

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

IN RE:

COMMODITY EXCHANGE, INC., GOLD
FUTURES AND OPTIONS TRADING
LITIGATION

This Document Relates To All Actions

Case No. 14-MD-2548 (VEC)
14-MC-2548 (VEC)

**THIRD CONSOLIDATED
AMENDED CLASS ACTION
COMPLAINT**

JURY TRIAL DEMANDED

TABLE OF CONTENTS

NATURE OF THE ACTION 1

JURISDICTION AND VENUE 12

THE PARTIES..... 13

 A. Plaintiffs..... 13

 B. Defendants 23

FACTUAL ALLEGATIONS 29

I. BACKGROUND ON THE GOLD MARKET 29

 A. The London Gold Fixing 29

 B. The LBMA..... 32

 C. The London Bullion Market 33

 D. The Many Outlets for Gold Investments 35

 E. The Fixing Impacts the Prices of Both Physical and Derivative Gold Investments,
 and the Share Prices of Gold ETFs 38

II. MULTIPLE ECONOMIC ANALYSES REVEAL ARTIFICIAL DOWNWARD
SPIKES AROUND THE TIME OF THE PM FIXING 43

 A. To a Statistically Significant Degree, Prices Around the PM Fixing Trended
 Lower than Previously Prevailing Prices..... 44

 B. To a Statistically Certain Degree, Price Movements Around the PM Fixing are
 Contrary To Price Trend on a Given Day 49

 C. To a Statistically Significant Degree, the PM Fix Price Fell Into the Extreme
 Outliers of Prices for that Trading Day..... 52

 D. To a Statistically Certain Degree, a Comparison of Minute-by-Minute Prices
 Reveal a Pattern of Price Spikes Around the Fixing..... 53

 E. To a Statistically Certain Degree, the PM Fixing Downward Spikes Stand Out as
 Against Movements at Any Other Time of Day – Even the AM Fixing..... 58

 F. The Downward Spikes Can Be Seen in the Daily Data as Well..... 65

III. PLAINTIFFS HAVE IDENTIFIED SPECIFIC DAYS ON WHICH THEY ALLEGE, BASED ON THESE STATISTICAL STUDIES, THAT MANIPULATION OCCURRED	67
IV. THERE IS NO INNOCENT EXPLANATION FOR THE ABNORMALITIES SEEN IN THE PRICING DATA SURROUNDING THE PM FIXING	68
A. None of the Proposed Alternative Explanations are Persuasive	69
1. The asymmetrical movements cannot be explained by general market trends.....	69
2. The asymmetrical movements cannot be explained by the fact the Fixing was releasing new information into the market	69
3. The asymmetrical movements cannot be explained by a purported increase in market liquidity.....	72
B. Other External Market Forces Cannot Account for the Anomalous Price Movements Observed Around the Fixing.....	81
V. THE PRICE MOVEMENTS AROUND THE PM FIXING WERE THE RESULT OF DEFENDANTS’ MANIPULATIONS	84
A. The Defendants Banks Were Heavily Motivated to Exercise Joint Control Over the Prices for Gold	87
1. The Defendant Banks were heavily invested in gold.....	87
2. Defendants were particularly motivated by their huge “short” COMEX futures positions	90
3. Even “balanced” – or “hedged” – portfolios present the opportunity to profit from daily spikes – particularly if the portfolio is “short” in <i>futures</i> , specifically	95
4. The movement of the Fix price is highly correlated with the Defendants’ COMEX positions	98
5. There are numerous other ways to profit from foreknowledge about an upcoming price spike	99
B. The “Tools of the (Manipulation) Trade” Are Well Known to Defendants	101
C. Further Analysis of the Available Pricing Data Confirms it Was Defendants, Acting Jointly, Behind the Pricing Anomalies	109
D. Defendants’ Manipulative Activities Impacted the Purported “Auction” Process	112
E. Numerous Plus Factors Are Probative of Collusion in Connection with the London Gold Fixing.....	117

VI. ONGOING GOVERNMENT INVESTIGATIONS CORROBORATE PLAINTIFFS’ ALLEGATIONS.....	121
A. Multiple Investigations Are Underway Worldwide.....	121
B. Barclays Has Been Fined for Manipulating the Fixing, Using the Very Methods Alleged Here.....	125
C. FINMA Found Similar Problems at UBS.....	129
D. Other Relevant Findings.....	131
VII. MULTIPLE ECONOMIC ANALYSES CONFIRM THAT THE CONSPIRACY WAS ONGOING IN 2004 AND 2005.....	134
A. Nearly All Of The Economic Analyses Discussed Above Apply With At Least Equal Force To 2004 And 2005.....	134
B. Supplemental Analyses Confirm That The Studies Which Originally Focused On 2007 To 2013 Also Apply To 2004 And 2005.....	143
C. Additional Analyses Further Confirm That The Conspiracy Extended To 2004 And 2005.....	150
VIII. UBS ACTIVELY PARTICIPATED IN THE CONSPIRACY TO MANIPULATE GOLD PRICES.....	154
A. Multiple Economic Analyses Show That UBS Was An Active Participant In Leading the Market Down Alongside the Panel Banks.....	154
B. Cooperation Materials From Fixing Bank Defendant Deutsche Bank Further Confirm That UBS Was An Active Participant In The Conspiracy.....	158
IX. DEFENDANTS’ CONDUCT RESTRAINED TRADE, DECREASED COMPETITION, AND ARTIFICIALLY LOWERED PRICES, THEREBY INJURING PLAINTIFFS.....	165
A. Prices for Gold Investments – Including The Spot Market as Governed by the Fixing – are Inextricably Linked.....	165
B. Defendants’ Artificial Lowering of the Price of Gold, Including the PM Fix Price, Directly Impacted the Market for Gold Investments.....	166
C. Plaintiffs, as Sellers in the Market for Gold Investments, Were Injured by Transacting at Lowered Prices Created by Defendants’ Collusive Conduct.....	169
D. Defendants’ Manipulative Conduct Caused Sustained Price Suppression of Gold Prices.....	169

X. EQUITABLE TOLLING OF THE STATUTE OF LIMITATIONS DUE TO DEFENDANTS' CONCEALMENT OF THE CONSPIRACY	171
XI. CLASS ACTION ALLEGATIONS	174
CAUSES OF ACTION	177
PRAYER FOR RELIEF	182
DEMAND FOR JURY TRIAL	184

Plaintiffs American Precious Metals, Ltd.; Norman Bailey; Patricia Benvenuto; Michel de Chabert-Ostland; Compañía Minera Dayton, SCM; Edward R. Derksen; Frank Flanagan; Quitman D. Fulmer; Thomas Galligher; KPFF Investment, Inc.; Duane Lewis; Larry Dean Lewis; Kevin Maher; Robert Marechal; David Markun; Blanche McKennon; Kelly McKennon; Thomas Moran; Eric Nalven; Nando, Inc.; J. Scott Nicholson; Santiago Gold Fund LP; Albert Semrau; Steven E. Summer; Richard White; White Oak Fund LP; and David Windmiller (collectively, “Plaintiffs”)¹, individually and on behalf of all those similarly situated bring this class action for treble damages and injunctive relief and allege as follows:

NATURE OF THE ACTION

1. Throughout the Class Period (as defined below), The Bank of Nova Scotia, Barclays, Deutsche Bank, HSBC, and Société Générale (the “Fixing Bank Defendants”) met privately twice each London business day for what is aptly known as the London Gold Market Fixing (hereafter the “London Gold Fixing” or “Fixing”).² The Fixing produces a benchmark rate for gold, a price often agreed to be used in advance by buyers and sellers of gold (the “Fix price”).

2. The Fixing was supposed to start and end with open competition. The process began with the current – supposedly competitive – “spot” rate for gold. From that starting point, a competitive auction was supposed to take place. The equilibrium price reached during that auction – *i.e.*, the price where the buy orders and sell orders were roughly equal – became the Fix price, the benchmark price for gold adopted at that session of the Fixing. That price would be

¹ The continued inclusion of named plaintiffs that transacted only in ETFs (Fulmer, Santiago Gold Fund, and Summer) and of the unjust enrichment claim in the face of this Third Amended Complaint (“TAC”) is not an attempt to re-litigate the Court’s dismissal of those claims, but rather is being done for preservation purposes.

² The morning process is known as the “AM Fixing” and the afternoon process is known as the “PM Fixing.”

used directly in contracts for the purchase and sale of gold that had adopted as the price term the Fix price for a given day.

3. Many types of contracts are explicitly tied to the Fix price. Buyers and sellers of physical gold pre-arrange transactions, with the price term being directly fulfilled by adoption of the Fix price for a given future date. Further, many derivatives have their cash flows calculated in direct reference to the Fix price on a given day.

4. But the influence of the Fixing goes beyond contracts that literally adopt the Fix price as their own. Because of its importance as a benchmark, as the Fix price goes, so too goes the spot and futures markets for gold. This relationship is undeniable, as thoroughly documented by studies conducted by Plaintiffs and independently by academics. The Fixing thus presented an apparently too-tempting opportunity for the Fixing Bank Defendants and their co-conspirators, including fellow bank UBS (together with the Fixing Bank Defendants, the “Bank Defendants”) and the Fixing Bank Defendants’ agent, LGMF (as defined below).

5. Due to the fact the Fixing was directly baked into many contracts and derivatives, the conspiracy gave the Bank Defendants the opportunity to “name their own price.” Due to the fact the Fix price was in a symbiotic relationship with the spot and futures prices, control over the Fixing gave the Bank Defendants the opportunity to cash in on their foreknowledge of the direction in the price of gold in other venues as well. And because the anachronistic Fixing process had sanctioned the Fixing Bank Defendants’ *daily* meetings, Defendants were presented with a ready-made process for *daily* coordination of their activities.

6. As in other benchmark areas (numerous interest rates, numerous FX rates, the list goes on and on), in gold, instead of allowing the benchmark, and thus the price of gold generally, to be set through competition, Defendants could not resist the powerful temptation presented by

this confluence of factors – the conflict of interest they all faced in being both a major market participant, and a determining factor in a key pricing term. Rather than let prices move naturally, Defendants instead colluded around the PM Fixing to ensure prices moved the direction they wanted, when they wanted.

7. Even the limited, pre-discovery cooperation materials that Plaintiffs have thus far obtained from Deutsche Bank³ demonstrate that Defendants recognized and reaped the benefits of colluding on the PM Fixing. For example, in 2007, on a particular difficult trading day, a trader from Deutsche Bank relayed to his counterpart from Bank of Nova Scotia that “at least the fix will be fun . . . make it all back there!!!!!! :!” Later in 2007, that same Deutsche Bank trader remarked to a different trader at Bank of Nova Scotia “hahahahaha, we were all short going into that fix.” In 2008, that same Deutsche Bank trader was told by his counterpart at HSBC that “i kick some out and take it back after the fix,” meaning that he was employing a strategy to sell gold at a high price and buy it back later at a lower price “after the fix.” In response, the Deutsche Bank trader joked that “ yeah no one else is thinking that : - l”

8. In 2011, that same Deutsche Bank trader similarly remarked to a different HSBC trader that “everyone shrt into the fix i swear it’s the only time ppl trade,” to which the counterpart at HSBC replied “hahahahahahahahahahha shocking absolutely shocking.” In 2012, that same Deutsche Bank trader said to his counterpart at Barclays, “im glad u are now interbank.” The Barclays trader asked why, and the Deutsche Bank trader replied “it’s a good alliance.” That same day in 2012, that same Deutsche Bank trader remarked to a different trader

³ Plaintiffs have reached a settlement with Deutsche Bank, which requires Deutsche Bank’s cooperation in pursuing claims against the other defendants. *See* Dkt. 130. As that settlement has yet to be approved, Deutsche Bank is still named as a defendant in this litigation. As the Court has already upheld claims against the non-UBS defendants, Plaintiffs only include a small sample of the conspiratorial communications obtained to date, and focus instead on the task at hand, *i.e.*, showing the dismissed defendant, UBS, was also party to the conspiracy.

at Barclays, “im a tiny buyer at the mom.” The Barclays trader answered “think im buyer too,” to which the Deutsche Bank trader replied “means we fix lower.”

9. That competitive forces broke around the PM Fixing is also demonstrated by the Plaintiffs’ forensic work. As detailed herein, prices for gold acted differently around the Fixing than they did at any other time of day. No matter how many ways the pricing data is sliced, *statistically significant* patterns of deviations from the norm are observed, *only* around the PM Fixing. Specifically, uniquely around the PM Fixing, prices quickly went down far more often than they went up. And when the prices went down, they went down *further* than prices increased when they went up.

10. Defendants drove these downward movements first by moving spot and futures prices for gold in advance and even during the “auction.” The Bank Defendants – horizontal competitors – shared in advance confidential client order information. This allowed the coordinated execution of transactions just before and during the Fixing window. Transactions that would move the market in the desired direction – such as large sell orders on a day gold was to be driven down – would be grouped and timed for maximum effect around the Fixing, thus altering the starting price, inducing clients to change their directions to the Fixing Bank Defendants, and giving cover to an auction-rate that would otherwise have stood out like a sore thumb. Transactions that would otherwise counteract those deals would be “netted off” between the banks, or otherwise executed (or not) in ways that did not send signals to the market that Defendants did not want sent.⁴

⁴ Defendants’ manipulative tactics included, among other things, “front running” (trading in own positions in advance of customer orders to take advantage of the market’s resulting move when the client’s orders are placed), “spoofing” (placing large orders that are never executed), “wash sales” (placing large orders that are executed then quickly reversed), and

11. The cooperation materials also confirm that UBS understood, participated in and benefited from the collusive activities. There are dozens of chat room transcripts and emails in which traders at UBS and Deutsche Bank shared customer order information and executed coordinated trades in order to “push,” “smack,” and “whack” gold prices. These included many efforts to artificially suppress gold prices, and to manipulate gold prices at the time of the Fixing. As one UBS trader noted to Deutsche Bank in 2011: “its not rocket science” to “make good money” on the Fix.

12. The Deutsche Bank documents show that Defendants regularly discussed coordinating their gold transactions, including with UBS. On March 21, 2011, for example, traders from UBS and Deutsche Bank had the following conversation:

Trader	Message
UBS	okay when gold pops 1430
UBS	we whack it
UBS	u sell your 50k
UBS	i sell my 20k
UBS	then we double that up and produce our on liquidity too
UBS	that should be enough to cap it on a holiday
Deutsche Bank	haha yeah
Deutsche Bank	lol

13. Defendants coordinated these efforts around the PM Fixing, as opposed to other times of day, because the Fixing presented multiple advantages. The archaic Fixing process provided a veneer of legitimacy for the Fixing Bank Defendants’ *daily* meetings – something that would be an obvious anathema to competition in any other context. Defendants were presented with a ready-made process for *daily* coordination of their activities. Another is the influence of the Fix price itself. By manipulating the price around the Fixing, Defendants were not just setting their own price on Fix price-linked transactions, but were simultaneously creating

“jamming” (using such techniques to trigger a stop-loss order or to avoid a bank’s having to pay on an option or similar contracts).

opportunities to profit in numerous outlets for gold-related investments.

14. The downward movements around the PM Fixing were the result of manipulation. These were not the result of natural market forces. In a fully competitive environment, over a long enough time horizon, there is no reason to expect *so much* more “bad” news to come out around the Fixing, than “good” news, as to have caused such historically asymmetrical price movements. Nor is there reason for sellers to be *asymmetrically* drawn to the time of day the Fixing was set, as opposed to buyers as well. Thus, that prices moved asymmetrically in one direction, in a statistically significant way, is powerful evidence that prices were artificial, *i.e.*, they were being manipulated.⁵ So, too, is the fact that many of the anomalies – which previously appeared *consistently, year after year* – abated during 2013, just as the banks’ benchmarking practices began to come under increased scrutiny and their gold futures positions became long rather than short.

15. The manipulation was a joint effort. A single actor could not and would not have attempted to move the market so consistently. There would not have been enough “ammo” to do so, and the risk (and cost) would have been too high.

16. The manipulation was a joint effort of these Defendants. Only they had the unique opportunity to collude on a daily basis without setting off alarm bells. Only they had the power to hide, ratify, and magnify the effects of artificial price movements in the market for gold, with the release of (rigged) “auction” results.

17. Indeed, additional forensic analysis confirms that the downward movements were

⁵ Indeed, the price spikes are observed to have occurred around the PM Fixing, *specifically*. For various reasons, such as changing daylight savings laws, the Fix occurred at different times during the New York trading day, and sometimes did not occur at all. The spikes follow the Fix, not just the early hours of the New York day as a general matter. And they disappear completely on days when no Fixing occurred.

the result of *joint* actions by *these* Defendants. The data shows that the Bank Defendants' prices for gold were clustered together around the Fixing. They were clustered together more on days when the Fix price was set to spike downward. And they were clustered together more than the quotes of everyone else in the market. The data also shows that the Bank Defendants' prices were not just clustered together, but were together with prices that are *lower* than those of other market participants. This confirms they were leading the (downward) charge. Finally, the data shows that, as with the spiking anomalies generally, this pattern of moving *lower, together*, begins to abate during 2013.

18. The price of gold moves the value of, and determines the cash flow for, many different kinds of transactions. The number of ways the world's largest gold banks could profit from foreknowledge as to the timing and direction of a future "spike" in the price of gold is essentially limitless. The Bank Defendants profited on Fix price-linked sales of physical gold, allowing them to buy gold cheaper during a period of artificial suppression than they otherwise would have, making a *riskless* profit when the effects of the suppression abated. The Bank Defendants profited on huge portfolios of Fix price-linked derivatives. The Bank Defendants profited by avoiding triggers for their client's "digital options." The Bank Defendants profited because they were holders of *massive* "short" positions in the futures market (including the Commodity Exchange, Inc. ("COMEX")⁶ market).

19. These are but some examples. There are many ways resourceful banks could and did cash in on the foreknowledge that the Fix price, and thus the price of gold generally, was going to go down on a given day, at a given time. Large gold investors like Defendants could

⁶ COMEX is owned by CME Group Inc. ("CME"). CME stands for Chicago Mercantile Exchange. CME owns and operates large derivative and futures exchanges in New York and Chicago, as well as online trading platforms. CME's two principal divisions in New York are COMEX and the New York Mercantile Exchange ("NYMEX").

easily profit off of advance knowledge of the existence and timing of a downward price spike, *regardless* of their overall position at the start of the day.

20. The opportunity for profit from foreknowledge of a spike is made all the more clear by the fact that, while the price of gold moves together across the market, the value that movement creates (or destroys) is not necessarily equal even in a “balanced” portfolio.

21. For instance, COMEX *futures* – the instrument the Bank Defendants were heavily “short” in – are margined, on a cash basis, *daily*. In contrast, simply holding gold in a vault does not result in a change in cash flows and, indeed, a spike downward in the price of gold could allow *more* gold to be purchased, to be held for sale once the impact of suppression abated. By way of another example, gold *forwards* are only settled on expiry. Cash in hand today (from a daily-managed COMEX futures contract) is generally worth more than an offsetting amount of cash leaving later (by way of a payment only at expiry forward). The Bank Defendants – with their huge, daily-margined COMEX “short” futures – were highly motivated to push the price of gold down on a daily basis, *regardless* of whether their positions were “balanced” from a regulatory or other perspective due to ownership of “long” positions such as physical gold or forward contracts.

22. That the banks well-knew how to profit from the joint manipulation of financial benchmarks, despite any purported differences in interests between and amongst them on a given day, is confirmed by the fact this is just one in a series of such behaviors. Many of the world’s leading banks *admitted to* manipulating the key LIBOR financial benchmark, including by way of *collusion* between their respective traders. In the FX markets, many of the world’s leading banks *admitted* that their traders *colluded* to move the markets in advance of the setting of key currency benchmarks.

23. Switzerland's financial regulator, FINMA, reported that it has "seen clear attempts to manipulate fixes in the precious metals markets."⁷ FINMA unequivocally found that these attempts involved "collusion" among UBS and "other banks,"⁸ and that – "just as in foreign exchange trading" – the Fixing Banks shared confidential client order information and expected future order information with other banks.⁹ FINMA formally investigated eleven currency and bullion traders and managers at UBS.¹⁰ In December 2015, FINMA issued industry bans against six of those traders and managers, finding that those individuals were directly responsible for serious breaches of regulations during their time at UBS.

24. Both the Department of Justice ("DOJ") and the Commodity Futures Trading Commission ("CFTC") are specifically investigating Defendants' and potential co-conspirators' involvement in the gold price-setting process.¹¹ Under investigation are Bank of Nova Scotia, Barclays PLC, Credit Suisse Group AG, Deutsche Bank AG, Goldman Sachs Group Inc., HSBC Holdings PLC, J.P. Morgan Chase & Co., Société Générale SA, Standard Bank Group Ltd., and UBS AG. At least Defendants Barclays and HSBC have been subpoenaed relating to their

⁷ Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html.

⁸ FINMA, Press release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), www.finma.ch/e/aktuell/Documents/mm_ubs-devisenhandel_20141112_e.pdf.

⁹ FINMA, Foreign exchange trading at UBS AG: investigation conducted by FINMA – Report (Nov. 12, 2014), www.finma.ch/e/aktuell/Documents/ubs-fx-bericht-20141112-e.pdf.

¹⁰ FINMA, Foreign exchange manipulation: FINMA issues six industry bans (Dec. 17, 2015), <https://www.finma.ch/en/news/2015/12/20151217-mm-devisenhandel/>.

¹¹ See Jean Eaglesham and Christopher M. Matthews, *Big Banks Face Scrutiny Over Pricing of Metals: U.S. Justice Department investigates price-setting process for gold, silver, platinum, and palladium*, The Wall Street Journal (Feb. 23, 2015), www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801; see also Jan Harvey, *CFTC subpoenaed HSBC Bank USA for documents on metals trading*, Reuters (Feb. 23, 2015), <http://www.reuters.com/article/2015/02/23/us-precious-hsbc-cftc-idUSKBN0LR1C520150223>.

precious metals practices.¹² On June 1, 2017, trader David Liew pled guilty to manipulation in the markets for gold and other precious metals both individually and in collusion with other traders. And, on June 2, the CFTC issued an order finding that Mr. Liew had engaged in activities both individually and in collusion with other traders to manipulate the prices of gold futures contracts. The plea agreement and CFTC Order were filed as exhibits to Plaintiffs' June 5 letter to the Court, which is incorporated by reference herein. *See* Dkt. 261.

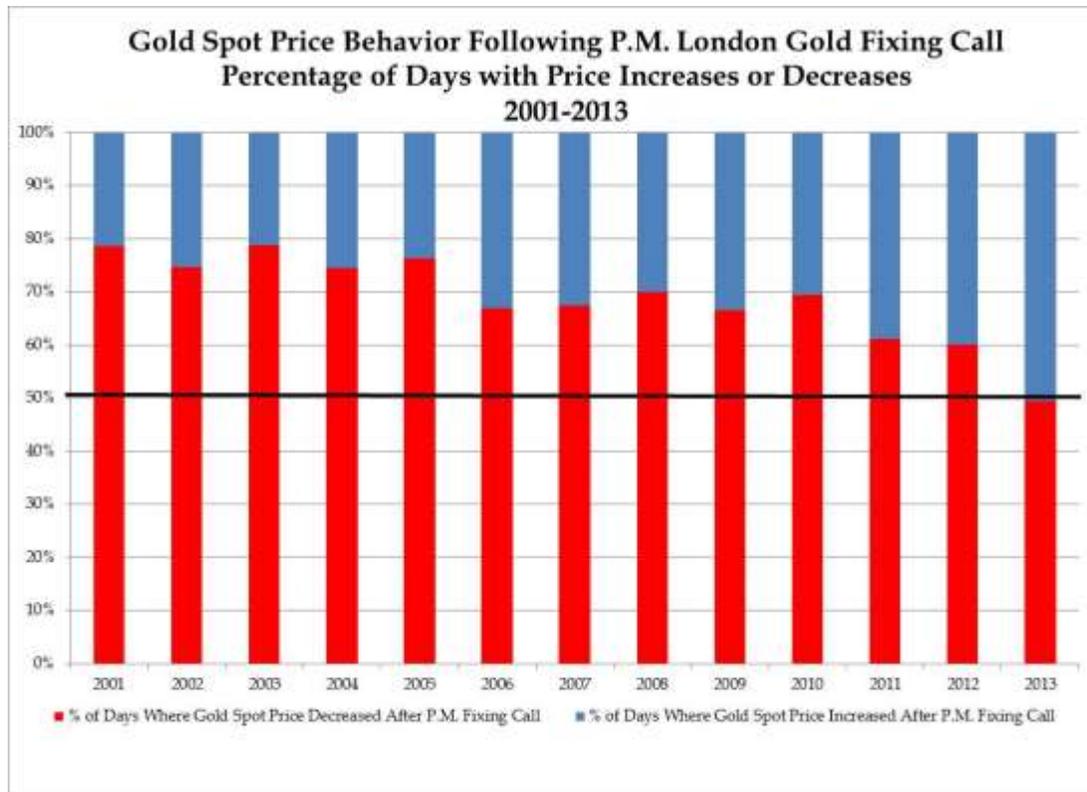
25. The Swiss Competition authority, WEKO, is investigating "possible prohibited competitive agreements" in the gold market. The focus of the investigation includes Defendants UBS, Deutsche Bank, HSBC, and others.

26. Antitrust regulators from the European Union are also investigating manipulation of precious-metals prices.¹³ Defendant HSBC, which is one of the many targets of this investigation, is reported to be cooperating with authorities.

27. The graph below identifies how often the final PM Fix price was below the price for gold just before the Fixing began, versus how often the final PM Fix price was above the price of gold just before the Fixing began. Strikingly, for the first time in over a decade, during 2013 – just when the banks' benchmarking practices began to come under scrutiny – prices were just as likely to go up during the PM Fixing window as to go down (a phenomenon that began in the latter half of 2013). Other signs of manipulative behavior, as detailed below, similarly began to diminish over the course of 2013. This significantly undermines any suggestion that the downward movement observed in years prior was the result of natural market movements.

¹² *Id.*

¹³ *See* Gaspard Sebag and Stephen Morris, *Precious-Metals Trading Is Probed by EU After U.S. Inquiry*, Bloomberg (Aug. 25, 2015), <http://www.bloomberg.com/news/articles/2015-08-25/eu-commission-is-probing-precious-metals-operations>.



28. There have been other changes as well. Defendant Deutsche Bank withdrew from the Fixing process in May 2014 (after initially trying – but failing – to sell its seat as a Fixing member¹⁴), and later announced its intention to sell its precious metals trading business. Guidelines for financial benchmarks designed to improve the integrity and reliability of the process were published by the International Organization of Securities Commissions in 2013, and these guidelines have led to an overhaul of how the Fixing is now being conducted. In November 2014, as a result of the London Bullion Market Association’s (“LBMA”) review of the Fixing, ICE Benchmark Administration (“IBA”) was selected as a third-party administrator

¹⁴ See Maria Kolesnikova, *Deutsche Bank Resigns from Gold Fix After Seat Sale Fails*, Bloomberg Business (April 29, 2014) www.bloomberg.com/news/articles/2014-04-29/deutsche-bank-resigns-from-gold-fix-after-seat-sale-fails.

for the Fixing.¹⁵ IBA “will provide the price platform, methodology as well as the overall administration and governance” for the Fixing. The new gold pricing process was launched in March 2015.

29. Some of Defendants’ gold traders have lost their jobs or been placed on indefinite leave, and investigations by various government regulators are ongoing. But none of these changes have compensated the investors in gold, and investments and securities whose value is based on gold (together, “Gold Investments”¹⁶), like Plaintiffs, who were injured in their business and property by Defendants’ collusive and manipulative conduct. Plaintiffs seek redress in this action on their own behalf and on behalf of the Proposed Class.

JURISDICTION AND VENUE

30. 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).

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

32. The COMEX, where much of the affected trading takes place and whose prices were manipulated, is located in the Southern District of New York. Approved gold warehouses,

¹⁵ Appointment of IBA as Third Party Administrator for LBMA Gold Price (Nov. 7, 2014), www.lbma.org.uk/_blog/lbma_media_centre/post/appointment-of-iba-as-third-party-administrator-for-lbma-gold-price.

¹⁶ “Gold Investments” refers, without limitation, to gold bullion and gold bullion coins, gold futures on COMEX and other U.S. exchanges, shares of Gold ETFs (as defined below), over-the-counter gold spot or forward transactions and option on any of the foregoing.

including at least two affiliated with or owned by a Defendant, are located in this District and the adjacent Eastern District of New York.

33. This Court has personal jurisdiction over each Defendant, because each Defendant: transacted business throughout the United States, including in this District; had substantial contacts with the United States, including in this District; committed overt acts in furtherance of their illegal scheme and conspiracy in the United States; and/or is an agent of the other Defendants. In addition, the Defendants' conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business throughout the United States, including in this District.

34. The activities of Defendants and their co-conspirators were within the flow of, were intended to, and did have a substantial effect on the foreign and interstate commerce of the United States.

THE PARTIES

A. Plaintiffs

35. Plaintiff American Precious Metals, Ltd. ("American Precious Metals") is a Pennsylvania limited company with its principal place of business in Media, Pennsylvania. During the Class Period, American Precious Metals sold physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, American Precious Metals sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. American Precious Metals was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including the segment for physical gold, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

36. Plaintiff Norman Bailey is an individual residing in Ontario, Canada. During the Class Period, Mr. Bailey sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Bailey sold COMEX gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Bailey was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

37. Plaintiff Patricia Benvenuto is an individual residing in Phoenixville, Pennsylvania. During the Class Period, Ms. Benvenuto sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Ms. Benvenuto sold COMEX gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Ms. Benvenuto was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to her business or property as a direct and proximate result of Defendants' unlawful conduct.

38. Plaintiff Michel de Chabert-Ostland is an individual residing in West Palm Beach, Florida. During the Class Period, Mr. de Chabert-Ostland sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. de Chabert-Ostland sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. de Chabert-Ostland was deprived of transacting in a lawful, non-

manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

39. Plaintiff Compañía Minera Dayton, SCM ("CMD") is a Chilean corporation and the 100% owner of a gold mine located near Andacollo, Region IV, Chile. CMD's parent company is Hamilton Place Associates LLC. During the Class Period, CMD mined physical gold from the Andacollo mine, and sold and delivered it in the United States to Johnson Matthey USA, Inc. ("Johnson Matthey"), or to Johnston Matthey's successors in interest, at prices linked to the London PM Gold Fix. As reflected in Appendix B, CMD sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. CMD was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for physical gold, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

40. Plaintiff Edward R. Derksen is an individual residing in Sisters, Oregon. During the Class Period, Mr. Derksen sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Derksen sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Derksen was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

41. Plaintiff Frank Flanagan is an individual residing in Swansea, United Kingdom.

During the Class Period, Mr. Flanagan sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Flanagan sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Flanagan was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

42. Plaintiff Quitman D. Fulmer is an individual residing in Charleston, South Carolina. During the Class Period, Mr. Fulmer sold Gold ETFs (as defined below) at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Fulmer sold Gold ETFs on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Fulmer was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for shares of Gold ETFs, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

43. Plaintiff Thomas Galligher is an individual residing in Phoenixville, Pennsylvania. During the Class Period, Mr. Galligher sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Galligher sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Galligher was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of

Defendants' unlawful conduct.

44. Plaintiff KPFF Investment, Inc. f/k/a KP Investments, Inc. ("KPFF") is a corporation with its principal place of business in Irvine, California. During the Class Period, KPFF sold physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, KPFF sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. KPFF was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for physical gold, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

45. Plaintiff Duane Lewis is an individual residing in Effingham, Illinois. During the Class Period, Mr. Duane Lewis sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Duane Lewis sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Duane Lewis was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

46. Plaintiff Larry Dean Lewis is an individual residing in Robinson, Illinois. During the Class Period, Mr. Larry Lewis sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Larry Lewis sold gold futures contracts on many of the specific days on which

Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Larry Lewis was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

47. Plaintiff Kevin Maher is an individual residing in Cambridge, New York. During the Class Period, Mr. Maher sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Maher sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Maher was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

48. Plaintiff Robert Marechal is an individual residing in Readsboro, Vermont. During the Class Period, Mr. Marechal sold Gold ETFs and physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Marechal sold Gold ETFs and physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Marechal was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segments for Gold ETFs and physical gold, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

49. Plaintiff David Markun is an individual residing in Topanga, California. During

the Class Period, Mr. Markun sold physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Markun sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Markun was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for physical gold, and otherwise suffered injury to her business or property as a direct and proximate result of Defendants' unlawful conduct.

50. [Omitted].

51. Plaintiff Blanche McKennon is an individual residing in Pullman, Washington. During the Class Period, Ms. McKennon sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Ms. McKennon sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Ms. McKennon was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to her business or property as a direct and proximate result of Defendants' unlawful conduct.

52. Plaintiff Kelly McKennon is an individual residing in Pullman, Washington. During the Class Period, Mr. McKennon sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. McKennon sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. McKennon was deprived of transacting in a lawful, non-manipulated, competitive market for

Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

53. Plaintiff Thomas Moran is an individual residing in Atlanta, Georgia. During the Class Period, Mr. Moran sold COMEX gold futures contracts and Gold ETFs at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Moran sold gold futures contracts and Gold ETFs on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Moran was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

54. Plaintiff Eric Nalven is an individual residing in Delray Beach, Florida. During the Class Period, Mr. Nalven sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Nalven sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Nalven was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

55. Plaintiff Nando, Inc. ("Nando") is a corporation with its principal place of business in Roberts, Wisconsin. During the Class Period, Nando sold physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected

in Appendix B, Nando sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Nando was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for physical gold, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

56. Plaintiff J. Scott Nicholson is an individual residing in Bellevue, Washington. During the Class Period, Mr. Nicholson sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Nicholson sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Nicholson was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

57. [Omitted].

58. Plaintiff Santiago Gold Fund LP ("Santiago Gold Fund") is a Delaware limited partnership with its principal place of business in San Francisco, California. During the Class Period, Santiago Gold Fund sold Gold ETFs and options on Gold ETFs at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Santiago Gold Fund sold Gold ETFs and options on Gold ETFs on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Santiago Gold Fund was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for physical

gold, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

59. Plaintiff Albert Semrau is an individual residing in Strasburg, Virginia. During the Class Period, Mr. Semrau sold physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Semrau sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Semrau was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for physical gold, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

60. Plaintiff Steven Summer is an individual residing in Plandome, New York. During the Class Period, Mr. Summer sold Gold ETFs at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Summer sold Gold ETFs on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Summer was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for shares of Gold ETFs, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

61. Plaintiff Richard White is an individual residing in Satellite Beach, Florida. During the Class Period, Mr. White sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. White sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr.

White was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

62. Plaintiff White Oak Fund LP ("White Oak") is a private placement fund headquartered in Burr Ridge, Illinois. During the Class Period, White Oak sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, White Oak sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. White Oak was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to its business or property as a direct and proximate result of Defendants' unlawful conduct.

63. Plaintiff David Windmiller is an individual residing in Melville, New York. During the Class Period, Mr. Windmiller sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Windmiller sold gold futures contracts on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Windmiller was deprived of transacting in a lawful, non-manipulated, competitive market for Gold Investments, including in the segment for gold futures contracts, and otherwise suffered injury to his business or property as a direct and proximate result of Defendants' unlawful conduct.

B. Defendants

64. 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.

65. Defendant **The Bank of Nova Scotia**, also known as Scotiabank, is a corporation organized and existing under the laws of Canada with its principal place of business in Toronto, Canada and an agency in New York, New York. As used herein, the term "**BNS**" includes The Bank of Nova Scotia and its subsidiaries and affiliates including ScotiaMocatta, the precious and base metals division of BNS. BNS is regulated by the CFTC. BNS operates the ScotiaMocatta Depository, a depository licensed by the CFTC and located in Queens, New York City. The ScotiaMocatta Depository is approved for the storage of gold against COMEX gold futures contracts.

66. ScotiaMocatta executes client trades in the market for Gold Investments, including in physical gold, gold derivatives, and shares of Gold ETFs. BNS operates a system called Scotia iTRADE for commodities trading. BNS clients can trade gold derivatives and purchase gold certificates and gold bars on the iTRADE system. BNS also conducts proprietary trading in the gold market. During the Class Period, BNS was a member and owner of the London Gold Market Fixing Ltd., a market-making and clearing member of the LMBA, and entered directly into gold spot, forward, option and Gold ETF share transactions with members of the Class.

67. Defendant **Barclays Bank plc** is a corporation organized and existing under the laws of the United Kingdom with its principal place of business in London, England and branches and offices in New York, New York. As used herein, the term "**Barclays**" includes Barclays Bank plc and its subsidiaries and affiliates, including its subsidiary Barclays Capital Inc., which is a futures commission merchant registered with the CFTC.

68. Barclays executes client trades in the market for Gold Investments, including in physical gold, on COMEX, in gold derivatives, and in shares of Gold ETFs, and also operates a system called BARX for commodities trading. Barclays clients can make orders at the London Gold Fixing price or trade gold derivatives on the BARX system. Up until 2012, Barclays also conducted proprietary trading in Gold Investments. During the Class Period, Barclays was a member and owner of the London Gold Market Fixing Ltd., a market-making and clearing member of the LMBA, and entered directly into gold spot, forward, option and Gold ETF share transactions with members of the Class.

69. Defendant **Deutsche Bank AG** is a corporation organized and existing under the laws of Germany with its principal place of business in Frankfurt, Germany and branches and offices in New York, New York. As used herein, the term “**Deutsche Bank**” includes Deutsche Bank AG and its subsidiaries and affiliates, including its subsidiary Deutsche Bank Securities Inc., which is a futures commission merchant registered with the CFTC.

70. Deutsche Bank executes client trades in the market for Gold Investments, including in physical gold, on COMEX, in gold derivatives, and in shares of Gold ETFs. Deutsche Bank also conducts proprietary trading in Gold Investments, and provides an electronic platform named “Autobahn” for trading gold products. During the Class Period, Deutsche Bank was a member and owner of the London Gold Market Fixing Ltd., a market-making and clearing member of the LMBA, and entered directly into gold spot, forward, option and Gold ETF share transactions with members of the Class.

71. Defendant **HSBC Bank plc** is a company organized and existing under the laws of the United Kingdom with its principal place of business in London, England and subsidiaries in the United States. As used herein, the term “**HSBC**” includes HSBC Bank plc and its

subsidiaries and affiliates, including its subsidiary HSBC Securities (USA) Inc., a futures commission merchant registered with the CFTC, and HSBC Bank USA, which is the principal US bank subsidiary of HSBC Bank plc. HSBC Bank USA operates a depository that is licensed by the CFTC and is located in Manhattan, New York City. That depository is approved for the storage of gold against COMEX gold futures contracts.

72. HSBC executes client trades in the market for Gold Investments, including in physical gold, on COMEX, in gold derivatives, and in shares of Gold ETFs. While HSBC does not have a formal proprietary gold trading business, it does take positions in the Gold Investment market in gold derivatives. During the Class Period, HSBC was a member and owner of the London Gold Market Fixing Ltd., a market-making and clearing member of the LMBA, and entered directly into gold spot, forward, option and Gold ETF share transactions with members of the Class.

73. Defendant **Société Générale SA** is a corporation organized and existing under the laws of France with its principal place of business in Paris, France and branches and offices in New York, New York. As used herein, the term “**Société Générale**” includes Société Générale SA and its subsidiaries and affiliates including its subsidiary, Newedge USA, LLC, which is a futures commission merchant registered with the CFTC.

74. Société Générale executes client trades in the market for Gold Investments, including in physical gold, on COMEX, in gold derivatives, and in share of Gold ETFs. Société Générale operates the Alpha Precious Metals electronic platform for trading gold products. Société Générale also conducts proprietary trading in Gold Investments. At least some of Société Générale’s proprietary trading in commodities is managed from Société Générale’s New York office. During the Class Period, Société Générale was a member and owner of the London

Gold Market Fixing Ltd., and is its current chair. During the Class Period, Société Générale also was a market-making member of the LBMA, and entered directly into gold spot, forward, option, and Gold ETF share transactions with members of the Class.

75. Defendant **UBS AG** is a corporation organized and existing under the laws of Switzerland with its principal place of business in Zurich, Switzerland and branches and offices in New York, New York and Stamford, Connecticut.

76. Defendant **UBS Securities LLC**, a wholly owned subsidiary of UBS AG, is a Delaware company with its principal place of business in Stamford, Connecticut. It is also a futures commission merchant registered with the CFTC. As used herein, the term “**UBS**” includes UBS AG, UBS Securities LLC, and their subsidiaries and affiliates.

77. UBS executes client trades in the market for Gold Investments, including in physical gold, on COMEX, in gold derivatives, and in shares of Gold ETFs. UBS operates electronic platforms for trading gold products. UBS also conducts proprietary trading in Gold Investments and operates, sponsors, manages, and trades shares of Gold ETFs. At least some of UBS’s proprietary gold trading is managed from the Stamford office of UBS Securities LLC. During the Class Period, UBS was a market-making and clearing member of the LBMA, and entered directly into gold spot, forward, option, and Gold ETF share transactions with members of the Class.

78. UBS is the result of the 1998 merger of two leading Swiss banks: Swiss Bank Corporation, and Union Bank of Switzerland. Both Swiss Bank Corporation and Union Bank of Switzerland had extensive operations in precious metals. Thus, since its inception UBS has operated a large precious metals business. UBS holds itself out as “a leading provider of physical and derivative precious metal products to a broad range of customers around the globe.”

79. Defendant The London Gold Market Fixing Limited (“**LGMF**”) is a private company organized and existing under the laws of the United Kingdom and with its principal place of business at New Court, St. Swithin’s Lane, London EC4P 4DU, England. LGMF is owned and controlled by Barclays, Deutsche Bank, HSBC, BNS, and Société Générale and these five banks are also the only members of LGMF.

80. The Fixing Bank Defendants have complete control over the LGMF and the LGMF is so dominated by these Defendants that it is indistinguishable from them for jurisdictional purposes. LGMF was founded in 1994 by the five banks that then conducted the Fixing. From 2004 to 2013, LGMF was owned and controlled by the Fixing Bank Defendants, these Defendants were the only members of LGMF, the day to day business of LGMF was conducted by a group of directors who were selected by the Fixing Bank Defendants (and typically were employees of the Fixing Bank Defendants), and nearly all of LGMF’s revenue was derived from the Fixing Defendants’ membership fees such that LGMF was financially dependent on the Fixing Bank Defendants. Currently, all LGMF directors are employees of the Fixing Bank Defendants.

81. The LGMF’s sole function is “to take on and continue the promotion, administration and conduct of the Fixing Process currently conducted twice every London Banking Day via a scheduled conference call between the Members.” As such, at all times the LGMF was part and parcel of Defendants’ conspiracy alleged in this Complaint because the LGMF merely served as a shell for the operation of the Fixing, as a vehicle for Defendants’ conspiracy, and as an agent for the Fixing Bank Defendants. Defendants’ conspiracy – via LGMF – was targeted at and had substantial depressive effects on Gold Investments traded in the U.S. including gold derivatives traded on the COMEX in this District. At all times, the LGMF

and its members and directors knew that the Fixing – and the Fix price reached thereby – had a substantial effect on Gold Investments traded in the U.S. including gold derivatives traded on the COMEX in this District.

82. Various other entities and individuals unknown to Plaintiffs at this time – including other major bullion banks – 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.

FACTUAL ALLEGATIONS

I. BACKGROUND ON THE GOLD MARKET

A. The London Gold Fixing

83. The Fixing was originally established to determine a daily benchmark price for one troy ounce of gold at predetermined times during the London trading day. In the physical gold market there is no central price at any given time. Instead, all of the gold market-making banks – including the Fixing Bank Defendants – and dealers provide competing bid and ask quotes directly to their clients and customers. The Fix price was supposed to provide buyers and sellers an objective benchmark that isolated both parties from the noise of the trading day, or the bias of any one market maker. The Fix price is of utmost importance to the market for Gold Investments because, as demonstrated statistically below, movements in the Fix price are immediately and consistently reflected in movements in the values of the commodity and commodity-pegged instruments that comprise the market.

84. The benchmark price issued by the Fixing process fixes the price of “Good Delivery” gold. Good Delivery gold bars are the type normally traded in the financial markets, held to back futures contracts and other gold derivatives, held in private vaults, and held in the vaults of sovereign nations, central banks, and the International Monetary Fund. The benchmark

price for “Good Delivery” gold issued by the Fixing is used by gold producers (miners, refiners), gold consumers (jewelers, industrials), investors, futures and options traders, central banks, and others to buy, sell, and value gold, and is accordingly the dominant price benchmark for the world’s gold trading.

85. The London Gold Fixing began in 1919 after the Bank of England negotiated an agreement with seven South African mining houses to ship their gold to London for refining. These mining houses agreed to sell all of their gold through London-based N.M. Rothschild & Sons at prices agreed to by the largest London gold bullion traders and refiners of the time. N.M. Rothschild, the last remaining original member, sold its seat to Barclays in 2004.¹⁷

86. The contemporary London Gold Fixing occurs twice each business day at 10:30 a.m. and 3:00 p.m. London time. During the Class Period, the Fixing was administered by LGMF, the members of which are the Fixing Bank Defendants here, with the exception of Defendant Deutsche Bank, which was a member until resigning its seat in May 2014.

87. The Fixing long took place in a wood-paneled room at Rothschild’s offices in St. Swithin’s Lane until the process was switched to a telephone conference call in 2004. Prior to the beginning of the Fixing, market participants funnel their orders through the Defendants (who consolidate their respective client orders with orders from their own proprietary trading desks) to determine whether each Defendant would be a buyer or seller at a given spot price. Leading up to the Fixing, the Fixing Bank Defendants’ trading rooms are in constant communication with select clients who are interested in dealing in gold if the price is right.

88. The Fixing then purports to proceed through what is known as a “Walrasian”

¹⁷ See N M Rothschild and Sons, *UK Regulatory Announcement: Commodities Trading* (April 14, 2004), www.businesswire.com/news/home/20040414005692/en/Rothschild-Sons-UK-Regulatory-Announcement-Commodities-Trading#.VQUz6umJiUk.

auction: as has occurred since the Fixing began in the early 20th Century, the designated chair (a position that rotates annually among the Bank Defendants) provides a figure that is supposed to be the then-prevailing United States Dollar spot price for gold.

89. Once the chair announces the opening price, the other members declare how many bars of gold they wish to buy or sell at that price supposedly based on the orders of their clients and their own proprietary positions. Fixing members declare their interest in increments of five gold bars. If there is no buying or selling interest, the chair may announce the initial price as “fixed,” concluding the call. If, however, the opening price elicits a disproportionate amount of selling or buying interest, the chair adjusts the price until the offers to buy and sell are closer. Generally, when the offers are within 50 bars of each other, the chair will declare the price to be “fixed.” The call then concludes and the price is transmitted to the LBMA for publication.

90. Defendant Fixing members are therefore in direct, private communication with each other and other bullion banks concerning the price of gold at least twice each day a Fixing occurs. The Fixing thus presents a startlingly unique opportunity for daily communications and collusions. In any other setting, a daily meeting between a small group of horizontal competitors would have immediately set off alarm bells. But here, due to the anachronism of the long-standing tradition of the Fixing, the Fixing Bank Defendants were able to form the core of a conspiracy, as they could coordinate daily with respect to gold without it (for a time) seeming out of place. The tradition of the Fixing provided a veneer of legitimacy.

91. The Fixing Bank Defendants administered the Fixing themselves through LGMF, with no oversight by any independent organization. Indeed, the Fixing was carried out, quite deliberately, in such a way to ensure the abuse of the “cover” the Fixing provided to Defendants’ conspiratorial meetings remained hidden. No communications, meeting minutes, or other

records of what occurred during the “auction” – such as how the “bids” played out during the course of the purported auction – were kept as a matter of course.

92. In November 2014, as a result of the LBMA’s review of the Fixing following the revelation it had been manipulated, IBA was selected as a third-party administrator for the Fixing. Under the new administration, IBA “will provide the price platform, methodology as well as the overall administration and governance” for the Fixing.

B. The LBMA

93. The LBMA is a trade association that acts as the coordinator for activities conducted on behalf of its members and other participants in the London Bullion Market (described below). The LBMA also sets standards for “London Good Delivery” – a set of rules prescribing the physical characteristics of gold bars used in settlement in London Bullion Market gold transactions.

94. The LBMA currently has 69 associates, 76 ordinary members, and 14 market-making members.

95. Associates are not members of the LBMA and do not have voting rights. Associates benefit from a range of LBMA services such as discounted fees for events such as conferences and forums organized by the LBMA and access to certain publications.

96. Members are companies that participate actively in the London bullion market through trading, shipping and storage, mining, refining, inspection and assaying and research. Members have voting rights at the Annual General Meetings and also receive discounted fees for LBMA events. Members may also trade under the terms of the Terminal Market Order (“TMO”), which provides for preferential tax treatment.

97. Market-making members are the heart of the LBMA. The market-making members are responsible for quoting bid and offer prices in gold spot, futures, and/or options

prices to each other during the London business day for agreed minimum quantities. Five banks are full market-making members of the LBMA, and offer price quotes in gold spot, futures and options: Defendants Barclays, HSBC, and UBS, plus Goldman Sachs International and JPMorgan. Nine other market-making members offer price quotes in one or two of gold spot, futures, and options: Defendants BNS, Deutsche Bank and Société Générale, plus Bank of America Merrill Lynch, Citibank N.A. (“Citibank”), Credit Suisse, Mitsui & Co. Precious Metals, Morgan Stanley & Co. International plc, and Standard Chartered Bank. On information and belief, from time to time other LBMA market-making banks may have discussed quotes or the direction of the Fixing with the Bank Defendants.

98. The LBMA also has six clearing members: Barclays, BNS, Deutsche Bank, HSBC, JPMorgan, and UBS. In 2001, five of these six members (along with Credit Suisse First Boston International and N.M. Rothschilds & Sons Limited) formed a private company called the London Precious Metal Clearing Limited (“LPMCL”) to facilitate clearing London Bullion Market transactions. Defendant Barclays became a member of the LPMCL in September 2005.

99. The LBMA’s business is overseen by a Management Committee. Each market-making member of the LBMA has a reserved seat on the LBMA management committee. The LBMA also hosts an Annual General Meeting at which certain internal business is put to a vote of all LBMA members.

C. The London Bullion Market

100. By the late 1800s, London developed as the center of the world gold trade. The gold trade that takes place in London is known as the London Bullion Market. Historically, the participants in this London gold market compiled lists of accredited smelters and assayers whose gold bars they would accept without question, in settlement against transactions conducted between each other and with other acceptable counterparties. Such bars became known as

London Good Delivery, which is the standard for gold used to settle transactions in the London Bullion Market. Today, London Good Delivery gold is traded in troy ounces.

101. The London Bullion Market does not have a central clearing house but instead operates on an over-the-counter basis. This trading activity is the London Bullion Market, which comprises five functions: (1) gold clearing by LBMA clearing members including Defendants Barclays, BNS, Deutsche Bank, HSBC, and UBS, plus JPMorgan, via the LPMCL¹⁸; (2) gold vaulting including by some of the Defendants; (3) the London Good Delivery system and rules; (4) pricing by LBMA market-makers including all of the Defendants; and (5) gold accounts held by all of the Defendants and others. The trading that occurs within the London Bullion Market is referred to as “Loco London.” As described by the LPMCL’s website, “LOCO LONDON is the indisputable international standard for gold and silver dealing and settlement.”

102. As described by the LBMA, “The global bullion market is based on expertise and liquidity in London,” “[i]nternationally, bullion is traded on a 24-hour basis, mainly through London, in Over-the-Counter (OTC) transactions in spot, forwards and options,” and “[t]he governance of this market is maintained through the London Bullion Market Association’s (LBMA) publication of the Good Delivery List [which] is the list of accredited refiners, whose standards of production and assaying meet the requirements set out in the LBMA’s Rules.”

103. As described in this Complaint, the Fixing – operated by the Fixing Bank Defendants via the LGMF – is an integral part of the London Bullion Market and the global gold market. The LBMA holds out the Fix price as a benchmark that is “globally accepted” as the

¹⁸ The London Bullion Market does not have a traditional central clearing house but instead operates on an over-the-counter basis. As described by the LPMCL, “Most global ‘over-the-counter’ gold and silver trading is cleared through the London clearing system managed by the London Precious Metal Clearing Limited (LPMCL), which operates a central electronic metal clearing hub, with deals between parties throughout the world settled and cleared in London.”

basis for pricing a variety of gold transactions and used by “[c]lients around the world [who] wish[] to buy or sell precious metals[.]” The SPDR Gold Trust prospectus notes that, “The Fix [price] is the most widely used benchmark for daily gold prices and is quoted by various financial information sources.” The FCA has also noted that the Fixing provides “an important pricing mechanism.”

D. The Many Outlets for Gold Investments

104. ***Spot contracts.*** Some of the international demand for gold is met through spot contracts on the over-the-counter segment of the market for Gold Investments. A spot contract is a contract where a buyer and seller agree to settlement (payment and delivery) on a spot date, which is normally two business days after the trade date. The settlement price is called the spot price. Sales at “spot” are often tied or keyed to the London PM Fix on the day of the sale.

105. ***Gold derivatives.*** There is also a large market consisting of gold derivatives, financial instruments whose value depends on the underlying price of physical gold on the spot market, and which are often pegged to the London Fixing (*i.e.*, settled by reference to the Fix price).

106. Gold derivatives include gold futures, forwards, and options contracts. A gold forward contract is a bilateral agreement for the purchase or sale of an agreed amount of gold at a specified date in the future. A gold futures contract is similar to a futures contract, but with standardized terms and daily mark-to-market cash flow requirements. These types of contract can be traded over-the-counter (a forward) or on an exchange (a future). In the United States, most exchange-traded gold futures and options are traded on COMEX, which has been designated by the CFTC as a contract market pursuant to Section 5 of the Commodity Exchange Act (7 U.S.C. § 7). COMEX specifies the terms of trading, including trading units, price quotation, trading hours, trading months, minimum and maximum price fluctuations, and margin

requirements.

107. For each gold futures contract, the buyer takes a “long” position on gold, meaning it agrees to pay for a specified amount of gold and take delivery at the expiry of the contract. The seller takes a “short” position, meaning it will receive payment for the gold and make delivery. Only a small percentage of all futures contracts traded each year on COMEX and other exchanges result in actual delivery of the underlying commodities. Instead of taking physical delivery of gold, traders generally offset their futures position before their contracts mature. For example, a purchaser of a gold futures contract can cancel or offset its future obligation to the contract market or exchange clearinghouse to take delivery of gold by selling an offsetting futures contract. The difference between the initial purchase or sale price and the price of the offsetting transaction represents the realized profit or loss.

108. Gold option contracts can be traded over-the-counter or on an exchange. A call gives the holder of the gold option the right, but not the obligation, to buy the underlying gold futures contract, or the underlying gold itself, at a certain price – the “strike” price – up until a fixed point in the future (*i.e.*, the option’s expiry). A put gives the holder the right, but not the obligation, to sell the underlying gold futures contract, or the underlying gold itself, at the strike price until the option’s expiry. An investor that buys a put option generally expects the price of gold to fall (or at least seeks to protect against downside risk), and an investor that buys a call option generally expects the price of gold to rise. The price at which an option is bought or sold is called the “premium.”

109. *Exchange-traded funds (“ETFs”)* issue securities that track an industry index (*e.g.*, the S&P 500), a commodity (*e.g.*, gold or silver), or a basket of assets in the same way as an index fund, but which are shares that trade on an exchange. Securities issued by ETFs

experience price changes throughout the day reflecting supply and demand as they are bought and sold, where that supply and demand is heavily influenced by supply and demand within the industry, or for the commodity or assets, that the ETF tracks.

110. There are ETFs that invest only in gold bullion and whose shares are linked directly to gold bullion prices (“Gold ETFs”).¹⁹ The largest Gold ETF is the SPDR Gold Trust, which issues SPDR Gold Shares (trading symbol “GLD”). The goal of the SPDR Gold Trust is for the SPDR Gold Shares to reflect the performance of the price of gold bullion, less the expenses of the Trust’s operations. A Prospectus for the SPDR Gold Trust states that the SPDR Gold Shares “are designed for investors who want a cost-effective and convenient way to invest in gold.”²⁰ The price Gold ETF shares correlate very closely to the spot price of gold itself.

111. ***Going “short” versus going “long.”*** Through these various contracts and trades, there are many ways to “go short” (*i.e.*, profit from gold price decreases) or “go long” (*i.e.*, profit from gold price increases). The entity that is short benefits as prices fall. The seller of a futures contract, for instance, can then offset the position by purchasing another futures contract, pocketing the difference in price. The seller of a call option benefits if the spot price falls below the strike price, since the seller collects the option premium and pays nothing to the purchaser. At expiry, if the price of gold exceeds a call option’s strike price, the rational holder will exercise the call option, which means the seller of the call option, if unhedged, will have to sell the futures contract at the strike price and cover its position, paying the difference between the prevailing price and the strike price.

¹⁹ *See, e.g.*, SPDR Gold Trust Prospectus (April 26, 2012), at 2: “The investment objective of the Trust is for the Shares to reflect the performance of the price of gold bullion, less the expenses of the Trust’s operations.”

²⁰ *Id.*

E. The Fixing Impacts the Prices of Both Physical and Derivative Gold Investments, and the Share Prices of Gold ETFs

112. The Bank Defendants seized upon the Fixing as an opportunity to profit not just because it was a ready-made forum for collusion and because of their ability to use the Fixing “auction” to appear to legitimize artificial price movements, but because it represented a point in time where manipulation would have the greatest impact. Manipulating the Fixing would directly impact the price the Bank Defendants would pay for gold, and directly impact the cash flows for Fix price-linked derivatives. Because of the prominence of the Fix price as a measure of gold prices generally, such manipulation presented the opportunity to profit on other Gold Investments as well. Foreknowledge as to an upcoming spike in the price of gold would create *numerous* opportunities to profit, in many different outlets for Gold Investments.

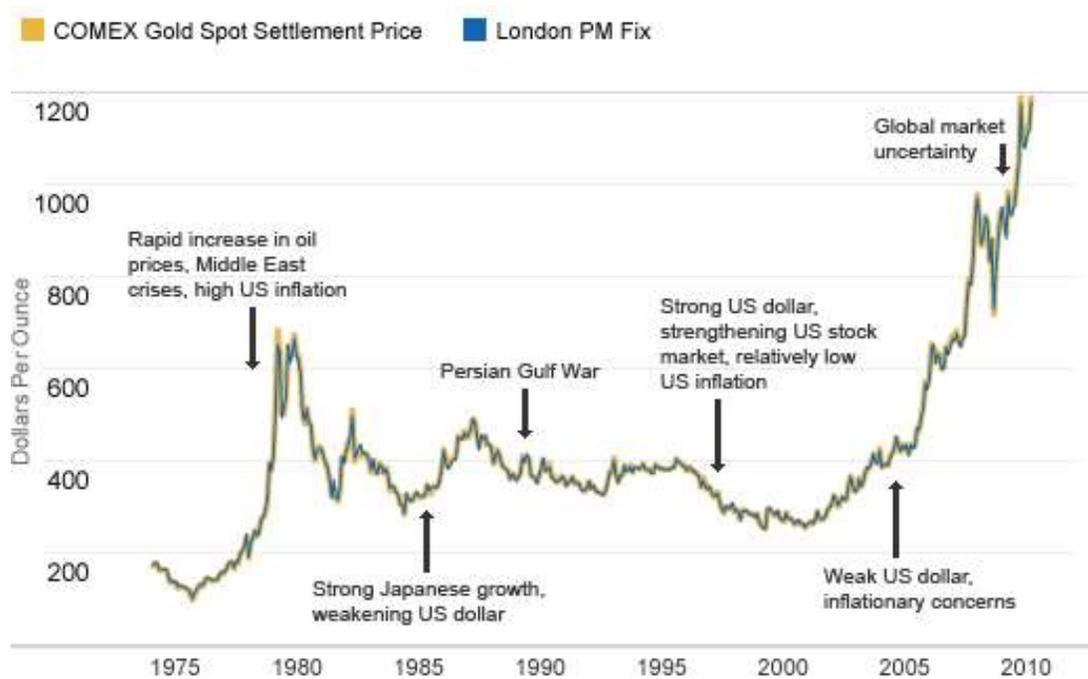
113. This is because the various ways to invest in gold move together. This is unsurprising. Regardless of how “gold” is technically defined for one contract or another, it is still the same stuff coming out of the earth. Thus, prices for gold futures, prices in the spot market, and the Fix price are inextricably intertwined. The links between these various outlets for investing in and transacting in gold are widely acknowledged. And, below, it is empirically demonstrated.

114. The London PM Fixing occurs shortly after trading begins on the COMEX in New York. Indeed, in a market survey, the LBMA reported that 83% of respondents based at least some of their trading on the Fixing, with nearly 70% of respondents basing some of their trading on the Fix price *every day*.²¹ Almost half of respondents base more than a fifth of their trading on the Fix price, with more than a quarter of respondents basing more than 70% of their

²¹ London Bullion Market Association, *London Gold Price: Market Consultation – First Survey Results* (Oct. 10, 2014), at 8; *see also id.* at 4 (providing chart).

trading on the Fix price.

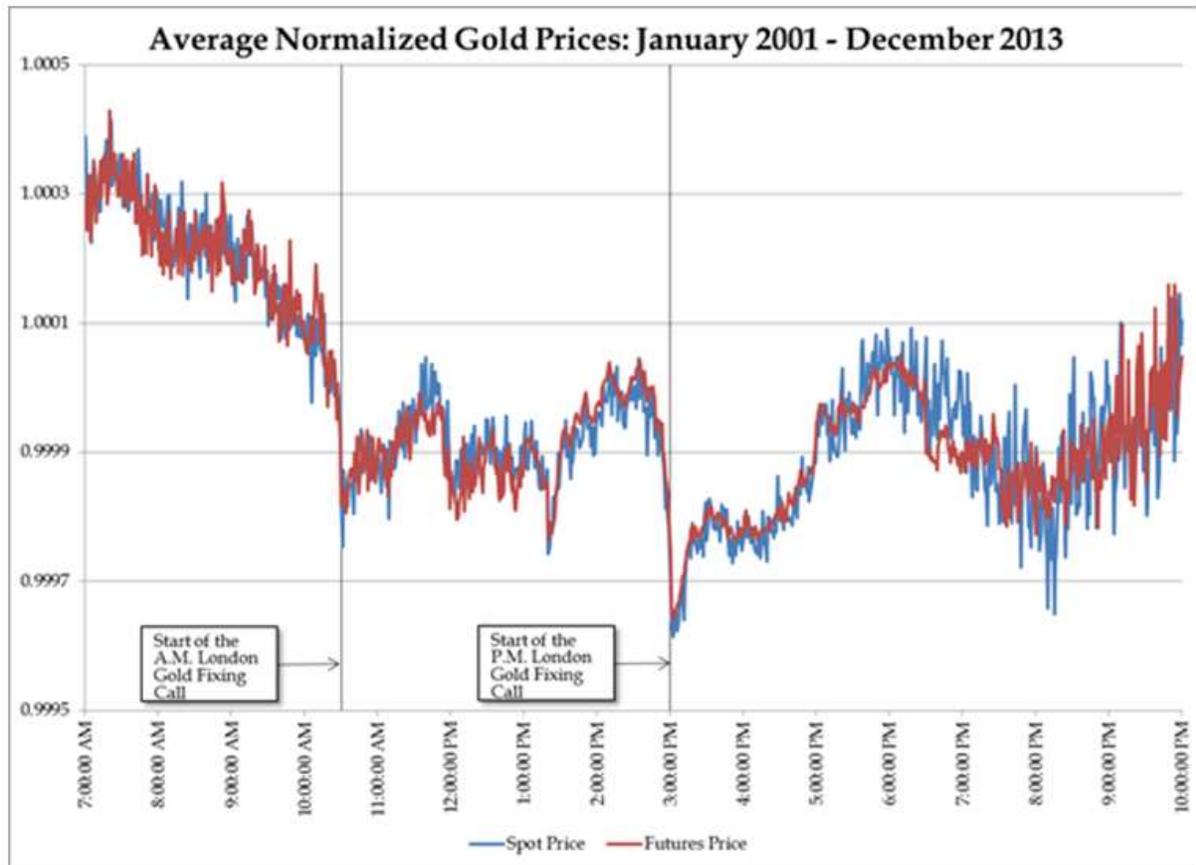
115. The PM Fix price also impacts the price of gold futures and options on these futures contracts, such as those traded on the COMEX. This is because COMEX prices and spot gold prices closely correlate to each other. Changes in the price in one will be almost immediately reflected in the other. In fact, the correlation between spot and futures prices from 2001 – 2013 is 99.9%, meaning that these two prices are virtually tied to each other. This tight correlation holds true no matter what happens in financial markets more generally, as seen in the following graph.



116. Studies confirm this correlation. Analysis of high-frequency spot, futures, and ETF price data show that gold futures contracts “are significantly impacted by the London PM gold price fixing process.”²² The following graph depicts the daily normalized average intraday

²² Andrew Caminschi and Richard Heaney, *Fixing a Leaky Fixing: Short-Term Market Reactions to the London PM Gold Price Fixing*, JOURNAL OF FUTURES MARKETS 1, 35 (Sept. 2013).

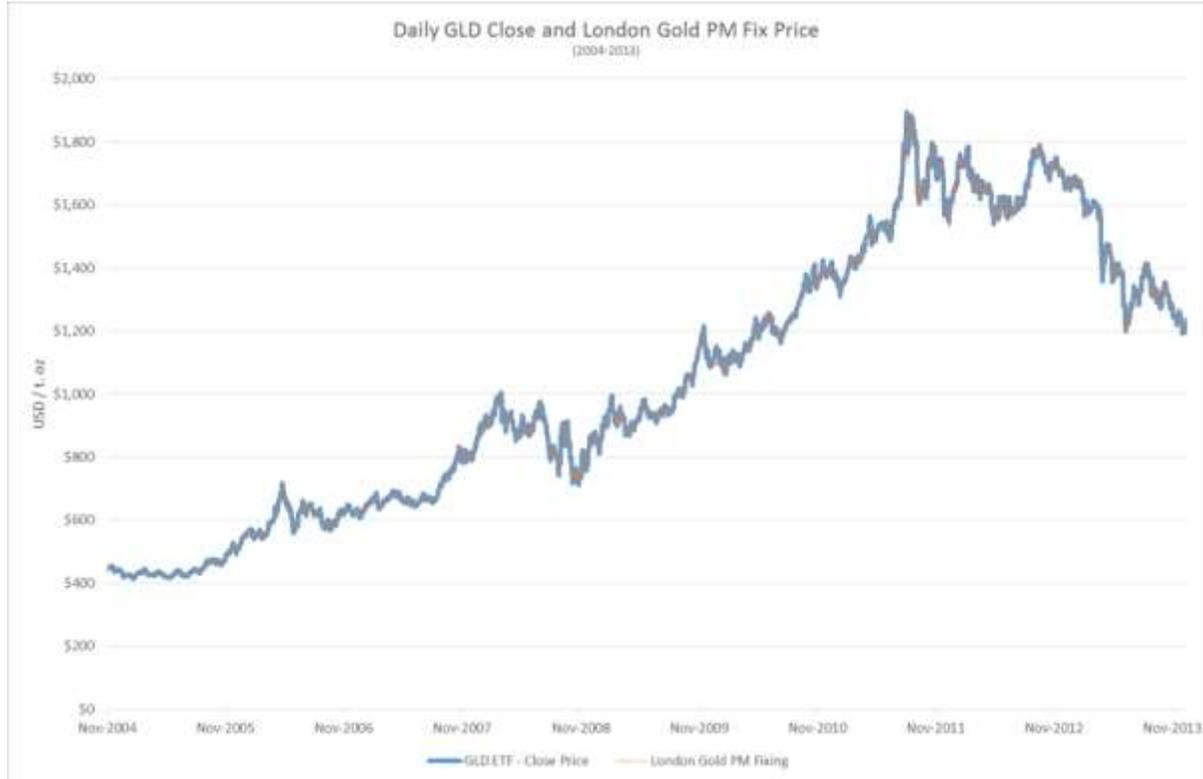
gold spot prices (in blue) and COMEX futures prices (in red), and illustrates how closely the spot and COMEX prices were correlated from 2001 through 2013. The graph confirms that the two prices move in tandem. But it is also worth noting that, like many other studies performed in connection with this complaint, the data shows a large anomalous downwards spike around the time of the PM Fixing – not just in spot prices, but in COMEX prices as well.



117. The next graph confirms that prices of Gold ETF shares, too, move in unison with movements in the Fix price. The graph tracks the daily PM Fix price (in yellow) and the daily price of SPDR Gold Shares (a Gold ETF, in blue).²³ Once again, the two lines are virtually

²³ When GLD was first issued, each share represented a 1/10 oz holding of gold. This has, over time, adjusted to be less than 1/10 oz to accommodate fees associated with the administration and marketing of the SPDR Gold Trust. The chart starts with prices in November 2004 because that is when SPDR Gold shares were first issued.

indistinguishable.²⁴



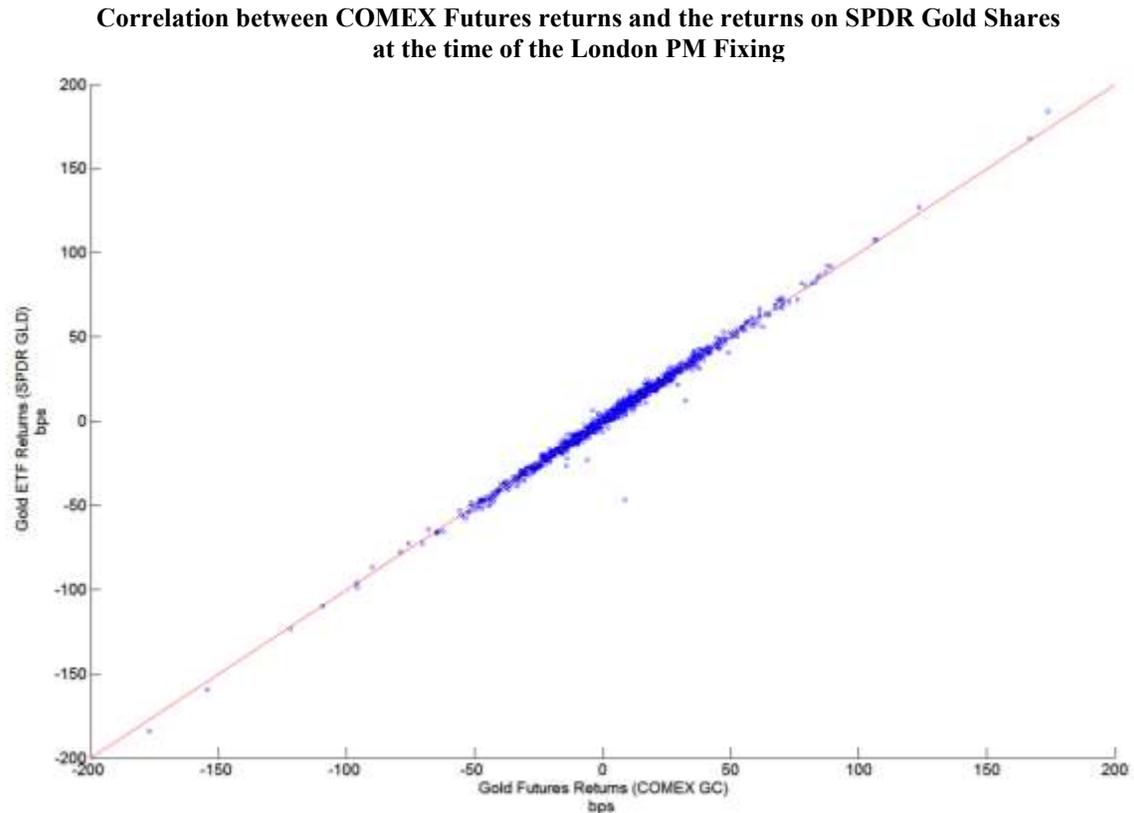
118. Another way to see the tight correlation is to plot the SPDR GLD share prices on the y-axis and COMEX prices on the x-axis, placing a dot for each particular point in time.

