



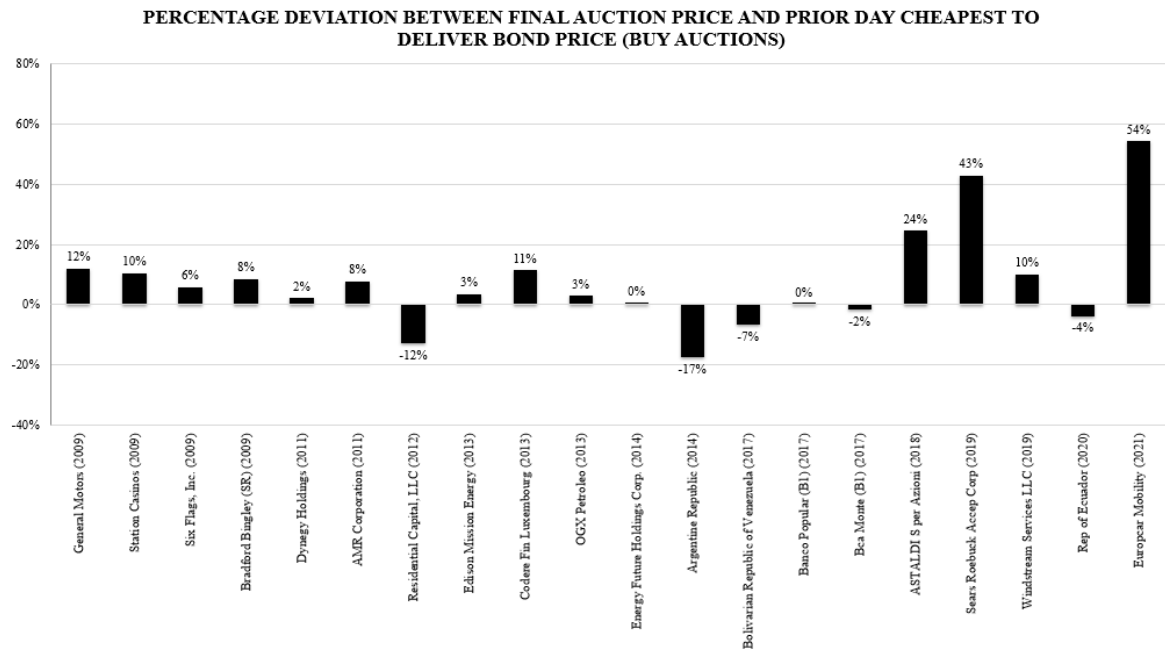
187. The other Defendants learn the dominant Defendant's purportedly secret initial market and coordinate their pricing in response to help the dominant Defendant artificially skew the final auction price in that direction. Defendants then continue their behavior in the afternoon, where they again skew their limit orders in the direction that favors the dominant Defendant.

188. Typically, and most often, Defendants artificially skew the final auction price downward from the prior day's bond price on the same bonds:



189. Given that Defendants are frequently net CDS protection *buyers* on the bonds up for auction, a lower final auction price maximizes the credit protection (the “insurance” dollars) that Plaintiffs and Class members must pay to the Defendants on the CDS Plaintiffs purchased from them.

190. In the rarer instances when Defendants are net protection *sellers*, Defendants’ bid-rigging and price-fixing scheme works to artificially skew the final auction price *upward*:



191. A higher final auction price minimizes the credit protection (the “insurance” dollars) that Defendants must pay out on the CDS protection they sold to Plaintiffs and the Class members, thereby cheating them out of money that they should have received under their CDS contracts with Defendants.

1. The Toys “R” Us CDS Auction Demonstrates the Effectiveness of Defendants’ Conspiracy

192. One example is the Toys “R” Us auction, held on October 11, 2017. The day before the auction (October 10), the relevant Toys “R” Us, Inc. bonds were trading in the bond market at 30.750% of par value.⁹⁴

193. The auction began the next morning. The Defendants participating in the auction each submitted their physical settlement requests:

⁹⁴ This number is drawn from TRACE bond price data.

Physical Settlement Requests

Dealer	Bid/Offer	Size
Bank of America	Offer	0.475
BNP Paribas	Offer	8.97
Citigroup	Offer	0.0
Credit Suisse	Offer	0.0
Deutsche Bank	Offer	0.0
Goldman Sachs	Offer	76.847
J.P. Morgan Securities LLC.	Offer	0.0
Morgan Stanley	Offer	0.0
Societe Generale	Offer	0.0
Barclays	Bid	5.12

Net Open Interest: USD 81.172 million to sell

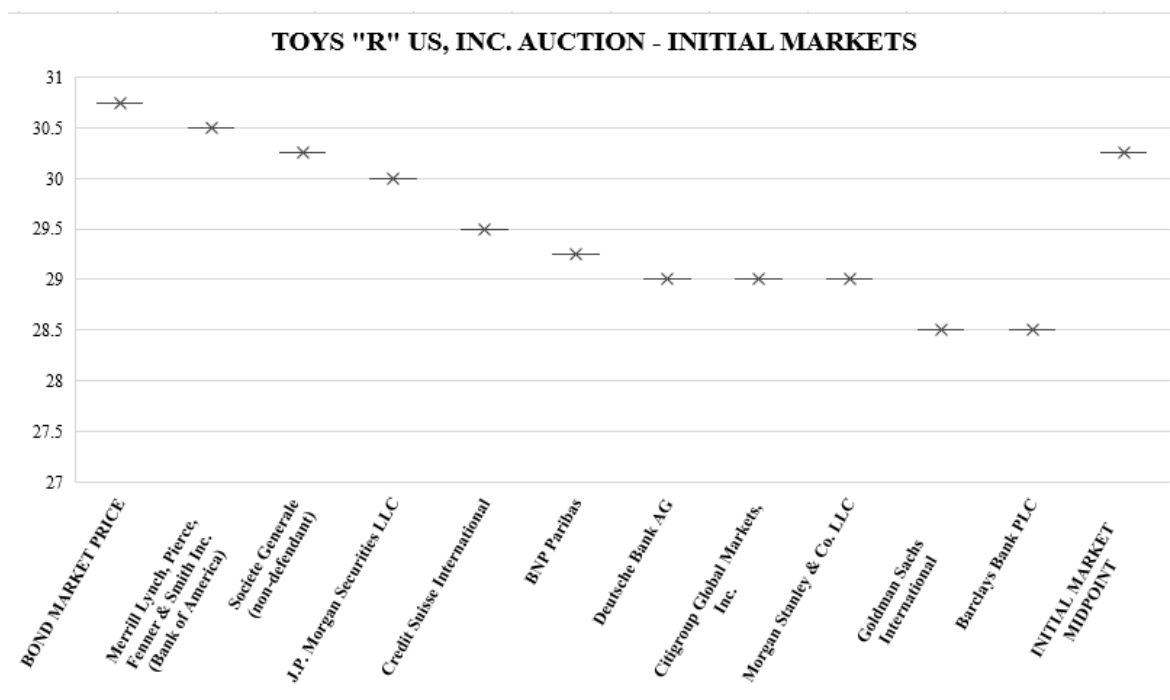
194. Goldman Sachs had a large physical settlement to *sell* Toys “R” Us bonds (\$76.847 million), indicating the presence of a substantial amount of CDS protection (insurance) on Toys “R” Us bonds.

195. Bank of America and BNP Paribas’ physical settlement requests also indicated associated CDS protection on Toys “R” Us bonds.

196. By contrast, Barclays had a physical settlement request to *buy* Toys “R” Us bonds (\$5.12 million), indicating an associated *sale* of CDS protection (insurance) on Toys “R” Us bonds, and thus an opposite economic interest to Goldman Sachs, Bank of America, and BNP Paribas in the outcome of the auction. The other Defendants had physical settlement requests that were zero.

197. As reflected in its physical settlement request, press reports corroborated that Goldman Sachs had purchased substantial amounts of CDS protection on Toys “R” Us bonds.⁹⁵ The amount those CDS positions paid out was calculated according to the final auction price, *i.e.*, Goldman Sachs (and Bank of America and BNP Paribas) would correspondingly profit from every bit that the Toys “R” Us final auction price was skewed lower.

198. Understanding this, the trader from Goldman Sachs submitted an initial market of 28.5% of par value, attempting to skew the price 2.25% points *lower* than the market price of the same Toys “R” Us bonds:



199. Of the other Defendants participating, not one submitted a bid that was at or higher than the prior-day bond market price of 30.750%, even though the initial markets are supposed to

⁹⁵ See Sridhar Natarajan, “As Toys ‘R’ Us Wilted, Goldman Was Quick to Buy CDS Protection,” *Bloomberg* (Sept. 19, 2017).

be private and unknown to anyone other than the dealer, and even though many of the other Defendants had no physical settlement requests for Toys “R” Us bonds and thus no private information on the supply or demand of bonds in the auction. Even Barclays – whose economic self-interest in the auction appeared opposite to Goldman Sachs – nonetheless submitted a low bid that was contrary to its own self-interest and instead identical to Goldman Sachs’ bid.

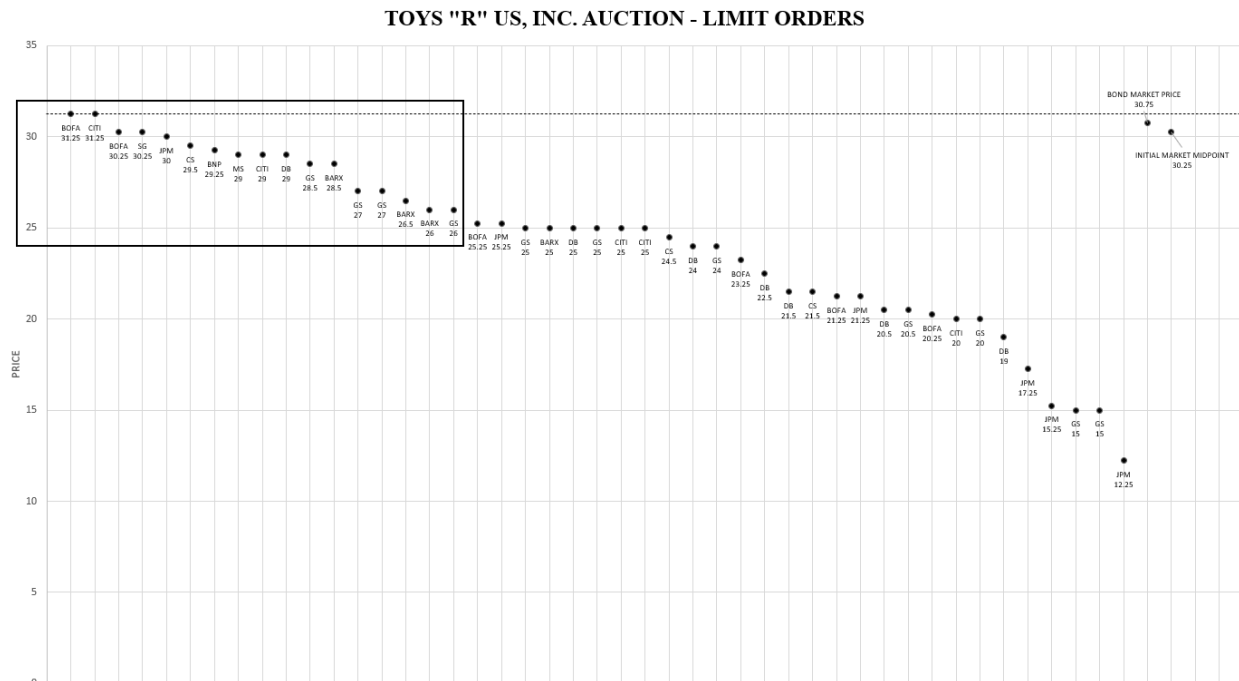
200. Because the initial market midpoint is essentially an average of the dealers’ initial markets, the effect of Defendants’ low bids was to skew the initial market midpoint lower, to 30.25% of par, or 0.50% lower than the day-before bond price.

201. The initial market midpoint is used to calculate the ceiling for the final auction price. Skewing the initial market midpoint is the first step in ensuring/creating an artificial final auction price. In the Toys “R” Us auction (like most auctions), the ceiling was calculated as the initial market midpoint plus one. Thus, using only their initial markets, Defendants in the morning were able to help Goldman Sachs set a ceiling on the final auction price of 31.25% of par value ($30.25 + 1$).

202. In the second stage of the auction, the net open interest of \$81.172 million of Toys “R” Us bonds was auctioned off. Limit orders are private and submitted all at once, so Defendants should not know any other Defendant’s limit orders. Defendants’ initial markets are also carried over into the afternoon and treated as a limit order for \$2 million worth of bonds. The auction administrators (Markit and Creditex) take all the limit orders and rank them from highest price to lowest price, and the net open interest is matched against those limit orders until it is exhausted.

203. Like they did in the morning, Defendants again followed the dominant Defendant’s lead (*i.e.*, Goldman Sachs) and skewed their limit orders low – well below the bond price, the

initial market midpoint, and even their own morning initial markets – and successfully skewed the final auction price even lower, submitting dozens of very low limit orders to buy Toys “R” Us bonds:



204. The limit orders in the box were “filled,” *i.e.*, those buyers received bonds in exchange for their orders. The dotted line represents the initial market midpoint-derived ceiling of 31.25%. Under the auction rules, the limit order that exhausts the net open interest sets the final auction price. Here, the Toys “R” Us net open interest was exhausted by the two limit orders submitted by Goldman Sachs and Barclays to buy bonds at a price of 26%. The final auction price for Toys “R” Us bonds was thus 26%.

205. The effect of Defendants’ consistent downward skew in price submissions into the auction was that it delivered a final auction price of 26%, a whopping 4.75% points lower than the price of the same bonds trading in the bond market just one day before the auction (30.750%). For

Goldman Sachs, this delivered a substantial, artificially inflated profit on its CDS position on Toys “R” Us bonds. A Defendant who purchased \$50 million in notional value of protection on Toys “R” Us bonds became entitled to \$37,000,000 after the auction.⁹⁶

2. Econometric “Screens” are Critical for the Identification and Prosecution of Anticompetitive and Manipulative Conduct in the Financial Markets

206. Toys “R” Us is merely one illustrative example intended to demonstrate how Defendants’ conspiracy operates. Using a dataset compiled from over 1,500 individual price submissions made by Defendants across nearly half of all CDS auctions ever held, econometric analyses commissioned by Plaintiffs show that Defendants have been consistently engaged in a multiyear bid-rigging and price-fixing scheme across all the CDS auctions to artificially skew the final auction price in whichever direction suits their own financial interests.

207. Plaintiffs’ analyses incorporate econometric “screens,” statistical tools built on economic models that use pricing and other types of data to identify the existence, causes, and scope of manipulative and collusive behavior. These types of screens are used by federal agencies to detect market manipulation and cartel behavior, by large companies to monitor compliance with antitrust laws, and by litigants as evidence of manipulative and collusive behavior. Screens helped detect many of the same Defendants’ manipulative schemes involving LIBOR and the foreign exchange market, which resulted in billions of dollars in penalties and settlements against many of the same institutions that are Defendants in this action.⁹⁷

⁹⁶ The equation used to calculate the amount of CDS protection paid out is 1 minus final auction price multiplied by the notional value of protection. So $(1 - .26) * \$50,000,000 = \$37,000,000$.

⁹⁷ See Carrick Mollenkamp and Mark Whitehouse, “Study Casts Doubt on Key Rate,” *The Wall Street Journal* (May 29, 2008); Liam Vaughan and Gavin Finch, “Currency Spikes at 4 P.M. in London Provide Rigging Clues,” *Bloomberg* (Aug. 27, 2013). See also *supra* n. 1.

208. Effective public and private enforcement of the antitrust and market manipulation laws involves the use of econometric analysis to identify and prove the existence of a conspiracy in the financial markets. This is because conspiracies in the financial markets are secret, self-concealing, and particularly difficult to detect because of the complexity and opacity of the financial markets in which the misconduct takes place. Federal prosecutors have admitted that “[t]here has been serial under-enforcement in the commodities and derivatives space[.]”⁹⁸

209. Without econometric screens, identifying financial conspiracies would rely almost exclusively on amnesty applicants or whistleblowers willing to risk their lucrative careers in the face of potential reprisal.⁹⁹

210. The challenges in detecting financial market conspiracies are exacerbated by the sophistication of Defendants’ traders, who have been careful to adjust their behavior to avoid detection by (for example) shifting to using encrypted messaging services like WhatsApp or Signal instead of Bloomberg chat, which is recorded and has an audit trail.¹⁰⁰ This is a widespread problem. As recently as December 2021, Defendant JPMorgan was fined \$200 million by the U.S.

⁹⁸ See Dave Michaels, “Government’s Futures Cop Departs After Leading Market-Manipulation Crackdown,” *The Wall Street Journal* (July 19, 2021) (quoting a Department of Justice market manipulation prosecutor: “There has been serial under-enforcement in the commodities and derivatives space[.]”).

⁹⁹ See Government Accountability Project, “Why Whistleblowers Wait: Recommendations to Improve the Dodd-Frank Law’s SEC Whistleblower Awards Program,” at 11 (Dec. 2018) (citing studies showing that whistleblowers from financial services firms face “long-term unemployment . . . related to the informal blacklisting that persists in many industries, and notably in banking and finance”) (citation omitted).

¹⁰⁰ See Thomas Franck and Hugh Son, “JPMorgan hit with \$200 million in fines for letting employees use WhatsApp to evade regulators’ reach,” *CNBC* (Dec. 17, 2021) (“Regulators in New York and London have ratcheted up enforcement of record-keeping rules recently as traders migrated to encrypted messaging platforms including WhatsApp, Signal or Telegram. While phone conversations and messages on official company devices and software platforms are preserved, it’s much harder for bank compliance departments to surveil communications on third-party apps. That workaround picked up in popularity after two of the industry’s biggest trading scandals of the past decade, involving manipulation of Libor and foreign exchange markets, hinged on incriminating messages preserved in chatrooms, resulting in multibillion-dollar fines for banks.”).

Securities & Exchange Commission and U.S. Commodity Futures Trading Commission because of the widespread use of personal devices (instead of work communication devices) by JPMorgan traders and even compliance personnel to communicate sensitive business matters, thereby avoiding detection and eliminating any audit trail.¹⁰¹

211. Even with the use of econometric analysis to detect conspiracies in the financial markets, much of the data that proves these types of conspiracies remains only in the possession of the Defendants, exacerbating the challenges faced by private litigants in detecting conspiracies to engage in financial market manipulation. Much of the data in this case, for example – including records of Defendants’ CDS positions, Defendants’ bond pricing, Defendants’ bond transactions, and Defendants’ internal pricing models – remains in Defendants’ exclusive possession and will be the subject of discovery.

3. Econometric Analysis Demonstrates Defendants’ Conspiracy to Artificially Manipulate the CDS Final Auction Price

212. Plaintiffs’ econometric analyses show that Defendants are consistently, systematically, and materially skewing their initial markets and limit orders away from the bond market price of the same bonds and always in the direction that serves the dominant Defendant’s CDS position. Most frequently, the conspiracy works to skew prices downward, thereby inflating the amount of CDS protection that Plaintiffs and Class members pay out to Defendants. But the conspiracy also works to skew prices upward when doing so would decrease the amount of CDS protection that Defendants must pay to Plaintiffs and Class members.

¹⁰¹ *Id.* (“At JPMorgan, the practice of going offline to communicate was firm-wide, and even the managers and senior personnel responsible for compliance used their personal devices to communicate sensitive business matters, the SEC said.”).

a) An Overview of Plaintiffs' Econometric Proof

213. Plaintiffs' econometric analyses show the following results with a very high degree of statistical certainty.

214. **First, the farther the dominant Defendant skews its initial market away from the prior day's bond market price, the farther *the other Defendants* skew their initial markets.** See Section IV.B.3.b, *infra*. Econometric analysis shows that the extent to which the dominant Defendant's purportedly secret initial market is skewed away from the prior day's bond price for the same bonds predicts *the other Defendants'* initial markets. This is so even after controlling for all the other variables that Defendants rely on in generating their initial markets. In practical terms, this means that the other Defendants consistently and repeatedly learn a purportedly secret and precise piece of information – the extent to which the dominant Defendant's initial market skews away from the day-before-auction bond market price – and then follow the dominant Defendant's lead, skewing their own initial markets in that same direction to support the dominant Defendant's effort to artificially skew the initial market midpoint. These results are statistically significant.

215. This result is strongly inconsistent with a competitive auction functioning without collusion and price manipulation. Defendants' initial markets should not be so ordered, uniform, and consistent in their support of the dominant Defendant's initial market. Instead, the information asymmetries that (should) exist between Defendants mean that their initial markets should materialize around the bond market price, but with randomness and variation – some higher, some lower, and some about the same.

216. One example of an information asymmetry is each dealer's physical settlement request. A dealer with a \$100 million physical settlement request to sell bonds into the auction has strong reason to believe that the auction is going to be a "sell" auction, *i.e.*, that there will be an excess supply of bonds on sale. But another dealer with a physical settlement request of \$10 million of bonds *to buy* has the opposite information, *i.e.*, that there is some evidence of an excess of *demand* for bonds in the auction. And yet another dealer with no physical settlement request at all does not have any of that information, so that dealer's initial market will very likely diverge from the pricing of the dealers with more and different information. Since there are generally ten or more dealers participating in each auction, the expectation is there should be considerable variation and elements of randomness in the dealers' initial markets into the auctions, particularly when measured across multiple auctions and hundreds of dealer initial markets.

217. But that is not what happens. Instead, the econometric analysis shows with a very high degree of statistical certainty that Defendants' initial markets are consistently, repeatedly, and materially skewed away from the prior day's bond market price – and in the direction that favors the dominant Defendant. Each artificial initial market quotation thus represents that Defendant's overt act in furtherance of the bid-rigging and price-fixing conspiracy. *See* Section IV.B.3.b, *infra*.

218. **Second, it is the dominant Defendant's artificial manipulation that causes the other Defendants to engage in the same manipulation, *i.e.*, the analysis shows strong evidence of causation, not correlation.** The econometric model explains the variation in Defendants' pricing with such a high degree of statistical precision that there is no other reasonable explanation for Defendants' collusive pricing pattern other than the sharing of private, competitively sensitive information about the dominant Defendant's initial market price. *See* Section IV.B.3.c, *infra*.

219. When a standard econometric methodology is applied to detect whether the findings can be attributed to correlation rather than causation, the results provide strong evidence that the result is causal and not correlated. *See* Section IV.B.3.c, *infra*. The econometric model thus does not show merely that the other Defendants just happen to predict the dominant Defendant's initial market consistently and correctly. Rather, it shows that they *know* the dominant Defendant's initial market, the extent to which that initial market is skewed away from the prior day's bond market price for the same bonds, and the direction in which the dominant Defendant's initial market is skewed – and that they correspondingly skew their own initial markets in what can only be described as a coordinated movement to support the dominant Defendant's manipulative effort.

220. This result is strongly inconsistent with a competitive auction functioning without collusion and price manipulation. At every step, the dealers' price submissions into the auctions – their initial markets, their physical settlement requests, and their limit orders – are supposed to be private and known only to themselves. They are not supposed to be known to other dealers until after the auction is over. Thus, in a normal functioning auction without collusion or manipulation, the relationship detected between Defendants' initial markets, particularly when measured across multiple auctions and hundreds of Defendants' price submissions, should not and could not exist. Across over one hundred (100) auctions and hundreds of individual price submissions, Defendants' initial market prices would sometimes be lower than each other, higher than each other, or sometimes the same. The degree of ordered and consistent Defendant pricing is incompatible with how the auctions and Defendants' pricing should work. *See* Section IV.B.3.c, *infra*.

221. **Third, even when analytical focus narrows from Defendants generally to spotlight each individual Defendant's conduct specifically, the results show collusive price manipulation to a statistically significant degree.** When econometric analysis is used to test, for example, whether the trader from BNP Paribas coordinated the bank's initial market pricing with the trader from Goldman Sachs in those auctions where Goldman Sachs was the dominant Defendant, the result again shows collusion: analyzing dozens of BNP Paribas and Goldman Sachs' initial markets across those auctions where Goldman Sachs was the dominant Defendant, the analysis shows that the trader from BNP Paribas skewed the bank's initial market away from the bond market price *in the same direction as – and to the benefit of –* the Goldman Sachs' trader. See Sections IV.B.3.d and e, *infra*.

222. Similarly, when the econometric analysis is used to test whether, for example, the trader from Deutsche Bank coordinated the bank's initial market pricing with the initial market of the dominant Defendant across auctions and without regard to who that dominant Defendant was, the result stays the same: whenever the trader from Deutsche Bank showed up in an auction, the trader was a loyal follower of the dominant Defendant, skewing the bank's initial market away from the bond market price in the same direction as the dominant Defendant skewed the bank's initial market away from the prior day's bond market price. Deutsche Bank's artificial initial markets across auctions thus represented an overt act in furtherance of the bid-rigging and price-fixing conspiracy.

223. When the spotlight focuses in turn on *each* Defendant's initial markets in those auctions where it is not the dominant Defendant, the results show that *each* Defendant – Bank of America/Merrill Lynch, Citi, Morgan Stanley, RBS, BNP Paribas, JPMorgan, Credit Suisse,

Barclays, Deutsche Bank, and Goldman Sachs – acted as a loyal follower of the dominant Defendant and a cartel member, skewing its initial market away from the bond market price in the same direction as the dominant Defendant skewed its initial market away from the bond market price. The robust consistency in these outcomes is remarkable, statistically significant, and evidence of collusive price manipulation. Given that each dealer’s initial market is supposed to be unknown to any other dealer, this result is strongly inconsistent with a competitive auction functioning without collusion and price manipulation. See Sections IV.B.3.d and e, *infra*.

224. **Fourth, econometric analysis shows that Defendants behave differently than non-Defendants, consistent with the existence of the cartel amongst Defendants.** See Section IV.B.3.f, *infra*. Defendants are the repeat, dominant players in the auctions. Sometimes, non-Defendants like UBS, HSBC, Nomura, and Société Générale also participate in CDS auctions. Plaintiffs compared the Defendants’ initial markets with the non-Defendants’ initial markets and found that Defendants’ initial markets cluster together, or are more uniform and less dispersed, than the non-Defendants’ initial markets, and that the result is statistically significant. Plaintiffs ran an additional test that compared Defendants’ initial markets and non-Defendants’ initial markets in the auctions common to both groups, and the results persist – Defendants’ initial markets clustered together more than non-Defendants’ initial markets, and the difference between the two was statistically significant.

225. In practical terms, these results present a material behavioral difference in pricing as between Defendants and non-Defendants. Defendant Dealers price more closely together. Non-Defendant dealers price farther apart from each other.

226. These results are strongly inconsistent with a competitive auction functioning without collusion and price manipulation. There are frequently at least ten (10) dealers participating in each auction. Across auctions, each dealer has different information, different financial interests, and their price submissions are supposed to be secret. Given these features of the auction process, the fact that Defendants' initial markets cluster together *as a group across auctions* in comparison to non-Defendant dealers cannot be explained by rational economic principles – except and unless Defendants are sharing competitively sensitive, private information between them in and around the auction and pricing together to skew in the same direction. The difference in pricing between Defendants and non-defendants should not exist. That the results are statistically significant is further indication of the explanatory power of the results and strong evidence of a cartel to rig the auctions. *See* Section IV.B.3.f, *infra*.

227. **Fifth, Defendants' manipulative scheme continues into the second stage of the auction in the afternoon.** *See* Section IV.B.3.g, *infra*. By the time the afternoon session of the auction starts, Creditex and Markit will have published the net open interest and the initial market midpoint, providing Defendants additional information they can use to generate limit orders. But econometric analysis of over 3,700 of Defendants' limit orders across nearly two-thirds (68%) of the CDS auctions ever held shows that Defendants' bid-rigging and price-fixing continues throughout the auction – in particular, that the extent to which the dominant Defendant skews its purportedly secret initial market away from the initial market midpoint *causes* the other Defendants to skew their limit order prices in the same direction. Moreover, the econometric analysis shows that Defendants skew their limit orders *up* when the dominant Defendant skews its

initial market up and *down* when the dominant Defendant skews its initial market down. This result is also statistically significant.