119. On the next graph, the red line represents a theoretical line of perfect correlation, *i.e.*, as the price of one moved, the other moved in the exact same relative amount at the exact same time. The blue dots represent actual pricing data. The tight clustering of the actual pricing data around the red line again confirms that, as COMEX prices move at the time of the PM Fixing, so too do SPDR Gold prices.

120. Statistically speaking, the correlation coefficient is a near-perfect 99.6%. As discussed above, COMEX prices and SPDR Gold Share prices are both tightly correlated with the PM Fix price such that prices of each move together, with the PM Fix price driving the other

²⁴ The “spike” mentioned above does not appear in the chart on this page, which tracks prices on a *daily* basis – the chart above tracked *intraday* prices.

two.



121. These relationships make sense and were known to Defendants. The COMEX gold futures price is the market's consensus of the expected spot price for the underlying gold at a specified future date. Because the futures price is essentially an expectation of what the spot price will be for the underlying futures contract at maturity, gold futures and physical prices are very closely correlated. In the same way, prices of Gold SPDR Shares are closely correlated with spot gold prices because those share prices are based almost entirely on spot gold prices.

122. As expanded upon below, Defendants frequently manipulated the PM Fixing so that the Fix price set at lower levels than competitive market forces would have dictated. This not only caused artificially low prices in the spot market, but also – because of the relationships discussed above – artificially lowered prices on COMEX for both futures and options, for securities of Gold ETFs, and for other Gold Investments. Thus, Defendants' suppression of the

gold benchmark was intended to and did directly affect the price of physical gold, gold futures, and Gold ETF shares, and other Gold Investments, causing the Class to sell these investments at artificially low prices.²⁵ Defendants' conduct was specifically intended to manipulate the COMEX gold futures segment of the gold market (by manipulating the price of the commodity underlying COMEX gold futures contracts) in which the Bank Defendants had taken large short positions.

II. MULTIPLE ECONOMIC ANALYSES REVEAL ARTIFICIAL DOWNWARD SPIKES AROUND THE TIME OF THE PM FIXING

123. As confirmed by Congressional testimony and academic publications, “screens” are statistical tools based on economic models that use data such as prices, bids, quotes, spreads, market shares, and volumes to identify the existence, causes, and scope of manipulation, collusion, or other illegal behavior. For instance, “screens” were part of an analysis that eventually led to the discovery of the LIBOR rate-setting scandal that is still roiling the banking industry. In the context of LIBOR, journalists and economists uncovered anomalous behavior in the benchmark as compared to movements in other publically available data points (data points that were independent of the banks' purported individualized judgment).²⁶ Screens also led to the initial detection, in the summer of 2013, of foreign exchange benchmark collusion and manipulation, which has resulted in over \$6 billion in settlements and criminal guilty pleas by

²⁵ Plaintiffs do not have comparable price information for over-the-counter gold derivatives, but expect to find the same close price correlation when this information is provided through discovery.

²⁶ *See generally* Testimony of Rosa M. Abrantes-Metz on behalf of the Office of Enforcement Staff, Federal Energy Regulatory Commission (Sept. 22, 2014), http://elibrary.ferc.gov/idmws/doc_info.asp?document_id=14274590.

banks, including UBS and several other Defendants in the U.S., and across the globe.²⁷

124. All “screens” developed and employed by Plaintiffs’ consultants show signs of manipulation occurring within the gold market, and in particular around the time of the PM Fixing. The data consistently reveals that price spikes occur far more often around the PM Fixing than during any other part of the day. The data further reveals that those price spikes are greater in magnitude than when price spikes occur during other times of the day. And the spikes occurring around the PM Fixing are disproportionately in one direction – downward.

125. It is telling that these spikes very often begin *before* the official Fixing conference call commences, because it is *only* Defendants (and their co-conspirators) working together who could know where the PM Fix price would end up. The evidence provided by all of these screens is overwhelming – prices around the PM Fixing not only moved abnormally and sharply in one direction, but they acted in a way that can only be explained by the joint manipulative conduct of the banks in charge of the Fixing itself – namely, the Fixing Bank Defendants here – acting in collaboration with other bullion banks, including UBS.

126. A bullet-point summary of much of the data below, and other evidence discussed in this Complaint, is attached as Appendix C.

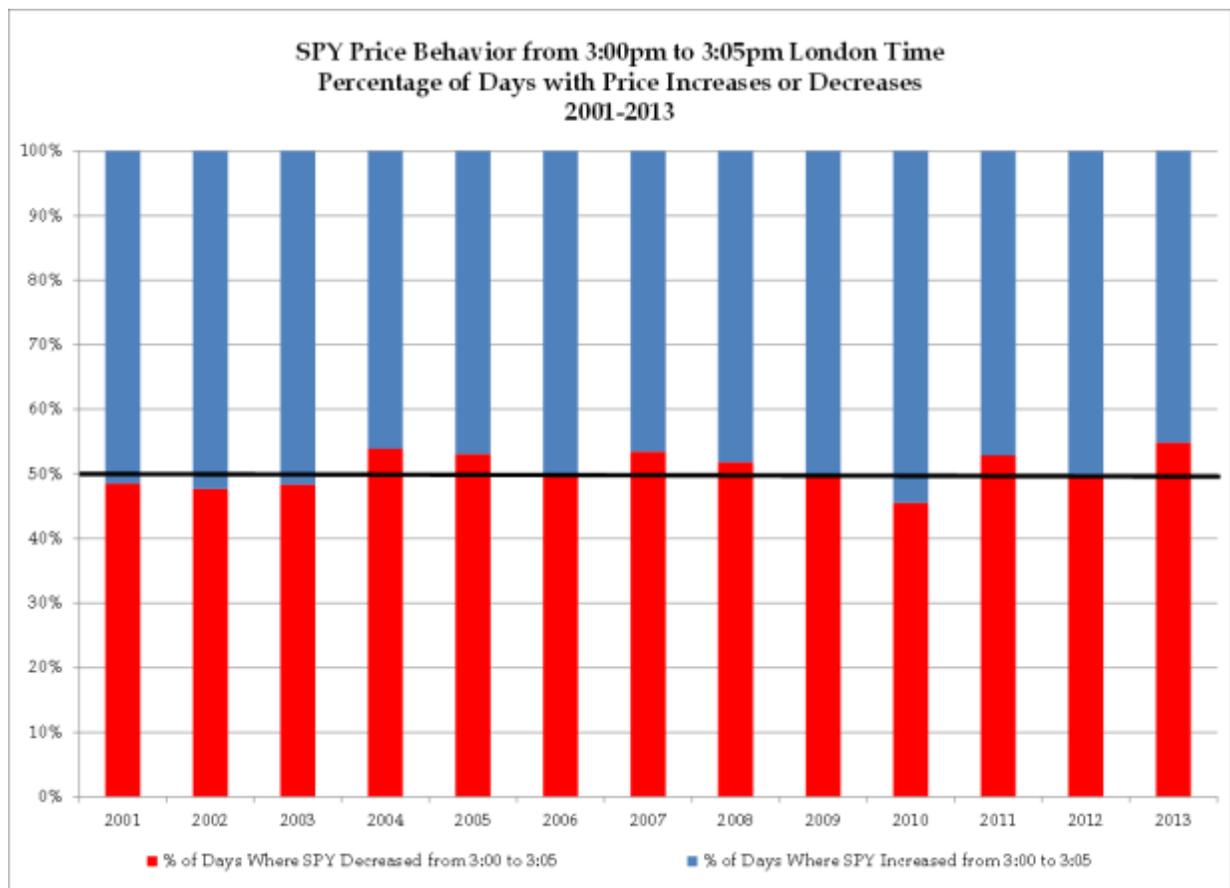
A. To a Statistically Significant Degree, Prices Around the PM Fixing Trended Lower than Previously Prevailing Prices

127. One straightforward method of uncovering anomalies in the behavior of prices around the time of the PM Fixing is to chart on how many days the spot price at 3:00 p.m. London Time (the start of the PM Fixing) was higher than the eventual PM Fix price. That is, how often the PM Fixing resulted in a lower gold spot price. One would naturally expect – when

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

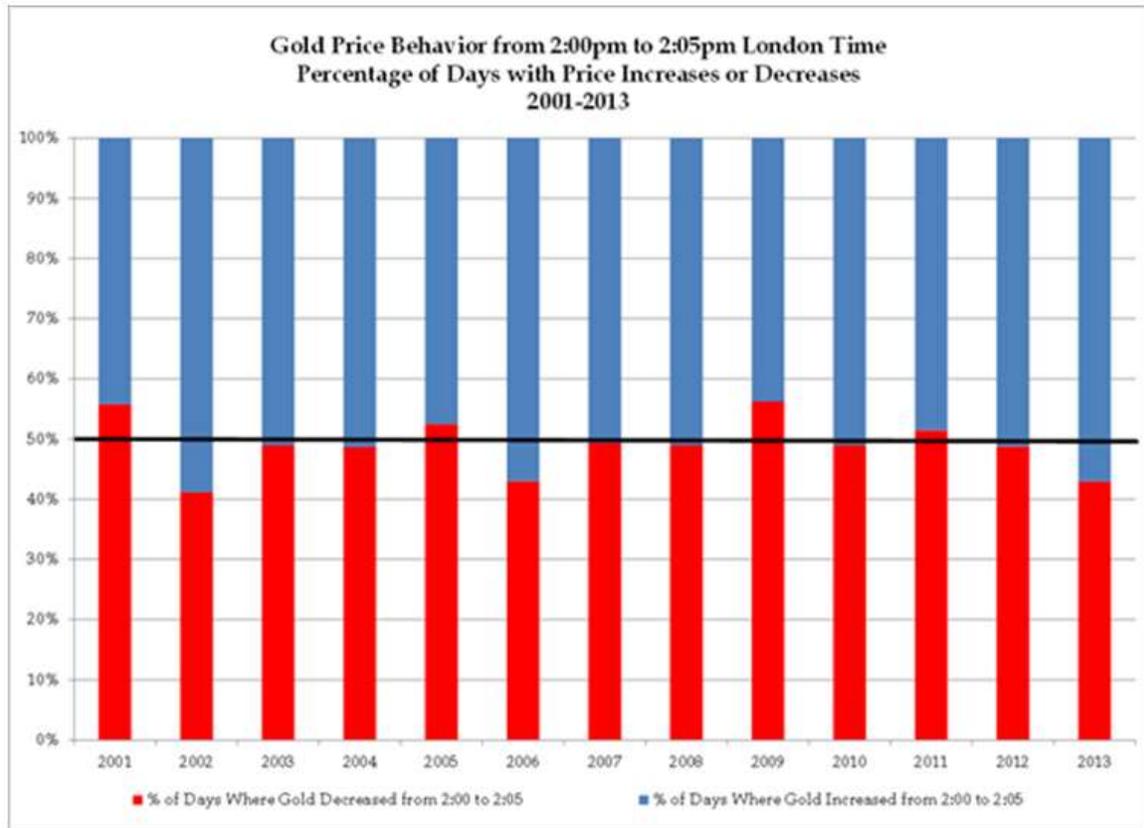
a large and diverse set of days over a period of years is studied – the prices during each day’s PM Fixing window to move up almost as equally often as down. While prices can and do move over time, there is no reason (absent collusion) that one would expect those prices to move predominantly one way or the other over many repetitions.

128. To show this, the following graph tracks the movement of the stock market measured by the S&P 500 during the same time period as the PM Fixing. The red bars indicate prices went down during the measurement window. The blue bars indicate prices went up during the measurement window. We see here just what we would expect in a non-manipulated market: prices move up in a given time window about as equally as they move down, with deviations from 50% being not statistically significant, and not repeated from year to year.

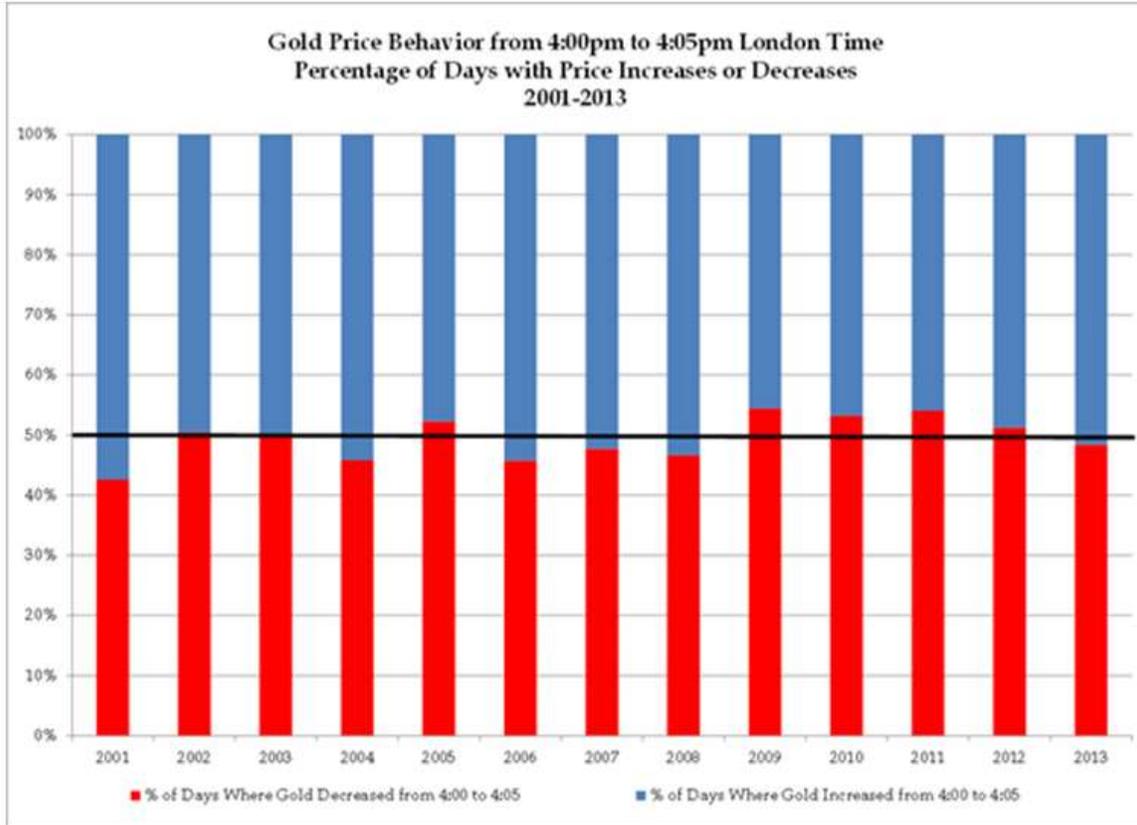


129. To further establish a baseline for observations, the graphs below illustrate the

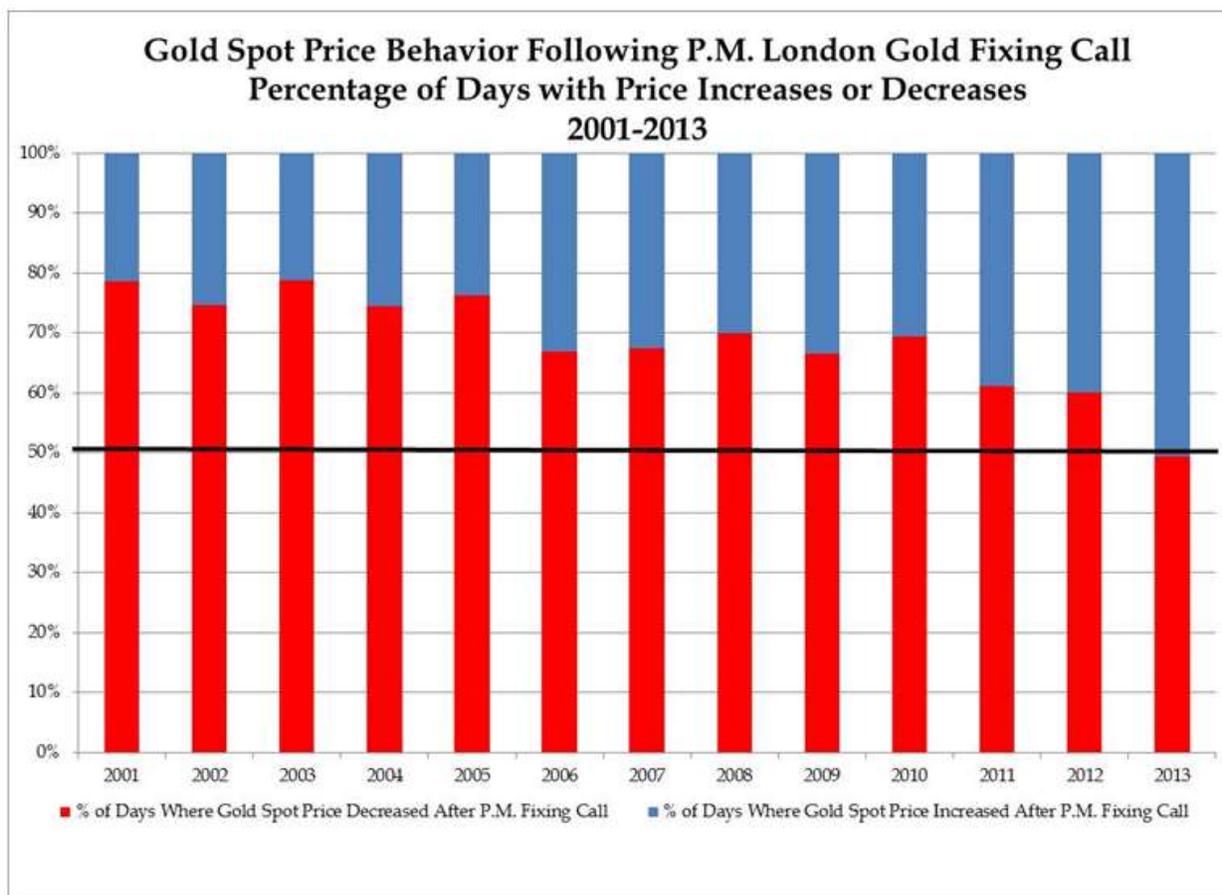
spot price of gold at 2:00 – 2:05 p.m. and 4:00 – 4:05 p.m., *i.e.*, at times *other* than those directly surrounding the PM Fixing. Again, the red bars indicate prices went down during the measurement window. The blue bars indicate prices went up during the measurement window.²⁸ As with the S&P 500, the price is sometimes slightly above or below 50%, but never in one direction all of the time.



²⁸ The prices referred to here are compared to those that existed five minutes earlier. This data does *not* show that transactions occurring in these windows were not impacted by Defendants' conduct. Even if prices *between* 4:00 p.m. and 4:05 p.m. were, on average, flat as compared to each other, this does not mean that prices at 4:00 p.m. and 4:05 p.m. were not *both* lower than they otherwise would have been in the absence of Defendants' prior suppression.



130. A dramatically different picture is painted when one focuses the analysis instead on the market for gold around the PM Fixing. For *every year* from 2001 to 2012, gold prices went down during the PM Fixing window far more often than prices went up during the Fixing window.



131. As illustrated above, for twelve years prices *consistently fell* between the start and end of the PM Fixing *far more* often than they rose between the start and end of the PM Fixing.²⁹ These results are statistically anomalous – given that it is approximately equally likely that prices would move up or down during the Fixing, the number of days on which the price decreased should be approximately the same as the number of days on which the price increased. And this is particularly true when the measurement period is more than a decade. Only during 2013 – when banks began to come under increased scrutiny for their benchmarking practices – did the annual data begin to reflect what one would expect to see if the PM Fixing was not being

²⁹ Notably, the data above, as well as those in many of the other analyses outlined below, is from *every* trading day. The asymmetry observed thus cannot be the result of biased sampling.

predominantly manipulated downwards: an even split between up days and down days.

132. The disparity between instances when prices around the Fix price went up, versus instances when the prices around the Fix price went down, is not just statistically significant for the years 2001 – 2012, but astoundingly so. The odds of this level of persistent, repeated disparity between up and down days occurring by random chance over that period of time are essentially zero (specifically: 1×10^{-20} , or less).

B. To a Statistically Certain Degree, Price Movements Around the PM Fixing are Contrary To Price Trend on a Given Day

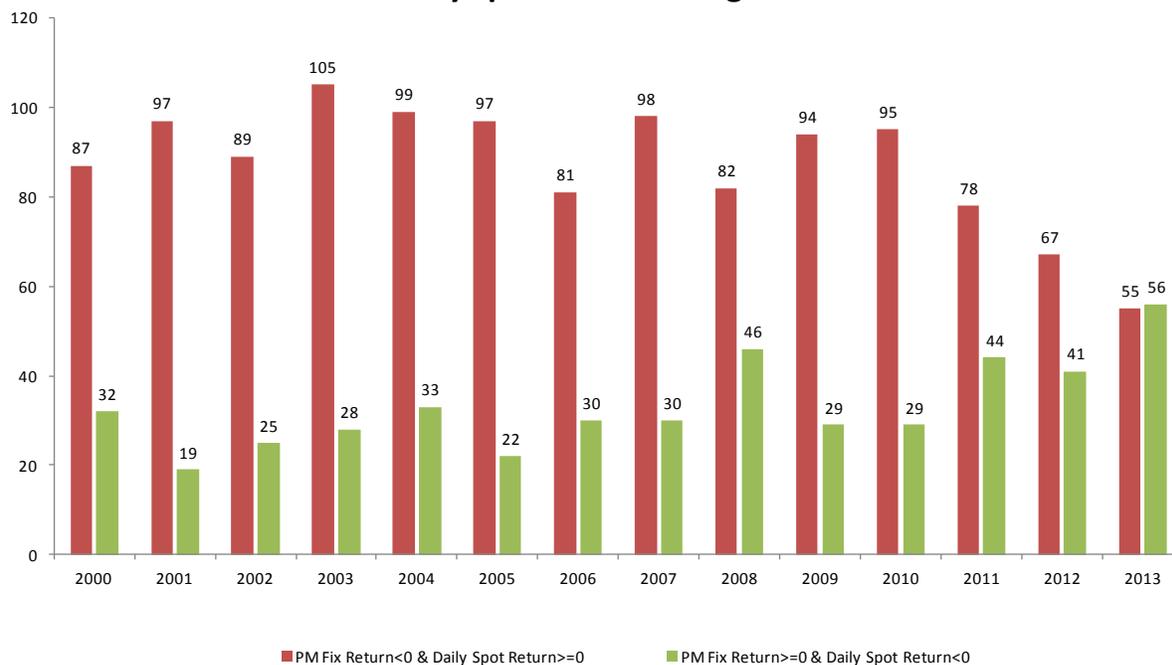
133. These results get even worse (for Defendants) when one takes into account what the market overall was doing on a given day. Suppose 250 trading days in a year, and that the overall market went down on 100 of those days (*i.e.*, 40% of days) because the market tended to be rising. If the Fix price was representative of the entire day, one might expect there to be approximately 100 days when prices around the Fixing went down. There is some natural variability by random chance. Statistically speaking, one can expect there to be somewhere between 84 and 116 down days for the Fix price 95% of the time. Thus, finding more than 116 down Fix price days is equivalent to statistically significant evidence that something artificial was moving prices around the Fixing *against* the trend of the overall market on that day.

134. In the context of the London Fixing, in *every year* from 2000 to 2012, there were many more days where prices around the Fixing specifically went down, than there were days when gold prices overall went down. This asymmetry was not just observable, but *statistically significant* – meaning, it is 95 percent certain that the results would not have occurred if the market results were like random coin flips (*i.e.*, coin flips in which the likelihood of a head was the same on every flip). Something other than random market noise – *i.e.*, Defendants’ conspiracy – was causing *artificial* movements, in a way that was disjointed with the movements

of the overall markets.³⁰

135. The red bars on the following graph indicates the numbers of days in which the PM Fixing was “negative” (meaning that the spot price for gold *decreased* between the start and end of the Fixing) despite the fact that the daily spot price was “positive” (meaning that the price increased between the start and the end of the London trading day). The green bars indicate the opposite (*i.e.*, that the spot price for gold *increased* between the start and end of the Fixing, despite the fact that the daily spot price was “negative”). The ratio of negative PM Fixing return days (red bar) to positive PM Fixing return days (green) is consistently, without exception, statistically significant from 2000 through 2012.

Number of Days in Which PM Fix is Negative and Daily Spot Return is Positive vs. Number of Days in Which PM Fix is Positive and Daily Spot Return is Negative

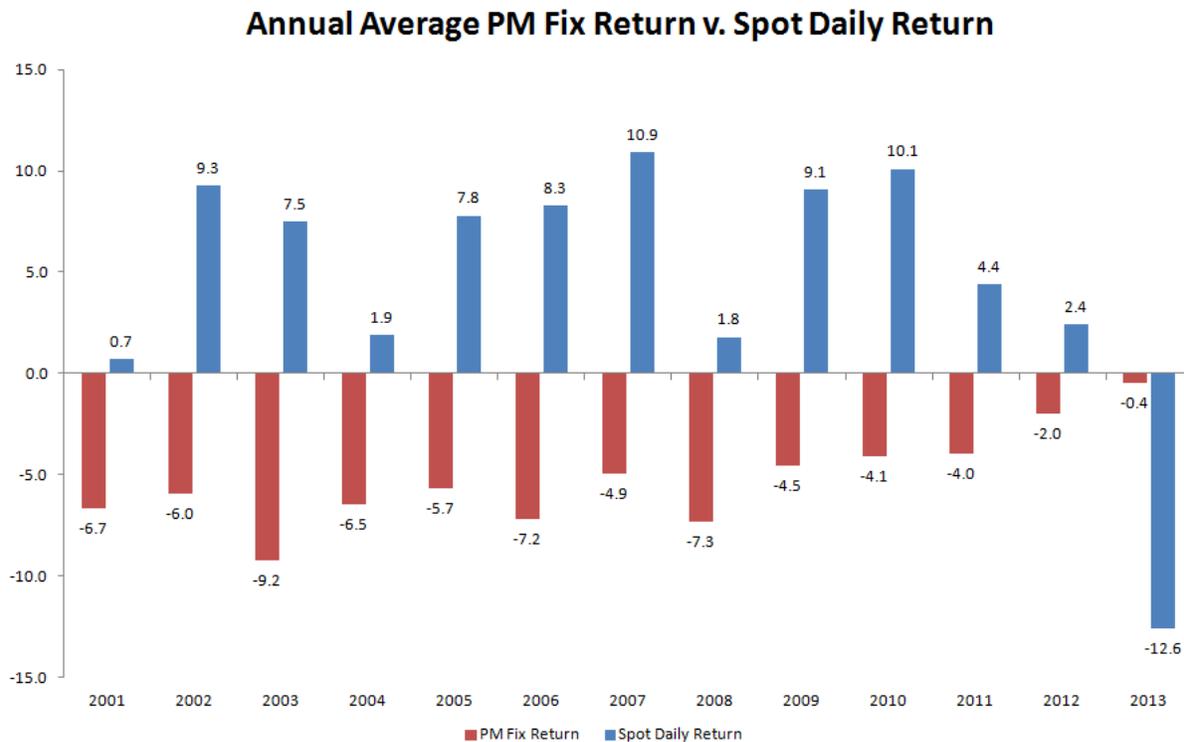


136. The fact that the red bars are much higher than the green indicates that prices

³⁰ The down “Fix” days outpaced down days generally by between about 10 and 32 percent (*e.g.*, if the percentage of overall down days is 40 percent, and the percentage of down fix days is 55 percent, the difference is 15 percent).

moved downward around the PM Fixing *despite* the price of gold going up that day overall, far more often than the opposite occurred. This pattern appears to subside – when annual data is considered – in 2013, when regulators across the globe began investigating benchmarking practices.

137. Another way to see this disproportion is to compare the average “return” if one were to buy gold at a fixed time during one London trading day that is not around the PM Fixing and then sell at the same fixed time during the following London trading day, versus what the return would be if one were to buy at the start of the PM Fixing then sell at the end of the PM Fixing. As illustrated by the blue bars in the following graph, the daily spot trades, if carried out over the entire period, generate consistent positive returns (because the price of gold overall was generally rising for those years). However, carrying out trades around the PM Fixing window would result in significantly negative returns, as the price consistently fell during the PM Fixing.



138. The wide gap that exists between the performance of these two approaches, carried out repeatedly and consistently over a long period of time, confirms the PM Fixing pricing spikes were anomalous and contrary to the market's overall movements.

C. **To a Statistically Significant Degree, the PM Fix Price Fell Into the Extreme Outliers of Prices for that Trading Day**

139. Plaintiffs sought to further determine whether prices around the Fixing were behaving normally by measuring how often the PM Fix price represented a far outlier as compared to other prices during the same trading day. Absent collusion, one would expect the price on any given minute of the day to be just as likely to be below the 5th percentile of prices that day, as to be above the 95th percentile (*i.e.*, 5%).

140. That is not what was observed in terms of the PM Fix price. The following charts compare the number of times the PM Fix price fell below the 5th and 10th percentiles, to what should have been the relatively equal number of times the PM Fix price fell above the 95th and 90th percentiles, respectively. The distributions at the extreme percentiles are far from equal. For instance, the PM Fix price was below the 5th percentile *twice* as often as one would expect if large price increases were as likely as large price declines.

141. These results confirm that the PM Fixing was not causing spikes *as a general matter* but instead was causing *downward spikes, specifically*, and at a frequency far *beyond* what would be expected if prices were just reacting naturally.

142. Again, the lowest divergence between the PM Fix price being a high-outlier and a low-outlier – for both the 5th/95th percentiles and the 10th/90th percentiles – occurred in 2013, when the banks' benchmarking practices began to come under regulatory scrutiny.

Ranking Daily Percentile for the London PM Gold Fixing Price (Top and Bottom 5%)			
Year	% of Days With Percentile Rank Less Than 5%	% of Days With Percentile Rank Greater Than 95%	Difference [C] = [A] - [B]
	[A]	[B]	
2001	12.0%	0.8%	11.2%
2002	11.2%	1.2%	10.0%
2003	9.6%	1.2%	8.4%
2004	6.7%	2.4%	4.4%
2005	8.4%	1.2%	7.2%
2006	7.6%	5.6%	2.0%
2007	7.2%	4.0%	3.2%
2008	9.9%	4.8%	5.2%
2009	11.6%	4.0%	7.6%
2010	12.0%	3.6%	8.4%
2011	10.8%	5.6%	5.2%
2012	11.6%	6.8%	4.8%
2013	8.8%	6.8%	2.0%
<i>2001-2013 Average</i>	9.8%	3.7%	6.1%

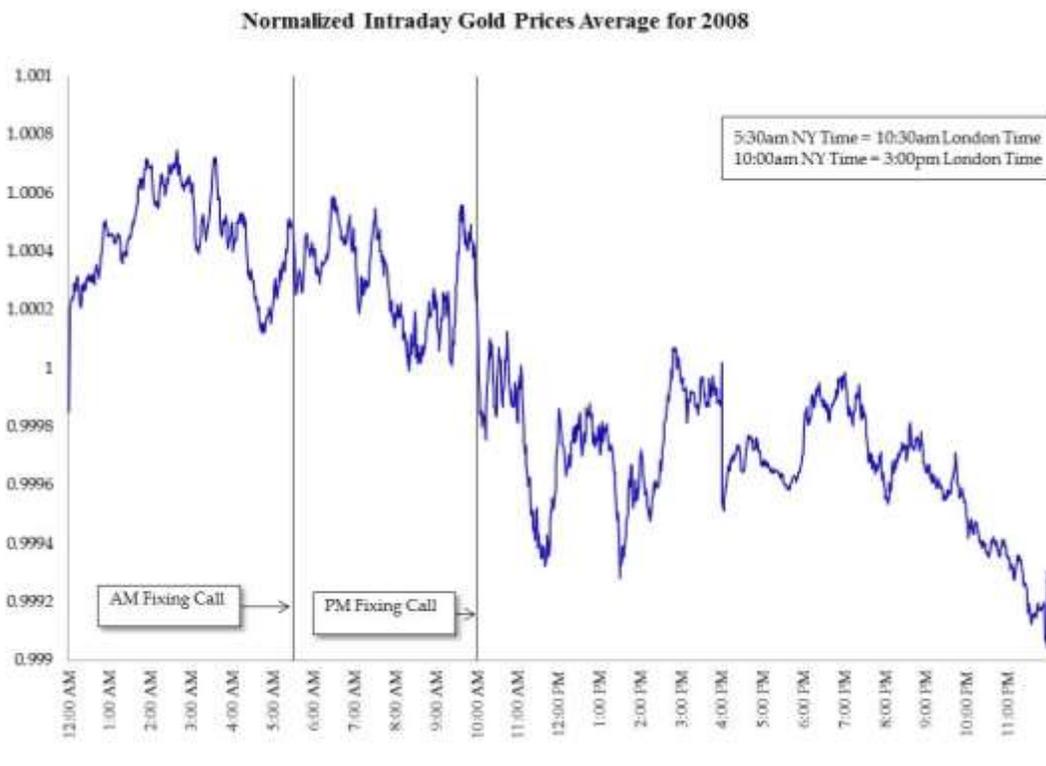
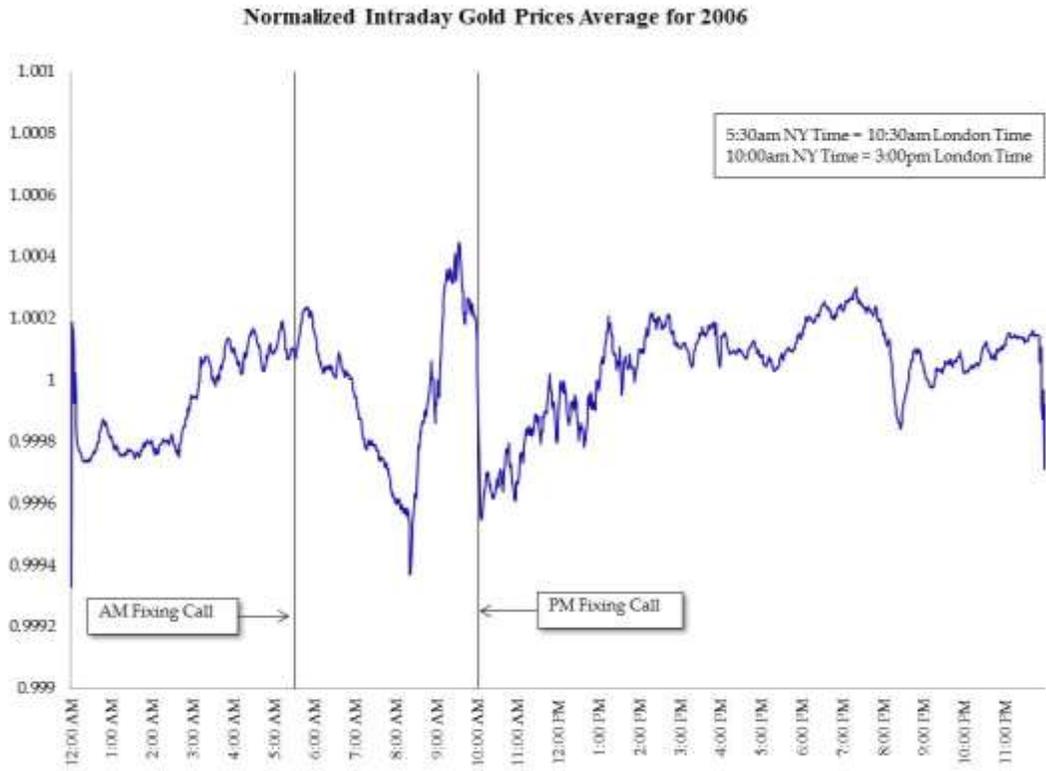
Ranking Daily Percentile for the London PM Gold Fixing Price (Top and Bottom 10%)			
Year	% of Days With Percentile Rank Less Than 10%	% of Days With Percentile Rank Greater Than 90%	Difference [C] = [A] - [B]
	[A]	[B]	
2001	20.7%	2.4%	18.3%
2002	17.2%	2.0%	15.2%
2003	17.5%	2.0%	15.5%
2004	8.7%	4.0%	4.8%
2005	13.2%	3.2%	10.0%
2006	12.8%	8.0%	4.8%
2007	15.1%	8.0%	7.2%
2008	14.3%	10.3%	4.0%
2009	15.1%	6.0%	9.2%
2010	23.1%	6.8%	16.3%
2011	16.5%	9.6%	6.8%
2012	18.4%	12.0%	6.4%
2013	12.0%	8.4%	3.6%
<i>2001-2013 Average</i>	15.7%	6.4%	9.4%

D. To a Statistically Certain Degree, a Comparison of Minute-by-Minute Prices Reveal a Pattern of Price Spikes Around the Fixing

143. To supplement the analysis of *how often* irregular price movements occurred, an analysis was conducted to determine *how much* unusual behavior occurred around the PM Fixing.

144. To approach this question of “quantum,” Plaintiffs considered intraday-minute tick data, which shows the upward or downward movement in price from one minute to the next. Prices were normalized by the average price within the same day so that prices within that day can be compared to the next day’s movements, even if the prices are very different in absolute or dollar terms. Normalization enables one to see whether pricing behavior at a particular time of day demonstrates a pattern of abnormal behavior as compared to pricing patterns at other times during the day and across years, independently of the level of prices themselves.

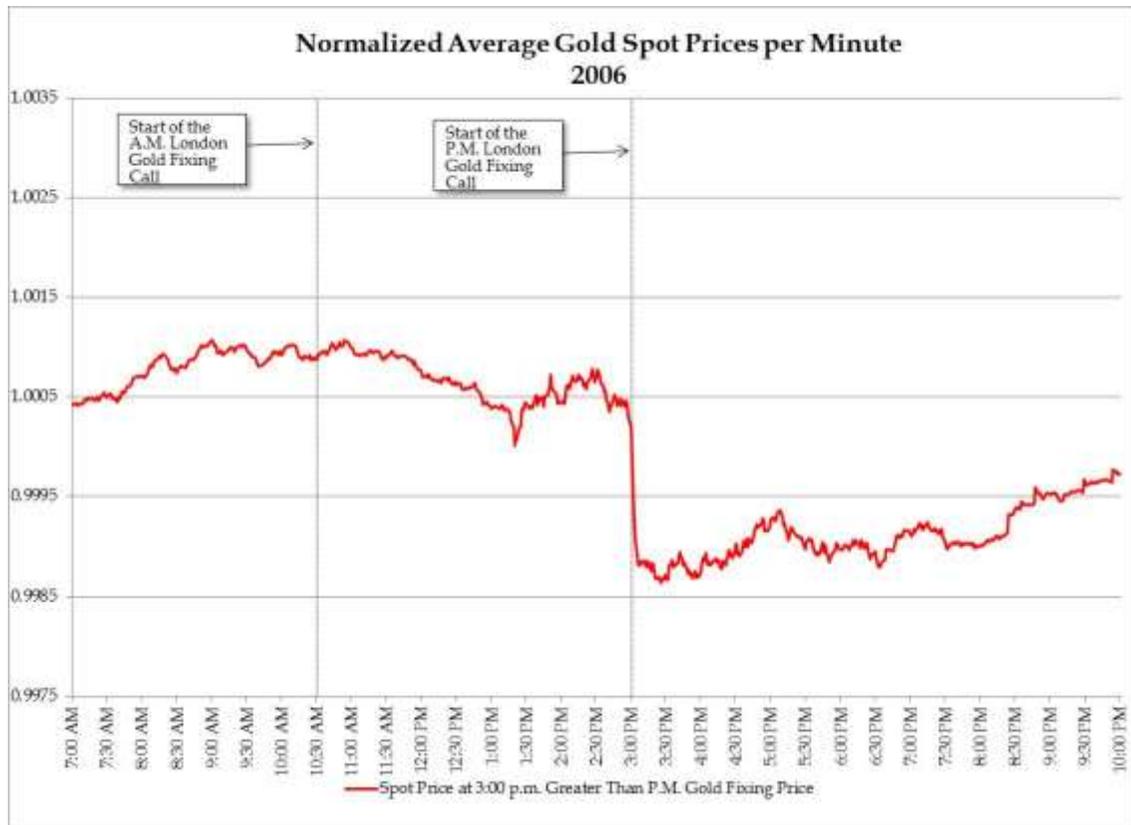
145. The graphs below illustrate 2006 and 2008; graphs for the years 2001 – 2012 are included at Appendix D. The graphs reveal a clear picture of large price spikes beginning just before the PM Fixing (New York time on the x-axis) and continuing until about the time the PM Fixing call ends. The data underlying these graphs shows that prices tended to move downward around the PM Fixing, as seen in the prior studies. The data also demonstrates the unusual size and intensity of the downward spikes surrounding the PM Fixing. While other times of day see their ups and downs over time, none are as steep as the downward price spikes around the PM Fixing.

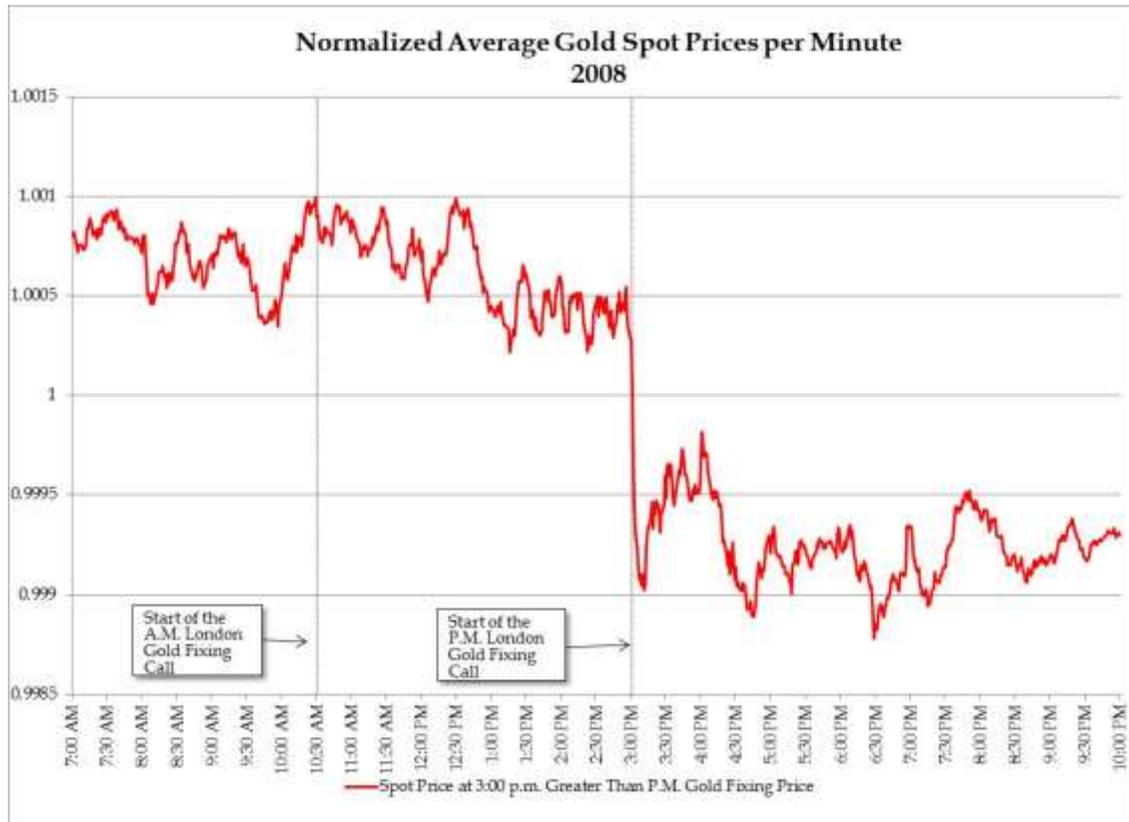


146. The timing of *intra-day* movements around the PM Fixing over a series of days

(or in this case, years) can also be isolated by presenting the same normalized average prices within each year, but only for the days for which prices decreased during the call (which, as demonstrated above, were between 60 and 80% of the days between 2001 and 2012).

147. The results show an even more striking break in behavior around the time of the PM Fixing. Reproducing the two previous graphs for 2006 and 2008, but using only the normalized averages per year for the days when the price dropped during the PM Fixing, prices are shown to drop sharply and quickly downward during the PM call.

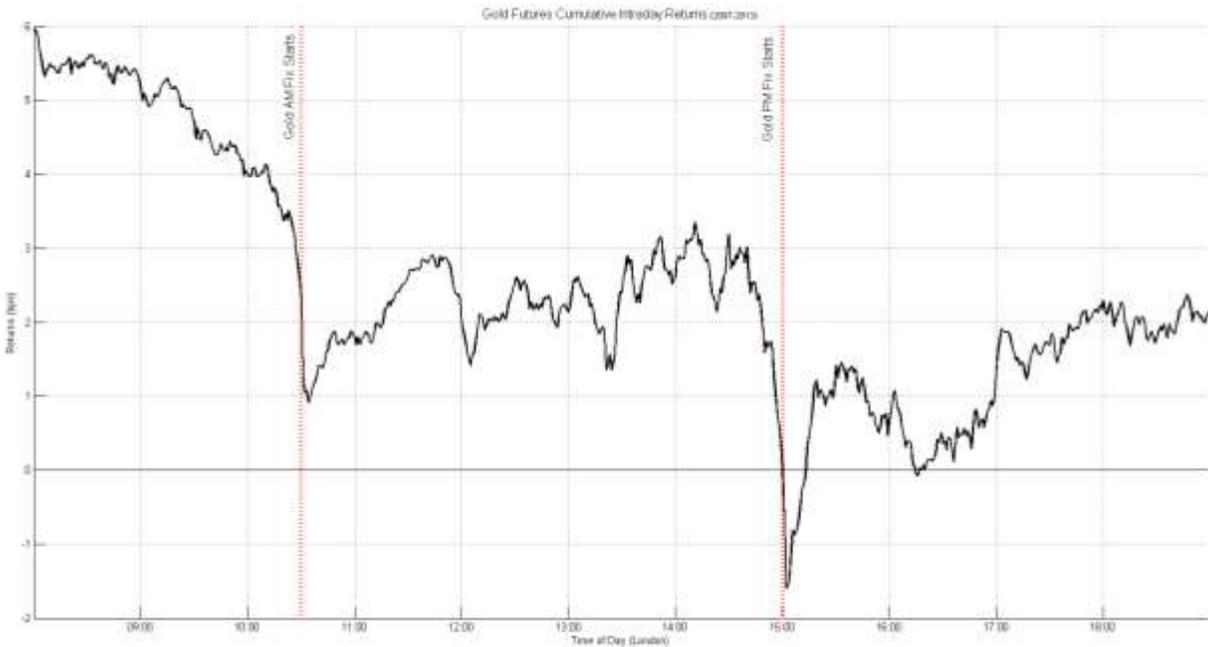




148. Appendix E contains further such graphs, for 2001 through 2012. Each displays the same pattern of prices, over the entire course of the year behaving far differently around the time of the PM Fixing, than they do at any other point in the day.

149. As a consequence of Defendants' manipulation, on average there was a 4 basis point³¹ downward bias in intraday returns on COMEX gold futures around the time of the PM Fixing, as indicated in the following graph.

³¹ A "basis point" is a unit of measurement used in finance to describe the percentage change in the value or rate of an instrument. One basis point is equal to 1/100th of 1%. A consistent rate of four basis points per day equates to 11% per annum.



150. The preceding analysis again confirms that, to a statistically certain degree, downward price movements were occurring around the Fixing. The preceding analysis found that these downward movements were unique to the time of the Fixing. Prices *moved downward* during the Fixing windows, to a statistically certain degree, in a sudden, sharp movements not appearing at any other time of the trading day.³²

151. The injury futures investors experienced was a direct result of Defendants' coordinated efforts to influence COMEX gold futures and options prices by manipulating the price of the underlying commodity.

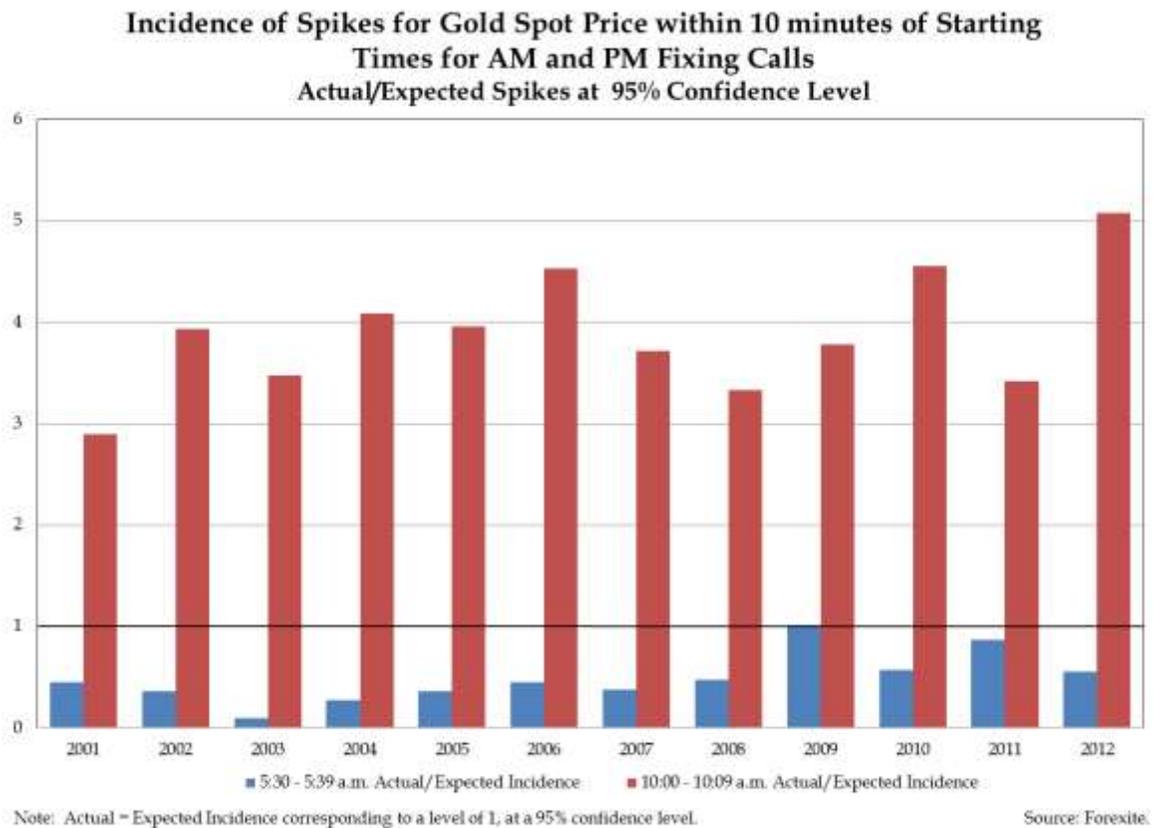
E. To a Statistically Certain Degree, the PM Fixing Downward Spikes Stand Out as Against Movements at Any Other Time of Day – Even the AM Fixing

152. Price movements can occur for any number of reasons. But the point of the above graphs – which gather data across an entire year's worth of trading days, year after year – is that

³² Again, the absence of sudden movements other than around the PM Fixing does *not* mean that transactions occurring at other times of the day were done at unmanipulated prices.

a spike is far more likely to occur around the PM Fixing than any other time of day. Indeed, the incidence of downward price spikes after the start of the PM Fixing is approximately four times larger than would be expected if the price changes occurred randomly throughout the day. Such a result did not occur by chance.

153. Notably, this break with expectations was *not* seen in the AM Fixing. The below graph compares the amount of downward price “spikes” around the time of the two Fixings, with “1” representing the number that one would expect to occur in *any* given, similarly-sized time window, absent manipulation. As the red bars illustrate, the PM Fixing saw four times as many downward spikes as would have been expected when compared to price spikes throughout the whole day. As seen in the blue bars, the AM Fixing actually saw *fewer* spikes than what would have been expected by random chance.



154. That the price spikes studied above were anomalous in their clustering around the

PM Fixing is also confirmed by the fact that Plaintiffs measured not just the *presence* of spikes, but also their *size*. Downward spikes occurring around the PM Fixing were found to be much *larger* than spikes occurring at other times of the day. The “worst minute” of the day was identified by comparing the price at that minute with the prices both before and after that minute, identifying those minutes where the price deviated most from other minutes around it.

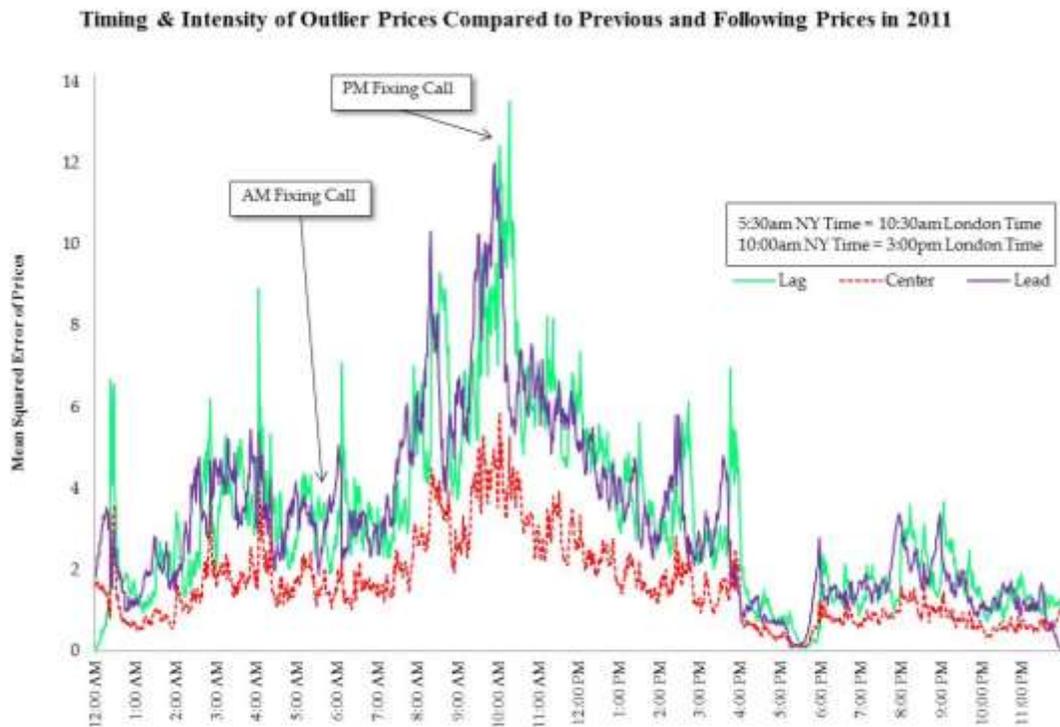
155. There are multiple ways to do such a comparison, but as seen below they all reach the same result. Comparisons can be made to the price for every minute of the day with the average of prior prices (the “lagging average”), subsequent prices (the “leading average”), and prior and subsequent prices (the “centered average”). For example, a comparison of the price at 10:00 a.m. New York time with an average of prices from 9:30 a.m. through 9:59 a.m. (the lagging average), an average of the prices from 10:01 a.m. through 10:30 a.m. (the leading average), and the average of the prices from 9:30 a.m. to 10:30 a.m. (the center average). The “squared deviation” between those averages and the price at any one particular minute enables the identification of which time periods experienced the most severe/largest movements – the “worst minutes” of the day.

156. The results of the analysis, like the others, are striking: the concentration of “worst minutes” around the PM Fixing is *much* higher than what would occur by random chance.³³ In 2006, for example, the “worst minute” centered on the PM Fixing *three to four times* more often than what would have occurred by random chance. Again, such outlier behavior was not seen around the AM Fixing.

157. The following graphs for 2011 (in New York time) demonstrate the extent to

³³ This is, notably, a conservative approach to determining suspicious days, since it does not count a day as suspicious where significant spikes occur around the PM Fixing that are not the “worst minutes” of the day.

which the price movement at the PM Fixing is an outlier when compared to the lagging, leading, or centered average of the prices surrounding that minute – in other words, they show how the price in the minutes around the Fixing were *far* more anomalous than the prices occurring before and after, than were the prices of any other time period of the day.³⁴ Graphs for the years 2001 – 2012 may be found in Appendix F.



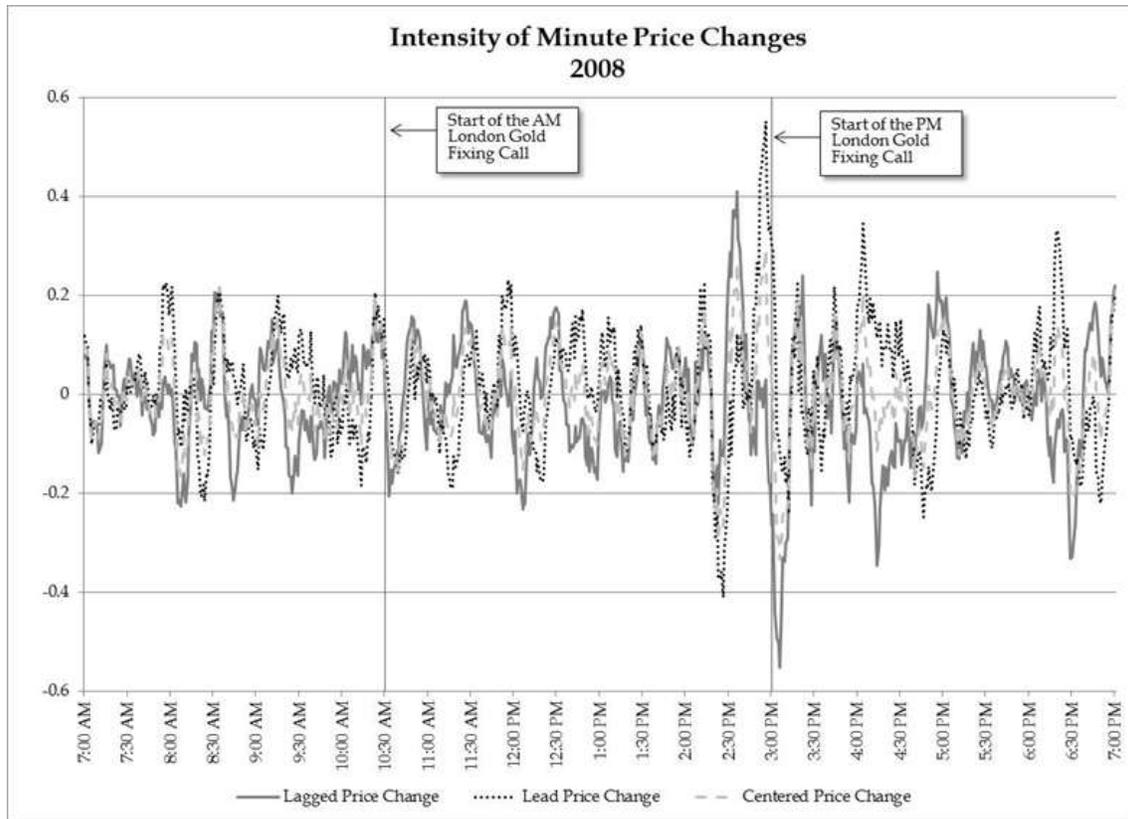
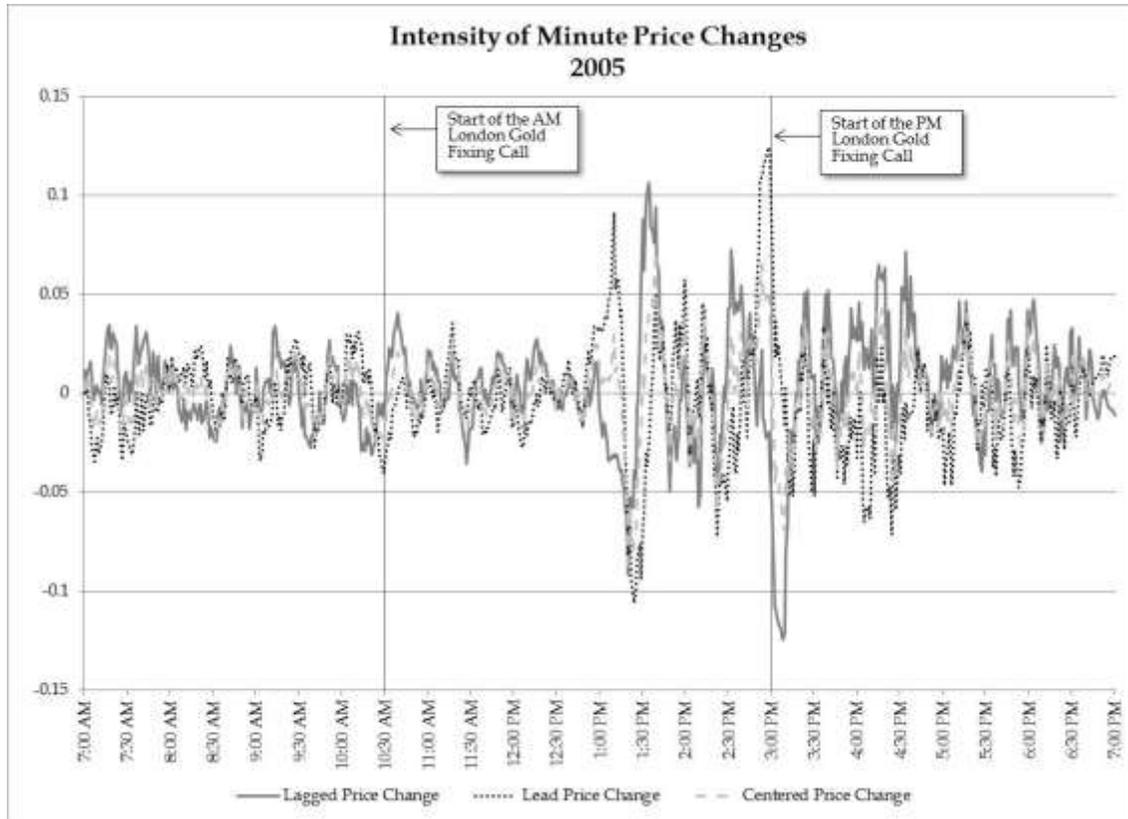
158. The size of the downward spikes occurring around the PM Fixing – whether viewed by the minute’s price as compared to the lagging (green), centered (red) or lead (purple) averages – confirms not just that the worst minutes are unnaturally centered around the PM Fixing, but that when they occur around the PM Fixing, they are *much bigger* outliers than when a day’s worst-minute falls at some other point of the day. Put another way, the “intensity” of

³⁴ Again, the absence of sudden movements other than around the PM Fixing does *not* mean that transactions occurring at other times of the day were done at unmanipulated prices.

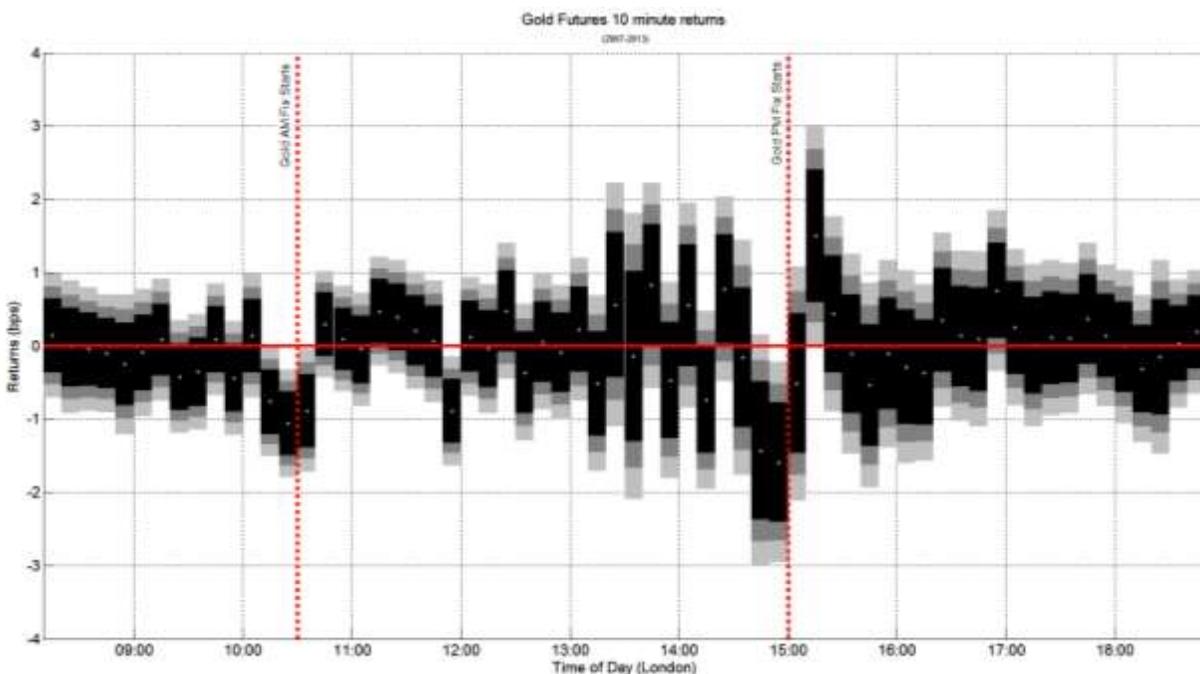
downward spikes is much greater when they occur around the PM Fixing than when spikes occur at other times of the day. This highly non-random intensity distribution would not be observed if the spikes around the PM Fixing were due to normal market conditions.

159. The following graph presents a similar analysis that tracks for 2005 and 2008 the “intensity of price changes” in which the price at each minute is compared to either the price 10 minutes before (lag), 10 minutes after (lead), or the average of the two (centered). More years are depicted in Appendix G. The results again feature spikes in behavior around the PM Fixing not observed around the time of the AM Fixing or any other time of day.

160. Whether the lagging, leading, or centered prior prices are used as the comparison point, the largest spike is around the time of the PM Fixing. This can be seen by spikes in prices that become larger and more negative at 3:00 p.m. London time, as the vertical line at 3:00 p.m. marking the beginning of the call lies almost exactly on top of the largest negative spike by any of the three measures.



161. Another way to look at the uniqueness of the anomaly around the PM Fixing is to analyze the average price changes, *i.e.*, the “returns,” observed throughout the trade day. The graph below measures such returns, in basis points (*i.e.*, hundredths of a percentage) across 10 minute intervals throughout the London trade day 2007 – 2013. The graph illustrates in black (95% confidence interval), dark grey (99% confidence interval), and light grey (99.9% confidence interval) the average returns observed. *Only* around the Fixing do prices show statistically significant negative “returns” (downward price movements). That is, while prices move up and down throughout the day, it is only at the time of the London AM and PM Fixings that prices show a consistent down swing, with by far the largest downward swing occurring at the PM Fixing.³⁵



³⁵ Again, this shows that prices were *moving* around the PM Fixing in a way that they did not at other times of day. But this does *not* mean that transactions occurring at other times of the day were done at unmanipulated prices.

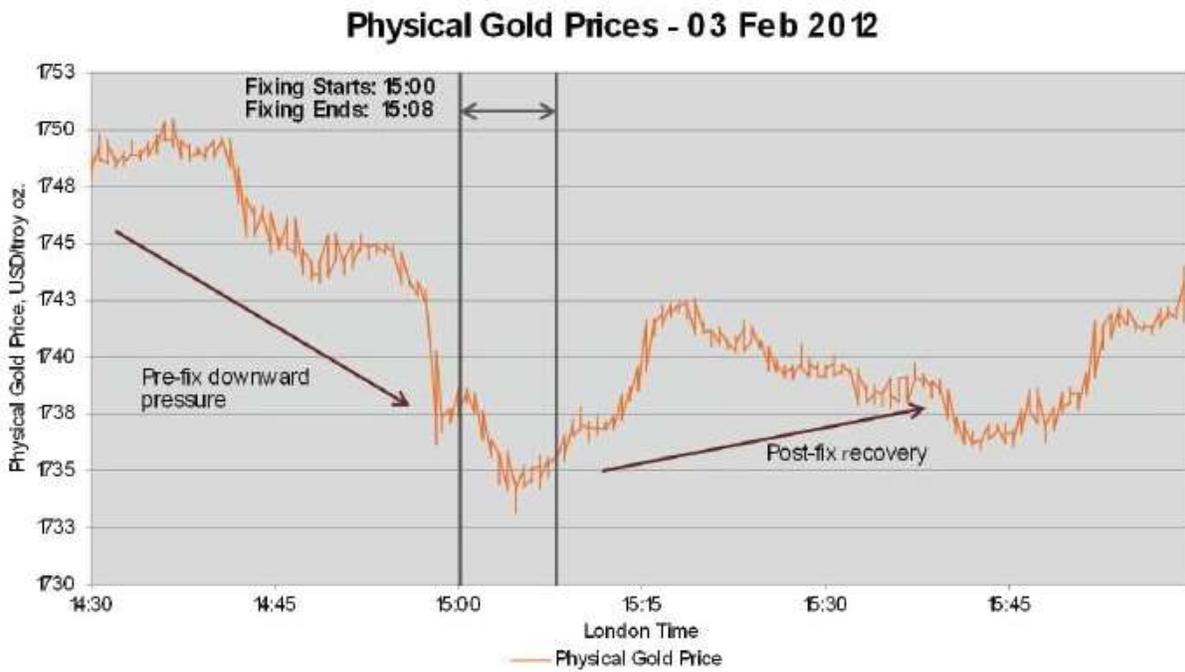
F. The Downward Spikes Can Be Seen in the Daily Data as Well

162. The studies above considered entire years and each found that prices were more likely to move downward, more quickly and in larger size, around the time of the PM Fixing than at any other time of day. The pattern revealed by using a data set as large as an entire year, and run for multiple years, leaves no doubt that prices around the PM Fixing consistently behaved differently than prices at any other point in the day.