228. This result is strongly inconsistent with a competitive auction functioning without collusion and price manipulation. When the afternoon session of the auction starts, Defendants participating in the auctions have several economically rational data points to rely on to generate limit orders: (1) the net open interest (*i.e.*, the overall supply of or demand for bonds in the auction), (2) the initial market midpoint (*i.e.*, the average taken from the dealers' initial markets), (3) each Defendant's knowledge of its own purportedly secret initial market from the morning session, (4) the direction of the auction (*i.e.*, whether bonds are being sold or bought in the auction), and (5) the quantity for each limit order submitted, to reflect that larger volumes typically mean lower prices.

229. Given that all Defendants' auction submissions are supposed to stay secret until the end of the auction, there should be no explanatory relationship between the dominant Defendant's purportedly secret initial market and the other Defendants' purportedly secret limit order prices. Yet econometric analysis shows that, even after controlling for the five variables described above, Defendants' limit order prices are *also* a function of how far the dominant Defendant skews its initial market away from the initial market midpoint – and that the other Defendants' limit order prices are skewed in the same direction. In practical terms, this means that the other Defendants consistently and repeatedly learn a purportedly secret and precise piece of information – the extent to which the dominant Defendant's initial market skews away from the initial market midpoint – and then follow the dominant Defendant's lead, skewing their own limit orders in that same

direction to support the dominant Defendant's effort to artificially skew the final auction price.

See Section IV.B.3.g, *infra*.

b) Regression Analysis Demonstrates that the Dominant Defendant's Initial Market Artificially Skews the Final Auction Price and that the Other Defendants Support the Dominant Defendant's Manipulative Effort

230. Plaintiffs' econometric evidence incorporates *Defendant-specific* CDS auction data and bond pricing data as control variables in a multivariate ordinary least squares ("OLS") regression to construct an economic model that measures the extent to which certain variables predict and explain Defendants' initial markets submitted into the auctions.

231. Statisticians use regression analysis to test whether an observation of correlation is a statement of causation, as well as to isolate the effect of lawful factors on prices (like publicly available information) from unlawful factors (like private pricing coordination). An OLS regression is a standard statistical technique for this type of analysis that estimates the linear relationship between one or more variables and a dependent variable. Statisticians prefer OLS because it is robust, even when some of its core assumptions are violated (a feature known as "best linear unbiased"). In regression analysis, a multivariate regression incorporates multiple predicting variables ("control" or "explanatory" variables) to explain or predict another variable (the "dependent" variable). Multiple regression techniques can help separate out the effects of competitive market conditions from the effects of a price-fixing conspiracy.

232. Plaintiffs' regression model analyzes 723 of the Defendants' initial markets across 88 CDS auctions, representing nearly half of all CDS auctions.¹⁰² Plaintiffs' econometric evidence

¹⁰² Where applicable, each of Plaintiffs' econometric models remove one RBS initial market from the Dynegy auction held on November 29, 2011, where the RBS trader made a clear human error inputting the initial market.

shows that the Defendant with the greatest financial stake in the auction – the dominant Defendant – submits an artificial initial market to most frequently skew the final auction price downward, *and* that the other Defendants learn the dominant Defendant’s purportedly secret initial market and coordinate their pricing in response to help artificially skew the final auction price in that direction.

233. Each dealer’s trader forms its two-way price using information that is available to the dealer. This information is (1) the prior day’s bond market price of the cheapest-to-deliver bond, *see supra* ¶ 156 (describing cheapest-to-deliver concept), and (2) the dealer’s own physical settlement request.

234. An economically rational dealer’s CDS trader will check the most recent transaction for the cheapest-to-deliver bond price. Those transaction prices are reported and publicly available. Because the Determinations Committee’s announcement of a credit event typically occurs a month before the auction, the bond market will have absorbed the relevant information about the bond in the market and reflected it into the price of the bond.¹⁰³

235. This economically rational dealer’s CDS trader would also consider the dealer’s own physical settlement request as well as the total outstanding amount of deliverable bonds.¹⁰⁴ This gives the dealer the best sense of the supply that will be available in the auction relative to the amount of outstanding bonds in the bond market overall. This can help the dealer determine

¹⁰³ Plaintiffs calculate the price of the cheapest-to-deliver bond using the methodology of published academic studies of CDS auction prices, *i.e.*, it calculates a weighted average of transaction prices on the day before the auction using the bond trade sizes as weights.

¹⁰⁴ The PSR is scaled by the total outstanding amount of bonds that are deliverable into the auction, *i.e.*, the physical settlement request is divided by the total outstanding amount of bonds. This scaling helps to adjust the PSR to reflect the supply and demand factors affecting the relative scarcity or abundance of bonds available for submission into the auction.

how much bonds will trade for in the auction.¹⁰⁵ If, for example, a dealer knows it has a very large physical settlement request to sell, it would reasonably submit a lower initial market because its expectation is that the supply of bonds will be large in the auction – and large supplies generally mean lower prices.

236. Plaintiffs incorporate the bond price and physical settlement request as control variables in a multivariate ordinary least squares regression to construct an economic model that measures the extent to which those variables predict the relevant side of each Defendant’s initial market. “Relevant side” because each dealer makes a *two-way* price in its initial market – both a bid to buy and an offer to sell – and only one of those sides carries over into the afternoon after the auction administrators determine the direction of the auction.

237. To test whether Defendants are collusively manipulating the auctions, Plaintiffs’ model further incorporates a third explanatory variable: the extent to which the relevant side of the dominant Defendant’s initial market deviates from the prior day’s cheapest-to-deliver bond price. Plaintiffs’ model thus tests whether the other, non-dominant Defendants’ initial markets (the dependent variable) are predicted by the dominant Defendant’s skew of its initial market away from the prior day’s cheapest-to-deliver bond price, by using the following regression equation:

$$\begin{aligned} \text{Initial market } i_k = & \\ & \alpha + \beta \text{ Prior day bond price } i \\ & + \gamma \text{ Physical settlement request, scaled by outstanding bonds } i_k \\ & + \delta \text{ Dominant dealer’s initial market minus prior day cheapest-to-deliver bond price } i \\ & + \varepsilon_{ik} \end{aligned}$$

¹⁰⁵ Each non-dominant dealer’s physical settlement request is entered and signed to accommodate the direction of the auction, *i.e.*, it is a positive number if the PSR is submitted as an offer to sell bonds into the auction, and a negative number if the PSR is submitted as a bid to buy bonds.

238. The subscript “i” designates one of the 88 CDS auctions, and the subscript “k” designates one of the non-dominant Defendants. The symbols β , γ , and δ represent coefficients of the regression equation and the symbol α is the intercept of the regression equation.

239. A “regression coefficient” measures the association between a control or explanatory variable and the model’s dependent variable.¹⁰⁶ A coefficient of 0 indicates no linear association between the variables, while a positive coefficient indicates that an increase (or decrease) in the control or explanatory variable causes an increase (or decrease) in the dependent variable. A regression coefficient indicates the direction and magnitude of a relationship between a control or explanatory variable and the model’s dependent variable.

240. A “t-statistic” is a measure of confidence that an econometric result is statistically significant, *i.e.*, not the result of chance.¹⁰⁷ The values and statistical significance of a t-statistic can vary, but a t-statistic of 1.96 (or negative 1.96) generally translates to a 95% confidence level that the result is statistically significant, or inversely a 5% chance that the result is statistically insignificant. A larger t-statistic (in absolute value) means it is less likely an econometric result is due to random chance. The model computes both the t-statistic and its associated level of statistical significance, which measures the probability of likelihood (often expressed as a percent) that a result could have been due to random chance. A lower probability means greater statistical significance. Levels of statistical significance can be expressed in percents of 1%, 5%, or 10%, all of which have been treated as benchmark measures of reliability by statistics experts.

¹⁰⁶ *Id.* at 261.

¹⁰⁷ See Federal Judicial Center, *Reference Manual on Scientific Evidence*, 342–43 (3d 2011).

241. Here, the t-statistic of 1.96 translates to a 95% confidence level that the result is statistically significant, or inversely a 5% chance that the result is statistically insignificant. Using the inverse measure, confidence levels of 1%, 5%, or 10% have all been treated as benchmark measures of reliability by statistics experts.

242. Plaintiffs' model has an extremely high degree of explanatory power:

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 446.1 and a regression coefficient estimate of 0.99.
- As a control variable, Defendant's own physical settlement request has a t-statistic of -5.30 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the prior day's cheapest-to-deliver bond price for auction bonds – has a t-statistic of 42.2, and a regression coefficient of 0.74.

243. The regression coefficient for the dominant Defendant's initial market variable (0.74) means that the dominant Defendant's initial market predicts the non-dominant Defendants' initial markets, controlling for other factors like each Defendant's respective physical settlement request and the prior day's cheapest-to-deliver bond price. The positive coefficient of 0.74 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable).

244. As explained above, *supra* ¶ 240, the t-statistic and level of significance (the likelihood that a result is due to random chance) are calculated by the model. The t-statistics for each of these variables far exceed the threshold for being statistically significant at the 0.01 level (the 1% error rate). The t-statistic calculated by the model is 42.2 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew

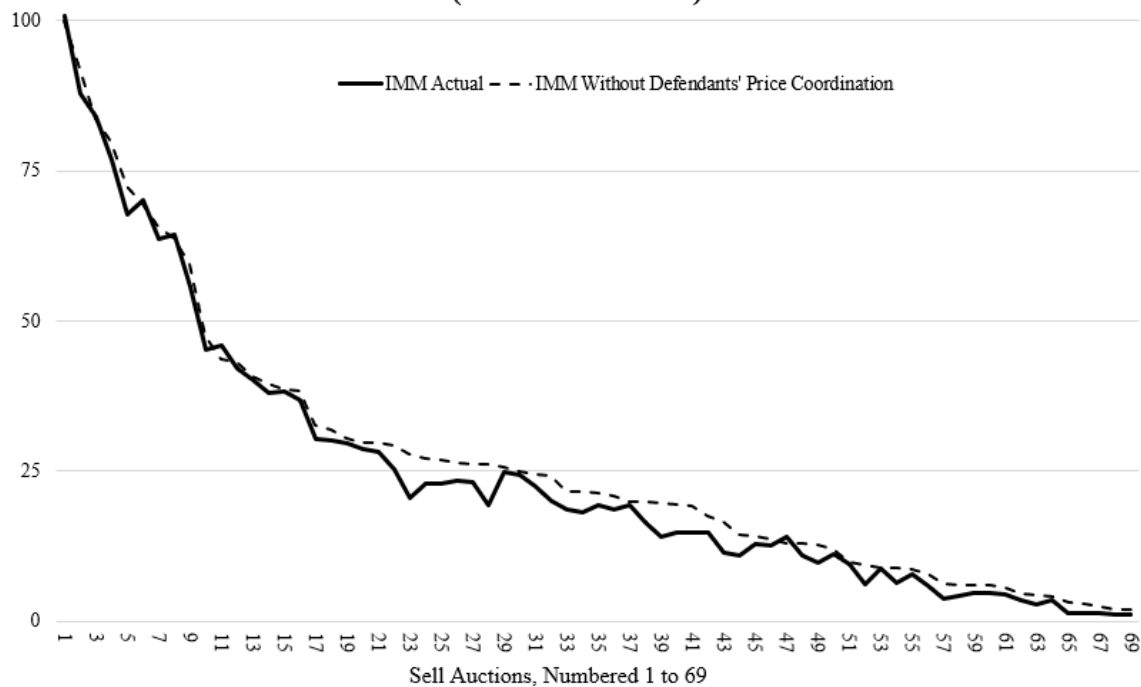
of its initial market away from the prior day's cheapest-to-deliver bond price predicts the *other* Defendants' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*).

245. The R-squared measures how well a regression equation fits a set of data. It is a statistic that measures the percentage of variation in the dependent variable that is accounted for by all the control or explanatory variables. An R-squared can vary between 0 (no fit) and 1 (perfect fit). Here, Plaintiffs' model has an R-squared of 0.99, meaning that the three (3) variables in Plaintiffs' model (*i.e.*, bond price, physical settlement request, and the dominant Defendant's skew away from the bond price) explain 99% of the variation in the non-dominant Defendants' initial markets.

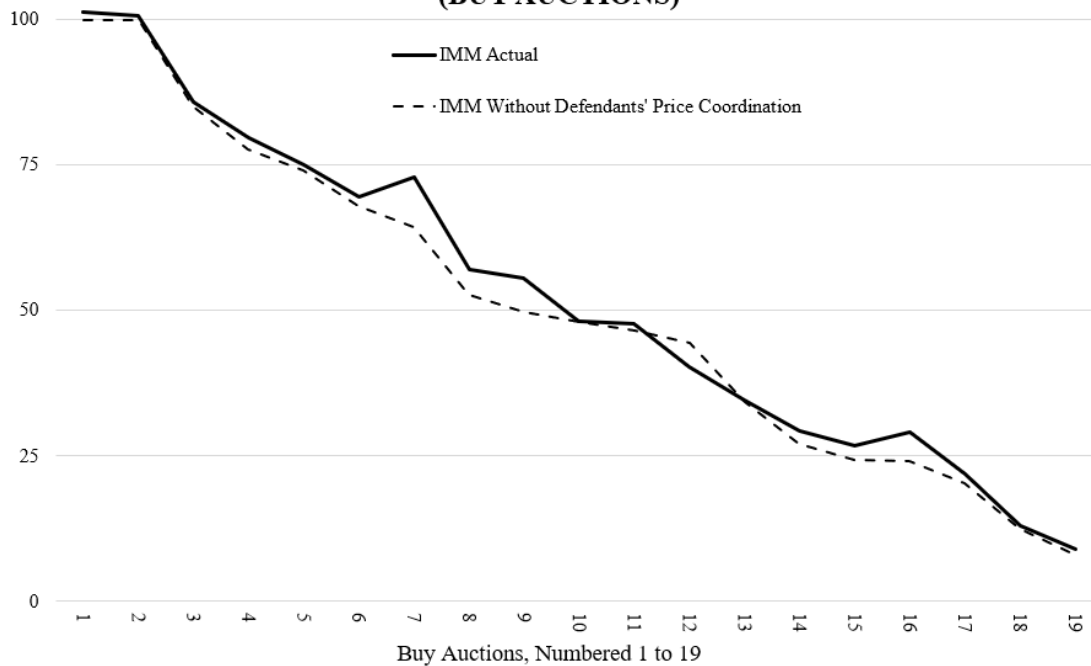
246. With a very high degree of statistical certainty, Plaintiffs' model thus demonstrates that the extent to which the dominant Defendant skews its initial market away from the prior day's cheapest-to-deliver bond price predicts *the other Defendants'* initial markets, even after controlling for the other variables that those Defendants rely on in generating their initial markets.

247. Plaintiffs' model can quantify the effect that Defendants' collusive skewing of their initial markets (represented by their dominant Defendant's initial market explanatory variable) has on the initial market midpoint, and show what the initial market midpoint would look like if Defendants' initial markets were not skewed as a function of the dominant Defendant's initial market in both sell and buy auctions:

**CDS AUCTION INITIAL MARKET MIDPOINT WITHOUT
DEFENDANTS' PRICE COORDINATION EFFECT AND ACTUAL
(SELL AUCTIONS)**



**CDS AUCTION INITIAL MARKET MIDPOINT WITHOUT
INTERDEALER PRICE COORDINATION EFFECT AND ACTUAL
(BUY AUCTIONS)**



248. Other features of Plaintiffs' model indicate its robustness. The negative regression coefficient for Defendant's own physical settlement request, for example, is an indication of the model's robustness. That the coefficient is negative for Defendants' own physical settlement request indicates that a Defendant with a large physical settlement request to sell bonds (typically indicating a protection receiver) is acting on its self-interest in skewing its initial market artificially *downward*.

249. Plaintiffs' model is based on reliable, accurate, and appropriately representative data. It uses 723 initial markets submitted by the Defendants across eighty-eight (88) auctions, representing nearly 50% of all relevant CDS auctions from 2005 to the present day. The eighty-eight (88) auctions include CDS auctions from 2005 through 2020, and thus cover auctions over the entire Class Period. The auctions analyzed include both "buy" (20) and "sell" (68) auctions; given that most auctions are "sell" auctions, the model's auction dataset appropriately includes more "sell" auctions than "buy" auctions. All the bonds for these auctions were actively traded and had reliable, accurate, and complete bond pricing data available from FINRA's Trade Reporting and Compliance Engine ("TRACE"), the industry standard informational service about the bond market, and Bloomberg, one of the most widely used sources of financial market information on Wall Street.¹⁰⁸

250. Run across 723 of the Defendants' initial markets across eighty-eight (88) auctions, this regression constitutes strong evidence of a *per se* bid-rigging and price-fixing conspiracy

¹⁰⁸ The Bloomberg Generic Price ("BGN") is "a real-time composite price for corporate and government bonds, based on executable and indicative quotes from multiple dealers." See Bloomberg Professional Services, "Pricing Data," <https://www.bloomberg.com/professional/product/pricing-data/> (date accessed: January 31, 2022).

amongst horizontal competitors. Plaintiffs' model shows that there is strong evidence that the dominant Defendant's artificial skewed in its initial market causes the other Defendants to submit artificially skewed initial markets as well.

251. These results are strongly inconsistent with an auction operating without collusion and price manipulation. Because the initial markets are supposed to be secret and unknown to the other Defendants, Defendants' initial markets should bear no relationship to the dominant Defendant's initial market. Indeed, the information asymmetries that (should) exist between the Defendants mean that one would expect that their initial markets would be around the prior day's bond market price, but with some randomness and variation – some higher, some lower, and some about the same. They should not be ordered, uniform, and consistently skewed in the direction of the dominant Defendant's initial market.

252. In practical terms, Plaintiffs' model shows that Defendants are routinely and systematically identifying a very specific piece of purportedly secret pricing information – the extent to which the dominant Defendant's initial market is skewed away from the prior day's cheapest-to-deliver bond price – and using their own initial markets to artificially skew the initial market midpoint, and ultimately the final auction price, *in the same direction* as the dominant Defendant's initial market (most frequently, downward).

c) Application of the Instrumental Variable Technique Confirms that the Dominant Defendant's Initial Market Causes the Other Defendants to Artificially Skew Their Initial Markets in the Same Direction as the Dominant Defendant

253. To further test the causal relationship between these variables, Plaintiffs used a standard econometric technique termed “instrumental variables.”¹⁰⁹ The technique involves using another variable (called the “instrumented variable”) that correlates with the original explanatory variable (here, the dominant Defendant’s initial market), and then is tested with the original dependent variable (here, the other Defendants’ initial markets) to remove the likelihood that the relationship between the original explanatory and dependent variables are based merely on correlation rather than causation.

254. As explained below, the technique addresses whether the observed relationship between the dominant Defendant’s initial market and the other Defendants’ initial markets could be due to correlation, such as might occur if their initial markets were similar due to common, market-wide bond price information or similar capabilities of Defendants in evaluating bond prices.

255. First, conceptually the instrumental variable should satisfy the criteria that (a) it is correlated with the dominant Defendant’s actual initial market, incorporating the prior day’s cheapest-to-deliver bond price, and (b) it ensures that the dominant Defendant’s initial market reflects private information known only to the dominant Defendant. *See supra* ¶¶ 233–34 (explaining prior day’s cheapest-to-deliver bond price control variable).

¹⁰⁹ *See* Peter Kennedy, A GUIDE TO ECONOMETRICS, at 159–60 (5d 2003).

256. Second, Plaintiffs verified by a regression (on 88 dominant Defendant initial markets across 88 auctions) that the dominant Defendant's physical settlement request and the prior day's cheapest-to-deliver bond price predict the dominant Defendant's initial market. The t-statistic for the physical settlement request in this regression was -3.5 and the regression coefficient was -0.02. This indicates that the dominant Defendant lowers (raises) its initial market as a function of its physical settlement request. The other variable used to construct the instrument was the prior day's cheapest-to-deliver bond market price, which had a t-statistic of 75.0 and a regression coefficient of 1.02. The results were statistically significant and had an R-squared of 99%. The high R-squared value satisfies criteria (a) for an instrumental variable, because it shows that the instrumented variable is correlated with the dominant Defendant's actual initial market. Using the dominant Defendant's physical settlement request and bond prices to predict the dominant Defendant's initial market satisfies criteria (b) for an instrumental variable, because the physical settlement request is private knowledge to the dominant Defendant.

257. Third, Plaintiffs used the dominant Defendant's physical settlement request and bond prices to construct the instrument using the predicted values of the dependent variable from the above regression. The instrumented variable – the dominant Defendant's initial market constructed from bond prices and the dominant Defendant's physical settlement request – is both correlated with the dominant Defendant's *actual* initial market and reflects private information. Thus, the instrumented variable screens out any other factors, like common, market-wide bond price information or the similar capabilities of Defendants in evaluating bond prices, that may contribute to the dominant Defendant's actual initial market, and thus create the potential for a correlated effect.

258. Fourth, Plaintiffs then tested the relationship between (1) the extent to which the “instrumented” dominant Defendant’s initial market skewed away from the prior day’s market price of the cheapest-to-deliver bonds (the explanatory variable) and (2) the other Defendants’ initial markets (the dependent variable). Because the dominant Defendant’s physical settlement request is also purportedly secret information, the dominant Defendant’s “instrumented” initial market constructed from that purportedly secret information should similarly have no relationship with the other Defendants’ initial markets, absent information sharing and price coordination.

259. Again, however, the results (run on 723 initial markets across 88 auctions) showed that the extent to which the dominant Defendant’s “instrumented” initial market was skewed away from the prior day’s cheapest-to-deliver bond price still predicted the other Defendants’ initial markets:

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 211.7 and a regression coefficient estimate of 1.00.
- As a control variable, the Defendant’s own physical settlement request has a t-statistic of -3.20 and a regression coefficient estimate of -0.01.
- The explanatory (now, instrumented) variable that Plaintiffs’ model uses to detect price-fixing – the extent to which the dominant Defendant’s “instrumented” initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 6.3, and a regression coefficient of 0.57.

260. The regression coefficient for the dominant Defendant’s “instrumented” initial market variable (0.57) means that the dominant Defendant’s “instrumented” initial market predicts the non-dominant Defendants’ initial markets, controlling for other factors like each Defendant’s respective physical settlement request and the prior day’s cheapest-to-deliver bond price. The positive coefficient of 0.57 means that the dominant Defendant’s skew in its “instrumented” initial

market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable).

261. As explained above, *supra* ¶¶ 240–41, the t-statistic and level of significance (the likelihood that a result is due to random chance) are calculated by the model. The t-statistics for each of these variables far exceed the threshold for being statistically significant at the 0.01 level (the 1% error rate). The t-statistic calculated by the model is 6.3 for the dominant Defendant's "instrumented" initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its "instrumented" initial market away from the prior day's cheapest-to-deliver bond price predicts the *other* Defendants' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*).

262. The R-squared measures how well a regression equation fits a set of data. It is a statistic that measures the percentage of variation in the dependent variable that is accounted for by all the control or explanatory variables. An R-squared can vary between 0 (no fit) and 1 (perfect fit). Here, Plaintiffs' model has an R-squared of 0.99, meaning that the three (3) variables in Plaintiffs' model (*i.e.*, bond price, physical settlement request, and the dominant Defendant's skew away from the bond price in its "instrumented" initial market) explain 99% of the variation in the non-dominant Defendants' initial markets.

263. In a competitive auction functioning without collusion and price manipulation, there would be no relationship at all between the purportedly secret submissions of the dominant Defendant and the purportedly secret initial markets of the other Defendants. But the results of

Plaintiffs' analysis corroborate not only that there is a relationship between these submissions, but that there is strong evidence that what *causes* the other Defendants to skew their initial markets away from the prior day's cheapest-to-deliver bond price is the information shared with them by the dominant Defendant, *i.e.*, that the dominant Defendant's purportedly secret initial market will similarly skew away from the prior day's cheapest-to-deliver bond price.

264. Plaintiffs' model is based on reliable, accurate, and appropriately representative data. It uses 723 initial markets submitted by Defendants across 88 auctions, representing nearly half of all CDS auctions from 2005 to the present day. The 88 auctions include CDS auctions from 2005 through 2020, and thus cover auctions over the entire Class Period. The auctions analyzed include both "buy" (20) and "sell" (68) auctions; given that most auctions are "sell" auctions, the model's auction dataset appropriately includes more "sell" auctions than "buy" auctions. All the bonds for these auctions were actively traded and had reliable, accurate, and complete bond pricing data available from FINRA's Trade Reporting and Compliance Engine ("TRACE"), the industry standard informational service about the bond market, and Bloomberg, one of the most widely used sources of financial market information on Wall Street.¹¹⁰

d) Regression Analysis Demonstrates that Each Defendant is a Loyal Follower in the Bid-Rigging and Price-Fixing Conspiracy That Supports the Manipulative Efforts of the Dominant Defendant

265. In an additional analysis, Plaintiffs narrowed the analytical focus of their model to specific Defendants. With very high statistical certainty, Plaintiffs' econometric evidence shows that *each* of the Defendants plays the role of a loyal member of the cartel. They each participated

¹¹⁰ See *supra* note 108 (describing Bloomberg data source).

in the conspiracy by submitting artificial, skewed initial markets that supported the artificial, skewed initial market submitted by the dominant Defendant. These results are also highly statistically significant.

266. Plaintiffs again incorporated the bond price and physical settlement request as control variables in a multivariate OLS regression to construct an economic model that measures the extent to which those variables predict the relevant side of each Defendant's initial market. *See supra* ¶¶ 231–32. Plaintiffs' model further incorporates a third explanatory variable: the extent to which the relevant side of the dominant Defendant's initial market deviates from the prior day's cheapest-to-deliver bond price. In this test, Plaintiffs apply their model to those auctions where each Defendant is supporting the dominant Defendant, *e.g.*, it applies the regression to a dataset comprised of Goldman Sachs' initial markets across those auctions where Goldman Sachs was not the dominant Defendant. Thus, Plaintiffs' model tests whether Goldman Sachs' initial markets (the dependent variable) are predicted by the dominant Defendant's skew of its purportedly secret initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable), even after controlling for the bond price and Goldman Sachs' own physical settlement request.

267. The econometric analysis shows that when each Defendant is not the dominant Defendant in an auction, it behaves as every other non-dominant Defendant in similar circumstances: it incorporates the dominant Defendant's initial market's skew away from the prior day's price of the cheapest-to-deliver bond, and then it submits its own artificial initial market that is similarly skewed in that direction.

268. In an auction functioning without collusion or price manipulation, these results would not be possible – because the dominant Defendant's initial market is supposed to be secret

and unknown to any of the other Defendants. Without information sharing and collusive price manipulation, this type of orderly pricing that consistently skews in the direction preferred by the dominant Defendant would not be possible, particularly when measured across auctions and using a large set of data points.

269. Plaintiffs' model is based on reliable, accurate, and appropriately representative data. It uses 723 initial markets submitted by the Defendants across 88 auctions, representing nearly half of all CDS auctions from 2005 to the present day. The 88 auctions include CDS auctions from 2005 through 2020, and thus cover auctions over the entire Class Period. The auctions analyzed include both "buy" (20) and "sell" (68) auctions; given that most auctions are "sell" auctions, the model's auction dataset appropriately includes more "sell" auctions than "buy" auctions. All the bonds for these auctions were actively traded and had reliable, accurate, and complete bond pricing data available from FINRA's Trade Reporting and Compliance Engine ("TRACE"), the industry standard informational service about the bond market, and Bloomberg, one of the most widely used sources of financial market information on Wall Street.¹¹¹ Although Plaintiffs' starting dataset is comprised of 88 auctions, for each Defendant-specific analysis assessing each Defendant's pricing behavior when it was in a "follower" rather than "dominant" role, the analysis does not use those auctions where the Defendant was the dominant Defendant. Instead, it uses the auctions in which each Defendant participated as a follower and was not the dominant Defendant.

¹¹¹ See *supra* note 108 (describing Bloomberg data source).

(1) Goldman Sachs

270. In those auctions where Goldman Sachs was not the dominant Defendant, Plaintiffs' model (run on 57 initial markets across 57 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Goldman Sachs' initial markets:

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 141.9 and a regression coefficient estimate of 1.00.
- As a control variable, Goldman Sachs' own physical settlement request has a t-statistic of -2.60 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 14.2, and a regression coefficient of 0.78.

271. The regression coefficient for the dominant Defendant's initial market variable (0.78) means that the dominant Defendant's initial market predicts Goldman Sachs' initial markets in those auctions where it is a non-dominant Defendant, controlling for other factors like its physical settlement request and the prior day's cheapest-to-deliver bond price. The positive coefficient of 0.78 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of Goldman Sachs' initial markets (the dependent variable).

272. The t-statistic and level of significance (the likelihood that a result is due to random chance) are calculated by the model. *Supra* ¶¶ 240. The t-statistic calculated by the model is 14.2 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Goldman Sachs' initial markets with such precision that this result has *a less*

than one-in-ten thousand probability of occurring by random chance (or: less than a .01% error rate).

273. The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Goldman Sachs' initial markets.

274. Together, these results constitute strong evidence that Goldman Sachs' initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(2) Deutsche Bank

275. In those auctions where Deutsche Bank was not the dominant Defendant, Plaintiffs' model (run on 77 initial markets across 77 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Deutsche Bank's initial markets:

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 171.3 and a regression coefficient estimate of 0.99.
- As a control variable, Deutsche Bank's own physical settlement request has a t-statistic of -1.75 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 16.4, and a regression coefficient of 0.73.

276. The positive regression coefficient, *see supra* ¶ 239, of 0.73 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of Deutsche Bank's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 16.4 for the dominant Defendant's initial market variable. This t-statistic indicates that

the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Deutsche Bank's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Deutsche Bank's initial markets. These results constitute strong evidence that Deutsche Bank's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(3) Barclays

277. In those auctions where Barclays was not the dominant Defendant, Plaintiffs' model (run on 77 initial markets across 77 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Barclays' initial markets:

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 165.2 and a regression coefficient estimate of 1.00.
- As a control variable, Barclays' own physical settlement request has a t-statistic of -0.02 and a regression coefficient estimate of 0.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 12.5, and a regression coefficient of 0.68.

278. The positive regression coefficient, *see supra* ¶ 239, of 0.68 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of Barclays' initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 12.5 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree

in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Barclays' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Barclays' initial markets. These results constitute strong evidence that Barclays's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(4) Credit Suisse

279. In those auctions where Credit Suisse was not the dominant Defendant, Plaintiffs' model (run on 84 initial markets across 84 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Credit Suisse's initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 176.4 and a regression coefficient estimate of 0.99.
- As a control variable, Credit Suisse's own physical settlement request has a t-statistic of -3.47 and a regression coefficient estimate of -0.03.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 18.6, and a regression coefficient of 0.79.

280. The positive regression coefficient, *see supra* ¶ 239, of 0.79 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of Credit Suisse's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 18.6 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree

in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Credit Suisse's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Credit Suisse's initial markets. These results constitute strong evidence that Credit Suisse's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(5) JPMorgan

281. In those auctions where JPMorgan was not the dominant Defendant, Plaintiffs' model (run on 71 initial markets across 71 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted JPMorgan's initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 100.1 and a regression coefficient estimate of 0.98.
- As a control variable, JPMorgan's own physical settlement request has a t-statistic of -1.80 and a regression coefficient estimate of -0.03.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 10.8, and a regression coefficient of 0.65.

282. The positive regression coefficient, *see supra* ¶ 239, of 0.65 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of JPMorgan's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 10.8 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree

in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts JPMorgan's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in JPMorgan's initial markets. These results constitute strong evidence that JPMorgan's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(6) Bank of America/Merrill Lynch

283. In those auctions where Bank of America/Merrill Lynch was not the dominant Defendant, Plaintiffs' model (run on 93 initial markets across 86 auctions)¹¹² detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Bank of America/Merrill Lynch's initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 164.7 and a regression coefficient estimate of 0.99.
- As a control variable, Bank of America/Merrill Lynch's own physical settlement request has a t-statistic of -2.24 and a regression coefficient estimate of -0.02.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 15.7 and a regression coefficient of 0.72.

284. The positive regression coefficient, *see supra* ¶ 239, of 0.72 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver

¹¹² There are more quotes than auctions for Bank of America/Merrill Lynch because in some auctions predating Bank of America's acquisition of Merrill Lynch, Bank of America and Merrill Lynch submitted separate quotes.

bond price (the explanatory variable) predicts the direction and magnitude of Bank of America/Merrill Lynch's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 15.7 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Bank of America/Merrill Lynch's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Bank of America/Merrill Lynch's initial markets. These results constitute strong evidence that Bank of America/Merrill Lynch's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(7) Citi

285. In those auctions where Citi was not the dominant Defendant, Plaintiffs' model (run on 73 initial markets across 73 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Citi's initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 100.1 and a regression coefficient estimate of 0.98.
- As a control variable, Citi's own physical settlement request has a t-statistic of -0.30 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 8.4, and a regression coefficient of 0.69.

286. The positive regression coefficient, *see supra* ¶ 239, of 0.69 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of Citi's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 8.4 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Citi's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Citi's initial markets. These results constitute strong evidence that Citi's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(8) Morgan Stanley

287. In those auctions where Morgan Stanley was not the dominant Defendant, Plaintiffs' model (run on 84 initial markets across 84 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted Morgan Stanley's initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 154.9 and a regression coefficient estimate of 1.00.
- As a control variable, Morgan Stanley's own physical settlement request has a t-statistic of -3.10 and a regression coefficient estimate of -0.02.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 12.5, and a regression coefficient of 0.68.

288. The positive regression coefficient, *see supra* ¶ 239, of 0.68 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of Morgan Stanley's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 12.5 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts Morgan Stanley's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in Morgan Stanley's initial markets. These results constitute strong evidence that Morgan Stanley's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(9) RBS

289. In those auctions where RBS was not the dominant Defendant, Plaintiffs' model (run on 28 initial markets across 28 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted RBS' initial markets.¹¹³

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 111.2 and a regression coefficient estimate of 0.99.
- As a control variable, RBS' own physical settlement request has a t-statistic of -1.50 and a regression coefficient estimate of -0.04.

¹¹³ Plaintiffs' model excludes one auction for RBS: the Dynegy auction, where the RBS trader made a clear human error and entered the wrong price.

- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 8.5, and a regression coefficient of 0.81.

290. The positive regression coefficient, *see supra* ¶ 239, of 0.81 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of RBS's initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 8.5 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts RBS's initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in RBS's initial markets. These results constitute strong evidence that RBS's initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

(10) BNP Paribas

291. In those auctions where BNP Paribas was not the dominant Defendant, Plaintiffs' model (run on 79 initial markets across 79 auctions) detected that the extent to which the dominant Defendant's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted BNP Paribas initial markets:

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 170.3 and a regression coefficient estimate of 0.98.
- As a control variable, BNP Paribas' own physical settlement request has a t-statistic of -0.70 and a regression coefficient estimate of -0.01.

- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 17.8, and a regression coefficient of 0.78.

292. The positive regression coefficient, *see supra* ¶ 239, of 0.78 means that the dominant Defendant's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of BNP Paribas' initial markets (the dependent variable). The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 17.8 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts BNP Paribas' initial markets with such precision that this result has *less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in BNP Paribas' initial markets. These results constitute strong evidence that BNP Paribas' initial markets are caused by the dominant Defendant's skew away from the cheapest-to-deliver bond price.

* * *

293. Taken in totality, these statistically significant findings show that each Defendant plays the role of a loyal member of the cartel, submitting initial markets that are a function of the extent to which the dominant Defendant skews its initial market away from the prior day's cheapest-to-deliver bond price.

e) Regression Analysis Demonstrates That Defendants Benefit from the Bid-Rigging and Price-Fixing Conspiracy When They Serve as the Dominant Defendant Dealer

294. With a very high degree of statistical certainty, the results identified by Plaintiffs’ econometric evidence – of the dominant Defendant submitting an artificial, skewed initial market and the other Defendants supporting that manipulative effort by submitting their own artificial, skewed initial markets in the same direction – persist when the analytical focus is narrowed to spotlight the behavior of *individual* Defendants. In practical terms, this means that each Defendant benefits – or wins – in the auction when it is that Defendant’s turn to be the dominant Defendant. These results are highly statistically significant.

295. Plaintiffs’ model is based on reliable, accurate, and appropriately representative data. It uses 723 initial markets submitted by the Defendants across 88 auctions, representing nearly half of all relevant CDS auctions from 2005 to the present day. The 88 auctions include CDS auctions from 2005 through 2020, and thus cover auctions over the entire Class Period. The auctions analyzed include both “buy” (20) and “sell” (68) auctions; given that most auctions are “sell” auctions, the model’s auction dataset appropriately includes more “sell” auctions than “buy” auctions. All the bonds for these auctions were actively traded and had reliable, accurate, and complete bond pricing data available from FINRA’s Trade Reporting and Compliance Engine (“TRACE”), the industry standard informational service about the bond market, and Bloomberg, one of the most widely used sources of financial market information on Wall Street.¹¹⁴

296. For this analysis, Plaintiffs tailored their OLS regression to certain Defendants, testing whether the extent to which the specific dominant Defendant’s initial market is skewed

¹¹⁴ See *supra* note 108 (describing Bloomberg data source).

away from the prior day's cheapest-to-deliver bond market price predicts the other Defendants' initial markets when the dominant Defendant is a particular Defendant.¹¹⁵ The results again showed that when it is a Defendant's turn to be the dominant Defendant, the other Defendants operate according to the cartel's blueprint, submitting initial markets support the dominant Defendant's effort to skew the initial market midpoint, and ultimately the final auction price, away from the cheapest-to-deliver bond price and in the direction that best suits the dominant Defendant.

(1) Goldman Sachs

297. In those auctions where Goldman Sachs was the dominant Defendant, Plaintiffs' model (run on 243 initial markets across 30 auctions) detected that the extent to which Goldman Sachs' initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted the other Defendants' initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 224.4 and a regression coefficient estimate of 0.99.
- As a control variable, Defendants' own physical settlement request has a t-statistic of -2.90 and a regression coefficient estimate of -0.02.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's (here, Goldman Sachs') initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 26.3, and a regression coefficient of 0.69.

298. The positive regression coefficient, *see supra* ¶ 239, of 0.69 means that Goldman Sachs' skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets

¹¹⁵ These individualized analyses were run for those Defendants where there was enough data to draw econometrically valid conclusions.

(the dependent variable) in those auctions where Goldman Sachs was the dominant Defendant. The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 26.3 for Goldman Sachs’ initial market variable. This t-statistic indicates that the degree in Goldman Sachs’ skew of its initial market away from the prior day’s cheapest-to-deliver bond price predicts the other Defendants’ initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs’ model explain 99% of the variation in the other Defendants’ initial markets. These results constitute strong evidence that Goldman Sachs’ skew of its initial market away from the prior day’s bond price caused the other Defendants to similarly skew their initial markets away from the bond price and in the direction that served Goldman Sachs’ interest.

299. Moreover, and with very high statistical certainty, Plaintiffs’ econometric evidence shows that each Defendant in particular supported Goldman Sachs’ attempts to artificially skew the final auction price when Goldman Sachs was the dominant Defendant. Plaintiffs’ econometric analysis shows that each Defendant – Deutsche Bank, Barclays, Credit Suisse, JPMorgan, Citi, Bank of America/Merrill Lynch, Morgan Stanley, RBS, and BNP Paribas – when considered *individually* coordinated its pricing with Goldman Sachs to artificially skew the initial market midpoint and the final auction price in the direction that served Goldman Sachs’ financial interest.

300. The following statistically significant results show that each Defendant’s initial market is predicted by and a function of the extent to which Goldman Sachs’ purportedly secret initial market was skewed away from the prior day’s cheapest-to-deliver (“CTD”) bond market price:

	VARIABLE: PRIOR DAY'S CTD BOND PRICE	VARIABLE: DEALER'S PSR SCALED BY OUTANDING BONDS	VARIABLE: GOLDMAN SACHS' INITIAL MARKET (COLLUSION)	R-SQUARED	NUMBER OF AUCTIONS	NUMBER OF INITIAL MARKETS
DEUTSCHE BANK	0.99 88.4	-0.02 -1.05	0.72 11.1	99%	29	29
BARCLAYS	0.97 75.4	-0.01 -0.30	0.67 8.3	99%	29	29
CREDIT SUISSE	0.99 75.0	-0.03 -2.20	0.68 8.4	99%	30	30
JPMORGAN	0.99 86.5	-0.01 -0.20	0.75 10.7	99%	30	30
CITI	0.98 83.4	-0.04 -1.40	0.74 10.4	99%	30	30
BANK OF AMERICA/MERRILL LYNCH	0.99 65.6	-0.02 -0.20	0.72 6.5	99%	29	32
MORGAN STANLEY	0.99 69.1	-0.04 -1.40	0.62 7.0	99%	29	29
RBS	0.96 175.7	0.04 1.03	0.98 32.9	99%	6	6
BNP PARIBAS	0.98 84.2	0.02 0.60	0.71 10.7	99%	28	28
					240	243

(T-STATISTICS REPORTED BELOW COEFFICIENT ESTIMATES.)

(2) Deutsche Bank

301. In those auctions where Deutsche Bank was the dominant Defendant, Plaintiffs' model (run on 78 initial markets across 9 auctions) detected that the extent to which Deutsche Bank's initial market skewed away from the prior day's cheapest-to-deliver bond market price predicted the other Defendants' initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 180.3 and a regression coefficient estimate of 0.99.
- As a control variable, Defendants' own physical settlement request has a t-statistic of -1.89 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's (here, Deutsche Bank's) initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 8.4, and a regression coefficient of 0.64.

302. The positive regression coefficient, *see supra* ¶ 239, of 0.64 means that Deutsche Bank's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the

explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable) in those auctions where Deutsche Bank was the dominant Defendant. The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 8.4 for Deutsche Bank's initial market variable. This t-statistic indicates that the degree in Deutsche Bank's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts the other Defendants' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in the other Defendants' initial markets. These results constitute strong evidence that Deutsche Bank's skew of its initial market away from the prior day's bond price caused the other Defendants to similarly skew their initial markets away from the bond price and in the direction that served Deutsche Bank's interest.

(3) Barclays

303. In those auctions where Barclays was the dominant Defendant, Plaintiffs' model (run on 70 initial markets across 9 auctions) detected that the extent to which Barclays' initial market diverged from the prior day's cheapest-to-deliver bond market price predicted the other Defendants' initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 61.8 and a regression coefficient estimate of 0.97.
- As a control variable, Defendants' own physical settlement request has a t-statistic of -0.30 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's (here, Barclays') initial market deviates from the cheapest-to-deliver bond price for auction

bonds on the day before the auction – has a t-statistic of 18.0, and a regression coefficient of 0.92.

304. The positive regression coefficient, *see supra* ¶ 239, of 0.92 means that Barclays' skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable) in those auctions where Barclays was the dominant Defendant. The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 18.0 for Barclays' initial market variable. This t-statistic indicates that the degree in Barclays' skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts the other Defendants' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.98 means that the three (3) variables in Plaintiffs' model explain 98% of the variation in the other Defendants' initial markets. These results constitute strong evidence that Barclays' skew of its initial market away from the prior day's bond price caused the other Defendants to similarly skew their initial markets away from the bond price and in the direction that served Barclays' interest.

(4) Credit Suisse

305. In those auctions where Credit Suisse was the dominant Defendant, Plaintiffs' model (run on 33 initial markets across 4 auctions) detected that the extent to which Credit Suisse's initial market diverged from the prior day's cheapest-to-deliver bond market price predicted the other Defendants' initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 20.0 and a regression coefficient estimate of 1.04.
- As a control variable, Defendants' own physical settlement request has a t-statistic of -0.08 and a regression coefficient estimate of 0.

- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's (here, Credit Suisse's) initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 1.9, and a regression coefficient of 0.86.

306. The positive regression coefficient, *see supra* ¶ 239, of 0.86 means that Credit Suisse's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable) in those auctions where Credit Suisse was the dominant Defendant. The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 1.9 for Credit Suisse's initial market variable. This t-statistic indicates that the degree in Credit Suisse's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts the other Defendants' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.97 means that the three (3) variables in Plaintiffs' model explain 97% of the variation in the other Defendants' initial markets. These results constitute strong evidence that Credit Suisse's skew of its initial market away from the prior day's bond price caused the other Defendants to similarly skew their initial markets away from the bond price and in the direction that served Credit Suisse's interest.

(5) JPMorgan

307. In those auctions where JPMorgan was the dominant Defendant, Plaintiffs' model (run on 139 initial markets across 17 auctions) detected that the extent to which JPMorgan's initial market diverged from the prior day's cheapest-to-deliver bond market price predicted the other Defendants' initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 261.3 and a regression coefficient estimate of 1.00.
- As a control variable, Defendants' own physical settlement request has a t-statistic of -2.80 and a regression coefficient estimate of -0.02.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's (here, JPMorgan's) initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 22.4, and a regression coefficient of 0.78.

308. The positive regression coefficient, *see supra* ¶ 239, of 0.78 means that JPMorgan's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable) in those auctions where JPMorgan was the dominant Defendant. The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 22.4 for JPMorgan's initial market variable. This t-statistic indicates that the degree in JPMorgan's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts the other Defendants' initial markets with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in the other Defendants' initial markets. These results constitute strong evidence that JPMorgan's skew of its initial market away from the prior day's bond price caused the other Defendants to similarly skew their initial markets away from the bond price and in the direction that served JPMorgan's interest.

(6) Citi

309. In those auctions where Citi was the dominant Defendant, Plaintiffs' model (run on 111 initial markets across 13 auctions) detected that the extent to which Citi's initial market

diverged from the day-before-auction cheapest-to-deliver bond market price predicted the other Defendants' initial markets.

- As a control variable, the price of the bond on the day before the auction has a t-statistic of 176.9 and a regression coefficient estimate of 1.00.
- As a control variable, the Defendant's own physical settlement request has a t-statistic of -3.05 and a regression coefficient estimate of -0.01.
- The explanatory variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's (here, Citi's) initial market deviates from the cheapest-to-deliver bond price for auction bonds on the day before the auction – has a t-statistic of 13.8, and a regression coefficient of 0.64.

310. The positive regression coefficient, *see supra* ¶ 239, of 0.64 means that Citi's skew in its initial market away from the prior day's cheapest-to-deliver bond price (the explanatory variable) predicts the direction and magnitude of the other Defendants' initial markets (the dependent variable) in those auctions where Citi was the dominant Defendant. The t-statistic, *see supra* ¶¶ 240–41, calculated by the model is 13.8 for Citi's initial market variable. This t-statistic indicates that the degree in Citi's skew of its initial market away from the prior day's cheapest-to-deliver bond price predicts the other Defendants' initial markets with such precision that this result has a *less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). The R-squared, *see supra* ¶ 245, of 0.99 means that the three (3) variables in Plaintiffs' model explain 99% of the variation in the other Defendants' initial markets. These results constitute strong evidence that Citi's skew of its initial market away from the prior day's bond price caused the other Defendants to similarly skew their initial markets away from the bond price and in the direction that served Citi's interest.

* * *

311. Taken in totality, these statistically significant, consistent findings show that Defendants benefitted from the cartel when it was their turn to be the dominant Defendant Dealer. It submitted an artificial initial market skewed away from the prior day's bond market price and in the direction that served its financial interest. The other Defendants followed the dominant Defendant's lead, submitting initial markets that were a function of the dominant Defendant's purportedly secret, skewed initial market. These statistically significant results constitute strong evidence that information sharing and price coordination caused the other Defendants to submit secret, skewed initial markets that supported the dominant Defendant's effort to artificially manipulate the initial market midpoint and final auction price to its benefit.

f) Defendants' Pricing Behavior is Different From Non-Defendant Dealers' Pricing Behavior, Consistent With the Existence of a Bid-Rigging and Price-Fixing Cartel Amongst Defendants

312. To test Defendants' pricing behavior vis-à-vis non-Defendant dealers like HSBC, UBS, Société Générale, and Nomura, econometric analysis commissioned by Plaintiffs compared Defendants' initial markets (1,276 initial markets across 137 auctions) with non-Defendant dealers' initial markets (197 initial markets across 68 auctions). These 68 auctions are a subset of the 137.

313. The standard deviation is a common statistical measure of the variability or dispersion in numerical values. It measures the degree to which individual values differ from the group average.¹¹⁶ A standard deviation of the dealers' initial markets was calculated for each auction and group for which a sufficient number of dealers submitted initial markets to compute a

¹¹⁶ See Federal Judicial Center, *Reference Manual on Scientific Evidence*, 278, 281–82, and 298 (3d 2011).

standard deviation. The results showed differences in the pricing behavior as between Defendants and non-Defendant dealers:

DEALER GROUP	NO. OF AUCTIONS	NO. OF INITIAL MARKETS	DISPERSION / AVERAGE OF GROUP'S STANDARD DEVIATIONS	DISPERSION DIFFERENCE	ANOVA TEST FOR STATISTICAL SIGNIFICANCE
Non-Defendants	68	197	1.432	N / A	N / A
Defendants	137	1276	1.159	-.273	-3.4*

An "*" denotes statistical significance at the .05 level or better.

314. Consistent with the existence of a price-fixing conspiracy amongst Defendants, Plaintiffs' analysis found that the Defendants' initial markets were more tightly clustered together than the non-Defendant dealers' initial markets. Application of the widely accepted analysis of variance ("ANOVA") technique confirmed the statistical significance of the pricing behavior differences as between Defendants and non-Defendant dealers. An ANOVA determines whether two groups differ from each other on some dimension in a statistically significant way.¹¹⁷ In this case, the ANOVA was used to determine whether Defendants' initial markets were less dispersed (more clustered) than non-Defendant dealers' initial markets, and whether that difference is statistically significant. As indicated by the -3.4 t-statistic generated by the ANOVA technique, Plaintiffs' analysis found that Defendants' initial markets cluster together, or are more uniform and less dispersed, than the non-Defendant's initial markets, and that the result is statistically significant.

315. Plaintiffs ran an additional ANOVA test that compared Defendants' initial markets and non-Defendants' initial markets in the same sixty-eight (68) auctions common to both groups

¹¹⁷ *Id.* at 305.

(663 Defendant initial markets and 197 non-Defendant initial markets). The results persist – Defendants’ initial markets clustered together more than non-Defendants’ initial markets (dispersion difference of -.253) – *and* the difference was statistically significant (t-statistic of -2.3).

316. In practical terms, this corroborates a central premise of the conspiracy: the competitor Defendants are pricing together, in a more uniform, clustered manner, when compared against non-Defendant dealers participating in the same auctions.

317. In a competitive auction functioning without collusion or manipulation, this trend would not exist. There is no economically rational reason for the Defendants to price differently *as a group across auctions* than another group of non-Defendant dealers participating in the same auctions – except and unless they are sharing competitively sensitive, private information between them in and around the auction and pricing together to skew in the same direction.

318. Plaintiffs’ model is based on reliable, accurate, and appropriately representative data. It uses 1,473 initial markets submitted by Defendants across 137 auctions, representing nearly 75% of all CDS auctions from 2005 to the present day. The 137 auctions include CDS auctions from 2005 through 2020, and thus cover auctions over the entire Class Period. The auctions analyzed include both “buy” (34) and “sell” (103) auctions; given that most auctions are “sell” auctions, the model’s auction dataset appropriately includes more “sell” auctions than “buy” auctions.

g) Defendants Continue Their Manipulative Scheme to Create Artificial Limit Order Prices in the Afternoon Session and Final Auction

319. In a separate econometric model using CDS auction limit order data, Plaintiffs demonstrate, to a statistically significant degree, that the effects of Defendants’ collusive

manipulation in the morning corrupts the afternoon session of the auction, further pushing the final auction price in the direction that favors the financial interests of the dominant Defendant in that auction.

320. Plaintiffs’ econometric evidence again incorporates *Defendant-specific* CDS auction data and bond pricing data as control variables in a multivariate OLS regression to construct an economic model that measures the extent to which certain variables predict and explain Defendants’ limit orders submitted into the auctions.

321. As described above, the auction administrators publish the net open interest and the initial market midpoint at the end of the morning session of the auction. *Supra* ¶ 169. When a Defendant’s CDS trader submits limit orders in the afternoon, the additional, public data points that should shape an economically rational view of the limit order prices would now also include the net open interest and the initial market midpoint. This information may be combined with the information the trader already should have had available for the morning portion of the auction, like the trader’s physical settlement request. *See supra* ¶¶ 233–36.

322. Plaintiffs thus test the relationship between *the dominant Defendant’s initial market* and *the non-dominant Defendants’ limit order prices*, incorporating all of this information as five control variables that serve as the data points an economically rational dealer’s CDS trader would consider in formulating limit orders: (1) the Defendant’s initial market (from the morning); (2) the Defendant’s total limit order quantity at each limit order price, accounting for the direction of the auction (a positive number to buy bonds in a “sell” auction, and a negative number to sell bonds

in a “buy” auction);¹¹⁸ (3) the net open interest, scaled by the total amount of outstanding bonds and accounting for the direction of the auction;¹¹⁹ (4) the direction of the auction, *i.e.*, whether it is a “buy” or “sell” auction; and (5) the initial market midpoint, which is generated from Defendants’ initial markets and published after the morning session of the auction.

323. Plaintiffs’ model incorporates a sixth variable: the extent to which the relevant side of the dominant Defendant’s purportedly secret initial market deviates from the initial market midpoint. Plaintiffs’ model thus tests whether there is a relationship between *each non-dominant Defendant’s limit order prices* and *the dominant Defendant’s initial market* by using the following regression equation:

$$\begin{aligned} \text{Limit order price}_{ijk} = & \\ & \alpha + \beta \text{ Defendant's initial market}_{jk} \\ & + \theta \text{ Dealer's total limit order quantity at each limit order price}_{ijk} \\ & + \kappa \text{ Net open interest, scaled by total outstanding bonds}_i \\ & + \lambda \text{ Direction of the auction (a value of "1" if buy auction, zero for sell auction)}_i \\ & + \gamma \text{ Initial market midpoint}_i \\ & + \delta \text{ Dominant Defendant's initial market minus initial market midpoint}_i \\ & + \varepsilon_{ijk} \end{aligned}$$

324. Where the subscripts “i” and “j” designate a particular auction and limit order submission by a non-dominant Defendant “k”. The symbols β , θ , κ , λ , γ , and δ represent coefficients of the regression equation and the symbol α is the intercept of the regression equation.

¹¹⁸ This variable represents the Dealer’s supply or demand curve in a “buy” or “sell” auction, respectively. See LARRY HARRIS, *TRADING & EXCHANGES: MARKET MICROSTRUCTURE FOR PRACTITIONERS*, at 122–23 (Oxford University Press 2007).

¹¹⁹ The net open interest can be positive or negative depending on the direction of the auction, *i.e.*, “sell” or “buy.” The net open interest is a positive number, *i.e.*, a value greater than zero, for a “sell” auction, and a negative number for a “buy” auction.