163. A zoom in on individual days confirms that, in fact, large downward price movements occurred around the time of the PM Fixing. As seen in the following graphs, prices for both COMEX gold futures and spot gold plummeted right around the time of the Fixing on April 2, 2009, May 8, 2009, and February 3, 2012. Additional graphs illustrating data from other days are contained in Appendix H.³⁶



³⁶ These days were chosen merely as examples to demonstrate the point of downward manipulation at the time of the PM Fixing.



164. Individual days are characterized by the same patterns that exist in the aggregate data. Just before the call is initiated, downward movements begin, and then accelerate. That the downward movement occurs *before* the call begins confirms that the movement cannot be the

result of the market “learning” anything from the Fixing. Rather, these movements can only be the result of collusive and manipulating techniques employed by Defendants to create downward pressure in the market.

III. PLAINTIFFS HAVE IDENTIFIED SPECIFIC DAYS ON WHICH THEY ALLEGE, BASED ON THESE STATISTICAL STUDIES, THAT MANIPULATION OCCURRED

165. In line with the studies discussed above, Plaintiffs have been able to preliminarily identify numerous days throughout the Class Period on which Defendants conspired to and did manipulate the PM Fix price, and thereby set the price of gold at artificially low levels. These days are set out in Appendix A. Appendix B lists dates on which Plaintiffs executed a sale on one of the specific days identified in Appendix A as subject to downward suppression by Defendants and their co-conspirators. The list of days presented in Appendix A were identified by several mutually-reinforcing methodologies employed by Plaintiffs’ economist consultants. In general, the consultants looked for days where the market’s behavior around the PM Fixing was significantly different from that in other times during that same day. Specifically, the consultants engaged in the following methodologies:

166. *First*, they identified days where the PM Fix price deviated significantly from the spot price at the start of the PM Fixing and then examined the results for days where the spot price rebounded to its pre-Fixing levels. The consultants also flagged days where the Fix price broke a trend for the overall market that day, *i.e.*, the spot prices were going up, but the Fix price went down. Both are signs that the Fix price was being driven by something other than the market for gold that day. Relatedly, the consultants looked for days where the futures trading volume showed signs of anomalies around the time of the Fix price – signs that those “in the know” were moving to cash in or out to move the Fix price.

167. *Second*, they identified days where the price during the PM Fixing window fell,

despite a trend of rising prices for that day (London time).

168. *Third*, they identified days where the PM Fix price was among the lowest spot prices of that day. They found the PM Fix price was in the lowest percentiles far more often than one would expect from a random distribution of daily activities.

169. *Fourth*, they identified days when the change in spot market prices around the PM Fixing was the sharpest movement seen in the entire day. Results indicated that the largest and quickest price movements occurred far more often around the PM Fixing, than in any other time of day.

170. *Fifth*, they identified days where the normalized spot price of the day around the PM Fixing was among the lowest spot prices of the year. This was accomplished by normalizing prices on each day by their daily average, then averaging across minutes and days within an entire year. Unlike the preceding approaches, this method searches for days with very low spot prices around the PM Fixing relative to all the days of the year. Normalization captures the average pattern of price changes throughout a day and across a year, independent of whether the nominal values for the prices were very different on one versus another day of the year.

IV. THERE IS NO INNOCENT EXPLANATION FOR THE ABNORMALITIES SEEN IN THE PRICING DATA SURROUNDING THE PM FIXING

171. As discussed below, Plaintiffs considered, but rejected, alternative explanations for the anomalous pricing patterns discussed above in Section II. The only plausible explanation given what is now known is that alleged herein: manipulation. Nothing else could plausibly explain the fact that prices were not just spiking around the Fix, but doing so in *highly asymmetrical* fashion, day after day and year after year – a pattern that would occur in a random market only essentially *never* (*i.e.*, 1×10^{-20} percent of the time). And nothing else could plausibly explain why, particularly in the latter half of the year, these pricing patterns began to

abate during 2013 when the banks came under increased benchmarking scrutiny, despite that the Fixing process was nominally operating the same as it always had been. These and other factors all belie any suggestion that the Fixing spikes were the result of natural market phenomenon, be it market trends, legitimate price discovery in the wake of the release of new pricing information (the auction results), asymmetries in information between buyers and sellers at the Fixing (Defendant Fixing Banks are both buyers and sellers of gold at the Fixing on behalf of their clients and for their own books), liquidity, or anything else.

A. None of the Proposed Alternative Explanations are Persuasive

1. The asymmetrical movements cannot be explained by general market trends

172. Plaintiffs considered the hypothesis that the downward movement in prices around the Fix was merely a product of the gold market's overall trend that day. But this theory is implausible, because, among other things, as discussed above in Section II.B., the PM Fixing's downward movement was, to a statistically significant degree, a movement *against* the overall price movement for gold on that day.

2. The asymmetrical movements cannot be explained by the fact the Fixing was releasing new information into the market

173. Plaintiffs considered whether large swings were merely being caused by the fact the Fixing was releasing new information into the marketplace. This theory is implausible, for a number of reasons.

174. As an initial matter, such a theory is belied by the fact that the downward trend often began *before* the PM Fixing conference call began. Defendants (and their co-conspirators) were the only market participants that could accurately predict, and thus confidently trade as to profit off of, the PM Fix price before the PM Fixing even began.

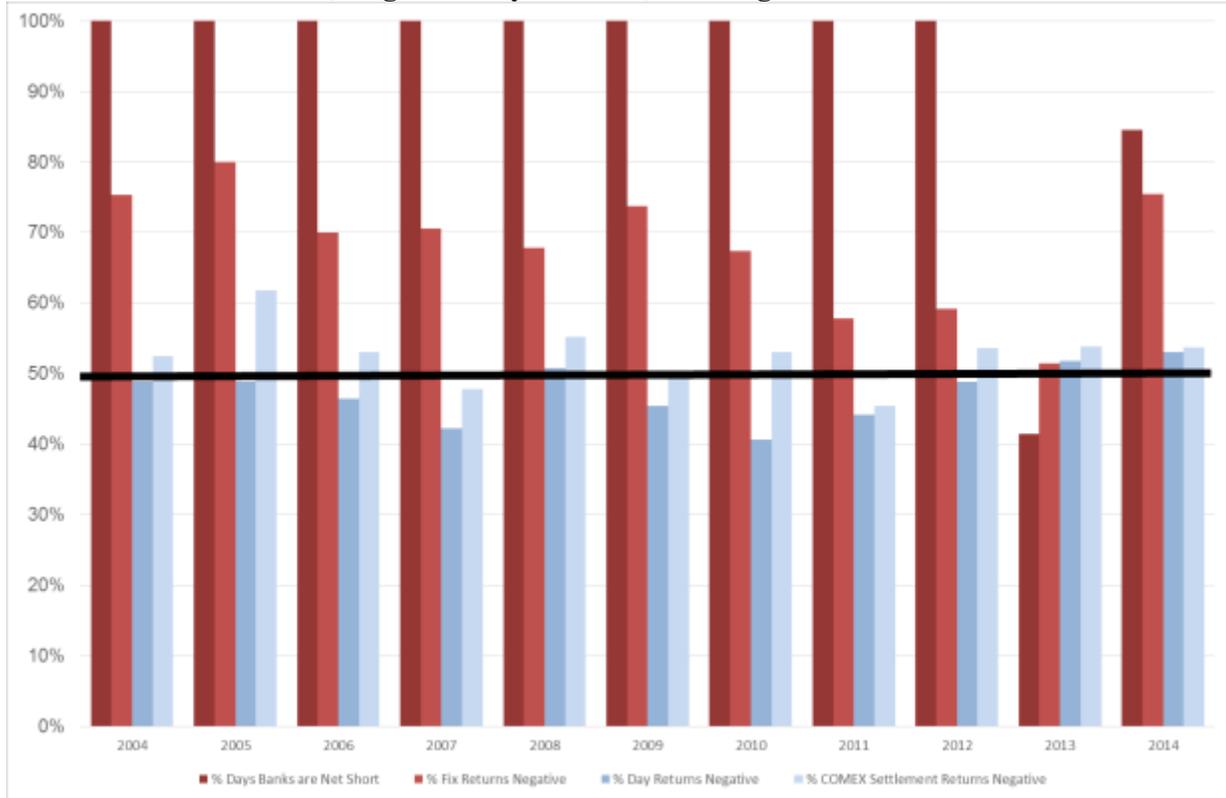
175. That the Fixing itself was releasing information to the market also cannot explain

the pricing anomalies described above. The consultants found not only that large swings occurred around the Fixing, but also that the large swings were asymmetrical, *i.e.*, the swings were disproportionately in a downward direction. There is no reason to believe, absent manipulation, that an honest, fully competitive “auction” would send out a disproportionate amount of “bad” information to the market over so long of a period of time, as compared to the number of times an auction would release “good” information. Not just any “bad” information, but information that was so bad and unexpected it drove the price to *the lowest outliers* of the day, as discussed above in Section II.C.

176. That the Fixing itself was releasing information to the market also cannot explain the pricing anomalies because it fails to account for the fact that the consistency of the downward swings began to abate as the banks’ benchmarking practices came under increased scrutiny during 2013 and as their overall futures positions moved from short to long.

177. Prices around the PM Fixing were instead correlated to Defendants’ short positions. As the following graph shows, the percentage of days during any given year in the Class Period when the PM Fixing return was negative (that is, the days on which there was a negative difference between the gold spot price immediately before the start of the London PM Gold Fixing and the PM Fix price that day) is positively correlated with the years in which Defendant Banks were short on COMEX gold futures contracts.

Correlation between Frequency of Defendant Banks' COMEX Short Positions, Negative Fix Returns, Negative Day Returns, and Negative COMEX Returns



178. Equally telling however, is that the chart also shows *no* (or negative) correlation between the number of trading days during the class period on which the PM Fix Returns were negative and the days on which gold Day Returns³⁷ or COMEX Settlement Returns³⁸ were negative. In other words, these data together show that the PM Fixing price direction appears to be influenced far more by the Defendant Banks' short positions than by the direction of prices in broader spot gold or COMEX futures.

³⁷ "Day Returns" are the change in the spot gold price observed twelve hours on either side of the start of the London PM Gold Fixing, *i.e.*, from 3 a.m. (London) to 3 a.m. the following day.

³⁸ "COMEX Settlement Returns" are the change in the active gold future price observed across the COMEX Settlement period, being the last minute of floor trading from 1:29 p.m. (New York) to 1:30 p.m.

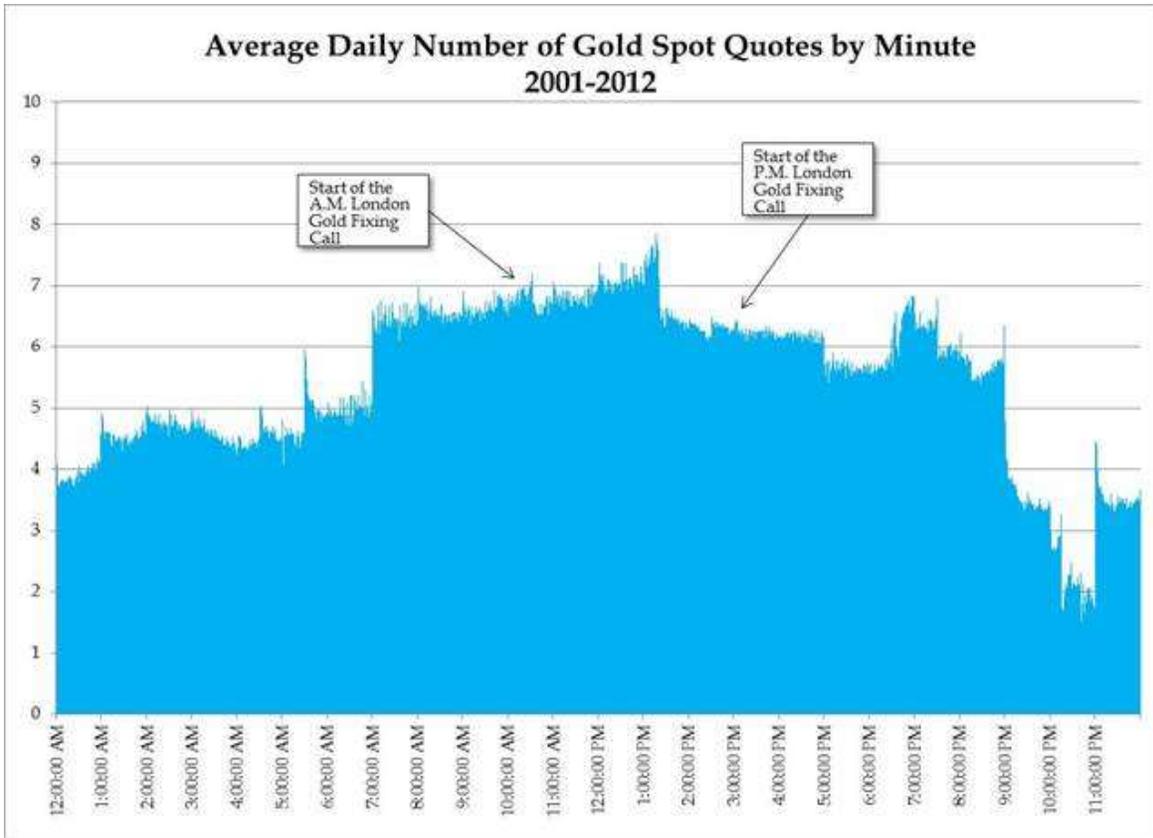
3. The asymmetrical movements cannot be explained by a purported increase in market liquidity

179. Plaintiffs also considered whether the spikes were caused by a purported increase in liquidity around the PM Fixing. This theory was also implausible, for a number of reasons.

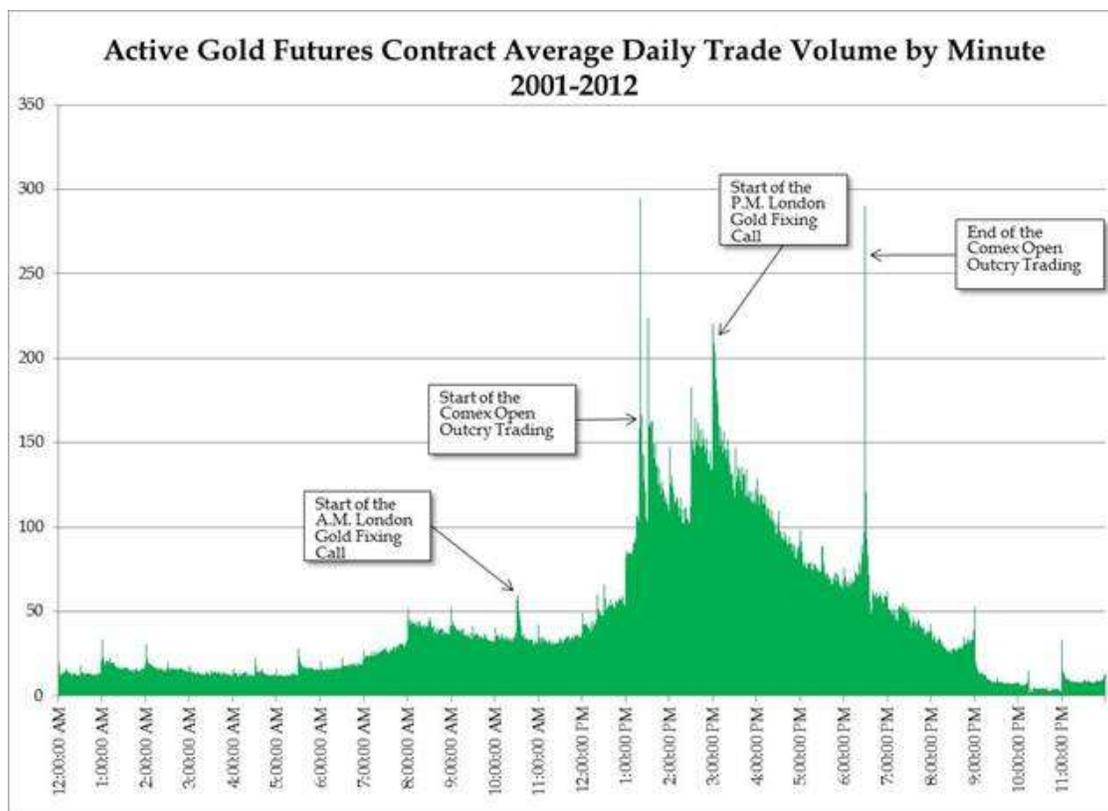
180. Just as there is no reason to expect that the Fixing would *systematically* release (absent collusion) more “bad” news than “good” news, there is no reason to expect that sellers *and only sellers* would, in a freely competitive market, *disproportionately* flock to transact in the gold market around the Fixing window. Indeed, sellers are attracted to “liquid” times of day because, by definition, *that is when the buyers are active in the market*.

181. An increase in liquidity around the Fixing cannot explain the pricing anomalies because it also fails to account for the fact that the consistency of the downward swings began to abate as the banks’ benchmarking practices came under increased scrutiny.

182. The hypothesis that the downward spikes were caused by a unique burst of liquidity is also implausible because, while the gold market was liquid around the PM Fixing, they were not uniquely so. For instance, the chart below breaks down a study of available quote information, minute by minute.



183. The following chart similarly tracks, using what publically available information is available, the minute-by-minute volume in the gold futures market. While there is a spike around the time of the PM Fixing, it is not the only such spike, nor is it even the largest.



184. Plaintiffs also rejected a liquidity-increase explanation for the pricing anomalies because the effects of a liquidity-driven spike would be expected to have been short-lived. Once the hypothesized rush of large sellers was gone, prices should have rebounded quickly. But they often did not. Instead, as demonstrated below, the effect of the downward movement lingered far longer than economists would expect to see if a price movement was caused by a singular, inexplicable, repeat pattern of sellers (and only sellers) rushing to the market at a point of time during the day.

185. An increase in liquidity around the Fixing also cannot explain the pricing anomalies because it is in conflict with the “random walk” theory of efficient markets, which has long recognized that when measured on a given time frame day to day, markets are expected to go up during that time frame just as often as they go down.

186. Plaintiffs ran further analysis to test the hypothesis that sellers disproportionately

flock to liquid times of day. By studying price movements for a similar interval at other times of day, in the market for gold and even in other markets, one can clearly see the frivolity of the suggestion that only sellers rush to market during expected-to-be-liquid times of day.

187. For instance, the opening and closing of a market are usually among the busiest times of the trading day. Testing across multiple markets – including the S&P 500, the market for U.S. Treasuries, and even gold during open of COMEX outcry trading – confirms that the “random walk” theory holds even during periods of increased liquidity across markets and for gold itself. *Only* gold, and *only* around the Fixings, and specifically the PM Fixing, shows a highly disproportionate number of “down” movements.

Comparison of Asset Price Movements 2001-2012

Asset	Time	Time Description	Percentage of Days Price Decreases
Gold Spot	3:00pm to London PM Fixing	Gold Fixing Time Period	70.2%
10Y Treasury Bond*	3:00pm to 3:05pm London	Start of Gold PM Fixing Call	48.6%
Crude Oil Futures****	3:00pm to 3:05pm London	Start of Gold PM Fixing Call	51.1%
S&P 500	3:00pm to 3:05pm London	Start of Gold PM Fixing Call	50.4%
Natural Gas Futures***	3:00pm to 3:05pm London/ 10:00am to 10:05 EST	Start of Gold PM Fixing Call/NYMEX Market Open	49.4%
Gold Spot	2:00pm to 2:05pm London	Comparable 5 Minute Window	49.7%
Gold Spot	4:00pm to 4:05pm London	Comparable 5 Minute Window	50.1%
Gold Spot	8:20am to 8:25am EST	COMEX Market Open	47.8%
Crude Oil Futures****	9:00am to 9:05am EST	NYMEX Market Open	50.1%
10Y Treasury Bond*	9:30am to 9:35am EST	NYSE Market Open	49.0%
Gold Spot	9:30am to 9:35am EST	NYSE Market Open	49.7%
S&P 500	9:30am to 9:35am EST	NYSE Market Open	50.8%
Gold Spot	1:25pm to 1:30pm EST	COMEX Market Close	46.9%
Crude Oil Futures****	2:25pm to 2:30pm EST	NYMEX Market Close	47.5%
Natural Gas Futures***	2:25pm to 2:30pm EST	NYMEX Market Close	47.8%
10Y Treasury Bond*	3:55pm to 4:00pm EST	NYSE Market Close	49.9%
Gold Spot**	3:55pm to 4:00pm EST	NYSE Market Close	50.7%
S&P 500	3:55pm to 4:00pm EST	NYSE Market Close	48.0%

Notes:

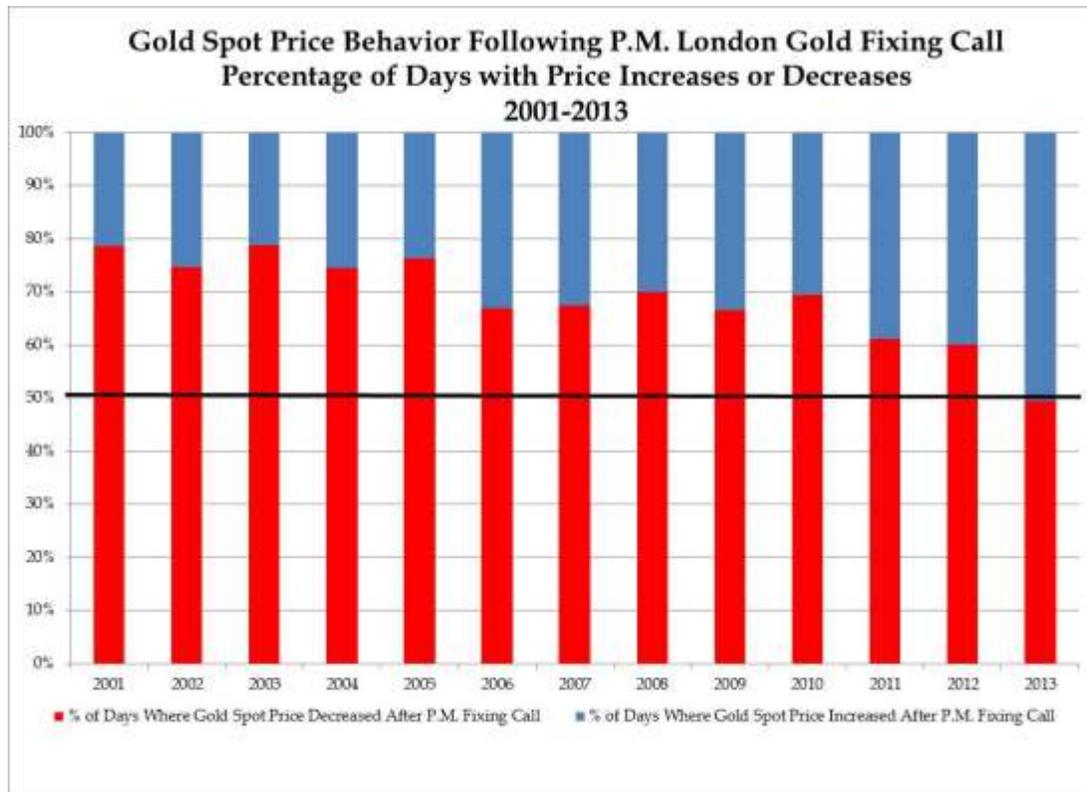
*10Y Treasury Bond intraday price data was only available starting April 2007.

**The Gold Spot analysis for 3:55pm to 4:00pm EST cover 2006-2012 because there isn't enough data during this time of the day prior to 2006 to draw meaningful conclusions.

***The Natural Gas analyses cover 2007-2012 because there isn't enough data during this time of the day prior to 2007 to draw meaningful conclusions.

****The Crude Oil analyses cover 2005-2012 because there isn't enough data during this time of the day prior to 2005 to draw meaningful conclusions.

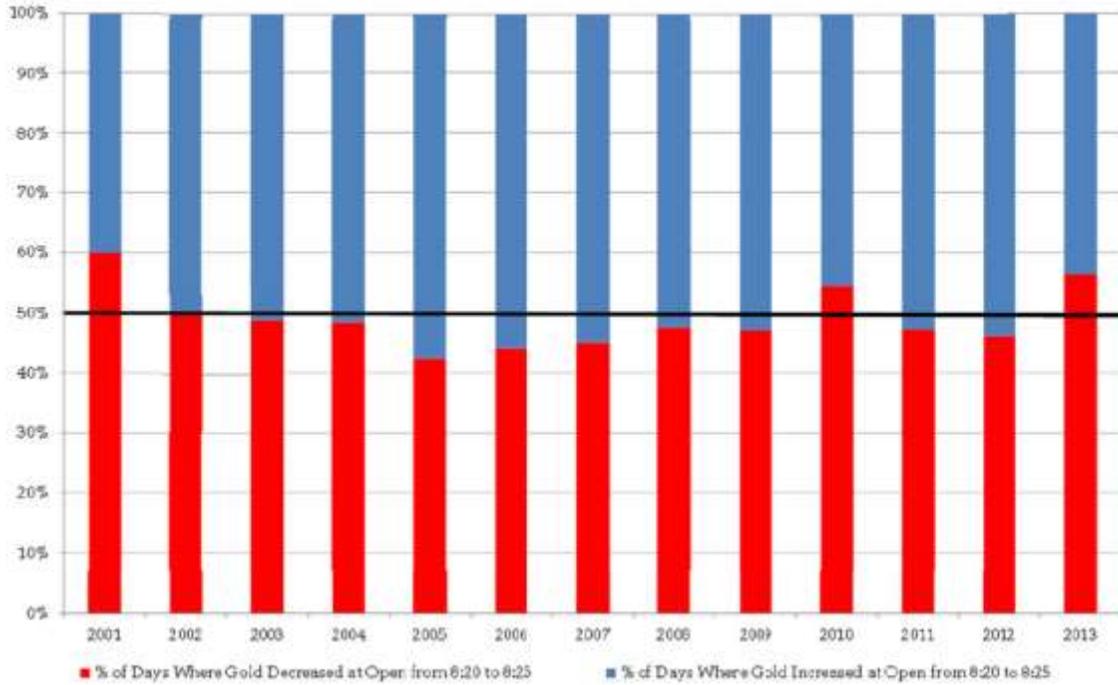
188. Again, the following chart tracks the number of days prices went down around the PM Fixing, versus the number of days prices went up.



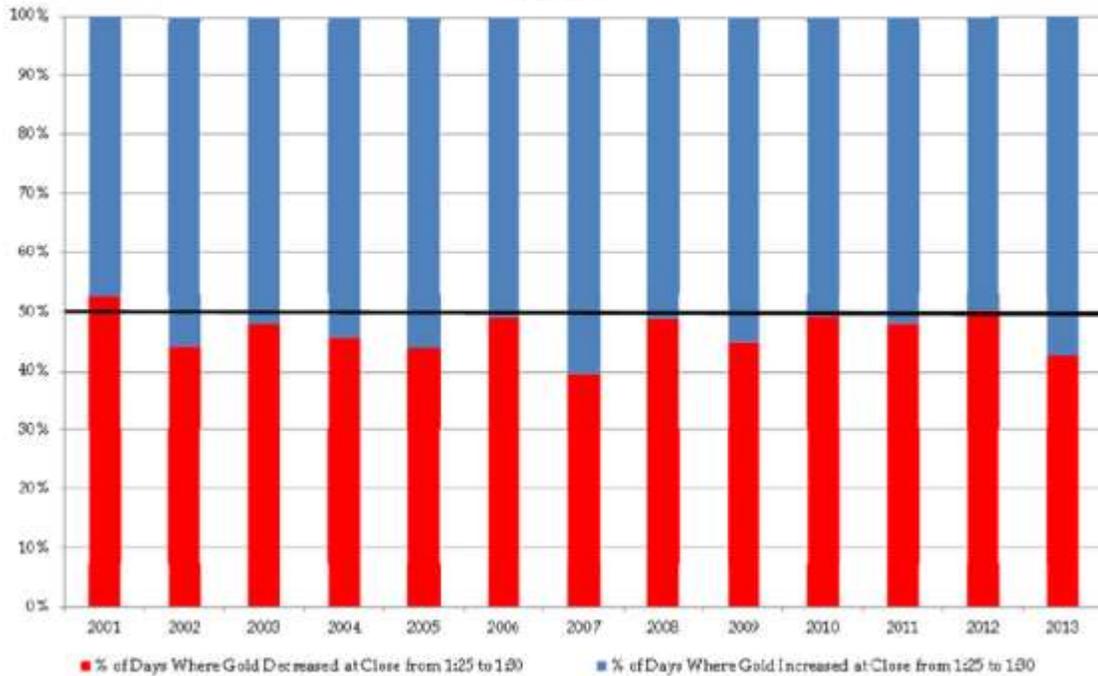
189. This consistent pattern of extremely high red bars, year after year after year (at an average of 70% from 2001 through 2012), stands in stark contrast to what is found when other times of day in the gold market are considered, including times of day when the market is expected to experience increased liquidity.

190. For instance, the following charts track gold prices during the period right after the COMEX opens, and right before COMEX closes. In neither chart does one see the extreme, consistent pattern of disproportionality seen in the above one for the PM Fixing.

**Gold Price Behavior from COMEX Open at 8:20am to 8:25am Eastern Standard Time
Percentage of Days with Price Increases or Decreases
2001-2013**



**Gold Price Behavior from 1:25pm to COMEX Close at 1:30pm Eastern Standard Time
Percentage of Days with Price Increases or Decreases
2001-2013**

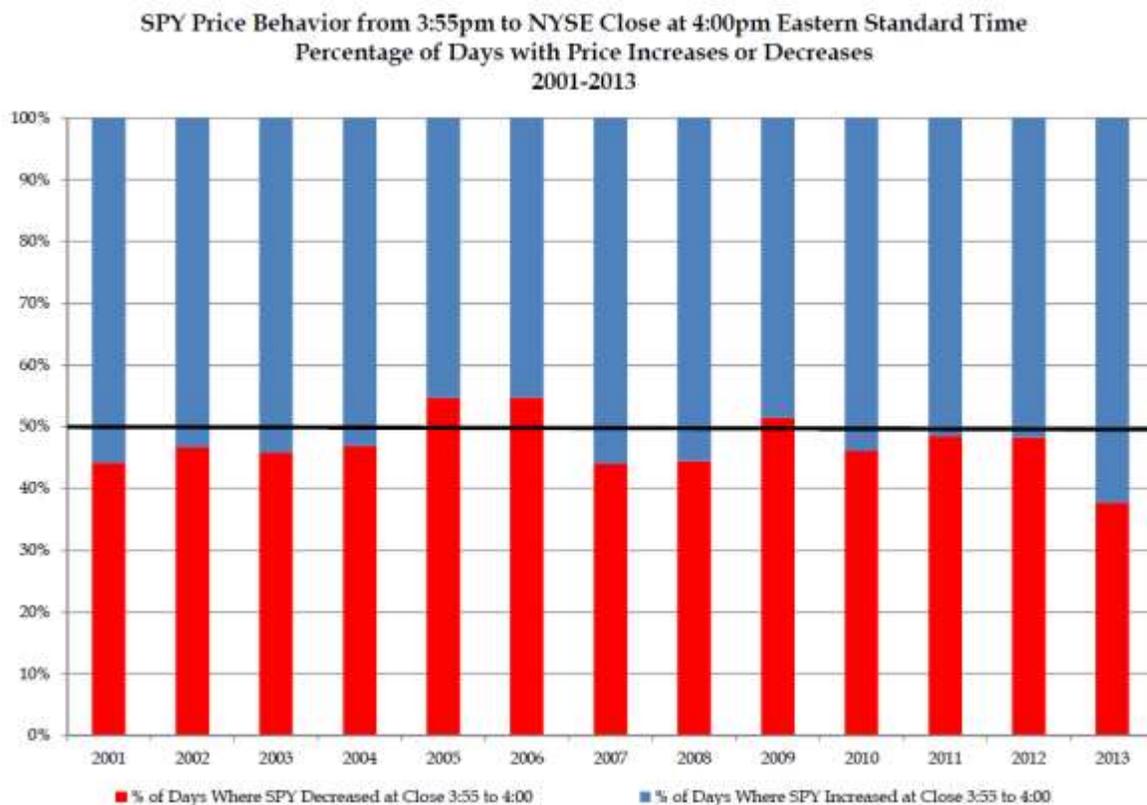


191. To further demonstrate the uniqueness of the behavior of the price of gold around

the Fix, consider the following charts, which track the number of days when the S&P 500 went up at the opening of the New York Stock Exchange – a period of increased liquidity – versus the number of days when it went down. As one would expect, while the numbers are not exactly 50/50, they are close – and they are not in the same direction year after year.



192. The same pattern (or lack thereof) is seen in the closing minutes of the New York Stock Exchange – another period of increased liquidity, as seen in the following chart.

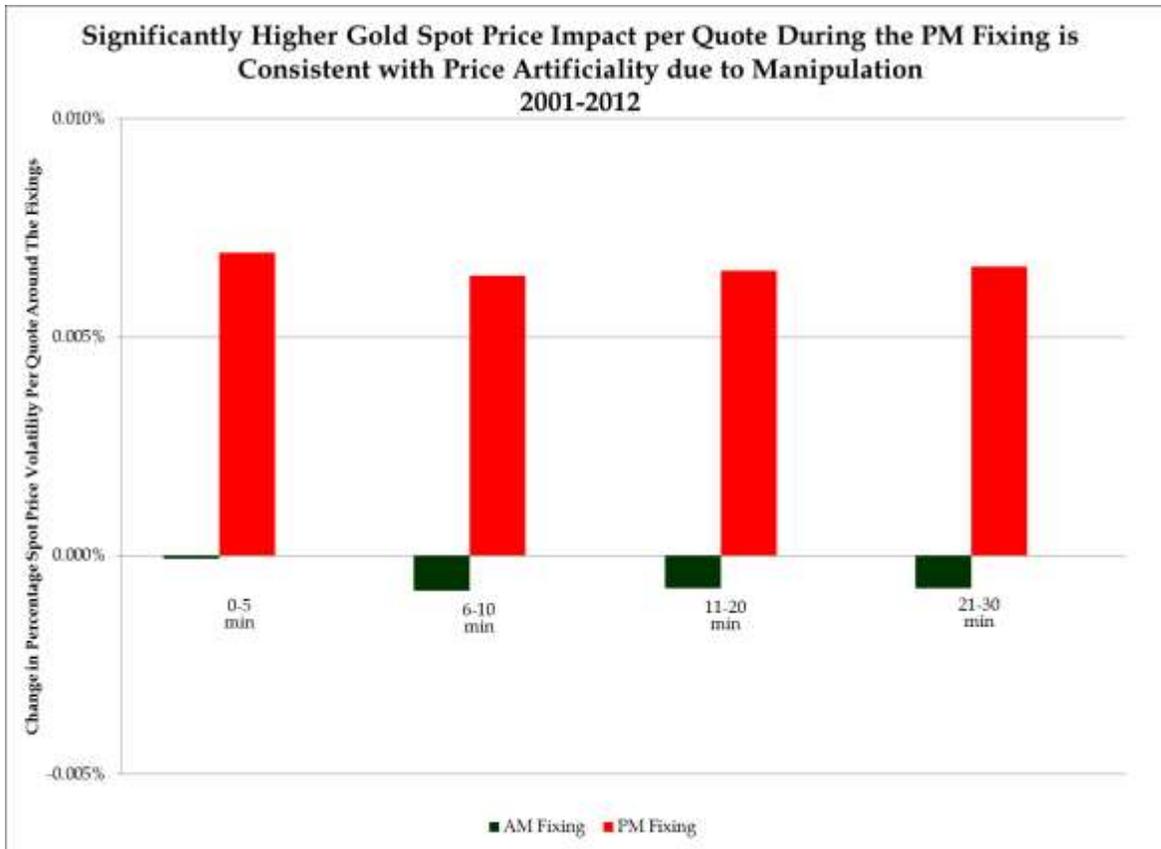


193. That the sharp downward gold price movements documented in Section II above were not a liquidity-driven phenomenon is also confirmed by the fact that prices around the Fixing acted contrary to the normal expectations during a period of high liquidity in another way. During times of high liquidity, the ability of a single transaction to move the market should be lower than at other times of day. The singular effects of that quote are more likely to be drowned out by the presence of so many others. The relative ability of a trade or quote to move the price in the market is referred to as “price impact.” During very liquid times of the day for which high levels of volume are traded, prices may move meaningfully, but price movements per unit of volume should be lower than when compared to periods of lower liquidity.

194. The settled economic principles of “price impact” were violated around the PM Fixing. The following graph shows how the average price impact per quote either decreases (negative bars) or increases (positive bars) during the minutes immediately following the start of

the AM and PM Fixings when compared to the average price impact throughout the rest of the day. For the minutes immediately following the start of the AM Fixing (0-5, 6-10, 11-20, and 21-30 minutes after 10:30 a.m.) the price impact of a quote is lower than throughout the rest of the day. Assuming that the AM Fixing coincides with an increase in liquidity, the observed lower price impact at the AM Fixing is consistent with increased liquidity during that time – the marginal price contribution of any one transaction occurring around the AM Fixing, to the market’s overall movement, is *lower* than at other time periods during the day.

195. However, the opposite is true around the PM Fixing, in contradiction of how the supposed increase in liquidity should have resulted in a lower “price impact” per quote. Each price quote around the PM Fixing resulted in a *larger* movement than a quote occurring at another time of day, including the AM Fixing. If the PM Fixing coincided with a liquidity spike in the market, this is the exact *opposite* of what should have been happening. The power of a single quote to move the market should not peak during a purportedly highly liquid time of day.



196. In other words, prices around the PM Fixing behaved in ways that defy logic in an unmanipulated market, *even when specifically judged against expectations for a purportedly liquid time of day.*

B. Other External Market Forces Cannot Account for the Anomalous Price Movements Observed Around the Fixing

197. Another way to demonstrate that the prices plunges documented above are tied and attributable to the Fixing rather than external market forces is to examine intraday returns³⁹ and nominal price levels⁴⁰ across samples where the Fixing fell at different times of the New York trading day. Because the time difference between London and New York has varied over

³⁹ Intraday returns are changes in price observed within a trade day. In the context of the charts immediately below, the intraday returns are 1 or 5-minute unadjusted returns, *i.e.*, the profit or loss earned by buying at one point in time and selling 1 or 5 minutes later.

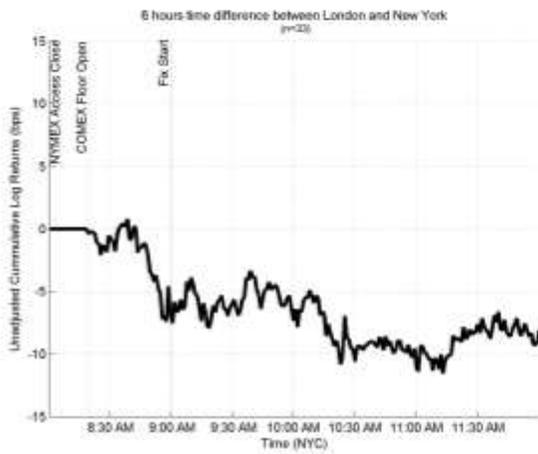
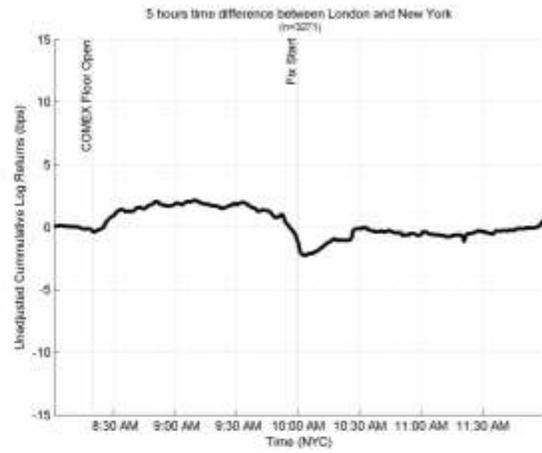
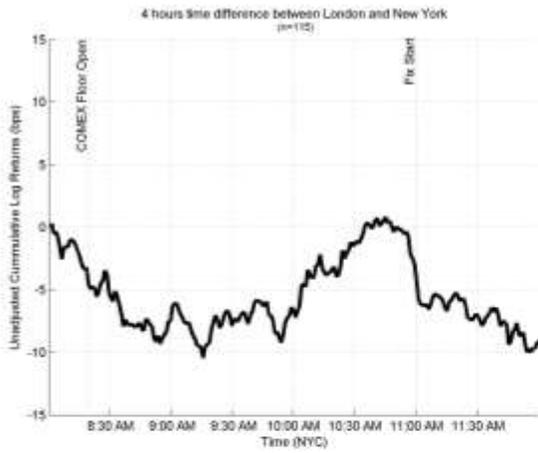
⁴⁰ Nominal price levels refers to normalized prices, referenced to the level at a specific time of day (here, the start of the PM Fixing).

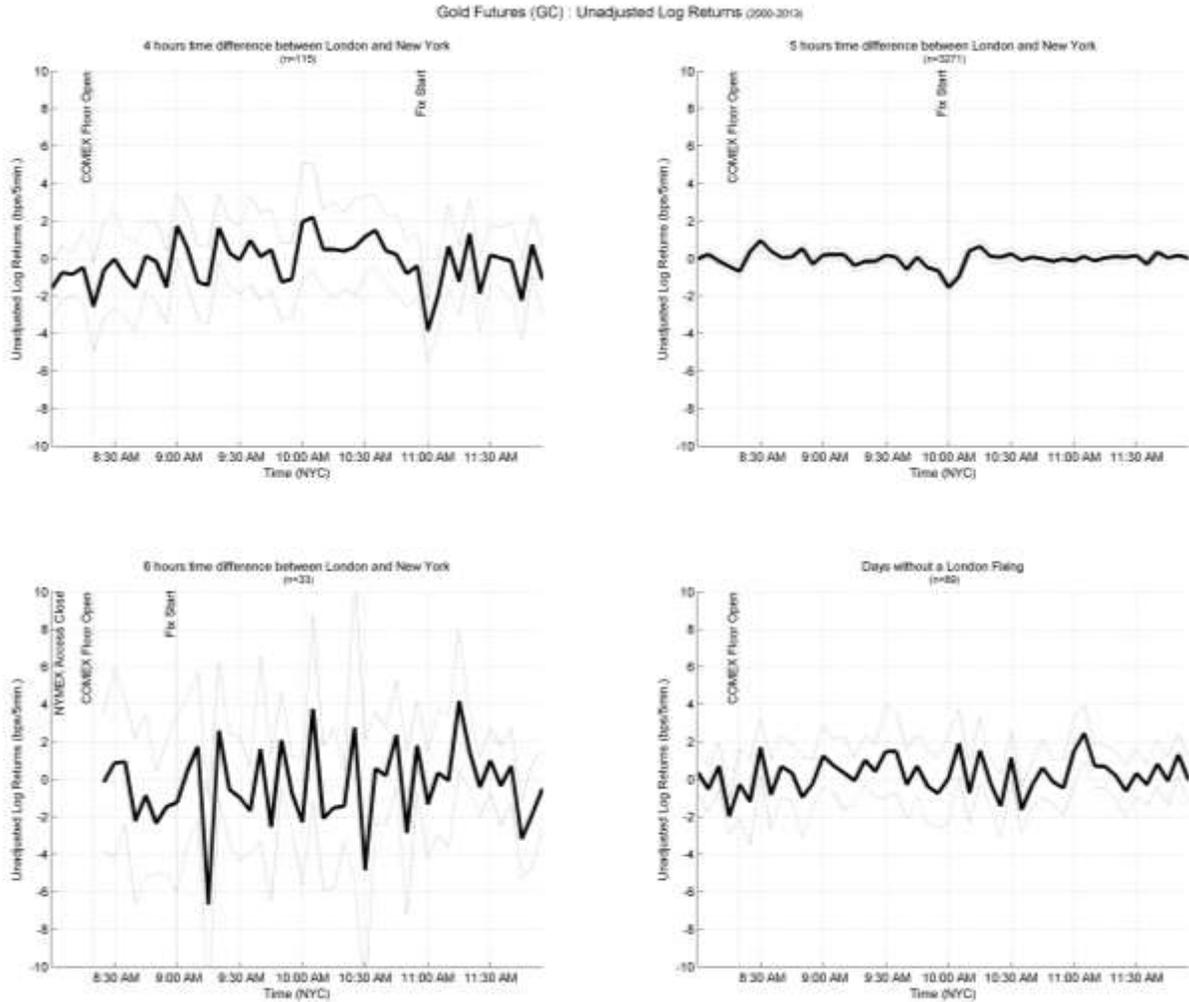
the Class Period, it is possible to refine the above analyses to test whether the price anomalies are due to a factor outside the Fixing, or if they are associated with (or “follow”) the Fixing, no matter its shifting occurrence.

198. The following two figures separate out how the gold on COMEX moved during the course of days when the Fix price fell at 9:00 a.m., 10:00 a.m., and 11:00 a.m. New York time, and how the COMEX market moved when there was no Fixing that day.

199. The graphs demonstrate that the price spikes “follow” the Fixing – they occur at whatever hour the Fixing happens to falls, *and do not occur at all when the Fixing did not happen*. The presence of movements are statistically significant on all days when the Fixing occurred when measured by the nominal prices, and are statistically significant on days when the Fixing occurred at 10:00 a.m. and 11:00 a.m. when measured by intraday returns.

Gold Futures (GC) : Unadjusted Cumulative Log Returns (2000-2013)





200. To summarize, statistically significant, recurring downward spikes are observed around the Fixing – no matter when in the New York trading day it fell. There was no such anomalous morning activity on days when the Fixing did not happen at all. This negates the suggestion that exogenous market forces explain the wild swings that are observed around the Fixing. The Fixing and price spikes go hand-in-hand.

V. THE PRICE MOVEMENTS AROUND THE PM FIXING WERE THE RESULT OF DEFENDANTS' MANIPULATIONS

201. *The prices around the Fixing had to be the result of market manipulation.* As discussed above in Section II, numerous studies into the behavior of prices around the Fixing window show statistically significant abnormalities. As discussed in Section IV, there is no

innocent explanation for these abnormalities – or their abatement when Defendants’ benchmarking practices began to come under scrutiny. The only plausible conclusion is that prices were being manipulated.

202. ***The manipulation had to be the result of joint action.*** No market participant acting alone would risk engaging in the manipulation documented above alone, at least not over the period of time for which evidence of manipulation exists. It would have been too risky, too costly, and too ineffective to attempt alone, day after day, year after year.

203. Not even a lone Fixing Bank Defendant could or would have done so. Outside of the “auction,” it would have been too risky to try to move the market to off-market prices alone so regularly. And even inside the auction, a “free rider” problem would have existed. While each Defendant stood to benefit from the price being set low, if any one bank continually led the charge to set the price lower, it would also continually incur the risk and cost of accepting decreased returns (and ceding additional profits to the other banks).

204. The conspiracy was held together because there were larger profits to gain by leading the price of gold down than there were to be lost by entering into off-market transactions leading up to and during the Fixing. Any downside of participating in the auction was limited in part because the signaling power of the Fixing was far larger than the actual amount of transactions entered into during the auction. Even being on the “wrong” side of the “suppressed” sales transaction during the auction, was still a profitable place to be.

205. As expounded upon below, any Defendant Bank, armed with foreknowledge a spike was coming could profit, regardless of where it started out that day on its overall portfolio. Thus, the conspiracy could easily hold together despite any claimed differences between each Defendant’s individual interests (a defense that is further belied by the allegations, discussed

below, that in fact Defendants were “short”). Indeed, large financial institutions have claimed to have had disparate financial portfolios of interest-rate derivatives – but the banks have nonetheless admitted to the fact their traders colluded with those at other banks to move interest-rate benchmarks. And large financial institutions have claimed to have had disparate financial portfolios of currencies – but the banks have nonetheless admitted to the fact that their traders colluded with those at other banks to move exchange-rate benchmarks.

206. *The manipulation had to include these Defendants.* As expounded upon below in Section V.A.2., Defendants were large participants in the gold market. They were thus highly motivated to participate in a price-fixing conspiracy.

207. As also discussed below in Section V.A.4., downward price spikes tellingly correlate all the more closely with days on which Defendants, with their substantial market share, had the most to gain.

208. But that Defendants had to be in on the manipulations is also confirmed by the fact they were uniquely situated to successfully carry one out. Only they had a forum in which to hide their collusion in plain sight – the daily Fixing conference, via the LGMF (over which the Fixing Bank Defendants’ exercised complete control). But their control over the Fixing does not just show the opportunity to manipulate prices around the Fixing, but the *exclusive* ability to do so. An honest “auction” by the Fixing Bank Defendants would have quickly negated any attempt by outsiders to send contrary signals to the market with last-minute, off-market trades. Only a conspiracy that included those Defendants could ratify, then magnify, downward spikes occurring around the Fixing they controlled.

209. *Additional analytical analysis confirms it was Defendants’ joint actions behind the anomalous price movements around the Fixing.* As expounded upon below in Section

V.C., an analysis of the available pricing data shows the Defendant Banks, around the Fixing window on days when the Fix price was eventually driven lower, provided price quotes that matched each other – but that did not match those provided by other market participants.

Defendants were *together* providing quotes *lower* than other market participants, on days when the Fix price was later set low. As with other data anomalies, these trends abate during 2013, when the banks' benchmarking practices began to come under increased scrutiny. Other analysis of the (limited) publically available data further links the pricing trends around the Fixing to Defendants.

A. The Defendants Banks Were Heavily Motivated to Exercise Joint Control Over the Prices for Gold

1. The Defendant Banks were heavily invested in gold

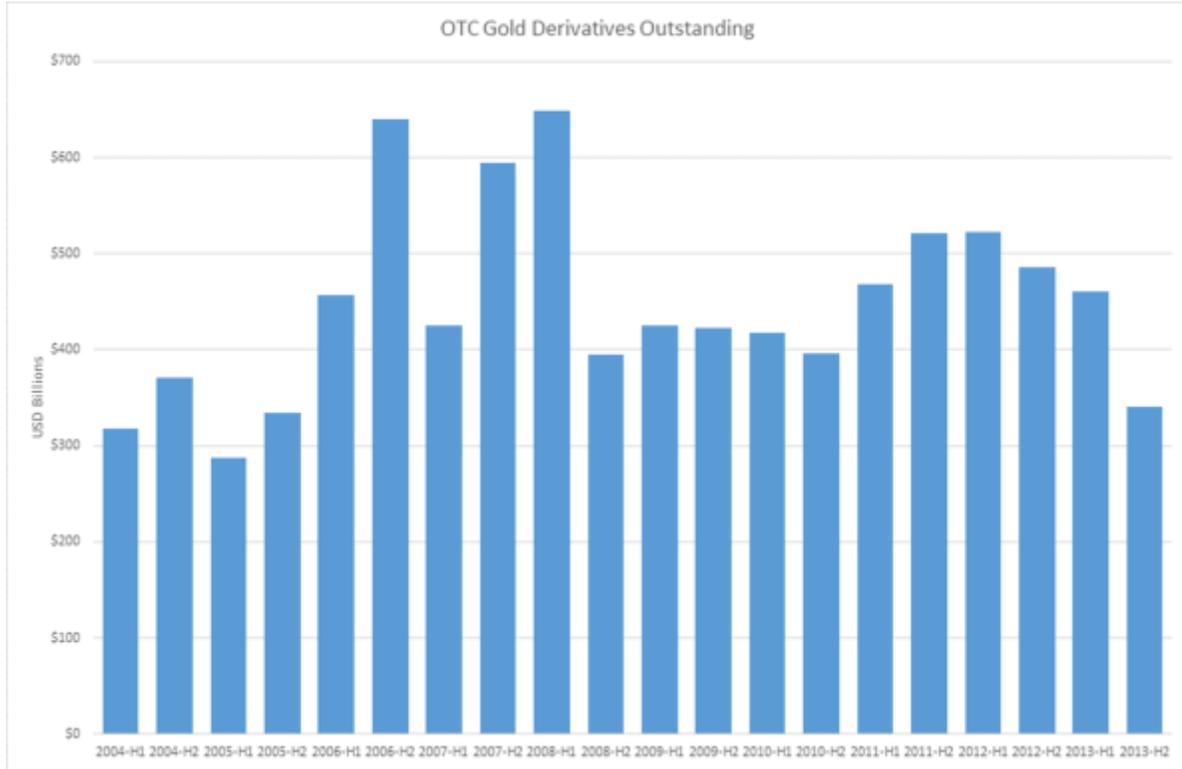
210. Defendants and other dealer banks have “large-scale proprietary trading activities” in futures and over-the-counter,⁴¹ which “have contributed to the downward trend in gold prices during the past couple of years.”⁴² Defendants go to great lengths to hide the details of their portfolios.

211. What is undeniable, however, is that the Defendant Banks were huge and highly active investors in all of the various outlets for Gold Investments. For instance, take the market for derivatives. The market for over-the-counter gold derivatives is vast, as demonstrated by the following chart which shows that total outstanding over-the-counter gold derivatives positions

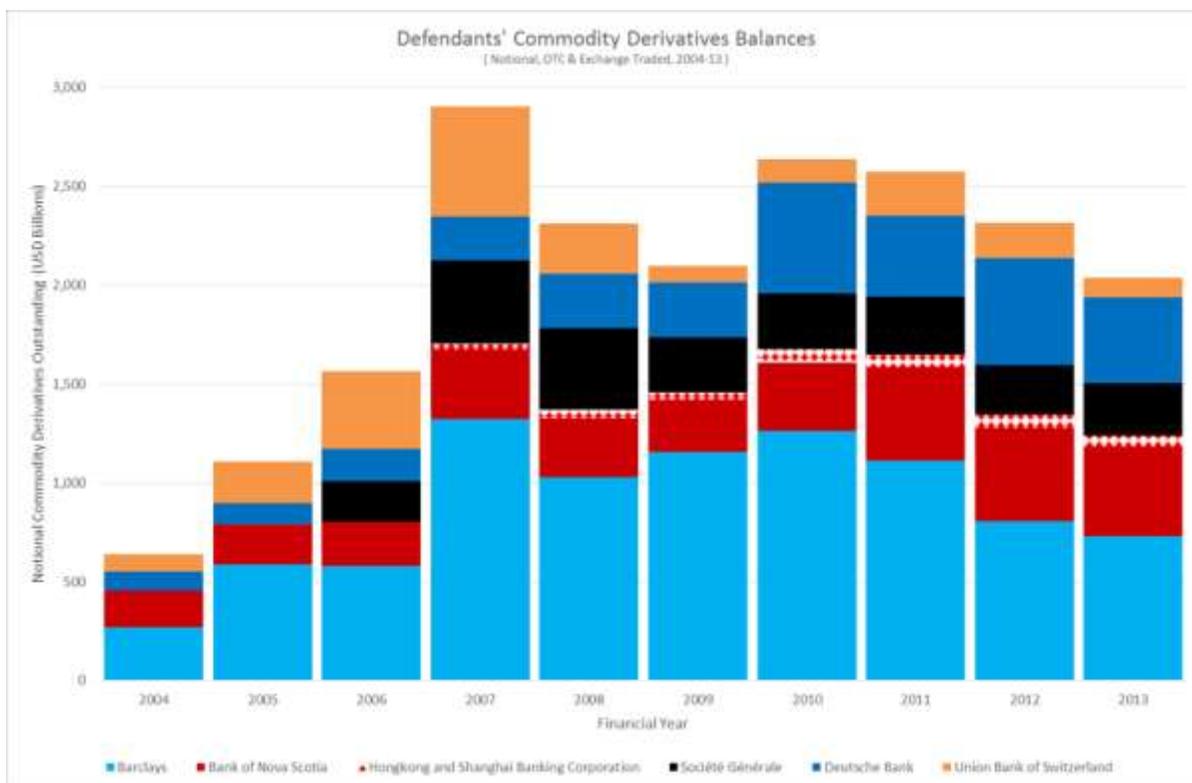
⁴¹ Deutsche Bank, for example, won the International Financing Review award for “Commodity Derivatives House” of the year in 2012, and HSBC’s position is such that it has advertised that “[n]o other firm can match the scope of our involvement in the world’s gold, silver, platinum and palladium markets,” and that it was ranked number one world-wide “by size as metals custodian, bullion clearer, and OTC precious metals dealer.” HSBC, *Your Wide-Aperture View of the Precious Metals Market*, www.hsbcnet.com/gbm/products-services/trading-sales/metals at 3, 7.

⁴² Jeffrey Nichols, *The Volcker Rule – Good for Gold*, Rosland Capital (Dec. 12, 2013), www.roslandcapital.com/news/the-volcker-rule-good-for-gold.

ranged from \$300 to \$650 billion during the class period.



212. The Bank Defendants have huge positions in commodity derivatives (including gold derivatives). Combined, they ranged from \$500 billion to almost \$3 trillion during the Class Period.



213. As the following chart of figures from the Bank of International Settlements shows, during the period from 2004-2013, commodity contracts for *gold* formed a large part of commodity contracts in the global OTC derivatives market generally.⁴³

Global OTC derivatives market¹
Amounts outstanding, in billions of US dollars

	Notional amounts outstanding				Gross market value			
	H2 2012	H1 2013	H2 2013	H1 2014	H2 2012	H1 2013	H2 2013	H1 2014
D. Commodity contracts⁴	2,587	2,458	2,204	2,206	347	384	264	269
Gold	486	461	341	319	42	80	47	32
Other	2,101	1,997	1,863	1,887	304	304	217	237
Forwards and swaps	1,363	1,327	1,260	1,283
Options	739	670	603	604

214. According to the Fixing Bank’s respective annual reports from 2004 – 2013, the

⁴³ Bank for International Settlements, *Statistical Release, OTC Derivatives Statistics at End-June 2014* (Nov. 2014), https://www.bis.org/publ/otc_hy1411.pdf.

vast majority of their derivatives positions – over 90% for Bank of Nova Scotia, and 98% or higher for the other Fixing Bank Defendants – are not held for risk mitigation purposes, but instead for active trading. Defendant UBS does not report what percentage of its derivatives are held for trading (as opposed to risk mitigation) purposes, but does state that “[m]ost of the Group’s derivative transactions related to sales and trading activities.”⁴⁴

215. Thus, though the exact makeup of Defendants’ portfolios are unknowable prior to discovery, what can be discerned from the publicly available data is that Defendants were – as one would expect for these large financial institutions that have inserted themselves into the Fixing process – very large participants in the derivatives-outlet for Gold Investments.

2. Defendants were particularly motivated by their huge “short” COMEX futures positions

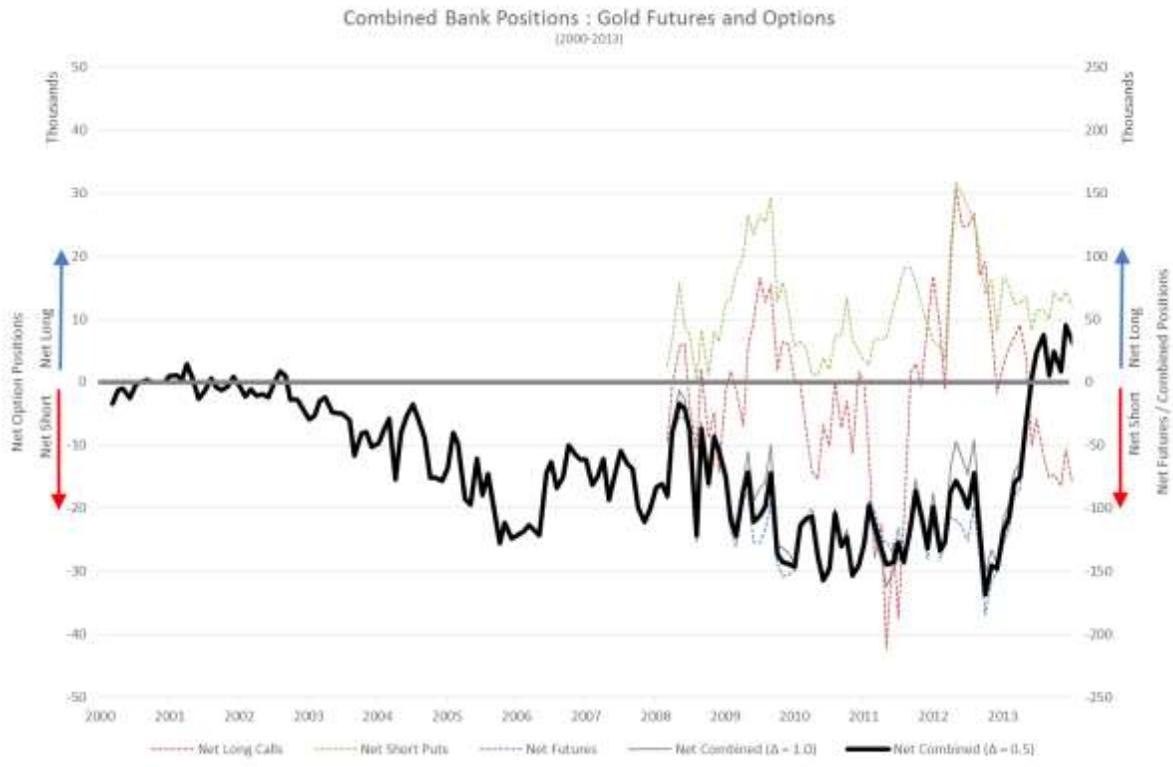
216. Defendants’ manipulation was intended to, and did, manipulate prices on the COMEX market. Knowing prices were about to go down presented a profit opportunity for Defendants to take “short” positions.

217. Again, the facts demonstrating each Bank Defendant’s individual position are solely within the Bank Defendants’ possession. Nevertheless, Plaintiffs have substantial reason to believe that each bank had a significant net short gold position during all or most of the Class Period.

218. Utilizing data from CFTC reports, the following graph shows (the thick black line) that when the bullion banks’ calls, puts, and net futures are combined, the banks overall were net “short” throughout the Class Period based on their positions in exchange-traded gold futures and options – *i.e.*, they had an interest in suppressing the price of gold (including, and

⁴⁴ UBS, 20-F/A SEC Filing (May 21, 2009) at 313, under the heading “Derivatives transaction for trading purposes,” (emphasis added), www.sec.gov/Archives/edgar/data/1114446/000095012309009240/y77164e20vfza.htm.

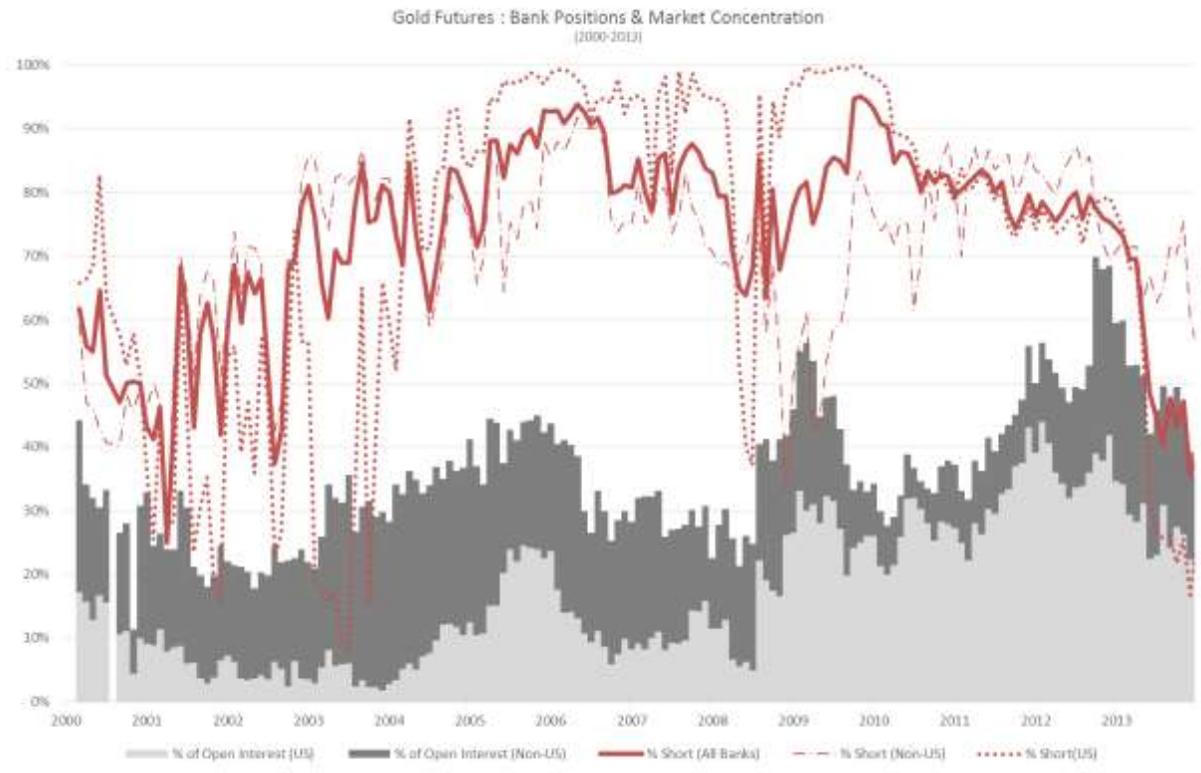
perhaps especially, the commodity underlying gold futures contracts) throughout the Class Period.

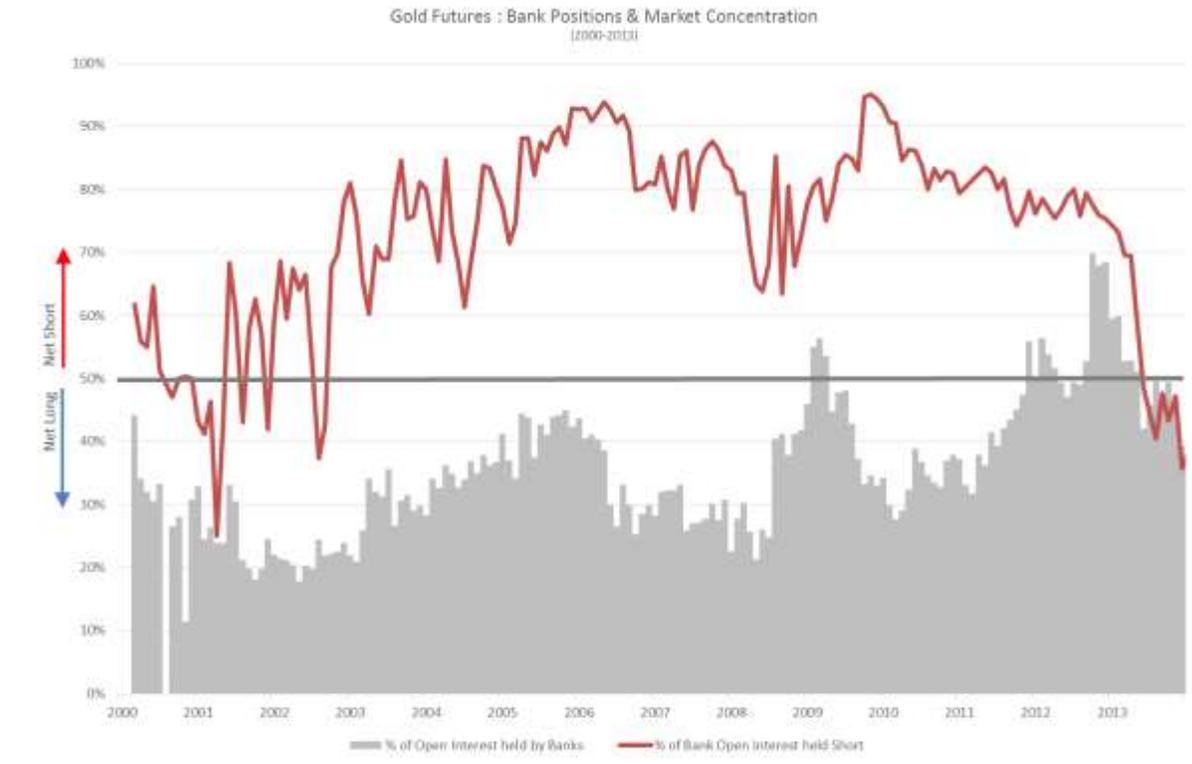


219. The data in the above chart is drawn from the CFTC’s Bank Participation Reports. Banks are required to report positions of more than 200 contracts. *See* 17 C.F.R. § 15.03. On information and belief, each Defendant bank named herein held positions exceeding 200 contracts throughout the Class Period and thus they were required to report these positions to the CFTC. However, this data is only publically available in aggregate form.

220. The next graph breaks out the CFTC data by U.S. and non-U.S. banks. It shows that foreign and domestic banks (comprised largely of Defendants and other LBMA banks) were “net short” during the Class Period. The “net short” position is presented as being *above* the 50% line, unlike in the preceding graph. As with the combined analysis above, both foreign and domestic banks are seen as being “net short” throughout the Class Period. The gray area below

the line indicates the percent of overall open interest held by the banks. Notably, banks (including Defendants here) combined had about 40% of the open interest in gold in the entire worldwide market. The second graph displays some of the same information, highlighting the percentage of open interest held by banks and the percentage of open interest held short by banks (with the 50th percentile emphasized).





221. As noted above, throughout the Class Period the Defendants Banks, and other members of the LBMA, maintained large “short” positions on the COMEX and in their other “hedge” books, which reflected commitments to sell gold bullion to clients, customers, and others, as well as their own proprietary trading positions. The graph below is a Bloomberg screen page that illustrates COMEX Net Commercials Combined Positions, from 1995 to 2014. The represented positions are comprised largely of the positions of the Defendants and other LBMA banks. It shows there was a large net short position throughout the Class Period for Commercials.



222. A short position on the COMEX or a Defendant Bank's hedge book is an undertaking to deliver gold to a buyer for deferred, or, less commonly, immediate delivery. If a Defendant Bank is "short" in its hedge book or COMEX position, it will profit (or lose less) if the gold bullion price declines.

223. A single COMEX short position is 100 ounces of gold, or over 3 pounds of gold. Six Hundred Sixty-Seven (667) short positions is over a ton of gold and Seven Hundred Thirty-Four (734) short positions is over a metric ton of gold. The Defendant Banks and other LBMA members often carried COMEX short positions of *hundreds of thousands of contracts* during the Class Period, or the equivalent of 150-500 tons of gold. Because a single ounce of gold currently sells for approximately \$1,225, 150-500 tons of gold is an enormous quantity which exceeds the gold reserves of central banks of all but the world's wealthiest nations.

3. Even “balanced” – or “hedged” – portfolios present the opportunity to profit from daily spikes – particularly if the portfolio is “short” in futures, specifically

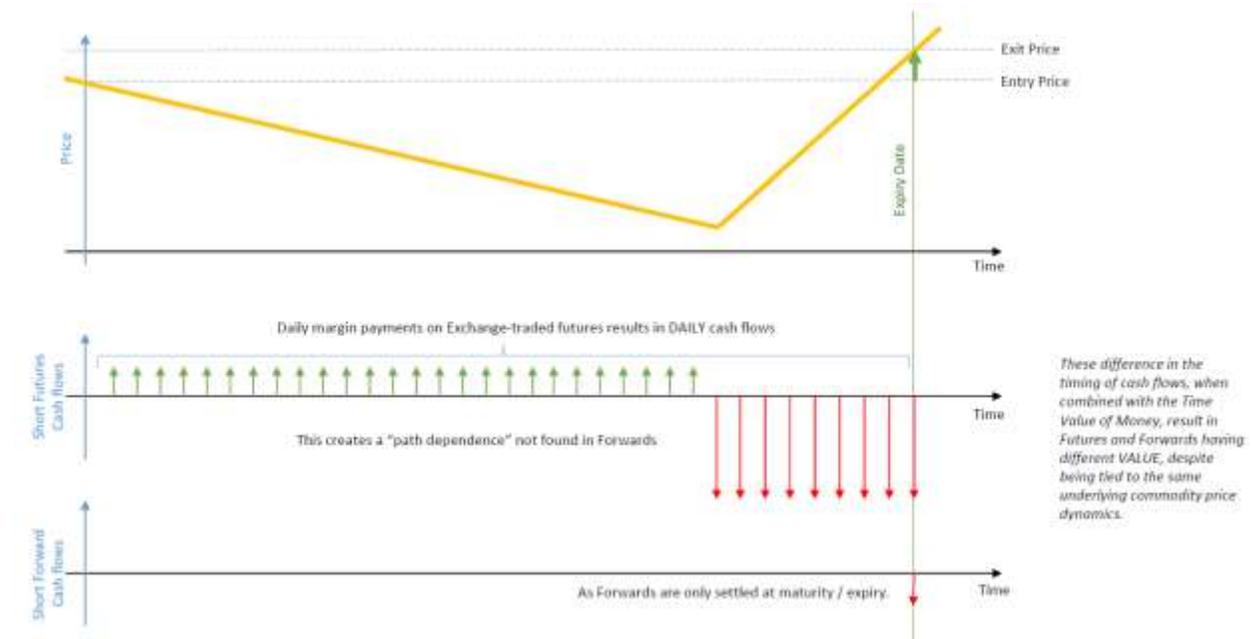
224. As discussed above, the available data shows that Defendants had massive, short, futures positions. Even *if* those were offset with “long” positions elsewhere – which, Plaintiffs do not at all concede – the Defendant Banks would *still* be heavily motivated to cause downward spikes in the price of gold. This is because not all types of gold investments have their *value* impacted in the same way.

225. The simplest example would be a “balanced” portfolio that contains some physical gold (a long investment) and some short futures. Gold futures are marked-to-market daily, requiring daily cash margin payments on any change in value prior to the settlement date for the future. This generates daily cash flows for the holder of the futures contract if the market moves in favor of the holder’s position. In contrast, holding physical gold does not generate cash flows. And physical gold could be held, particularly in a time of otherwise rising prices, until the effects of any downward suppression had abated. Thus, even a “balanced” portfolio would be a profit machine to Defendant Banks holding short futures positions given they were repeatedly causing daily downward spikes in the price of gold. The futures contract would throw off margin payment cash *daily* (or at least would require the owner to make lower margin payments than they otherwise would), which created real-world value for Defendant Banks even if the physical gold on their books had become theoretically worth less when sold at some future date.

226. But that is of course not all of the picture. Defendants control when they buy and sell physical gold. They thus profited even apart from the value created by the differing timing of cash flows, by using the price spike downward to buy *even more* physical gold, at cheaper prices. This additional purchased gold, and their pre-existing inventory of physical gold, were simply held until the effects of the downward manipulation had abated.

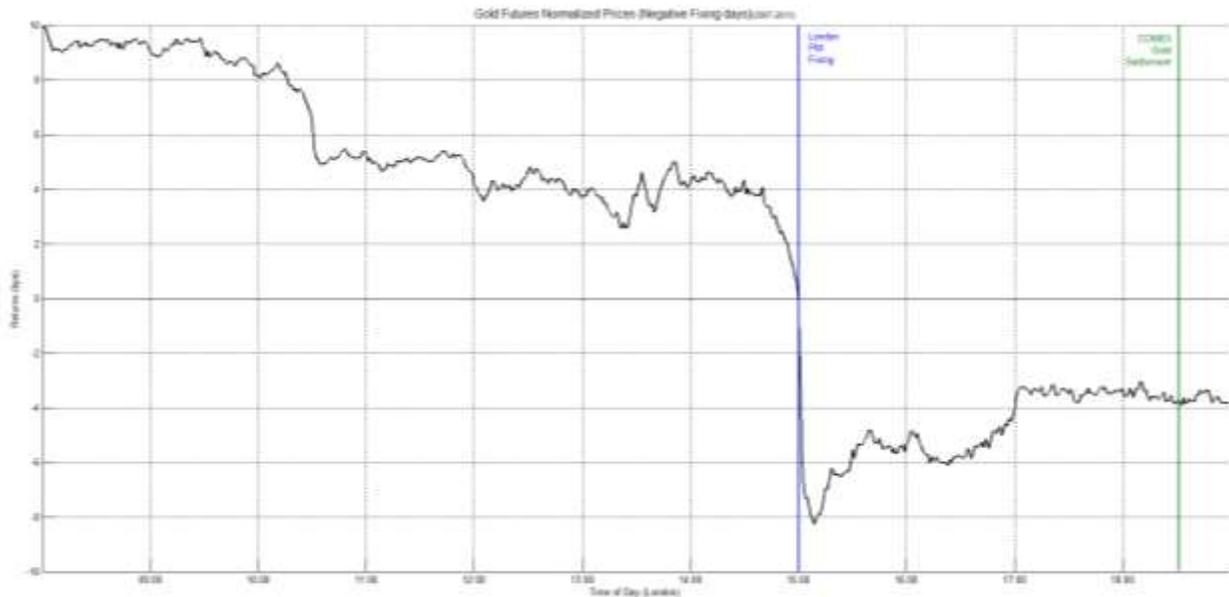
227. The same conclusion – that even a “balanced,” or “hedged,” portfolio represents a motivation to manipulate in the way Defendants here did – can be seen in the derivatives market as well. Again, a future is marked-to-market daily, requiring daily cash margin payments on any change in value. As above, the Bank Defendants had *massive* “short” futures positions. Thus, pressing the price of gold down created daily positive margin payment cash flows for themselves. This created value, again, even if the Bank Defendants had offset those short *futures* positions with technically “offsetting” (in the regulatory sense) long *forward* positions. This is because forwards only generate cash flows upon expiry. Again, receiving cash in hand today is a valuable thing, even if the same amount of cash is “lost” at some point in the future.

228. For instance, a portfolio consisting of one “short” future and one “offsetting” “long” forward would still increase in value if the price of gold went down, due to the fact that the future was throwing off cash margin payments on a daily basis,⁴⁵ as seen below:



⁴⁵ For simplicity, the allegations here discuss an increase in margin payment cash flows due to suppression. But even if shorts were not generating such cash flows because prices were overall going up, suppressing the price would still create a daily, cash-benefit for the Defendant Banks because they would lose less cash to margin payments than they otherwise would have.

229. As discussed above, the Fixing represented the perfect opportunity for Defendants to collude, to maximum guaranteed effect. Although futures mark-to-market to the price of gold after the Fixing, the impact of Defendants' manipulation was still very much still being felt when the cash-flows for the futures were being calculated. As seen in the below chart, the effect of the Fix price's large spike lingered beyond the Fixing window, and up to (and through) the time of day when the margin payment cash flows for the Bank Defendants' large short futures positions would be calculated.



230. The profitability of a futures-focused scheme is further confirmed by the fact it can be highly leveraged. Gold futures contracts typically only require participants like Defendant Banks to post 4% (or less) of the notional amount of that contract. Stocking up on futures thus not only presented the opportunities to alter the *daily* cash flows in the Bank Defendants' favor, as discussed above, but also the opportunity to do so by deploying far less capital at the outset than required for other types of Gold Investments, such as buying physical gold.

231. Another reason why an allegedly “balanced” bank would still be motivated to profit, even apart from the differences in timing of the resulting cash flows between purportedly “offsetting” positions, is that the motivation for manipulation operated not just on the bank level, but on department and even personal level. Departments and employees within each Defendant have their performance measured separately. Traders and departments responsible for COMEX short positions thus sought to maximize the returns (or limit the losses) of futures short positions, regardless if those positions were initially instituted to hedge the investments of a different arm of the bank. Again, as seen in the LIBOR, currency-change, and other contexts already, the temptations to manipulate at a departmental and individual level often carried the day, regardless of what the larger institution later would claim to have been in its overall financial interest.⁴⁶

4. The movement of the Fix price is highly correlated with the Defendants’ COMEX positions

232. A comparison of the banks’ net positions with the direction of the Fix price, which members of Defendants’ conspiracy controlled, finds that the direction of prices around the Fixing window was, to a statistically significant degree, correlated with the banks’ net position as reported by the CFTC. In other words, there was a statistically significant relationship between whether the banks were “short” on a given day, and whether the price of gold around the Fix would spike downwards on that same day.

233. Damningly, this correlation was even stronger than that between the direction of prices around the Fix, and the direction of prices overall for that day. The Bank Defendants’ daily “short” positions were a better predictor of the price of gold around the Fix, than was the

⁴⁶ As demonstrated by the “London Whale” fiasco, even where a Bank’s interests were contrary to those of a employee trader, it is not clear that the Banks had the necessary oversight in place to monitor their traders’ positions. *See, e.g.*, Patricia Hurtago, *The London Whale*, Bloomberg (March 5, 2015), www.bloombergtake.com/quicktake/the-london-whale.

price of gold itself during other times during the same day.

234. The alignment of anomalous price movements and Defendants' economic motivations to manipulate the PM Fixing is confirmed by the fact that price spikes suspiciously occurred even more frequently on days that would impact futures contracts the most. The most active contract months for gold futures on the COMEX are February, April, June, August and December. The last trading day of these months are when contracts expire and represent the opportunity to "roll" futures positions, *i.e.*, to move expiring positions during the current month into new contracts in the following month, based on the prices on the last trading day. That anomalous price movements occurred with more frequency on days when the Bank Defendants would be even more motivated to engage in manipulation, is further evidence the downward spikes were generated by the Defendants' market manipulation.

5. There are numerous other ways to profit from foreknowledge about an upcoming price spike

235. As discussed above, Defendants' manipulation was most directly intended to impact their massive "short" positions on the COMEX market – investments that could generate cash margin payments daily, and thus represented the most immediate opportunity to cash in. Defendant Banks profited from their manipulation in this way, at the expense of members of the Class.

236. But that is not the only way Defendants, regardless of their overall stake in gold at the onset of a given day, profited off of foreknowledge that a price spike was coming. Notably, because Defendants controlled the levers to the market and had established their reliability, such returns were essentially *risk-free* profits.

237. For instance, the Bank Defendants were also large participants in the market for physical gold. Downward spikes at the Fixing allowed them to buy gold cheaper than they

would have been able to – creating an opportunity to profit if and when gold went up as the effects of the suppression abated. The Bank Defendants profited from their manipulation in this way, at the expense of members of the Class.

238. The Bank Defendants were also large participants in the market for Fix price-denominated derivatives. These contracts, like those for physical sales of gold, directly incorporate the Fix price in order to determine the cash flows between the parties. Suppressing the Fix price during the Fixing would thus make one participant profit, at the expense of the other. The Bank Defendants profited from their manipulation in this way, at the expense of members of the Class.

239. The Bank Defendants were also large participants in the market for such contracts as “digital options,” and have contracts that have similar market-based triggers such as “stop loss” orders⁴⁷ and “margin” calls.⁴⁸ These contracts in various forms require the Bank Defendants to act, or not act, based on whether the price of gold crosses a specific threshold. By accepting these orders, the banks agreed to transact with the client at a specified price if the gold benchmark reached that price. By manipulating the PM Fixing, Defendants frequently were able to trigger (or avoid triggering) such orders, avoiding much of the risk in such obligations. The Bank Defendants were also able to make margin calls that otherwise would not have been made. The Bank Defendants profited from their manipulation in this way, at the expense of members of the Class.

⁴⁷ A stop-loss order is a specified level at which a financial product (or commodity) should be sold to limit potential losses. Clients place stop-loss orders with entities such as Defendants to help manage the risk arising from movements in gold prices.

⁴⁸ A margin call is a demand from a broker to an investor to deposit additional funds or securities so that the investor’s margin account is raised to a certain level. Margin calls are made when the funds or securities in an investor’s margin account need to be raised because they have fallen below a certain level calculated by the broker as being necessary to cover potential losses.

240. That the Defendant Banks easily realized profit from the joint manipulation of a financial benchmark – despite any supposed divergences of interest between them, caused by any supposed differences in the makeup of their gold portfolios – is confirmed by the fact that similar financial institutions, in similar circumstances, have already admitted to similarly *jointly* manipulating important financial benchmarks. In the LIBOR context, many of the world’s leading banks, including some of these same Defendants, *admitted to* manipulating a key financial interest-rate benchmark, including by way of *collusion* between their respective traders.⁴⁹ In the currency-exchange markets, many of the world’s leading banks, including some of these same Defendants,⁵⁰ *admitted* that their traders would *collude* to move the markets in advance of the setting of key currency benchmarks. These examples are not just offered to show the corruption of the benchmarking process, but to further negate any claim that a conspiracy to manipulate a financial benchmark would have been unworkable due to the purported differences between the participants’ individual financial interests.

B. The “Tools of the (Manipulation) Trade” Are Well Known to Defendants

241. As previously noted and expanded upon in Section VI below, Switzerland’s financial regulator FINMA has found “serious misconduct” by UBS in precious metal trading.⁵¹ Indeed, FINMA’s chief executive officer stated that the regulator has “seen clear attempts to

⁴⁹ See Michael Ovaska and Margot Patrick, *The Libor Settlements*, The Wall Street Journal (undated), www.wsj.com/articles/SB10001424127887324616604578302321485831886.

⁵⁰ See Daniel Schafer, Carline Binham, Kara Scannel, *Regulators slap \$4.3bn fine on six banks in global forex probe*, Financial Times (Nov. 12, 2014), www.ft.com/intl/cms/s/0/aa812316-69be-11e4-9f65-00144feabdc0.html.

⁵¹ FINMA, Press Release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

manipulate fixes in the precious metals markets.”⁵² Defendants’ manipulative tactics were exposed by these investigations, as well as by related investigations into similar conduct in connection with other financial benchmarks.

242. For instance, the CFTC found that Defendants HSBC and UBS, as well as other gold industry participants such as Citibank, JPMorgan, and Royal Bank of Scotland, actively colluded to manipulate the price of Forex benchmarks. This manipulation resulted in the CFTC’s imposing fines in excess of \$1.4 billion dollars on the five banks. The U.K.’s Financial Conduct Authority imposed a further £1.1 billion in fines on the same five banks in respect of the same manipulation in the U.K.⁵³ Defendant Barclays is reported to have avoided similar findings and fines only because it opted out of settlement talks “at the last minute.”⁵⁴ As discussed below, many of the techniques used there were employed here as well.⁵⁵

243. *First*, at least the Fixing Bank Defendants undeniably met (later, conference

⁵² Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html.

⁵³ U.K. Financial Conduct Authority, *Final Notice to HSBC Bank plc* (Nov. 11, 2014), at 3, www.fca.org.uk/your-fca/documents/final-notices/2014/hsbc-bank-plc. *See also* U.K. Financial Conduct Authority, *Final Notice to UBS AG* (Nov. 11, 2014); U.K. Financial Conduct Authority, *Final Notice to Citibank, N.A.* (Nov. 11, 2014); U.K. Financial Conduct Authority, *Final Notice to The Royal Bank of Scotland plc* (Nov. 11, 2014). In most cases, these fines were reduced by 30% for early cooperation.

⁵⁴ *See* Margot Patrick and Max Colchester, *Barclays Pulls Out of Forex Settlement Amid New York Complications*, The Wall Street Journal (Nov. 12, 2014), <http://online.wsj.com/articles/barclays-pulls-out-of-forex-settlement-amid-new-york-complications-1415792606>.

⁵⁵ An FCA video explaining HSBC’s Forex manipulation is available at <http://play.buto.tv/HcMF6>. The CFTC has also released multiple examples of trader misconduct in private chat rooms by which Forex-trading banks – including Defendant HSBC – were able to profit from manipulation of currency benchmarks. *See* Commodity Futures Trading Commission, *Examples of Misconduct in Private Chat Rooms*, www.cftc.gov/ucm/groups/public/@newsroom/documents/file/hsbcmisconduct111114.pdf. These videos and other documentation detail how the concepts of “netting,” “taking out the trash,” “building,” and “giving ammo” were routinely deployed in the Forex arena.

telephonically) twice a day via the LGMF. The discussions by their nature involved the sharing of information, but the standing meeting also presented the further opportunity to collude, daily, under the auspices of this highly anachronistic process. In accordance with the Bank Defendants' wishes, the call was unregulated, unrecorded, and (at least until discovery shows otherwise), no records of the communications during the calls was kept. The very fact of these meetings, which are unprecedented in any other industry, raises serious red flags.

244. *Second*, even outside of the formal Fixing conferences themselves, Defendants used chat rooms, instant messages, phone calls, proprietary trading venues and platforms, and e-mails to coordinate among themselves (and likely other bullion banks) to ensure members of attempts to move the market in one way or the other were not undone (unwittingly or not) by the contrary efforts of other members or other large banks. *See* ¶¶ 7-8, 11, Section VIII.B. In the context of currency manipulation, the CFTC found that Defendants HSBC and UBS, as well as other Gold industry participants such as Citibank, JPMorgan, and Royal Bank of Scotland, “used private electronic chat rooms to communicate and plan their attempts to manipulate the Forex benchmark prices for certain currency pairs.”⁵⁶ With respect to precious metals, FINMA found

⁵⁶ U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of HSBC Bank plc* (Nov. 11, 2014), at 2, www.cftc.gov/ucm/groups/public/@lrenforcementactions/documents/legalpleading/enfhsbcorder111114.pdf. *See also* U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of UBS AG* (Nov. 11, 2014), at 2; U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of Citibank, N.A.* (Nov. 11, 2014), at 2; U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of JPMorgan Chase Bank, N.A.* (Nov. 11, 2014), at 2; U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections*

that “just as in foreign exchange trading,” evidence showed that the banks shared information on their client orders, and information about expected future orders, with third parties (*i.e.*, other banks).⁵⁷

245. *Third*, with information in hand and a decision made to move in a particular direction, the colluding banks would equip each other with the tools to do so. In the currency context, where one of the five above-mentioned banks had a contrary book of orders, those orders would be “netted off” with third parties in order to reduce the number of adverse orders that were to be processed during the pivotal measurement window – a process referred to as “taking out the filth” or “clearing the decks.”⁵⁸

246. When the banks had orders going in the same direction, they would “build” the orders by transferring them between other conspirators – a process referred to as “giving you the ammo.” That way one bank could more easily control the process of ensuring the trades had the maximum effect at just the right time. Again, the above-mentioned banks – including Defendant HSBC and UBS – repeatedly engaged in such behavior to manipulate Forex benchmarks, including that they “altered [their] trading positions to accommodate the interests of the collective group, and agreed on trading strategies as part of an effort by the group to attempt to manipulate [downward] certain FX benchmark rates.”⁵⁹

247. Defendants here engaged in similar practices in the closely analogous context of

6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of The Royal Bank of Scotland, pls (Nov. 11, 2014), at 2.

⁵⁷ FINMA, *Foreign exchange trading at UBS AG: investigation conducted by FINMA – Report* (Nov. 12, 2014), www.finma.ch/e/aktuell/Documents/ubs-fx-bericht-20141112-e.pdf.

⁵⁸ See U.K. Financial Conduct Authority, *Final Notice to HSBC Bank plc* (Nov. 11, 2014), at 16.

⁵⁹ See CFTC, *CFTC Orders Five Banks to Pay over \$1.4 Billion in Penalties for Attempted Manipulation of Foreign Exchange Benchmark Rates* (Nov. 12, 2014), www.cftc.gov/PressRoom/PressReleases/pr7056-14.

gold. There is no other plausible explanation for the routine, large movements down – *before the Fixing even began, i.e., before anyone but Defendants had information about what was about to occur. See Section II above (documenting movement began even before the PM Fixing).*

248. The gold and Forex markets, their benchmarks (including the susceptibility of those benchmarks to manipulation), and Defendants’ respective trading desks were closely related. Indeed, in the case of UBS’s 2013 manipulation of the Forex and precious metals market, FINMA found that “[t]he PM spot desk responsible for the bank’s precious metals trading has been an organizational unit of the bank’s Foreign Exchange Spot Desk since the end of 2008.”⁶⁰ It is no surprise then, that the tools of manipulation now proven to have been used by the banks – including Defendants HSBC and UBS – to manipulate the Forex markets were also used to manipulate the PM Fixing.

249. *Fourth*, even if Defendants did not have enough “ammo” to move the market, they would invent it. This has been called “painting the screen” – placing orders to give the illusion of activity, with the intention they would be cancelled later after the pivotal measuring window was closed. Barclays has entered into a settlement specifically describing similar conduct in the context of gold, specifically. As explained in Section VI.B. below, Barclays placed a large, fictitious order during the Fixing window despite having no intent to execute it. When the price did not move far enough to ensure the Fix price was low enough for its liking, Barclays submitted a second order – which was later undone by way of an offsetting trade once the Fix price was “safely” set to Barclays’ liking.

250. *Fifth*, this manipulative behavior was even easier here than in the context of the

⁶⁰ Foreign Exchange Trading at UBS AG: Investigation Conducted by FINMA (Nov. 12, 2014), at 12 (translation from German), *available (in German) at* www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

Forex markets because Defendants had another layer of control by way of the purported Fixing “auction” itself. Defendants could coordinate trading activities prior to the Fixing window so as to cause prices to move in the desired direction – making it easier to achieve the desired result during the “auction.”

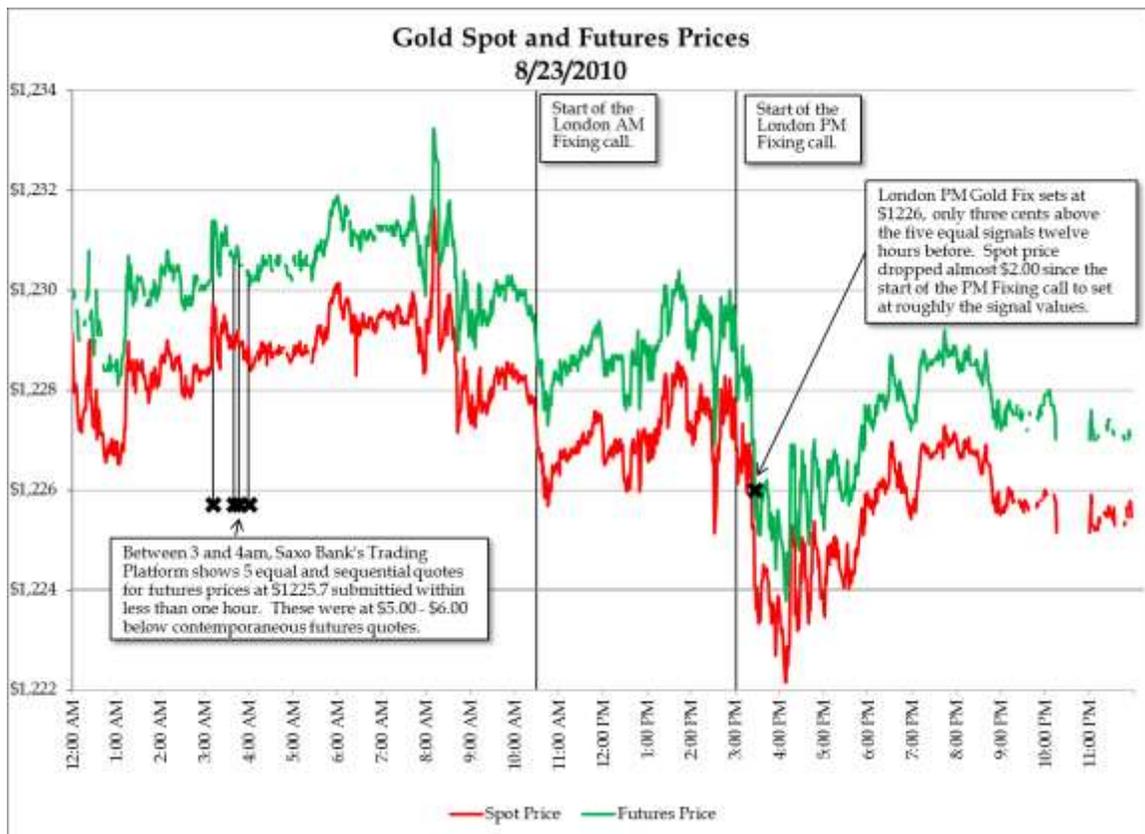
251. But, at the end of the day, the Fixing Bank Defendants, acting on behalf of all members of the conspiracy, could also just place “auction” bids and quotes at prices during the PM Fixing regardless of what the true aggregate demands were that had been funneled to them or were on their order books – that is, they could still act to set the Fix price where they wanted (particularly when acting in concert) even if their clients did not take the bait with respect to the manipulative trading practices occurring just prior to and during the Fixing process. Rather than participating in good faith, the Fixing Bank Defendants could simply submit aggregate “auction” “bids” that understated demand, particularly where doing so benefitted each bank’s own proprietary positions even as it harmed the bank’s clients.

252. *Sixth*, the Bank Defendants and other institutions used proprietary trading platforms to signal desired price levels for gold on multiple occasions. For example, on one such occasion on August 23, 2010, Saxo Bank’s trading platform (“SaxoTrader”) was used to coordinate setting the PM Fix price for the same day.⁶¹ While markets were relatively quiet between 3:00 and 4:00 a.m. London time, five sequential and identical quotes at \$1225.70 for gold futures prices appeared in the Saxo Bank trading platform, but not on other electronic trading platforms, or on COMEX. These five prices were quotes for the trade of gold futures, which other users of the SaxoTrader platform could have chosen to accept.

⁶¹ Saxo Bank has its headquarters in Copenhagen. “SaxoTrader” is “multi-product online trading platform,” an electronic platform that allows users to trade a large range of products, including various Gold Investments. *See* www.saxobank.com/trading-platforms/saxotrader.

253. However, the prices of the five quotes were isolated outliers when considered against prevailing market prices at that time – they were some \$5 to \$6 below the then current level of quotes for gold futures and actual prices. The quotes thus make little sense – except when seen as a signaling mechanism, whereby Defendants and co-conspirators indicated the price to which they intended to manipulate the Fixing.

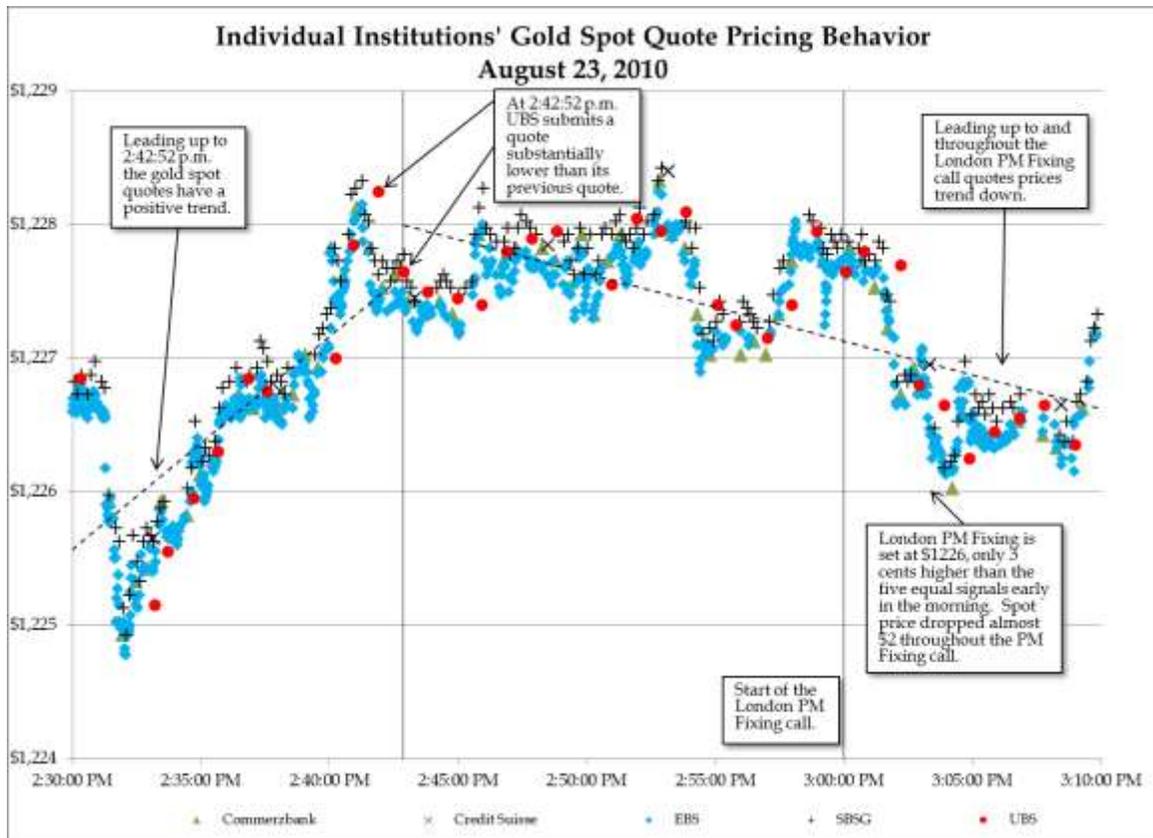
254. About 12 hours later on the same day the PM Fix price was set at \$1226, only thirty cents above the signaled quotes, and after an almost \$2 drop in spot prices from the beginning until the end of the PM Fixing call, as illustrated below.



255. How this PM Fixing at \$1226 happened is illustrated in the graph below. On the same date, August 23, 2010, UBS and Erste Group Bank AG⁶² were very active market

⁶² Erste Group Bank AG (“EBS”) is an interdealer broker, and provides a Forex platform that is managed by ICAP.

participants driving downward pressure in spot prices around the PM Fixing towards the signaled value of \$1226.



256. The graph shows that several banks were participating in an upward trend of gold prices until just over 17 minutes before the PM Fixing on August 23, 2010. At that time, UBS and other banks submitted quotes substantially lower than the quotes they had submitted minutes earlier. This pattern occurred again just over 5 minutes before the commencement of the PM Fixing, with a further concerted drop in quotes during the course of the PM Fixing. The result of these lower quotes was to drive down prices such that the PM Fix price was \$1226 – two dollars lower than it had been at the start of the PM Fixing, and only thirty cents removed from the price signaled on Saxo Bank’s trading platform some 12 hours earlier.

C. **Further Analysis of the Available Pricing Data Confirms it Was Defendants, Acting Jointly, Behind the Pricing Anomalies**

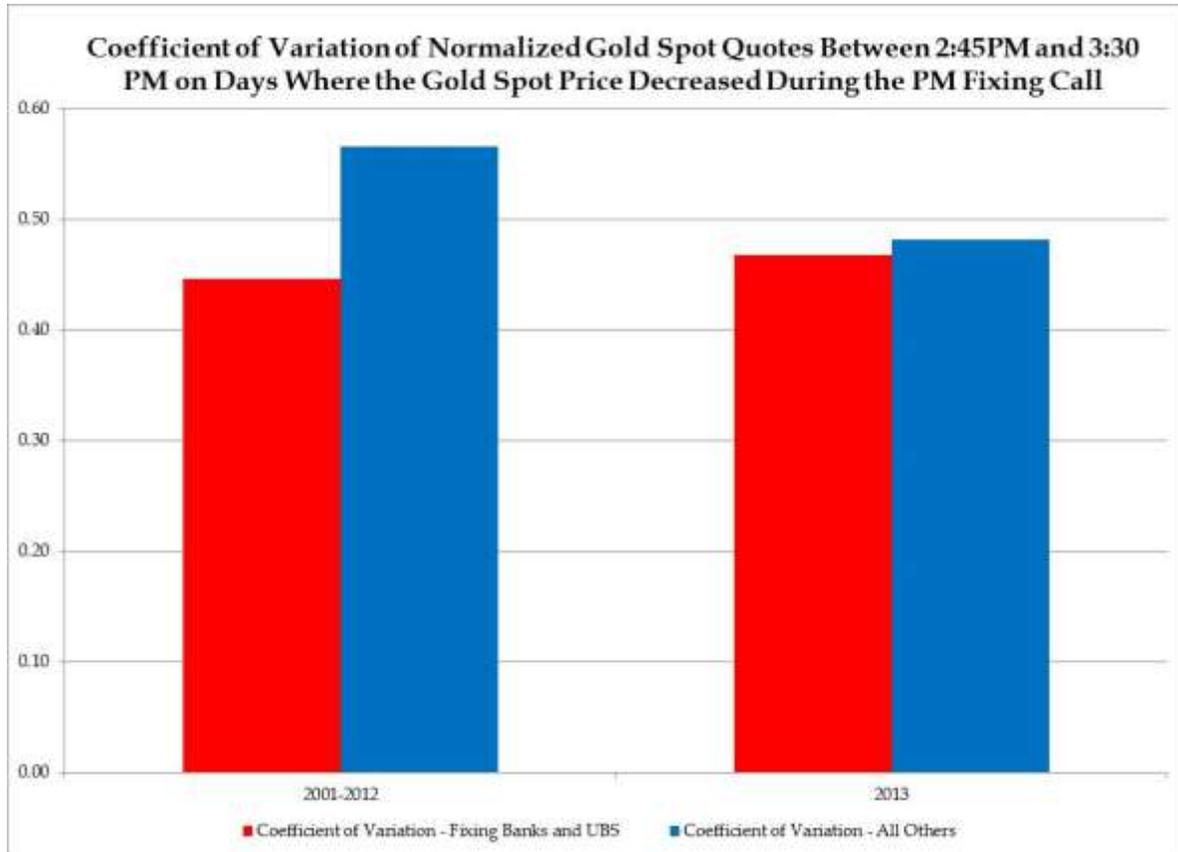
257. The ability to track what each Defendant was doing in the market is severely hampered by the lack of publically available data, particularly in terms of linking transactions to particular market actors. However, Plaintiffs' consultants, through multiple, complex processes of extraction, cross-referencing, and other advanced techniques, did manage to associate over **843,000** "spot" quotes from 2001 – 2013 with their source, including roughly **300,000** from the Fixing Defendants and UBS, all taken from a forty-five minute period around the PM Fixing. Again, this was not an easy process, and is not something that even a sophisticated investor would have known how to do, or even perhaps could have done, in the usual course, as it is not data that the underlying databases were designed to simply "give up."

258. By studying even this limited amount of data, Plaintiffs' consultants were able to further confirm that (a) Defendants were the ones moving the market down, and (b) they were doing so *in unison*. They did so with three distinct studies, as summarized below.

259. *First*, members of a conspiracy would be expected to be providing quotes of similar levels. Those not in the know would be expected to provide more dispersed price quotes. That is just what Plaintiffs' consultants found. Specifically, they studied the "coefficient of variation" for what individual quote data is publically available. A lower coefficient of variation of individual quotes within a group means that the group was providing price quotes similar to each other, while a higher coefficient means that quotes in that group diverged from each other more. In other words, a higher coefficient means that multiple market participants were clustered together.

260. The following graph plots the coefficient of variation of gold spot quotes for 45 minutes around the Fixing (*i.e.*, between 2:45 p.m. and 3:30 p.m.) on days where the gold spot

price decreased during the PM Fixing between two groups: Defendants, and everyone else whose data could be extracted.⁶³ The red bar for 2001 – 2012 (quotes among Defendants) is notably lower than the blue bar (quotes among everyone else). But during 2013, the trend changed: Defendants’ quotes around the Fix were just about *as similar* to each other as were everyone else’s quotes.



261. That the Defendant Banks were moving in relative unison with each other on days when the Fix price went down, *but not everyone else*, further confirms that Defendants were

⁶³ As discussed above, the consultants were able to obtain data for 843,000 quotes that occurred around the time of the Fixing, which is all that is publicly available and may not represent the universe of all quotes placed during this time window. This analysis focuses on “down days” for which at least two Defendants were identified as having provided quotes around the PM Fixing, which covers 55% of the days when prices went down during the PM Fixing with respect to the Defendants’ clustering, and 92% of such days with respect to the dispersion among non-Defendants.

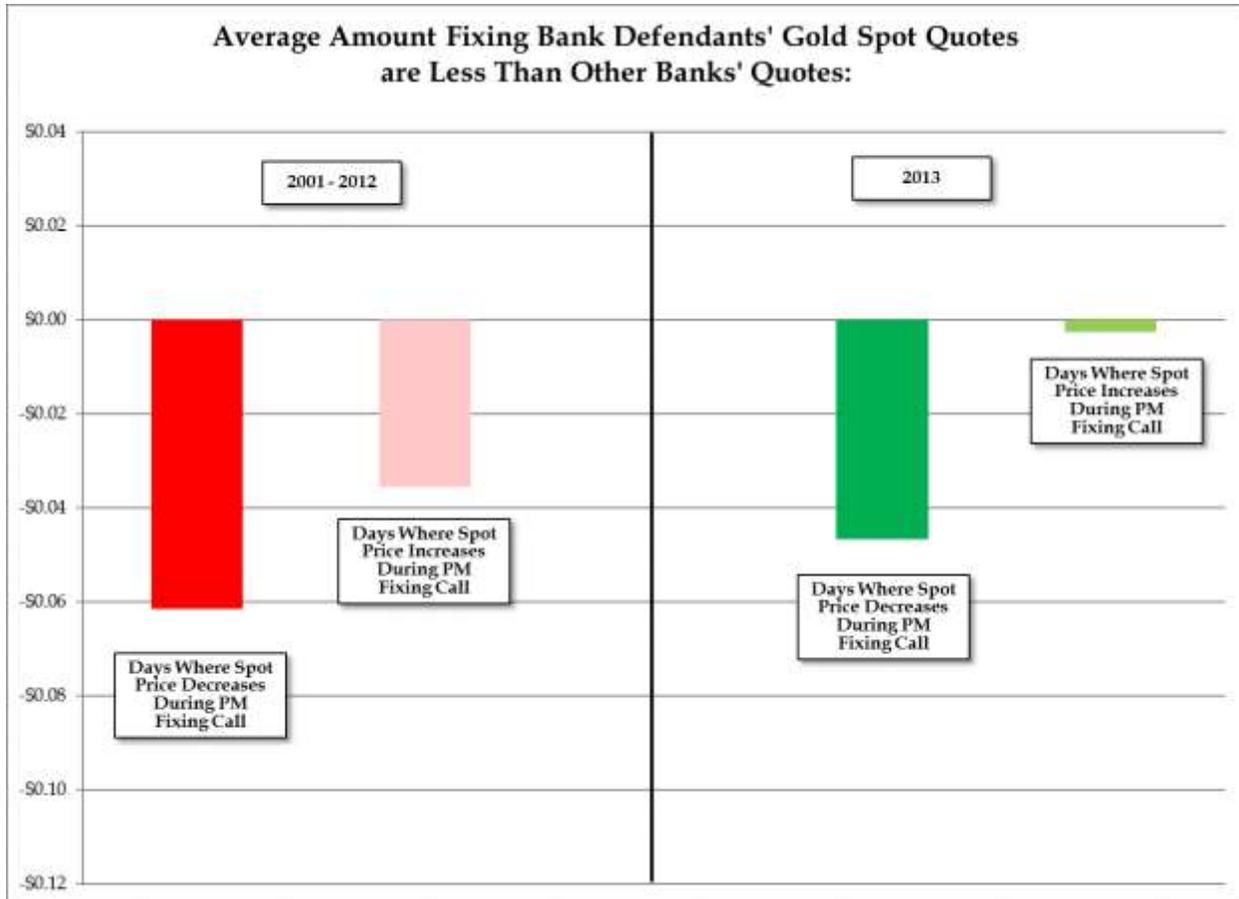
acting as a group, *i.e.*, as part of a conspiracy. That that pattern abated during 2013, when banks' benchmarking practices started to become under scrutiny, again further confirms Plaintiffs' consultants' damning conclusions cannot be innocently explained away.

262. *Second*, the consultants studied not just whether Defendants were moving together, but whether they were moving *down* together. Specifically, the consultants compared, during the PM Fixing window, the average amount by which the midpoint of Defendants' prices,⁶⁴ to the midpoint of everyone else's prices.

263. Unsurprisingly, the analysis found that, on days when the Fix was eventually set "low" from 2001 – 2012, the Fixing Bank Defendants were consistently providing quotes lower than those of everyone else. This "underpricing" as compared to the rest of the market was observed to be *almost two times less* than what was observed on days when the Fix did not spike downward. In other words, the Fixing Bank Defendants' prices were significantly more disjointed from other market actors (though they remained aligned with each other) on days when the Fix was going to spike downwards.

264. In the following chart, this is seen in the left panel, as the red bar ("underpricing" vis-à-vis non-Defendants on days when the Fix price spiked downward) is much larger than the pink one ("underpricing" vis-à-vis everyone else on days when there was no downward Fix price spike). And again, that this was not the result of natural phenomenon but that of a conspiracy, is seen in the right panel, where during 2013 the behavior changes drastically.

⁶⁴ That is, the midpoints of bids and asks placed by Defendants.



265. *Third*, another way to confirm it was Defendants behind the downward price spikes is to study how often a Defendant provided a quote that represented the biggest drop as compared to the immediately preceding quote. Even though Plaintiffs could only study what data Defendants let slip into the public domain, even from that dataset it was observed that, in the period around the PM Fix on days when prices declined around the Fixing, Defendants were *disproportionately* responsible for providing the quote that represented the single biggest drop from the prior one in the data sample. Defendants' disproportionate share of the biggest-drop quotes abated in 2013.

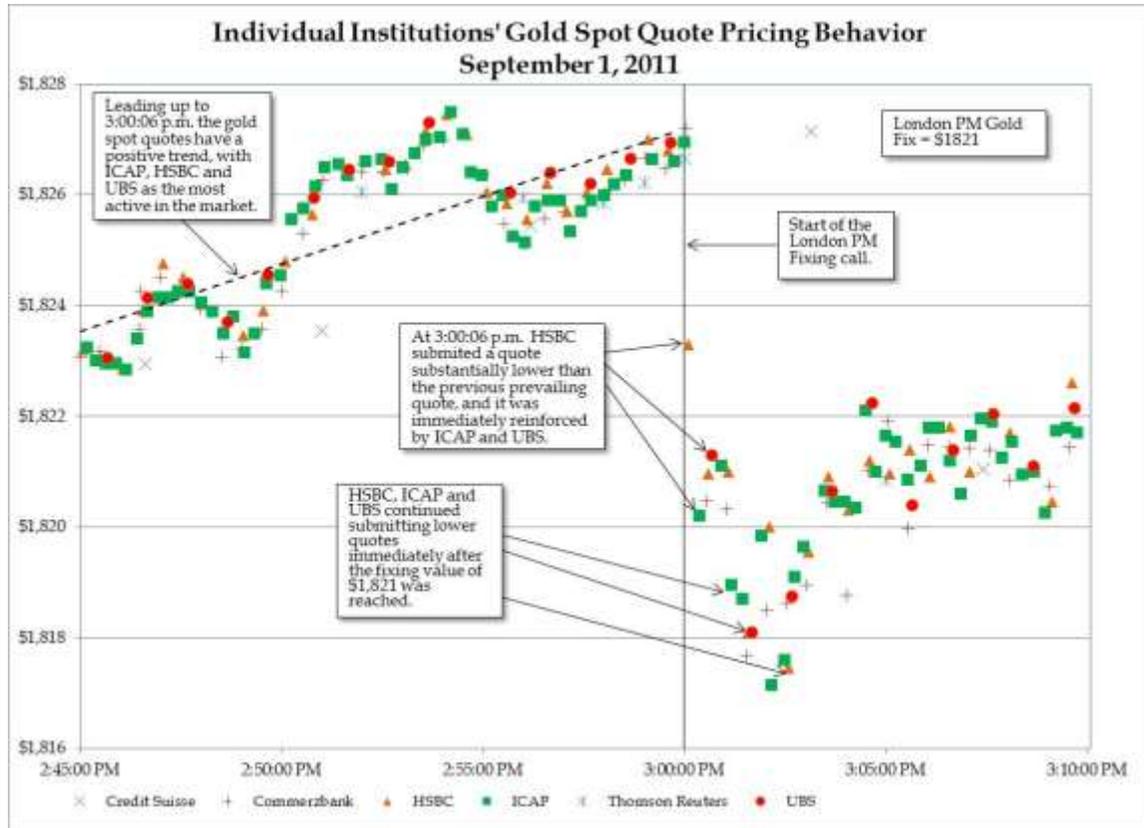
D. Defendants' Manipulative Activities Impacted the Purported "Auction" Process

266. Evidence of Defendants and their co-conspirators' collusive behavior can be seen

in the example discussed in Section V.B. above of first signaling the target level for the PM Fix, and then setting the PM Fix at almost precisely that level. The examples discussed below provide further evidence of how Defendants and their co-conspirators manipulated gold prices in and around the Fixing.

267. Comprehensive data is not publicly available, but information available to Plaintiffs confirms that Defendants (often acting together with other bullion banks) were driving the movement in prices before and around the Fixing window. Defendants often accounted for large portions of the trading activity leading up to and during the Fixing window, opportunistically pushing the Fix in the desired direction before the Fixing process began.

268. For instance, in the below graph it can be seen that large quotes from Defendants HSBC and UBS – out of line with the prior pricing trend – triggered a downward spike in the price of gold from a market level of about \$1826 before the Fixing window, to a fixed price of \$1821.



269. The above graph – again, based on all available data – shows how multiple Defendants, apparently working with ICAP⁶⁵, were driving the downward spike in the spot market with below-market quotes, even as HSBC was supposed to be engaging in a good-faith auction within the Fixing process itself.

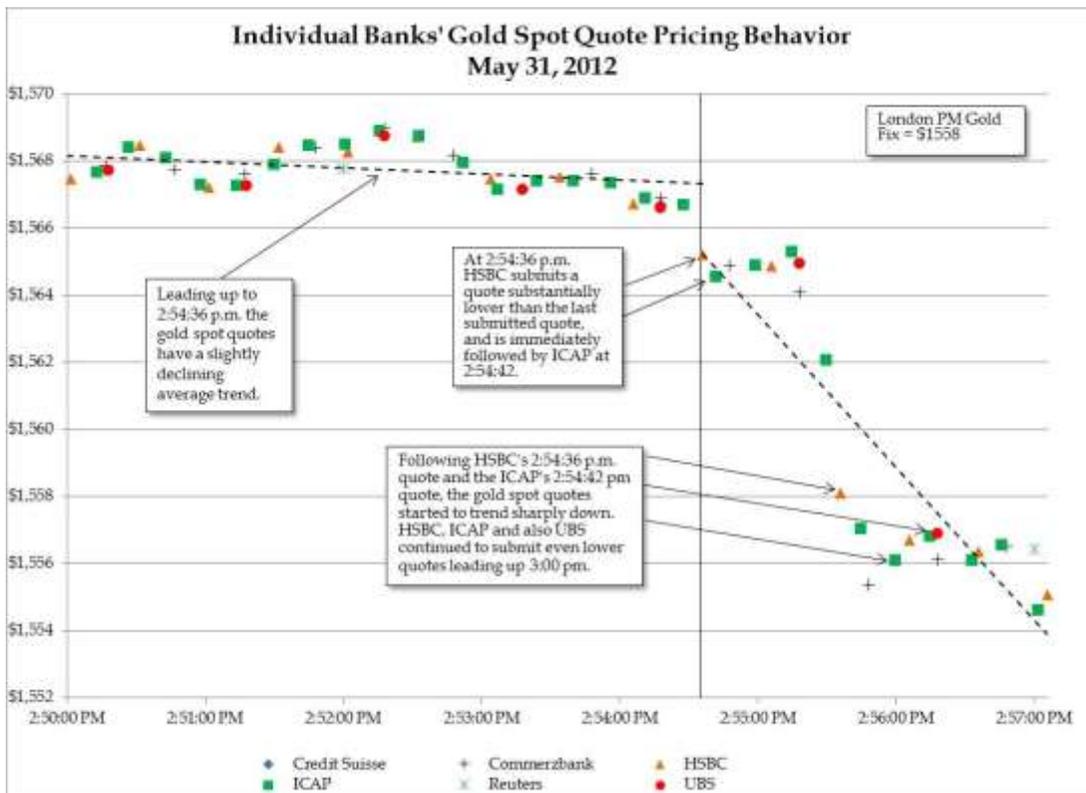
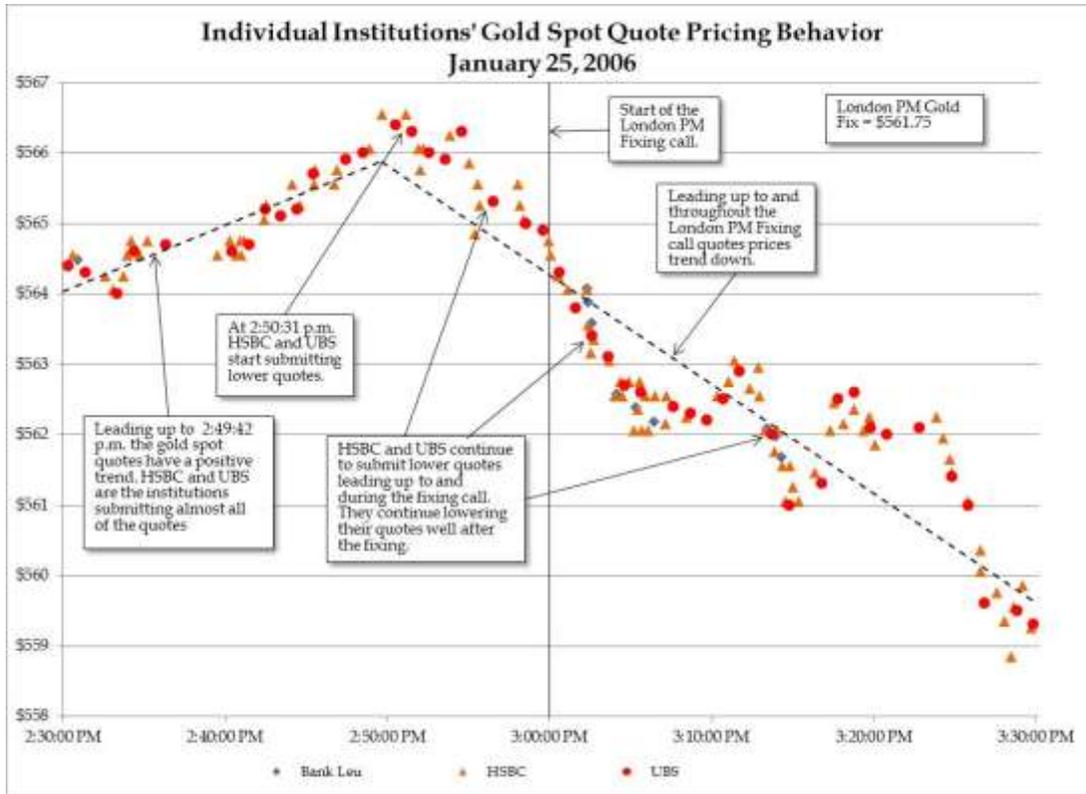
⁶⁵ In late 2013, United States and British authorities fined ICAP for its role in the global LIBOR interest rate rigging scandal. Numerous ICAP employees have faced criminal charges over the same conduct. *See, e.g.,* Kirstin Ridley, Clare Hutchison and Aruna Viswanatha, *ICAP fined \$87 million over Libor, three former staff charged*, Reuters (Sept. 25, 2013), www.reuters.com/article/2013/09/25/us-icap-libor-idUSBRE98O0BX20130925 (noting that British regulators had determined that the relevant misconduct at ICAP was widespread). ICAP is the biggest broker of interest rate swaps between banks. The CFTC found that ICAP also played a central role in manipulation of ISDAfix, a benchmark rate in the enormous market for interest rate swaps, which are used widely by corporations and governments alike, based on how it was willing to manipulate how and when quotes were (or were not) processed into the market. *See, e.g.,* Matthew Leising, *ICAP Said to Keep Liability for ISDAfix, Case After Tullett Deal*, Bloomberg (Nov. 11, 2015), <http://www.bloomberg.com/news/articles/2015-11-11/icap-said-to-keep-liability-for-isdafix-case-after-tullett-deal>.

270. These were not isolated episodes. Instead, they represent a common and systematic behavior by Defendants. The five fixing members' quoted prices were significantly lower than all other market participants' quoted prices around the PM Fixing. Specifically, from 2001 through 2012, the quoted prices of fixing members were on average 0.7 basis points lower than that of the non-members, a persistent pattern throughout the entire period.

271. Note that certain quotes on the above graph are attributed to ICAP – a London-based company that acts as a broker for firms that trade financial products. As ICAP is purely a broker, any quotes it submitted would have been submitted on behalf of (undisclosed) clients – meaning, they, too, may very well have been quotes being carried out on behalf of Bank Defendants here.

272. In addition to fixing members' average quotes being consistently lower than other market participants', since 2001 there is a noticeable dip in the ask prices of Defendants compared to the ask prices of non-fixing members following the start of the PM Fixing. This shows how Defendants moved first in pushing prices downwards during the PM Fixing. This behavior by Defendants also influenced other market players' perceptions driving them to lower their ask prices as well, thereby reinforcing Defendants' manipulative effect.

273. Examples of three additional days from the Class Period are below. As with September 1, 2011, the below graphs reveal a steep, uniform plunge in quote prices by Defendants – especially HSBC and UBS, in conjunction with ICAP – starting immediately prior to the initiation of the PM Fixing window.





274. Additional graphs detailing individual quotes around the Fixing window can be found in Appendix I. These graphs show that prices not only moved down during the PM Fixing, but that prices also began to move down – often, contrary to trends occurring during the rest of the day – *before the Fixing process even began*. Both the movements observed prior to the commencement of the Fixing, and those documented in the early moments of the Fixing prior to its conclusion, constitute clear evidence of “front-running,” *i.e.*, Defendants, with knowledge about what is going to happen at the Fixing, making trades in anticipation of its movement.⁶⁶

E. Numerous Plus Factors Are Probative of Collusion in Connection with the London Gold Fixing

275. While Defendants secretly ensured that no records of the Fixings were kept until recently, the Fixings themselves served as a forum for Defendants to collude over gold prices. This is not surprising, as the structural design of the London Gold Fixing is a perfect storm of

⁶⁶ See Caminschi and Heaney, *Fixing a Leaky Fixing*, J. FUTURES MARKETS at 2-3, 8-36.

features that invite and promote manipulation and collusion, allowing such behavior to go unnoticed until during 2013. The features that are highly suggestive of collusion above and beyond the undisputed fact that Defendants were in near constant, private communication via the Fixing are listed below.

276. *First*, the London Gold Fixing is a *direct exchange of intended or future price information* among horizontal competitors. This is over and above the sharing of information *before* the Fixing, as confirmed by investigations such as that done by FINMA. The Bank Defendants compete across a wide range of financial services markets, including the market for Gold Investments. The Bank Defendants compete to attract customers, including those that trade gold, gold futures and options, gold derivatives, and shares of Gold ETFs and they compete against each other in the proprietary trading of gold. Despite the fact that they are competitors, at least the Fixing Bank Defendants communicate directly and privately through the London Gold Fixing – and even before – to set the price of gold. Through this exchange of price impacting information, the Fixing Bank Defendants, including on behalf of co-conspirators, have ample opportunity to signal pricing desires to their competitors, and even to directly decide what the Fix will be.

277. *Second*, this exchange of pricing information takes place among a *very small group of competitors* with large market shares in the market for Gold Investments. Unlike a benchmark price based on market-wide data, the London Gold Fixing vests control over the price-setting process in the hands of a small group of competitors, making it easy for them to influence prices. This structure makes collusion a rational strategy for increasing profits at the expense of the vast majority of the market that does not have the opportunity to set the spot price.

278. *Third*, the banks' communications with each other – such as the sharing of client orders and imminent orders – represent *undisclosed* communications, meaning the Fixing Bank Defendants have *access to nonpublic, real time information* about changes in the price of gold. As Thomas Polleit, a former economist at Barclays, commented, “Traders involved in this price-determining process have knowledge which, even for a short time, is superior to other people’s knowledge. That is the great flaw of the London gold-fixing.”⁶⁷ This access to non-public information not only presents Defendants with unique informational advantages in the market for Gold Investments, as detailed below, but it also means the market cannot monitor Defendants’ conduct in setting the price of gold.

279. *Fourth*, the Bank Defendants have a *direct financial interest in the outcome* of the London Gold Fixing. Defendants are not neutral participants in the Fixing process: they are traders of gold on the spot market and during the Class Period they had large short futures positions on COMEX. As a result, they have a large incentive to influence the price of the Fixing in a particular direction.

280. *Fifth*, the structure of the Fixing means that the Fixing Bank Defendants are *easily able to detect – and if necessary, retaliate against – defectors*: all Fixing Bank Defendants will know if any other Defendant attempts to “break the cartel” because all Fixing Bank Defendants are aware of the net demand represented by other Fixing Bank Defendants during the fixing process, and of how that representation will affect the Fix that Defendants agreed to that day. Because the Fixing occurs twice daily, if any one Fixing Bank Defendant selfishly deviates from a pre-agreed level of net demand during the Fixing (*i.e.*, represents a level of demand that would

⁶⁷ Liam Vaughan, Nicholas Larkin & Suzi Ring, *London Gold Fix Calls Draw Scrutiny Amid Heavy Trading*, Bloomberg (Nov. 26, 2013), www.bloomberg.com/news/2013-11-26/gold-fix-drawing-scrutiny-amid-knowledge-tied-to-eruption.html.

have the effect of moving the Fix other than toward the agreed artificial price), other Defendants have ample opportunity to extract revenge.

281. *Sixth*, until recently (following the launch of the investigations discussed above) there was *no independent administration or oversight* of the Fixing. Unlike other benchmarks that are administered by third parties, which compile quotes or use real-time data, the Fixing involves a private telephone call among the Fixing Bank Defendants themselves, which is not overseen by any independent entity. No one was charged with monitoring the Fixing process and guarding against manipulation or ensuring that information was not misused. For a long time, even the Fixing Bank Defendants themselves did not record what trades they submitted during the Fixing.⁶⁸ Only recently – and after widespread calls for reform during 2013, and reinforced following discovery of Defendant Barclays’ manipulation – did the LGMF adopt a “Conflict of Interest Policy” and resolve to appoint a “Supervisory Committee” tasked with implementation and enforcement of a “Submitter Code of Conduct,” and with review of the Fixing process.⁶⁹

282. Regarding Defendant Barclays, a regulatory investigation concluded that “Precious Metals Desk staff had not been given adequate training or guidance regarding what they were, or were not, permitted to do during the Gold Fixing.” They were given no guidance “on the circumstances in which they were or were not allowed to participate in the Gold Fixing and the circumstances in which they were or were not allowed to place proprietary trades whilst

⁶⁸ In the case of Defendant Barclays, such recording did not commence until well after the mid-2012 manipulation of the Fixing that was subsequently uncovered. *See* U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014), at 4.36.

⁶⁹ *See* “Conflicts of Interest Policy” and “Terms of Reference for the Supervisory Committee,” www.goldfixing.com/policy-documentation.

the Gold Fixing was taking place.”⁷⁰ Likewise, at all relevant times there was no oversight whatsoever over the Fixing’s activities by any United Kingdom or foreign regulatory agency. It was not until November 2014 that the LBMA appointed a third-party administrator to manage the Fixing process.

283. Collectively, these structural or “plus” factors created a situation where collusion was most likely to occur, including because – until recently – there were no negative consequences to Defendants and their co-conspirators’ decision to collude as competitors and thereby to manipulate the London Gold Fixing – only rewards. For good reasons, no other benchmark price involves such unrestricted, direct price-setting among horizontal competitors. The United States Senate captured the crux of the issue when it stated that commodity activities such as those at issue here were “permeate[d]” by “conflicts of interest.”⁷¹ As alleged herein, Defendants seized upon this structure to manipulate the price of gold in secret without fear of retribution until recently.

VI. ONGOING GOVERNMENT INVESTIGATIONS CORROBORATE PLAINTIFFS’ ALLEGATIONS

A. Multiple Investigations Are Underway Worldwide

284. The U.S. Department of Justice (“DOJ”), the CFTC, the U.K. Financial Conduct Authority (“FCA”), the Swiss Competition Commission (WEKO) and Swiss financial regulator FINMA, the German financial regulator BaFin, and the European Union have all launched

⁷⁰ U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014), at 4.31.

⁷¹ United States Senate Permanent Subcommittee on Investigations, Committee on Homeland Security and Governmental Affairs, *Wall Street Bank Involvement with Physical Commodities* (“Senate Report”) (Nov. 18, 2014) at 38, www.hsgac.senate.gov/download/report-wall-street-involvement-with-physical-commodities.

probes into the London Gold Fixing.⁷² Much of the collusive, manipulative conduct described above has been confirmed by government regulators both domestically and abroad.

285. Prosecutors at the DOJ are “scrutinizing the price-setting process for gold,” among other precious metals.⁷³ The CFTC investigation into manipulation of the price-setting mechanisms in the gold market focus on Defendants and potential co-conspirators. BNS, Barclays, Credit Suisse Group AG, Deutsche Bank, Goldman Sachs Group Inc., HSBC, JPMorgan, Société Générale, Standard Bank Group Ltd., and UBS are under investigation. At least Defendants Barclays and HSBC have been subpoenaed relating to their precious metals practices.⁷⁴

286. The Swiss Competition Commission, WEKO, has also launched an investigation of “possible collusion in the precious metals market by several major banks.”⁷⁵ The Swiss WEKO investigation is focused on the Defendants UBS, Deutsche Bank, HSBC, and others. The regulator stated that its preliminary probe had already revealed “possible prohibited competitive agreements in the trading of precious metals were agreed among the bank mentioned.”

287. BaFin has interviewed employees of Defendant Deutsche Bank concerning

⁷² The FCA and BaFin probes – which investigated only Defendant Deutsche Bank – were each closed.

⁷³ See Jean Eaglesham and Christopher M. Matthews, *Big Banks Face Scrutiny Over Pricing of Metals: U.S. Justice Department investigates price-setting process for gold, silver, platinum, and palladium*, The Wall Street Journal (Feb. 23, 2015), www.wsj.com/articles/big-banks-face-scrutiny-over-pricing-of-metals-1424744801; see also Jan Harvey, *CFTC subpoenaed HSBC Bank USA for documents on metals trading*, Reuters (Feb. 23, 2015), www.reuters.com/article/2015/02/23/us-precious-hsbc-cftc-idUSKBN0LR1C520150223.

⁷⁴ *Id.*

⁷⁵ See Joshua Franklin and Jan Harvey, *Swiss watchdog opens bank probe into precious metals collusion*, Reuters (Sept. 28, 2015), <http://uk.reuters.com/article/uk-precious-manipulation-swiss-idUKKCN0RS0IZ20150928>.

potential manipulation. Officials have also visited Deutsche Bank offices and requested emails and documents. BaFin president Elke Koenig stated publicly on January 16, 2014 that allegations concerning the market for precious metals are “particularly serious because such reference values are based – unlike LIBOR and Euribor – typically on transactions in liquid markets and not on estimates of the banks.”⁷⁶ The day after Koenig’s remarks, *Bloomberg* reported that Deutsche Bank had decided to sell its memberships in both the gold and silver fixes.⁷⁷

288. Defendants Deutsche Bank and Barclays conducted internal investigations into their roles in the improper manipulation of the London Gold Fixing. Defendants also formed a steering committee to identify firms to advise on “how the process [of the Gold Fixing] could be improved.”⁷⁸ The CEO of Defendant BNS has called for an overhaul of the London Gold Fixing, stating that the “fix is dated” and it “should be reviewed[.]”⁷⁹ Joaquin Almunia, the former European Union’s antitrust chief, is also reported to be conducting a preliminary probe into “possible foreign-exchange manipulation”⁸⁰ (which includes gold and silver as they are

⁷⁶ Karin Matussek and Oliver Suess, *Metals, Currency Rigging is Worse Than Libor*, *Bafin says*, Bloomberg (Jan. 17, 2014), www.bloomberg.com/news/2014-01-16/metals-currency-rigging-worse-than-libor-bafin-s-koenig-says.html.

⁷⁷ Maria Kolesnikova and Nicholas Larkin, *Deutsche Bank Withdraws from Gold Fixing in Commodities Cuts*, Bloomberg (Jan. 17, 2014), www.bloomberg.com/news/2014-01-17/deutsche-bank-withdraws-from-gold-fixing-in-commodities-cutback.html. Deutsche Bank ultimately resigned from the Fixing without a replacement because it was unable to sell its seat.

⁷⁸ Suzi Rig, Liam Vaughan & Nicholas Larkin, *Century-Old London Gold Benchmark Fix Said to Face Overhaul*, Bloomberg (Jan. 21, 2014), www.bloomberg.com/news/2014-01-21/century-old-london-gold-fix-said-to-face-overhaul-amid-scrutiny.html.

⁷⁹ Sarah Jacob, *Scotiabank CEO Porter Says ‘Dated Gold Fix Needs Review*, Bloomberg (Mar. 5, 2014), www.bloomberg.com/news/2014-03-05/scotiabank-ceo-porter-says-dated-gold-fix-should-be-reviewed.html.

⁸⁰ Karin Matussek and Oliver Suess, *Metals, Currency Rigging is Worse Than Libor*, *Bafin says*, Bloomberg (Jan. 17, 2014), www.bloomberg.com/news/2014-01-16/metals-currency-rigging-worse-than-libor-bafin-s-koenig-says.html.

considered “currencies”), with Mr. Almunia commenting to the *Financial Times* that “perhaps manipulation [of benchmarks] is not the exception but the rule.”⁸¹

289. A report by the United States Senate Permanent Subcommittee on Investigations documented conduct strikingly similar to that alleged by Plaintiffs across a wide range of commodities. It noted that across the activities investigated, “financial companies often traded in both the physical and financial markets at the same time, with respect to the same commodities, frequently using the same traders on the same trading desk. In some cases, after purchasing a physical commodity business, the financial holding company ramped up its financial trading. . . . In some cases, financial holding companies used their physical commodity activities to influence or even manipulate commodity prices.”⁸²

290. Another problem the Senate Report focused on was the “conflicts of interest between a bank and its clients” when banks mix the business of banking with commerce. The report found that “[p]ossible conflicts of interest permeate virtually every type of commodity activity” and illustrated the point thus: “If the bank’s affiliate operates a commodity-based exchange traded fund backed by gold, the bank may ask the affiliate to release some of the gold into the marketplace and lower gold prices, so that the bank can profit from a short position in gold futures or swaps, even if some clients hold long positions.”⁸³

⁸¹ Daniel Schäfer, Neil Hume and Xan Rice, *Barclays fined £26m for trader’s gold rigging*, *Financial Times* (May 23, 2014), www.ft.com/cms/s/0/08cfa70-e24f-11e3-a829-00144feabdc0.html.

⁸² Senate Report, at 5.

⁸³ *Id.* at 37-38. Similarly, each of the case studies documented in the Senate Report uncovered evidence that banks “used their physical commodity activities to gain access to commercially valuable nonpublic information that could be used to benefit their financial trading activities.” *Id.* at 6.

B. Barclays Has Been Fined for Manipulating the Fixing, Using the Very Methods Alleged Here

291. The U.K. Financial Conduct Authority concluded an investigation into the actions of Barclays' Precious Metals Desk, finding that the bank's conduct violated several of the FCA's "Principles of Business," starting from the time Barclays joined the Gold Fixing in 2004. In particular, the FCA found that "Barclays failed to: (i) create or implement adequate policies or procedures to properly manage the way in which Barclays' traders participated in the Gold Fixing; (ii) provide adequate specific training to Precious Metals Desk staff in relation to their participation in the Gold Fixing; and (iii) create systems and reports that allowed for adequate monitoring of traders' activity in connection with the Gold Fixing."⁸⁴

292. As a result of these failures, "Barclays was unable to adequately monitor what trades its traders were executing in the Gold Fixing or whether those traders may have been placing orders to affect inappropriately the price of gold in the Gold Fixing." These failures were deemed "particularly serious given the importance of the Gold Fixing as a price-setting mechanism which . . . provides market users with an opportunity to buy and sell gold at a single quoted price; therefore, any inappropriate conduct in the Gold Fixing could affect both UK and international financial markets."

293. Barclays was also found to have failed "to adequately manage certain conflicts of interest between itself and its customers." In particular, Barclays failed to adequately manage the inherent conflict of interest that existed from (i) Barclays participating in the Gold Fixing and contributing to the price fixed during the Gold Fixing, while at the same time also (ii) selling to customers options products that referenced, and were dependent on, the price of gold fixed in the

⁸⁴ U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014) at 2.3.

Gold Fixing.

294. The investigation detailed one such instance of these conflicts of interest. Barclays' Precious Metals Desk intentionally drove down the Fix price of gold below a certain level so as to avoid the payment it would have had to make to a customer pursuant to a digital option contract.⁸⁵ As noted above, derivatives such as digital options are often explicitly tied to the Fix.