325. Again, Plaintiffs' model (run on 3,720 limit orders, across 115 auctions) has an extremely high degree of explanatory power:

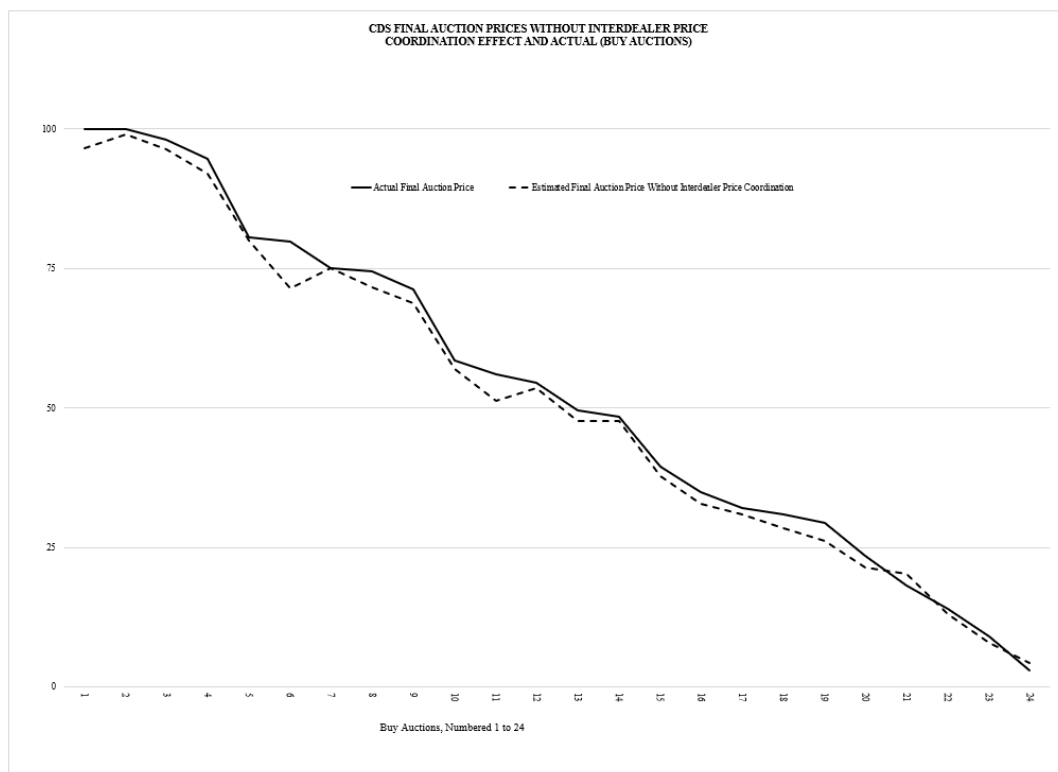
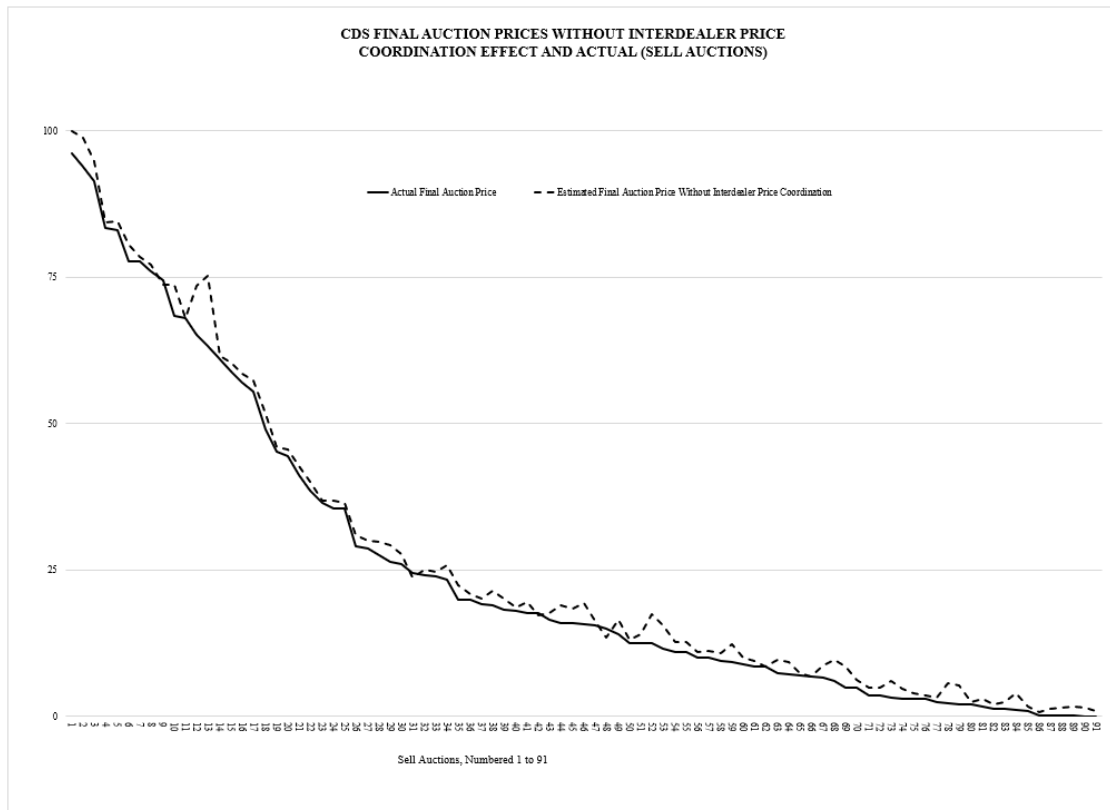
- The Defendant's initial market (from the morning) has a t-statistic of 2.2 and a regression coefficient estimate of 0.20.
- The total limit order quantity at each limit order price has a t-statistic of -5.6 and a regression coefficient estimate of -0.40.
- The net open interest has a t-statistic of -7.8 and a regression coefficient estimate of -6.8.
- The direction of the auction has a t-statistic of 20.8 and a regression coefficient of 8.6.
- The initial market midpoint has a t-statistic of 8.3 and a regression coefficient of 0.70.
- The variable that Plaintiffs' model uses to detect price-fixing – the extent to which the relevant side of the dominant Defendant's initial market deviates from the initial market midpoint – has a t-statistic of 15.6 and a regression coefficient of 1.01.

326. The regression coefficient for the dominant Defendant's initial market variable (1.01) means that the dominant Defendant's initial market predicts the non-dominant Defendants' limit orders, controlling for the other factors those Defendants would rely on, like the net open interest and their own initial market. The positive coefficient of 1.01 means that the dominant Defendant's skew in its initial market away from the initial market midpoint (the explanatory variable) predicts the direction and magnitude of the other Defendants' limit orders (the dependent variable).

327. Like Plaintiffs' prior model, *see* Section IV.B.3.b *supra*, the t-statistic and level of significance (the likelihood that a result is due to random chance) are calculated by the model. The t-statistics for each of these variables far exceed the threshold for being statistically significant at

the 0.01 level (the 1% error rate). The t-statistic calculated by the model is 15.6 for the dominant Defendant's initial market variable. This t-statistic indicates that the degree in the dominant Defendant's skew of its initial market away from the initial market midpoint predicts the *other* Defendants' limit orders with such precision that this result has *a less than one-in-ten thousand probability of occurring by random chance* (or: *less than a .01% error rate*). This is strong evidence that the dominant Defendant's initial market *causes* the other Defendants to skew their limit orders in the same direction and to the benefit of the dominant Defendant.

328. Plaintiffs' model can quantify the effect that Defendants' collusive skewing of their limit orders (represented by their dominant Defendant's initial market explanatory variable) has on the final auction price, and show what the final auction price would look like if Defendants' limit orders were not skewed as a function of the dominant Defendant's initial market in both sell and buy auctions:



329. That the regression coefficient of the total limit order quantity variable is negative is logical and demonstrates the robustness of Plaintiffs' model. It is negative because it has an inverse relationship with the limit order price, *i.e.*, it reflects a rational economic assumption that a limit order to purchase a larger volume of bonds will have a corresponding lower price.

330. That the regression coefficient of the net open interest variable is negative is similarly logical and demonstrates the robustness of Plaintiffs' model. It is negative because it has an inverse relationship with the limit order price, *i.e.*, it reflects a rational economic assumption that a larger, positive net open interest is a greater supply of bonds, and as a result auction participants will submit progressively lower limit order prices to clear the supply – and, conversely, a larger, negative net open interest is a greater excess demand, and as a result auction participants will submit progressively higher limit order prices to clear the excess demand.¹²⁰

331. Plaintiffs' model has an R-squared of 0.94, meaning that the six variables in Plaintiffs' model explain 94% of the variation in the non-dominant Defendants' limit order prices.

332. Plaintiffs' model is based on reliable, accurate, complete, and appropriately representative data. It uses 3,720 limit orders across 115 auctions, representing more than 60% of all CDS auctions. Plaintiffs' model incorporates a cross-section incorporating all CDS auctions from 2005 through 2020, and thus covers auctions over time and throughout the Class Period. The dataset includes both “buy” (25) and “sell” (90) auctions; given that most auctions are “sell” auctions, the dataset appropriately includes more “sell” auctions than “buy” auctions.

¹²⁰ The net open interest is entered in the model as a positive value when the auction direction is “sell” and as a negative value when the auction direction is “buy.”

333. Limit orders are each submitted only by dealers and are controlled only by dealers. Non-dealers can request to submit limit orders to a dealer, but the rules of each auction (decided on by Defendants) permit each dealer total discretion in what it can do with a client's request to submit a limit order. A dealer can combine a client's request for a limit order with *its own* limit order or even refuse to accept a request for a client limit order.¹²¹ The rules of the auction do not obligate any dealer to submit any client limit order, or to submit any client limit order at the price the client wants to submit it. Indeed, Plaintiffs' investigation has uncovered that the Defendants regularly use client limit order information to manipulate their own submitted limit orders, using tricks to generate artificial profits from confidential client information. *See infra* ¶¶ 361–62. Information about client requests for limit orders and how those orders were treated by Defendants are solely in the possession of Defendants.

334. The econometric analysis of Defendants' limit orders thus shows that Defendants are routinely and systematically identifying a very specific piece of purportedly secret pricing information – the extent to which the dominant Defendant's initial market deviates from the initial market midpoint – and coordinating their own limit orders in response to that information, with the effect of artificially skewing the final auction price towards the dominant Defendant's pricing preference (most frequently, downward).

¹²¹ *E.g.*, 2020 The Neiman Marcus Group LLC Credit Derivatives Auction Settlement Terms, at 7–8 (May 22, 2020) (“The Participating Bidder may, but is not obliged to, take into account in one or more of its Limit Order Submissions any Customer Limit Order Submission submitted to it in accordance with this Section 10 of these Credit Derivatives Auction Settlement Terms, provided that if a Participating Bidder, for any reason, decides not to accept a Customer Limit Order Submission from a customer, such Participating Bidder shall promptly notify such customer of such decision.”).

335. When analyzed together with Plaintiffs’ model analyzing Defendants’ initial markets, the findings of both analyses are stark, consistent, supported by a wealth of data, and statistically rigorous. This is strong evidence that the other Defendants learn the dominant Defendant’s purportedly secret initial market and skew their own initial markets and limit orders in response – typically downward, so as to drive the final auction price to an artificially low level.

C. Additional Factors Show the Defendants’ Conspiracy to Manipulate the Final Auction Price

1. Led by Goldman Sachs, JPMorgan, and Deutsche Bank, Defendants Intentionally Designed the Auction as a Collusive Process

336. Defendants’ control of the auction process is critical to the success of their collusive price manipulation scheme. That control was ensured by the three (3) Defendants who subsequently became the most dominant participants in the CDS auctions and the most significant beneficiaries of Defendants’ bid-rigging and price-fixing conspiracy – Goldman Sachs, JPMorgan, and Deutsche Bank.

337. Defendants created the auction process in 2005, using a trade association they largely controlled through their seats on its board of directors – ISDA – to “hard-wire” the auction process into the CDS market infrastructure, making it the predominant settlement mechanism for the entire CDS market. They did this by publishing rules that dictated that CDS contracts must settle via reference to the CDS final auction price.

338. Credit default swaps and Defendants’ behavior in that market were at the center of the 2008 financial crisis.¹²² The Financial Crisis Inquiry Commission found that “dramatic failures

¹²² See Testimony of Michael Greenberger, “The Role of Derivatives in the Financial Crisis,” Financial Crisis Inquiry Commission, at 11 (June 30, 2010) (“It is now almost universally accepted that the unregulated multi-trillion dollar OTC [over-the-counter] CDS market helped foment a mortgage crisis, then a credit crisis, and finally a ‘once-in-a-

of corporate governance and risk management at many systematically important financial institutions [including Defendants] were a key cause of” the 2008 financial crisis.¹²³ Timothy Geithner, then-President of the Federal Reserve Bank of New York, insisted that the Defendants and ISDA defuse CDS market systemic risk by restructuring the entire CDS market to include central clearing.

339. Even as they acceded to Mr. Geithner’s demands, Defendants worked out of the view of regulators to protect their dominance in the CDS market and enshrine their control over the auction process. They advised Mr. Geithner that, as part of their effort to mitigate systemic risk in the CDS market, that they would incorporate the auction process that Defendants had developed into the standardized ISDA contracts that are used to trade CDS. They described this to Mr. Geithner as a mechanism to “improv[e] Credit . . . Derivative market participant practices,” and – importantly – they told him that “[p]articipation will be broadened as soon as possible to include other interested market participants” in the auctions and auction formation process.

340. This was not accurate. Rather than broaden auction participation to non-dealers, Defendants formed a dealer-only “working group” whose membership was dominated by Defendants Goldman Sachs, JPMorgan, Deutsche Bank, Citi, Morgan Stanley, Bank of America, Credit Suisse, and RBS. ISDA chaired the dealer working group. While the dealer working group met multiple times a week for several months between the Fall of 2008 and March 2009, it had no formal name and its formation was not publicized. The group’s meetings were not public and not

century’ systemic financial crisis that, but for huge U.S. taxpayer interventions, would have in the fall of 2008 led the world economy into a devastating depression.”).

¹²³ See Financial Crisis Inquiry Commission, “The Financial Crisis Inquiry Report,” at xviii (Jan. 2011) (rev. Feb. 25, 2011).

open to other market participants. No regulator was a member of the group, and meetings were not attended by regulators.

341. Control over the CDS settlement process was important because the stakes for Defendants were (and remain) high. When a CDS contract is triggered by a credit event, there can be millions of dollars at stake *per contract*. If the CDS on a particular reference entity is heavily traded, the amount of money changing hands can be in the billions of dollars. In some years, such as 2008, 2009, or 2020, there can be over a dozen credit events – which can mean *billions* of dollars changing hands at CDS settlement, sometimes even on only a handful of auctions.¹²⁴ As the primary market makers in CDS, Defendants know this.

342. In the glare of the 2008 financial crisis, Defendants were careful to make it appear as though the working group’s work was non-controversial: the product of purported market consensus and an ostensibly neutral trade association, ISDA.

343. The reality was different. ISDA published the Determinations Committee and auction governing documents as if they were its own, but they were Defendant-only work product: the draft was authored by Mr. Chul Chung, a credit executive at Goldman Sachs, and made clear from the outset that dealers would dominate both the Determinations Committee, which decided whether to hold auctions and the rules for each auction, and the auctions themselves, which decided the benchmark price that would determine the settlement value of CDS contracts market-wide.

344. The dealer working group was an inside club of Defendants run by the most powerful three (3) dealers, who are the three (3) most dominant players in the CDS auctions. Those Defendants’ representatives on the working group – Mr. Chung (Goldman Sachs), Mr. Athanassios

¹²⁴ See Katie Linsell, “Coronavirus Tips Odds in \$4 Billion Bet Against Troubled Firms,” *Bloomberg* (April 17, 2020).

Diplas (Deutsche Bank), and Mr. Thomas Bennison (JPMorgan) – would frequently meet among themselves privately to make the most important decisions about how the CDS auction process would work, who would get to participate, and what the settlement rules would look like. They did so without regard to the interests of non-dealer market participants, or even non-defendant dealers. Instead, they were focused on the interests of the “dealer community” – themselves. Once the three (3) reached consensus, they would propose those rules to the other members of the dealer working group, who would discuss the rules and rubber stamp them.

345. The dealer working group was comprised of many of the Defendants in this case and had no non-dealer representatives on it. ISDA formed a non-dealer working group to discuss the auction rules, comprised of representatives of the “buy-side,” *i.e.*, hedge funds, corporations, asset managers, and other non-dealer market participants. Defendants ensured that the non-dealer working group was expressly “advisory,” that it had no power, and that it had no voice. Contrary to the Defendants’ representations to Mr. Geithner and regulators, participation in the auction process was not broadened to include other market participants. The process was controlled entirely by Defendants and the auction process was made into a dealer-only club.

346. After Defendants wrote the auction protocol rules, they presented them to the non-dealer working group as the final version. When the non-dealers pushed back against some of the auction rules, Defendants closed ranks: several heated phone calls between the non-dealers and Defendants took place, but Defendants refused to accept meaningful feedback on the auction rules, ultimately telling the non-dealer working group that their auction proposal was not up for negotiation. The non-dealer working group had no choice: if they wanted to continue to receive

financial services from Wall Street and access to CDS liquidity from the only providers of that liquidity (Defendants), then they had to accept the terms.

347. Ultimately, Defendants steamrolled any opposition from the non-dealer working group and implemented their “hard-wiring.” Today, over 99% of CDS are settled via reference to the CDS auctions.

348. At the dealer working group, Defendants reached certain anticompetitive agreements.

349. ***First, Defendants agreed that only Defendants would be permitted to be direct participants in the auctions.*** There is no competitive justification for this agreement. Non-dealers are capable of being direct participants in the CDS auctions, and Defendants’ exclusive status as direct participants in the auction does not yield any pro-competitive benefits for the CDS market or the auction process.

350. ***Second, Defendants reserved for themselves the right to vote on who could be permitted to be a direct participant in the auction.***¹²⁵ A non-dealer who wants to be a direct participant in an auction may do so only if the dealer members of the Determinations Committee (which has always been entirely or nearly entirely Defendants) vote to allow it. In practice, no non-dealer has ever been a direct participant in any auction. Non-dealers know better than to even

¹²⁵ See ISDA, Inc., Form of Credit Derivatives Auction Settlement Terms § 1 (stating that Participating Bidders in the auction are the dealers and “any other institution that submits . . . a Participating Bidder Letter that . . . is approved by the relevant Convened DC pursuant to Section 3.2(b)(iii) of the” Credit Derivatives Determinations Committees Rules set out in Annex A to the March 2009 Supplement); Annex A – Credit Derivatives Determinations Committees Rule 3.2(b)(ii) (“The Global Dealer Voting Members and Regional Dealer Voting Members of a Convened DC shall Resolve, for each Auction, by a Majority . . . whether an institution (other than a Global Dealer Voting Member or a Regional Dealer Voting Member) that submits a Participating Bidder Letter with respect to an Auction will be permitted to act as a Participating Bidder for purposes of the relevant Auction[.]”).

ask. They know (and have known) that making such a request would be unsuccessful and would likely trigger retaliation from Defendants, such as by withholding liquidity or putting a client “in the box.”¹²⁶ There is no competitive justification for this agreement. Non-dealers are just as capable as Defendants of assessing whether a market participant can serve as a direct participant in the auctions. The only justification is to ensure that Defendants have the exclusive say in who may participate in what is otherwise a Defendant-only club of auction direct participation.

351. ***Third, Defendants agreed that only Defendants could submit initial markets.***

No non-dealers are permitted to make the two-way price submissions in the morning session of the auction that are used to calculate the initial market midpoint. Given the significance of the initial market midpoint – it is used to calculate the floor or ceiling for the final auction price – the Defendants’ agreement serves to preserve their control over the final auction price by excluding non-dealer rivals from the process that generates the initial market midpoint and shapes the final auction price. There is no competitive justification for this agreement. Given that the inside market submissions are supposed to be a price valuation mechanism for bonds,¹²⁷ any non-dealer CDS market participant can assign a market-based value to those bonds; indeed, non-dealer CDS market participants can trade bonds in the bond market with Defendants the day before the auction and the day after.

352. ***Fourth, Defendants agreed that non-dealers could participate in the PSR and limit order phases of the auctions, but only through Defendants.*** When a non-dealer wants to

¹²⁶ Defendants would sometimes place market participants “in the box,” effectively starving them of liquidity or business as a punishment for their recalcitrance.

¹²⁷ See Deutsche Bank Research, “Credit default swaps: Heading towards a more stable system,” at 18 (Dec. 21, 2009) (“In a first step, participants are asked to submit a bid price as well as an offer price at which they are willing to trade the bond.”).

submit a limit order or a physical settlement request into an auction, it cannot access the auction on its own, but instead must ask a Defendant to submit a limit order or PSR into the auction. This ensures that the Defendant receives advance, insider knowledge of the non-dealer client's identity, the price at which it wants to trade, the quantity that it is looking to trade, the types of bonds it wants to trade, and its preferred timing for the trade – all of which is competitively sensitive information. And if *multiple* non-dealer clients request to submit physical settlement requests or limit orders into an auction through a Defendant, that Defendant then has a tremendous amount of advance, insider knowledge about the CDS market. And importantly: while non-dealers can request to submit limit orders to a dealer, the rules of each auction (decided on by Defendants) permit each dealer total discretion in what it can do with a client's request to submit a limit order and do not obligate any dealer to submit any client limit order, or to submit any client limit order at the price the client wants to submit it. A dealer can combine a client's request for a limit order with *its own* limit order if it wants or flat out refuse to accept a request for a client limit order.¹²⁸ There is no competitive justification for this agreement. Non-dealer market participants are equally capable of conducting their auction-related participation without Defendant intermediation.

353. ***Fifth, Defendants agreed to structure the Determinations Committee with ten (10) seats for Defendants and five (5) seats for non-dealers, so that it would always be***

¹²⁸ *E.g.*, 2020 Argentine Republic Credit Derivatives Auction Settlement Terms, at 8 (June 10, 2020) (“The Participating Bidder may, but is not obliged to, take into account in one or more of its Limit Order Submissions any Customer Limit Order Submission submitted to it in accordance with this Section 10 of these Credit Derivatives Auction Settlement Terms, provided that if a Participating Bidder, for any reason, decides not to accept a Customer Limit Order Submission from a customer, such Participating Bidder shall promptly notify such customer of such decision.”).

majority-controlled by Defendants. This ensured that the voice of the “dealer community” would always be disproportionately represented in the key decisions about the credit event process and the auctions. There is no competitive justification for this agreement. Defendants are not somehow more important CDS market participants than non-dealers. Defendants are not more capable members of the Determinations Committee. They have no skill or expertise that makes them worth double the number of seats on the Determinations Committee versus non-dealers.

354. The intent and cumulative effect of these agreements was to create a system that is prone to collusion by virtue of the amount of disproportionate power Defendants have over the auction process. The incentives created by this structure made the auction process particularly ripe for collusion and manipulation. Independent academics who have studied the auctions – including the current Director of the Division of Trading and Markets at the U.S. Securities and Exchange Commission – acknowledge that Defendants’ exclusive power over the CDS auctions, combined with their profit incentives in managing their own CDS trading positions, creates “[m]anipulation incentives” similar to LIBOR and that the LIBOR scandal demonstrates “are too strong to resist.”¹²⁹

2. Defendants’ Sharing of Price Information Through Bloomberg

355. The Bloomberg terminal is the dominant tool on Wall Street that Defendants use for messaging, research, and trading.

¹²⁹ See Songzi Du and Haoxiang Zhu, “Are CDS Auctions Biased and Inefficient?” *The Journal of Finance*, at 2612 (Dec. 2017) (“Manipulation incentives like these are more than theoretical possibilities. A close analogy relates to LIBOR [S]imilar to the CDS auction setting, the LIBOR panel banks’ profits and losses from their own derivatives books depend on LIBOR, so the LIBOR fixing method induces strong manipulation incentives. Unsurprisingly, manipulations of LIBOR have happened, and the banks involved in the scandals have paid billions of dollars in fines.”).

356. For years, Defendants have been able to access each others' pricing on CDS and bonds to clients through a "back door" in the Bloomberg system.

357. The back door works like this: inside each Defendant's credit derivatives business are different "desks." There is the "sell-side" desk, the traditional CDS "dealer" market-making desk that provides liquidity to clients like pension funds and asset managers. There are also, however, "buy-side" desks at each of the dealer banks, *e.g.*, structured credit and/or correlation trading desks, that are *clients of other Defendants'* CDS market-making desks. Because all those desks are housed at each Defendant under the "credit derivatives" business, Bloomberg treats those desks as one business – and so a trader on a Defendant's CDS market-making desk can quickly access in real-time all the pricing that a trader on the same Defendant's buy-side structured credit desk was receiving from *other Defendants*.

358. Defendants have been alerted to this improper channel for sharing of real-time pricing information. It was against each Defendant's policies and codes of conduct to obtain this type of real-time access to competitor pricing, particularly given that Defendants are horizontal competitors in the CDS market-making business.

359. Notwithstanding this, Defendants have been exploiting this information flow for years, enabling them to quickly cross-check their own pricing to clients with the pricing of their competitor Defendants in real-time, knowing that each Defendant can do the same thing at the same time with the same information flow. At no time have Defendants segregated or walled off the information that their market-making desks could receive from their "buy-side" desks, intentionally leaving wide open the channel for Defendants' traders to use to improperly share pricing information among themselves.

3. Defendants' Common Motives

360. *First*, Defendants tend to be buyers of CDS protection on those bonds that are up for auction. Researchers at the Federal Reserve Bank of Richmond, for example, tested whether Defendants' own CDS positions provided an incentive for them to manipulate the auction price downward (in "sell" auctions) and upward (in "buy" auctions). In doing so, the researchers accessed Defendants' confidential trading data as reported to the central repository for CDS trades, the Depository Trust & Clearing Corporation ("DTCC"), and found that "dealers own protection on average" on auction reference entities, that sometimes the "dealers have very large positive positions" (meaning: they buy protection), and that the positions were large enough that some Defendants "have incentive to manipulate the auction price downward when the NOI is positive[.]"¹³⁰ That some Defendants are net purchasers of protection on auction names is consistent with the broader market understanding that Defendants are generally net protection buyers.¹³¹

361. *Second*, even if some Defendants do not benefit in a particular auction from driving the final auction price up or down, Defendants share a common motive to protect their privileged status as the exclusive gatekeepers to the auction. With this status, Defendants gain inside information – who is trading what in the auction, and at what price and what quantity – and use that inside information to obtain advantages in the auction or windfall trades, as demonstrated in the following examples.

¹³⁰ Erica Paulos, Bruno Sultanum, and Elliot Tobin, "CDS Auctions: An Overview," *Federal Reserve Bank of Richmond: Economic Quarterly*, at 130 (2Q 2019).

¹³¹ See, e.g., Iñaki Aldasoro and Torsten Ehlers, "The credit default swap market: what a difference a decade makes," *BIS Quarterly Review*, at 2 (June 2018) ("Reporting dealers continue to be net buyers of CDS protection (\$258 billion at end-2017).").

a. **Strategically Sharing Client Information.** Defendants strategically share client information to win business from clients, to gather intelligence from other market participants, and to generate anticompetitive trading profits at the expense of their non-dealer clients.

b. **Improper Allocation of Deliverable Obligations.** With their power as the exclusive gatekeepers to the auction, Defendants improperly allocate deliverable obligations to clients post-auction, so as to generate supra-competitive, risk-free auction profits. Because they are the exclusive intermediaries between clients and the auction, when Defendants complete a trade for the benefit of a client, Defendants pick off any good bonds for themselves or their friends and substitute lower quality bonds to send off in their place to downstream counterparties. For Defendants, this yields a perfect, risk-free, artificial, and anticompetitive trading windfall – and it does so solely by virtue of Defendants’ cartel agreement to make themselves the exclusive gatekeepers to the auction.

c. **Front-Running Clients.** Defendants can use the information they obtain through their status as the exclusive gatekeepers to the auction to trade ahead of clients who submit limit orders into the auction. Because Defendants are the exclusive auction gatekeepers, they can each learn when a non-dealer client wants to submit limit orders or physical settlement requests into the auction. Defendants share that information with their respective market-making desks – which then adjust *their own* physical settlement requests, inside market submissions, or limit orders to counteract that information or exploit it. The effect of Defendant’s adjustment is to manipulate the final auction price so that it does not accurately reflect economic conditions.

362. For example, when a client asks to submit a physical settlement request, it does so in advance of the auction. That information is shared with Defendant's CDS market-making desk – because a trader on that desk is the one who has to input that information into the auction. That trader can then change *Defendant's own* physical settlement request – so as to drive the auction in a particular direction that favors it, or to manage the size of the net open interest, which can have a material impact on the final auction price.