295. On the evening of June 27, 2012, Barclays trader Daniel Plunkett emailed other members of Barclays' Commodities business area summarizing Barclay's \$3.9 million exposure to a customer on a digital option. That contract referenced the June 28, 2012 PM Fixing, and Barclays would be required to pay the customer \$3.9 million if the PM Fix was higher than \$1,558.96. In his email, Mr. Plunkett stated he was hoping for "a mini puke to 1558 for fixing" (*i.e.*, a small downward spike in the price) at 3 p.m. the next day. In a follow-up email to a colleague the next morning he repeated this sentiment, stating "hopefully we fix 1558, or 1558.75 ideal."⁸⁶

296. Plunkett sought to ensure that the desired "mini puke" occurred by placing a large, fictitious order he did not intend to execute in connection with the Gold Fixing. When the desired price plunge did not last as long as he needed it to, he placed a sell order.⁸⁷ After the PM Fixing was concluded, he entered into a trade designed to unwind the sale. The \$114,000 loss on

⁸⁵ The kind of a digital option (also sometimes referred to simply as a "digital") at issue had only two potential values: a fixed payout to the customer if the option finished "in the money" (*i.e.*, the price exceed the specific barrier price), or no payout if the option finished "out of the money" (*i.e.*, the price was at or below the specific barrier price).

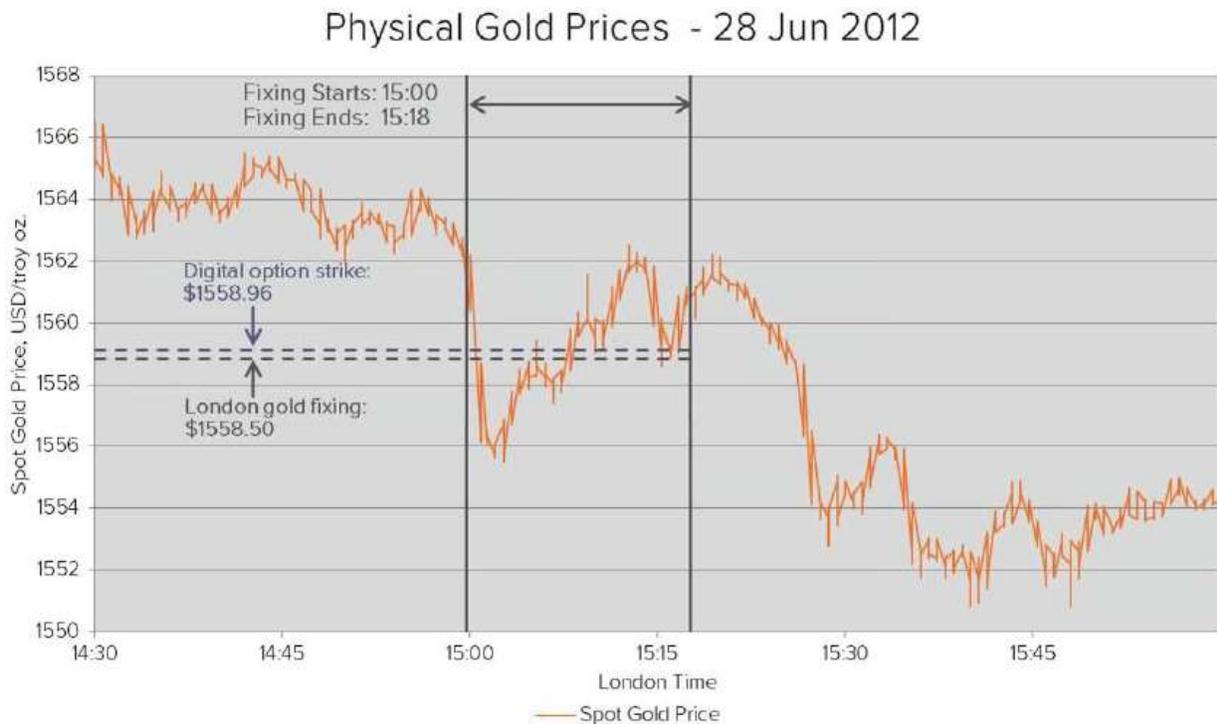
⁸⁶ U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014) at 4.12. The price in the 3:00 p.m. 27 June 2012 Gold Fixing had fixed at \$1,573.50 and COMEX Gold futures were trading at approximately \$1,577.50 at the time of Mr. Plunkett's June 27 email.

⁸⁷ *Id.* at 4.14 – 4.24.

the sale was more than outweighed by not having to pay \$3.9 million on the digital option.

297. To repeat, Barclays placed two orders (one was not subsequently executed, the other was quickly reversed) with the purpose of driving that day's Fix below \$1,558.96, the threshold above which Barclays would be required to pay its customer on an option contract.

298. The price movements on the day of Barclays' manipulation are illustrated below. Again, this graph represents the market price on a day on which one of the Fixing banks' traders *admitted to manipulating the price of gold*. Notably, the above discussion in this complaint and extensive analysis presented in the appendices reveal remarkably similar dynamics on days where manipulation is under investigation (but not yet admitted).



299. The first sharp decrease, at the start of the Fixing, is indicative of Barclays overstating the amount of sell orders on its book in order to force the price downwards. As this information hit the market, prices fell. There was then a temporary price recovery before a second sharp decline in prices. This second decline represents Barclays' effort to set the Fix

below the barrier set in the digital option contract, which it did by \$0.46 (that day's Fix was \$1,558.50, below the option price of \$1,558.96), thus saving itself (and depriving its customer of) \$3.9 million.

300. The Barclays manipulation was not an isolated event. Former precious metals traders interviewed by the press have stated that “there has long been an understanding among [bullion banks] that sellers and buyers of digitals would try to protect their positions if the benchmark price and barrier were close together near expiry.”⁸⁸ In fact, one trader interviewed expressed “sympathy” for the Barclays trader who was punished because it used to be the case that a trader would have been “censured by his bosses if he had *not* defended the digital option sold by the bank.”

301. This message was reiterated elsewhere. Four traders interviewed by *Bloomberg News* said that it was “common practice” among gold bullion banks to move prices to profit or limit losses from barrier options of the kind involved in the Barclays scenario.⁸⁹

302. Both “spoofing” and “wash sales” are explicitly prohibited by and considered to be disruptive practices under the Commodity Exchange Act.⁹⁰ “Spoofing” of the gold market led the CFTC to impose civil penalties upon a gold trader in the U.S.⁹¹ with the U.S. Justice

⁸⁸ Xan Rice, *Trading to influence gold price fix was 'routine,'* Financial Times (June 3, 2014), www.ft.com/intl/cms/s/0/7fd97990-eb08-11e3-9c8b-00144feabdc0.html.

⁸⁹ Dave Michaels, Suzi Ring and Julia Verlaine, *Barclays Fine Spurs U.K. Scrutiny of Derivatives Conflict*, Bloomberg (June 5, 2014), www.bloomberg.com/news/2014-06-05/barclays-fine-leads-to-new-u-k-scrutiny-of-derivatives-conflict.html.

⁹⁰ See 7 U.S.C. § 6c(a)(5).

⁹¹ Press Release, *CFTC Orders Panther Energy Trading LLC and its Principal Michael J. Coscia to Pay \$2.8 Million and Bans Them from Trading for One Year, for Spoofing in Numerous Commodity Futures Contracts*, U.S. Commodities Futures Trading Commission (July 13, 2013), www.cftc.gov/PressRoom/PressReleases/pr6649-13.

Department subsequently filing a criminal indictment in respect of the same conduct.⁹² The Chicago Mercantile Exchange Inc. (“CME”), The Board of Trade of the City of Chicago, Inc. (“CBOT”), NYMEX, and COMEX have also taken steps to specifically prohibit “spoofing” and “quote stuffing practices” on the exchanges.⁹³

C. FINMA Found Similar Problems at UBS

303. At the end of September 2013, UBS informed Switzerland’s financial regulator FINMA and a number of other domestic and foreign supervisory and competition authorities that an internal investigation had uncovered possible signs of manipulation, collusion and other market abusive conduct in foreign exchange trading.

304. In October 2013, FINMA initiated enforcement proceedings against UBS on the grounds of suspected market abuse in foreign exchange trading.

305. In January 2014, Andre Flotron, the head of UBS’s gold desk in Zurich, was placed on leave for unspecified reasons.

306. In May 2014, UBS disclosed that it had widened its internal investigation to include its precious metals business.

307. On November 11, 2014, FINMA released the results of its investigation into foreign exchange and precious metals trading at UBS. The FINMA report noted the close association between UBS’s foreign exchange and precious metals trading desks, “The [precious metals] spot desk responsible for the bank’s precious metals trading has been an organizational unit of the bank’s Foreign Exchange Spot Desk since the end of 2008 and was therefore subject

⁹² Peter J. Henning, ‘*Spoofing, ’ a New Crime With a Catchy Name*, New York Times DealBook (Oct. 6, 2014), <http://dealbook.nytimes.com/2014/10/06/a-new-crime-with-a-catchy-name-spoofing>.

⁹³ See Letter from Christopher Bowen, CME Group, to Christopher J. Kirkpatrick, Commodity Futures Trading Commission (Aug. 28, 2014), www.cftc.gov/filings/orgrules/rule082814cmecm001.pdf.

to similar control and monitoring processes.” The Swiss regulator found that UBS’s foreign exchange currency dealers had “repeatedly and over a longer period of time tried or accepted repeated attempts to manipulate foreign currency reference values by the aggressive execution of large volume orders in order to generate a profit for themselves, the bank or for third parties;” and entered “agreements with other banks in regards to a possible influencing of the foreign currency reference values,” following which the traders “would congratulate each other [in chat rooms] if they as a whole or as individuals were successful in moving the reference value or the foreign currency exchange rate in the desired direction.”⁹⁴

308. Unlike at some other banks, UBS’s precious metals and foreign exchange businesses are closely integrated. The business units have joint management and UBS’s precious metals staff sit on the same floor as the foreign exchange traders.

309. Switzerland’s financial regulator FINMA has found “serious misconduct” by UBS in precious metal trading.⁹⁵ Indeed, FINMA’s chief executive officer stated that the regulator has “seen clear attempts to manipulate fixes in the precious metals markets.”⁹⁶ Specifically, FINMA found that UBS’s precious metals traders had engaged in: (i) sharing information on order books with third parties (*e.g.*, stop loss orders); (ii) sharing so-called “flow information” with third parties on large current or imminent orders; (iii) sharing client names with third parties; (iv) front running; and (v) triggering stop loss orders. FINMA concluded that

⁹⁴ Foreign Exchange Trading from the UBS AG: Inspection by the FINMA (Nov. 12, 2014), at 12 (translation from German), www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

⁹⁵ FINMA, Press Release: FINMA sanctions foreign exchange manipulation at UBS (Nov. 12, 2014), www.finma.ch/e/aktuell/pages/mm-ubs-devisenhandel-20141112.aspx.

⁹⁶ Nicholas Larkin and Elena Logutenkova, *UBS Precious Metals Misconduct Found by Finma in FX Probe*, Bloomberg (Nov. 12, 2014), www.bloomberg.com/news/2014-11-12/finma-s-ubs-foreign-exchange-settlement-includes-precious-metals.html.

UBS's "compliance function in foreign exchange and precious metals trading was insufficient."

310. FINMA also noted problems with proprietary or "back book" trading at UBS. FINMA noted that such proprietary trading leads to conflicts of interest with UBS's clients especially because traders' compensation was set in part based on the success of the proprietary trading. FINMA noted that, "A substantial element of the conspicuous conduct in [precious metals] trading was the repeated front running (especially in the back book) of silver fix orders of one client. FINMA noted that with those particular episodes, "Owing to the frequency and obviousness of front running in the back book, the desk supervisors saw themselves forced – after some time of passive inactivity – to prohibit front running in the back book, but did not sanction the traders who engaged in it."

311. FINMA found that this conduct was tolerated or even engaged in by managers with responsibility for overseeing precious metals traders. FINMA formally investigated eleven currency and bullion traders and managers at UBS. In December 2015, FINMA issued industry bans against six of those traders and managers, finding that those individuals were directly responsible for serious breaches of regulations during their time as UBS.

D. Other Relevant Findings

312. The conduct at issue in this case is one piece of a larger set of revelations. Banks' manipulation of financial benchmarks has been increasingly exposed as commonplace, cutting across what were previously thought to be distinct markets and entities (regarded even as competitors). For instance, as outlined in part above, Defendants UBS, Barclays, and HSBC, along with other major banks, were each subject to multiple investigations resulting in fines totaling over \$6 billion in connection with their conspiring to manipulate foreign exchange ("Forex") benchmarks. In May 2015, Barclays and UBS entered criminal guilty pleas with the Department of Justice in connection with their manipulation of the Forex market.

313. Among the conduct these banks have admitted to engaging in was disclosure of confidential customer order information and trading positions, adjustment of trading positions to accommodate the interests of the collective group, trading to trigger customers' limit orders or customers' barrier options for the bank's benefit and to the detriment of those customers, and agreeing to enter into trading strategies to manipulate benchmark prices.

314. As noted by FINMA, Defendants' collusion connected to the London Gold Fixing occurred in ways similar and, at times, nearly identical to those revealed by regulatory investigations into manipulation of other benchmarks, including in the foreign exchange market. Among the banks targeted by such investigations is Defendant HSBC.

315. HSBC settled with the CFTC over its manipulation of Forex (also known as "FX") benchmarks. The CFTC found that HSBC and other banks used private chat rooms to communicate and plan their manipulation.⁹⁷ During these communications, HSBC traders disclosed confidential customer order information and trading positions, altered trading positions to accommodate the interests of the collective group, and agreed on trading strategies as part of an effort by the group to attempt to manipulate Forex benchmark rates. The manipulation occurred, according to the CFTC, because HSBC failed to adequately assess risks and lacked internal controls to detect and deter misconduct.

316. HSBC also resolved similar charges by the U.K. FCA. The FCA found that HSBC attempted to manipulate foreign exchange rates in collusion with traders at other firms for HSBC's benefit and to the detriment of clients and/or other market participants. HSBC also

⁹⁷ U.S. Commodity Futures Trading Commission, *Order Instituting Proceedings Pursuant to Sections 6(c)(4)(A) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions in the matter of HSBC Bank plc* (Nov. 11, 2014), at 2, www.cftc.gov/ucm/groups/public/@enforcementactions/documents/legalpleading/enfhsbcorder111114.pdf.

shared confidential client information with other firms and attempted to trigger clients' stop loss orders for its own benefit and to the detriment of those clients and/or other market participants.⁹⁸ Echoing the FCA findings regarding Barclays and the London Gold Fixing, the FCA found that HSBC did not adequately manage risk, in part by failing to discharge its responsibilities with regard to confidentiality, conflicts of interest, and trading conduct.⁹⁹

317. Defendants Barclays and UBS have entered similar settlements and plea agreements with the DOJ, CFTC, FCA, and other regulators for their role in manipulating the Forex market.

318. In May 2015, Barclays also reached an agreement with the CFTC to pay \$115 million for alleged manipulation of ISDAfix, which is a key interest-rate benchmark, designed to represent current market fixed rates for interest rate swaps of various terms.¹⁰⁰ That same month, seven of the world's largest banks – including Defendants Barclays and Deutsche Bank – agreed to pay \$324 million to private antitrust claims alleging that they conspired to rig ISDAfix rates.¹⁰¹

319. Given the admissions of wrongdoing by Barclays, statements of the United States Senate, findings by FINMA about UBS' attempts to manipulate precious metals, the statements

⁹⁸ U.K. Financial Conduct Authority, *Final Notice to HSBC Bank plc* (Nov. 11, 2014), at 3, www.fca.org.uk/your-fca/documents/final-notices/2014/hsbc-bank-plc.

⁹⁹ *Id.* The CFTC has also released multiple examples of trader misconduct in private chat rooms by which Forex-trading banks – including Defendant HSBC – were able to profit from manipulation of currency benchmarks. See Commodity Futures Trading Commission, *Examples of Misconduct in Private Chat Rooms* (Nov. 11, 2014), www.cftc.gov/ucm/groups/public/@newsroom/documents/file/hsbcmisconduct111114.pdf.

¹⁰⁰ CFTC Press Release, *CFTC Orders Barclays to Pay \$115 Million Penalty for Attempted Manipulation of and False Reporting of U.S. Dollar ISDAFIX Benchmark Swap Rates* (May 20, 2015), <http://www.cftc.gov/PressRoom/PressReleases/pr7180-15>.

¹⁰¹ Bob Van Voris, *Seven Banks to Pay \$324 Million to Resolve ISDAfix Claims*, Bloomberg, at <http://www.bloomberg.com/news/articles/2016-05-03/seven-banks-to-pay-324-million-to-resolve-isdafix-claims>

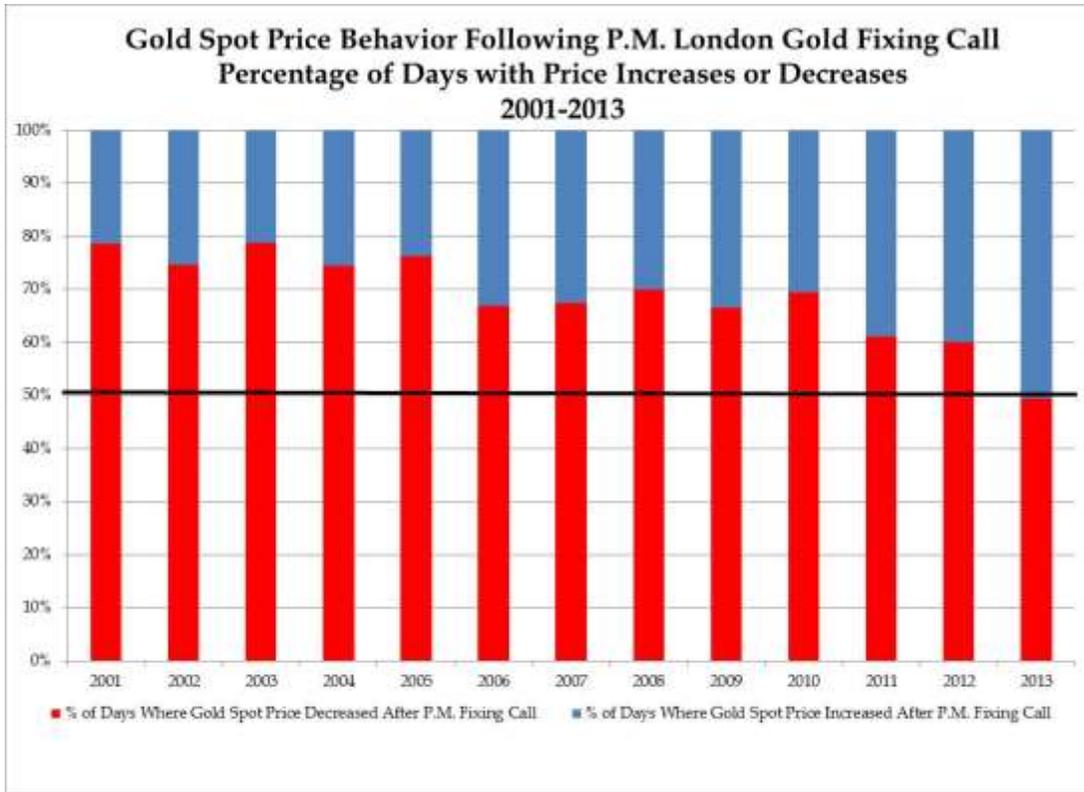
of former precious metals traders in response to developments, and the strikingly similar incentives and opportunities in the gold market as others shown to be manipulated, all coupled with the extensive empirical analysis presented above, Defendants' wrongdoing in the gold market is more than merely plausible – it is virtually undeniable.

VII. MULTIPLE ECONOMIC ANALYSES CONFIRM THAT THE CONSPIRACY WAS ONGOING IN 2004 AND 2005

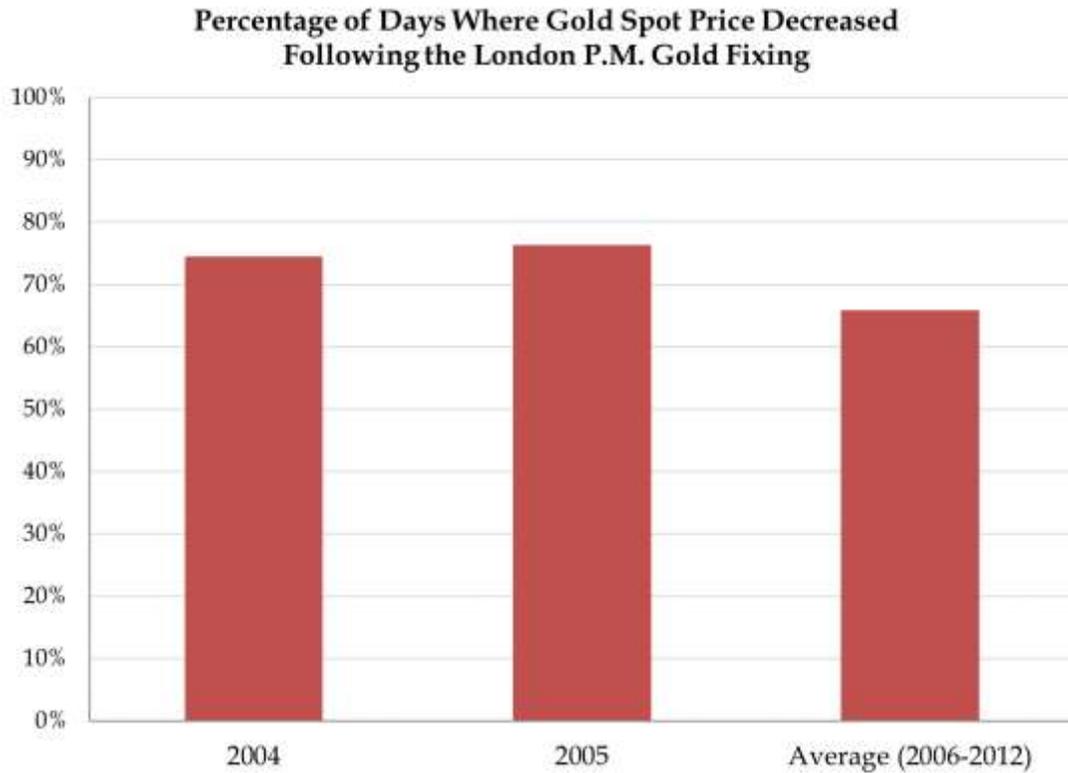
A. Nearly All Of The Economic Analyses Discussed Above Apply With At Least Equal Force To 2004 And 2005

320. Nearly all of the economic analyses discussed above were conducted for every year of the Class Period, including 2004 and 2005. The results of those analyses, which show that gold prices anomalously spiked downward at the time of the PM Fixing, and that Defendants were responsible, apply with at least equal force to 2004 and 2005 as they do to the other years that were studied. Specifically:

321. Analyses showing that gold prices during the PM Fixing decreased far more often than they increased, and that such anomalous price patterns were not seen at other times of day or in other markets, were conducted for every year from 2001 to 2013. *See* ¶¶ 28, 127-32. In fact, as seen in the following chart, the percentage of “down” days during 2004 and 2005 was *even higher* than during most of the other years that were analyzed:

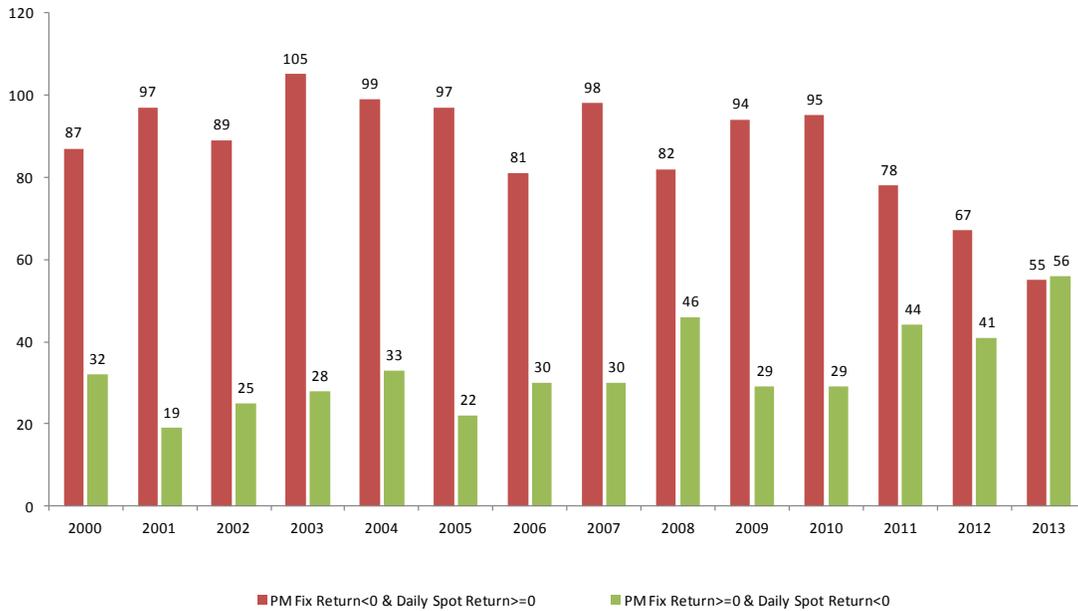


322. To further illustrate this point, Plaintiffs’ consultants collapsed the data to focus on 2004 and 2005, as compared to the rest of the entire 2006 to 2012 period. As seen below, the percentage of down days during both 2004 and 2005 was well over 70% – *i.e.*, higher than the percentage of down days during 2006 to 2012:



323. Similarly, analyses of the number of times prices decreased during the PM Fixing, against the overall pricing trend for the day, were conducted for every year from 2000 to 2013. See ¶¶ 133-38. Again, the data shows that this discrepancy was at least as substantial during 2004 and 2005 as it was during many of the other years analyzed:

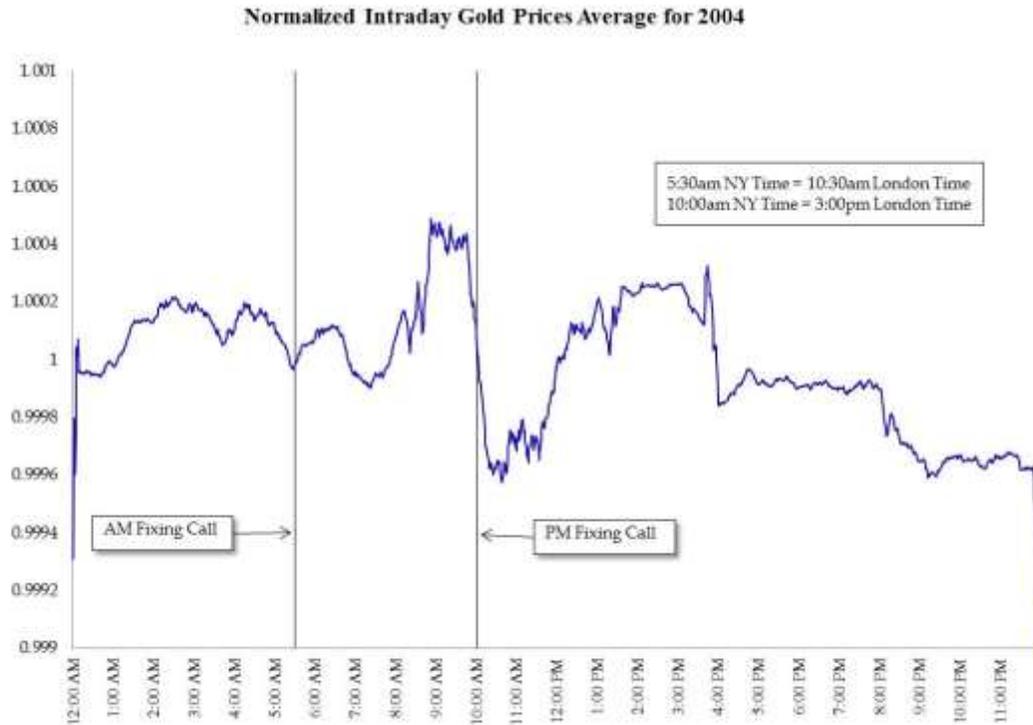
Number of Days in Which PM Fix is Negative and Daily Spot Return is Positive vs. Number of Days in Which PM Fix is Positive and Daily Spot Return is Negative



324. Analyses showing that prices during the PM Fixing were in the bottom 5% or 10% of prices for the day, far more often than they were in the top 5% or 10% of prices for the day, were also conducted for every year from 2001 to 2013. ¶¶ 139-42. Again, the data shows that this discrepancy was at least as substantial during 2004 and 2005 as it was during many of the other years analyzed:

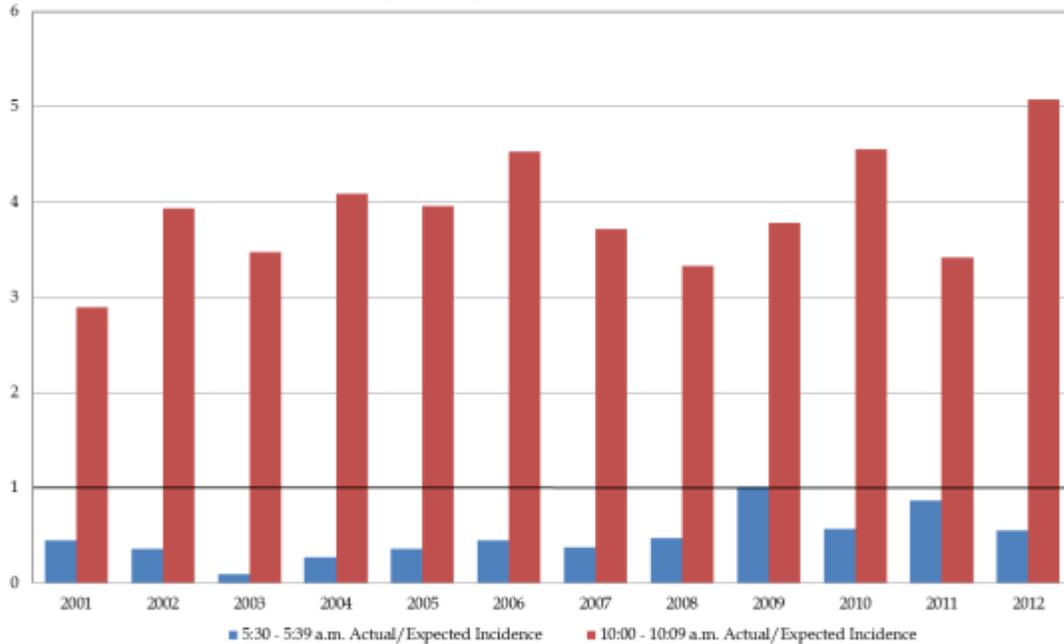
Ranking Daily Percentile for the London PM Gold Fixing Price (Top and Bottom 5%)			
Year	% of Days With Percentile Rank Less Than 5%	% of Days With Percentile Rank Greater Than 95%	Difference
	[A]	[B]	[C] = [A] - [B]
2001	12.0%	0.8%	11.2%
2002	11.2%	1.2%	10.0%
2003	9.6%	1.2%	8.4%
2004	6.7%	2.4%	4.4%
2005	8.4%	1.2%	7.2%
2006	7.6%	5.6%	2.0%
2007	7.2%	4.0%	3.2%
2008	9.9%	4.8%	5.2%
2009	11.6%	4.0%	7.6%
2010	12.0%	3.6%	8.4%
2011	10.8%	5.6%	5.2%
2012	11.6%	6.8%	4.8%
2013	8.8%	6.8%	2.0%
<i>2001-2013 Average</i>	9.8%	3.7%	6.1%

325. Analyses of normalized intraday gold prices, which further illustrate the abnormality of the downward price spikes at the PM Fixing, were also conducted for every year from 2001 to 2013. ¶¶ 143-50, Apps. D, E. These analyses confirm that prices spiked downward during the PM Fixing in 2004 and 2005 specifically, and that those price spikes were of unusual size and intensity. For instance, the following chart tracks the normalized average gold spot prices during 2004, and shows an abnormal downward price spike at the time of the PM Fixing:



326. Similarly, analyses showing that the rate of downward price spikes during the PM Fixing was disproportionate to random chance were conducted for every year from 2001 to 2012. ¶¶ 152-54. The data shows that the downward spikes in 2004 and 2005 were at least as substantial as during many of the other years analyzed:

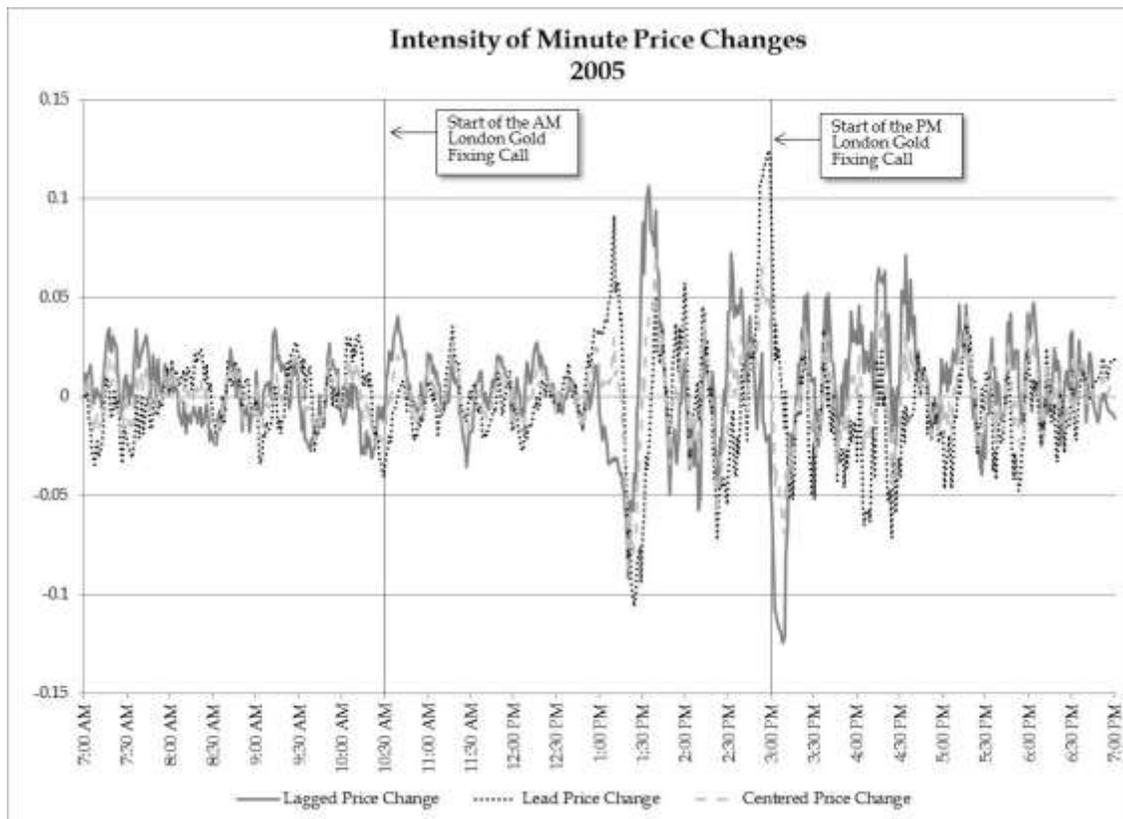
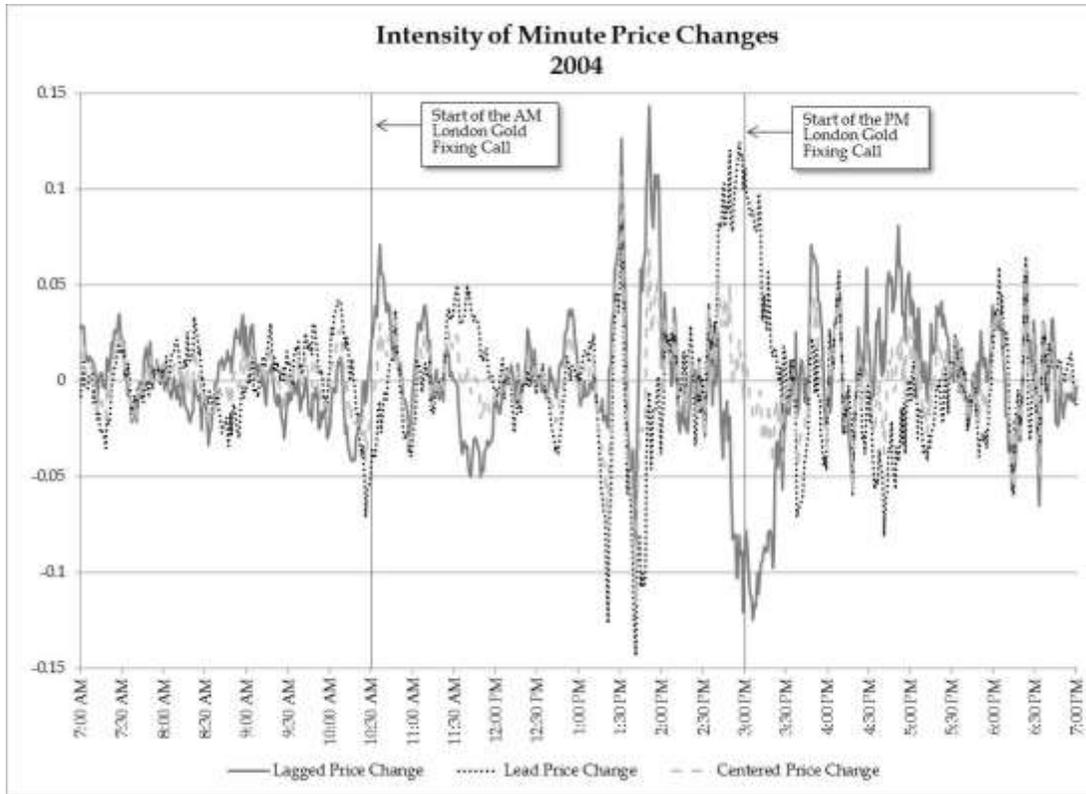
**Incidence of Spikes for Gold Spot Price within 10 minutes of Starting Times for AM and PM Fixing Calls
Actual/Expected Spikes at 95% Confidence Level**



Note: Actual = Expected Incidence corresponding to a level of 1, at a 95% confidence level.

Source: Forexite.

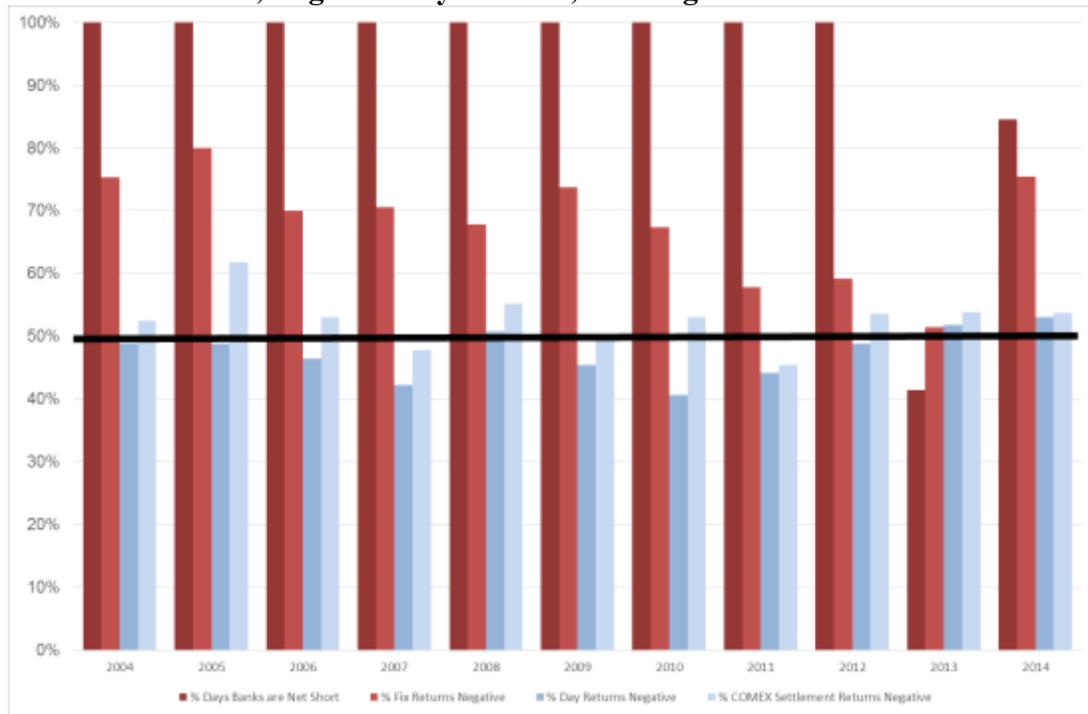
327. The same is true for analyses of the size and intensity of the downward price spikes during the PM Fixing. ¶¶ 155-60, Apps. F, G. As seen below, these studies were conducted for every year from 2001 to 2012, and further confirm that prices decreased during the PM Fixing in 2004 and 2005 specifically, and that those price spikes were of unusual size and intensity:



328. Similarly, analyses of the correlation between the frequency of the Defendants'

short positions and negative PM Fixing returns were conducted for every year from 2004 to 2014. *See* ¶¶ 173-78. As seen below, the data shows that this correlation was at least as strong during 2004 and 2005 as it was during all of the other years that were analyzed:

Correlation between Frequency of Defendant Banks' COMEX Short Positions, Negative Fix Returns, Negative Day Returns, and Negative COMEX Returns

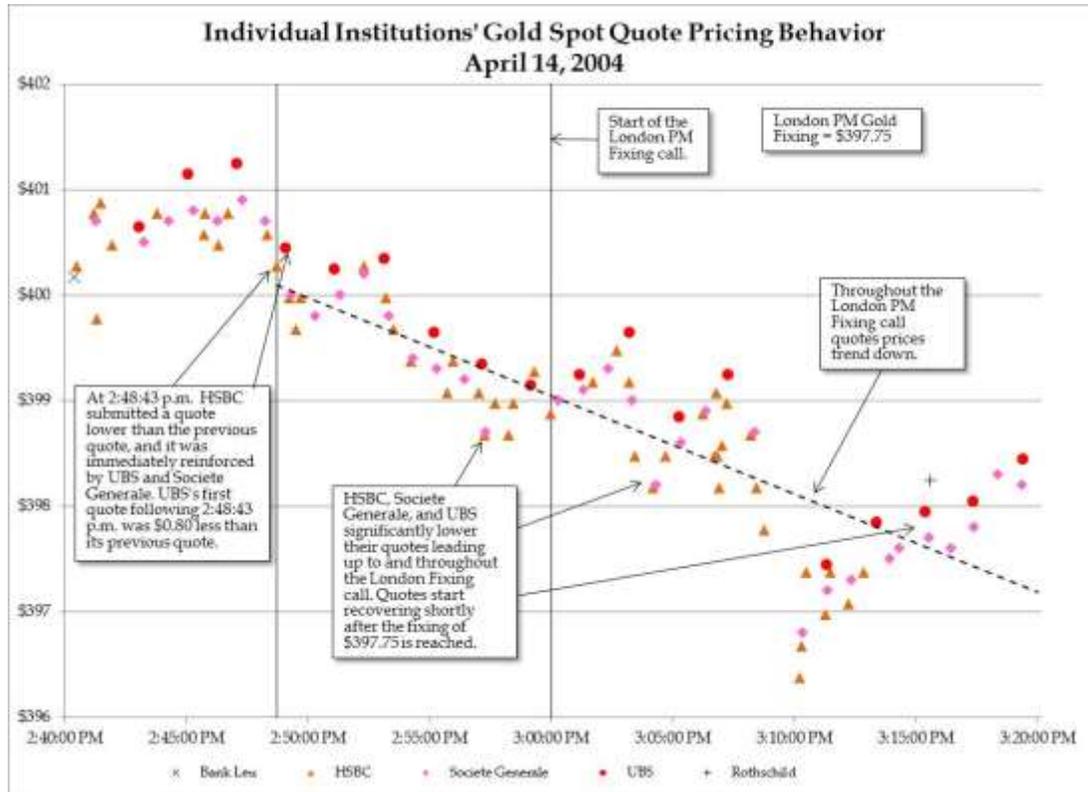


329. Analyses showing that the decrease in gold prices at the PM Fixing cannot be explained by an increase in liquidity, or by time differences between time zones, were conducted for the entire 2001 to 2012 time period. *See* ¶¶ 179-96. Thus, the results of those analyses are also equally applicable to 2004 and 2005.

330. The same is true for analyses showing that the Defendants' gold quotes were bunched together, and lower than the rest of the market, on days where prices decreased during the PM Fixing. *See* ¶¶ 257-65. These studies were conducted for the entire 2001 to 2012 time period, and the results are equally applicable to 2004 and 2005.

331. Finally, analyses of Defendants' gold quotes on specific trading days were

conducted for every year from 2003 to 2013. *See* ¶¶ 266-74, App. I. That includes a specific trading day in 2004 on which Defendants' quotes broke overall pricing trends:

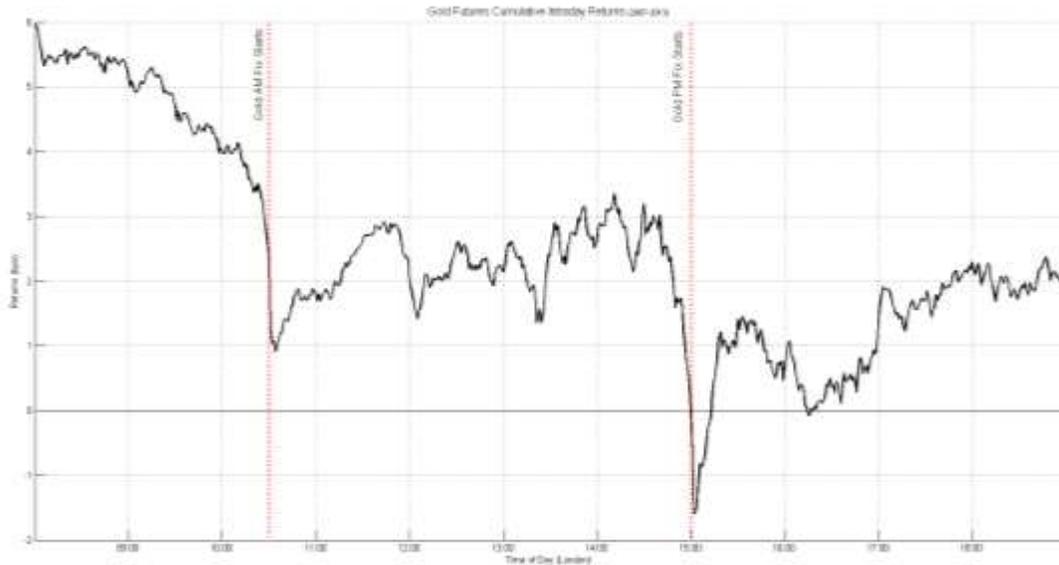


B. Supplemental Analyses Confirm That The Studies Which Originally Focused On 2007 To 2013 Also Apply To 2004 And 2005

332. The Second Amended Complaint left out data for the years 2004 and 2005 in only two tests. Those omissions were based, as explained below, on a difference in the type of available data for the different time period. When a similar analysis is used using analogous data, however, both studies that previously omitted the years 2004 and 2005, in fact, show the exact same types of patterns seen in the studies already accepted by the Court.

333. The first study that did not initially cover the years 2004 and 2005 is the analysis of intraday price changes, or “returns,” on COMEX gold futures. *See* ¶ 149. As seen in the chart below, the initial analysis of the 2007 to 2013 time period shows a uniquely large and statistically significant negative return (downward price movement) at the time of the PM

Fixing:



334. This analysis was based on records of quotes for Gold Futures transactions on COMEX. The analysis began at 2007 because there was a change in the trading platforms used by COMEX in late 2006, which led to a change in the types of data that were available to study. In December 2006, COMEX adopted the CME Globex electronic trading platform, which allows for electronic trading 24 hours a day. CME Globex maintains around-the-clock quote and trade data for COMEX Gold Futures for December 2006 onward.

335. Prior to December 2006, COMEX instead used the NYMEX ACCESS electronic trading platform, which only functioned during non-floor trading hours (1:30 p.m. to 8:20 a.m. Eastern time). Thus, during floor hours, the only way to trade COMEX Gold Futures was on the COMEX trading floor itself. During non-floor hours, the NYMEX ACCESS was available, but was not as commonly used as CME Globex, and was generally limited to quote activity, with relatively few executed transactions. As a result, information on COMEX Gold Futures prior to December 2006 was split into two sources: (1) for floor trading hours, the COMEX trade floor,

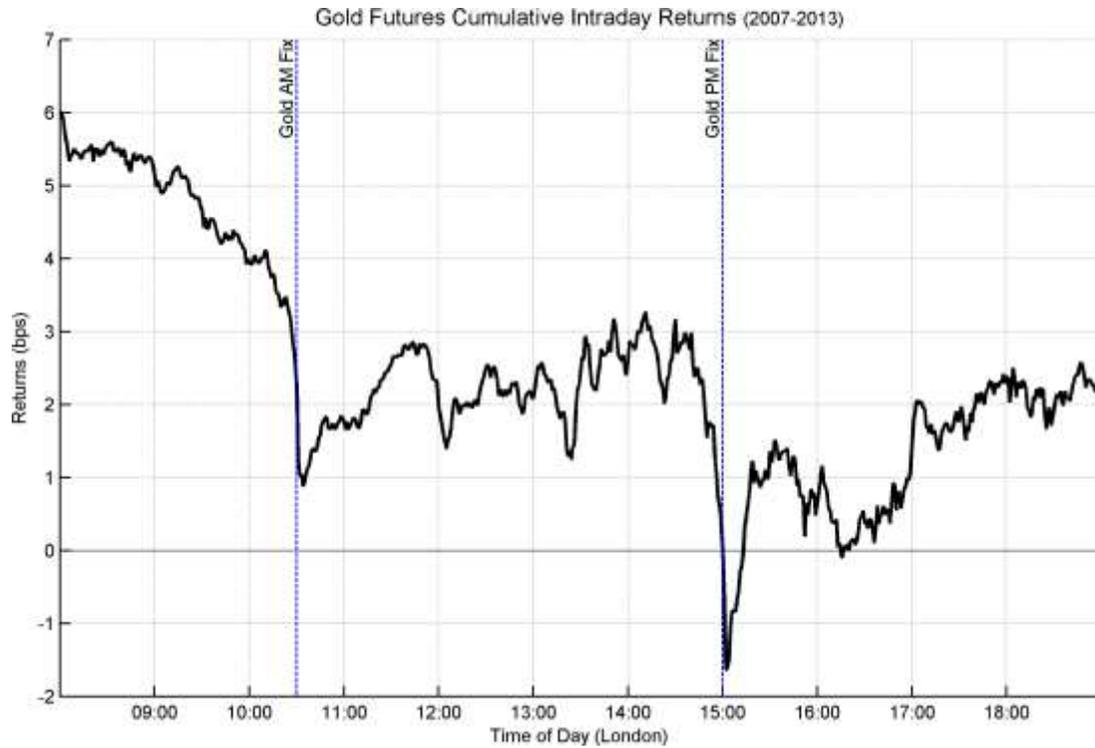
which has information on executed transactions, but limited quote information; and (2) for non-floor trading hours, NYMEX ACCESS, which has quote information, but limited executed transaction information.

336. To provide the most complete analysis of 2004 and 2005, Plaintiffs' consultants have supplemented the intraday returns analysis with the same study, but based on a combined data-set from the most robust source for each time of day: quote data from NYMEX ACCESS for non-floor hours and trade data from the COMEX trade floor for floor hours. As shown below, the same trend is seen for 2004 and 2005, using the combined data-set available for that time period, as is seen for 2007 to 2013, and for the entire 2004 to 2013 period. Again, a uniquely large and statistically significant negative return is seen at the time of PM Fixing.

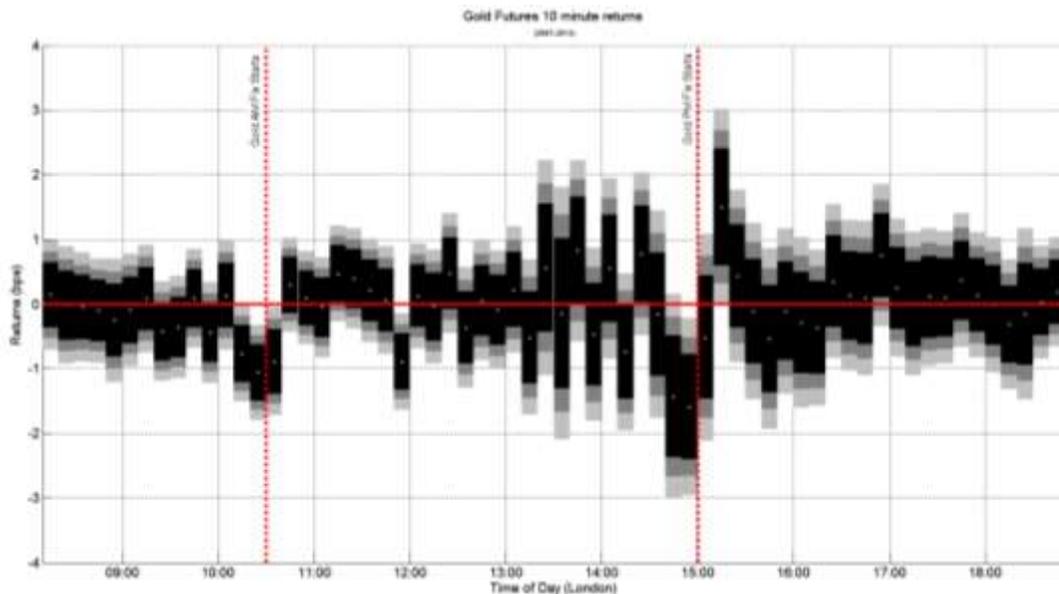




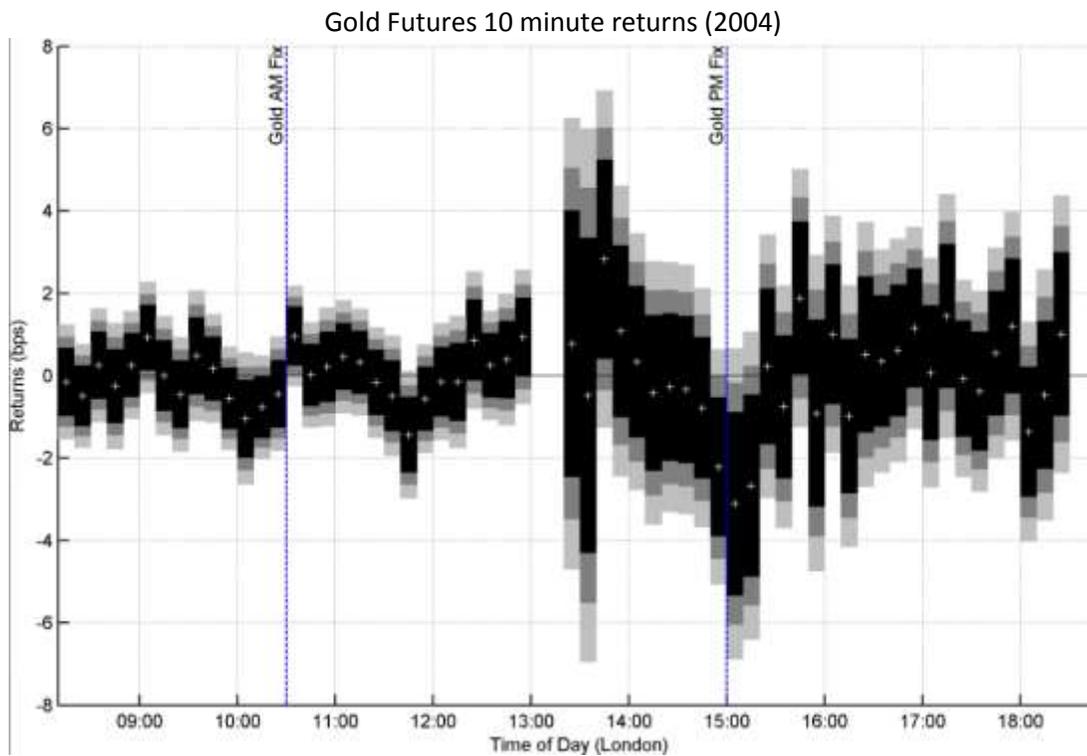
337. Plaintiffs' consultants used the same combined data-set (quote data from NYMEX ACCESS for non-floor hours and trade data from the COMEX trade floor for floor hours) to also analyze the 2007 to 2013 period, and the entire 2004 to 2013 period. In other words, Plaintiffs tested whether the adjustment to the methodology due to the differing type of data available for 2004 and 2005 is to blame for the spikes, or if this same methodology would ferret out spikes in periods already shown elsewhere, with other data, to have spikes. As seen below, this slightly altered methodology results in the discovery of spikes around the PM Fixing for the years 2007 to 2013, just as the original methodology did, confirming the robustness of this test despite the shifts in the type of data discussed above.

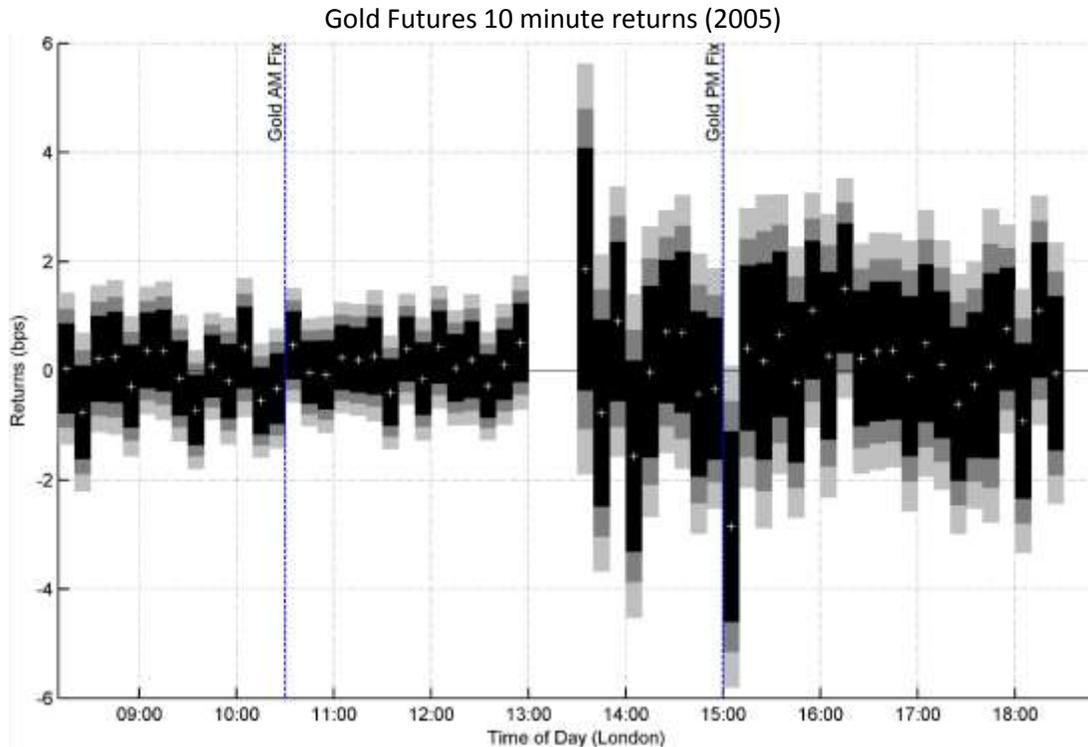


338. The second study which originally focused on the 2007 to 2013 time period is the analysis of returns in the ten-minute period immediately around the time of the PM Fixing. See ¶ 161. That analysis also shows a uniquely large and statistically significant negative return at the exact time of the PM Fixing:

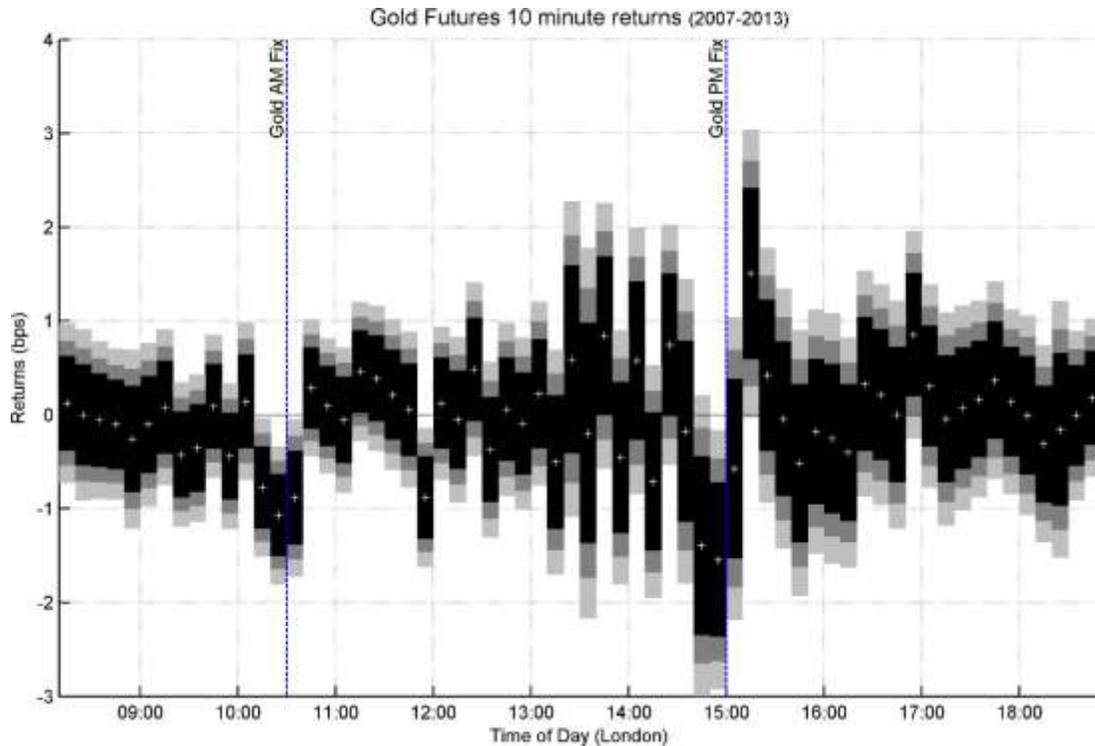


339. Like the intraday returns analysis above, this analysis was initially limited to 2007 and later because of the changes discussed above. But using the same methodology above to what data is available for the earlier years, we see again see that 2004 and 2005 are in substance no different from the later years:





340. And once again Plaintiffs used the same adjusted methodology to the years that were already shown to have problems. Once again, the results showed uniquely negative behavior around the Fixing, confirming the robustness of the refined test despite using a slightly different set of data as an input.

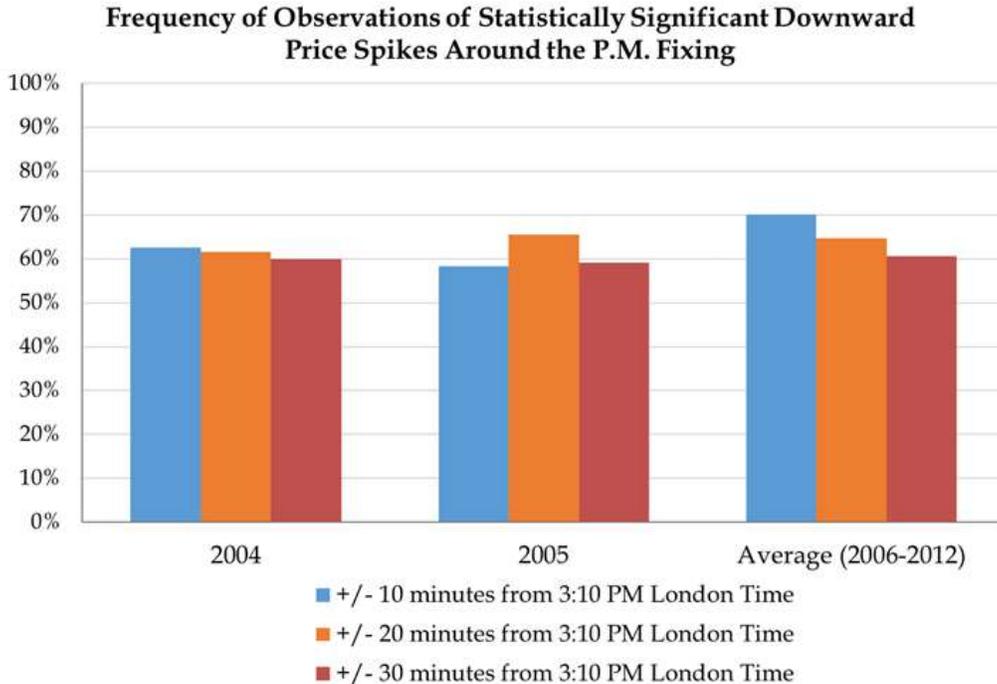


C. Additional Analyses Further Confirm That The Conspiracy Extended To 2004 And 2005

341. Even apart from filling in the two holes in Plaintiffs' previous analysis, Plaintiffs' consultants also conducted additional economic analyses which further confirm that the conspiracy to suppress gold prices extended to 2004 and 2005.

342. *Abnormal frequency of statistically significant spikes.* As seen in many of the analyses discussed above, gold prices decreased around the time of the PM Fixing with great frequency and force. Plaintiffs' consultants performed an additional analysis that further confirms that these downward price spikes were just as frequent in 2004 and 2005, as they were from 2006 to 2012. Specifically, the consultants analyzed the frequency of observations of statistically significant downward price spikes around the time of the PM Fixing. The chart below tracks the percentage of times that there was a statistically significant negative price spike in the 10, 20, and 30 minutes periods around the PM Fixing window. The analysis shows that

the rate of occurrence of downward price spikes was substantially similar across each of the three periods measured – 2004, 2005, and 2006 to 2012. In each of those periods, there were negative price spikes during the PM Fixing upwards of 60% of the time.



343. **Breaking of price trends.** As discussed above in Section II.B., the PM Fixing's downward movement was, to a statistically significant degree, a movement *against* the overall price movement for gold on that day. Plaintiffs' consultants performed additional analyses that further illustrate how the downward price spikes at the PM Fixing were contrary to general market trends, including specifically in 2004 and 2005.

344. The table below measures (in basis points) for each year during the Class Period, the average change of gold spot prices (1) from the start of the PM Fixing to the final Fixing price, and (2) from 6 AM to 6 AM of the following day. The data shows that there was a statistically significant negative return (prices went down) during the PM Fixing, even though returns for the day as a whole were generally positive (prices went up), for every year from 2004

to 2012. In fact, 2004 and 2005 featured the third and fourth largest negative returns during the PM Fixing.

Comparative Returns for Gold Spot Prices									
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Average return for gold spot prices during the PM Fixing	-6.2	-5.7	-7.2	-4.9	-7.2	-4.6	-4.1	-3.9	-2.0
Average return for gold spot prices on the entire day	2.1	7.6	8.2	10.8	1.8	9.0	10.1	4.4	2.4

345. This trend is also seen in the summary statistics for comparative price directions throughout the Class Period. The table below lists, for each year during the Class Period, (1) the percentage of days on which there were negative returns on gold spot transactions during the PM Fixing, and (2) the percentage of days on which there were negative returns on gold spot transactions during the entire day. The third row provides the difference between the percentage of negative Fixings and negative days as a whole. This data further confirms that prices went down during the PM Fixing far more often than they went down overall, for every year from 2004 to 2012. Significantly, 2004 and 2005 had the *two highest* percentages of negative Fixings (75% and 80%, respectively) throughout the ten-year period, and also featured among the largest differences between the percentage of negative Fixings and the percentage of overall negative days.

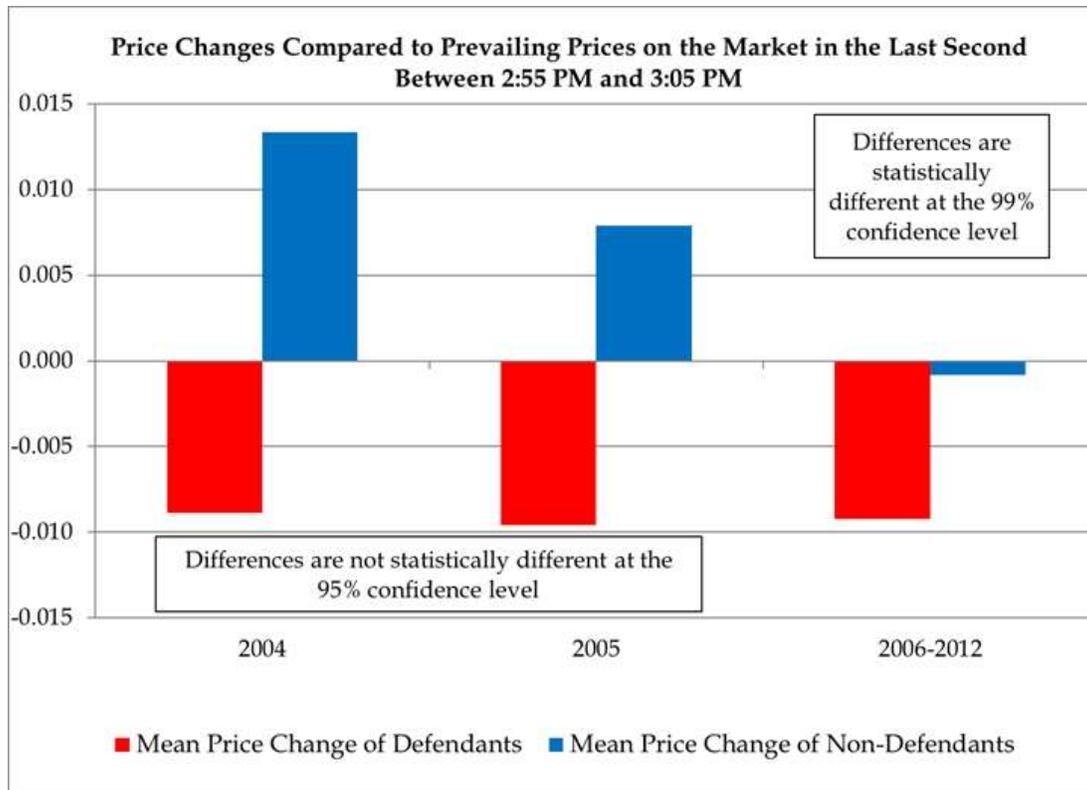
Comparative Price Direction for Gold Spot Prices									
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Percentage of days with a negative price return during the PM Fixing	75%	80%	69%	70%	67%	73%	67%	58%	59%
Percentage of days with a negative price return overall	48%	48%	46%	42%	51%	45%	40%	44%	49%

Difference between percentage of negative Fixings and negative returns overall	27%	32%	23%	28%	16%	28%	27%	14%	10%
--	-----	-----	-----	-----	-----	-----	-----	-----	-----

346. **Additional “bunching” analysis.** As discussed above in Section V.C, Defendants’ gold quotes were clustered together, lower than the rest of the market, on days where prices decreased during the PM Fixing. These studies show that it was Defendants, acting together, that caused the downward price spikes at the PM Fixing. And as discussed above in Section VII.A, these studies also included data from, and hold true for, 2004 and 2005.

347. Another way to see the relationship between Defendants’ quotes and the downward price spikes is to compare Defendants’ quotes to then-prevailing market prices. Plaintiffs’ consultants tracked the average difference between the Defendants’ quotes and prevailing market prices from the previous second, during the ten-minute period around the PM Fixing, and they did the same for the rest of the market’s quotes.

348. As seen in the chart below, from 2004 to 2012, Defendants’ quotes during the ten-minute period around the PM Fixing (the red bars) were, on average, far lower than prevailing market prices from the previous second. This is not true for other market participants (the blue bars), whose quotes were slightly higher than prevailing market prices from the previous second. This further confirms that it was not general market forces that were causing prices to persistently decrease around the PM Fixing. Rather, it was Defendants, acting as group, that were driving prices downward with their below-market prices. And, notably, the directional divergence between Defendants’ quotes and the rest of the market was *greater* in 2004 and 2005, than in 2006 to 2012.



VIII. UBS ACTIVELY PARTICIPATED IN THE CONSPIRACY TO MANIPULATE GOLD PRICES

A. Multiple Economic Analyses Show That UBS Was An Active Participant In Leading the Market Down Alongside the Panel Banks

349. As discussed above, Plaintiffs' consultants conducted many analyses of the gold positions held and prices quoted by the Defendant Banks. Several of those analyses were based on data relating to all of the Defendant Banks, apply equally to UBS, and corroborate UBS's participation in the conspiracy.

350. *First*, the analysis of 300,000 Gold Spot quotes from the Bank Defendants – including UBS – shows that the Bank Defendants' quotes around the time of the PM Fixing were clustered together, far more closely than other market participants' quotes. *See* ¶¶ 257-61. This analysis shows that Defendants were acting as a group to manipulate gold prices, and that UBS was a part of that group, despite not being a member of the Fixing panel itself.

351. *Second*, the analysis showing that Defendants' quotes in the ten-minute period around the PM Fixing were substantially lower than prevailing market prices from the previous second also included quotes from UBS. *See* ¶¶ 346-48. This analysis further confirms that Defendants, acting as a group, were driving prices down around the PM Fixing, and that UBS was a part of that group.

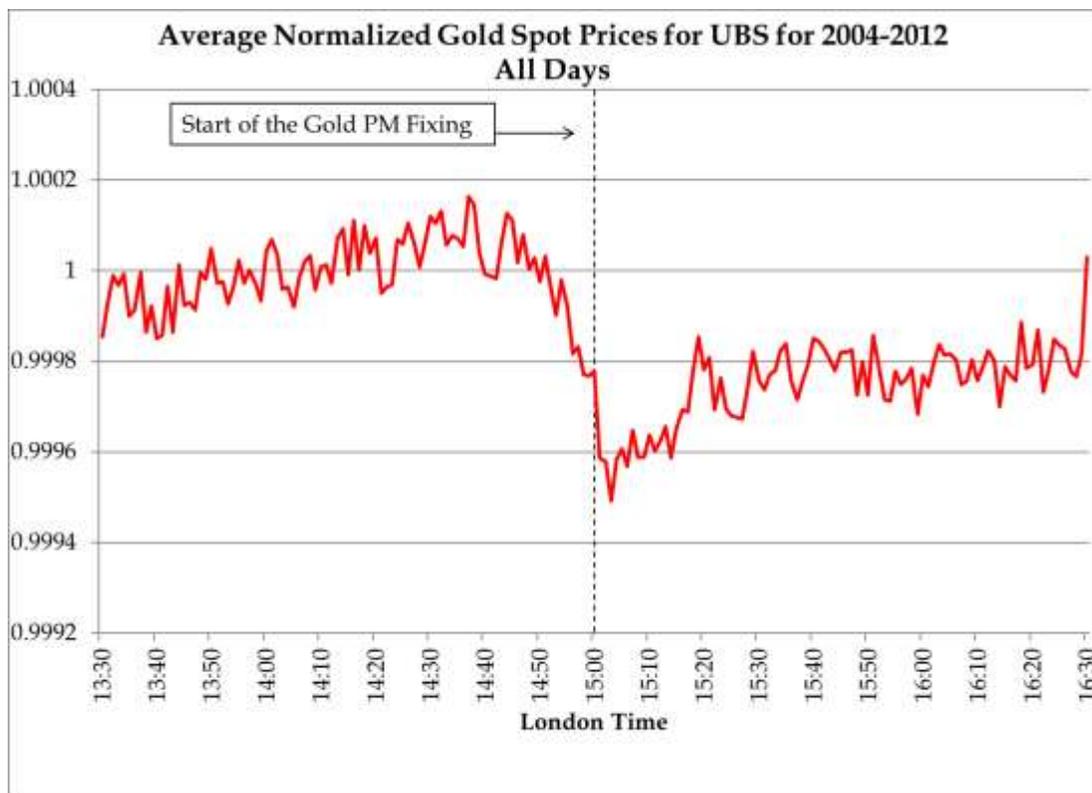
352. *Third*, the consultants also analyzed data on the Defendant Banks' derivatives positions, and found that they were heavily invested in gold. *See* ¶¶ 209-14. It was these massive holdings that motivated the Defendant Banks to profit, in many different ways, from foreknowledge of the downward price spikes in gold prices. *See* ¶¶ 235-40. These analysis also included UBS's positions, and thus apply equally to UBS.

353. *Fourth*, the consultants compared data on the Defendant Banks' COMEX positions to price movements for gold, and found that the downward price spikes around the PM Fixing were correlated with the Defendants Banks' COMEX short positions, rather than general market forces. *See* ¶¶ 176-77. UBS's COMEX positions were part of that analysis, which thus applies equally to UBS.

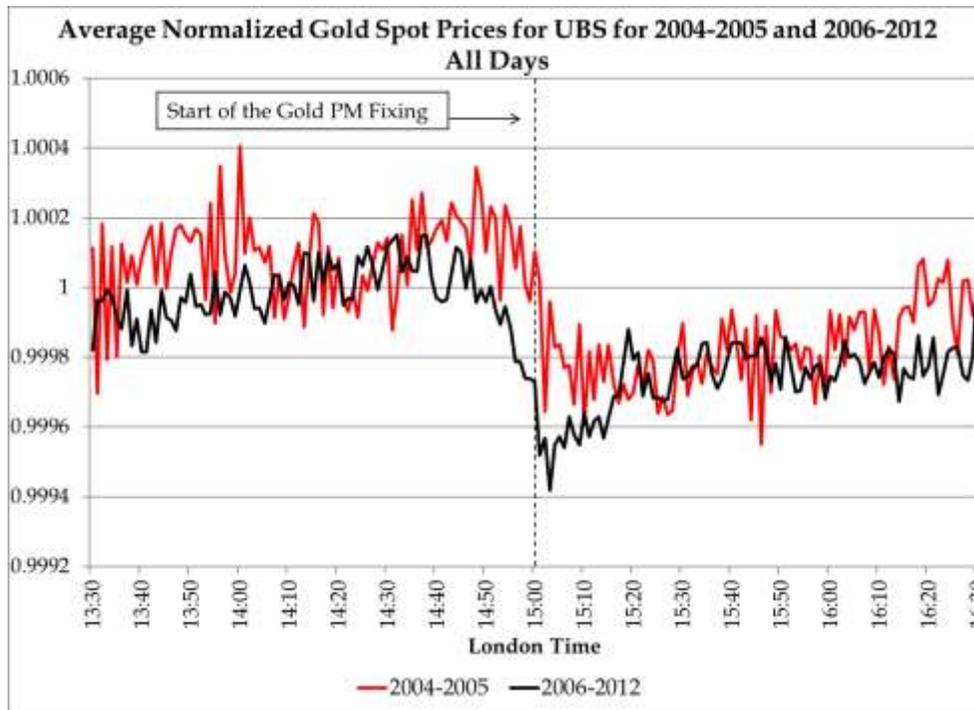
354. Plaintiffs' consultants also supplemented some of the analyses discussed above with studies focusing specifically on UBS. These additional analyses further confirm that UBS was not an innocent bystander to the conspiracy to manipulate gold prices, but rather was helping to lead the charge downward as an active member of the conspiracy.

355. *First*, as discussed above, Plaintiffs' consultants conducted several analyses of average normalized gold prices around the time of the PM Fixing. These analyses show that gold prices spiked downward during the PM Fixing, both when looking at the entire Class Period, and when looking at specific years. *See* ¶¶ 116, 143-50, 325. Plaintiffs' consultants

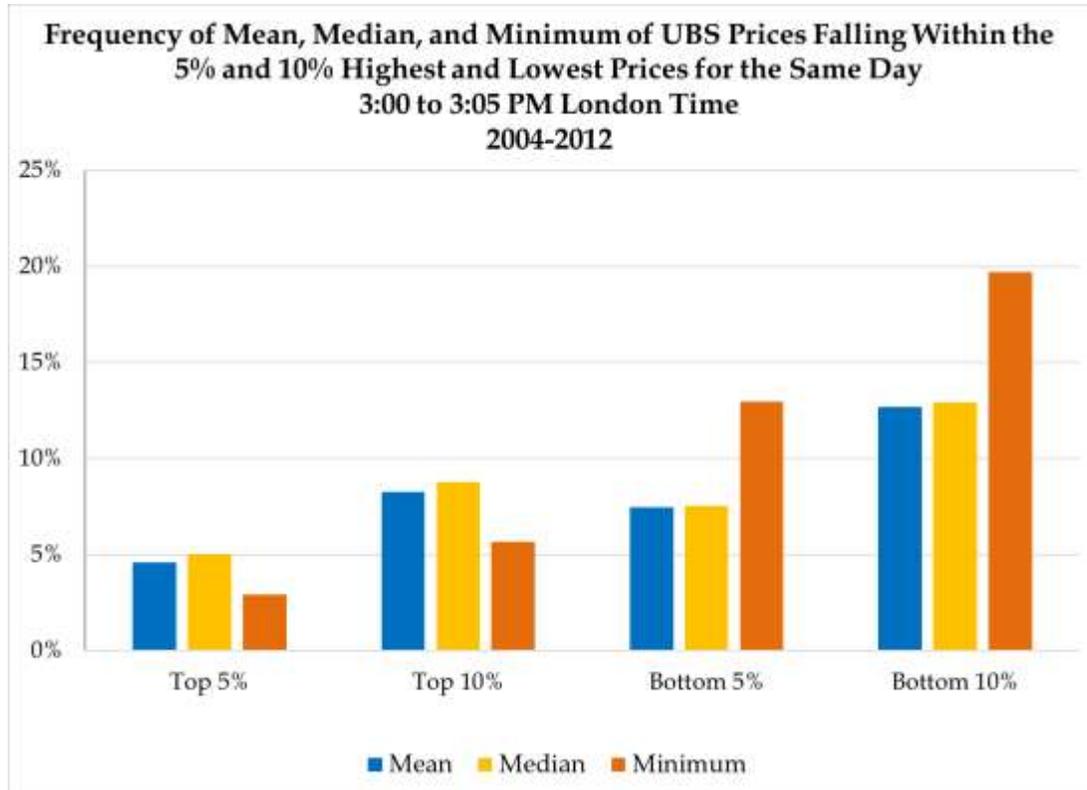
again analyzed average normalized gold prices, but this time focused on the spot prices for UBS specifically, from 2004 to 2012. As seen in the chart below, UBS's prices consistently spiked downward at the time of the PM Fixing, by an even greater degree than market prices as a whole. This shows that UBS was not left out of the conspiracy to manipulate gold prices simply because it was not a member of the Fixing panel. To the contrary, UBS used its transactions and substantial presence in the gold market to drive prices downward, thus playing a key role in the conspiracy.



356. These results hold true for both the entire Class Period, and 2004 and 2005 specifically. As seen in the chart below, UBS's gold spot prices spiked downward during 2004 to 2005 (represented by the red line) at a substantially similar degree as they did during 2006 to 2012 (represented by the black line). This shows that UBS's involvement in the conspiracy to manipulate gold prices extended to 2004 and 2005.



357. *Second*, Plaintiffs' consultants also revisited the analyses showing that the PM Fix price was among the extreme negative outliers of prices each trading day far more than would be expected by random chance. *See* ¶¶ 139-42. This time, the consultants focused on the prices for UBS specifically, from 2004 to 2012. As seen in the chart below, UBS's prices at the time of the PM Fixing fell in the bottom 5% and 10% for prices of the day far more often than they fell into the top 5% and 10%. This holds true regardless of whether considering UBS's mean, median, or minimum prices. This analysis further confirms that UBS's prices were not in line with normal market expectations, but rather reflected its active participation in the conspiracy to manipulate gold prices.



B. Cooperation Materials From Fixing Bank Defendant Deutsche Bank Further Confirm That UBS Was An Active Participant In The Conspiracy

358. The pre-discovery cooperation materials produced by Deutsche Bank show that the fact UBS consistently under-cut the market for gold, at the time the PM Fixing was being set, in the exact same ways the Fixing Bank Defendants were doing, is not merely a coincidence. Rather, these materials show that UBS's gold traders were in regular communication with gold traders from Deutsche Bank, which was a member of the Fixing panel.

359. As described below, these pre-discovery materials, from just one Fixing Bank Defendant, contain chat transcripts and emails in which UBS and Deutsche Bank exchanged confidential customer trading information and coordinated their trading activities for the express purpose of manipulating gold prices. This includes efforts to drive gold prices downward, and to reap profits from colluding around the PM Fixing. There is no legitimate pro-competitive justification for these communications, which, in conjunction with the economic analysis set

forth herein, leave no doubt that UBS participated in the conspiracy with the other Defendants to manipulate gold prices during the Class Period.

360. **Targeting the Fixing together.** The cooperation materials from Deutsche Bank show that UBS was actively involved in the scheme to manipulate and reap profits from the PM Fixing. Traders at UBS and Deutsche bank coordinated their trading activities around the time of the PM Fixing, in order to profit from the price drops at that time. For instance, on March 1, 2011, traders at UBS and Deutsche discussed how the PM Fixing specifically presented “decent” opportunities to “make good money.” The traders discussed prior attempts to profit off of the Fixing, including the tactics they used (“pushing” and using “ammo”), and the risks of miscalculating trading strategies around the Fixing.

Trader	Message
Deutsche Bank	speaking of fix i gotta do that when im there lol
UBS	its not rocket science
UBS	do ur guys see much fixing stuff there
Deutsche Bank	on the pm fix its decent actually
Deutsche Bank	am fix i just muck ar[ou]nd
UBS	i've seen fixings go real wrong before
UBS	like -300k pnl
Deutsche Bank	wtf
Deutsche Bank	wrong side?
UBS	not always fun and g[a]mes
UBS	nope basically bad timing
UBS	push too early
UBS	run out of ammo at the end
Deutsche Bank	i see

361. On April 1, 2011, UBS and Deutsche Bank traders exchanged similar stories about “trading on the fix” in order to “push” prices. The Deutsche Bank trader remarked that trading on the Fix was “quite fun,” and the UBS trader relayed the potential dangers of “pushing too early” when attempting to manipulate prices at the Fix.

Trader	Message
Deutsche Bank	i was prop trading on the fix
Deutsche Bank	was quite fun
Deutsche Bank	it's a free option the fix
UBS	oh ok
UBS	did i tell u i saw a 300k loss on a fixing before too
Deutsche Bank	wtf
Deutsche Bank	miscomm?
UBS	starting pushing too early lol
Deutsche Bank	yeah
Deutsche Bank	oh well bro
Deutsche Bank	we tried man . . .
Deutsche Bank	we are brothers forever

362. On June 29, 2011, in another example of coordinated trading around the Fixing based on a foreknowledge that prices would drop at that time, traders at UBS and Deutsche Bank agreed to wait to buy gold until after prices had dropped at the 4 p.m. Fixing.

Trader	Message
UBS	i got stops at 1700, 05, 12 etc. etc.
UBS	crude is up nicely so wanna be long some
Deutsche Bank	gold should be higher then?
UBS	asia i would just wait for the dip and buy
Deutsche Bank	i would just wait for 4 pm
Deutsche Bank	and go home
Deutsche Bank	that's my new plan
UBS	agreed

363. Similarly, on May 11, 2011, a Deutsche Bank trader remarked to a UBS trader “u just said u sold on fix.” The UBS trader replied “yeah,” “we smashed it good.”

364. **Coordinating downward movements.** The cooperation materials from Deutsche Bank also contain several communications showing that UBS was actively involved in the conspiracy to drive gold prices downward. For instance, on March 21, 2011, traders at UBS and Deutsche Bank coordinated their efforts to take advantage of a period of relatively low liquidity to “wack” the price of gold once it reached a certain level. Significantly, it was the UBS trader who gave the order to coordinate their sales of gold to generate liquidity and drive the price

downward.

Trader	Message
Deutsche Bank	bro japan holiday today
Deutsche Bank	think it'll be quiet
Deutsche Bank	well, illiquid, not quiet haha
Deutsche Bank	illiquid means wild wild west
UBS	okay when gold pops 1430
UBS	we whack it
UBS	u sell your 50k
UBS	i sell my 20k
UBS	then we double that up and produce our on liquidity too
UBS	that should be enough to cap it on a holiday
Deutsche Bank	haha yeah
Deutsche Bank	lol

365. Similarly, on December 14, 2010, a trader at Deutsche Bank told his counterpart at UBS “im feeling helpful to ubs today.” The UBS trader then said “need to push this back lower,” to which the Deutsche Bank trader replied “ok,” and “lets do it.”

366. On certain occasions, traders at UBS and Deutsche Bank believed that other market participants were attempting to increase the price of gold. The traders responded by taking coordinated action to push the price of gold back down. For instance, on July 26, 2011, traders from UBS and Deutsche coordinated their short positions and sales of gold, in response to market forces perceived as pushing the price of gold upward.

Trader	Message
Deutsche Bank	someone still trying to push our gold up
UBS	so u should pay the mkt right away
Deutsche Bank	nope
UBS	cause chances are someone else got hit and u f*ck them up
Deutsche Bank	no touchy
Deutsche Bank	im short 15k
Deutsche Bank	xau
Deutsche Bank	too much fire
UBS	im gonna sell more silver and gold
Deutsche Bank	k
Deutsche Bank	i really think we are on the right side today, being short

367. Similarly, on April 11, 2011, a UBS trader expressed concern that gold prices

were being “pushed higher.” A Deutsche Bank trader responded by offering to trying to give the UBS trader “some peace.”

368. *Cross-sharing of information and strategies.* The cooperation materials produced by Deutsche Bank include chat transcripts and emails in which traders at UBS and Deutsche Bank conspired to manipulate gold prices by sharing customer order information and executing coordinated trades in order to “whack,” “push,” and “move” gold prices. For example, on November 16, 2010, traders at UBS and Deutsche Bank shared information about a customer who had bid on gold, and agreed to act together to “whack” the price of gold.

Trader	Message
UBS	boc sniffing around in gold
Deutsche Bank	likewise
Deutsche Bank	passed my bid
Deutsche Bank	dude
Deutsche Bank	so their round
Deutsche Bank	is from u
Deutsche Bank	to me
Deutsche Bank	haha
UBS	not always
UBS	anyway good to give each other heads up
UBS	if we find out side, whack it
Deutsche Bank	yeah

369. Similarly, on June 14, 2011, traders from UBS and Deutsche exchanged information on customer offers, and coordinated their trading activities in order to “push” the price of gold. The same type of coordinated price manipulation took place on April 8, 2011. Traders at UBS and Deutsche Bank repeatedly shared customer offer information, and aligned their trading positions in order to “push” the price of gold.

Trader	Message
Deutsche Bank	fund asking for gold
UBS	tk
Deutsche Bank	u ready for ur gold?
UBS	prop guy gave me 5k

Deutsche Bank	tx
Deutsche Bank	a lot of offers here man
Deutsche Bank	bought 500k
Deutsche Bank	wtf
UBS	i'll push gold
UBS	don't worry about the 75k
UBS	how much in offers u got from 68-69 in gold?
Deutsche Bank	10k 69
Deutsche Bank	5k 68
UBS	just match me up 5k at 68 pls
Deutsche Bank	done
Deutsche Bank	will get ready to release
UBS	so get out half below 40, half above 40
Deutsche Bank	yeah
Deutsche Bank	here we go
UBS	patience
Deutsche Bank	that's not me
Deutsche Bank	but i feel it
UBS	before i was really trying to look out for u, i thought u were long 5 lacs and couldn't get the stop done so i pushed up gold too
Deutsche Bank	haha
Deutsche Bank	fun times
Deutsche Bank	mate
Deutsche Bank	i will have done the same

370. Similarly, on August 17, 2011, a trader at Deutsche Bank told a trader at UBS that it was “time for gold to move.” The UBS trader responded by sharing his customer order information, and saying that “the dots will connect.”

Trader	Message
Deutsche Bank	bro
Deutsche Bank	i think time for gold to move
Deutsche Bank	anyway, yeah i think so
Deutsche Bank	what u said
Deutsche Bank	very true
UBS	got small stops thru 1789
Deutsche Bank	ok
UBS	3k
Deutsche Bank	i only have ones at 88.50
UBS	the dots will connect

371. The cooperation materials from Deutsche Bank contain many more chat transcripts and emails in which UBS and Deutsche Bank exchanged confidential customer information, and coordinated their trading activities. As seen above, these were the key tactics used to manipulate prices in the gold market. By way of just a few additional examples, on July 21, 2011, a UBS trader informed a Deutsche Bank trader that “gold i got offers 1610, bids 1580,” and “we also saw fund selling around 1585.” Similarly, on August 16, 2011, Deutsche Bank and UBS traders exchanged customer offer and bid information:

Trader	Message
Deutsche Bank	i think there are more offers than stop
Deutsche Bank	stops topside
UBS	we were long at 1763, this 66/68 area was my tgt
UBS	i got 3k of stops around 1770
UBS	and offer for 5k
Deutsche Bank	same

372. And on February 9, 2012, UBS and Deutsche Bank coordinated their trading activities, with UBS noting that they should “try to stay together today.”

Trader	Message
UBS	im buying gold
Deutsche Bank	seems like we buy
Deutsche Bank	as in
Deutsche Bank	immediate reaction softer
Deutsche Bank	ok lets buy gold
UBS	im guessing mkt has stops at 1723
UBS	tried to go for it
Deutsche Bank	got paid

373. In addition, the cooperation materials from Deutsche Bank confirm that UBS’s participation in this manipulative trading activity was well-known to the Fixing Bank Defendants, who were often its direct beneficiaries. For instance, on January 25, 2008, a gold trader at Deutsche Bank remarked that UBS would “spooft the sell.” The UBS trader responded that its trading activities were “just to make u happy!”

IX. DEFENDANTS' CONDUCT RESTRAINED TRADE, DECREASED COMPETITION, AND ARTIFICIALLY LOWERED PRICES, THEREBY INJURING PLAINTIFFS

A. Prices for Gold Investments – Including The Spot Market as Governed by the Fixing – are Inextricably Linked

374. The prices of Gold Investments – including as set by the PM Fixing – are highly correlated. For example, as described above, the PM Fixing and the price of COMEX gold futures have effectively moved in lockstep since 1975. *See* ¶ 115. Likewise, the prices for gold spot and futures prices, when average normalized prices are used, have effectively mirrored each other between January 2001 and December 2013. *See* ¶ 116. Equally, the prices of the SPDR Gold Shares (and Gold ETFs) and the PM Fixing price have moved in near perfect unison when tracked from 2004 to 2013, *see* ¶ 117, with gold futures (COMEX GC) returns and returns on SPDR Gold Shares also having correlated to an extremely high degree during the period from 2007 – 2012. *See* ¶¶ 118-20.

375. The interdependence of prices for Gold Investments is not surprising given that each investment is linked to the same underlying physical commodity. In the case of gold COMEX futures, for example, the price of gold futures is linked to the price of physical, or spot, gold simply because futures prices are an estimate of the future value delivery of physical, or spot gold. In the case of Gold ETFs, for example, the correlation exists because ETFs are structured to reflect spot prices. Academic work has extensively documented the immediate and direct impact of the PM Fixing on prices of market-leading gold derivative instruments, as well as the strong commonality among the impacts on these instruments.

376. The interdependence of prices for Gold Investments as set by the PM Fixing is also not surprising given that the PM Fix was understood to set – and treated worldwide by participants in the Gold Investments market as setting – a *benchmark price* for gold, regardless

of the form on instrument through which the gold-related investment was trading.

B. Defendants' Artificial Lowering of the Price of Gold, Including the PM Fix Price, Directly Impacted the Market for Gold Investments

377. Defendants' conduct constitutes a *per se* violation of the antitrust laws because of its clear and obvious risk of inflicting anticompetitive impact and economic injury. Defendants operated as a secretive cartel and engaged in a price-fixing scheme that inherently reduced the free and unfettered competition the Sherman Act was designed to preserve and promote. Defendants' scheme to fix the benchmark price at artificially suppressed levels directly and immediately impacted the market for Gold Investments (a market in which Defendants participate). To the extent some types of Gold Investments may be considered distinct submarkets, Defendants' scheme immediately impacted those submarkets as well.

378. The Bank Defendants hold themselves out as horizontal competitors (as buyers, sellers, and brokers) in the market for Gold Investments. As such, they should compete *with and against* each other when trading either their own proprietary books or the assets and investments of their clients. The fact that members of the conspiracy participated in the London Gold Fixing did not give them permission to suspend this competition. Indeed, the Fixing was intended to yield market outcomes that depended on the Fixing Bank Defendants operating as competitors. Instead of acting as competitors, however, Defendants agreed to restrain trade in order to pursue collective goals and to manipulate the market by collusion and coordination, as described above. Defendants' collusive price fixing was inimical to competition and restrained trade in the affected market (and any applicable submarkets).

379. As explained above, the PM Fixing was supposed to be – and was understood by market participants as being – a reliable benchmark price for gold, including the market for Gold Investments, because it reflected actual market supply and demand. This was the case for at least

two reasons.

380. First, the chair for the PM Fixing was supposed to commence the Walrasian auction process used in the Fixing by announcing (and then soliciting supply or demand levels from Defendants in response to) a figure that was the then-prevailing US Dollar spot price for gold. That is, *the starting point* for each day's PM Fixing was held out to be the spot price of gold at 3:00 p.m. in London (10:00 a.m. in New York). The spot price for gold is the price for delivered physical gold, and thus – ultimately – the price upon which all gold-based or gold-derived investments are based.

381. Second, the auction that followed the chair's announcement of the prevailing spot price was supposed to be a *genuine* and *competitive* auction, based on *actual market supply and demand* for gold. Fixing Bank Defendants were supposed to announce whether they were buyers or sellers at the chair's price based on net supply/demand for spot gold from their order books. This supply and demand was supposed to consist of orders from customers – market participants free to place orders with any Fixing Bank Defendant if one Defendant's prices were not sufficiently competitive – and/or orders from Defendants themselves, where Defendants were engaging in proprietary trading, acting as direct market participants.

382. Trade was accordingly restrained and competition decreased in the market for Gold Investments by any manipulation of either: (1) the price at which the chair commenced the PM Fixing on a given day, or (2) the levels of market supply and demand that moved the PM Fixing price to the level at which it was ultimately fixed. As shown above, however, the Fixing Bank Defendants repeatedly colluded to ensure there was coordinated manipulation and fixing of the opening price and the quoted buy/sell levels.

383. Defendants colluded to manipulate the price at which the chair opened the Fixing

on a given day by, among other things, placing “spoof orders,” engaging in “wash sales,” as well as collusively sharing and acting on non-public information regarding client orders (including stop-loss orders), including shortly before the PM Fixing. They did this in order to manipulate the prices throughout the market for Gold Investments, including specifically the price of the commodity underlying COMEX gold futures contracts.

384. Defendants also colluded to manipulate the actual levels of market supply and demand quoted by the Fixing members – and thus the direction and extent of any movement of the Fixing’s opening price – by the means described in the preceding paragraph as well as by falsely representing the net supply or demand on their order books, or by “netting off” or “building” certain orders before the Fixing commenced.

385. These acts were undertaken for the purpose of manipulating the benchmark price that would be reached by that day’s Fixing and artificially to lower the price of Gold Investments (including, to the extent applicable, their underling commodity). The resulting price movements had a significant impact on the spot price for gold and for any Gold Investment connected to or affected by the spot price for gold, and thus by the PM Fixing.

386. Defendants’ ability to influence the PM Fixing benchmark price, including by way of manipulation of the price at which the PM Fixing would commence, is amply demonstrated by the structure of the Fixing, the Bank Defendants’ complete control over the LGMF, and the empirical evidence discussed above. Defendants thus have considerable power over the market for Gold Investments, including those which expressly reference or in practice rely on the Fixing price.

387. Accordingly, to the extent that Defendants and their co-conspirators’ collusive manipulation artificially lowered prices in the spot market for gold or as reached by the PM

Fixing, it also artificially lowered prices in the broader market for Gold Investments, including because prices for each of the Gold Investments implicitly and expressly followed the PM Fixing price. The effects of Defendants' collusive manipulation of the above-described market were purposeful, intended to maximize their profits, and occurred at least on the days set out in Appendix A.

C. Plaintiffs, as Sellers in the Market for Gold Investments, Were Injured by Transacting at Lowered Prices Created by Defendants' Collusive Conduct

388. Plaintiffs were sellers in the market for Gold Investments, and were affected by movements in prices in the gold spot market, and by the price set by the PM Fixing.

389. Defendants and their co-conspirators' collusive manipulation artificially lowered prices in (and the value of the commodities underlying) the market for Gold Investments. As sellers in that market, Plaintiffs thus received lower sales prices than they would have received in a competitive market free of Defendants' collusive and manipulative conduct.

390. As a direct result of Defendants and co-conspirators' conduct, Plaintiffs were injured in their business or property and suffered harm in respect of the sales they conducted where the relevant sales price was artificially lowered by collusive manipulation. Such sales and harm occurred at least on (but not limited to) the days set out in Appendix B.

391. In the ways and for the reasons set out above, the artificially low prices caused by Defendants and co-conspirators' manipulative conduct in the market for Gold Investments persisted, and also caused harm to plaintiffs beyond the days set out in Appendix B.

D. Defendants' Manipulative Conduct Caused Sustained Price Suppression of Gold Prices

392. As the economic evidence shows, Defendants' manipulative conduct to suppress gold prices around the PM Fixing caused prices to be artificially lower throughout the Class Period than if set by free and open competition. This evidence includes the facts that:

- a. Prices dropped during the PM Fixing many more times than they increased during every year in the Class Period;
- b. The PM Fixing prices were among the lowest spot prices of the day much more often than they were among the highest spot prices of the day during every year in the Class Period;
- c. Defendants' quoted prices were significantly lower than those of other market participants around the PM Fixing call for every year in the Class Period;
- d. Defendants' ask prices were the first to drop as the PM Fixing call started for every year in the Class Period;
- e. There was a significantly large drop of average prices around the PM Fixing, which is not only due to episodic manipulation but also reflects the sustained price suppression outlined above;
- f. For every year in the Class Period, average price changes during the PM Fixing were sustainably negative at the same time that average price changes throughout the day were sustainably positive; and
- g. Defendants had the motive to sustainably suppress prices throughout the Class Period in order to benefit their systematic short positions.

393. As a consequence, the harm suffered by plaintiffs is not restricted to those specific days on which the most striking downward price drops occurred during the PM Fixing, but instead extends throughout the Class Period. Repeated interventions on hundreds of occasions throughout the Class Period caused the price of spot gold and related investments to be lower than would have prevailed with free and open competition throughout the Class Period.

X. EQUITABLE TOLLING OF THE STATUTE OF LIMITATIONS DUE TO DEFENDANTS' CONCEALMENT OF THE CONSPIRACY

394. Defendants and their co-conspirators concealed their wrongdoing in manipulating the London Gold Fixing. Thus, the statute of limitations relating to the claims for relief alleged herein was tolled, due both to Defendants' and their co-conspirators affirmative acts of concealment and the inherently self-concealing nature of their private, unregulated conduct.

395. Defendants' and their co-conspirators' success in concealing their collusion was facilitated by their tremendous control over global financial markets and the gold market in particular.

396. Neither Plaintiffs nor the Class knew of Defendants' and their co-conspirators' unlawful and self-concealing manipulative acts and could not have discovered them by the exercise of reasonable due diligence, if at all, at least prior to public reports of government investigations concerning possible manipulation of the London Gold Fixing in 2013. Plaintiffs and the Class also lacked any basis for identifying the wrongdoers or calculating damages before that date. Indeed, Defendants' and their co-conspirators' conduct concerning the London Gold Fixing was so well hidden that Defendants and their co-conspirators kept global regulators unaware of such conduct for years until in or around 2013.

397. Following the reports of government investigations becoming public, Plaintiffs undertook investigation into possible manipulation of the London Gold Fixing, retained counsel, and retained economic consultants to undertake sophisticated economic investigation of the London Gold Fixing and whether it was subject to manipulation by Defendants and their co-conspirators.

398. Reasonable due diligence could not have uncovered Defendants' and their co-conspirators' manipulative conspiracy because: (i) the London Gold Fixing was held out as

being set by an impartial auction based on market factors; (ii) the London Gold Fixing is conducted in private; (iii) Defendants' and their co-conspirators' trading positions and trading strategies are not public information; (iv) the bilateral, non-exchange traded nature of the transactions at issue; (v) the highly specialized and esoteric nature of the different aspects of the gold market make it extraordinarily difficult for an ordinary person to assess improprieties; and (vi) neither Defendants nor their co-conspirators told Plaintiffs or other Class Members that they were conspiring to fix, stabilize, maintain, and/or otherwise manipulate the London Gold Fixing.

399. Defendants and their co-conspirators also took active steps to conceal evidence of their misconduct from Plaintiffs, the Class, regulators, and the public including, *inter alia*: (i) holding out the London Gold Fixing as an impartial, arms-length process that reflected market factors; (ii) stating that gold prices reflected normal market forces;¹⁰² (iii) maintaining the secrecy of the London Gold Fixing process; (iv) avoiding any discussion in public fora of the London Gold Fixing and/or manipulation of the London Gold Fixing; (v) refusing to comment on, or affirmatively denying allegations of, manipulation reported by the press in or after March 2013; (vi) initiating sham gold trades they never intended to execute in order to influence artificially the price of gold; (vii) secretly trading their own proprietary gold positions; and (viii) using non-public proprietary trading platforms directly to coordinate intended price movements.

400. In addition, Defendants and their co-conspirators also failed to have the proper internal controls in place to detect internal misconduct concerning the London Gold Fixing. Such internal failures made it all the more difficult for Plaintiffs, the Class, government regulators, and the public to become aware of Defendants' and their co-conspirators'

¹⁰² See, e.g., The London Bullion Market Association, Forecast 2013 (Jan. 2, 2013), at 6 (Société Générale), 7 (Deutsche Bank), 8 (Barclays), 16 (HSBC), www.lbma.org.uk/assets/forecast2013.pdf.

misconduct. Indeed, even following government investigations concerning other financial benchmark manipulation that came to light in 2012 and 2013, the Defendants did not examine their internal controls surrounding the London Gold Fix and chose instead to continue to conceal their misconduct.

401. For example, as noted by the U.K. Financial Conduct Authority, Defendant Barclays failed to have proper internal controls in place to adequately monitor traders' conduct at the Fixing. The U.K. Financial Conduct Authority specifically found that "Barclays' systems and reports [] did not formally record orders place by traders in the Gold Fixing until 5 February 2013" and that "Barclays' lack of systems and controls to record internal orders and flag trades that related specifically to the Gold Fixing left the firm unable to supervise traders' activities in the Gold Fixing adequately."

402. Such failures also made it easier for Barclays employees to conceal their misconduct. For example, the U.K. Financial Conduct Authority found that a Director on the Precious Metals Desk at Barclays attempted to conceal his manipulative trading activity at the Fixing and provided an untruthful account of events to government regulators.¹⁰³ The U.K. Financial Conduct Authority noted that this conduct was all the more egregious because it occurred *the day after* Barclays was fined for rigging LIBOR interest rates.¹⁰⁴

403. Such failures were also not limited to Defendant Barclays and are prevalent among the Defendants and their co-conspirators.

404. For example, the CFTC found that Defendant HSBC failed to have adequate internal controls in place on its foreign currency desk to detect the manipulation of foreign

¹⁰³ See U.K. Financial Conduct Authority, *Final Notice to Daniel James Plunkett* (May 23, 2014), at 2.7.

¹⁰⁴ See U.K. Financial Conduct Authority, *Final Notice to Barclays Bank plc* (May 23, 2014), at 2.11.

currency benchmark prices. BaFin noted similar internal control failures at Defendant Deutsche Bank concerning LIBOR.¹⁰⁵ The French financial regulator Autorité de Contrôle Prudentiel has also found “serious shortcomings” in internal controls at Defendant Société Générale in the past.¹⁰⁶ The Swiss financial regulator FINMA also found similar failures at UBS surrounding precious metals benchmarks. FINMA noted that although many in UBS were aware of manipulation and the fact that internal controls were deficient, UBS employees voluntarily chose not to take any action and instead helped to conceal the activity.

405. As a result of Defendants’ and their co-conspirators’ affirmative steps to conceal their improper conduct, their willful decision not to put in place proper controls to detect improper conduct, the self-concealing nature of the price-fixing conspiracy, and the resulting lack of public information about material aspects of the conspiracy, collusion, and trading based on nonpublic information, the statute of limitations was tolled for Plaintiffs’ claims.

XI. CLASS ACTION ALLEGATIONS

406. Plaintiffs bring this action on behalf of themselves and as a class action under Rule 23(a) and (b)(3) of the Federal Rules of Civil Procedure, seeking relief on behalf of the following class (the “Class”):

All persons or entities who during the period from January 1, 2004 through June 30, 2013 (the “Class Period”): (i) sold gold bullion or gold bullion coins; (ii) sold gold futures contracts traded on COMEX or other exchanges operated in the United States; (iii) sold shares in Gold ETFs; (iv) sold gold call options traded on COMEX or other exchanges operated in the United States; (v) bought gold put options traded on COMEX or other exchanges

¹⁰⁵ Daniel Schäfer, *German regulator to tell Deutsche Bank to improve controls*, Financial Times (Aug. 12, 2013), www.ft.com/intl/cms/s/0/4a036a28-0342-11e3-b871-00144feab7de.html#axzz3LiFYXfrP.

¹⁰⁶ Fabio Benedetti-Valentini, *SocGen Blames Single Trader After \$608 Million Penalty*, Bloomberg (Dec. 4, 2013), www.bloomberg.com/news/2013-12-04/solcgen-blames-single-trader-after-607-million-penalty.html.

operated in the United States; (vi) sold over-the-counter gold spot or forward transactions or gold call options; or (vii) bought over-the-counter gold put options.

Excluded from the Class are Defendants and their employees, affiliates, parents, subsidiaries, and co-conspirators, whether or not named in this Complaint, and the United States Government, and other governments.

407. Plaintiffs believe that there are many thousands of Class Members as described above, making the Class so numerous and geographically dispersed that joinder of all Class Members is impracticable.

408. There are questions of law and fact common to the Class that relate to the existence of the conspiracy alleged, and the type and common pattern of injury sustained as a result thereof, including, but not limited to:

- a. Whether Defendants and their co-conspirators engaged in a combination or conspiracy to fix, raise, maintain, stabilize and/or otherwise manipulate the gold benchmark price in violation of the Sherman Act and/or Commodity Exchange Act;
- b. The identity of the participants in the conspiracy;
- c. The duration of the conspiracy;
- d. The nature and character of the acts performed by Defendants and their co-conspirators in furtherance of the conspiracy;
- e. Whether the conduct of Defendants and their co-conspirators, as alleged in this Complaint, caused injury to the business or property of Plaintiffs and the Class Members;
- f. Whether Defendants and their co-conspirators fraudulently concealed the conspiracy's existence from Plaintiffs and the Class Members;
- g. The appropriate injunctive and equitable relief for the Class; and
- h. The appropriate measure of damages sustained by Plaintiffs and the Class Members.

409. Plaintiffs' claims are typical of the claims of the other Class Members. Plaintiffs

and the Class Members sustained damages arising out of Defendants' common course of conduct in violation of law as complained of herein. The injuries and damages of each Class Member were directly caused by Defendants' wrongful conduct in violation of the laws as alleged herein.

410. Plaintiffs will fairly and adequately protect the interests of the Class Members. Plaintiffs are adequate representatives of the Class and have no interests adverse to the interests of absent Class Members. Plaintiffs have retained counsel competent and experienced in class action litigation, including commodity futures manipulation and antitrust class action litigation.

411. The prosecution of separate actions by individual Class Members would create a risk of inconsistent or varying adjudications.

412. The questions of law and fact common to the Class Members predominate over any questions affecting only individual members, including legal and factual issues relating to liability and damages.

413. A class action is superior to other available methods for the fair and efficient adjudication of this controversy. Treatment as a class action will permit a large number of similarly situated persons to adjudicate their common claims in a single forum simultaneously, efficiently and without duplication of effort and expense that numerous, separate individual actions, or repetitive litigation, would entail. The Class is readily definable and is one for which records should exist in the files of Defendants and their co-conspirators, Class Members, or the public record. Class treatment will also permit the adjudication of relatively small claims by many Class Members who otherwise could not afford to litigate the claims alleged herein, including those for antitrust. This class action presents no difficulties of management that would preclude its maintenance as a class action.

CAUSES OF ACTION

CLAIM ONE

**VIOLATION OF 15 U.S.C. § 1
AGREEMENT RESTRAINING TRADE**

414. Plaintiffs hereby incorporate each preceding and succeeding paragraph as though fully set forth herein.

415. 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.*

416. During the Class Period, Defendants entered into an agreement or series of agreements to reduce competition amongst themselves by fixing and/or manipulating gold prices before and during the Fixing, the PM Fix, and, as a result, the price of Gold Investments, including COMEX futures.

417. This conspiracy to manipulate gold market prices and the benchmark price caused injury to both Plaintiffs and the Class by depriving them of the benefit of accurate gold benchmark prices reflecting true market conditions, as well as accurate spot gold prices for some period during and following Defendants' unlawful conduct, and thus received, upon execution of their trades, less in value than they would have received absent Defendants' wrongful conduct.

418. The conspiracy is a *per se* violation of Section 1 of the Sherman Act. Alternatively, the conspiracy resulted in substantial anticompetitive effects in the gold market. There is no legitimate business justification for, or pro-competitive benefits from, Defendants' conduct.

419. As a direct and proximate result of Defendants' violation of Section 1 of the Sherman Act, Plaintiffs and the Class have suffered injury to their business and property

throughout the Class Period.

420. Plaintiffs and the Class are entitled to treble damages for the violations of the Sherman Act alleged herein. Plaintiffs and the Class are also entitled to an injunction against Defendants preventing and restraining the violations alleged herein.

CLAIM TWO

**VIOLATION OF 7 U.S.C. §§ 1 *et seq.*
MANIPULATION IN VIOLATION OF THE COMMODITY EXCHANGE ACT,
INCLUDING CFTC RULE 180.2**

421. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

422. By their intentional misconduct, Defendants and their co-conspirators each violated Sections 6(c)(3) and 9(a)(2) of the Commodity Exchange Act (“CEA”), 7 U.S.C. §§ 9(3), 13(a)(2), and CFTC Rule 180.2 adopted under the CEA (“Rule 180.2”) and caused prices of exchange-traded gold futures and options, and prices of the commodity underlying these instruments, to be artificial during the Class Period.

423. Defendants’ and their co-conspirators’ trading and other activities alleged herein constitute market manipulation of prices of exchange-traded gold futures and options, and prices of the commodity underlying these instruments, in violation of Sections 6(c)(3), 9(a), and 22(a) of the CEA, 7 U.S.C. §§ 9(3), 13(a) and 25(a), and Rule 180.2.

424. Defendants’ and their co-conspirators’ manipulation deprived Plaintiffs and the Class of a lawfully operating market during the Class Period.

425. Plaintiffs and others who transacted in exchange-traded gold futures and options during the Class Period transacted at artificial and unlawful prices resulting from Defendants’ and co-conspirators’ manipulations in violation of the CEA, 7 U.S.C. § 1, *et seq.*, and Rule

180.2, and as a direct result thereof were injured and suffered damages. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM THREE

**VIOLATION OF 7 U.S.C. §§ 1 *et seq.*
EMPLOYMENT OF MANIPULATIVE OR DECEPTIVE DEVICE OR
CONTRIVANCE IN VIOLATION OF THE COMMODITY EXCHANGE ACT,
INCLUDING CFTC RULE 180.1**

426. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

427. By their intentional misconduct, from August 15, 2011 through June 30, 2013, Defendants and their co-conspirators each violated Sections 6(c)(1) and 9(a)(2) of the CEA, 7 U.S.C. §§ 9(1), 13(a)(2), and CFTC Rule 180.1 adopted under the CEA (“Rule 180.1”) and caused prices of exchange-traded gold futures and options, and prices of the commodity underlying these instruments, to be artificial during the Class Period.

428. Defendants’ and their co-conspirators’ trading and other activities alleged herein constitute market manipulation of prices of exchange-traded gold futures and options, and prices of the commodity underlying these instruments, in violation of Sections 6(c)(1), 9(a), and 22(a) of the CEA, 7 U.S.C. §§ 9(1), 13(a) and 25(a), and Rule 180.1.

429. Defendants’ and their co-conspirators’ manipulation deprived Plaintiffs and the Class of a lawfully operating market during the Class Period.

430. Plaintiffs and others who transacted in exchange-traded gold futures and options during the Class Period transacted at artificial and unlawful prices resulting from Defendants’ and co-conspirators’ manipulations in violation of the CEA, 7 U.S.C. § 1, *et seq.*, and Rule 180.1, and as a direct result thereof were injured and suffered damages. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM FOUR

**VIOLATION OF 7 U.S.C. §§ 1 *et seq.*
EMPLOYMENT OF MANIPULATIVE OR DECEPTIVE DEVICE OR
CONTRIVANCE IN VIOLATION OF THE COMMODITY EXCHANGE ACT,
INCLUDING CFTC RULE 180.1**

431. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

432. By their intentional misconduct, Defendants and their co-conspirators each violated Sections 6(c)(1) and 9(a)(2) of the CEA, 7 U.S.C. §§ 9(1), 13(a)(2), and CFTC Rule 180.1 adopted under the CEA (“Rule 180.1”) and caused prices of exchange-traded gold futures and options, and the price of the commodity underlying these instruments, to be artificial during the Class Period.

433. In violation of CEA Sections 6(c)(1) and 9(a)(2), and CFTC Rule 180.1, Defendants and co-conspirators caused to be delivered for transmission false, misleading, or inaccurate reports of the London Gold Fixing, *i.e.*, false reports concerning market information or conditions that affected or tended to affect both prices of gold and prices of gold futures and options in interstate commerce. Defendants and co-conspirators did so either knowingly, intentionally, or with reckless disregard of the fact that such reports were false, misleading, or inaccurate.

434. Plaintiffs and others who transacted in exchange-traded gold futures and options during the Class Period transacted at artificial and unlawful prices resulting from Defendants’ and co-conspirators’ manipulations in violation of the CEA, 7 U.S.C. § 1, *et seq.*, and Rule 180.1, and as a direct result thereof were injured and suffered damages. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM FIVE

**VIOLATION OF 7 U.S.C. §§ 1 *et seq.*
PRINCIPAL-AGENT LIABILITY IN VIOLATION OF THE COMMODITY
EXCHANGE ACT**

435. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

436. 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 their agents, representatives, and/or other persons acting for them in the scope of their employment.

437. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM SIX

**VIOLATION OF 7 U.S.C. §§ 1 *et seq.*
AIDING AND ABETTING LIABILITY IN VIOLATION OF THE COMMODITY
EXCHANGE ACT**

438. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

439. Defendants and their co-conspirators knowingly aided, abetted, counseled, induced and/or procured the violations of the CEA alleged herein. Defendants did so knowing of each other's, and their co-conspirators', manipulation of the London Gold Fixing, and willfully intended to assist these manipulations, which resulted in gold futures and options pricing becoming artificial during the Class Period in violation of Sections 13 and 22(a)(1) of the CEA, 7 U.S.C. §§ 13c(a), 25(a)(1).

440. Plaintiffs each sustained and are entitled to actual damages for the violations of the CEA alleged herein.

CLAIM SEVEN

**UNJUST ENRICHMENT
(Against All Defendants in Direct or Quasi-Contractual Relationships
with Class Members)**

441. Plaintiffs incorporate by reference and reallege the preceding allegations as though fully set forth herein.

442. This Claim concerns transactions in which a Defendant or its affiliate was in a direct or quasi-contractual relationship with a Class Member.

443. Because of the acts of Defendants and their co-conspirators as alleged herein, Defendants have been unjustly enriched at the expense of Plaintiffs and the Class.

444. Plaintiffs and the Class seek restoration of the monies of which they were unfairly and improperly deprived, as described herein, by way of transactions for the sale or purchase of Gold Investments entered into with Defendants or their co-conspirators.

PRAYER FOR RELIEF

Plaintiffs demands relief as follows:

A. That the Court certify this lawsuit as a class action under Rules 23(a), (b)(2), and (b)(3) of the Federal Rules of Civil Procedure, that Plaintiffs be designated as class representatives, and that Plaintiffs' counsel be appointed as Class counsel for the Class;

B. That the unlawful conduct alleged herein be adjudged and decreed to violate Section 1 of the Sherman Act;

C. That Defendants be permanently enjoined and restrained from continuing and maintaining the conspiracy alleged in the Complaint;

D. That the Court award Plaintiffs and the Class damages against Defendants for their violations of federal antitrust laws, in an amount to be trebled in accordance with such laws, plus interest;

E. That the Court find that Defendants violated the CEA and award appropriate damages;

F. That the Court award monetary losses suffered by Class Members that were in contractual or quasi-contractual relationships with a Defendant or an affiliate thereof, due to that Defendants' unjust enrichment at the Class Members' expense;

G. That the Court award Plaintiffs and the Classes their costs of suit, including reasonable attorneys' fees and expenses, as provided by law; and

H. That the Court direct such further relief it may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(a) of the Federal Rules of Civil Procedure, Plaintiffs demand a jury trial as to all issues triable by a jury.

DATED: New York, New York
June 16, 2017

BERGER & MONTAGUE, P.C.

By: /s/ Merrill G. Davidoff
Merrill G. Davidoff
Martin I. Twersky
Michael C. Dell'Angelo
Zachary D. Caplan
1622 Locust Street
Philadelphia, Pennsylvania 19103
Telephone: (215) 875-3000
Fax: (215) 875-4604
mdavidoff@bm.net
mtwersky@bm.net
mdellangelo@bm.net
zcaplan@bm.net

**QUINN EMANUEL URQUHART &
SULLIVAN, LLP**

By: /s/ Daniel L. Brockett
Daniel L. Brockett
Daniel P. Cunningham
Steig D. Olson
Sami H. Rashid
51 Madison Avenue, 22nd Floor
New York, New York 10010
Telephone: (212) 849-7000
Fax: (212) 849-7100
danbrockett@quinnemanuel.com
danielcunningham@quinnemanuel.com
steigolson@quinnemanuel.com
samirashid@quinnemanuel.com

Jeremy D. Andersen (*pro hac vice*)
Chris R. Barker (*pro hac vice*)
865 South Figueroa Street, 10th Floor
Los Angeles, California 90017
Telephone: (213) 443-3000
Fax: (213) 443-3100
jeremyandersen@quinnemanuel.com
chrisbarker@quinnemanuel.com

Counsel for Plaintiffs and the Proposed Class

APPENDIX A**Preliminary List of Days on Which Defendants' Conduct Resulted
in Artificial Downward Movement Around the PM Fixing**

January 3, 2001	March 14, 2001	May 22, 2001	July 19, 2001
January 4, 2001	March 15, 2001	May 23, 2001	July 23, 2001
January 5, 2001	March 19, 2001	May 25, 2001	July 24, 2001
January 9, 2001	March 20, 2001	May 31, 2001	July 31, 2001
January 12, 2001	March 22, 2001	June 1, 2001	August 1, 2001
January 15, 2001	March 26, 2001	June 5, 2001	August 2, 2001
January 18, 2001	March 28, 2001	June 6, 2001	August 3, 2001
January 19, 2001	March 30, 2001	June 7, 2001	August 6, 2001
January 22, 2001	April 2, 2001	June 8, 2001	August 7, 2001
January 23, 2001	April 3, 2001	June 11, 2001	August 8, 2001
January 24, 2001	April 4, 2001	June 12, 2001	August 9, 2001
January 25, 2001	April 5, 2001	June 13, 2001	August 10, 2001
January 26, 2001	April 6, 2001	June 14, 2001	August 13, 2001
January 29, 2001	April 9, 2001	June 15, 2001	August 14, 2001
January 30, 2001	April 10, 2001	June 18, 2001	August 20, 2001
January 31, 2001	April 11, 2001	June 19, 2001	August 21, 2001
February 1, 2001	April 12, 2001	June 20, 2001	August 22, 2001
February 2, 2001	April 17, 2001	June 21, 2001	August 23, 2001
February 6, 2001	April 18, 2001	June 22, 2001	August 24, 2001
February 7, 2001	April 19, 2001	June 25, 2001	August 28, 2001
February 8, 2001	April 20, 2001	June 26, 2001	August 29, 2001
February 9, 2001	April 23, 2001	June 28, 2001	August 30, 2001
February 12, 2001	April 24, 2001	July 2, 2001	August 31, 2001
February 13, 2001	April 25, 2001	July 3, 2001	September 3, 2001
February 15, 2001	April 26, 2001	July 4, 2001	September 4, 2001
February 20, 2001	April 30, 2001	July 5, 2001	September 5, 2001
February 21, 2001	May 1, 2001	July 6, 2001	September 6, 2001
February 22, 2001	May 2, 2001	July 9, 2001	September 7, 2001
February 26, 2001	May 3, 2001	July 10, 2001	September 10, 2001
February 28, 2001	May 10, 2001	July 11, 2001	September 14, 2001
March 1, 2001	May 14, 2001	July 12, 2001	September 18, 2001
March 2, 2001	May 15, 2001	July 13, 2001	September 19, 2001
March 5, 2001	May 16, 2001	July 16, 2001	September 21, 2001
March 7, 2001	May 17, 2001	July 17, 2001	September 24, 2001
March 9, 2001	May 18, 2001	July 18, 2001	September 25, 2001

September 26, 2001	December 3, 2001	February 12, 2002	April 25, 2002
September 27, 2001	December 4, 2001	February 13, 2002	April 26, 2002
September 28, 2001	December 7, 2001	February 14, 2002	April 29, 2002
October 1, 2001	December 10, 2001	February 15, 2002	April 30, 2002
October 2, 2001	December 11, 2001	February 20, 2002	May 1, 2002
October 3, 2001	December 12, 2001	February 22, 2002	May 3, 2002
October 4, 2001	December 14, 2001	February 25, 2002	May 7, 2002
October 5, 2001	December 17, 2001	February 26, 2002	May 8, 2002
October 8, 2001	December 18, 2001	February 27, 2002	May 9, 2002
October 10, 2001	December 19, 2001	February 28, 2002	May 10, 2002
October 11, 2001	December 20, 2001	March 1, 2002	May 13, 2002
October 12, 2001	December 21, 2001	March 4, 2002	May 14, 2002
October 15, 2001	December 27, 2001	March 5, 2002	May 15, 2002
October 16, 2001	December 28, 2001	March 6, 2002	May 16, 2002
October 17, 2001	January 2, 2002	March 11, 2002	May 17, 2002
October 22, 2001	January 4, 2002	March 12, 2002	May 20, 2002
October 23, 2001	January 7, 2002	March 13, 2002	May 21, 2002
October 24, 2001	January 8, 2002	March 14, 2002	May 22, 2002
October 25, 2001	January 9, 2002	March 15, 2002	May 23, 2002
October 26, 2001	January 10, 2002	March 20, 2002	May 24, 2002
October 29, 2001	January 11, 2002	March 21, 2002	May 27, 2002
October 31, 2001	January 14, 2002	March 22, 2002	May 28, 2002
November 1, 2001	January 15, 2002	March 25, 2002	May 31, 2002
November 2, 2001	January 16, 2002	March 26, 2002	June 5, 2002
November 5, 2001	January 17, 2002	March 28, 2002	June 10, 2002
November 8, 2001	January 18, 2002	April 2, 2002	June 11, 2002
November 9, 2001	January 21, 2002	April 3, 2002	June 12, 2002
November 12, 2001	January 23, 2002	April 4, 2002	June 13, 2002
November 13, 2001	January 25, 2002	April 5, 2002	June 14, 2002
November 15, 2001	January 29, 2002	April 9, 2002	June 17, 2002
November 16, 2001	January 30, 2002	April 10, 2002	June 18, 2002
November 19, 2001	January 31, 2002	April 11, 2002	June 19, 2002
November 20, 2001	February 1, 2002	April 12, 2002	June 20, 2002
November 21, 2001	February 4, 2002	April 16, 2002	June 21, 2002
November 26, 2001	February 5, 2002	April 17, 2002	June 25, 2002
November 27, 2001	February 6, 2002	April 18, 2002	June 26, 2002
November 28, 2001	February 7, 2002	April 19, 2002	June 27, 2002
November 29, 2001	February 8, 2002	April 22, 2002	July 1, 2002
November 30, 2001	February 11, 2002	April 24, 2002	July 2, 2002

July 3, 2002	September 16, 2002	November 26, 2002	February 3, 2003
July 4, 2002	September 18, 2002	November 27, 2002	February 4, 2003
July 8, 2002	September 19, 2002	November 28, 2002	February 5, 2003
July 9, 2002	September 20, 2002	December 2, 2002	February 6, 2003
July 10, 2002	September 23, 2002	December 3, 2002	February 7, 2003
July 11, 2002	September 24, 2002	December 4, 2002	February 10, 2003
July 12, 2002	September 25, 2002	December 5, 2002	February 11, 2003
July 15, 2002	September 26, 2002	December 6, 2002	February 12, 2003
July 16, 2002	September 27, 2002	December 9, 2002	February 13, 2003
July 17, 2002	September 30, 2002	December 10, 2002	February 18, 2003
July 19, 2002	October 1, 2002	December 11, 2002	February 19, 2003
July 22, 2002	October 2, 2002	December 12, 2002	February 20, 2003
July 23, 2002	October 3, 2002	December 13, 2002	February 21, 2003
July 24, 2002	October 8, 2002	December 16, 2002	February 25, 2003
July 25, 2002	October 9, 2002	December 17, 2002	February 26, 2003
July 26, 2002	October 11, 2002	December 18, 2002	February 27, 2003
July 29, 2002	October 14, 2002	December 19, 2002	February 28, 2003
July 30, 2002	October 15, 2002	December 20, 2002	March 3, 2003
August 1, 2002	October 16, 2002	December 23, 2002	March 4, 2003
August 2, 2002	October 17, 2002	December 27, 2002	March 5, 2003
August 5, 2002	October 23, 2002	January 2, 2003	March 6, 2003
August 7, 2002	October 24, 2002	January 3, 2003	March 7, 2003
August 8, 2002	October 25, 2002	January 6, 2003	March 10, 2003
August 12, 2002	October 28, 2002	January 8, 2003	March 11, 2003
August 13, 2002	October 29, 2002	January 9, 2003	March 12, 2003
August 19, 2002	October 30, 2002	January 10, 2003	March 13, 2003
August 20, 2002	November 1, 2002	January 13, 2003	March 14, 2003
August 21, 2002	November 4, 2002	January 14, 2003	March 17, 2003
August 22, 2002	November 6, 2002	January 15, 2003	March 18, 2003
August 27, 2002	November 8, 2002	January 16, 2003	March 19, 2003
August 28, 2002	November 11, 2002	January 20, 2003	March 20, 2003
August 29, 2002	November 12, 2002	January 21, 2003	March 21, 2003
August 30, 2002	November 14, 2002	January 22, 2003	March 24, 2003
September 2, 2002	November 15, 2002	January 23, 2003	March 25, 2003
September 3, 2002	November 18, 2002	January 27, 2003	March 26, 2003
September 4, 2002	November 20, 2002	January 28, 2003	March 27, 2003
September 5, 2002	November 21, 2002	January 29, 2003	March 28, 2003
September 9, 2002	November 22, 2002	January 30, 2003	March 31, 2003
September 11, 2002	November 25, 2002	January 31, 2003	April 1, 2003

April 2, 2003	June 17, 2003	August 20, 2003	October 27, 2003
April 3, 2003	June 18, 2003	August 22, 2003	October 29, 2003
April 4, 2003	June 19, 2003	August 26, 2003	October 31, 2003
April 7, 2003	June 20, 2003	August 27, 2003	November 4, 2003
April 8, 2003	June 24, 2003	August 28, 2003	November 5, 2003
April 9, 2003	June 25, 2003	August 29, 2003	November 7, 2003
April 10, 2003	June 26, 2003	September 1, 2003	November 10, 2003
April 11, 2003	June 27, 2003	September 2, 2003	November 11, 2003
April 16, 2003	June 30, 2003	September 3, 2003	November 12, 2003
April 17, 2003	July 1, 2003	September 4, 2003	November 13, 2003
April 23, 2003	July 2, 2003	September 5, 2003	November 14, 2003
April 24, 2003	July 3, 2003	September 8, 2003	November 17, 2003
April 25, 2003	July 7, 2003	September 9, 2003	November 18, 2003
April 28, 2003	July 9, 2003	September 11, 2003	November 19, 2003
April 29, 2003	July 10, 2003	September 12, 2003	November 20, 2003
April 30, 2003	July 11, 2003	September 15, 2003	November 24, 2003
May 1, 2003	July 14, 2003	September 16, 2003	November 25, 2003
May 2, 2003	July 16, 2003	September 17, 2003	November 27, 2003
May 6, 2003	July 17, 2003	September 19, 2003	December 1, 2003
May 8, 2003	July 18, 2003	September 22, 2003	December 2, 2003
May 9, 2003	July 21, 2003	September 24, 2003	December 3, 2003
May 12, 2003	July 22, 2003	September 25, 2003	December 4, 2003
May 14, 2003	July 23, 2003	September 26, 2003	December 5, 2003
May 16, 2003	July 24, 2003	September 30, 2003	December 8, 2003
May 20, 2003	July 25, 2003	October 1, 2003	December 9, 2003
May 21, 2003	July 28, 2003	October 2, 2003	December 10, 2003
May 22, 2003	July 29, 2003	October 6, 2003	December 11, 2003
May 28, 2003	July 30, 2003	October 7, 2003	December 12, 2003
May 30, 2003	July 31, 2003	October 8, 2003	December 16, 2003
June 2, 2003	August 1, 2003	October 9, 2003	December 17, 2003
June 3, 2003	August 4, 2003	October 10, 2003	December 18, 2003
June 5, 2003	August 5, 2003	October 13, 2003	December 22, 2003
June 6, 2003	August 6, 2003	October 15, 2003	December 23, 2003
June 9, 2003	August 7, 2003	October 17, 2003	December 29, 2003
June 10, 2003	August 8, 2003	October 20, 2003	December 30, 2003
June 11, 2003	August 11, 2003	October 21, 2003	January 2, 2004
June 12, 2003	August 13, 2003	October 22, 2003	January 5, 2004
June 13, 2003	August 14, 2003	October 23, 2003	January 7, 2004
June 16, 2003	August 19, 2003	October 24, 2003	January 8, 2004

January 14, 2004	March 25, 2004	June 9, 2004	August 12, 2004
January 15, 2004	March 26, 2004	June 10, 2004	August 13, 2004
January 16, 2004	March 30, 2004	June 15, 2004	August 16, 2004
January 19, 2004	March 31, 2004	June 16, 2004	August 17, 2004
January 21, 2004	April 1, 2004	June 17, 2004	August 18, 2004
January 22, 2004	April 2, 2004	June 18, 2004	August 19, 2004
January 30, 2004	April 6, 2004	June 21, 2004	August 20, 2004
February 2, 2004	April 7, 2004	June 22, 2004	August 23, 2004
February 4, 2004	April 8, 2004	June 23, 2004	August 24, 2004
February 5, 2004	April 13, 2004	June 24, 2004	August 25, 2004
February 6, 2004	April 14, 2004	June 25, 2004	August 26, 2004
February 9, 2004	April 15, 2004	June 28, 2004	August 27, 2004
February 10, 2004	April 16, 2004	June 29, 2004	August 31, 2004
February 11, 2004	April 19, 2004	June 30, 2004	September 1, 2004
February 12, 2004	April 20, 2004	July 1, 2004	September 2, 2004
February 13, 2004	April 21, 2004	July 2, 2004	September 3, 2004
February 16, 2004	April 26, 2004	July 7, 2004	September 7, 2004
February 17, 2004	April 27, 2004	July 8, 2004	September 8, 2004
February 18, 2004	April 28, 2004	July 9, 2004	September 9, 2004
February 19, 2004	April 29, 2004	July 12, 2004	September 10, 2004
February 20, 2004	April 30, 2004	July 13, 2004	September 13, 2004
February 23, 2004	May 4, 2004	July 14, 2004	September 14, 2004
February 24, 2004	May 5, 2004	July 15, 2004	September 15, 2004
February 26, 2004	May 6, 2004	July 16, 2004	September 16, 2004
February 27, 2004	May 7, 2004	July 19, 2004	September 17, 2004
March 1, 2004	May 10, 2004	July 20, 2004	September 21, 2004
March 3, 2004	May 11, 2004	July 23, 2004	September 22, 2004
March 4, 2004	May 14, 2004	July 26, 2004	September 23, 2004
March 8, 2004	May 19, 2004	July 27, 2004	September 24, 2004
March 9, 2004	May 20, 2004	July 28, 2004	September 27, 2004
March 11, 2004	May 21, 2004	July 29, 2004	September 28, 2004
March 12, 2004	May 24, 2004	July 30, 2004	September 29, 2004
March 16, 2004	May 25, 2004	August 2, 2004	October 1, 2004
March 17, 2004	May 26, 2004	August 3, 2004	October 4, 2004
March 18, 2004	May 27, 2004	August 4, 2004	October 5, 2004
March 19, 2004	May 28, 2004	August 5, 2004	October 6, 2004
March 22, 2004	June 2, 2004	August 6, 2004	October 8, 2004
March 23, 2004	June 4, 2004	August 9, 2004	October 13, 2004
March 24, 2004	June 8, 2004	August 11, 2004	October 14, 2004

October 15, 2004	January 13, 2005	March 24, 2005	June 10, 2005
October 19, 2004	January 14, 2005	March 29, 2005	June 13, 2005
October 20, 2004	January 18, 2005	March 30, 2005	June 14, 2005
October 21, 2004	January 19, 2005	March 31, 2005	June 15, 2005
October 22, 2004	January 20, 2005	April 1, 2005	June 16, 2005
October 28, 2004	January 21, 2005	April 5, 2005	June 17, 2005
October 29, 2004	January 24, 2005	April 6, 2005	June 20, 2005
November 3, 2004	January 25, 2005	April 7, 2005	June 21, 2005
November 4, 2004	January 26, 2005	April 8, 2005	June 22, 2005
November 8, 2004	January 27, 2005	April 13, 2005	June 23, 2005
November 9, 2004	January 28, 2005	April 14, 2005	June 24, 2005
November 11, 2004	January 31, 2005	April 18, 2005	June 28, 2005
November 12, 2004	February 3, 2005	April 19, 2005	June 29, 2005
November 15, 2004	February 4, 2005	April 20, 2005	June 30, 2005
November 17, 2004	February 7, 2005	April 22, 2005	July 5, 2005
November 18, 2004	February 8, 2005	April 25, 2005	July 6, 2005
November 19, 2004	February 9, 2005	April 26, 2005	July 11, 2005
November 22, 2004	February 10, 2005	April 27, 2005	July 12, 2005
November 24, 2004	February 11, 2005	April 29, 2005	July 13, 2005
November 29, 2004	February 14, 2005	May 4, 2005	July 15, 2005
December 1, 2004	February 15, 2005	May 5, 2005	July 19, 2005
December 3, 2004	February 16, 2005	May 6, 2005	July 20, 2005
December 6, 2004	February 21, 2005	May 9, 2005	July 21, 2005
December 8, 2004	February 23, 2005	May 10, 2005	July 22, 2005
December 10, 2004	February 25, 2005	May 11, 2005	July 26, 2005
December 13, 2004	February 28, 2005	May 13, 2005	July 27, 2005
December 15, 2004	March 2, 2005	May 16, 2005	July 28, 2005
December 16, 2004	March 3, 2005	May 18, 2005	July 29, 2005
December 20, 2004	March 4, 2005	May 20, 2005	August 1, 2005
December 21, 2004	March 7, 2005	May 24, 2005	August 2, 2005
December 23, 2004	March 8, 2005	May 27, 2005	August 3, 2005
December 29, 2004	March 9, 2005	May 31, 2005	August 4, 2005
December 30, 2004	March 11, 2005	June 1, 2005	August 9, 2005
January 4, 2005	March 15, 2005	June 2, 2005	August 10, 2005
January 5, 2005	March 16, 2005	June 3, 2005	August 11, 2005
January 7, 2005	March 17, 2005	June 6, 2005	August 16, 2005
January 10, 2005	March 18, 2005	June 7, 2005	August 19, 2005
January 11, 2005	March 21, 2005	June 8, 2005	August 25, 2005
January 12, 2005	March 22, 2005	June 9, 2005	August 26, 2005