4. The High Degree of Interdealer Communication in the CDS Market

363. There is a high degree of interdealer communication about and around the CDS auctions, providing the opportunity for Defendants to collude.

364. As described above, *see* Section *supra* ¶¶ 343–46, Defendants created the auction process and then hard-wired it into the market infrastructure via a dealer-only working group that was dominated and led by representatives from Goldman Sachs, JPMorgan, and Deutsche Bank.

365. Defendants each have (or have had) seats on the Determinations Committee, where material, non-public information about the auctions and the bonds that were the subject of the auctions were shared between and amongst Defendants. This includes, for example, information about the other Defendants' CDS positions, information about the bonds that will be up for auction, information about secret straw poll results, and other information that Defendants use to the advantage of their trading position in the weeks and days before the auction. *Supra* ¶¶ 27–28.

366. Further, the CDS market-making industry is a small club of traders who spend their careers migrating from bank to bank. They know each other, speak with each other often, and socialize with each other. They attend social events together – including, for example, up to fifty

(50) different events during the holiday season alone where traders meet with each other, drink with each other, and talk about the market.

367. Defendants' sharing of market information, confidential client information, and pricing information has been (and remains) a common practice. Defendants rely on each other for information and expect it of one another. That expectation creates an interdependence amongst them – a Defendant trader who asks another for information knows that, in the future, the request will be returned in kind and satisfied.

368. Traders communicate with each other over email, Bloomberg, WhatsApp, text, and mobile phone, as well as in-person. They have migrated to communications that cannot be audited. In December 2021, for example, JPMorgan was fined \$200 million because traders and even compliance personnel at the bank were as a matter of practice discussing sensitive business matters via unapproved, personal communication devices. *See supra* ¶ 26. In 2020, JPMorgan fired one of its lead CDS/bond traders – who had been with the firm for twenty (20) years – after he created a WhatsApp group and used it “to discuss market chatter with other trading employees.”¹³² “Market chatter” is often a euphemism for insider discussions about confidential and commercially sensitive information, including and especially information from competitors. *See also supra* notes 2–4.

369. The high degree of interdealer communications between Defendants is also a product of their level of organization as a bloc. Defendants acted as a bloc on the Determinations Committee, at ISDA Board of Directors meetings, on the dealer-only working group that created

¹³² *See* Michelle Davis and Sridhar Natarajan, “JPMorgan Fires Credit Trader and Cuts Staff Bonuses for WhatsApp Use,” *Bloomberg* (April 8, 2020) (stating that WhatsApp is encrypted, can’t be easily monitored by compliance departments, and that other traders followed Koo’s lead in using the WhatsApp group).

the rigged auction process, on the Markit Board of Directors, in taking a stake in Creditex, and in pushing non-dealer clients to accept the auction process as the now near-universal method for settlement of CDS contracts. This level of organization and coordination deters others – like non-Defendant dealers and non-dealer clients – from objecting to Defendants’ tactics and relentless coordinated promotion of their collective interest. And because Defendants collectively control nearly all CDS market liquidity, no individual entity is willing to take the risk of alienating them for fear of being starved of that liquidity or facing other forms of retaliation.

370. The level of coordination and attendant secretive information sharing between these Defendants rises to the very top of each Defendant’s corporate hierarchy and is ingrained in their workplace cultures. The general counsels of these banks have met secretly in places like Versailles to discuss, for example, how to circumvent private antitrust enforcement actions like this one.¹³³ In keeping with their preference for secrecy, when *Bloomberg* reported on one such meeting, “some members of the group complained to one another about a breach of confidentiality.”¹³⁴

5. Defendants Acted Against Their Economic Self-Interest

371. Defendants’ sharing of competitively and commercially sensitive information with one another is against their economic self-interest. Rather than sharing that information with each other, their economic self-interest should be to use it to gain an advantage on one another.

¹³³ See Greg Farrell and Keri Geiger, “Inside the Secret Society of Wall Street’s Top In-House Lawyers,” *Bloomberg* (Oct. 14, 2016) (“This year, according to two of the people, some attendees arrived at the marble and gilded hotel primed to focus on a common scourge: class-action lawyers who seek billions of dollars from top banks for alleged market manipulations and related bad behavior. Eric Grossman, chief legal officer at Morgan Stanley, implored his confederates to hang together and resist the temptation to settle quickly.”)

¹³⁴ *Id.*

372. Moreover, Defendants’ decision to keep the auction process as a dealer-only club – a club for Defendants – despite the substantial regulatory and antitrust concerns is also contrary to their economic self-interest. This is particularly true given the substantial fines imposed in the LIBOR, FOREX, and ISDAfix benchmark manipulation scandals.

373. Furthermore, Plaintiffs’ econometric model shows that the non-dominant Defendants’ initial markets are a function of the dominant Defendant’s skew of its initial market away from the prior day’s cheapest-to-deliver bond price. *See* Sections IV.B.3.b and c *supra*. Plaintiffs’ model includes auctions where the dominant Defendant is on the opposite side of the net open interest, *i.e.*, where the dominant Defendant has a large physical settlement to sell and the net open interest is to buy (and vice versa).¹³⁵ It also includes auctions where the Defendants’ physical settlement requests are on the opposite side of the dominant Defendant’s physical settlement request, indicating that they have contrary financial interests (protection buyers versus protection sellers).

374. Notwithstanding the inclusion of these two sets of auctions, Plaintiffs’ model consistently shows that the Defendants’ initial markets are nonetheless explained by the skew in the dominant Defendant’s initial market away from the prior day’s cheapest-to-deliver bond price.

6. Certain Dealers Have Discontinued their Determinations Committee Membership and Participation in the Auction Process for Fear of Antitrust and Regulatory Audits

375. The auction process and Defendants’ information sharing in and around the auction raises several antitrust and regulatory “red flags” observed by ISDA and the Defendants.

¹³⁵ Because a dealer’s physical settlement request in any auction is constrained by the dealer’s actual CDS position, a dealer who (for example) submits a “buy” physical settlement request in a “sell” auction has CDS positions that place that dealer’s interests in an opposite direction from the dominant dealer’s CDS position.

376. *First*, the dealers have used (and continue to use) the Determinations Committee meetings to exchange material, non-public information. The information is not shared with the public at all, and it is price-sensitive – meaning it could directly impact market participants’ views of the price of the auction bonds and eventually the final auction price. Defendants’ representatives on the Determinations Committee share this material, non-public information with their CDS market-making desks. The market-making desks then use that information to trade ahead of non-dealer clients.¹³⁶ Indeed, some Defendants’ Determinations Committee representatives have called in from their trading floors.

377. *Second*, Defendants know that the auction process’ exclusion of non-dealers as direct participants is unjustified by law, policy, or market forces, and has instead served the purpose of preserving Defendants’ role in the CDS settlement process as the exclusive recipients of client order flow information – which they trade on to the detriment of clients. That Defendants bestowed upon themselves the right to vote on whether non-dealers may be direct participants in any auction is an indication of the extent to which Defendants want to preserve their status as exclusive auction gatekeepers.

378. *Third*, the credit event process as a whole is insufficiently transparent, causing much of this misconduct to happen in largely private forums.

¹³⁶ See Federal Trade Commission and the U.S. Department of Justice, “Antitrust Guidelines for Collaborations Among Competitors,” at 15 (April 2000) (“[T]he sharing of information related to a market . . . in which the participants are actual or potential competitors may increase the likelihood of collusion on matters such as price, output, or other competitively sensitive variables. . . . Other things being equal, the sharing of information relating to price, output, costs, or strategic planning is more likely to raise competitive concern than the sharing of information relating to less competitively sensitive variables.”).

379. ISDA has abdicated its responsibility by refusing to police Defendants or even entertain reforms that would bring more transparency to the CDS auction and settlement process. ISDA does not have the leverage or the will to require Defendants – its biggest and most powerful members – to alter the manner in which they structure the CDS settlement process or participate in the CDS auctions. It is and always has been a front organization for Defendants, bestowing the appearance of legitimacy on what is actually an organization that serves only the interests of “the dealer community.”

380. Notwithstanding the abdication of its responsibility to serve as an advocate for financial market participants as a whole, rather than the dealer community, *ISDA itself* has sought to camouflage its role on the Determinations Committee, presumably out of fear that it would be swept into a regulatory action.

381. Multiple dealers who formerly were Determinations Committee members – such as RBS, HSBC, UBS, Nomura, Morgan Stanley, and Société Générale – have not continued their Determinations Committee membership. Certain of these dealers elected to discontinue their Determinations Committee membership, and their associated direct participation in CDS auctions, due to similar liability concerns after the substantial regulatory crackdown following the LIBOR and FOREX scandals. Indeed, for the past two years, the Determinations Committee has operated with only nine dealer members, down from the ten voting dealer members (and additional consultative dealer members) when the Determinations Committee was first established, and below the ten voting dealer members contemplated by the Determinations Committee rules.

7. Defendants Contemporaneously Used the Same Modus Operandi to Collusively Manipulate Other Financial Markets

382. At the time of Defendants' conspiracy, the same Defendants were engaged in an ongoing pattern of similar antitrust and market manipulation violations using similar tactics in parallel markets. The specific conduct identified in this case – with Defendants structuring critical market infrastructure processes with themselves as the gatekeepers, excluding non-dealer rivals, using liquidity to force the market to adopt its preferred market infrastructure processes, and coordinating pricing behavior to manipulate benchmark prices to profit their own positions – is similar to conduct in other cases.

a. In the **LIBOR** scandal, for example, government investigations revealed that rather than submitting honest, expected borrowing costs, the banks instead submitted deliberately false quotes for the purpose of manipulating the published LIBOR rate, similar to the allegations here involving Defendants' auction submissions. The governmental investigations have resulted in both criminal and civil fines.¹³⁷

b. In the **FOREX** scandal, the banks, with customer information in hand, would move prices in a particular direction and the colluding banks would equip each other with the tools to do so. Again, prosecutors and regulators imposed substantial fines on the banks for engaging in conduct like that present in the CDS auctions – banks relying on their access to client information to trade on that information, and then share that information with other banks to drive prices in a direction that favors Defendants.¹³⁸

¹³⁷ See Nicole Hong, "Banks Dealt Blow in Libor Lawsuits," *The Wall Street Journal* (May 23, 2016).

¹³⁸ See Aruna Viswanatha, "Banks to Pay \$5.6 Billion in Probes," *The Wall Street Journal* (May 20, 2015).

c. Antitrust regulators are investigating the banks' conduct in setting the benchmark prices of precious *metals*. Like the CDS auction, "prices for gold, silver, platinum and palladium were set using a decades-old practice of once- or twice-a-day conference calls between a small group of banks," and that process prompted government antitrust investigations and regulatory scrutiny.¹³⁹

d. In the antitrust investigations and litigation into the *credit default swaps* market from several years ago, the banks were "accused of colluding to prevent exchanges from entering the credit default swaps business from 2006 to 2009" by using their collective liquidity to blunt the market's transition towards electronic, all-to-all exchange trading of swaps.¹⁴⁰ This mechanism – using liquidity to push the market towards a structure that favors Defendants – is analogous to Defendants' conduct in forcing market participants to accept the dealer-centric CDS auction process and the final auction price. The subject of the prior CDS antitrust litigation was Defendants' collusive efforts to target and destroy start-up exchanges that would enable non-dealers to compete against Defendants in the CDS market-making business, thereby dismantling their exclusive franchises in the CDS market-making business. Defendants settled the prior CDS antitrust litigation for nearly \$2 billion.

e. Defendants paid hundreds of millions of dollars in penalties to the CFTC, and hundreds of millions more in private lawsuits, arising out of their collusive manipulation of the *ISDAfix*, a benchmark rate for interest rate derivatives. Similar to the conduct Plaintiffs allege

¹³⁹ See Jean Eaglesham and Christopher Matthews, "Big Banks Face Scrutiny Over Pricing of Metals," *The Wall Street Journal* (Feb. 23, 2015).

¹⁴⁰ See Gaspard Sebag and Aoife White, "Swaps Probe Reviewed as EU Said to Weigh New Antitrust Complaint," *Bloomberg Law* (May 14, 2015).

here, Defendants had set up a closed system in which they could trade to drive the benchmark ISDAfix rate up or down based on their own positions.¹⁴¹

383. Defendants’ collusive and manipulative behavior identified in the preceding government and civil prosecutions in the financial markets was happening at the same time as Defendants’ conspiracy in this case. The cases identified above, along with the other ongoing government antitrust and market manipulation investigations, demonstrate that Defendants are corporate recidivists, particularly in markets where there is a “lack of oversight, coupled with the pressure to squeeze profits from a relatively middling business.”¹⁴² This recidivism and penchant for collusive manipulation persists even when Defendants are subject to non-prosecution agreements, deferred prosecution agreements, monitoring agreements, and government-imposed compliance regimes – because the profits of the misconduct and the incentives to pursue those profits greatly outweigh the fear or reality of prosecution, fines, or civil suit.¹⁴³

D. Defendants’ Conduct Constitutes a Per Se Violation of the Antitrust Laws

1. It is a *Per Se* Violation of the Antitrust Laws for the Defendants to Collude to Manipulate a Benchmark Price

384. Defendants’ conduct constitutes a *per se* violation of the antitrust laws. It represents concerted action amongst a group of horizontal competitors to artificially depress (or artificially inflate, in certain auctions) a benchmark price to benefit the horizontal competitors at

¹⁴¹ See Aruna Viswanatha, “Goldman Sachs to Pay \$120 Million to Resolve Benchmark Manipulation Probe,” *The Wall Street Journal* (Dec. 21, 2016).

¹⁴² See Michael Corkery and Ben Protess, “Rigging of Foreign Exchange Market Makes Felons of Top Banks,” *The New York Times* (May 20, 2015).

¹⁴³ See Jed S. Rakoff (Hon.), “Getting Away With Murder,” *The New York Review of Books* (Dec. 3, 2020) (citing and discussing John C. Coffee Jr., *Corporate Crime and Punishment: The Crisis of Underenforcement* (2020)).

the expense of market participants. Defendants' conduct constitutes an agreement by horizontal competitors (Defendants) to rig their bids into the CDS auctions so as to fix the final auction price.¹⁴⁴

385. Defendants' scheme to bid-rig the CDS auctions and ultimately fix the final auction price at artificial and supra-competitive levels directly impacted the dealer-to-client market for credit default swaps, which is a market in which Defendants participate as market-makers, *i.e.*, as buyers and sellers of CDS, to non-dealer counterparties such as pension funds, hedge funds, municipalities, asset managers, and corporations.

386. Defendants are considered horizontal competitors as market-makers in the dealer-to-client market for credit default swaps. They are expected to compete against each other when trading their own proprietary books or the assets and investments of their clients. The integrity of the CDS auctions depends on Defendants competing properly in the auction itself.

387. Instead of competing for client business, however, Defendants and their co-conspirators agreed to restrain trade to pursue collective goals and to manipulate the market by collusion and coordination. This collusive bid-rigging and price-fixing was inimical to competition and restrained trade in the affected market.

388. Defendants and their intermediaries Creditex, Markit, and ISDA represented the CDS auctions to the public as a fair, transparent, and efficient process to establish the final auction price that can be used to settle CDS contracts. But for Defendants' collusive manipulation, the

¹⁴⁴ See Federal Trade Commission and the U.S. Department of Justice, "Antitrust Guidelines for Collaborations Among Competitors," at 8 (April 2000) ("Types of agreements that have been held per se illegal include agreements among competitors to fix prices or output, rig bids, or share or divide markets by allocating customers, suppliers, territories, or lines of commerce.").

auctions were supposed to reflect actual market and economic conditions, and Defendants would submit honest, good faith views of the price of bonds in their initial markets and in Defendants' limit orders.

389. But the Defendants – who have bestowed upon themselves the disproportionate power to shape the key metrics that the CDS auctions produce, including the final auction price – repeatedly colluded to manipulate those metrics and the final auction price. Accordingly, Defendants restrained trade and competition decreased in the market for CDS.

390. Over the last decade, courts have developed substantial experience with the type of restraint at issue here, involving manipulation of a benchmark financial rate by horizontal competitors. In those cases, courts have recognized that there are no redeeming pro-competitive benefits to the type of benchmark manipulation alleged by Plaintiffs. Thus, courts can predict with confidence that the type of restraint identified here – a group of horizontal competitors obtaining exclusive control over a process that generates a benchmark price, and then using that control to coordinate their bids in the process so as to skew the benchmark price to supra-competitively low (or high) levels – would be invalidated in all or almost all instances.

2. Even Under a Quick Look or Rule of Reason Analysis, Defendants' Conduct Violates the Antitrust Laws

391. Defendants' conduct constitutes unlawful information sharing that violates the antitrust laws under a quick look or rule of reason analysis. The anticompetitive effect of Defendants' pervasive information sharing in and around the auction and submission of artificial bids and offers is to artificially skew – typically, deflate – the final auction price to a supra-competitively low level. This artificial skew has the effect of inflating the amount of protection that Defendants are paid under their CDS contracts, providing them with windfall profits on their

CDS positions – or (in other cases) decreasing the amount of protection that Defendants must pay out under their CDS contracts, containing their losses.

a) Defendants Possess Market Power in the Dealer-to-Client CDS Market

392. Defendants’ conspiracy targets the dealer-to-client credit default swap market, which is the relevant antitrust market. The overwhelming majority (approximately 90%) of CDS traded are single-name and index CDS, which are two (2) varieties of a single product (CDS).

393. Hedge funds, pension funds, asset managers, governments, businesses, insurance companies, and other market participants buy and sell CDS covering corporate and sovereign debt from Defendants’ CDS market making desks. They do this to hedge the risk that a bond will default, to generate returns from selling CDS, and to speculate on the creditworthiness of bond issuers. Defendants’ CDS market making desks transact CDS with these “clients” in what is known as the CDS dealer-to-client market.

394. Defendants enjoy overwhelming market power in the dealer-to-client CDS market. They have been the dominant providers of liquidity in the dealer-to-client CDS market since the market first started in the 1990s. While there are a few other CDS dealers, including HSBC, Société Générale, and UBS, Defendants constitute the largest and most prominent CDS dealers and have significantly larger CDS market making businesses than the non-defendant dealers.

395. Defendants’ market power is reflected in their dominant share of the dealers’ market share, *i.e.*, the share of CDS transactions in which at least one (1) dealer is a trading counterparty either as a CDS seller or a CDS buyer. As of September 2019, the dealers (including both non-defendant and Defendant Dealers) were a counterparty in over 95% of all single-name

and over 80% of all index CDS transactions.¹⁴⁵ These numbers have not changed materially over time. Researchers at the Federal Reserve Bank of New York who studied the CDS market's developments after the 2008 financial crisis observed that "[i]n the current market structure, a small set of large dealer participants still dominates transaction volume."¹⁴⁶

396. The relevant geographic market for the dealer-to-client CDS market is global.¹⁴⁷ U.S.-based market participants transact CDS with Defendants' CDS market making desk traders in New York, London, and elsewhere. Because the trading of CDS occurs largely electronically, Defendants can and do transact CDS with counterparties globally.

397. The credit default swap auction is a process within the CDS market. Its function is the production of a financial benchmark, the final auction price, that is used to cash settle CDS contracts across the entire CDS market. In any CDS auction, Defendants are the only permitted direct participants: they are the only ones who make initial markets, they are the only ones who submit physical settlement requests, and they are the only ones who submit limit orders. Other participants who seek to participate in the auction are either not permitted to do so or must participate through the Defendants and only at certain stages – the physical settlement request and limit order stages, specifically.

¹⁴⁵ ISDA, "Global Credit Default Swaps Market Study," at 15 (Sept. 2019).

¹⁴⁶ Nina Boyarchenko, Anna M. Costello, and Or Shachar, "The Long and Short of It: The Post-Crisis Corporate CDS Market," *Federal Reserve Bank of New York: Economic Policy Review*, at 5 (June 2020).

¹⁴⁷ Decision of the European Commission Addressed to Markit Limited, Markit Group Holdings Limited, Markit Indices Limited, Markit North American, Inc., and Markit Group Limited, C(2016) 4585, Case AT.39745 - CDS Information Market, at 8 (July 20, 2016) ("The Commission reached the preliminary conclusion in the Statement of Objections that each of the relevant product markets, OTC-traded unfunded credit derivatives and exchange-traded unfunded credit derivatives, is world-wide in scope."); Decision of the European Commission Addressed to The International Swaps and Derivatives Association, Inc., C(2016) 4583, Case AT.39745 – CDS Information Market, at 7 (July 20, 2016) (same).

398. The auctions are mostly conducted in the United States and run by Markit and Creditex, which both have U.S. offices. Defendants act in furtherance of the conspiracy in the United States and have CDS market making businesses in the United States.

399. Defendants' membership on the Determinations Committee is further evidence of Defendants' market power. The ten (10) dealer members of the Determinations Committee are selected each year "based on aggregate CDS trading volumes . . . assessed by reference to [non-public] market data reported to the DTCC Trade Information Warehouse. Dealer members are selected in accordance with objective criteria based on their overall trading volume and participation in the CDS markets[.]" Thus, that Defendants were members of the Determinations Committee year after year is proof that they had consistently higher aggregate CDS trading volumes than those of their competitor dealers.¹⁴⁸ This is additional proof of Defendants' market power.

400. CDS are not readily substituted or reasonably interchangeable with other financial instruments. CDS replace credit risk (the risk that an issuer defaults) with counterparty risk (the risk that a CDS counterparty cannot pay), a unique feature that clients seek out because it enables differentiation of risk. Additionally, for protection buyers, there is no other way to easily hedge the risk that a bond issuer will default than buying CDS. And for protection buyers who have no underlying bond position, there is no comparable way to speculate on the risk that a bond will default – because there is no short market for bonds. For protection sellers, the coupon payments

¹⁴⁸ Jesse Eisinger, "Swap Market, Like Libor, Is Vulnerable to Manipulation," *The New York Times DealBook* (July 18, 2012) ("The determinations committee has 15 members, 10 of which are the major dealers in credit-default swaps, the giant banks that are effectively permanent members. One criterion for dealer members is that they trade a certain amount of derivatives. After the 2008 financial crisis, there are fewer such firms, and they have consolidated their influence and power over our capital markets.").

they receive are unique to CDS, and are preferred by market participants because they are not determined by interest rates. Because no other financial instrument can replicate the precise exchange of risk that CDS enables while providing these other features to CDS consumers, CDS are not substitutable with any other financial instrument.¹⁴⁹ CDS market participants cannot switch to other products to replicate the unique features of CDS.

401. Because of the lack of readily substitutable products, CDS clients, such as Plaintiffs and the putative class members, are unable to switch to other products if Defendants collusively manipulate the settlement value of CDS contracts in the auctions – *i.e.*, market forces do not substantially constrain Defendants from artificially increasing (or decreasing) the settlement value of CDS contracts.

402. CDS market participants cannot switch to trading CDS with non-Defendants because the final auction price – determined by a process controlled by Defendants – calculates the settlement value of nearly 100% of CDS contracts market-wide, without regard to the identity of the counterparties. In short, switching to trade CDS with non-Defendants would not substantially constrain Defendants from artificially increasing (or decreasing) the settlement value of CDS contracts.

¹⁴⁹ Decision of the European Commission Addressed to Markit Limited, Markit Group Holdings Limited, Markit Indices Limited, Markit North American, Inc., and Markit Group Limited, C(2016) 4585, Case AT.39745 - CDS Information Market, at 8 (July 20, 2016) (“The Commission also reached the preliminary conclusion that there is no demand-side substitutability for OTC-traded unfunded credit derivatives from underlying non-derivative debt instruments such as bonds, loans or mortgage-backed securities, as CDS allow for the separation of credit risk from interest rate risk, can be traded more easily and have lower transaction costs. Nor can CDS be substituted by other classes of derivatives such as interest rates, equity or commodity derivatives, as their risks are not interchangeable with credit risks. . . . The Commission also reached the preliminary conclusion that there is no supply-side substitutability for OTC unfunded credit derivatives because of entry barriers.”); Decision of the European Commission Addressed to The International Swaps and Derivatives Association, Inc., C(2016) 4583, Case AT.39745 – CDS Information Market, at 7 (July 20, 2016) (same).

403. Nor can CDS market participants switch to CDS contracts settled without reference to the final auction price. Defendants refuse to trade CDS with any counterparty who declines to agree to settle their CDS via reference to the final auction price. The market has internalized this practice. Nearly 100% of CDS contracts are settled via reference to the final auction price.

404. CDS market participants cannot trade CDS in other markets. While there is a CDS *dealer-to-dealer* (or “interdealer”) market, that market is closed to non-dealers.¹⁵⁰ The CDS dealer-to-dealer market operates (and historically has operated) through interdealer brokers (“IDBs”) such as Creditex, GFI Group, and ICAP. The interdealer brokers serve as intermediaries that enable CDS transactions between Defendants. Dealer-to-dealer trading happens through a voice broker (over the phone), or via a trading platform operated by the interdealer brokers known as a “central limit order book.” Non-dealers, such as Plaintiffs and the putative Class members, are not permitted to trade in the CDS dealer-to-dealer market. The interdealer brokers refuse to service them out of fear of retaliation by Defendants, who prefer keeping the CDS dealer-to-client and dealer-to-dealer markets bifurcated.¹⁵¹

405. Moreover, non-dealer market participants are deterred from trading in the interdealer market because of threats of retaliation by Defendants.¹⁵² To police this bifurcated

¹⁵⁰ Defendants possess market power no matter how one defines the CDS market. See ISDA, “Global Credit Default Swaps Market Study,” at 15 (Sept. 2019) (stating that dealers are counterparties in 96% of all single name CDS transactions and 81% of all index CDS transactions).

¹⁵¹ See Katy Burne, “CFTC to Propose Swaps Anonymity,” *The Wall Street Journal* (Feb. 16, 2015) (“When broker GFI Group Inc. began rolling out a new trading system a year ago, officials received heated phone calls from executives at Credit Suisse Group AG and J.P. Morgan Chase, said people familiar with the discussions. The banks’ beef: GFI’s system kept traders’ identities a secret, upending the long-held practice on broker-run swaps platforms, where participants typically disclosed their identities. The banks, which use brokers like GFI to line up trades with other banks, contended that allowing nonbanks to trade anonymously could hurt their ability as swaps providers.”).

¹⁵² See Karen Brettell, “Banks’ pressure stalls opening of US derivatives trading platform,” *Reuters* (Aug. 27, 2014) (“Several hedge fund managers that had planned to join GFI’s credit platform received phone calls from multiple

market structure, Defendants require that the interdealer brokers use a practice known as “post-trade name give-up,” which discloses the identity of the counterparties after the CDS trade is executed (the trading is pre-trade anonymous). Post-trade name give-up serves to “out” non-dealers who try to trade in the dealer-to-dealer market. Because non-dealer market participants fear that the Defendants will retaliate against them if they are identified as trading in the dealer-to-dealer market,¹⁵³ post-trade name give-up reinforces the demarcation between the dealer-to-dealer and dealer-to-client CDS markets. Regulators, Defendants’ trade associations, and others consistently recognize that the CDS market, like most derivatives markets, is bifurcated between the dealer-to-dealer market and the dealer-to-client market.¹⁵⁴

b) Defendants and the CDS Market Perceive and Recognize the Dealer-to-Client CDS Market

406. Defendants, academics, and other market participants recognize and perceive the CDS dealer-to-client market. Defendants’ internal documents refer to the dealer-to-client market as the “D2C” market, contrasting it with the “dealer-to-dealer” (or “D2D”) market in which the

banks that indicated that they would stop trading with them or send them unfavorable pricing if they joined an interdealer venue, people familiar with GFI plans said. At least three funds backed away after the calls, which were made in May when GFI was getting ready to add fund managers to its credit platform. People contacted by Reuters declined to speak on the record or name the funds or banks involved, citing retaliation concerns.”).

¹⁵³ See Managed Funds Association, “Why Eliminating Post-Trade Name Disclosure Will Improve the Swaps Market,” at 2 (March 31, 2015) (“A key mechanism suppressing buy-side trading on IDB SEFs [swap execution facilities, *i.e.*, trading platforms] and perpetuating the current two-tier market structure is the legacy practice of post-trade name disclosure.”).

¹⁵⁴ See U.S. Commodity Futures Trading Commission, “Public Roundtable: The Made Available to Trade Process,” at 130 (July 15, 2015) (S. Srinivasan, U.S. CFTC Chief Economist: “So currently we have a bifurcated market structure. There’s the wholesale market and the . . . D-to-C [dealer-to-client] market. And from what we understand the wholesale market is through voice.”).

Defendants trade with only each other. Moreover, academic literature that studies the CDS market recognizes the dealer-to-client market as an identifiable, distinct market.¹⁵⁵

c) The Anticompetitive Effects of Defendants' Information Sharing Practices Demonstrate Their Market Power in the Dealer-to-Client CDS Market

407. The anticompetitive effect of Defendants' unlawful information sharing practices is a supra-competitively low (or high) final auction price. This effect outweighs any potential procompetitive benefits that Defendants can be expected to identify from their information sharing practices. Further, any procompetitive efficiencies Defendants can be expected to identify could be reasonably achieved through less anticompetitive means.

408. Independent academic experts in the financial markets have observed that the final auction prices deviate materially from fair market bond prices. Typically, the final auction price is much lower than the price of the same bonds trading in the bond market. No academics, however, have suggested that collusion explains these outcomes or that Defendants are manipulating the outcomes.¹⁵⁶

409. Plaintiffs' econometric analyses show that this pricing behavior is *manipulation*, and that the manipulation is material, involves Defendants incorporating the purportedly secret

¹⁵⁵ See Pierre Collin-Dufresne, Benjamin Junge, and Anders B. Trolle, "Market Structure and Transaction Costs of Index CDSs," at 1 (Nov. 15, 2016) ("Since its inception in 2003, the index CDS market has operated as a classic two-tiered over-the-counter (OTC) market in which global derivatives dealers provide liquidity to clients in the dealer-to-client (D2C) segment of the market, and dealers trade among themselves in the interdealer (D2D) segment of the market.").

¹⁵⁶ E.g., Mikhail Chernov, Alexander Gorbenko, and Igor Makarov, "CDS Auctions," at 1 (July 20, 2012) (observing that the auction "mechanism may lead to deviations from the fair bond price" and attributing "the mispricing to strategic bidding on the part of investors holding CDS"); Erica Paulos, Bruno Sultanum, and Elliot Tobin, "CDS Auctions: An Overview," *Federal Reserve Bank of Richmond: Economic Quarterly*, at 131 (2Q 2019) ("Our findings concur with theirs and indicate that CDS auction prices are being manipulated in the downward direction when the NOI is to sell. Finally, we use regulatory data on CDS positions from the DTCC to demonstrate that dealers sometimes hold CDS positions significant enough to provide incentive to manipulate the auction.").

pricing submissions of their *competitor Defendants*, and that the impact of this manipulative pricing results in artificial final CDS prices (typically suppressing the final auction price downward). The effect of supra-competitively low final auction prices is to cause Plaintiffs and the putative Class members to pay more money to Defendants than they would have under their CDS contracts but for Defendants' collusive price manipulation. In other circumstances, Plaintiffs have shown that the final auction price is skewed upward. The effect of supra-competitively high final auction prices is to cause Plaintiffs and the putative Class members to receive less money than they would have under their CDS contracts but for the Defendants' information sharing and price coordination.

410. That Defendants can artificially suppress (or inflate) the final auction price in a material way is further indication of their market power in the CDS dealer-to-client market. Because the final auction price is the sole variable that determines the settlement value of CDS contracts, Defendants' demonstrated ability to manipulate that variable and the settlement value of all CDS contracts market-wide shows the extent of Defendants' market power in the dealer-to-client CDS market. Defendants use their market power to influence the relevant market, particularly at key times such as in and around the auction process, when their submissions directly influence the initial market midpoint and the final auction price. *See supra* ¶¶ 239-54.

d) The Dealer-to-Client CDS Market is Susceptible to the Exercise of Market Power

411. Several features of the CDS dealer-to-client market demonstrate that it is susceptible to Defendants' exercise of market power.

412. First, the dealer-to-client market is concentrated. Defendants in this litigation constitute all of the major CDS dealers in the United States and abroad. Market concentration

among Defendants has grown over the years due to the exit of Lehman Brothers, Merrill Lynch (which was acquired by Bank of America), and Bear Stearns from the market as CDS market makers. Because CDS market making requires significant capital and the ability to warehouse risk, and because Defendants have historically blocked competitors from entering the CDS market making business,¹⁵⁷ non-dealers who trade CDS cannot turn to other suppliers of CDS liquidity outside Defendants.

413. Second, the fungibility analysis asks whether the market is susceptible to the exercise of Defendants' market power through coordination. It is harder for a cartel to establish and police a price conspiracy when the products are heterogenous and difficult to compare to each other. Applied to the context of the dealer-to-client CDS market and manipulative conduct pertaining to the CDS auctions, the CDS auction process makes all CDS contracts (and the bonds those CDS contracts cover) fungible and homogenous with respect to their settlement value. The auction process by design collapses any distinctions between the CDS contracts and the bonds those contracts cover and publishes a single price – the final auction price – that is then used to value all CDS contracts covering those bonds. Defendants are also the only entities allowed to submit pricing directly into the auction. This market structure facilitates Defendants' establishment and policing of a price conspiracy. Defendants who price in a manner contrary to the other Defendants are easily detected because their divergent pricing is reported publicly to the other Defendants.

¹⁵⁷ See Katy Burne, "Big Banks Agree to Settle Swaps Lawsuit," *The Wall Street Journal* (Sept. 12, 2015) (noting that the Defendants and ISDA agreed to pay \$1.87 billion to settle a class action alleging that they "coordinated their efforts to delay or prevent exchanges trying to put these credit derivatives onto open, regulated platforms where prices would be more transparent," so as to protect their market power as intermediaries).

414. Third, demand for CDS is inelastic. It is not economically feasible for clients to abstain from trading CDS for some period of time. For those clients who are protection buyers, they always have the need to hedge the credit risk that their underlying bond positions fail, and CDS represent the only reasonable way to mitigate that risk. For those clients who are protection sellers, CDS form a critical part of their diversified investment portfolios – because the premiums the seller receives are not tied to interest rates, currency rates, or any other financial benchmark, institutional investor clients who rely on CDS for diversified streams of income cannot reasonably exit the CDS market and replace their positions with alternative streams of investment revenue. Indeed, there are no other financial products that replicate the premium-like payment streams that CDS offer.

e) The Antitrust Laws Prohibit Defendants’ Exchange of Real-Time and Future Auction Price Information

415. Defendants’ information-sharing has all the features indicative of a naked restraint on competition that can be condemned without further inquiry and that is unlawful under a quick look analysis or the rule of reason.

a. That the Defendants are horizontal competitors sharing price information shows that the nature of the information exchange weighs in favor of it being anticompetitive.

b. That the Defendants’ information sharing was done privately, without formal controls, and in a way designed to avoid detection shows that the nature of the information exchange weighs in favor of it being anticompetitive.

c. That the Defendants’ information sharing involved real-time price sharing, *supra* ¶¶ 335–39 (describing Bloomberg price-sharing), exchanges of future price information, *supra* ¶¶ 25–26 (describing Defendants’ “inside baseball” auction pricing discussions), and the

incorporation of purportedly private price information, *supra* ¶¶ 214, 217, 219, 221, 227, 229 (describing econometric analyses results), shows that the nature of the information exchange weighs in favor of it being anticompetitive.

d. That the Defendants' information sharing involves specific price information pertaining to specific auctions – as opposed to generalized information sharing of overall market trends or the like – shows that the nature of the information exchange weighs in favor of it being anticompetitive.

e. That the Defendants' information sharing occurred within the context of an auction process that was designed by Defendants, and in which Defendants are the only market participants who have direct access to the auctions, shows that the nature of the information exchange weighs in favor of it being anticompetitive.

f. That the Defendants' information sharing did not involve publicly available information, and instead involved the sharing of each dealer's proprietary view of the price submissions that go into the auction shows that the nature of the information exchange weighs in favor of it being anticompetitive.

g. That the Defendants' information sharing happened, among other places, in Determinations Committee meetings that are private, not open to the public, and that do not have fulsome descriptions of what was discussed at those meetings shows that the nature of the information exchange weighs in favor of it being anticompetitive.

f) Defendants' Information Sharing Practices Cause Artificial Final Auction Prices

416. Defendants' sharing of sensitive current and future pricing information with each other in the lead up to the auction causes Defendants to submit artificial prices in the auctions,

typically downward, towards a consensus price that is favored by the dealer who has the most financially at stake in a particular auction. This practice is shown in Plaintiffs’ econometric analyses, *See* Sections IV.B.3.b, c, d, e, and g *supra*, which show that the information being shared between and amongst Defendants is being incorporated into each dealer’s initial market and limit order submissions into the auctions, and thus are working together to drive the final auction price towards an artificial and supra-competitive price – typically, but not exclusively, a deflated price.

417. But for Defendants’ conspiracy and the resulting information sharing, Defendants’ pricing submission into the auction would be based exclusively on lawful information. The final auction price would then reflect incorporation of exclusively lawful information, and it would not be artificially skewed.

E. Plaintiffs Were Injured as a Result of Defendants’ Manipulation

418. The auction process produces the final auction price, which is supposed to represent a fair value for the bonds at auction for purposes of CDS settlement. As described above, Defendants’ collusive conduct results in a supra-competitive final auction price. *See* Section IV.B.3 *supra*.

419. Plaintiffs’ econometric analysis reveals that Defendants’ manipulation of the final auction price is persistent, dramatic, and consistent. Once Defendants’ bid-rigging and price-fixing conduct is excluded, Plaintiffs calculate that the final auction price would typically be substantially *higher* in “sell” auctions, a further indication of the extent to which Defendants’ collusive price manipulation skews the final auction *downward*. *See supra* ¶¶ 247, 328.

420. Plaintiffs’ analysis further demonstrates that the final auction price would be substantially *lower* in “buy” auctions, an additional indication of the extent to which Defendants’ collusive price manipulation tracks their own interests. *See supra* ¶¶ 247, 328.

421. Plaintiffs’ econometric analysis of the price manipulation of the final auction price is corroborated by independent academics who have conducted their own analyses of the auctions and have come to parallel conclusions as Plaintiffs.

422. Researchers at the Federal Reserve Bank of Richmond also conducted an econometric analysis built upon a multivariate regression and found results “consistent with the theory of price manipulation,” with average downward price manipulation of thirteen (13) percent.¹⁵⁸ Those researchers also found that the downward price manipulation appeared to favor Defendants’ proprietary CDS positions, such that at least some dealers had “significant positive CDS positions and therefore . . . incentive to manipulate the auction price downward when the NOI is positive[.]”¹⁵⁹

423. Defendants have caused Plaintiffs to suffer from a supra-competitive final auction price, the effect of which has been to either compel Plaintiffs and similarly situated Class members to pay out more money (or receive less money) in protection than they would have but for Defendants’ conspiracy.

424. Plaintiffs are consumers of CDS transactions. During the Class Period, Plaintiffs purchased and sold hundreds of millions of dollars of CDS, including directly with Defendants,

¹⁵⁸ Erica Paulos, Bruno Sultanum, and Elliot Tobin, “CDS Auctions: An Overview,” *Federal Reserve Bank of Richmond: Economic Quarterly*, at 129 (2Q 2019).

¹⁵⁹ *Id.* at 130.

that settled at artificial prices caused by Defendants’ collusive activities. Accordingly, Plaintiffs were harmed when, as a direct result of Defendants’ conspiracy, Plaintiffs were required to pay more (as CDS protection sellers) and/or receive less (as CDS protection buyers) on auction-settled CDS transactions during the Class Period.

1. Plaintiff SIC was Harmed by Defendants’ Manipulation

a) September 3, 2014 – Argentine Republic CDS Auction

425. On or about October 6, 2011, Plaintiff SIC purchased protection on CDX.EM Series 13 from Defendant Barclays Bank plc. The CDX.EM is an Emerging Markets CDS index, which is composed of approximately fifteen (15) emerging market sovereign reference entities trading in the CDS market.

426. CDX.EM Series 13 included the Argentine Republic as a reference entity. On or about July 30, 2014, the Argentine Republic missed a deadline to pay interest on certain of its debt obligations, which constituted a “failure to pay” credit event and triggered a CDS auction held September 3, 2014. As of the auction date and as a result of the above transactions, Plaintiff SIC was a net CDS protection purchaser on CDX.EM Series 13.

427. Defendant Barclays Bank plc was the dominant Defendant in the 2014 Argentine Republic CDS auction and was a net CDS protection seller, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants’ misconduct caused the auction’s final price to artificially rise to 31.5% of par. Plaintiff SIC, as a protection purchaser on CDX.EM Series 13, therefore received credit protection payments from its protection seller counterparty of 68.5% of par, which was artificially suppressed because of Defendants’ conspiracy. Accordingly, Plaintiff SIC was injured when it received less credit protection

compensation as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

b) February 19, 2015 – Caesars Entertainment Operating Co., Inc. CDS Auction

428. Beginning on or about November 5, 2014, Plaintiff SIC sold protection on CDX.NA.HY Series 23 to Defendants Citigroup Global Markets Inc. and Morgan Stanley & Co. Additionally, on October 9, 2014, and October 21, 2014, Plaintiff PERA sold protection on CDX.NA.HY Series 23 to Defendant Goldman Sachs & Co. Similarly, on or about January 31, 2013, Plaintiff PERA sold protection on CDX.NA.HY Series 17 to Defendants Deutsche Bank AG and Citibank N.A. The CDX.NA.HY is the North American High Yield CDS index, which is composed of approximately one hundred North American entities with high yield credit ratings trading in the CDS market. CDX.NA.HY Series 17 and CDX.NA.HY Series 23 are centrally cleared in the United States through ICE Clear Credit.

429. Both CDX.NA.HY Series 17 and CDX.NA.HY Series 23 included Caesars Entertainment Operating Co., Inc. as a reference entity. On or about January 15, 2015, Caesars Entertainment Operating Co., Inc. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on February 19, 2015. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 17 and 23.

430. Defendant Goldman Sachs International was the dominant Defendant in the Caesars Entertainment Operating Co., Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 15.875% of par.

Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 23, had to make credit protection payments to their respective protection buyer counterparties of 84.125% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

c) March 5, 2015 – RadioShack Corp. CDS Auction

431. Beginning on or about November 5, 2014, Plaintiff SIC sold protection on CDX.NA.HY Series 23 to Defendants Citigroup Global Markets Inc. and Morgan Stanley & Co., LLC. On October 9, 2014, and October 21, 2014, Plaintiff PERA sold protection on CDX.NA.HY Series 23 to Defendant Goldman Sachs & Co. Similarly, on or about January 31, 2013, Plaintiff PERA sold protection on CDX.NA.HY Series 17 to Defendants Deutsche Bank AG and Citibank N.A.

432. Both CDX.NA.HY Series 17 and CDX.NA.HY Series 23 included RadioShack Corp. as a reference entity. On or about February 5, 2015, RadioShack Corp. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held March 5, 2015. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 17 and 23.

433. Defendant Goldman Sachs International was the dominant Defendant in the RadioShack Corp. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants'

misconduct caused the auction's final price to artificially fall to 11.5% of par. Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 23, had to make credit protection payments to their respective protection buyer counterparties of 88.5% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

d) May 4, 2016 – Peabody Energy Corp. CDS Auction

434. Beginning on or about July 7, 2015, Plaintiff SIC sold protection on CDX.NA.HY Series 24 to Defendant Credit Suisse Securities (USA) LLC. Similarly, beginning on or about September 28, 2015, Plaintiff SIC sold protection on CDX.NA.HY Series 25 to Defendants Credit Suisse Securities (USA) LLC and Morgan Stanley & Co., LLC. CDX.NA.HY Series 24 and CDX.NA.HY Series 25 are centrally cleared in the United States through ICE Clear Credit.

435. Both CDX.NA.HY Series 24 and CDX.NA.HY Series 25 included Peabody Energy Corp. as a reference entity. On or about April 13, 2016, Peabody Energy Corp. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on May 4, 2016. As of the auction date and as a result of the above transactions, Plaintiff SIC was a net CDS protection seller on CDX.NA.HY Series 24 and 25.

436. Defendant Goldman Sachs International was the dominant Defendant in the Peabody Energy Corp. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 11.0% of par. Plaintiff SIC, as a

protection seller on CDX.NA.HY Series 24 and CDX.NA.HY Series 25, had to make credit protection payments to its protection buyer counterparties of 89.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff SIC was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

e) February 2, 2017 – iHeart Communications, Inc. CDS Auction

437. Beginning on or about July 11, 2016, Plaintiff SIC sold protection on CDX.NA.HY Series 26 to Defendants Credit Suisse Securities (USA) LLC and Morgan Stanley & Co., LLC. Similarly, beginning on or about December 7, 2016, Plaintiff SIC sold protection on CDX.NA.HY Series 27 to Defendants Credit Suisse Securities (USA) LLC and Morgan Stanley & Co., LLC. CDX.NA.HY Series 26 and CDX.NA.HY Series 27 are centrally cleared in the United States through ICE Clear Credit.

438. Both CDX.NA.HY Series 26 and CDX.NA.HY Series 27 included iHeart Communications, Inc. as a reference entity. On or about December 16, 2016, iHeart Communications, Inc. failed to repay certain principal due on certain of its debt obligations, which constituted a "failure to pay" credit event and triggered a CDS auction held on February 2, 2017. As of the auction date and as a result of the above transactions, Plaintiff SIC was a net CDS protection seller on CDX.NA.HY Series 26 and 27.

439. Defendant Citigroup Global Markets Inc. was the dominant Defendant in the iHeart Communications, Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 35.5% of par. Plaintiff SIC, as a

protection seller on CDX.NA.HY Series 26 and CDX.NA.HY Series 27, had to make credit protection payments to its protection seller counterparties of 64.5% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff SIC was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

f) October 11, 2017 – Toys 'R' Us, Inc. CDS Auction

440. Beginning on or about July 6, 2016, Plaintiff SIC sold protection on CDX.NA.HY Series 26 to Defendant Credit Suisse Securities (USA) LLC. Similarly, beginning on or about April 13, 2017, Plaintiff SIC sold protection on CDX.NA.HY Series 28 to Defendant Credit Suisse Securities (USA) LLC. CDX.NA.HY Series 28 is centrally cleared in the United States through ICE Clear Credit.

441. Both CDX.NA.HY Series 26 and CDX.NA.HY Series 28 included Toys 'R' Us, Inc. as a reference entity. On or about September 19, 2017, Toys 'R' Us, Inc. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on October 11, 2017. As of the auction date and as a result of the above transactions, Plaintiff SIC was a net CDS protection seller on CDX.NA.HY Series 26 and 28.

442. Defendant Goldman Sachs International was the dominant Defendant in the Toys 'R' Us, Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 26.0% of par. Plaintiff SIC, as a protection seller on CDX.NA.HY Series 26 and CDX.NA.HY Series 28, had to make credit protection

payments to its protection buyer counterparties of 74.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff SIC was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

g) January 23, 2019 – Parker Drilling Co. CDS Auction

443. Beginning on or about November 20, 2018, Plaintiff SIC sold protection on CDX.NA.HY Series 31 to Defendant Morgan Stanley & Co., LLC. CDX.NA.HY Series 31 is centrally cleared in the United States through ICE Clear Credit.

444. CDX.NA.HY Series 31 included Parker Drilling Co. as a reference entity. On or about December 11, 2018, Parker Drilling Co. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on January 23, 2019. As of the auction date and as a result of the above transactions, Plaintiff SIC was a net CDS protection seller on CDX.NA.HY Series 31.

445. Defendant J.P. Morgan Securities LLC was the dominant Defendant in the Parker Drilling Co. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 49.0% of par. Plaintiff SIC, as a protection seller on CDX.NA.HY Series 31, had to make credit protection payments to its protection buyer counterparties of 51.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff SIC was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

h) April 23, 2020 – Lebanese Republic CDS Auction

446. On or about September 20, 2019, Plaintiff SIC sold protection on CDX.EM Series 32 to Defendant Morgan Stanley & Co., LLC. CDX.EM Series 32 is centrally cleared in the United States through ICE Clear Credit.

447. CDX.EM Series 32 included the Lebanese Republic as a reference entity. On or about March 9, 2020, the Lebanese Republic withheld payments for certain outstanding bonds, which constituted a “failure to pay” credit event and triggered a CDS auction held on April 23, 2020. As of the auction date and as a result of the above transactions, Plaintiff SIC was a net CDS protection seller on CDX.EM Series 32.

448. Defendant Barclays Bank plc was the dominant Defendant in the Lebanese Republic CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants’ misconduct caused the auction’s final price to artificially fall to 14.125% of par. Plaintiff SIC, as a protection seller on CDX.EM Series 32, had to make a credit protection payment to its protection buyer counterparty of 85.875% of par, which was artificially inflated because of Defendants’ conspiracy. Accordingly, Plaintiff SIC was injured when it suffered greater losses as a result of Defendants’ conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants’ conspiracy.

i) May 6, 2020 – Whiting Petroleum Corp. CDS Auction

449. On or about March 31, 2020, Plaintiff SIC sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., LLC. Additionally, beginning on or about March 27, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendants BNP Paribas S.A.,

Morgan Stanley & Co., Inc., and Barclays Capital Inc. CDX.NA.HY Series 34 is centrally cleared in the United States through ICE Clear Credit.

450. CDX.NA.HY Series 34 included Whiting Petroleum Corp. as a reference entity. On or about April 1, 2020, Whiting Petroleum Corp. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on May 6, 2020. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 34.

451. Defendant J.P. Morgan Securities LLC was the dominant Defendant in the Whiting Petroleum Corp. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 7.0% of par. Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 34, had to make credit protection payments to their protection buyer counterparties of 93.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

j) June 9, 2020 – J.C. Penney Co., Inc. CDS Auction

452. On or about March 31, 2020, Plaintiff SIC sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., LLC. Additionally, beginning on or about March 27, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendants BNP Paribas S.A., Morgan Stanley & Co., Inc., and Barclays Capital Inc.

453. CDX.NA.HY Series 34 included J.C. Penney Co., Inc. as a reference entity. On or about May 15, 2020, J.C. Penney Co., Inc. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on June 9, 2020. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 34.

454. Defendant Barclays Bank plc was the dominant Defendant in the J.C. Penney Co., Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 0.125% of par. Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 34, had to make credit protection payments to their protection buyer counterparties of 99.875% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

k) August 4, 2020 – Chesapeake Energy Corp. CDS Auction

455. On or about March 31, 2020, Plaintiff SIC sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., LLC. Similarly, beginning on or about March 27, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendants BNP Paribas S.A., Morgan Stanley & Co., Inc., and Barclays Capital Inc.

456. CDX.NA.HY Series 34 included Chesapeake Energy Corp. as a reference entity. On or about June 28, 2020, Chesapeake Energy Corp. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered

a CDS auction held on August 4, 2020. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 34.

457. Defendant Goldman Sachs & Co. LLC was the dominant Defendant in the Chesapeake Energy Corp. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 3.5% of par. Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 34, had to make credit protection payments to their protection buyer counterparties of 96.5% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

2. Plaintiff PERA Was Harmed by Defendants' Manipulation

a) November 29, 2011 – Dynegy Holdings, LLC CDS Auction

458. On August 24, 2011, Plaintiff PERA bought protection on CDX.NA.HY Series 16 from Defendant BNP Paribas S.A. Likewise, on August 25, 2011, and August 31, 2011, Plaintiff PERA bought protection on CDX.NA.HY Series 16 from Defendant Deutsche Bank AG.

459. CDX.NA.HY Series 16 included Dynegy Holdings, LLC as a reference entity. On November 8, 2011, Dynegy Holdings, LLC filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on November 29, 2011. As of the auction date and as a result of the above transactions, Plaintiff PERA was a net CDS protection buyer on CDX.NA.HY Series 16.

460. Defendant Citigroup Global Markets Inc. was the dominant Defendant in the Dynegy Holdings, LLC CDS auction and was a net CDS protection seller, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially rise to 71.25% of par. Plaintiff PERA, as a protection purchaser on CDX.NA.HY Series 16, received credit protection payments from its protection seller counterparties of 28.75% of par, which was artificially suppressed because of Defendants' conspiracy. Accordingly, Plaintiff PERA was injured when it received less credit protection compensation as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

b) May 21, 2014 – Texas Competitive Electric Holding Company LLC CDS Auction

461. On or about January 31, 2013, Plaintiff PERA sold protection on CDX.NA.HY Series 17 to Defendants Deutsche Bank AG and Citibank N.A. Similarly, on December 23, 2013, and January 7, 2014, Plaintiff PERA sold protection on CDX.NA.HY Series 21 to Defendant Goldman Sachs & Co. CDX.NA.HY Series 17 and CDX.NA.HY Series 21 are centrally cleared in the United States through ICE Clear Credit.

462. Both CDX.NA.HY Series 17 and CDX.NA.HY Series 21 included Texas Competitive Electric Holding Company LLC as a reference entity. In April 2014, Texas Competitive Electric Holding Company LLC filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on May 21, 2014. As of the auction date and as a result of the above transactions, Plaintiff PERA was a net CDS protection seller on CDX.NA.HY Series 17 and 21.

463. Defendant Goldman Sachs International was the dominant Defendant in the Texas Competitive Electric Holding Company LLC CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 8.50% of par. Plaintiff PERA, as a protection seller on CDX.NA.HY Series 21, had to make credit protection payments to its protection buyer counterparties of 91.50% of par, which was artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff PERA was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

c) July 24, 2019 – Weatherford International Ltd. CDS Auction

464. On or about April 15, 2019, Plaintiff PERA sold protection on CDX.NA.HY Series 32 to Defendant Deutsche Bank AG. Similarly, on or about May 17, 2019, Plaintiff PERA sold protection on CDX.NA.HY Series 32 to Defendant Credit Suisse Securities (USA) LLC. Likewise, on or about June 28, 2019, Plaintiff PERA sold protection on CDX.NA.HY Series 32 to Defendant Barclays Capital Inc. Plaintiff PERA also sold protection on CDX.NA.HY Series 32 to non-Defendant Wells Fargo, on May 31, 2019. CDX.NA.HY Series 32 is centrally cleared in the United States through ICE Clear Credit.

465. CDX.NA.HY Series 32 included Weatherford International Ltd. as a reference entity. On July 1, 2019, Weatherford International Ltd. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on July 24, 2019. As of the auction date and as a result of the above transactions, Plaintiff PERA was a net CDS protection seller on CDX.NA.HY Series 32.

466. Defendant Barclays Bank plc was the dominant Defendant in the Weatherford International Ltd. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 44.50% of par. Plaintiff PERA, as a protection seller on CDX.NA.HY Series 32, had to make credit protection payments to its protection buyer counterparties of 55.50% of par, which was artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff PERA was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

d) December 10, 2019 – Dean Foods Company CDS Auction

467. On or about September 27, 2019, Plaintiff PERA sold protection on CDX.NA.HY Series 33 to Defendant BNP Paribas Securities Corp. Similarly, on or about October 15, 2019, Plaintiff PERA sold protection on CDX.NA.HY Series 33 to Defendant Barclays Capital Inc. CDX.NA.HY Series 33 is centrally cleared in the United States through ICE Clear Credit.

468. CDX.NA.HY Series 33 included Dean Foods Company as a reference entity. On November 12, 2019, Dean Foods Company filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on December 10, 2019. As of the auction date and as a result of the above transactions, Plaintiff PERA was a net CDS protection seller on CDX.NA.HY Series 33.