August 30, 2005	November 9, 2005	January 31, 2006	April 6, 2006
August 31, 2005	November 10, 2005	February 1, 2006	April 7, 2006
September 1, 2005	November 14, 2005	February 2, 2006	April 13, 2006
September 2, 2005	November 15, 2005	February 3, 2006	April 18, 2006
September 6, 2005	November 16, 2005	February 6, 2006	April 20, 2006
September 7, 2005	November 23, 2005	February 7, 2006	April 21, 2006
September 8, 2005	November 24, 2005	February 8, 2006	April 24, 2006
September 9, 2005	November 28, 2005	February 10, 2006	April 25, 2006
September 12, 2005	November 29, 2005	February 13, 2006	April 26, 2006
September 13, 2005	December 1, 2005	February 14, 2006	April 27, 2006
September 14, 2005	December 2, 2005	February 15, 2006	April 28, 2006
September 16, 2005	December 5, 2005	February 16, 2006	May 2, 2006
September 20, 2005	December 6, 2005	February 17, 2006	May 3, 2006
September 22, 2005	December 8, 2005	February 20, 2006	May 5, 2006
September 23, 2005	December 9, 2005	February 21, 2006	May 8, 2006
September 26, 2005	December 12, 2005	February 23, 2006	May 9, 2006
September 28, 2005	December 13, 2005	February 27, 2006	May 10, 2006
September 30, 2005	December 14, 2005	February 28, 2006	May 11, 2006
October 4, 2005	December 16, 2005	March 1, 2006	May 15, 2006
October 5, 2005	December 19, 2005	March 2, 2006	May 19, 2006
October 6, 2005	December 21, 2005	March 3, 2006	May 22, 2006
October 7, 2005	December 22, 2005	March 7, 2006	May 23, 2006
October 10, 2005	December 29, 2005	March 8, 2006	May 24, 2006
October 11, 2005	January 3, 2006	March 10, 2006	May 25, 2006
October 12, 2005	January 4, 2006	March 13, 2006	May 26, 2006
October 13, 2005	January 5, 2006	March 14, 2006	May 31, 2006
October 14, 2005	January 9, 2006	March 15, 2006	June 1, 2006
October 17, 2005	January 10, 2006	March 16, 2006	June 2, 2006
October 18, 2005	January 11, 2006	March 17, 2006	June 5, 2006
October 19, 2005	January 12, 2006	March 20, 2006	June 6, 2006
October 20, 2005	January 13, 2006	March 21, 2006	June 7, 2006
October 21, 2005	January 16, 2006	March 23, 2006	June 8, 2006
October 26, 2005	January 17, 2006	March 24, 2006	June 12, 2006
October 27, 2005	January 20, 2006	March 27, 2006	June 14, 2006
October 28, 2005	January 23, 2006	March 29, 2006	June 15, 2006
November 1, 2005	January 24, 2006	March 31, 2006	June 16, 2006
November 2, 2005	January 25, 2006	April 3, 2006	June 19, 2006
November 7, 2005	January 26, 2006	April 4, 2006	June 20, 2006
November 8, 2005	January 27, 2006	April 5, 2006	June 21, 2006

June 22, 2006	September 6, 2006	November 9, 2006	January 23, 2007
June 23, 2006	September 7, 2006	November 10, 2006	January 24, 2007
June 26, 2006	September 8, 2006	November 13, 2006	January 26, 2007
June 27, 2006	September 11, 2006	November 14, 2006	January 29, 2007
June 28, 2006	September 13, 2006	November 15, 2006	January 30, 2007
July 3, 2006	September 14, 2006	November 16, 2006	January 31, 2007
July 4, 2006	September 15, 2006	November 21, 2006	February 1, 2007
July 5, 2006	September 18, 2006	November 22, 2006	February 2, 2007
July 6, 2006	September 19, 2006	November 23, 2006	February 5, 2007
July 7, 2006	September 20, 2006	November 24, 2006	February 6, 2007
July 10, 2006	September 22, 2006	November 28, 2006	February 7, 2007
July 11, 2006	September 25, 2006	November 29, 2006	February 8, 2007
July 12, 2006	September 26, 2006	December 1, 2006	February 9, 2007
July 13, 2006	September 27, 2006	December 4, 2006	February 13, 2007
July 17, 2006	September 28, 2006	December 5, 2006	February 14, 2007
July 19, 2006	October 2, 2006	December 7, 2006	February 15, 2007
July 20, 2006	October 3, 2006	December 8, 2006	February 16, 2007
July 24, 2006	October 5, 2006	December 11, 2006	February 21, 2007
July 25, 2006	October 6, 2006	December 12, 2006	February 22, 2007
July 26, 2006	October 9, 2006	December 13, 2006	February 23, 2007
July 28, 2006	October 10, 2006	December 14, 2006	February 26, 2007
July 31, 2006	October 11, 2006	December 18, 2006	February 27, 2007
August 1, 2006	October 12, 2006	December 19, 2006	February 28, 2007
August 4, 2006	October 16, 2006	December 20, 2006	March 1, 2007
August 7, 2006	October 17, 2006	December 21, 2006	March 2, 2007
August 9, 2006	October 18, 2006	December 27, 2006	March 5, 2007
August 10, 2006	October 19, 2006	December 28, 2006	March 6, 2007
August 11, 2006	October 20, 2006	January 2, 2007	March 8, 2007
August 14, 2006	October 23, 2006	January 4, 2007	March 9, 2007
August 16, 2006	October 24, 2006	January 5, 2007	March 12, 2007
August 18, 2006	October 25, 2006	January 8, 2007	March 14, 2007
August 21, 2006	October 26, 2006	January 9, 2007	March 15, 2007
August 22, 2006	October 27, 2006	January 10, 2007	March 16, 2007
August 25, 2006	October 30, 2006	January 11, 2007	March 19, 2007
August 29, 2006	October 31, 2006	January 15, 2007	March 20, 2007
August 30, 2006	November 1, 2006	January 16, 2007	March 21, 2007
August 31, 2006	November 2, 2006	January 17, 2007	March 22, 2007
September 1, 2006	November 3, 2006	January 19, 2007	March 23, 2007
September 4, 2006	November 7, 2006	January 22, 2007	March 26, 2007

March 27, 2007	June 1, 2007	August 10, 2007	October 17, 2007
March 29, 2007	June 5, 2007	August 13, 2007	October 18, 2007
March 30, 2007	June 6, 2007	August 15, 2007	October 19, 2007
April 2, 2007	June 11, 2007	August 16, 2007	October 22, 2007
April 3, 2007	June 12, 2007	August 17, 2007	October 23, 2007
April 4, 2007	June 13, 2007	August 20, 2007	October 24, 2007
April 5, 2007	June 14, 2007	August 22, 2007	October 26, 2007
April 10, 2007	June 15, 2007	August 23, 2007	October 29, 2007
April 11, 2007	June 18, 2007	August 28, 2007	October 31, 2007
April 12, 2007	June 19, 2007	August 29, 2007	November 1, 2007
April 13, 2007	June 20, 2007	August 30, 2007	November 5, 2007
April 17, 2007	June 21, 2007	August 31, 2007	November 7, 2007
April 18, 2007	June 25, 2007	September 3, 2007	November 9, 2007
April 19, 2007	June 26, 2007	September 4, 2007	November 12, 2007
April 20, 2007	June 27, 2007	September 5, 2007	November 13, 2007
April 23, 2007	June 28, 2007	September 6, 2007	November 14, 2007
April 25, 2007	July 2, 2007	September 7, 2007	November 15, 2007
April 26, 2007	July 4, 2007	September 10, 2007	November 16, 2007
April 27, 2007	July 5, 2007	September 11, 2007	November 19, 2007
April 30, 2007	July 6, 2007	September 12, 2007	November 20, 2007
May 1, 2007	July 10, 2007	September 13, 2007	November 21, 2007
May 2, 2007	July 12, 2007	September 14, 2007	November 26, 2007
May 3, 2007	July 13, 2007	September 17, 2007	November 27, 2007
May 4, 2007	July 16, 2007	September 18, 2007	November 29, 2007
May 8, 2007	July 17, 2007	September 20, 2007	November 30, 2007
May 9, 2007	July 18, 2007	September 24, 2007	December 3, 2007
May 10, 2007	July 20, 2007	September 25, 2007	December 4, 2007
May 14, 2007	July 23, 2007	September 26, 2007	December 5, 2007
May 15, 2007	July 24, 2007	September 27, 2007	December 6, 2007
May 16, 2007	July 27, 2007	September 28, 2007	December 7, 2007
May 17, 2007	July 30, 2007	October 1, 2007	December 10, 2007
May 18, 2007	July 31, 2007	October 2, 2007	December 12, 2007
May 21, 2007	August 1, 2007	October 3, 2007	December 13, 2007
May 22, 2007	August 2, 2007	October 4, 2007	December 14, 2007
May 23, 2007	August 3, 2007	October 8, 2007	December 17, 2007
May 25, 2007	August 6, 2007	October 9, 2007	December 18, 2007
May 29, 2007	August 7, 2007	October 10, 2007	December 19, 2007
May 30, 2007	August 8, 2007	October 11, 2007	December 20, 2007
May 31, 2007	August 9, 2007	October 16, 2007	December 21, 2007

December 27, 2007	March 5, 2008	May 13, 2008	July 17, 2008
January 3, 2008	March 6, 2008	May 14, 2008	July 18, 2008
January 4, 2008	March 7, 2008	May 15, 2008	July 21, 2008
January 7, 2008	March 10, 2008	May 16, 2008	July 23, 2008
January 8, 2008	March 11, 2008	May 19, 2008	July 25, 2008
January 9, 2008	March 12, 2008	May 21, 2008	July 28, 2008
January 10, 2008	March 13, 2008	May 22, 2008	July 29, 2008
January 11, 2008	March 14, 2008	May 23, 2008	July 30, 2008
January 14, 2008	March 17, 2008	May 27, 2008	July 31, 2008
January 16, 2008	March 19, 2008	May 28, 2008	August 4, 2008
January 18, 2008	March 25, 2008	May 29, 2008	August 6, 2008
January 22, 2008	March 26, 2008	May 30, 2008	August 7, 2008
January 23, 2008	March 28, 2008	June 2, 2008	August 8, 2008
January 24, 2008	April 1, 2008	June 3, 2008	August 11, 2008
January 25, 2008	April 2, 2008	June 5, 2008	August 12, 2008
January 28, 2008	April 3, 2008	June 6, 2008	August 13, 2008
January 29, 2008	April 4, 2008	June 10, 2008	August 14, 2008
January 30, 2008	April 7, 2008	June 11, 2008	August 15, 2008
January 31, 2008	April 8, 2008	June 12, 2008	August 18, 2008
February 1, 2008	April 9, 2008	June 13, 2008	August 19, 2008
February 4, 2008	April 10, 2008	June 16, 2008	August 20, 2008
February 5, 2008	April 11, 2008	June 17, 2008	August 22, 2008
February 7, 2008	April 16, 2008	June 18, 2008	August 26, 2008
February 8, 2008	April 17, 2008	June 19, 2008	August 27, 2008
February 11, 2008	April 18, 2008	June 20, 2008	August 28, 2008
February 12, 2008	April 21, 2008	June 23, 2008	August 29, 2008
February 13, 2008	April 22, 2008	June 25, 2008	September 2, 2008
February 14, 2008	April 23, 2008	June 26, 2008	September 5, 2008
February 15, 2008	April 24, 2008	June 27, 2008	September 8, 2008
February 18, 2008	April 25, 2008	July 1, 2008	September 9, 2008
February 19, 2008	April 28, 2008	July 2, 2008	September 11, 2008
February 20, 2008	April 29, 2008	July 3, 2008	September 12, 2008
February 21, 2008	April 30, 2008	July 4, 2008	September 15, 2008
February 22, 2008	May 1, 2008	July 7, 2008	September 16, 2008
February 25, 2008	May 2, 2008	July 8, 2008	September 17, 2008
February 28, 2008	May 6, 2008	July 9, 2008	September 18, 2008
February 29, 2008	May 8, 2008	July 11, 2008	September 22, 2008
March 3, 2008	May 9, 2008	July 14, 2008	September 23, 2008
March 4, 2008	May 12, 2008	July 16, 2008	September 24, 2008

September 25, 2008	November 26, 2008	February 4, 2009	April 6, 2009
September 26, 2008	November 28, 2008	February 5, 2009	April 7, 2009
September 29, 2008	December 1, 2008	February 6, 2009	April 8, 2009
September 30, 2008	December 3, 2008	February 9, 2009	April 9, 2009
October 1, 2008	December 4, 2008	February 10, 2009	April 14, 2009
October 2, 2008	December 5, 2008	February 11, 2009	April 16, 2009
October 3, 2008	December 8, 2008	February 12, 2009	April 17, 2009
October 6, 2008	December 9, 2008	February 13, 2009	April 20, 2009
October 7, 2008	December 10, 2008	February 16, 2009	April 21, 2009
October 8, 2008	December 11, 2008	February 17, 2009	April 22, 2009
October 9, 2008	December 12, 2008	February 18, 2009	April 23, 2009
October 10, 2008	December 15, 2008	February 19, 2009	April 24, 2009
October 13, 2008	December 16, 2008	February 20, 2009	April 27, 2009
October 14, 2008	December 17, 2008	February 23, 2009	April 28, 2009
October 15, 2008	December 18, 2008	February 24, 2009	April 30, 2009
October 16, 2008	December 19, 2008	February 25, 2009	May 6, 2009
October 17, 2008	December 23, 2008	February 26, 2009	May 7, 2009
October 21, 2008	December 29, 2008	February 27, 2009	May 8, 2009
October 22, 2008	December 30, 2008	March 2, 2009	May 11, 2009
October 23, 2008	January 2, 2009	March 3, 2009	May 12, 2009
October 24, 2008	January 5, 2009	March 4, 2009	May 13, 2009
October 28, 2008	January 6, 2009	March 5, 2009	May 14, 2009
October 29, 2008	January 7, 2009	March 6, 2009	May 15, 2009
October 30, 2008	January 8, 2009	March 9, 2009	May 18, 2009
November 3, 2008	January 9, 2009	March 10, 2009	May 19, 2009
November 4, 2008	January 12, 2009	March 11, 2009	May 21, 2009
November 5, 2008	January 13, 2009	March 12, 2009	May 26, 2009
November 6, 2008	January 14, 2009	March 13, 2009	May 28, 2009
November 7, 2008	January 15, 2009	March 16, 2009	May 29, 2009
November 10, 2008	January 19, 2009	March 18, 2009	June 1, 2009
November 11, 2008	January 20, 2009	March 19, 2009	June 2, 2009
November 12, 2008	January 21, 2009	March 20, 2009	June 4, 2009
November 13, 2008	January 22, 2009	March 24, 2009	June 5, 2009
November 14, 2008	January 23, 2009	March 25, 2009	June 8, 2009
November 17, 2008	January 26, 2009	March 27, 2009	June 9, 2009
November 18, 2008	January 27, 2009	March 30, 2009	June 10, 2009
November 20, 2008	January 29, 2009	March 31, 2009	June 11, 2009
November 24, 2008	January 30, 2009	April 1, 2009	June 12, 2009
November 25, 2008	February 2, 2009	April 2, 2009	June 15, 2009

June 16, 2009	August 27, 2009	November 3, 2009	January 7, 2010
June 17, 2009	August 28, 2009	November 4, 2009	January 8, 2010
June 18, 2009	September 2, 2009	November 5, 2009	January 12, 2010
June 22, 2009	September 3, 2009	November 6, 2009	January 13, 2010
June 23, 2009	September 4, 2009	November 9, 2009	January 15, 2010
June 24, 2009	September 7, 2009	November 10, 2009	January 18, 2010
June 26, 2009	September 8, 2009	November 11, 2009	January 19, 2010
June 29, 2009	September 9, 2009	November 12, 2009	January 20, 2010
June 30, 2009	September 10, 2009	November 13, 2009	January 22, 2010
July 1, 2009	September 11, 2009	November 16, 2009	January 25, 2010
July 2, 2009	September 14, 2009	November 17, 2009	January 26, 2010
July 6, 2009	September 15, 2009	November 18, 2009	January 27, 2010
July 7, 2009	September 16, 2009	November 19, 2009	January 29, 2010
July 9, 2009	September 17, 2009	November 20, 2009	February 1, 2010
July 10, 2009	September 18, 2009	November 23, 2009	February 2, 2010
July 13, 2009	September 21, 2009	November 24, 2009	February 3, 2010
July 14, 2009	September 22, 2009	November 25, 2009	February 4, 2010
July 15, 2009	September 23, 2009	November 26, 2009	February 5, 2010
July 16, 2009	September 24, 2009	November 27, 2009	February 8, 2010
July 17, 2009	September 25, 2009	November 30, 2009	February 9, 2010
July 21, 2009	September 28, 2009	December 1, 2009	February 10, 2010
July 23, 2009	September 29, 2009	December 2, 2009	February 11, 2010
July 24, 2009	September 30, 2009	December 3, 2009	February 12, 2010
July 29, 2009	October 2, 2009	December 7, 2009	February 15, 2010
July 30, 2009	October 7, 2009	December 9, 2009	February 16, 2010
July 31, 2009	October 8, 2009	December 10, 2009	February 17, 2010
August 5, 2009	October 9, 2009	December 11, 2009	February 18, 2010
August 7, 2009	October 12, 2009	December 14, 2009	February 19, 2010
August 10, 2009	October 13, 2009	December 15, 2009	February 22, 2010
August 11, 2009	October 14, 2009	December 16, 2009	February 23, 2010
August 12, 2009	October 16, 2009	December 17, 2009	February 24, 2010
August 13, 2009	October 19, 2009	December 18, 2009	February 25, 2010
August 17, 2009	October 20, 2009	December 21, 2009	February 26, 2010
August 18, 2009	October 21, 2009	December 22, 2009	March 1, 2010
August 19, 2009	October 22, 2009	December 23, 2009	March 2, 2010
August 20, 2009	October 26, 2009	December 29, 2009	March 3, 2010
August 21, 2009	October 27, 2009	December 30, 2009	March 5, 2010
August 25, 2009	October 28, 2009	January 5, 2010	March 8, 2010
August 26, 2009	October 30, 2009	January 6, 2010	March 9, 2010

March 10, 2010	May 19, 2010	July 21, 2010	September 17, 2010
March 11, 2010	May 20, 2010	July 22, 2010	September 21, 2010
March 15, 2010	May 21, 2010	July 23, 2010	September 22, 2010
March 16, 2010	May 24, 2010	July 26, 2010	September 23, 2010
March 17, 2010	May 25, 2010	July 27, 2010	September 27, 2010
March 18, 2010	May 27, 2010	July 28, 2010	September 28, 2010
March 19, 2010	May 28, 2010	July 29, 2010	September 29, 2010
March 22, 2010	June 1, 2010	July 30, 2010	September 30, 2010
March 23, 2010	June 2, 2010	August 3, 2010	October 1, 2010
March 24, 2010	June 3, 2010	August 4, 2010	October 4, 2010
March 25, 2010	June 4, 2010	August 5, 2010	October 5, 2010
March 26, 2010	June 7, 2010	August 6, 2010	October 7, 2010
March 29, 2010	June 8, 2010	August 9, 2010	October 8, 2010
March 30, 2010	June 9, 2010	August 10, 2010	October 11, 2010
March 31, 2010	June 10, 2010	August 11, 2010	October 12, 2010
April 1, 2010	June 11, 2010	August 13, 2010	October 13, 2010
April 6, 2010	June 14, 2010	August 16, 2010	October 14, 2010
April 7, 2010	June 15, 2010	August 17, 2010	October 15, 2010
April 8, 2010	June 18, 2010	August 18, 2010	October 19, 2010
April 9, 2010	June 21, 2010	August 19, 2010	October 20, 2010
April 12, 2010	June 22, 2010	August 20, 2010	October 21, 2010
April 13, 2010	June 23, 2010	August 23, 2010	October 22, 2010
April 14, 2010	June 24, 2010	August 24, 2010	October 25, 2010
April 15, 2010	June 25, 2010	August 25, 2010	October 26, 2010
April 19, 2010	June 28, 2010	August 26, 2010	October 27, 2010
April 20, 2010	June 29, 2010	August 27, 2010	November 2, 2010
April 21, 2010	June 30, 2010	August 31, 2010	November 3, 2010
April 22, 2010	July 2, 2010	September 1, 2010	November 4, 2010
April 23, 2010	July 5, 2010	September 2, 2010	November 5, 2010
April 26, 2010	July 6, 2010	September 3, 2010	November 8, 2010
April 27, 2010	July 7, 2010	September 6, 2010	November 10, 2010
April 28, 2010	July 8, 2010	September 7, 2010	November 11, 2010
April 29, 2010	July 9, 2010	September 8, 2010	November 16, 2010
May 4, 2010	July 13, 2010	September 9, 2010	November 17, 2010
May 5, 2010	July 14, 2010	September 10, 2010	November 18, 2010
May 6, 2010	July 15, 2010	September 13, 2010	November 19, 2010
May 11, 2010	July 16, 2010	September 14, 2010	November 22, 2010
May 14, 2010	July 19, 2010	September 15, 2010	November 23, 2010
May 17, 2010	July 20, 2010	September 16, 2010	November 24, 2010

November 25, 2010	February 9, 2011	May 3, 2011	July 11, 2011
November 26, 2010	February 10, 2011	May 4, 2011	July 12, 2011
November 29, 2010	February 15, 2011	May 6, 2011	July 13, 2011
December 1, 2010	February 16, 2011	May 9, 2011	July 14, 2011
December 2, 2010	February 17, 2011	May 11, 2011	July 15, 2011
December 6, 2010	February 18, 2011	May 12, 2011	July 18, 2011
December 7, 2010	February 23, 2011	May 13, 2011	July 19, 2011
December 8, 2010	February 25, 2011	May 16, 2011	July 20, 2011
December 9, 2010	February 28, 2011	May 17, 2011	July 22, 2011
December 10, 2010	March 1, 2011	May 18, 2011	July 25, 2011
December 13, 2010	March 7, 2011	May 19, 2011	July 26, 2011
December 14, 2010	March 8, 2011	May 20, 2011	July 28, 2011
December 16, 2010	March 11, 2011	May 23, 2011	July 29, 2011
December 17, 2010	March 14, 2011	May 24, 2011	August 1, 2011
December 20, 2010	March 15, 2011	May 25, 2011	August 2, 2011
December 21, 2010	March 16, 2011	May 26, 2011	August 3, 2011
December 22, 2010	March 17, 2011	May 27, 2011	August 4, 2011
December 23, 2010	March 18, 2011	June 1, 2011	August 5, 2011
December 29, 2010	March 23, 2011	June 3, 2011	August 8, 2011
January 4, 2011	March 24, 2011	June 7, 2011	August 9, 2011
January 5, 2011	March 28, 2011	June 9, 2011	August 11, 2011
January 6, 2011	March 30, 2011	June 10, 2011	August 12, 2011
January 10, 2011	March 31, 2011	June 13, 2011	August 15, 2011
January 11, 2011	April 1, 2011	June 14, 2011	August 17, 2011
January 12, 2011	April 5, 2011	June 15, 2011	August 18, 2011
January 13, 2011	April 6, 2011	June 16, 2011	August 19, 2011
January 14, 2011	April 7, 2011	June 17, 2011	August 23, 2011
January 18, 2011	April 8, 2011	June 20, 2011	August 24, 2011
January 19, 2011	April 12, 2011	June 23, 2011	August 25, 2011
January 20, 2011	April 13, 2011	June 24, 2011	August 26, 2011
January 21, 2011	April 14, 2011	June 27, 2011	August 31, 2011
January 24, 2011	April 15, 2011	June 28, 2011	September 1, 2011
January 25, 2011	April 18, 2011	June 29, 2011	September 5, 2011
January 26, 2011	April 19, 2011	June 30, 2011	September 6, 2011
January 31, 2011	April 20, 2011	July 1, 2011	September 7, 2011
February 1, 2011	April 21, 2011	July 5, 2011	September 8, 2011
February 3, 2011	April 26, 2011	July 6, 2011	September 9, 2011
February 4, 2011	April 27, 2011	July 7, 2011	September 12, 2011
February 7, 2011	April 28, 2011	July 8, 2011	September 13, 2011

September 14, 2011	November 22, 2011	January 30, 2012	April 16, 2012
September 15, 2011	November 23, 2011	January 31, 2012	April 17, 2012
September 19, 2011	November 24, 2011	February 1, 2012	April 18, 2012
September 20, 2011	November 25, 2011	February 2, 2012	April 20, 2012
September 21, 2011	November 28, 2011	February 3, 2012	April 23, 2012
September 22, 2011	November 29, 2011	February 7, 2012	April 24, 2012
September 23, 2011	November 30, 2011	February 10, 2012	April 25, 2012
September 26, 2011	December 1, 2011	February 13, 2012	April 26, 2012
September 27, 2011	December 2, 2011	February 14, 2012	April 27, 2012
September 29, 2011	December 5, 2011	February 16, 2012	April 30, 2012
September 30, 2011	December 6, 2011	February 17, 2012	May 1, 2012
October 4, 2011	December 7, 2011	February 20, 2012	May 2, 2012
October 5, 2011	December 8, 2011	February 21, 2012	May 3, 2012
October 6, 2011	December 9, 2011	February 22, 2012	May 4, 2012
October 10, 2011	December 12, 2011	February 24, 2012	May 8, 2012
October 12, 2011	December 13, 2011	February 28, 2012	May 9, 2012
October 13, 2011	December 14, 2011	March 1, 2012	May 10, 2012
October 18, 2011	December 15, 2011	March 2, 2012	May 11, 2012
October 19, 2011	December 16, 2011	March 6, 2012	May 14, 2012
October 21, 2011	December 21, 2011	March 7, 2012	May 15, 2012
October 24, 2011	December 22, 2011	March 8, 2012	May 16, 2012
October 25, 2011	December 29, 2011	March 9, 2012	May 17, 2012
October 26, 2011	January 3, 2012	March 12, 2012	May 18, 2012
October 27, 2011	January 4, 2012	March 13, 2012	May 21, 2012
October 28, 2011	January 5, 2012	March 14, 2012	May 23, 2012
October 31, 2011	January 6, 2012	March 19, 2012	May 24, 2012
November 1, 2011	January 9, 2012	March 20, 2012	May 28, 2012
November 2, 2011	January 11, 2012	March 21, 2012	May 30, 2012
November 3, 2011	January 12, 2012	March 22, 2012	May 31, 2012
November 4, 2011	January 13, 2012	March 28, 2012	June 6, 2012
November 7, 2011	January 16, 2012	March 29, 2012	June 7, 2012
November 8, 2011	January 17, 2012	March 30, 2012	June 8, 2012
November 9, 2011	January 18, 2012	April 2, 2012	June 11, 2012
November 10, 2011	January 19, 2012	April 4, 2012	June 13, 2012
November 14, 2011	January 20, 2012	April 5, 2012	June 14, 2012
November 16, 2011	January 24, 2012	April 10, 2012	June 18, 2012
November 17, 2011	January 25, 2012	April 11, 2012	June 19, 2012
November 18, 2011	January 26, 2012	April 12, 2012	June 20, 2012
November 21, 2011	January 27, 2012	April 13, 2012	June 21, 2012

June 22, 2012	September 4, 2012	November 23, 2012	February 7, 2013
June 25, 2012	September 5, 2012	November 26, 2012	February 8, 2013
June 26, 2012	September 10, 2012	November 28, 2012	February 11, 2013
June 28, 2012	September 12, 2012	November 29, 2012	February 13, 2013
July 2, 2012	September 13, 2012	November 30, 2012	February 15, 2013
July 3, 2012	September 18, 2012	December 3, 2012	February 19, 2013
July 4, 2012	September 19, 2012	December 4, 2012	February 20, 2013
July 5, 2012	September 20, 2012	December 5, 2012	February 21, 2013
July 6, 2012	September 21, 2012	December 6, 2012	February 22, 2013
July 9, 2012	September 24, 2012	December 7, 2012	February 25, 2013
July 10, 2012	September 26, 2012	December 10, 2012	February 26, 2013
July 12, 2012	September 27, 2012	December 11, 2012	February 27, 2013
July 13, 2012	September 28, 2012	December 13, 2012	March 5, 2013
July 17, 2012	October 1, 2012	December 17, 2012	March 6, 2013
July 19, 2012	October 2, 2012	December 19, 2012	March 7, 2013
July 20, 2012	October 3, 2012	December 20, 2012	March 8, 2013
July 23, 2012	October 8, 2012	December 21, 2012	March 11, 2013
July 24, 2012	October 9, 2012	December 27, 2012	March 12, 2013
July 25, 2012	October 10, 2012	January 4, 2013	March 14, 2013
July 27, 2012	October 12, 2012	January 7, 2013	March 15, 2013
July 30, 2012	October 15, 2012	January 9, 2013	March 18, 2013
July 31, 2012	October 16, 2012	January 10, 2013	March 21, 2013
August 1, 2012	October 17, 2012	January 11, 2013	March 22, 2013
August 2, 2012	October 19, 2012	January 14, 2013	March 25, 2013
August 7, 2012	October 22, 2012	January 15, 2013	March 26, 2013
August 8, 2012	October 23, 2012	January 16, 2013	March 27, 2013
August 9, 2012	October 24, 2012	January 17, 2013	April 2, 2013
August 13, 2012	October 29, 2012	January 18, 2013	April 4, 2013
August 14, 2012	October 30, 2012	January 21, 2013	April 5, 2013
August 15, 2012	October 31, 2012	January 22, 2013	April 9, 2013
August 16, 2012	November 1, 2012	January 24, 2013	April 10, 2013
August 17, 2012	November 2, 2012	January 25, 2013	April 11, 2013
August 20, 2012	November 8, 2012	January 28, 2013	April 15, 2013
August 21, 2012	November 12, 2012	January 29, 2013	April 16, 2013
August 22, 2012	November 13, 2012	January 30, 2013	April 19, 2013
August 23, 2012	November 15, 2012	February 1, 2013	April 23, 2013
August 28, 2012	November 16, 2012	February 4, 2013	April 24, 2013
August 29, 2012	November 19, 2012	February 5, 2013	April 26, 2013
August 31, 2012	November 21, 2012	February 6, 2013	April 29, 2013

April 30, 2013
May 1, 2013
May 2, 2013
May 3, 2013
May 7, 2013
May 8, 2013
May 9, 2013
May 10, 2013
May 13, 2013
May 14, 2013
May 16, 2013
May 17, 2013
May 20, 2013
May 21, 2013
May 22, 2013
May 23, 2013
May 24, 2013
May 28, 2013
May 29, 2013
May 30, 2013
May 31, 2013
June 3, 2013
June 7, 2013
June 10, 2013
June 11, 2013
June 18, 2013
June 20, 2013
June 21, 2013
June 28, 2013

APPENDIX B**Days on Which Plaintiffs' Sales Coincided with Defendants' Manipulation of the PM Fixing**

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
5-Jan-04	Multiple	\$470,838.26
14-Jan-04	Multiple	\$9,249.94
14-Jan-04	CMD	\$353,942
22-Jan-04	McKennon, Kelly & Blanche	\$71,563.13
5-Feb-04	McKennon, Kelly & Blanche	\$499.40
6-Feb-04	Multiple	\$18,557.60
9-Feb-04	Multiple	\$8,198.80
10-Feb-04	McKennon, Kelly & Blanche	\$23,576.76
11-Feb-04	Multiple	\$9,300.00
12-Feb-04	Moran, Thomas	\$7,060.00
17-Feb-04	Multiple	\$3,573.64
20-Feb-04	Moran, Thomas	\$3,280.00
24-Feb-04	CMD	\$369,864
1-Mar-04	Moran, Thomas	\$3,950.00
17-Mar-04	Moran, Thomas	\$340.00
18-Mar-04	Moran, Thomas	\$6,130.00
19-Mar-04	Moran, Thomas	\$12,880.00
22-Mar-04	Moran, Thomas	\$8,410.00
23-Mar-04	Moran, Thomas	\$38,580.00
24-Mar-04	Moran, Thomas	\$13,310.00
25-Mar-04	Moran, Thomas	\$35,880.00
26-Mar-04	Moran, Thomas	\$38,500.00
26-Mar-04	CMD	\$397,156
30-Mar-04	Moran, Thomas	\$4,750.00
31-Mar-04	Moran, Thomas	\$15,240.00
1-Apr-04	Moran, Thomas	\$13,900.00
2-Apr-04	Moran, Thomas	\$16,270.00
8-Apr-04	Moran, Thomas	\$1,230.00
8-Apr-04	CMD	\$423,225
13-Apr-04	Moran, Thomas	\$19,410.00
19-Apr-04	Moran, Thomas	\$350.00
20-Apr-04	Moran, Thomas	\$430.00
29-Apr-04	Moran, Thomas	\$2,020.00
11-May-04	CMD	\$636,383
8-Jun-04	Moran, Thomas	\$300.00

¹ All amounts are provisional, with exact amounts to be determined.

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
17-Jun-04	CMD	\$201,197
21-Jun-04	Moran, Thomas	\$470.00
28-Jun-04	Multiple	\$218,355.08
16-Jul-04	Moran, Thomas	\$10,450.00
16-Jul-04	CMD	\$146,613
19-Jul-04	Moran, Thomas	\$3,500.00
20-Jul-04	Moran, Thomas	\$7,550.00
27-Jul-04	Multiple	\$67,510.00
28-Jul-04	McKennon, Kelly & Blanche	\$19,200.00
2-Aug-04	Moran, Thomas	\$1,680.00
3-Aug-04	Moran, Thomas	\$1,640.00
4-Aug-04	Moran, Thomas	\$1,100.00
6-Aug-04	McKennon, Kelly & Blanche	\$17,500.00
9-Aug-04	Moran, Thomas	\$2,200.00
11-Aug-04	Moran, Thomas	\$5,330.00
16-Aug-04	Moran, Thomas	\$13,570.00
17-Aug-04	Moran, Thomas	\$6,040.00
18-Aug-04	Moran, Thomas	\$1,140.00
20-Aug-04	Multiple	\$70,150.00
25-Aug-04	Moran, Thomas	\$950.00
26-Aug-04	Moran, Thomas	\$32,200.00
27-Aug-04	Moran, Thomas	\$1,130.00
31-Aug-04	Moran, Thomas	\$2,700.00
1-Oct-04	Moran, Thomas	\$43,400.00
5-Oct-04	Moran, Thomas	\$1,530.00
8-Oct-04	Moran, Thomas	\$150.00
15-Oct-04	Moran, Thomas	\$7,580.00
20-Oct-04	Moran, Thomas	\$8,770.00
21-Oct-04	Multiple	\$4,320.00
22-Oct-04	Moran, Thomas	\$8,600.00
28-Oct-04	McKennon, Kelly & Blanche	\$1,560.00
29-Oct-04	McKennon, Kelly & Blanche	\$14,830.00
4-Nov-04	Moran, Thomas	\$660.00
8-Nov-04	Moran, Thomas	\$14,890.00
9-Nov-04	Multiple	\$24,050.00
11-Nov-04	Moran, Thomas	\$1,880.00
12-Nov-04	Moran, Thomas	\$2,590.00
15-Nov-04	McKennon, Kelly & Blanche	\$9,539.40
17-Nov-04	Multiple	\$74,540.00
18-Nov-04	Multiple	\$3,470.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
18-Nov-04	CMD	\$132,849
19-Nov-04	Multiple	\$36,290.00
22-Nov-04	Multiple	\$3,110.00
24-Nov-04	Multiple	\$48,300.00
29-Nov-04	Moran, Thomas	\$26,890.00
1-Dec-04	Moran, Thomas	\$24,900.00
3-Dec-04	Moran, Thomas	\$5,650.00
6-Dec-04	Multiple	\$749.82
8-Dec-04	Multiple	\$29,490.00
10-Dec-04	CMD	\$143,214
13-Dec-04	Multiple	\$2,008.80
15-Dec-04	McKennon, Kelly & Blanche	\$478.80
21-Dec-04	Moran, Thomas	\$870.00
4-Jan-05	McKennon, Kelly & Blanche	\$18,000.00
11-Jan-05	Moran, Thomas	\$1,700.00
21-Jan-05	Multiple	\$949.36
24-Jan-05	Moran, Thomas	\$9,220.00
26-Jan-05	McKennon, Kelly & Blanche	\$9,007.96
27-Jan-05	Multiple	\$199,870.00
28-Jan-05	Moran, Thomas	\$890.00
31-Jan-05	Moran, Thomas	\$520.00
1-Feb-05	CMD	\$98,217
1-Feb-05	CMD	\$98,494
10-Feb-05	Multiple	\$1,299.76
14-Feb-05	Moran, Thomas	\$4,860.00
23-Feb-05	Moran, Thomas	\$5,410.00
28-Feb-05	Moran, Thomas	\$4,080.00
4-Mar-05	Moran, Thomas	\$3,510.00
7-Mar-05	Moran, Thomas	\$400.00
9-Mar-05	CMD	\$25,058
16-Mar-05	Moran, Thomas	\$40.00
21-Mar-05	Moran, Thomas	\$1,450.00
29-Mar-05	McKennon, Kelly & Blanche	\$4,860.00
30-Mar-05	Moran, Thomas	\$1,130.00
1-Apr-05	Moran, Thomas	\$650.00
13-Apr-05	Moran, Thomas	\$1,030.00
19-Apr-05	Moran, Thomas	\$2,780.00
20-Apr-05	Moran, Thomas	\$1,260.00
22-Apr-05	Moran, Thomas	\$3,720.00
25-Apr-05	Moran, Thomas	\$1,000.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
26-Apr-05	Moran, Thomas	\$20,980.00
27-Apr-05	Moran, Thomas	\$16,460.00
29-Apr-05	Moran, Thomas	\$2,579.20
11-May-05	Moran, Thomas	\$87.92
18-May-05	Moran, Thomas	\$544.80
31-May-05	CMD	\$204,979
2-Jun-05	Moran, Thomas	\$1,534.80
6-Jun-05	Moran, Thomas	\$539.60
8-Jun-05	Moran, Thomas	\$10,919.20
9-Jun-05	Moran, Thomas	\$2,950.00
13-Jun-05	Moran, Thomas	\$12,714.00
14-Jun-05	Moran, Thomas	\$979.20
15-Jun-05	Moran, Thomas	\$1,618.80
16-Jun-05	Moran, Thomas	\$16,559.20
21-Jun-05	Moran, Thomas	\$3,904.00
22-Jun-05	Moran, Thomas	\$28,158.80
5-Jul-05	McKennon, Kelly & Blanche	\$8,000.00
15-Jul-05	McKennon, Kelly & Blanche	\$15,000.00
20-Jul-05	McKennon, Kelly & Blanche	\$10,500.00
22-Jul-05	McKennon, Kelly & Blanche	\$150.00
26-Jul-05	McKennon, Kelly & Blanche	\$76,570.00
27-Jul-05	McKennon, Kelly & Blanche	\$4,800.00
28-Jul-05	Moran, Thomas	\$7,619.20
26-Aug-05	McKennon, Kelly & Blanche	\$17,000.00
30-Aug-05	Moran, Thomas	\$2,000.00
31-Aug-05	Moran, Thomas	\$60.00
6-Sep-05	Moran, Thomas	\$4,130.00
9-Sep-05	Moran, Thomas	\$17,624.40
12-Sep-05	Moran, Thomas	\$2,451.28
14-Sep-05	Moran, Thomas	\$469.20
16-Sep-05	Moran, Thomas	\$27,440.20
22-Sep-05	Moran, Thomas	\$2,279.60
26-Sep-05	Moran, Thomas	\$5,189.20
28-Sep-05	Multiple	\$31,586.48
5-Oct-05	Moran, Thomas	\$1,389.60
7-Oct-05	Moran, Thomas	\$2,559.60
11-Oct-05	Moran, Thomas	\$1,409.60
12-Oct-05	Moran, Thomas	\$6,501.20
14-Oct-05	Moran, Thomas	\$1,827.52
20-Oct-05	Moran, Thomas	\$150.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
28-Oct-05	Moran, Thomas	\$4,729.20
9-Nov-05	Moran, Thomas	\$4,839.60
14-Nov-05	Moran, Thomas	\$1,474.40
15-Nov-05	Moran, Thomas	\$289.20
16-Nov-05	Moran, Thomas	\$5,323.60
23-Nov-05	Multiple	\$38,574.60
28-Nov-05	Moran, Thomas	\$3,509.20
29-Nov-05	Moran, Thomas	\$679.60
1-Dec-05	Moran, Thomas	\$694.80
5-Dec-05	Moran, Thomas	\$1,454.80
6-Dec-05	Moran, Thomas	\$769.20
8-Dec-05	Moran, Thomas	\$5,449.20
9-Dec-05	Moran, Thomas	\$6,269.60
12-Dec-05	Moran, Thomas	\$319.80
16-Dec-05	Moran, Thomas	\$150.00
22-Dec-05	Moran, Thomas	\$3,845.76
3-Jan-06	Moran, Thomas	\$5,129.80
4-Jan-06	Moran, Thomas	\$6,194.80
5-Jan-06	Bailey, Norman	\$13,340.00
9-Jan-06	Moran, Thomas	\$14,510.00
11-Jan-06	Moran, Thomas	\$797.88
17-Jan-06	Moran, Thomas	\$3,941.88
24-Jan-06	Bailey, Norman	\$12,750.00
27-Jan-06	McKennon, Kelly & Blanche	\$60.00
31-Jan-06	Moran, Thomas	\$1,631.88
1-Feb-06	Multiple	\$6,330.00
2-Feb-06	Moran, Thomas	\$1,124.80
6-Feb-06	Moran, Thomas	\$256.72
7-Feb-06	Moran, Thomas	\$970.00
8-Feb-06	Moran, Thomas	\$111.92
14-Feb-06	Moran, Thomas	\$2,077.88
16-Feb-06	Moran, Thomas	\$1,804.80
20-Feb-06	CMD	\$66,014
21-Feb-06	Moran, Thomas	\$3,867.68
28-Feb-06	Moran, Thomas	\$2,604.80
1-Mar-06	Moran, Thomas	\$376.88
2-Mar-06	Moran, Thomas	\$4,440.56
3-Mar-06	Moran, Thomas	\$374.56
7-Mar-06	Moran, Thomas	\$1,432.60
10-Mar-06	Moran, Thomas	\$2,133.88

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
14-Mar-06	Moran, Thomas	\$3,883.20
15-Mar-06	Moran, Thomas	\$8,610.16
16-Mar-06	Moran, Thomas	\$2,109.60
20-Mar-06	Moran, Thomas	\$387.92
21-Mar-06	Moran, Thomas	\$1,374.80
24-Mar-06	Moran, Thomas	\$6,074.60
27-Mar-06	Moran, Thomas	\$8,764.60
29-Mar-06	Multiple	\$6,329.20
3-Apr-06	Moran, Thomas	\$7,280.00
4-Apr-06	Multiple	\$8,299.60
5-Apr-06	Moran, Thomas	\$1,704.64
6-Apr-06	Moran, Thomas	\$2,079.40
7-Apr-06	Moran, Thomas	\$1,148.52
13-Apr-06	Moran, Thomas	\$685.40
18-Apr-06	Multiple	\$14,268.60
20-Apr-06	Moran, Thomas	\$10,542.88
21-Apr-06	Multiple	\$18,670.00
24-Apr-06	Bailey, Norman	\$8,080.00
25-Apr-06	Moran, Thomas	\$3,162.88
26-Apr-06	Moran, Thomas	\$5,701.52
27-Apr-06	Multiple	\$9,145.76
28-Apr-06	Moran, Thomas	\$7,224.80
28-Apr-06	CMD	\$111,329
28-Apr-06	CMD	\$339,671
8-May-06	CMD	\$466,252
10-May-06	Moran, Thomas	\$140.00
11-May-06	Moran, Thomas	\$8,280.00
15-May-06	Moran, Thomas	\$8,800.00
17-May-06	CMD	\$585,611
22-May-06	McKennon, Kelly & Blanche	\$960.20
23-May-06	Moran, Thomas	\$2,800.00
24-May-06	Bailey, Norman	\$2,370.00
24-May-06	CMD	\$326,432
25-May-06	McKennon, Kelly & Blanche	\$3,300.00
26-May-06	McKennon, Kelly & Blanche	\$16,080.20
31-May-06	Multiple	\$1,441.00
1-Jun-06	Moran, Thomas	\$681.92
2-Jun-06	Moran, Thomas	\$360.00
2-Jun-06	CMD	\$551,698
5-Jun-06	Moran, Thomas	\$4,289.60

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
7-Jun-06	Moran, Thomas	\$4,506.72
8-Jun-06	Bailey, Norman	\$150.00
12-Jun-06	Moran, Thomas	\$300.00
12-Jun-06	CMD	\$495,585
20-Jun-06	Moran, Thomas	\$1,680.96
20-Jun-06	CMD	\$541,315
21-Jun-06	Bailey, Norman	\$4,300.00
22-Jun-06	Moran, Thomas	\$1,280.00
23-Jun-06	Moran, Thomas	\$10,927.68
26-Jun-06	Moran, Thomas	\$3,097.68
27-Jun-06	Moran, Thomas	\$439.60
27-Jun-06	CMD	\$503,928
28-Jun-06	Moran, Thomas	\$494.80
3-Jul-06	Moran, Thomas	\$20,500.00
5-Jul-06	CMD	\$523,832
6-Jul-06	Moran, Thomas	\$23,584.80
7-Jul-06	Moran, Thomas	\$5,330.00
11-Jul-06	Moran, Thomas	\$11,789.60
12-Jul-06	Moran, Thomas	\$17,120.00
13-Jul-06	Multiple	\$14,445.40
14-Jul-06	CMD	\$746,144
17-Jul-06	Multiple	\$40,518.00
19-Jul-06	Moran, Thomas	\$6,850.00
20-Jul-06	Moran, Thomas	\$1,461.92
24-Jul-06	Multiple	\$41,072.04
25-Jul-06	McKennon, Kelly & Blanche	\$630.10
26-Jul-06	CMD	\$694,647
26-Jul-06	CMD	\$687,133
26-Jul-06	CMD	\$685,110
28-Jul-06	Multiple	\$4,440.00
31-Jul-06	Multiple	\$973.88
1-Aug-06	Multiple	\$2,105.76
4-Aug-06	Moran, Thomas	\$6,620.00
7-Aug-06	Moran, Thomas	\$9,144.80
9-Aug-06	Moran, Thomas	\$1,250.00
10-Aug-06	Moran, Thomas	\$1,479.60
11-Aug-06	Moran, Thomas	\$3,840.00
14-Aug-06	Moran, Thomas	\$8,578.64
16-Aug-06	Multiple	\$1,434.80
21-Aug-06	Multiple	\$5,606.72

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
22-Aug-06	Moran, Thomas	\$1,062.88
25-Aug-06	Moran, Thomas	\$593.84
25-Aug-06	CMD	\$734,918
25-Aug-06	CMD	\$588,797
25-Aug-06	CMD	\$529,225
30-Aug-06	Multiple	\$1,682.88
31-Aug-06	Multiple	\$19,830.00
1-Sep-06	Moran, Thomas	\$652.88
6-Sep-06	Moran, Thomas	\$1,274.80
8-Sep-06	Moran, Thomas	\$1,605.76
8-Sep-06	CMD	\$623,169
11-Sep-06	Moran, Thomas	\$510.00
13-Sep-06	McKennon, Kelly & Blanche	\$8,736.42
15-Sep-06	Multiple	\$26,236.20
18-Sep-06	McKennon, Kelly & Blanche	\$3,300.20
20-Sep-06	CMD	\$595,011
22-Sep-06	Moran, Thomas	\$130.96
26-Sep-06	Moran, Thomas	\$1,241.92
26-Sep-06	CMD	\$664,552
27-Sep-06	Multiple	\$8,624.80
2-Oct-06	Moran, Thomas	\$3,330.96
6-Oct-06	Moran, Thomas	\$250.96
9-Oct-06	Moran, Thomas	\$461.92
9-Oct-06	CMD	\$679,339
9-Oct-06	CMD	\$669,905
10-Oct-06	Multiple	\$1,272.88
12-Oct-06	Moran, Thomas	\$1,201.92
16-Oct-06	Multiple	\$4,612.88
17-Oct-06	Moran, Thomas	\$122.88
18-Oct-06	Moran, Thomas	\$647.68
19-Oct-06	Moran, Thomas	\$2,534.80
24-Oct-06	Multiple	\$6,919.84
24-Oct-06	CMD	\$631,845
25-Oct-06	Bailey, Norman	\$1,950.00
26-Oct-06	Multiple	\$1,710.00
27-Oct-06	Multiple	\$72,804.80
30-Oct-06	Multiple	\$1,658.06
30-Oct-06	CMD	\$733,905
30-Oct-06	CMD	\$783,354
31-Oct-06	Multiple	\$17,099.60

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
1-Nov-06	Bailey, Norman	\$8,770.00
2-Nov-06	Bailey, Norman	\$2,460.00
3-Nov-06	Moran, Thomas	\$15,967.68
7-Nov-06	Moran, Thomas	\$3,830.96
7-Nov-06	CMD	\$790,350
13-Nov-06	Multiple	\$6,803.96
14-Nov-06	Moran, Thomas	\$2,149.60
14-Nov-06	CMD	\$821,885
15-Nov-06	Moran, Thomas	\$952.88
16-Nov-06	Moran, Thomas	\$274.80
21-Nov-06	Moran, Thomas	\$444.80
24-Nov-06	Moran, Thomas	\$3,121.92
28-Nov-06	Moran, Thomas	\$6,134.80
28-Nov-06	CMD	\$814,263
29-Nov-06	Multiple	\$19,059.84
1-Dec-06	Moran, Thomas	\$2,939.60
4-Dec-06	Moran, Thomas	\$184.80
5-Dec-06	Moran, Thomas	\$2,127.68
7-Dec-06	McKennon, Kelly & Blanche	\$1,660.20
7-Dec-06	CMD	\$827,312
12-Dec-06	Bailey, Norman	\$360.00
13-Dec-06	CMD	\$822,801
20-Dec-06	CMD	\$846,652
3-Jan-07	CMD	\$798,709
5-Jan-07	Galligher, Thomas	\$1,740.00
11-Jan-07	CMD	\$830,801
15-Jan-07	CMD	\$831,463
19-Jan-07	Moran, Thomas	\$540.96
19-Jan-07	CMD	\$820,581
23-Jan-07	Moran, Thomas	\$6,722.88
24-Jan-07	Moran, Thomas	\$3,442.88
24-Jan-07	CMD	\$785,902
30-Jan-07	McKennon, Kelly & Blanche	\$9,790.80
31-Jan-07	McKennon, Kelly & Blanche	\$288.16
1-Feb-07	Multiple	\$108,490.00
2-Feb-07	Moran, Thomas	\$610.00
5-Feb-07	Moran, Thomas	\$960.00
5-Feb-07	CMD	\$707,321
8-Feb-07	Moran, Thomas	\$940.00
9-Feb-07	Windmiller, David	\$2.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
9-Feb-07	CMD	\$685,946
15-Feb-07	Moran, Thomas	\$650.00
15-Feb-07	CMD	\$681,692
16-Feb-07	Moran, Thomas	\$1,910.00
21-Feb-07	Moran, Thomas	\$22,050.00
23-Feb-07	Moran, Thomas	\$650.00
26-Feb-07	Moran, Thomas	\$8,520.00
27-Feb-07	Moran, Thomas	\$5,250.00
28-Feb-07	Moran, Thomas	\$550.00
8-Mar-07	Windmiller, David	\$1.00
12-Mar-07	Moran, Thomas	\$50.96
12-Mar-07	CMD	\$883,589
22-Mar-07	CMD	\$809,782
30-Mar-07	Moran, Thomas	\$484.80
2-Apr-07	Moran, Thomas	\$9,053.84
3-Apr-07	Moran, Thomas	\$10,804.80
4-Apr-07	Multiple	\$13,586.72
4-Apr-07	CMD	\$1,109,440
5-Apr-07	Moran, Thomas	\$354.80
10-Apr-07	Moran, Thomas	\$1,344.80
12-Apr-07	Multiple	\$34.88
12-Apr-07	CMD	\$1,114,048
13-Apr-07	Moran, Thomas	\$2,659.60
17-Apr-07	Moran, Thomas	\$33,590.00
18-Apr-07	Moran, Thomas	\$1,134.80
19-Apr-07	Moran, Thomas	\$1,110.00
20-Apr-07	Moran, Thomas	\$1,140.00
23-Apr-07	Moran, Thomas	\$404.80
23-Apr-07	CMD	\$821,512
1-May-07	CMD	\$735,184
8-May-07	Moran, Thomas	\$34.80
17-May-07	CMD	\$686,292
21-May-07	CMD	\$869,147
30-May-07	Moran, Thomas	\$113.68
31-May-07	Moran, Thomas	\$908.88
1-Jun-07	CMD	\$860,062
5-Jun-07	Windmiller, David	\$3,340.00
6-Jun-07	Moran, Thomas	\$3,084.80
6-Jun-07	CMD	\$845,598
15-Jun-07	Moran, Thomas	\$904.80

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
19-Jun-07	Multiple	\$3,484.80
20-Jun-07	Moran, Thomas	\$214.80
22-Jun-07	CMD	\$821,383
28-Jun-07	CMD	\$789,993
29-Jun-07	CMD	\$802,627
6-Jul-07	Moran, Thomas	\$1,645.92
10-Jul-07	CMD	\$887,496
16-Jul-07	CMD	\$949,684
20-Jul-07	CMD	\$1,121,292
23-Jul-07	Multiple	\$7,088.88
24-Jul-07	Moran, Thomas	\$15,620.72
25-Jul-07	CMD	\$1,180,564
27-Jul-07	Moran, Thomas	\$511.84
30-Jul-07	Windmiller,David	\$1,720.00
2-Aug-07	Moran, Thomas	\$1,120.72
3-Aug-07	Lewis, Duanne	\$460.00
3-Aug-07	CMD	\$1,126,447
6-Aug-07	Moran, Thomas	\$494.80
7-Aug-07	Moran, Thomas	\$1,582.56
8-Aug-07	Moran, Thomas	\$925.92
9-Aug-07	CMD	\$953,987
10-Aug-07	Moran, Thomas	\$2,588.88
15-Aug-07	Moran, Thomas	\$264.40
16-Aug-07	Moran, Thomas	\$365.92
17-Aug-07	Multiple	\$12,263.78
20-Aug-07	Lewis, Duanne	\$900.00
22-Aug-07	McKennon, Kelly & Blanche	\$2,080.10
22-Aug-07	CMD	\$1,040,829
23-Aug-07	Moran, Thomas	\$2,104.80
28-Aug-07	Lewis, Larry	\$410.00
29-Aug-07	Multiple	\$1,545.92
4-Sep-07	Multiple	\$5,145.92
5-Sep-07	Moran, Thomas	\$255.92
6-Sep-07	Multiple	\$15,153.98
7-Sep-07	Moran, Thomas	\$195.92
10-Sep-07	McKennon, Kelly & Blanche	\$2,157.96
11-Sep-07	Lewis, Larry	\$1,610.00
11-Sep-07	CMD	\$1,077,947
12-Sep-07	Nalven, Eric	\$3,720.00
13-Sep-07	Moran, Thomas	\$1,364.80

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
14-Sep-07	Multiple	\$1,685.92
17-Sep-07	Multiple	\$24,348.88
18-Sep-07	Lewis, Larry	\$710.00
20-Sep-07	Multiple	\$4,110.00
21-Sep-07	CMD	\$1,227,474
24-Sep-07	Moran, Thomas	\$1,098.88
25-Sep-07	Moran, Thomas	\$1,315.92
26-Sep-07	McKennon, Kelly & Blanche	\$15,799.96
28-Sep-07	Multiple	\$10,490.00
4-Oct-07	Moran, Thomas	\$3,818.88
5-Oct-07	CMD	\$1,135,836
5-Oct-07	CMD	\$1,292,887
9-Oct-07	Multiple	\$4,147.70
10-Oct-07	Multiple	\$13,431.84
11-Oct-07	Multiple	\$80,515.92
11-Oct-07	CMD	\$1,096,593
16-Oct-07	Moran, Thomas	\$2,011.84
17-Oct-07	Multiple	\$3,534.80
18-Oct-07	Multiple	\$43,305.00
18-Oct-07	CMD	\$1,227,309
19-Oct-07	Multiple	\$15,308.48
22-Oct-07	Moran, Thomas	\$3,285.92
23-Oct-07	Moran, Thomas	\$668.88
23-Oct-07	CMD	\$980,140
24-Oct-07	Multiple	\$5,081.84
26-Oct-07	Multiple	\$13,714.80
29-Oct-07	Multiple	\$24,136.68
31-Oct-07	Multiple	\$22,338.88
1-Nov-07	Multiple	\$28,529.90
5-Nov-07	CMD	\$1,529,568
7-Nov-07	Multiple	\$24,082.86
8-Nov-07	CMD	\$1,259,249
13-Nov-07	Maher, Kevin	\$19,290.00
15-Nov-07	Multiple	\$868.88
16-Nov-07	Moran, Thomas	\$1,218.48
19-Nov-07	Multiple	\$32,100.84
21-Nov-07	Multiple	\$1,020.72
26-Nov-07	Moran, Thomas	\$16,339.60
27-Nov-07	Multiple	\$44,391.63
29-Nov-07	Maher, Kevin	\$10,500.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
4-Dec-07	CMD	\$1,178,765
4-Dec-07	CMD	\$1,296,172
6-Dec-07	Moran, Thomas	\$6,441.76
7-Dec-07	Nalven, Eric	\$270.00
10-Dec-07	Multiple	\$3,390.00
12-Dec-07	Multiple	\$7,505.12
12-Dec-07	CMD	\$1,163,239
14-Dec-07	Multiple	\$4,456.56
17-Dec-07	Moran, Thomas	\$937.84
18-Dec-07	Nalven, Eric	\$60.00
19-Dec-07	Moran, Thomas	\$1,484.80
20-Dec-07	CMD	\$1,170,128
20-Dec-07	CMD	\$1,417,605
21-Dec-07	Windmiller,David	\$1,580.00
27-Dec-07	Multiple	\$176,978.00
3-Jan-08	Multiple	\$7,764.90
4-Jan-08	Multiple	\$91,490.00
8-Jan-08	Multiple	\$38,436.98
9-Jan-08	Multiple	\$13,354.90
9-Jan-08	CMD	\$1,294,471
10-Jan-08	Multiple	\$16,696.78
11-Jan-08	Lewis, Larry	\$620.00
14-Jan-08	Multiple	\$73,844.70
14-Jan-08	CMD	\$1,361,758
14-Jan-08	CMD	\$1,206,836
16-Jan-08	Multiple	\$16,261.88
18-Jan-08	Windmiller,David	\$370.00
21-Jan-08	CMD	\$1,270,178
22-Jan-08	Nalven, Eric	\$370.00
23-Jan-08	Moran, Thomas	\$30,646.58
24-Jan-08	Multiple	\$13,673.74
25-Jan-08	Multiple	\$98,853.48
28-Jan-08	Multiple	\$25,798.86
29-Jan-08	Multiple	\$371,700.84
30-Jan-08	Multiple	\$43,905.64
31-Jan-08	Moran, Thomas	\$1,593.76
1-Feb-08	Lewis, Larry	\$3,230.00
4-Feb-08	Moran, Thomas	\$757.72
5-Feb-08	Multiple	\$2,960.94
7-Feb-08	Moran, Thomas	\$2,145.84

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
8-Feb-08	Lewis, Duanne	\$6,460.00
11-Feb-08	Moran, Thomas	\$6,174.90
13-Feb-08	Multiple	\$10,630.00
13-Feb-08	CMD	\$1,152,143
14-Feb-08	Multiple	\$1,770.74
19-Feb-08	Lewis, Duanne	\$4,240.00
19-Feb-08	CMD	\$1,187,212
20-Feb-08	Multiple	\$38,457.62
21-Feb-08	Multiple	\$474,595.73
22-Feb-08	Multiple	\$7,171.68
25-Feb-08	Multiple	\$331.98
28-Feb-08	Multiple	\$56,804.80
29-Feb-08	Multiple	\$3,420.00
3-Mar-08	Multiple	\$172,529.90
4-Mar-08	Multiple	\$12,966.78
5-Mar-08	Multiple	\$42,328.92
6-Mar-08	Nalven, Eric	\$750.00
6-Mar-08	CMD	\$1,204,944
6-Mar-08	CMD	\$1,067,068
7-Mar-08	Moran, Thomas	\$607.92
10-Mar-08	Moran, Thomas	\$4,199.80
11-Mar-08	Multiple	\$6,093.96
12-Mar-08	Multiple	\$23,775.74
12-Mar-08	CMD	\$1,344,689
13-Mar-08	Multiple	\$44,725.26
14-Mar-08	Multiple	\$37,712.82
17-Mar-08	Multiple	\$30,795.02
19-Mar-08	Multiple	\$330,294.08
19-Mar-08	CMD	\$1,216,461
25-Mar-08	Nalven, Eric	\$1,020.00
26-Mar-08	Multiple	\$22,274.38
28-Mar-08	Multiple	\$9,390.94
31-Mar-08	CMD	\$1,134,168
1-Apr-08	Moran, Thomas	\$3,114.90
2-Apr-08	Moran, Thomas	\$176.98
4-Apr-08	Moran, Thomas	\$1,601.88
8-Apr-08	Nalven, Eric	\$129.48
11-Apr-08	Windmiller, David	\$1,840.00
17-Apr-08	Galligher, Thomas	\$2,140.00
18-Apr-08	KP Investments	\$27,273.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
23-Apr-08	Multiple	\$598.84
28-Apr-08	Moran, Thomas	\$650.94
29-Apr-08	Moran, Thomas	\$136.98
29-Apr-08	CMD	\$1,222,257
30-Apr-08	Galligher, Thomas	\$1,010.00
1-May-08	CMD	\$1,158,179
6-May-08	Moran, Thomas	\$2,426.78
8-May-08	CMD	\$1,527,638
9-May-08	Maher, Kevin	\$9,910.00
15-May-08	Moran, Thomas	\$6,329.80
16-May-08	Moran, Thomas	\$737.92
19-May-08	Moran, Thomas	\$492.82
21-May-08	Multiple	\$23,287.54
22-May-08	Moran, Thomas	\$45,362.82
22-May-08	CMD	\$1,358,858
23-May-08	Moran, Thomas	\$38,447.72
27-May-08	Multiple	\$100,853.00
28-May-08	Multiple	\$34,976.68
29-May-08	Nalven, Eric	\$1,610.20
30-May-08	Moran, Thomas	\$1,317.92
2-Jun-08	Moran, Thomas	\$800.94
3-Jun-08	CMD	\$1,447,015
5-Jun-08	Multiple	\$4,707.92
6-Jun-08	Lewis, Larry	\$860.00
10-Jun-08	Galligher, Thomas	\$1,250.00
11-Jun-08	Multiple	\$1,246.98
12-Jun-08	Multiple	\$2,893.96
13-Jun-08	Multiple	\$743.96
16-Jun-08	Multiple	\$67,063.65
17-Jun-08	Multiple	\$4,274.90
17-Jun-08	CMD	\$1,204,725
17-Jun-08	CMD	\$1,322,881
18-Jun-08	Moran, Thomas	\$736.98
20-Jun-08	Moran, Thomas	\$1,041.88
23-Jun-08	Multiple	\$2,399.80
25-Jun-08	Multiple	\$31,078.86
26-Jun-08	Lewis, Duanne	\$1,600.00
1-Jul-08	Multiple	\$19,139.28
2-Jul-08	Multiple	\$40,170.74
2-Jul-08	CMD	\$938,325

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
3-Jul-08	Multiple	\$300.76
7-Jul-08	Moran, Thomas	\$486.98
8-Jul-08	Moran, Thomas	\$28,726.78
9-Jul-08	Moran, Thomas	\$6,466.98
11-Jul-08	Lewis, Duanne	\$3,270.00
14-Jul-08	Moran, Thomas	\$44,069.80
16-Jul-08	Nalven, Eric	\$3.32
18-Jul-08	Multiple	\$69,492.62
21-Jul-08	Moran, Thomas	\$794.90
23-Jul-08	Multiple	\$25,493.80
23-Jul-08	CMD	\$1,264,041
29-Jul-08	Maher, Kevin	\$210,920.00
29-Jul-08	CMD	\$1,115,445
30-Jul-08	Moran, Thomas	\$5,764.90
31-Jul-08	Nalven, Eric	\$574.36
4-Aug-08	Multiple	\$2,926.54
12-Aug-08	Nicholson	\$3,288.00
15-Aug-08	KP Investments	\$452,486.00
19-Aug-08	McKennon, Kelly & Blanche	\$5,999.90
22-Aug-08	Moran, Thomas	\$2,154.90
26-Aug-08	Moran, Thomas	\$5,271.88
26-Aug-08	CMD	\$1,088,433
27-Aug-08	Moran, Thomas	\$1,099.80
28-Aug-08	Lewis, Duanne	\$1,570.00
8-Sep-08	Moran, Thomas	\$456.98
9-Sep-08	Lewis, Duanne	\$800.00
12-Sep-08	CMD	\$942,985
12-Sep-08	CMD	\$934,069
12-Sep-08	CMD	\$976,862
16-Sep-08	Multiple	\$277.46
17-Sep-08	Multiple	\$10,136.98
18-Sep-08	Multiple	\$20,810.00
22-Sep-08	Multiple	\$7,740.00
23-Sep-08	Moran, Thomas	\$170.94
24-Sep-08	Lewis, Duanne	\$1,090.00
25-Sep-08	Moran, Thomas	\$55,732.82
26-Sep-08	Multiple	\$4,381.00
29-Sep-08	Multiple	\$17,793.96
30-Sep-08	Moran, Thomas	\$8,794.90
2-Oct-08	Moran, Thomas	\$47.42

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
3-Oct-08	Multiple	\$48,996.66
6-Oct-08	Multiple	\$8,910.94
7-Oct-08	Multiple	\$6,500.94
8-Oct-08	Multiple	\$11,383.96
9-Oct-08	Multiple	\$2,150.00
10-Oct-08	Lewis, Larry	\$330.00
13-Oct-08	Moran, Thomas	\$3,397.60
13-Oct-08	CMD	\$854,136
14-Oct-08	Multiple	\$1,395.82
15-Oct-08	Multiple	\$4,808.12
17-Oct-08	Moran, Thomas	\$156.98
22-Oct-08	Multiple	\$3,277.92
24-Oct-08	Multiple	\$5,276.98
28-Oct-08	Moran, Thomas	\$1,090.94
28-Oct-08	CMD	\$658,138
28-Oct-08	CMD	\$839,967
29-Oct-08	Multiple	\$424.14
4-Nov-08	Multiple	\$4,835.90
5-Nov-08	Windmiller, David	\$1.00
6-Nov-08	Multiple	\$876.98
6-Nov-08	CMD	\$690,432
7-Nov-08	Lewis, Duanne	\$830.00
11-Nov-08	Moran, Thomas	\$2,658.86
12-Nov-08	CMD	\$686,970
13-Nov-08	Moran, Thomas	\$1,609.12
14-Nov-08	Multiple	\$2,117.96
17-Nov-08	Multiple	\$1,003.52
18-Nov-08	Moran, Thomas	\$553.96
20-Nov-08	Windmiller, David	\$3,490.00
25-Nov-08	Multiple	\$2,978.62
25-Nov-08	CMD	\$853,405
25-Nov-08	CMD	\$1,032,738
26-Nov-08	Moran, Thomas	\$96.98
1-Dec-08	Moran, Thomas	\$6,193.96
3-Dec-08	Multiple	\$1,236.98
3-Dec-08	CMD	\$854,711
5-Dec-08	Multiple	\$2,123.96
8-Dec-08	Nalven, Eric	\$225.76
9-Dec-08	Moran, Thomas	\$166.98
16-Dec-08	Moran, Thomas	\$416.98

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
17-Dec-08	Multiple	\$16,625.92
18-Dec-08	Moran, Thomas	\$18,915.84
19-Dec-08	Multiple	\$2,468.32
23-Dec-08	Moran, Thomas	\$597.92
30-Dec-08	Multiple	\$6,331.88
5-Jan-09	Multiple	\$34,899.63
6-Jan-09	Lewis, Duanne	\$10,880.00
8-Jan-09	Multiple	\$803.96
9-Jan-09	Multiple	\$16,681.88
12-Jan-09	Multiple	\$23,471.88
15-Jan-09	Moran, Thomas	\$1,500.94
20-Jan-09	Windmiller, David	\$2,520.00
20-Jan-09	CMD	\$796,680
21-Jan-09	Multiple	\$15,767.92
22-Jan-09	Multiple	\$3,572.52
23-Jan-09	Multiple	\$21,487.92
23-Jan-09	CMD	\$688,216
26-Jan-09	Multiple	\$15,953.96
29-Jan-09	Multiple	\$23,707.92
30-Jan-09	Multiple	\$6,579.00
30-Jan-09	CMD	\$792,798
4-Feb-09	Multiple	\$3,602.82
5-Feb-09	Multiple	\$2,159.44
9-Feb-09	Multiple	\$1,853.96
10-Feb-09	Multiple	\$14,705.30
12-Feb-09	Multiple	\$21,770.74
13-Feb-09	Multiple	\$387.92
17-Feb-09	Multiple	\$74,604.40
17-Feb-09	CMD	\$781,518
17-Feb-09	CMD	\$645,499
17-Feb-09	CMD	\$537,110
18-Feb-09	Multiple	\$748.12
19-Feb-09	Multiple	\$11,793.96
20-Feb-09	Multiple	\$18,749.54
23-Feb-09	Multiple	\$1,260.00
24-Feb-09	Multiple	\$8,734.90
25-Feb-09	Moran, Thomas	\$3,151.88
26-Feb-09	Multiple	\$1,663.96
27-Feb-09	Multiple	\$12,690.36
27-Feb-09	CMD	\$522,854

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
2-Mar-09	Moran, Thomas	\$487.74
3-Mar-09	Multiple	\$691,320.74
4-Mar-09	Maher, Kevin	\$3,900.00
5-Mar-09	Multiple	\$10,158.86
6-Mar-09	Maher, Kevin	\$440.00
9-Mar-09	Multiple	\$3,276.98
9-Mar-09	CMD	\$551,855
10-Mar-09	Multiple	\$16,640.94
11-Mar-09	Bailey, Norman	\$700.00
13-Mar-09	Moran, Thomas	\$1,043.96
16-Mar-09	Multiple	\$5,373.96
17-Mar-09	CMD	\$555,923
18-Mar-09	Multiple	\$8,261.72
19-Mar-09	Multiple	\$28,900.00
20-Mar-09	Multiple	\$6,033.96
24-Mar-09	Moran, Thomas	\$1,330.94
25-Mar-09	Multiple	\$8,808.86
26-Mar-09	CMD	\$560,914
30-Mar-09	Moran, Thomas	\$310.94
1-Apr-09	Bailey, Norman	\$440.00
2-Apr-09	Lewis, Duanne	\$660.00
6-Apr-09	CMD	\$481,513
6-Apr-09	CMD	\$473,952
7-Apr-09	Bailey, Norman	\$760.00
8-Apr-09	Moran, Thomas	\$416.98
9-Apr-09	Maher, Kevin	\$480.00
16-Apr-09	Windmiller, David	\$1.00
17-Apr-09	CMD	\$484,152
17-Apr-09	CMD	\$448,171
20-Apr-09	Bailey, Norman	\$2,190.00
21-Apr-09	Multiple	\$236.98
22-Apr-09	Multiple	\$421.00
23-Apr-09	Multiple	\$12,935.00
24-Apr-09	Multiple	\$15,730.00
28-Apr-09	Maher, Kevin	\$8,640.00
30-Apr-09	Moran, Thomas	\$1,690.94
30-Apr-09	CMD	\$396,407
6-May-09	Multiple	\$14,115.00
7-May-09	Multiple	\$3,580.00
8-May-09	Multiple	\$37,158.94