469. Defendant Goldman Sachs & Co. LLC was the dominant Defendant in the Dean Foods Company CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants'

misconduct caused the auction's final price to artificially fall to 9.25% of par. Plaintiff PERA, as a protection seller on CDX.NA.HY Series 33, had to make credit protection payments to its protection buyer counterparties of 90.75% of par, which was artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff PERA was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

e) March 10, 2020 – The McClatchy Company CDS Auction

470. Beginning on or about September 27, 2019, Plaintiff PERA sold protection on CDX.NA.HY Series 33 to multiple Defendants, including: (1) Defendant BNP Paribas Securities Corp., on or about September 27, 2019; (2) Defendant Barclays Capital Inc., on or about October 15, 2019 and January 2, 2020; (3) Defendant Morgan Stanley & Co. Inc., on or about January 21, 2020; (4) Defendant JP Morgan Chase Bank N.A., on or about February 13, 2020; and (5) Defendant Credit Suisse Securities (USA) LLC, on or about February 28, 2020 and March 10, 2020. Additionally, beginning on or about September 30, 2019, Plaintiff SIC sold protection on CDX.NA.HY Series 33 to Defendant Morgan Stanley & Co., Inc.

471. CDX.NA.HY Series 33 included The McClatchy Company as a reference entity. On February 13, 2020, The McClatchy Company filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on March 10, 2020. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 33.

472. Defendant Barclays Bank plc was the dominant Defendant in The McClatchy Company CDS auction and was a net CDS protection buyer, along with a variety of Defendants

who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 2.0% of par. Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 33, had to make credit protection payments to their protection buyer counterparties of 98.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

f) May 22, 2020 – Diamond Offshore Drilling, Inc. CDS Auction

473. On or about March 27, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendant BNP Paribas S.A. Similarly, on or about March 31, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., Inc. Additionally, on or about March 31, 2020, Plaintiff SIC sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., Inc.

474. CDX.NA.HY Series 34 included Diamond Offshore Drilling, Inc. as a reference entity. On April 27, 2020, Diamond Offshore Drilling, Inc. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on May 22, 2020. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 34.

475. Defendant Goldman Sachs & Co. LLC was the dominant Defendant in the Diamond Offshore Drilling, Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 7.375% of par. Plaintiffs SIC and

PERA, as protection sellers on CDX.NA.HY Series 34, had to make credit protection payments to their protection buyer counterparties of 92.625% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

g) May 29, 2020 – The Neiman Marcus Group LLC CDS Auction

476. On or about March 27, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendant BNP Paribas S.A. Similarly, on or about March 31, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., Inc. Likewise, on or about May 20, 2020, Plaintiff PERA sold protection on CDX.NA.HY Series 34 to Defendant Barclays Capital Inc. Additionally, on or about March 31, 2020, Plaintiff SIC sold protection on CDX.NA.HY Series 34 to Defendant Morgan Stanley & Co., Inc.

477. CDX.NA.HY Series 34 included The Neiman Marcus Group LLC as a reference entity. On May 7, 2020, The Neiman Marcus Group LLC filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on May 29, 2020. As of the auction date and as a result of the above transactions, Plaintiffs SIC and PERA were net CDS protection sellers on CDX.NA.HY Series 34.

478. Defendant Goldman Sachs & Co. LLC was the dominant Defendant in The Neiman Marcus Group LLC CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 3.0% of par. Plaintiffs SIC and PERA, as protection sellers on CDX.NA.HY Series 34, had to make credit protection payments to

their protection buyer counterparties of 97.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiffs SIC and PERA were injured when they suffered greater losses as a result of Defendants' conspiracy and were deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

h) September 15, 2020 – Matalan Finance plc CDS Auction

479. Beginning on or about March 20, 2020, Plaintiff PERA sold protection on iTraxx Crossover Series 33 to Defendants J.P. Morgan Chase Bank, N.A. and Credit Suisse Securities (USA) LLC. The iTraxx Crossover is the European high yield CDS index, which is composed of approximately the seventy-five (75) most liquid sub-investment grade European entities trading in the CDS market. iTraxx Crossover Series 33 is centrally cleared in the United States through ICE Clear Credit.

480. iTraxx Crossover Series 33 included Matalan Finance plc as a reference entity. On July 29, 2020, Matalan Finance plc filed for bankruptcy protection under Chapter 15 of the U.S. Bankruptcy Code, which constituted a "failure to pay" credit event and triggered a CDS auction held on September 15, 2020. As of the auction date and as a result of the above transactions, Plaintiff PERA was a net CDS protection seller on iTraxx Crossover Series 33.

481. Defendant Barclays Bank plc was the dominant Defendant in the Matalan Finance plc CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 36.50% of par. Plaintiff PERA, as a protection seller on iTraxx Crossover Series 33, had to make credit protection payments to its protection buyer counterparties of 63.50% of par, which were artificially inflated because of Defendants'

conspiracy. Accordingly, Plaintiff PERA was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

3. Plaintiff ERB Was Harmed by Defendants' Manipulation

a) October 6, 2008 – Federal National Mortgage Association CDS Auction

482. Beginning on or about October 9, 2007, Plaintiff ERB sold protection on CDX.NA.IG Series 8 to Goldman Sachs Bank USA Inc. The CDX.NA.IG is the North American Investment Grade CDS index, which is composed of approximately one hundred twenty-five North American entities with investment grade credit ratings trading in the CDS market.

483. CDX.NA.IG Series 8 included the Federal National Mortgage Association (commonly referred to as Fannie Mae) as a reference entity. On or about September 6, 2008, Fannie Mae was placed under conservatorship by the Federal Home Finance Agency, which constituted a bankruptcy credit event and triggered a CDS auction held on October 6, 2008. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.IG Series 8.

484. Defendant Morgan Stanley & Co., Inc. was the dominant Defendant in the Fannie Mae Senior CDS auction and was a net CDS protection buyer. A variety of other Defendants also participated and submitted artificial prices in the auction. Defendants' misconduct caused the Fannie Mae Senior auction's final price to artificially fall to 91.51% of par. Plaintiff ERB, as a protection seller on CDX.NA.IG Series 8, had to make credit protection payments to its protection buyer counterparties of 8.49% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of

Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

b) October 6, 2008 – Federal Home Loan Mortgage Corp. CDS Auction

485. Beginning on or about October 9, 2007, Plaintiff ERB sold protection on CDX.NA.IG Series 8 to Goldman Sachs Bank USA Inc.

486. CDX.NA.IG Series 8 included the Federal Home Loan Mortgage Corp. (commonly referred to as Freddie Mac) as a reference entity. On or about September 6, 2008, Freddie Mac was placed under conservatorship by the Federal Home Finance Agency, which constituted a bankruptcy credit event and triggered a CDS auction held on October 6, 2008. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.IG Series 8.

487. Defendant Morgan Stanley & Co., Inc. was the dominant Defendant in the Freddie Mac Senior CDS auction and was a net CDS protection buyer. A variety of other Defendants also participated and submitted artificial prices in the auction. Defendants' misconduct caused the Freddie Mac Senior auction's final price to artificially fall to 94.0% of par. Plaintiff ERB, as a protection seller on CDX.NA.IG Series 8, had to make credit protection payments to its protection buyer counterparties of 6.0% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

c) October 23, 2008 – Washington Mutual Inc. CDS Auction

488. Beginning on or about October 9, 2007, Plaintiff ERB sold protection on CDX.NA.IG Series 8 to Goldman Sachs Bank USA Inc. Additionally, on or about September 15, 2008, Plaintiff ERB sold protection on CDX.NA.IG.HVOL Series 9 to Defendant Barclays Capital Inc. The CDX.NA.IG.HVOL is a sub-index of the North American Investment Grade CDS index, which is composed of approximately thirty (30) North American entities in the North American Investment Grade CDS index with the widest 5-year average CDS spreads.

489. Both CDX.NA.IG Series 8 and CDX.NA.IG.HVOL Series 9 included Washington Mutual Inc. as a reference entity. On September 26, 2008, Washington Mutual Inc. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on October 23, 2008. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.IG Series 8 and CDX.NA.IG.HVOL Series 9.

490. Defendant Deutsche Bank AG was the dominant Defendant in the Washington Mutual Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 57.00% of par. Plaintiff ERB, as a protection seller on CDX.NA.IG Series 8 and CDX.NA.IG.HVOL Series 9, had to make credit protection payments to its protection buyer counterparties of 43.00% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

d) January 6, 2009 – Tribune Company CDS Auction

491. Beginning on or about November 20, 2008, Plaintiff ERB sold protection on CDX.NA.HY Series 10 to Defendant J.P. Morgan Chase Bank, N.A.

492. CDX.NA.HY Series 10 included Tribune Company as a reference entity. On December 9, 2008, Tribune Company announced that it was voluntarily restructuring its debt obligations under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on January 6, 2009. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.HY Series 10.

493. Defendant J.P. Morgan Securities LLC was the dominant Defendant in the Tribune Company CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 1.50% of par. Plaintiff ERB, as a protection seller on CDX.NA.HY Series 10, had to make credit protection payments to its protection buyer counterparties of 98.50% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

e) February 19, 2009 – Smurfit-Stone Container Enterprises, Inc. CDS Auction

494. Similarly, beginning on or about November 20, 2008, Plaintiff ERB sold protection on CDX.NA.HY Series 10 to Defendant J.P. Morgan Chase Bank, N.A.

495. CDX.NA.HY Series 10 included Smurfit-Stone Container Enterprises, Inc. as a reference entity. On January 26, 2009, Smurfit-Stone Container Enterprises, Inc. announced that it had filed voluntary petitions for reorganization under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on February 19, 2009. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.HY Series 10.

496. Defendant Goldman Sachs & Co. was the dominant Defendant in Smurfit-Stone CDS Container Enterprises, Inc. auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 8.875% of par. Plaintiff ERB, as a protection seller on CDX.NA.HY Series 10, had to make credit protection payments to its protection buyer counterparties of 91.125% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

f) April 17, 2009 – Abitibi-Consolidated Inc. CDS Auction

497. Beginning on or about November 20, 2008, Plaintiff ERB sold protection on CDX.NA.HY Series 10 to Defendant J.P. Morgan Chase Bank, N.A.

498. CDX.NA.HY Series 10 included Abitibi-Consolidated Inc. as a reference entity. On March 13, 2009, Abitibi-Consolidated Inc. failed to make payment on its outstanding loan debt, which constituted a "failure to pay" credit event and triggered a CDS auction held on April 17,

2009. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.HY Series 10.

499. Defendant J.P. Morgan Securities LLC was the dominant Defendant in the Abitibi-Consolidated Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 3.25% of par. Plaintiff ERB, as a protection seller on CDX.NA.HY Series 10, had to make credit protection payments to its protection buyer counterparties of 96.75% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

g) April 21, 2009 – Charter Communications Holdings, LLC CDS Auction

500. Likewise, beginning on or about November 20, 2008, Plaintiff ERB sold protection on CDX.NA.HY Series 10 to Defendant J.P. Morgan Chase Bank, N.A.

501. CDX.NA.HY Series 10 included Charter Communications Holdings, LLC as a reference entity. On March 27, 2009, Charter Communications Holdings, LLC filed for restructuring under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on April 21, 2009. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.HY Series 10.

502. Defendant Citigroup Global Markets Inc. was the dominant Defendant in the Charter Communications Holdings, LLC CDS auction and was a net CDS protection buyer, along

with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 2.375% of par. Plaintiff ERB, as a protection seller on CDX.NA.HY Series 10, had to make credit protection payments to its protection buyer counterparties of 97.625% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

h) April 23, 2009 – Idearc Inc. CDS Auction

503. Commencing on or about November 20, 2008, Plaintiff ERB sold protection on CDX.NA.HY Series 10 to Defendant J.P. Morgan Chase Bank, N.A.

504. CDX.NA.HY Series 10 included Idearc Inc. as a reference entity. On March 31, 2009, Idearc Inc. announced that it had filed voluntary petitions for reorganization under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on April 23, 2009. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.HY Series 10.

505. Defendant Citigroup Global Markets Inc. was the dominant Defendant in the Idearc Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 1.75% of par. Plaintiff ERB, as a protection seller on CDX.NA.HY Series 10, had to make credit protection payments to its protection buyer counterparties of 98.25% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of

Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

i) November 20, 2009 – CIT Group Inc. CDS Auction

506. Beginning on or about September 15, 2008, Plaintiff ERB sold protection on CDX.NA.IG.HVOL Series 9 to Defendant Barclays Capital Inc.

507. CDX.NA.IG.HVOL Series 9 included CIT Group Inc. as a reference entity. On November 1, 2009, CIT Group Inc. filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, which constituted a bankruptcy credit event and triggered a CDS auction held on November 20, 2009. As of the auction date and as a result of the above transactions, Plaintiff ERB was a net CDS protection seller on CDX.NA.IG.HVOL Series 9.

508. Defendant Deutsche Bank AG was the dominant Defendant in the CIT Group Inc. CDS auction and was a net CDS protection buyer, along with a variety of Defendants who also participated and submitted artificial prices in the auction. Defendants' misconduct caused the auction's final price to artificially fall to 68.125% of par. Plaintiff ERB, as a protection seller on CDX.NA.IG.HVOL Series 9, had to make credit protection payments to its protection buyer counterparties of 31.875% of par, which were artificially inflated because of Defendants' conspiracy. Accordingly, Plaintiff ERB was injured when it suffered greater losses as a result of Defendants' conspiracy and was deprived of the ability to transact in a lawful, non-manipulated, competitive market as a result of Defendants' conspiracy.

509. The illustrative examples above demonstrate that Defendants' collusive manipulation of the final auction price has a direct, proximate, and arithmetic effect on the amount

of money Plaintiffs and members of the Class pay or receive on its CDS contracts. Every dollar Defendants made by virtue of their conspiracy is a dollar they took from the Class members.

510. Given the duration and extent of the conspiracy, the Class has suffered losses of billions of dollars – which Defendants have enjoyed as artificial, anticompetitive, and illicit cartel profits.

F. Equitable Tolling Due to Defendants’ Concealment

1. Defendants Actively and Effectively Concealed Their Collusion and Misconduct From Plaintiffs and the Class and Committed Acts in Furtherance of Their Concealment

511. The applicable statutes of limitations relating to the claims for relief alleged herein are tolled because Defendants fraudulently concealed their bid-rigging and price-fixing of their CDS auctions through their own affirmative acts and because Defendants’ conduct was inherently self-concealing.

512. Defendants actively concealed their conspiracy to bid-rig CDS auctions and price-fix the final auction price from Plaintiffs and the Class by, *inter alia*: (i) knowingly submitting bids, offers, and prices that were false, misleading, or inaccurate because they were manipulated based on impermissible and illegitimate factors, such as the price that would financially benefit Defendants’ and dominant Defendants’ CDS positions; (ii) relying on non-public forms of communication, including private, unauditable electronic messages and telephone calls; (iii) implicitly representing that the bids, offers, and quotes Defendants supplied in the CDS auction process were the product of honest competition and not fixed by a conspiracy; (iv) affirmatively misrepresenting that they complied with applicable laws and regulations, including antitrust and competitive laws; and (v) fraudulently presenting a variety of pretextual

justifications and false narratives about the CDS auctions and the final auction price designed to conceal Defendants' conspiracy. These affirmative acts of concealment were also inherently self-concealing and could not be detected by Plaintiffs and members of the Class.

513. Indeed, Defendants routinely published statements and codes of conduct representing that their operations complied with applicable laws and antitrust regulations, which provided a false sense of security to unwitting investors. A listing of non-exhaustive examples of such statements that Defendants published during the Class Period includes:

a. **Bank of America.** Bank of America Corporation, which reports on behalf of itself and Defendants Bank of America, N.A. and BofA Securities, Inc., wrote in its "Code of Conduct," that Bank of America is "expected to deal fairly with [its] employees, customers, suppliers, competitors and other third parties," specifically stating that Bank of America and its representatives "must not conspire or collude in any way with competitors."¹⁶⁰ Furthermore, Bank of America's "Code of Conduct" from 2013 expressly states that its employees are expected to "deal fairly with [its] customers, competitors, vendors and teammates" and refrain from taking "unfair advantage of anyone through manipulation, concealment, abuse of privileged information, misrepresentation of facts or any other unfair-dealing practice."¹⁶¹

b. **Barclays.** Barclays PLC, which reports on behalf of itself and Defendants Barclays Bank PLC and Barclays Capital Inc., wrote in its code of conduct "The Barclays Way,"

¹⁶⁰ Bank of America Corporation, Code of Conduct (2022), at 10, *available at* https://d1io3yog0oux5.cloudfront.net/bankofamerica/files/pages/corporate-governance/governance-library/code-of-conduct/2022_Code_of_Conduct_%28English%29%281%29.pdf.

¹⁶¹ Bank of America Corporation, Code of Ethics, at 2, https://www.banktrack.org/download/code_of_ethics_20/190318code_of_ethics_dec2013.pdf.

last revised in August 2021, that Barclays and its representatives will not make “any agreements of a formal or informal nature with competitors to fix or set prices,” “engage in bid rigging,” “or engage in any other anti-competitive practice.”¹⁶² According to the “Questions and Answers” portion of Barclays’ 2021 “Code of Conduct,” if employees or Barclays representatives find themselves at a meeting or event with competitors and there is discussion about competitors’ pricing strategy or other confidential information, the employee or representative “should ask the meeting or event participants to desist from the discussion,” and “should report the incident to [the employees’] line manager and to the Barclays Competition Legal team or your usual Compliance or Legal contact, as soon as possible.”¹⁶³ In Barclays’ “Code of Conduct” published in July of 2018 and in effect during the Class Period, Barclays acknowledged that “free and fair competition is good for business and customers and clients, driving innovation and improvements in service provision.”¹⁶⁴

c. **BNP Paribas.** BNP Paribas boasted in its “Code of Conduct,” last updated on January 23, 2018, and in effect during the Class Period, of its commitment to “promoting free and fair competition” as a rule of conduct necessary for “upholding and protecting the integrity of markets.”¹⁶⁵ BNP Paribas explicitly rejects anti-competitive behavior, specifically stating that it

¹⁶² Barclays PLC, Code of Conduct (2021), at 16, *available at* <https://home.barclays/content/dam/home-barclays/documents/citizenship/the-way-we-do-business/Barclays%20Way%20July%202021vf.pdf>.

¹⁶³ *Id.* at 22.

¹⁶⁴ Barclays PLC, Code of Conduct (2018), at 14, *available at* <https://www.barclays.it/other/TheBarclaysWay.pdf>.

¹⁶⁵ BNP Paribas Group, Code of Conduct (2018), at 13 and 18, *available at* https://group.bnpparibas/uploads/file/codeofconduct_en_11_01_2018_40p.pdf.

shall “[n]ever seek competitive advantage through unethical or illegal practices” and will “comply with competition laws in all jurisdictions.”¹⁶⁶

d. **Citi.** Citigroup Inc. implemented a “Code of Conduct” during the Class Period applicable to all entities affiliated with Citigroup Inc., including Defendants Citibank N.A., Citigroup Global Markets Inc., and Citigroup Global Markets Limited. The “Code of Conduct” acknowledged that Citigroup protects “the interest of our clients and customers by abiding by all competition and antitrust laws,” noting, *inter alia*, that examples of anti-competitive conduct includes, “sharing pricing, rates, terms of trading, or other strategic information with competitors.”¹⁶⁷ Citigroup Inc.’s annual report in 2010 also claimed that Citigroup “monitor[ed] and control[led]” employee conduct through “compliance and legal reporting systems, internal controls, management review processes and other mechanisms.”¹⁶⁸

e. **Credit Suisse.** Credit Suisse AG, reporting on behalf of Defendants Credit Suisse Securities (USA) LLC, Credit Suisse Capital LLC, and Credit Suisse International, noted in its Code of Conduct effective during the Class Period that employees are to “act with integrity at all times,” and maintain “the highest standards of compliance – whether that be preventing financial crime or safeguarding confidential or non-public information.”¹⁶⁹

¹⁶⁶ *Id.*

¹⁶⁷ Citigroup Inc., Our Code of Conduct (2022), at 34, available at https://www.citigroup.com/citi/investor/data/codeconduct_en.pdf.

¹⁶⁸ Citigroup Inc., Annual Report (2010), at 79, available at https://www.citigroup.com/citi/investor/quarterly/2011/ar10c_en.pdf.

¹⁶⁹ Credit Suisse Code of Conduct (2020), available at <https://codeofconduct.credit-suisse.com/en/coc/report/code-of-conduct/our-cultural-values-behaviors/trust>.

f. **Deutsche Bank.** Deutsche Bank’s “Code of Conduct,” in effect during the Class Period and applicable to all entities affiliated with Deutsche Bank Group, including Defendants Deutsche Bank AG and Deutsche Bank Securities Inc., requires that “all business conducted by our employees must be driven by legitimate reasons and must be conducted in a manner that avoids or minimises market disruption.”¹⁷⁰ Deutsche Bank employees and representatives must not engage in “activities, practices or conduct that are manipulative, illegal, anticompetitive, or unethical.”¹⁷¹ Deutsche Bank’s “Code of Conduct” explicitly states that “ensuring that employees at all levels comply with applicable antitrust laws is a key priority of the bank.”¹⁷² According to the “Code of Conduct,” illegal behavior by antitrust standards includes “agreements and practices that restrict competition, trading in concert with a competitor” and “agreements with competitors on pricing.”¹⁷³

g. **Goldman Sachs.** The Goldman Sachs Group, Inc.’s “Code of Conduct,” applicable to Defendants Goldman Sachs & Co. LLC and Goldman Sachs International, “generally prohibit[s] any kind of agreement, understanding, or arrangement with competitors concerning prices, . . . or other matters of competitive significance.”¹⁷⁴ An earlier version of Goldman Sachs’ Code of Conduct published during the Class Period purportedly required “fair and ethical

¹⁷⁰ Deutsche Bank Code of Conduct at 14, available at https://investor-relations.db.com/files/documents/documents/code_of_business_conduct_and_ethics_for_deutsche_bank_group.pdf?language_id=1&kid=code-of-conduct.redirect-en.shortcut.

¹⁷¹ *Id.* at 14.

¹⁷² *Id.* at 15.

¹⁷³ *Id.*

¹⁷⁴ The Goldman Sachs Group, Inc., Code of Business Conduct and Ethics (2021), at 21, available at <https://www.goldmansachs.com/investor-relations/corporate-governance/corporate-governance-documents/revise-code-of-conduct.pdf>.

competition” by Goldman Sachs employees and prohibited “[t]aking unfair advantage of anyone through manipulation, concealment, abuse of privileged information, misrepresentation of material facts, or any unfair dealing.”¹⁷⁵ The Goldman Sachs Group, Inc.’s annual report in 2020 also claimed to “monitor and control [] risk exposure” through “operational, compliance and legal reporting systems, internal controls, management review processes and other mechanisms.”¹⁷⁶

h. **JPMorgan.** The JPMorgan Chase & Co. “Code of Conduct” in effect during the Class Period and applicable to itself and all entities affiliated with JPMorgan Chase & Co., including Defendants J.P. Morgan Chase Bank, N.A. and J.P. Morgan Securities LLC, requires all employees and representatives to “always deal fairly and in good faith with [JPMorgan’s] customers, suppliers, competitors, business partners, [and] regulators.”¹⁷⁷ Additionally, the “Code of Conduct” requests that all employees and representatives be “mindful of sharing information and [their] interactions with competitors and refrain from any action that may prevent, restrict, or alter fair competition.”¹⁷⁸

i. **Morgan Stanley.** Morgan Stanley’s “Code of Conduct” is applicable to itself, and all entities affiliated with Morgan Stanley, including Defendants Morgan Stanley & Co. LLC, Morgan Stanley & Co. International plc, and Morgan Stanley Capital Services LLC.

¹⁷⁵ The Goldman Sachs Group, Inc., Code of Business Conduct and Ethics (2014), at 4, <https://web.archive.org/web/20141113165915/https://www.goldmansachs.com/investor-relations/corporate-governance/corporate-governance-documents/revise-code-of-conduct.pdf>.

¹⁷⁶ The Goldman Sachs Group, Inc., Annual Report (2020), at 42, available at <https://www.goldmansachs.com/investor-relations/financials/current/annual-reports/2020-annual-report/multimedia/2020/annual-report-2020.pdf>.

¹⁷⁷ JPMorgan Chase & Co., Code of Conduct (2021), at 4, available at <https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/documents/code-of-conduct.pdf>.

¹⁷⁸ *Id.* at 4.

According to its “Code of Conduct,” Morgan Stanley is committed to promoting free, fair, and competitive markets, and will not tolerate any attempt by an employee or representative of Morgan Stanley “to manipulate the markets or the prices of securities or to impede fair competition,” such as “colluding with others to distort the price or liquidity of a product or manipulating a financial benchmark.”¹⁷⁹ Morgan Stanley’s firm stance on anticompetitive behavior by or for the benefit of Morgan Stanley and its employees culminates as follows: “[n]ever agree with a competitor to fix prices or otherwise distort the market.”¹⁸⁰

j. **RBS (NatWest).** NatWest Group’s Code of Conduct, “This is Our Code” applies to all entities affiliated with NatWest Group, including Defendants NatWest Group Plc (f/k/a The Royal Bank of Scotland Group plc), NatWest Markets Plc (f/k/a The Royal Bank of Scotland plc), and NatWest Markets Securities Inc. (f/k/a RBS Securities Inc.). “This is Our Code” mandates that all employees and representatives of NatWest “observe proper standards of market conduct.”¹⁸¹ In NatWest Group plc’s “2020 Environmental, Social and Governance supplement,” NatWest boasted its commitment to “competing fairly across all sectors in which [it] operate[s]. [NatWest] take[s] a very firm approach to compliance with competition law.”¹⁸² Earlier versions of NatWest’s Code of Conduct stated that NatWest was “strongly committed to conducting [its] business affairs with honesty and integrity and in full compliance with all applicable laws, rules

¹⁷⁹ Morgan Stanley, Code of Conduct (2021), <https://www.morganstanley.com/about-us-governance/code-of-conduct>.

¹⁸⁰ *Id.*

¹⁸¹ NatWest Group, “This is Our Code” (2020), at 6, *available at* https://www.natwestgroup.com/content/dam/natwestgroup_com/natwestgroup/pdf/our-code-external.pdf.

¹⁸² NatWest Group plc, “2020 Environmental, Social and Governance supplement” (2020), at 56, *available at* <https://investors.natwestgroup.com/~media/Files/R/RBS-IR-V2/esg-docs/esg-supplement-2020.pdf>.

and regulations. No Group employee shall commit an illegal or unethical act, or instruct others to do so for any reason.”¹⁸³

514. Defendants’ conspiracy was inherently self-concealing because it relied on secrecy for its successful operation and the conduct took place in non-public forums, including private chats and secret meetings. Indeed, Defendants knew that they had to keep their conspiracy a secret for it to succeed. Defendants’ conspiracy relied on non-public methods of communication, including Bloomberg chats, WhatsApp chats, e-mails, text messages, and telephone calls to conceal their agreement to conspire and manipulate the CDS auctions. As a result of Defendants’ concealment, Plaintiffs were prevented from uncovering Defendants’ unlawful conduct.

515. Defendants’ tremendous control over the CDS auction process and CDS market, as the dominant liquidity providers with a market share in the dealer-to-client CDS market greater than 80%, facilitated and enabled Defendants’ success in concealing their collusion and misconduct.¹⁸⁴

516. As explained above, Defendants “hardwired” their exclusive and secret control of the CDS auction process from the very beginning by creating a dealer-only “working group.” Shrouded from the public, the dealer-only working group had no formal name and its existence was not publicized. During these secret meetings, Defendants reached several agreements to exclude and constrain non-dealer participation in the auctions, while studiously making it appear as though the working group’s work was non-controversial and the product of market consensus and an ostensibly neutral trade association, ISDA. ISDA published the CDS auction protocol rules

¹⁸³ RBS Code of Conduct, at 14, <https://www.scribd.com/document/134703434/Code-of-Conduct-1>.

¹⁸⁴ ISDA 2019 Study at 15.

as if they were its own, but they were actually dealer-only work product, which was itself under the control of an inner core of Defendants' cartel run by Defendants Goldman Sachs, JPMorgan, and Deutsche Bank.

517. Defendants built the secrecy and lack of scrutiny of their conduct into the DNA of the CDS auction process: Defendants agreed that only Defendants would be permitted to be direct participants in the auctions and that they would block non-dealers from being direct participants in the auctions. Defendants then reserved for themselves the right to vote on who could be a direct participant in any auction, thus sealing and concealing what 'went on in the room' from Plaintiffs and other investors.

518. Defendants sealed their concealment by controlling who had information about inputs into the auction, isolating and segregating investors and clients so that no one could ever see the 'big picture' of Defendants' collective conduct. As explained above, Defendants secured this concealment and information control by many means. Defendants agreed that non-dealers could participate in the physical settlement request and limit order phases of the auctions, but only through Defendants. This resulted in information isolation: when a non-dealer wants to submit a limit order or a physical settlement request into an auction, it needs to disclose that trading information to at least one (1) dealer, providing that dealer with advance, insider knowledge of the non-dealer client's identity, the price at which it wants to trade, the quantity that it is looking to trade, the types of bonds it wants to trade, and its timing for the trade. By making themselves the exclusive gatekeepers to the auction, Defendants were able to control all inside-information advantages and conceal their collective collaboration from investors.

519. Defendants’ concealment was furthered by the embargo on information for outsiders in the lead-up to the auction. Between the relevant Determinations Committee meeting and the auction, Defendants share information about major non-dealer trades and positions, major dealer trades and positions, the price of the bond, and what the final auction price should be – all information that gives Defendants inside knowledge about the likely direction of the auction, the size of the net open interest, and the participants in each auction. Critical pieces of the “fix” begin long before auction day, in other words, and Plaintiffs and other investors are never the wiser.

520. Beyond actively seeking to conceal their conduct, Defendants simultaneously mounted a sustained effort to promote a false narrative about the auctions and the final auction price.

2. Defendants Have Propagated a Variety Of Pretextual Justifications That Mask Their Conspiracy to Manipulate the Final Auction Price

521. Since the inception of the auction process in 2005, Defendants and their co-conspirators have carefully presented a narrative that the CDS auction process is fair, efficient, and transparent, and that the benchmark final auction price is the result of normal market forces. This narrative is false and misleading. Defendants’ fraudulent narrative has worked to conceal from Plaintiffs and putative Class members that they had a cause of action against Defendants and has succeeded in keeping Plaintiffs ignorant of Defendants’ conspiracy.

522. Defendants’ narrative is comprised of several talking points that include a misleading campaign to keep non-dealer CDS market participants from discovering the truth about Defendants’ exploitation of the CDS auction process and their collusive manipulation of the final auction price.

523. Defendants’ fraudulent concealment was carried out by virtue of numerous and repeated claims by Defendants that the CDS auctions are “fair,” “efficient,” “transparent,” and superior to prior methods of settlement that were more prone to manipulation. For example:

a. The Defendants through Creditex have for years said that the “Credit Event Auctions were designed to ensure *a fair, efficient and transparent process* for settlement of credit derivative trades following a credit event.”¹⁸⁵

b. Defendant Credit Suisse in 2011 published a report to its clients describing the auction process as part of an effort “*to further increase transparency . . . in the CDS markets.*”¹⁸⁶

c. Defendants through Creditex presented the CDS auction process as a superior and fairer alternative to the dealer poll, which they claimed was more “open to manipulation by dealers[.]”¹⁸⁷ Defendants stated that the auction process would thus “replace[] the conventional dealer poll approach with one that provides any market participant *the ability to have a voice* in what should be subject to the auction.”¹⁸⁸

524. Defendants have relied particularly on ISDA to aggressively push out talking points designed to deflect attention and concern away from the auction and its impact on competition. In 2012, *The New York Times* published a short piece after the LIBOR scandal noting that the Determinations Committee is majority controlled by the ten (10) “giant banks that are effectively

¹⁸⁵ ICE, “Credit Auctions,” <https://www.theice.com/service/creditex/credit-auctions> (date accessed: March 4, 2021) (emphasis added).

¹⁸⁶ Credit Suisse, “A guide to Credit Events and auctions,” *Fixed Income Research*, at 4 (Jan. 12, 2011) (emphasis added)

¹⁸⁷ See U.S. Patent No. 8,078,521, at 13, 14 (issued Dec. 13, 2011).

¹⁸⁸ *Id.* at 14 (emphasis added).

permanent members,” that the banks “have consolidated their influence and power over [the] capital markets,” and that the Determinations Committee’s lack of transparency in its decision-making process was “a display of the industry’s casual disregard for any significant checks on their cartel businesses. It’s a situation that has become so routine on Wall Street as to almost be unremarkable.”¹⁸⁹

525. The next day, ISDA published a statement excoriating *The New York Times*. The ISDA statement defended the auctions against allegations that they operate like a cartel, stating that “[w]e’re not sure exactly how the [Determinations Committee] process is or can be cartel-like” because “[t]here are effective mechanisms built into it to ensure it isn’t and can’t be.”¹⁹⁰ It claimed that transparency in the Determinations Committee meetings was not necessary because “most decisions are unanimous or close to it, obviating the need for explanations given that the consensus is so widespread.”¹⁹¹ ISDA concluded by noting that “the [Determinations Committee’s] process has always been built on the concept of ‘trust, but verify.’ It was built with structural safeguards – checks and balances – to protect its integrity. Those safeguards are working. That’s why ‘there’s no evidence’ of any problems with the process.”¹⁹²

526. In 2015, *Bloomberg* published another article raising questions about the secrecy surrounding the Determinations Committee’s decision-making process, observing that “[t]hough

¹⁸⁹ Jesse Eisinger, “Swap Market, Like Libor, Is Vulnerable to Manipulation,” *The New York Times* (July 18, 2012).

¹⁹⁰ ISDA, “No Evidence? No problem,” *ISDA media.comment* (July 19, 2012).

¹⁹¹ *Id.*

¹⁹² *Id.*

the determinations committee has rendered more than 1,000 judgments in the last six years, no records of its discussions have ever been made public – nor is ISDA proposing they be.”¹⁹³

527. Again, Defendants immediately responded via ISDA claiming that “we . . . know that Wall Street conspiracy theories are popular,” but the CDS credit event process is “robust and transparent, and . . . has worked very well[.]”¹⁹⁴

528. In both circumstances, ISDA painted a misleading picture of the auction process. It failed to disclose the amount of material, non-public information exchanged at Determinations Committee meetings, that Defendants use a straw poll to have secret votes on controversial issues, the amount and quality of interfirm communications that happen in the weeks leading up to the auctions, and Defendants’ information sharing and price coordination practices. These are examples of a sustained effort by Defendants to affirmatively combat any suggestion that the auction process is defective, let alone the result of collusive manipulation by Defendants.

529. Defendants’ consistent repetition of this false narrative achieved its desired results. Non-dealer CDS market participants believe, incorrectly, that CDS auctions operate in a fair, efficient, and transparent manner.

530. Defendants’ statements concerning CDS auction integrity were false and misleading. The CDS auctions are not fair, efficient, or transparent because, as set forth above, Defendants secretly (1) agree to exclude and constrain non-dealer participation, *see* Section III.B.1, *supra*, (2) collude to bid-rig and price-fix the final auction price, *see* Sections III.B.2-6, *supra*, and (3) exploit inside-information advantages arising out of their exclusive auction

¹⁹³ Nabila Ahmed, “Inside the Secretive Circle That Rules a \$14 Trillion Market,” *Bloomberg* (Oct. 26, 2015).

¹⁹⁴ ISDA, “The Not-So-Secretive Circle,” *ISDA media.comment* (Nov. 2, 2015).

gatekeeper status by collecting commercially and competitively sensitive client information that they improperly and illegally trade on, *see* Sections III.B.2-6, *supra*.

531. Defendants’ fraudulent concealment was further propagated by Defendants’ claim that normal market forces explain why the CDS final auction price deviates significantly from bond market prices. For example, Credit Suisse in 2011 published a report to its clients advising them that for those who were cash settling their CDS via reference to the final auction price, “the cheapest to deliver [bond] will drive the level the IMM [initial market midpoint] sets at in the first part of the auction, but the Final Price can differ from the IMM depending on how the second part of the auction pans out.”

532. This statement is false and misleading. The notion that the cheapest to deliver bond “will drive the level the IMM sets at in the first part of the auction” misattributes the real reasons driving the IMM to a supra-competitively low price. It is not the cheapest-to-deliver bond that does all the work, but rather *Defendants’ coordinated pricing submissions* that drive the IMM and the final auction price to a supra-competitively low price (in “sell” auctions).

3. Plaintiffs Were Able to Uncover Defendants’ Conspiracy Only Through a Sustained and Extensive Investigation That Similarly Situated Entities do not Have the Resources to Undertake

533. Plaintiffs’ ignorance of the concealed misconduct is not attributable to a lack of reasonable diligence on their part. Indeed, it is only because of the extraordinary efforts of Plaintiffs and their counsel that they have been able to uncover Defendants’ conspiracy to bid-rig CDS auctions and price-fix the final auction price.

534. There was no government investigation that alerted Plaintiffs to Defendants’ bid-rigging and price-fixing. Instead, Plaintiffs, through their counsel, undertook an extensive and

expensive investigation – necessitating hundreds of thousands of dollars of expenses and attorney time – to uncover the facts that are reflected in this Complaint, including, among other things, interviewing numerous industry participants and undertaking extensive and sophisticated econometric analyses of CDS auction data. Plaintiffs’ inability to discover Defendants’ conspiracy up until this point is due to Defendants’ concealment, not a lack of diligence.

535. While Plaintiffs, either directly or through outside advisers, regularly monitored their investments and conducted due diligence to try to avoid being harmed by financial misconduct, practically speaking, there were limits to what could have been done given Defendants’ concealment. Reasonable due diligence could not have uncovered Defendants’ manipulative conspiracy because: (i) Defendants’ CDS positions and trading strategies are not publicly available; (ii) the CDS auctions process was represented and held out as being fair, efficient, transparent, and competitive based on market factors; (iii) the highly specialized nature of CDS and CDS auctions makes it exceedingly difficult for an ordinary person to assess improprieties and identify collusion; (iv) Defendants did not inform Plaintiffs or other members of the Class that Defendants were conspiring to fix and/or manipulate the final price of CDS auctions; and (v) Plaintiffs and members of the Class were not parties to Defendants’ private communications in which they agreed to fix CDS auctions.

536. Moreover, by virtue of their conspiracy to control and manipulate the final auction price, Defendants have substantial market power, insider status, and expertise relative to the non-dealers in the CDS industry. As a result, their access to information and knowledge about the market is deep, institutionalized, and bolstered by their leverage over critical market infrastructure

entities like ISDA, Creditex, and Markit. The same is not true for non-dealer CDS market participants, and particularly not for the vast majority of non-dealer clients who trade CDS.

4. Defendants Have Operated Without Meaningful Government Oversight and Have Not Been Caught

537. Because of the regulatory patchwork that governs the credit default swap market, no regulator has unearthed Defendants’ conspiracy.

538. Regulatory authority over CDS is divided between the Commodity Futures Trading Commission (“CFTC”) and the Securities and Exchange Commission (“SEC”).¹⁹⁵ The CFTC retains primary authority over swaps, except for single-name (or “security-based”) swaps.¹⁹⁶ The SEC has jurisdiction over single-name (or “security-based”) swaps.¹⁹⁷

539. The CDS auction process slips through this patchwork of regulatory oversight. The auction is the settlement mechanism for single-name, index, and mixed swaps, and no single regulator has ever asserted oversight or regulatory authority over the CDS auction process. The result is a regulatory failure that overlooks the CDS auctions and the anti-competitive conduct that takes place within them.

540. Because of Defendants’ fraudulent concealment, any applicable statute of limitations affecting or limiting the rights of action by Plaintiffs or members of the Class have been tolled during the period of concealment. Defendants are also equitably estopped from asserting any statute of limitations defense.

¹⁹⁵ Nina Boyarchenko, Anna M. Costello, and Or Shachar, “The Long and Short of It: The Post-Crisis Corporate CDS Market,” *Federal Reserve Bank of New York Economic Policy Review*, at 9 (June 2020).

¹⁹⁶ *Id.* at 9.

¹⁹⁷ *Id.* at 9.

5. Defendants' Conduct Constitutes A Continuing Violation Of The Antitrust Laws

541. Under the continuing violations doctrine, in a conspiracy to violate the antitrust laws each of Defendants' new and independent overt acts that injures Plaintiffs triggers the statute of limitations anew for that act, regardless of Plaintiffs' knowledge of the alleged prior illegality.

542. Each time Defendants acted to successfully manipulate the final auction price of a new CDS auction constituted a new and independent act that caused a fresh injury to Plaintiffs and the putative Class. Multiple CDS auctions are held each year, and Plaintiffs' allegations demonstrate that Defendants' conspiracy involves bid-rigging and price-fixing of each CDS auction. Accordingly, each final auction price corrupted by Defendants' bid-rigging and price-fixing is a new injury that gives rise to a new cause of action and the statute of limitations begins to run from that time.

V. CLASS ACTION ALLEGATIONS

543. Plaintiffs, on behalf of themselves and those similarly situated, seek damages against Defendants based on the allegations contained of herein.

544. Plaintiffs bring this action on behalf of themselves and, under Federal Rule of Civil Procedure 23(a) and (b)(3), as representatives of a Class defined as follows:

All persons or entities who, during the period of June 1, 2005 through the present ("Class Period"), settled a credit default swap in the United States and its territories by reference to the ISDA credit default swap auction protocol or the auction process that became the ISDA credit default swap auction process. A "credit default swap" includes the following instruments: single-name CDS, index CDS, and swaptions.

Excluded from the Class are Defendants, their officers, directors, management, employees, current subsidiaries, or affiliates, and all federal governmental entities (the “Class”).¹⁹⁸

545. **Numerosity.** Members of the Class are so numerous that joinder is impracticable. Plaintiffs do not know the exact size of the Class but believe that there are thousands of putative Class members.

546. **Typicality.** Plaintiffs’ claims are typical of the claims of the members of the Class. Plaintiffs and all members of the Class were damaged by the same wrongful conduct of Defendants. Specifically, Defendants’ misconduct caused Plaintiffs and members of the Class to, in certain circumstances, pay more money than they should have in CDS protection payments at settlement and, in certain circumstances, receive less money than they should have in CDS protection payments at settlement.

547. Plaintiffs will fairly and adequately protect and represent the interests of the Class. Plaintiffs’ interests are coincident with, and not antagonistic to, those of the Class. Accordingly, by proving their own claims, Plaintiffs will prove other Class members’ claims as well.

548. **Adequacy of representation.** Plaintiffs are represented by counsel experienced and competent in the prosecution of antitrust litigation, class action litigation, and antitrust class action 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 Class and have no interests that are averse to, in conflict with, or are antagonistic to the interests of the Class.

¹⁹⁸ Plaintiffs have defined the Class based on currently available information and hereby reserve the right to amend the definition of the Class, including, without limitation, the Class Period.

549. **Commonality.** There are questions of law and fact common to the Class, 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:

- Whether Defendants engaged in a conspiracy among themselves to bid-rig the CDS auctions and price-fix the final auction price;
- The identity of the participants in the conspiracy;
- The duration of the conspiracy alleged, and the nature and character of the acts performed by Defendants and their co-conspirators in furtherance of their conspiracy;
- Whether the alleged conspiracy violated Section 1 of the Sherman Act;
- Whether Plaintiffs and other members of the Class suffered injury to their business and property as a direct, material, and proximate result of Defendants' conspiracy within the meaning of Section 4 of the Clayton Act; ;
- The effect of Defendants' alleged conspiracy on the final auction price;
- The appropriate measure of damages sustained by Plaintiffs and other members of the Class;
- Whether Plaintiffs and other Class members are entitled to injunctive relief; and
- The appropriate injunction needed to restore competition.

550. **Predominance.** Questions of law and fact common to the members of the Class predominate over questions that may affect only individual Class members because Defendants have acted on grounds generally applicable to the entire Class, thereby making a common methodology for determining Class damages appropriate. Such generally applicable conduct is inherent in Defendants' wrongful conduct.

551. **Superiority.** Class action treatment is a superior method for the fair and efficient adjudication of this 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. This Class has a high degree of cohesion, and prosecution of the action through representatives would be unobjectionable.

552. Plaintiffs know of no special difficulty to be encountered in the maintenance of this action that would preclude its maintenance as a class action.

VI. CLAIMS FOR RELIEF

FIRST CLAIM FOR RELIEF

Conspiracy to Restrain Trade in Violation of the Sherman Act , 15 U.S.C. § 1, and the Clayton Act, 15 U.S.C. § 15 (Against All Defendants)

553. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein.

554. 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.*

555. During the Class Period, Defendants agreed to reduce competition amongst themselves by fixing and/or manipulating prices.

556. The conspiracy is a *per se* violation of Section 1 of the Sherman Act. Alternatively, the conspiracy resulted in substantial anticompetitive effects in the CDS dealer-to-client market.

There is no legitimate business justification for, or pro-competitive benefits from, Defendants' conduct.

557. As a direct, material, and proximate result of Defendants' violation of Section 1 of the Sherman Antitrust Act, Plaintiffs and members of the Class have suffered injury to their business or property, within the meaning of Section 4 of the Clayton Act, 15 U.S.C. § 15(a), throughout the Class Period.

558. Plaintiffs and members of the Class are entitled to treble damages for Defendants' violations of Section 1 of the Sherman Antitrust Act, pursuant to Section 4 of the Clayton Act, 15 U.S.C. § 15(a).

559. Plaintiffs and members of the Class are also entitled to an injunction against Defendants preventing and restraining further violations, pursuant to Section 16 of the Clayton Act, 15 U.S.C. § 26.

SECOND CLAIM FOR RELIEF

Violation of the Commodity Exchange Act, 7 U.S.C. §§ 1, *et seq.* (Against All Defendants)

560. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein.

561. During the Class Period, Defendants and Jane Doe Defendants specifically intended to and did cause unlawful and artificial CDS final auction prices in violation of the CEA, 7 U.S.C. § 1, *et seq.*, through their use of collusive and manipulative misconduct. Defendants and Jane Doe Defendants manipulated the final CDS auction prices to benefit their own proprietary trading positions and make supra-competitive profits at the expense of Plaintiffs and the Class. As a direct result of the artificial final CDS auction prices, Plaintiffs and the Class suffered losses.

562. Defendants and Jane Doe Defendants have the ability to and did cause the final CDS auction prices to be artificial. Defendants and Jane Doe Defendants, either directly and/or through their employees and/or affiliates, are direct participants in the CDS auctions and are aware of the effect of their collusive and manipulative misconduct. As alleged herein, Defendants and Jane Doe Defendants are able to manipulate the CDS final auction prices by colluding in their submission of two-way prices and limit orders, both of which are used to calculate the final CDS auction price.

563. During the Class Period, the final CDS auction price did not result from legitimate market information and the forces of supply and demand. Its artificiality is evidenced by its material divergence from bond market prices that value the same underlying asset that the CDS auction protocol is supposed to value for purposes of CDS settlement. *See* Section IV.B.3, *supra*. Instead, the final CDS auction prices were artificially inflated, or deflated, by Defendants' and Jane Doe Defendants' collusive and manipulative activities.

564. Defendants and Jane Doe Defendants caused the artificial prices by excluding non-dealers and constraining non-dealer participation in the auctions, and by coordinating Defendants' submissions into the auctions so as to manipulate the final CDS auction prices up or down for the benefit of Defendants' own proprietary trading positions.

565. Defendants and Jane Doe Defendants therefore engaged in unlawful manipulation of CDS in violation of Sections 6(c), 9(a), and 22 of the CEA, codified at 7 U.S.C. §§ 9 and 25, throughout the Class Period.

566. Defendants' and Jane Doe Defendants' manipulation deprived Plaintiffs and the Class of a lawfully operating market during the Class Period.

567. Plaintiffs and members of the putative Class suffered actual damages and injury-in-fact due to artificial prices for CDS.

568. Plaintiffs and the Class are each entitled to actual damages sustained in CDS for the CEA violations alleged herein.

THIRD CLAIM FOR RELIEF

Principal-Agent Liability in Violation of the Commodity Exchange Act, 7 U.S.C. §§ 1, *et seq.* (Against All Defendants)

569. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein.

570. Each Defendant is liable under Section 2(a)(1)(B) of the CEA, 7 U.S.C. § 2(a)(1)(B), for the manipulative acts of its agents, representatives, and/or other persons acting for them in the scope of their employment.

571. Plaintiffs and the Class are each entitled to damages for the CEA violations alleged herein.

FOURTH CLAIM FOR RELIEF

Aiding and Abetting in Violation of the Commodity Exchange Act, 7 U.S.C. §§1, *et seq.* (Against All Defendants)

572. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein.

573. Defendants knowingly aided, abetted, counseled, induced and/or procured the violations of the CEA alleged herein. Each and every Defendant had extensive knowledge of the manipulation, and with such knowledge, willfully intended to materially assist the manipulation

by the other Defendants, which caused artificial prices throughout the Class Period in violation of Section 22(a)(1) of the CEA, 7 U.S.C. § 25(a)(1).

574. Plaintiffs and the Class are each entitled to damages for the CEA violations alleged herein.

FIFTH CLAIM FOR RELIEF

Unjust Enrichment (Against All Defendants)

575. Plaintiffs incorporate each preceding and succeeding paragraph as though fully set forth herein.

576. Defendants were unjustly enriched at the expense of and to the detriment of Plaintiffs and members of the Class. As described above, Defendants knowingly acted in an unfair, unconscionable, and oppressive manner towards Plaintiffs and members of the Class through their conspiracy to cartelize the CDS settlement process, and to bid-rig and price-fix the CDS final auction price.

577. Defendants settled CDS final auction prices at supra-competitive prices, which yielded them ill-gotten profits at the expense of Plaintiffs and the Class members. Defendants were unjustly enriched when Plaintiffs and Class members paid more than they otherwise would have and when Defendants paid Plaintiffs and Class members less than they otherwise would have (absent manipulation and the supra-competitive final auction price).

578. For example, Defendants were unjustly enriched at the expense of Plaintiffs and the Class when Plaintiffs and the Class, as protection sellers, paid Defendants, as protection purchasers, more when the CDS final auction price was suppressed than they otherwise would have absent Defendants' manipulation and the resulting supra-competitive final CDS auction

price. Likewise, Defendants were unjustly enriched at the expense of Plaintiffs and the Class when Plaintiffs and the Class, as protection purchasers, received less when the CDS final auction price was inflated than they otherwise would have absent Defendants' manipulation and the resulting supra-competitive final CDS auction price. As discussed above, the final CDS auction prices were determined directly by the Defendants in the CDS auction process, which Defendants manipulated throughout the Class Period.

579. Defendants worked in concert and entered into a civil conspiracy and illegal agreement to manipulate final CDS auction prices. Whereas a particular Defendant may have acted against its own economic interests and/or not have profited off one transaction when viewed in isolation, the conspiracy allowed all Defendants to profit. Accordingly, any Defendant not in privity on a given transaction is included in Plaintiffs' unjust enrichment claim as co-conspirator.

580. As described above, Defendants committed numerous overt acts in furtherance of the conspiracy and agreement, including but not limited to: (i) coordinating and submitting fraudulent submissions into CDS auctions; (ii) acting as a trading bloc and engaging in secret, collusive bid-rigging and price-fixing; (iii) sharing competitively and commercially sensitive information with one another about and around the CDS auctions; (iv) acting against their individual economic self-interest; and (v) intentionally failing to disclose material information that the final CDS auction prices were artificial and manipulated. Defendants acted with malice and intended to injure Plaintiffs and members of the Class through the actions described above.

581. Plaintiffs and members of the Class have no adequate remedy at law for these misappropriated gains. The Court should issue a constructive trust compelling Defendants to disgorge to Plaintiffs and members of the Class all unlawful or inequitable proceeds Defendants

received, and all funds Defendants unjustly retained that should have been paid to Plaintiffs and members of the Class. Plaintiffs and members of the Class are also entitled to rescission of the transactions or rescissory damages.

582. Each Defendant was at all relevant times fully aware of the conspiracy and substantially furthered it as set forth above.

583. Plaintiffs and members of the Class seek restoration of the monies of which they were unfairly and improperly deprived, as detailed above.

VII. PRAYER FOR RELIEF

584. Plaintiffs, on behalf of themselves and the proposed Class of similarly situated entities, respectfully request that the Court:

a. Determine that this action may be maintained as a Class action pursuant to Federal Rule of Civil Procedure 23(a) and (b)(3), direct that reasonable notice of this action, as provided by Federal Rule of Civil Procedure 23(c)(2), be given to the Class, and declare Plaintiffs as the representatives of the Class;

b. Decree that Defendants and their co-conspirators have unlawfully conspired to violate of Section 1 of the Sherman Act, 15 U.S.C. § 1 and award appropriate damages;

c. Decree that Defendants violated the CEA and award appropriate damages;

d. Decree that Defendants have been unjustly enriched by their wrongful conduct and award restitution to Plaintiffs;

e. Find Defendants jointly and severally liable for the damages incurred by Plaintiffs and the Class;

f. Award the Class treble damages;

- g. Award reasonable attorneys' fees and costs;
 - h. Award all available pre-judgment and post-judgment interest, to the fullest extent available under law or equity from the date of service of the initial complaint in this action;
 - i. Permanently enjoin Defendants from continuing their unlawful conduct;
- and
- j. Order such other, further and general relief as is just and proper.

VIII. DEMAND FOR A JURY TRIAL

585. 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: February 4, 2022

**OFFICE OF THE NEW MEXICO ATTORNEY GENERAL
HECTOR BALDERAS, ATTORNEY GENERAL**

/s/ Brian L. Moore

P. Cholla Khoury
Chief Deputy Attorney General – Civil Affairs
Brian E. McMath
Assistant Attorney General
Director – Consumer & Environmental Protection Division
Brian Moore
Assistant Attorney General
Consumer & Environmental Protection Division
Post Office Drawer 1508
Santa Fe, New Mexico 87504-1508
Tel: (505) 490-4052
ckhoury@nmag.gov
bmcmath@nmag.gov
bmoore@nmag.gov

Counsel for Plaintiffs SIC, PERA, and ERB

KIRBY McINERNEY LLP

David E. Kovel (*pro hac vice*)
Karen M. Lerner (*pro hac vice*)
Thomas L. Popejoy (*pro hac vice*)

Anthony E. Maneiro (*pro hac vice*)
250 Park Avenue
Suite 820
New York, NY 10177
Tel. (212) 371-6600
dkovel@kmlp.com
kerner@kmlp.com
tpopejoy@kmlp.com
amaneiro@kmlp.com

Interim Co-Lead Counsel for the Class

GILBERT LLP

Richard J. Leveridge (*pro hac vice*)
Chris Leonardo (*pro hac vice forthcoming*)
Adam H. Farra (*pro hac vice*)
Alison D. Gaske (*pro hac vice*)
Ethan H. Kaminsky (*pro hac vice*)
700 Pennsylvania Avenue, S.E.
Suite 400
Washington, D.C. 20003
Tel. (202) 772-2301
leveridger@GilbertLegal.com
leonardoc@GilbertLegal.com
farraa@GilbertLegal.com
gaskea@GilbertLegal.com
kaminskye@GilbertLegal.com

Interim Co-Lead Counsel for the Class

BERGER MONTAGUE

Michael Dell'Angelo (*pro hac vice forthcoming*)
Michael J. Kane (*pro hac vice forthcoming*)
Zachary D. Caplan (*pro hac vice forthcoming*)
1818 Market Street
Suite 3600
Philadelphia, PA 19103
Tel. (215) 875-3080
mdellangelo@bm.net
mkane@bm.net
zcaplan@bm.net

Counsel for the Class

CERTIFICATE OF SEVRVICE

I hereby certify that on February 4, 2022, I filed the foregoing using CM/ECF, which caused the registered users to be served by electronic means, as reflected in the Notice of Electronic Filing.

/s/ Brian Moore
Brian Moore