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
11-May-09	Multiple	\$1,323.98
12-May-09	Multiple	\$2,020.00
13-May-09	Multiple	\$3,187.92
14-May-09	Multiple	\$1,517.92
15-May-09	CMD	\$395,052
15-May-09	CMD	\$411,064
18-May-09	Multiple	\$24,310.00
19-May-09	Multiple	\$27,892.00
21-May-09	Multiple	\$27,432.92
21-May-09	CMD	\$367,374
26-May-09	Multiple	\$4,265.84
28-May-09	Multiple	\$58,590.00
29-May-09	Multiple	\$68,400.00
1-Jun-09	Multiple	\$7,637.92
2-Jun-09	Multiple	\$37,863.90
4-Jun-09	Multiple	\$25,555.84
5-Jun-09	Multiple	\$458.98
8-Jun-09	Moran, Thomas	\$1,567.92
10-Jun-09	Moran, Thomas	\$20.94
11-Jun-09	Multiple	\$2,080.94
12-Jun-09	Multiple	\$6,610.00
16-Jun-09	Moran, Thomas	\$93.96
16-Jun-09	CMD	\$321,765
23-Jun-09	Moran, Thomas	\$1,433.96
24-Jun-09	Multiple	\$2,592.24
24-Jun-09	CMD	\$294,221
26-Jun-09	Moran, Thomas	\$83.96
29-Jun-09	Moran, Thomas	\$143.96
29-Jun-09	CMD	\$456,493
30-Jun-09	Windmiller, David	\$1.00
2-Jul-09	Moran, Thomas	\$590.94
2-Jul-09	CMD	\$514,673
7-Jul-09	Moran, Thomas	\$556.98
10-Jul-09	Multiple	\$519.86
14-Jul-09	Moran, Thomas	\$591.88
16-Jul-09	Moran, Thomas	\$2,325.84
16-Jul-09	CMD	\$554,742
21-Jul-09	Multiple	\$6,843.78
24-Jul-09	Moran, Thomas	\$13,624.90
28-Jul-09	CMD	\$622,267

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
28-Jul-09	CMD	\$638,916
30-Jul-09	Lewis, Duanne	\$2,490.00
7-Aug-09	Moran, Thomas	\$8,458.86
10-Aug-09	Moran, Thomas	\$36.98
12-Aug-09	Multiple	\$19,770.94
13-Aug-09	Moran, Thomas	\$243.96
17-Aug-09	Multiple	\$4,008.36
18-Aug-09	CMD	\$536,492
20-Aug-09	Moran, Thomas	\$126.98
25-Aug-09	Multiple	\$9,718.98
25-Aug-09	CMD	\$738,891
26-Aug-09	CMD	\$720,371
27-Aug-09	Windmiller, David	\$1.00
2-Sep-09	Multiple	\$19,514.98
3-Sep-09	Galligher, Thomas	\$794.99
4-Sep-09	Multiple	\$3,417.92
8-Sep-09	Galligher, Thomas	\$1,919.98
9-Sep-09	White	\$991.90
10-Sep-09	Multiple	\$19,368.86
11-Sep-09	Multiple	\$31,910.98
15-Sep-09	Multiple	\$55,631.88
16-Sep-09	Multiple	\$34,234.99
17-Sep-09	Moran, Thomas	\$207.92
18-Sep-09	Multiple	\$36,874.90
21-Sep-09	Multiple	\$9,616.98
22-Sep-09	CMD	\$805,193
23-Sep-09	Moran, Thomas	\$440.94
24-Sep-09	Multiple	\$2,069.10
25-Sep-09	Multiple	\$38,061.88
28-Sep-09	Moran, Thomas	\$620.94
29-Sep-09	CMD	\$853,814
30-Sep-09	Moran, Thomas	\$1,377.92
1-Oct-09	CMD	\$979,474
2-Oct-09	Moran, Thomas	\$6,176.98
8-Oct-09	Multiple	\$54,818.86
9-Oct-09	Windmiller,David	\$26,050.00
12-Oct-09	Multiple	\$42,377.96
13-Oct-09	Multiple	\$4,570.94
14-Oct-09	Multiple	\$36,523.85
16-Oct-09	Multiple	\$3,740.94

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
16-Oct-09	CMD	\$800,799
19-Oct-09	Moran, Thomas	\$19,511.88
20-Oct-09	Multiple	\$2,960.94
21-Oct-09	Moran, Thomas	\$16,730.94
22-Oct-09	Multiple	\$1,777.92
26-Oct-09	Multiple	\$21,693.76
26-Oct-09	CMD	\$834,704
27-Oct-09	Multiple	\$52,976.98
28-Oct-09	Multiple	\$9,351.94
30-Oct-09	Windmiller,David	\$6,200.00
3-Nov-09	Maher, Kevin	\$1,050.00
4-Nov-09	Multiple	\$36,840.00
6-Nov-09	Multiple	\$3,400.94
6-Nov-09	CMD	\$805,678
9-Nov-09	Galligher, Thomas	\$4,823.60
10-Nov-09	Windmiller,David	\$500.00
10-Nov-09	CMD	\$811,850
11-Nov-09	Lewis, Duanne	\$11,620.00
12-Nov-09	McKennon, Kelly & Blanche	\$12,194.99
13-Nov-09	Multiple	\$33,880.94
16-Nov-09	Lewis, Duanne	\$11,220.00
17-Nov-09	CMD	\$815,715
18-Nov-09	Multiple	\$800.00
20-Nov-09	Lewis, Larry	\$330.00
23-Nov-09	Multiple	\$507,299.60
24-Nov-09	Multiple	\$58,240.00
25-Nov-09	Multiple	\$16,020.94
27-Nov-09	Multiple	\$197,860.94
30-Nov-09	Windmiller,David	\$450.00
1-Dec-09	Multiple	\$15,533.76
2-Dec-09	Multiple	\$15,735.93
2-Dec-09	CMD	\$978,571
2-Dec-09	CMD	\$1,114,851
3-Dec-09	Multiple	\$80,540.18
7-Dec-09	Multiple	\$16,712.78
7-Dec-09	CMD	\$892,107
9-Dec-09	Summer	\$11,180.20
10-Dec-09	Multiple	\$11,180.40
11-Dec-09	Windmiller, David	\$1.00
11-Dec-09	CMD	\$838,159

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
14-Dec-09	Moran, Thomas	\$2,093.96
15-Dec-09	Multiple	\$8,045.00
16-Dec-09	Multiple	\$12,000.98
17-Dec-09	Multiple	\$15,149.78
18-Dec-09	Windmiller, David	\$1.00
22-Dec-09	Multiple	\$2,190.94
23-Dec-09	Multiple	\$3,453.88
29-Dec-09	Maher, Kevin	\$7,960.00
5-Jan-10	Maher, Kevin	\$620.00
6-Jan-10	Multiple	\$8,617.44
7-Jan-10	Multiple	\$42,105.95
8-Jan-10	Multiple	\$7,482.94
8-Jan-10	CMD	\$975,582
8-Jan-10	CMD	\$1,097,865
12-Jan-10	Multiple	\$33,887.94
13-Jan-10	Bailey, Norman	\$1,780.00
15-Jan-10	Multiple	\$8,862.88
18-Jan-10	CMD	\$1,049,321
19-Jan-10	Multiple	\$3,351.88
19-Jan-10	CMD	\$701,028
20-Jan-10	Moran, Thomas	\$7,739.80
22-Jan-10	Maher, Kevin	\$2,200.00
26-Jan-10	Multiple	\$31,247.98
27-Jan-10	Multiple	\$5,243.96
28-Jan-10	CMD	\$498,663
1-Feb-10	Moran, Thomas	\$996.98
2-Feb-10	Multiple	\$1,597.74
3-Feb-10	Multiple	\$12,100.00
4-Feb-10	CMD	\$647,348
5-Feb-10	Multiple	\$8,022.96
11-Feb-10	CMD	\$743,626
12-Feb-10	Windmiller, David	\$1.00
16-Feb-10	Maher, Kevin	\$2,100.00
17-Feb-10	Multiple	\$17,931.88
19-Feb-10	Windmiller, David	\$19,200.00
22-Feb-10	Galligher, Thomas	\$869.98
23-Feb-10	Multiple	\$29,660.00
24-Feb-10	Multiple	\$2,186.96
24-Feb-10	CMD	\$786,222
24-Feb-10	CMD	\$623,454

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
25-Feb-10	Moran, Thomas	\$2,933.96
1-Mar-10	Multiple	\$12,510.00
2-Mar-10	Multiple	\$37,839.96
3-Mar-10	Bailey, Norman	\$810.00
3-Mar-10	CMD	\$618,744
5-Mar-10	Moran, Thomas	\$25,282.82
10-Mar-10	Moran, Thomas	\$676.04
11-Mar-10	Bailey, Norman	\$80.00
16-Mar-10	Multiple	\$261.94
17-Mar-10	CMD	\$694,387
18-Mar-10	Multiple	\$1,305.90
19-Mar-10	Multiple	\$444.96
22-Mar-10	Multiple	\$615.99
25-Mar-10	Moran, Thomas	\$313.96
26-Mar-10	CMD	\$698,555
26-Mar-10	CMD	\$746,680
29-Mar-10	Windmiller, David	\$1.00
30-Mar-10	Windmiller,David	\$2,800.00
31-Mar-10	Bailey, Norman	\$1,120.00
1-Apr-10	Multiple	\$16,211.88
6-Apr-10	Multiple	\$2,189.98
6-Apr-10	CMD	\$750,895
7-Apr-10	Multiple	\$3,061.94
8-Apr-10	Bailey, Norman	\$180.00
9-Apr-10	Multiple	\$3,360.00
12-Apr-10	Multiple	\$1,393.96
13-Apr-10	Multiple	\$2,946.00
14-Apr-10	Multiple	\$8,120.00
15-Apr-10	Multiple	\$1,253.00
20-Apr-10	Multiple	\$96.98
21-Apr-10	Bailey, Norman	\$1,470.00
22-Apr-10	Multiple	\$1,103.96
23-Apr-10	Multiple	\$11,750.00
26-Apr-10	Multiple	\$561.94
27-Apr-10	Multiple	\$34,431.88
28-Apr-10	Multiple	\$3,855.00
29-Apr-10	Multiple	\$880.00
29-Apr-10	CMD	\$757,979
4-May-10	Multiple	\$57,361.92
5-May-10	Moran, Thomas	\$906.98

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
6-May-10	Multiple	\$70,748.88
11-May-10	Multiple	\$15,803.94
14-May-10	Multiple	\$23,003.84
14-May-10	CMD	\$942,254
17-May-10	Multiple	\$62,617.94
19-May-10	Multiple	\$30,546.00
20-May-10	Maher, Kevin	\$639,750.00
21-May-10	Maher, Kevin	\$2,300.00
24-May-10	Moran, Thomas	\$4,847.92
25-May-10	Multiple	\$61,951.00
27-May-10	Lewis, Duanne	\$6,410.00
28-May-10	Bailey, Norman	\$960.00
1-Jun-10	Bailey, Norman	\$6,180.00
2-Jun-10	Multiple	\$2,988.98
3-Jun-10	Windmiller, David	\$1.00
7-Jun-10	Multiple	\$1,542.00
8-Jun-10	Windmiller, David	\$1.00
9-Jun-10	Multiple	\$67.98
9-Jun-10	CMD	\$989,806
10-Jun-10	Multiple	\$78,958.98
11-Jun-10	Moran, Thomas	\$4,026.98
14-Jun-10	Windmiller, David	\$22,400.00
15-Jun-10	Bailey, Norman	\$2,230.00
18-Jun-10	Multiple	\$28,598.92
21-Jun-10	Maher, Kevin	\$2,900.00
22-Jun-10	Multiple	\$291.00
23-Jun-10	Multiple	\$4,492.96
24-Jun-10	Multiple	\$2,709.98
25-Jun-10	Bailey, Norman	\$3,620.00
28-Jun-10	Multiple	\$44,960.00
29-Jun-10	Multiple	\$1,960.00
30-Jun-10	Multiple	\$1,910.00
6-Jul-10	Moran, Thomas	\$670.94
7-Jul-10	Multiple	\$123,161.00
13-Jul-10	CMD	\$741,305
14-Jul-10	Moran, Thomas	\$6,148.86
19-Jul-10	Windmiller, David	\$1,250.00
20-Jul-10	Bailey, Norman	\$1,040.00
21-Jul-10	Moran, Thomas	\$126.98
22-Jul-10	Multiple	\$2,834.90

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
23-Jul-10	Moran, Thomas	\$393.76
26-Jul-10	Multiple	\$456.98
27-Jul-10	Galligher, Thomas	\$7,314.95
28-Jul-10	Galligher, Thomas	\$9,899.97
29-Jul-10	Moran, Thomas	\$226.98
30-Jul-10	Multiple	\$25,502.98
3-Aug-10	Moran, Thomas	\$330.94
4-Aug-10	Galligher, Thomas	\$2,504.97
5-Aug-10	Multiple	\$1,150.94
9-Aug-10	Moran, Thomas	\$1,061.88
10-Aug-10	Lewis, Duanne	\$3,260.00
11-Aug-10	Windmiller,David	\$18,390.00
13-Aug-10	Galligher, Thomas	\$1,314.99
13-Aug-10	CMD	\$654,583
17-Aug-10	Windmiller,David	\$47,930.00
18-Aug-10	KP Investments	\$72,930.00
19-Aug-10	Maher, Kevin	\$200.00
20-Aug-10	CMD	\$711,777
24-Aug-10	Windmiller,David	\$11,760.00
27-Aug-10	Lewis, Duanne	\$570.00
31-Aug-10	CMD	\$676,320
1-Sep-10	Moran, Thomas	\$180.94
3-Sep-10	Multiple	\$3,947.92
7-Sep-10	Multiple	\$53,599.98
8-Sep-10	Galligher, Thomas	\$1,869.98
9-Sep-10	Multiple	\$2,560.94
10-Sep-10	Multiple	\$15,248.86
13-Sep-10	Multiple	\$2,251.88
14-Sep-10	Multiple	\$17,191.40
16-Sep-10	Multiple	\$3,780.94
17-Sep-10	Multiple	\$6,245.89
21-Sep-10	Multiple	\$55,581.00
22-Sep-10	Maher, Kevin	\$62,360.00
23-Sep-10	Multiple	\$24,870.94
23-Sep-10	CMD	\$736,039
27-Sep-10	Multiple	\$68,800.00
28-Sep-10	Multiple	\$36,164.90
29-Sep-10	Multiple	\$3,291.94
30-Sep-10	Multiple	\$159,790.92
1-Oct-10	Moran, Thomas	\$7,046.98

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
1-Oct-10	CMD	\$785,599
4-Oct-10	Multiple	\$29,380.94
5-Oct-10	Multiple	\$201,632.84
7-Oct-10	Multiple	\$110,790.00
8-Oct-10	Multiple	\$1,951.88
11-Oct-10	Multiple	\$19,200.94
12-Oct-10	Windmiller, David	\$1.00
13-Oct-10	Multiple	\$232,012.94
14-Oct-10	Multiple	\$113,134.90
15-Oct-10	Multiple	\$201,634.00
18-Oct-10	CMD	\$828,112
19-Oct-10	Maher, Kevin	\$26,400.00
20-Oct-10	Multiple	\$18,531.88
21-Oct-10	Multiple	\$3,973.92
22-Oct-10	Moran, Thomas	\$1,026.78
25-Oct-10	Moran, Thomas	\$501.88
26-Oct-10	Multiple	\$2,583.96
27-Oct-10	Multiple	\$65,751.00
27-Oct-10	CMD	\$801,291
27-Oct-10	CMD	\$796,623
3-Nov-10	Multiple	\$12,650.94
4-Nov-10	Multiple	\$36,119.86
4-Nov-10	CMD	\$811,786
5-Nov-10	Multiple	\$30,821.98
8-Nov-10	Multiple	\$121,581.90
10-Nov-10	Multiple	\$11,301.66
12-Nov-10	CMD	\$721,740
17-Nov-10	Multiple	\$1,265.90
18-Nov-10	Moran, Thomas	\$754.90
18-Nov-10	CMD	\$882,820
19-Nov-10	Moran, Thomas	\$690.94
22-Nov-10	Windmiller, David	\$1.00
23-Nov-10	Multiple	\$401.00
24-Nov-10	Windmiller, David	\$1.00
26-Nov-10	Lewis, Duanne	\$500.00
29-Nov-10	Multiple	\$52,480.00
1-Dec-10	Multiple	\$247,960.00
2-Dec-10	Multiple	\$19,251.00
6-Dec-10	Multiple	\$46,551.00
6-Dec-10	CMD	\$934,509

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
6-Dec-10	CMD	\$943,339
7-Dec-10	Moran, Thomas	\$19,167.92
8-Dec-10	Multiple	\$280,501.00
9-Dec-10	Moran, Thomas	\$2,767.92
10-Dec-10	Multiple	\$1,080.00
13-Dec-10	Multiple	\$257.98
14-Dec-10	Moran, Thomas	\$1,066.98
16-Dec-10	Maher, Kevin	\$152,190.00
20-Dec-10	Multiple	\$491.94
21-Dec-10	Lewis, Duanne	\$670.00
22-Dec-10	Moran, Thomas	\$750.94
4-Jan-11	Multiple	\$4,729.72
4-Jan-11	CMD	\$928,783
5-Jan-11	Multiple	\$1,932.78
6-Jan-11	Multiple	\$1,172.80
10-Jan-11	CMD	\$958,053
11-Jan-11	Multiple	\$279,951.88
12-Jan-11	Multiple	\$3,501.88
13-Jan-11	Multiple	\$284,297.10
14-Jan-11	Multiple	\$272,640.00
18-Jan-11	Multiple	\$138,640.00
19-Jan-11	Multiple	\$1,201.91
19-Jan-11	CMD	\$1,058,951
20-Jan-11	Moran, Thomas	\$950.88
21-Jan-11	Windmiller, David	\$1.00
24-Jan-11	Nando	\$1.00
24-Jan-11	CMD	\$1,138,864
25-Jan-11	Benvenuto, Patricia	\$133,170.00
26-Jan-11	Multiple	\$1,141.00
31-Jan-11	Multiple	\$2,601.00
1-Feb-11	Lewis, Duanne	\$610.00
3-Feb-11	Lewis, Duanne	\$1,010.00
3-Feb-11	CMD	\$870,163
3-Feb-11	CMD	\$989,943
4-Feb-11	Multiple	\$2,792.64
7-Feb-11	Multiple	\$1,276.68
9-Feb-11	Moran, Thomas	\$2,135.68
10-Feb-11	Multiple	\$33,095.80
16-Feb-11	Lewis, Larry	\$1,000.00
17-Feb-11	Windmiller,David	\$13,170.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
18-Feb-11	Multiple	\$2,870.88
18-Feb-11	CMD	\$794,226
23-Feb-11	Multiple	\$55,755.86
25-Feb-11	Multiple	\$16,826.74
28-Feb-11	Multiple	\$153,490.82
1-Mar-11	Multiple	\$28,621.88
7-Mar-11	Multiple	\$444,520.00
7-Mar-11	CMD	\$768,544
8-Mar-11	CMD	\$1,944,000
11-Mar-11	Multiple	\$147,851.76
14-Mar-11	Moran, Thomas	\$8,471.76
15-Mar-11	Multiple	\$198,774.80
16-Mar-11	Multiple	\$280,664.36
17-Mar-11	Multiple	\$281,480.00
18-Mar-11	Multiple	\$567,021.00
22-Mar-11	CMD	\$956,819
23-Mar-11	Multiple	\$92,866.91
24-Mar-11	Multiple	\$542,172.22
28-Mar-11	Multiple	\$224,060.00
30-Mar-11	Multiple	\$205,889.28
31-Mar-11	Multiple	\$106,378.80
1-Apr-11	De Chabert-Ostland, Michel	\$189,240.00
5-Apr-11	Multiple	\$156,792.84
6-Apr-11	Multiple	\$157,482.20
7-Apr-11	Multiple	\$146,391.00
8-Apr-11	Multiple	\$370,920.42
12-Apr-11	Multiple	\$152,227.96
12-Apr-11	CMD	\$1,079,925
13-Apr-11	De Chabert-Ostland, Michel	\$145,469.12
14-Apr-11	Multiple	\$175,132.04
15-Apr-11	Multiple	\$548,685.12
18-Apr-11	Multiple	\$710,887.72
19-Apr-11	Multiple	\$75,451.00
20-Apr-11	Multiple	\$382,620.00
21-Apr-11	Multiple	\$89,026.76
26-Apr-11	Multiple	\$919,777.68
27-Apr-11	Multiple	\$240,108.48
28-Apr-11	Multiple	\$336,526.80
3-May-11	Multiple	\$491.88
3-May-11	CMD	\$1,080,268

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
4-May-11	Multiple	\$491,862.30
4-May-11	CMD	\$1,139,431
6-May-11	Multiple	\$51,260.56
12-May-11	Multiple	\$248,479.50
13-May-11	Multiple	\$546,546.12
16-May-11	Multiple	\$49,954.64
17-May-11	Multiple	\$147,442.20
18-May-11	Multiple	\$150,437.84
19-May-11	Multiple	\$150,317.84
20-May-11	Multiple	\$100,191.56
23-May-11	Multiple	\$302,360.52
24-May-11	Multiple	\$202,942.60
25-May-11	Multiple	\$404,906.76
26-May-11	Multiple	\$622.00
26-May-11	CMD	\$1,124,153
27-May-11	Multiple	\$11,013.92
1-Jun-11	Multiple	\$411,259.00
3-Jun-11	Multiple	\$521,808.08
9-Jun-11	Multiple	\$170,035.10
10-Jun-11	De Chabert-Ostland, Michel	\$509,586.80
13-Jun-11	Moran, Thomas	\$2,500.88
13-Jun-11	CMD	\$925,045
13-Jun-11	CMD	\$1,071,000
14-Jun-11	Multiple	\$51,193.24
15-Jun-11	Multiple	\$205,263.48
16-Jun-11	CMD	\$1,233,820
17-Jun-11	Multiple	\$10,090.88
20-Jun-11	Windmiller, David	\$1.00
23-Jun-11	Multiple	\$304,391.00
24-Jun-11	CMD	\$1,330,143
27-Jun-11	Moran, Thomas	\$307.84
1-Jul-11	Benvenuto, Patricia	\$148,610.00
5-Jul-11	Windmiller, David	\$1.00
6-Jul-11	Lewis, Duanne	\$1,680.00
8-Jul-11	Benvenuto, Patricia	\$311,200.00
11-Jul-11	Moran, Thomas	\$16,771.76
12-Jul-11	Multiple	\$3,883.64
13-Jul-11	Multiple	\$5,346.00
14-Jul-11	Moran, Thomas	\$15,796.16
15-Jul-11	Multiple	\$119,891.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
18-Jul-11	Multiple	\$126,710.60
19-Jul-11	Multiple	\$88.84
20-Jul-11	Multiple	\$160,165.92
22-Jul-11	Multiple	\$159,741.00
25-Jul-11	Multiple	\$269,075.00
28-Jul-11	Multiple	\$6,524.52
29-Jul-11	Multiple	\$1,650,900.00
1-Aug-11	Multiple	\$10,901.00
2-Aug-11	Lewis, Duanne	\$1,840.00
2-Aug-11	CMD	\$1,155,893
3-Aug-11	Multiple	\$191,211.00
4-Aug-11	Windmiller, David	\$1.00
5-Aug-11	Multiple	\$731.40
8-Aug-11	Multiple	\$978,461.00
9-Aug-11	Multiple	\$43,740.96
11-Aug-11	Multiple	\$949,785.98
12-Aug-11	Multiple	\$902,194.92
12-Aug-11	CMD	\$1,182,693
12-Aug-11	CMD	\$1,025,985
15-Aug-11	Multiple	\$7,013.87
17-Aug-11	Multiple	\$172,714.35
18-Aug-11	Multiple	\$380,235.86
19-Aug-11	Multiple	\$417,311.00
23-Aug-11	Multiple	\$369,821.00
23-Aug-11	CMD	\$1,460,845
23-Aug-11	CMD	\$1,607,561
24-Aug-11	Multiple	\$255,477.00
25-Aug-11	Multiple	\$208,792.56
26-Aug-11	Multiple	\$1,991,564.48
31-Aug-11	Multiple	\$6,881.88
1-Sep-11	Multiple	\$3,932.76
6-Sep-11	Multiple	\$394,179.80
7-Sep-11	Windmiller, David	\$1.00
8-Sep-11	Lewis, Duanne	\$4,787.44
9-Sep-11	Multiple	\$371,178.80
12-Sep-11	Multiple	\$721.88
13-Sep-11	Multiple	\$598,067.88
14-Sep-11	Windmiller, David	\$1.00
15-Sep-11	Multiple	\$574,730.00
19-Sep-11	Multiple	\$540,581.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
20-Sep-11	Flanagan, Frank	\$520.00
21-Sep-11	Multiple	\$179,801.00
21-Sep-11	CMD	\$1,321,839
22-Sep-11	Multiple	\$522,261.00
23-Sep-11	Multiple	\$338,071.00
26-Sep-11	Benvenuto, Patricia	\$161,450.00
29-Sep-11	Benvenuto, Patricia	\$542,500.00
3-Oct-11	CMD	\$1,490,667
3-Oct-11	CMD	\$1,388,607
4-Oct-11	Multiple	\$370,462.62
5-Oct-11	Moran, Thomas	\$4,157.84
10-Oct-11	CMD	\$1,845,217
12-Oct-11	Multiple	\$282.76
13-Oct-11	Multiple	\$167,011.00
18-Oct-11	Multiple	\$179,303.08
19-Oct-11	Windmiller, David	\$1.00
20-Oct-11	CMD	\$1,636,091
25-Oct-11	Nando	\$1.00
26-Oct-11	Multiple	\$46,552.82
27-Oct-11	Multiple	\$24,793.64
28-Oct-11	Multiple	\$3,048.84
31-Oct-11	Multiple	\$4,711.00
31-Oct-11	CMD	\$1,170,216
31-Oct-11	CMD	\$2,009,860
2-Nov-11	Windmiller, David	\$1.00
3-Nov-11	Windmiller, David	\$1.00
7-Nov-11	Lewis, Duanne	\$3,670.00
8-Nov-11	Multiple	\$6,591.00
9-Nov-11	Multiple	\$59,515.32
10-Nov-11	Lewis, Duanne	\$6,390.96
14-Nov-11	Windmiller, David	\$1.00
16-Nov-11	Windmiller, David	\$1,770.00
17-Nov-11	Nando	\$1.00
18-Nov-11	Windmiller, David	\$1.00
22-Nov-11	Multiple	\$338,921.00
23-Nov-11	Windmiller, David	\$1.00
30-Nov-11	Nando	\$1.00
1-Dec-11	Multiple	\$2.00
5-Dec-11	Windmiller, David	\$1.00
7-Dec-11	Multiple	\$1,031.72

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
8-Dec-11	Windmiller, David	\$1.00
12-Dec-11	Benvenuto, Patricia	\$683,130.00
13-Dec-11	Windmiller, David	\$1.00
13-Dec-11	CMD	\$1,183,593
13-Dec-11	CMD	\$1,368,294
14-Dec-11	Multiple	\$477,421.00
20-Dec-11	CMD	\$1,410,201
20-Dec-11	CMD	\$1,240,656
20-Dec-11	CMD	\$1,153,914
21-Dec-11	Benvenuto, Patricia	\$161,510.00
29-Dec-11	Multiple	\$375,030.80
5-Jan-12	Nando	\$1.00
9-Jan-12	Multiple	\$2.00
11-Jan-12	White Oak Fund LLP	\$15,770.00
13-Jan-12	Windmiller, David	\$1.00
17-Jan-12	Lewis, Duanne	\$650.00
18-Jan-12	Multiple	\$501.00
19-Jan-12	CMD	\$2,047,367
24-Jan-12	Multiple	\$641.00
25-Jan-12	Multiple	\$166,760.00
25-Jan-12	CMD	\$1,794,055
26-Jan-12	Lewis, Duanne	\$510.00
27-Jan-12	Lewis, Duanne	\$320.00
30-Jan-12	Nando	\$1.00
31-Jan-12	Lewis, Duanne	\$680.00
1-Feb-12	Multiple	\$402.00
3-Feb-12	Lewis, Duanne	\$510.00
3-Feb-12	CMD	\$1,773,067
3-Feb-12	CMD	\$1,718,162
7-Feb-12	Lewis, Duanne	\$500.00
10-Feb-12	Lewis, Duanne	\$750.00
13-Feb-12	Windmiller, David	\$1.00
17-Feb-12	Flanagan, Frank	\$344,720.00
17-Feb-12	CMD	\$1,462,460
20-Feb-12	Nando	\$1.00
21-Feb-12	Lewis, Duanne	\$2,360.00
22-Feb-12	Windmiller, David	\$1.00
24-Feb-12	Multiple	\$178,525.00
28-Feb-12	Lewis, Duanne	\$431.60
1-Mar-12	Multiple	\$349,615.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
6-Mar-12	CMD	\$1,645,365
6-Mar-12	CMD	\$1,626,859
6-Mar-12	CMD	\$1,548,371
7-Mar-12	Windmiller, David	\$1.00
8-Mar-12	Multiple	\$2.00
9-Mar-12	Multiple	\$9,661.44
12-Mar-12	Multiple	\$171,171.72
13-Mar-12	Multiple	\$83,120.72
14-Mar-12	Windmiller, David	\$1.00
15-Mar-12	CMD	\$1,566,477
15-Mar-12	CMD	\$1,628,114
19-Mar-12	Windmiller, David	\$1.00
20-Mar-12	Moran, Thomas	\$245.36
21-Mar-12	Moran, Thomas	\$3,041.44
22-Mar-12	CMD	\$1,389,452
22-Mar-12	CMD	\$1,521,120
28-Mar-12	Multiple	\$2.00
29-Mar-12	Flanagan, Frank	\$164,750.00
2-Apr-12	Multiple	\$748,450.00
10-Apr-12	Multiple	\$331,280.72
11-Apr-12	Multiple	\$497,321.00
12-Apr-12	Multiple	\$338,060.72
13-Apr-12	Multiple	\$336,041.44
17-Apr-12	Multiple	\$1,061.00
18-Apr-12	Multiple	\$495,051.00
18-Apr-12	CMD	\$1,437,704
18-Apr-12	CMD	\$1,419,206
20-Apr-12	Multiple	\$164,111.00
23-Apr-12	Multiple	\$327,190.72
24-Apr-12	Multiple	\$163,941.00
24-Apr-12	CMD	\$1,230,407
25-Apr-12	Lewis, Duanne	\$620.00
26-Apr-12	Flanagan, Frank	\$165,980.00
27-Apr-12	Multiple	\$331,171.00
2-May-12	Multiple	\$2.00
3-May-12	Windmiller, David	\$1.00
4-May-12	Benvenuto, Patricia	\$79,000.00
9-May-12	Lewis, Duanne	\$1,000.00
10-May-12	Multiple	\$381.00
15-May-12	Flanagan, Frank	\$156,080.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
16-May-12	Windmiller,David	\$460.00
21-May-12	Flanagan, Frank	\$317,730.00
23-May-12	Benvenuto, Patricia	\$145,000.00
24-May-12	Flanagan, Frank	\$157,230.00
30-May-12	Multiple	\$474,273.20
31-May-12	Nando	\$1.00
6-Jun-12	Multiple	\$2.00
7-Jun-12	Multiple	\$13,645.36
7-Jun-12	CMD	\$1,295,724
7-Jun-12	CMD	\$1,265,902
8-Jun-12	Flanagan, Frank	\$631,650.00
13-Jun-12	Multiple	\$7,707.08
14-Jun-12	Moran, Thomas	\$920.72
18-Jun-12	Multiple	\$164,845.36
19-Jun-12	Windmiller,David	\$3,350.00
20-Jun-12	Multiple	\$2.00
20-Jun-12	CMD	\$1,252,353
20-Jun-12	CMD	\$1,254,076
26-Jun-12	Moran, Thomas	\$535.36
28-Jun-12	CMD	\$1,176,607
2-Jul-12	Nando	\$1.00
3-Jul-12	Moran, Thomas	\$5,455.36
5-Jul-12	Multiple	\$1,686.36
6-Jul-12	Multiple	\$480,810.72
10-Jul-12	Multiple	\$767,630.00
10-Jul-12	CMD	\$1,329,705
13-Jul-12	Flanagan, Frank	\$158,310.00
17-Jul-12	Windmiller, David	\$1.00
19-Jul-12	Multiple	\$277.00
20-Jul-12	Multiple	\$5,766.18
23-Jul-12	Windmiller,David	\$1,820.00
24-Jul-12	Multiple	\$519.71
27-Jul-12	Multiple	\$19,537.39
31-Jul-12	Windmiller, David	\$1.00
1-Aug-12	Lewis, Larry	\$3,240.00
2-Aug-12	Windmiller,David	\$980.00
7-Aug-12	Multiple	\$162,349.43
8-Aug-12	Multiple	\$164,688.85
13-Aug-12	Windmiller, David	\$1.00
14-Aug-12	Windmiller,David	\$500.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
15-Aug-12	CMD	\$1,438,714
15-Aug-12	CMD	\$1,221,579
15-Aug-12	CMD	\$1,431,774
15-Aug-12	CMD	\$1,221,120
16-Aug-12	Lewis, Larry	\$1,000.00
20-Aug-12	Windmiller, David	\$1.00
21-Aug-12	Multiple	\$1,820.99
22-Aug-12	Multiple	\$16,635.32
28-Aug-12	Moran, Thomas	\$2,575.36
28-Aug-12	CMD	\$1,412,933
28-Aug-12	CMD	\$1,310,719
28-Aug-12	CMD	\$1,478,405
29-Aug-12	Multiple	\$14,245.36
31-Aug-12	Multiple	\$4,898.79
5-Sep-12	Multiple	\$493.61
10-Sep-12	Multiple	\$11,112.72
12-Sep-12	Multiple	\$901.00
13-Sep-12	Multiple	\$9,722.31
20-Sep-12	Multiple	\$360,410.72
20-Sep-12	CMD	\$1,215,653
20-Sep-12	CMD	\$1,365,124
21-Sep-12	Multiple	\$9,491.00
24-Sep-12	Windmiller, David	\$12,100.00
26-Sep-12	Multiple	\$28,800.00
27-Sep-12	Multiple	\$8,501.00
28-Sep-12	Moran, Thomas	\$5,325.36
1-Oct-12	Multiple	\$875.00
2-Oct-12	Moran, Thomas	\$3,455.36
3-Oct-12	Multiple	\$4,146.08
3-Oct-12	CMD	\$1,287,692
3-Oct-12	CMD	\$1,179,162
8-Oct-12	Windmiller, David	\$1.00
12-Oct-12	Multiple	\$7,201.00
15-Oct-12	Multiple	\$8,676.00
15-Oct-12	CMD	\$1,116,828
15-Oct-12	CMD	\$1,458,861
16-Oct-12	Multiple	\$7,035.70
17-Oct-12	Moran, Thomas	\$4,761.44
22-Oct-12	Multiple	\$9,635.00
23-Oct-12	Multiple	\$1,642.00

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
23-Oct-12	CMD	\$1,904,129
23-Oct-12	CMD	\$990,394
24-Oct-12	Multiple	\$6,084.55
8-Nov-12	Flanagan, Frank	\$171,740.00
8-Nov-12	CMD	\$1,916,545
13-Nov-12	Semrau	\$1,722.24
19-Nov-12	Multiple	\$9,556.40
23-Nov-12	Lewis, Larry	\$1,900.00
26-Nov-12	Multiple	\$201.00
28-Nov-12	CMD	\$1,949,151
28-Nov-12	CMD	\$2,169,445
28-Nov-12	CMD	\$1,783,377
30-Nov-12	Multiple	\$377,938.80
3-Dec-12	Multiple	\$2.00
4-Dec-12	Moran, Thomas	\$4.00
5-Dec-12	Semrau	\$3,379.46
6-Dec-12	Multiple	\$136.00
7-Dec-12	Multiple	\$4,247.82
10-Dec-12	Multiple	\$584.00
10-Dec-12	CMD	\$2,156,041
10-Dec-12	CMD	\$1,935,317
19-Dec-12	Multiple	\$535,944.76
20-Dec-12	Multiple	\$252,931.95
21-Dec-12	Flanagan, Frank	\$164,670.00
27-Dec-12	Windmiller, David	\$1.00
28-Dec-12	CMD	\$1,647,278
28-Dec-12	CMD	\$1,469,120
4-Jan-13	Multiple	\$10,523.53
7-Jan-13	Multiple	\$12,487.43
11-Jan-13	Lewis, Duanne	\$27,600.00
15-Jan-13	Flanagan, Frank	\$335,490.00
16-Jan-13	Multiple	\$509,600.98
17-Jan-13	Multiple	\$4,724.27
18-Jan-13	Moran, Thomas	\$6.00
21-Jan-13	Multiple	\$4,956.40
22-Jan-13	Multiple	\$338,500.00
24-Jan-13	Multiple	\$49,162.30
25-Jan-13	Multiple	\$2,082.90
28-Jan-13	CMD	\$1,369,225
1-Feb-13	Multiple	\$3,539.24

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
7-Feb-13	Multiple	\$1,371.61
8-Feb-13	Multiple	\$5,602.45
11-Feb-13	Santiago Gold Fund LP	\$32,348.57
13-Feb-13	Multiple	\$3,289.31
15-Feb-13	Multiple	\$136,992.96
20-Feb-13	CMD	\$1,135,512
20-Feb-13	CMD	\$1,139,844
20-Feb-13	CMD	\$1,160,977
25-Feb-13	Multiple	\$2,660.00
27-Feb-13	Santiago Gold Fund LP	\$1,009,576.88
6-Mar-13	Multiple	\$102.00
7-Mar-13	Multiple	\$3,849.80
12-Mar-13	White Oak Fund LLP	\$10,367.50
14-Mar-13	Multiple	\$9,452.95
15-Mar-13	Flanagan, Frank	\$319,050.00
21-Mar-13	Multiple	\$501.00
22-Mar-13	Multiple	\$24,685.72
25-Mar-13	Windmiller, David	\$90.00
26-Mar-13	Lewis, Larry	\$2,240.00
2-Apr-13	Semrau	\$12,682.16
4-Apr-13	Multiple	\$7,870.76
5-Apr-13	Multiple	\$307,081.11
9-Apr-13	Santiago Gold Fund LP	\$306,433.13
10-Apr-13	Windmiller, David	\$1.00
11-Apr-13	Santiago Gold Fund LP	\$98,082.28
12-Apr-13	CMD	\$1,391,770
12-Apr-13	CMD	\$1,653,884
12-Apr-13	CMD	\$1,419,779
15-Apr-13	Multiple	\$171,648.92
24-Apr-13	Moran, Thomas	\$945.36
26-Apr-13	Moran, Thomas	\$3,555.36
26-Apr-13	CMD	\$1,397,665
26-Apr-13	CMD	\$1,568,709
29-Apr-13	Multiple	\$8,480.56
30-Apr-13	Multiple	\$149,660.72
1-May-13	Multiple	\$7,321.72
2-May-13	Moran, Thomas	\$2,091.44
3-May-13	Moran, Thomas	\$75.36
7-May-13	Moran, Thomas	\$1,056.08
8-May-13	Moran, Thomas	\$1,775.36

Date	Plaintiff(s)	Sale Amt. / Net Rec'd¹
9-May-13	Multiple	\$146,281.00
10-May-13	Moran, Thomas	\$200.72
13-May-13	Moran, Thomas	\$985.36
14-May-13	Moran, Thomas	\$145.36
15-May-13	CMD	\$1,341,568
15-May-13	CMD	\$1,313,610
16-May-13	Multiple	\$2,559.88
22-May-13	Multiple	\$140,701.00
23-May-13	Multiple	\$3,382.15
23-May-13	CMD	\$1,350,528
23-May-13	CMD	\$1,699,085
24-May-13	Moran, Thomas	\$3,885.36
29-May-13	Multiple	\$36,068.50
30-May-13	Multiple	\$338,684.16
31-May-13	Moran, Thomas	\$360.72
4-Jun-13	CMD	\$1,841,265
7-Jun-13	Multiple	\$284,316.96
10-Jun-13	Moran, Thomas	\$490.72
14-Jun-13	CMD	\$1,616,030
14-Jun-13	CMD	\$1,929,328
18-Jun-13	Santiago Gold Fund LP	\$164,961.62
19-Jun-13	CMD	\$2,049,844
20-Jun-13	Multiple	\$4,160.17
21-Jun-13	Santiago Gold Fund LP	\$168,046.43
26-Jun-13	CMD	\$1,634,679
28-Jun-13	Semrau	\$284,107.74

APPENDIX C

Summary of Evidence Indicating Collusive Manipulation
of Gold Prices Around the PM Fixing

1. **Numerous analyses have been conducted that provide empirical evidence that prices around the PM Fixing were being manipulated.**
 - a. Gold spot prices often drop significantly during the PM Fixing.
 - b. Gold spot prices often start to drop significantly before the start of the PM Fixing.
 - c. Gold spot price movements prior to or around the PM Fixing are more indicative of the PM Fix price on days when spot prices go down during the Fixing than on days where spot prices go up.
 - d. Large gold spot price drops at the PM Fixing are often followed by partial price recovery.
 - e. Large gold spot price drops at the PM Fixing are often the largest price movements in a trading day.
 - f. The largest gold spot price movements occur around the PM Fixing approximately four times more often than market data suggests they should.
 - g. The PM Fix price is below the median value of daily trading gold spot prices on significantly more than 50% of trading days.
 - h. The PM Fix price is among the lowest 5% of gold spot prices of a trading day on average three times more than it is among the highest 5% spot prices of a trading day.
 - i. On average for trading days in the Class Period, gold spot prices move downwards more often and by larger amounts around the PM Fixing than at other times, despite sustained gold spot price increases throughout the same trading day.
 - j. A higher than average incidence of sharp downward gold spot price movements during the PM Fixing can be seen on rollover dates for futures contracts.
 - k. Downward movements in gold spot prices during the Fixing cannot be explained by exogenous market events because these downward movements occur whether there is a four, five, or six-hour time difference between London and New York.
 - l. Anomalous downward movements in the gold spot price at 3:00 p.m. London time exist only on days when the PM Fixing occurs.

- m. Predictable downward gold price movements during the PM Fixing are inconsistent with normal market behavior, especially during periods of high market liquidity.
- n. From 2001 – 2012, gold prices dropped during the PM Fixing on 70% of trading days, contrary to gold price behavior at other liquid times of the day (e.g., COMEX outcry open/close, NYSE open/close, and gold spot prices at other times of day).
- o. From 2001 – 2012, other major instruments (such as tradable S&P 500 indices, U.S. Treasuries, other physical commodities) saw prices move downwards on approximately 50% of days during highly liquid times of the day, in contrast to gold spot prices.
- p. The percentage of days on which gold spot prices decreased during the PM Fixing dropped to 50% in 2013, coinciding with regulatory investigations into Defendant Banks' (and others') potential manipulation of various financial benchmarks.
- q. The average price impact of each quote in the gold spot market is greater during the PM Fixing than at other times of days despite the PM Fixing being one of the most liquid periods in the gold spot market. This is in contrast to price impact in normally functioning markets.

2. The same studies, and others, also provide empirical evidence that the manipulation was being carried out, jointly, by Defendants.

- a. Direct gold spot quote evidence reveals that the Fixing Banks and UBS drove significant gold spot price drops around the PM Fixing call on specific days.
- b. From 2001 – 2012 (and unlike in 2013), the Fixing Banks systematically underpriced other market quotes for spot gold, with the largest under-pricing occurring on days when gold spot prices decreased during the PM Fixing.
- c. From 2001 – 2012, Defendants were responsible for a disproportionately high number of the quotes around the PM fixing that represented the largest price drop, a pattern that was significantly reduced in 2013.
- d. Defendants' quotes around the PM Fixing were more similar to each other's than to those of all other market participants during 2001 – 2012, but not in 2013.
- e. The large incidence of downward gold spot price movements from 2001 – 2012 benefited Defendants' gold futures short positions during the same time period.
- f. Defendants' move from short to long futures positions coincided with a significant decrease in the incidence of downward price movements during the PM Fixing.

3. The Fixing process is structurally conducive to a price-fixing conspiracy, as recognized by antitrust guidelines and academic literature.

- a. Nature, quantity, and strategic importance of information: The Fixing Banks exchanged large amounts of detailed information on future prices and quantities, while simultaneously trading for their clients' and their own accounts.
- b. Age of data exchanged: The older the data exchanged among competitors, the less likely it can be used to infer future conduct. During the PM Fixing, the Fixing Banks were exchanging real time data on quantities and intended prices.
- c. Data exchanged on prices and quantities rather than on demand and costs: The exchange of information regarding prices and quantities during the PM Fixing allows the establishment and monitoring of an agreement on prices and quantities, as opposed to collaborations among competitors where demand and cost information are exchanged.
- d. Private vs. public exchange of information: A public exchange of information generally reduces the likelihood that exchanged information will be used to coordinate behavior. The Fixing is conducted privately, and no minutes are recorded or released to market participants.
- e. Current or future vs. past information: The exchange of current and future information such as intended quantities and prices facilitates collusion by enabling coordination of future behavior.
- f. Frequency of the exchanges: A higher frequency of exchanges increases the likelihood that a collusive agreement will emerge and be sustained. The twice-daily Fixing amounts to a high frequency of exchange, and occurred over many years.
- g. Structure, control, and governance of the information exchanged: Direct exchanges of information among competitors have a higher likelihood of being anticompetitive than exchanges through an intermediary. The Fixing is a direct exchange of information among competitors, and does not involve an independent intermediary.
- h. Adoption of safeguards: There is no indication that the Fixing Banks adopted standards or safeguard to ensure that the information exchanged was not anticompetitive and/or was not improperly used.
- i. Control of key decision making: The Fixing was not an independent or conflict-free entity. It was instead directly constituted and controlled by Defendants themselves.

- j. Financial interests in the collaboration: Fixing Members have a direct financial interest in the product of the collaboration – the Fix price – pursuant to which they stand directly and indirectly to benefit or suffer loss.
 - k. Duration of the collaboration: Long lasting information exchanges are more likely to lead and sustain collusive agreements. The Fixing has existed for almost a century, and for over a decade since huge increases in the markets for gold derivatives.
 - l. Interlocking directorates: Defendants are active in multiple directorates within the same market and across markets, increasing the likelihood of convergence in interests and collaborations across markets.
 - m. Small number of competitors with significant market power involved: The Fixing Members, together with UBS, represent a small number of competitors, each with significant market power.
 - n. Barriers to entry: The exclusivity of the London Gold Fixing Panel enhances market power and stability of collusive agreements reached during the Fixing.
 - o. Homogeneity of the product: Gold is a highly homogeneous commodity, which facilitates coordination by simplifying consensus among the coordinating parties.
 - p. Symmetry among competitors: Defendant Banks tended to have similar derivative positions in gold, namely short futures positions, resulting in a common interest.
 - q. Competitors with multimarket contact: Multimarket contact among Defendant Banks enhances stability by allowing exchanges markets.
 - r. Collusion may reduce market complexity: Complexity or unpredictability in the gold markets can be reduced through anticompetitive exchanges of information.
 - s. Low likelihood a competitor will defy the agreement: There are minimal or no benefits to defying a collusive agreement between repeat players, enhancing the stability and duration of coordinated conduct. Defendants have more to gain when united.
4. **Indeed, a number of these structural features of the Fixing are inconsistent with “best practices” for the setting of an industry benchmark, as recognized by antitrust guidelines and academic literature.**
- a. Defendants are a very small number of competitors engaging in a direct discussion on future prices in respect of which they have benchmarked multiple financial interests.

- b. All of the discussions among Fixing Banks throughout the Fixing call are characterized by a lack of transparency.
- c. Fixing Banks have knowledge of demand and supply conditions ahead of and during the Fixing. All such knowledge is undisclosed to other market participants.
- d. The Fix price is not set based on available trades visible to the rest of the market but instead by undisclosed live exchanges among a limited number of competitors who represent the entire demand and supply of gold during the Fixing.
- e. Fixing Banks are direct competitors and have direct control of the Fix price.
- f. Fixing Banks can engage in proprietary trading at the same time that they have information that none of the remaining market participants have in respect of the values and direction of price movements.
- g. Each Fixing Bank has a conflict of interest because they are simultaneously (and privately) setting a Fix price against which they have benchmarked multiple financial interests.
- h. The market is unable to cross-check unusual price movements in gold spot prices in real time due to the complete lack of transparency of the Fixing.
- i. During the Class Period there was no independent monitoring and screening process to ensure robustness or market integrity.
- j. The administrator of the Gold Fixing is an association comprised of the Fixing Members themselves, thus presenting a direct conflict of interest.

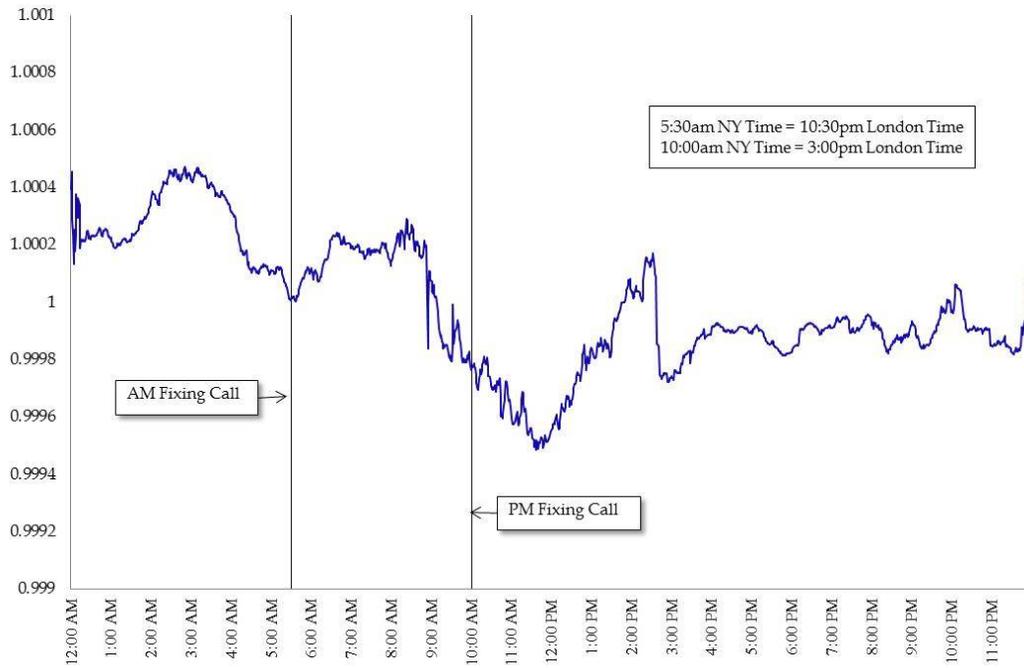
5. These problematic features of the London Gold Fixing make it even more vulnerable than other benchmarks whose manipulation has been admitted.

- a. For instance, many banks have admitted to conspiring to rig the benchmark LIBOR/Euribor interest rates. In those contexts, the benchmarking panel banks' individual submissions were made publicly available. By contrast, the gold Fixing process was opaque, and not even the Fixing Members kept records of the course of the purported "auction."
- b. Many banks have admitted to conspiring to rig foreign exchange benchmarks. Such benchmarks were based on actual trades, by and visible to a very large amount of market participants. Again, here, the gold Fixing was opaque, and controlled by just five banks. In addition, the foreign exchange benchmark process involved an independent administrator (Reuters), whereas here the banks were in charge of policing themselves.

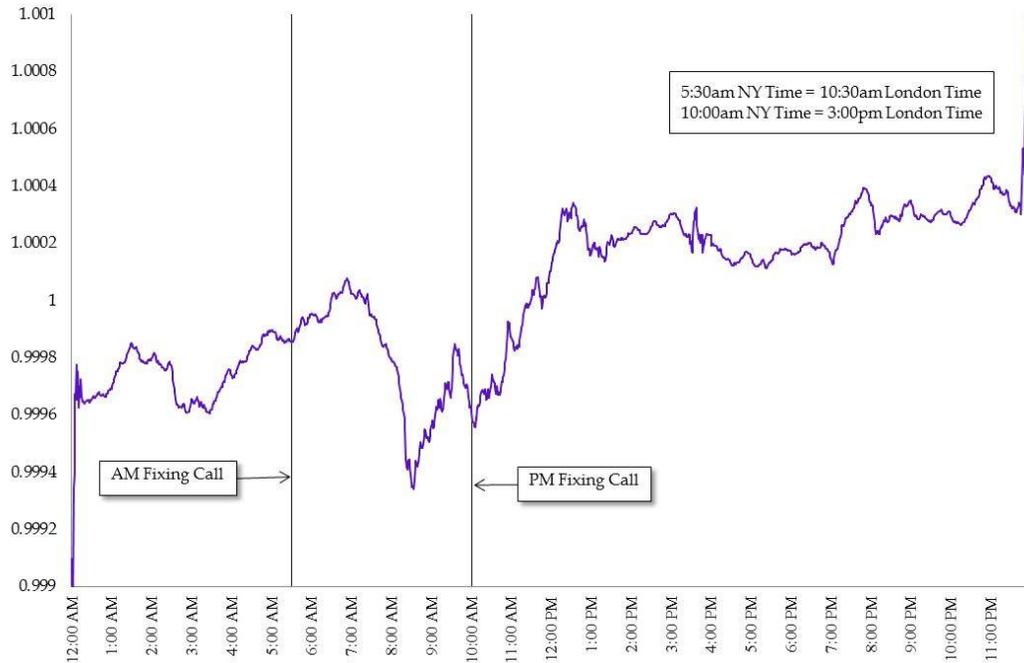
- 6. Additional corroborating evidence can be found in the fact that there are numerous, ongoing investigations into the banks' gold and precious metals practices.**
- a. Barclays has been fined £26 million: The U.K. Financial Conduct Authority fined Barclays and a Barclays trader for manipulation of the Gold Fixing.
 - b. UBS engaged in misconduct regarding precious metals: Switzerland's financial regulator (FINMA) found "serious misconduct" by UBS in precious metal trading, involving collusion between UBS and other banks.
 - c. Other ongoing investigations: Investigations into potential gold or precious metals markets manipulation are underway by the U.S. DOJ, CFTC, the Swiss Competition Commission, and Swiss financial regulator FINMA.

APPENDIX D

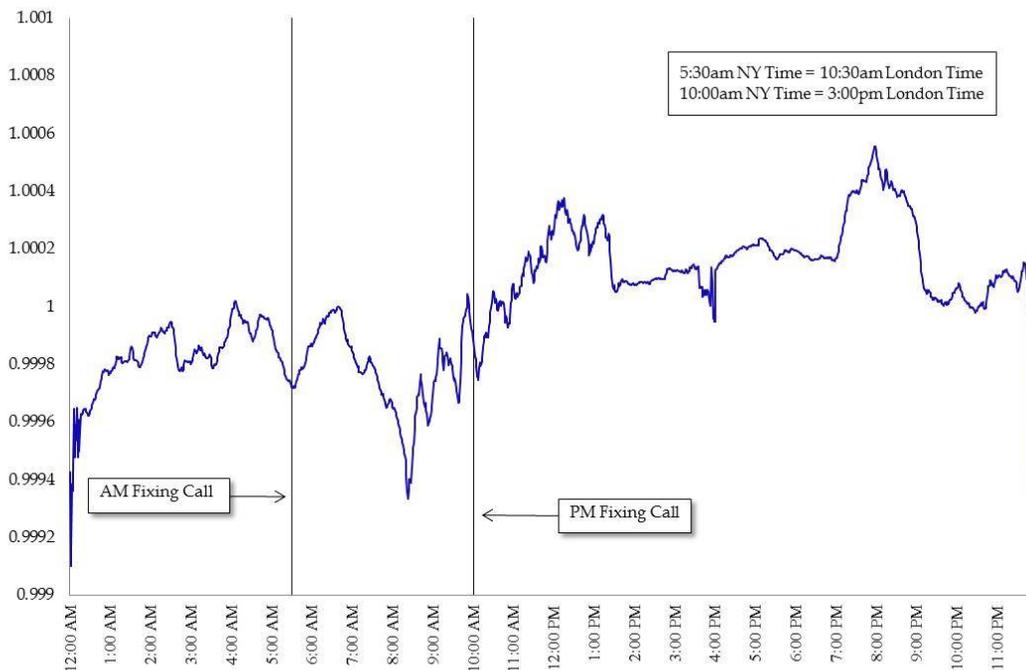
Normalized Intraday Gold Prices Average for 2001



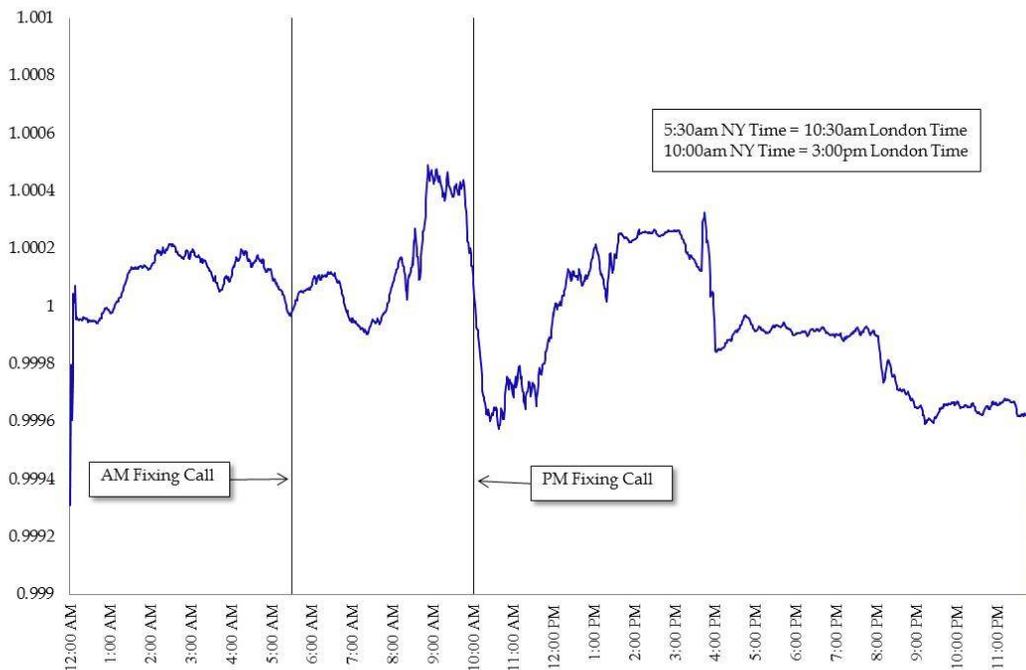
Normalized Intraday Gold Prices Average for 2002



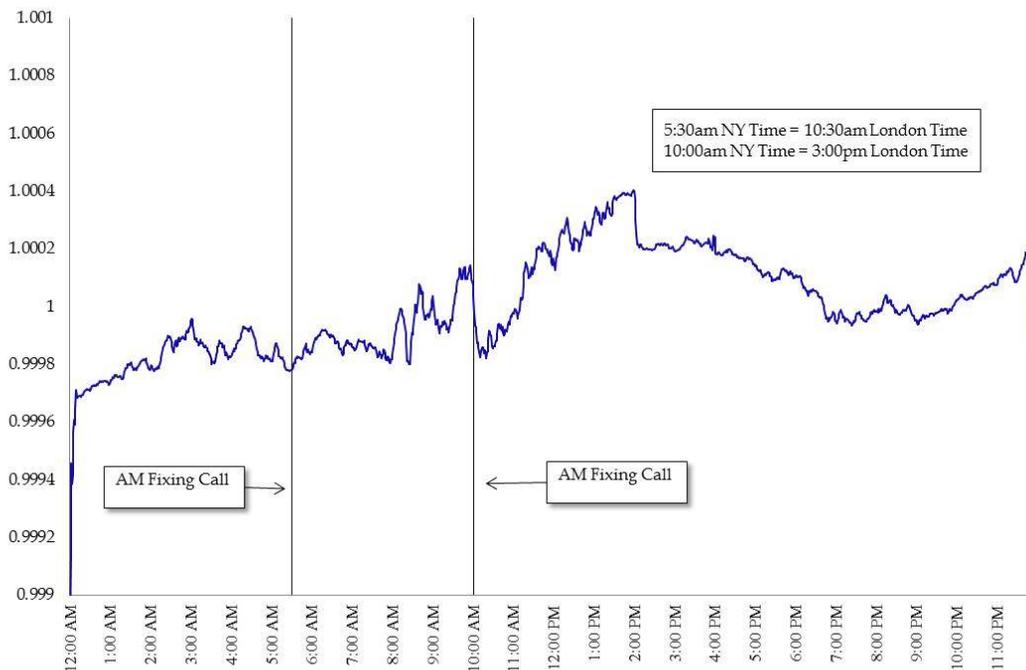
Normalized Intraday Gold Prices Average for 2003



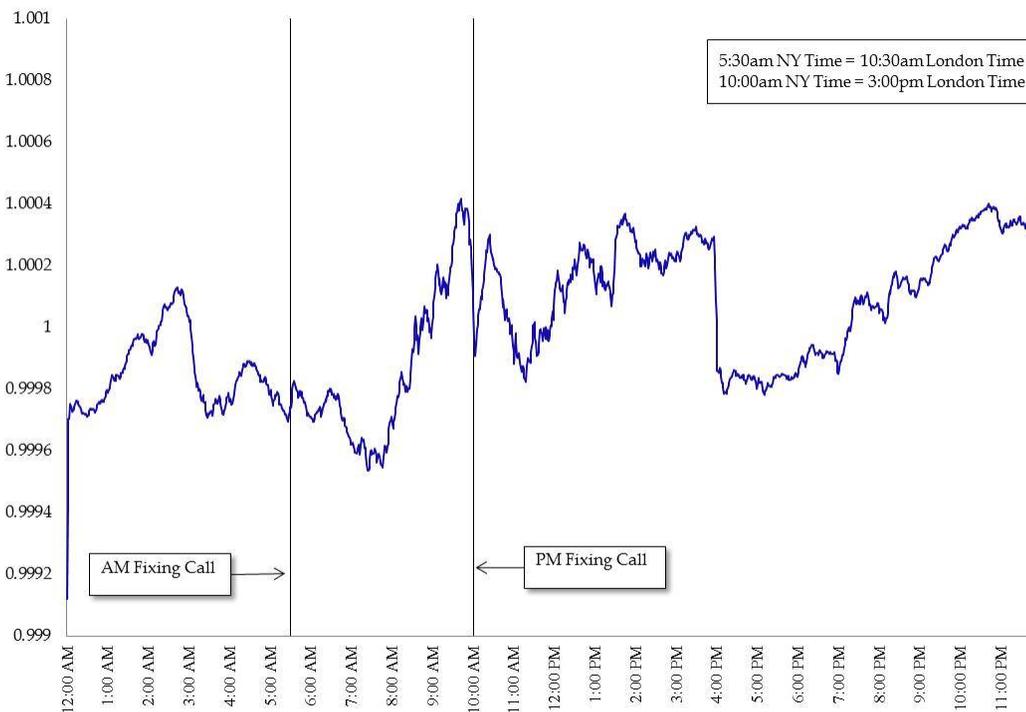
Normalized Intraday Gold Prices Average for 2004



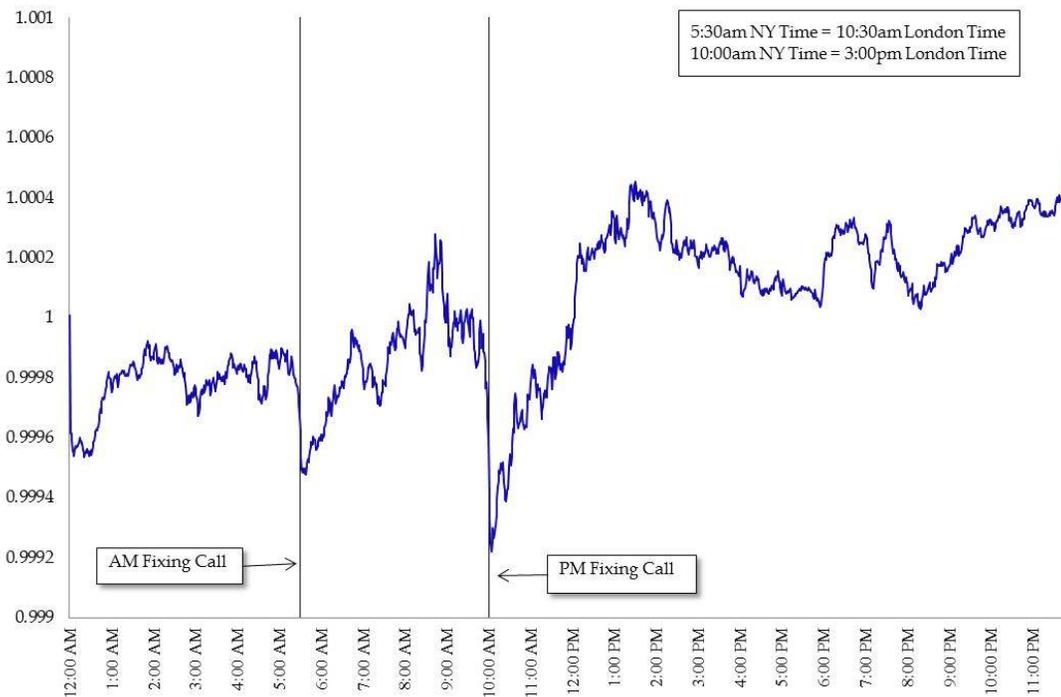
Normalized Intraday Gold Prices Average for 2005



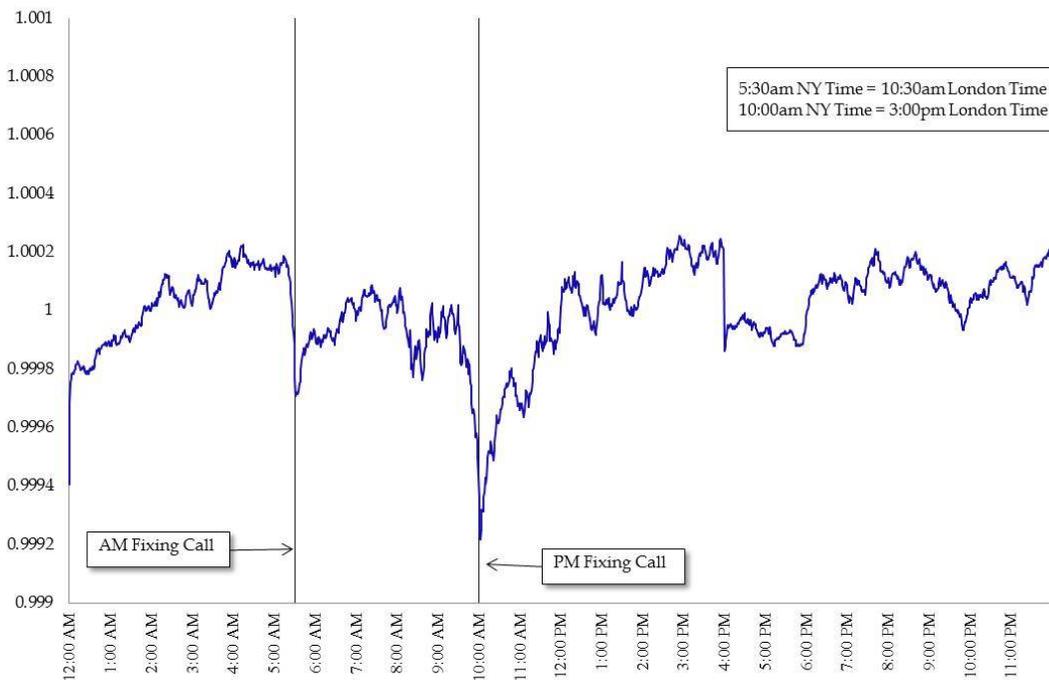
Normalized Intraday Gold Prices Average for 2007



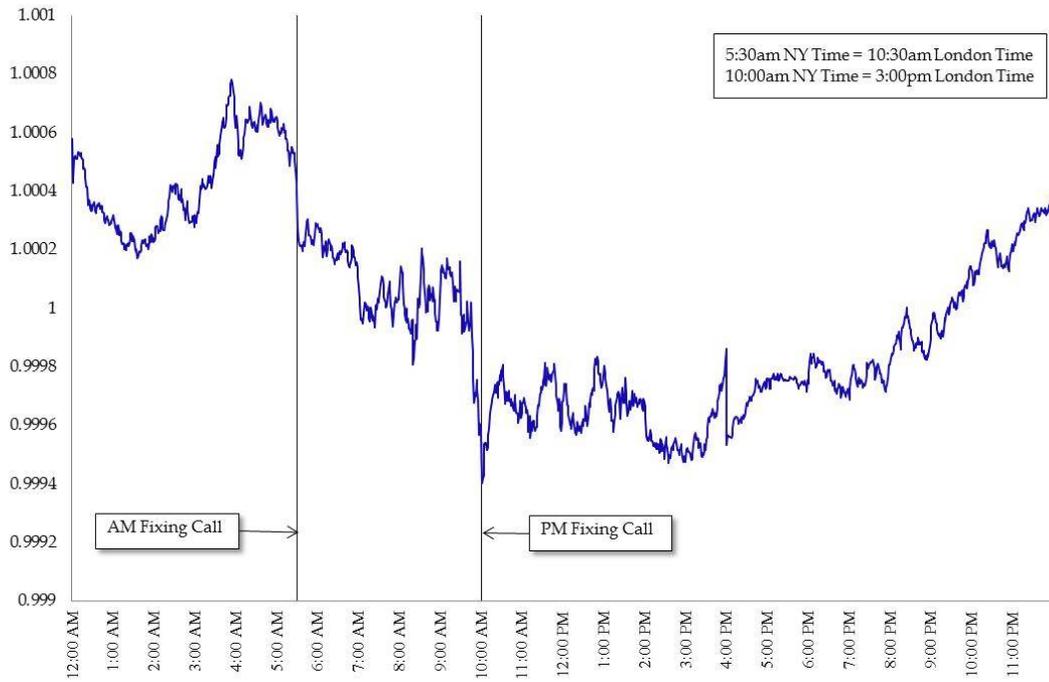
Normalized Intraday Gold Prices Average for 2009



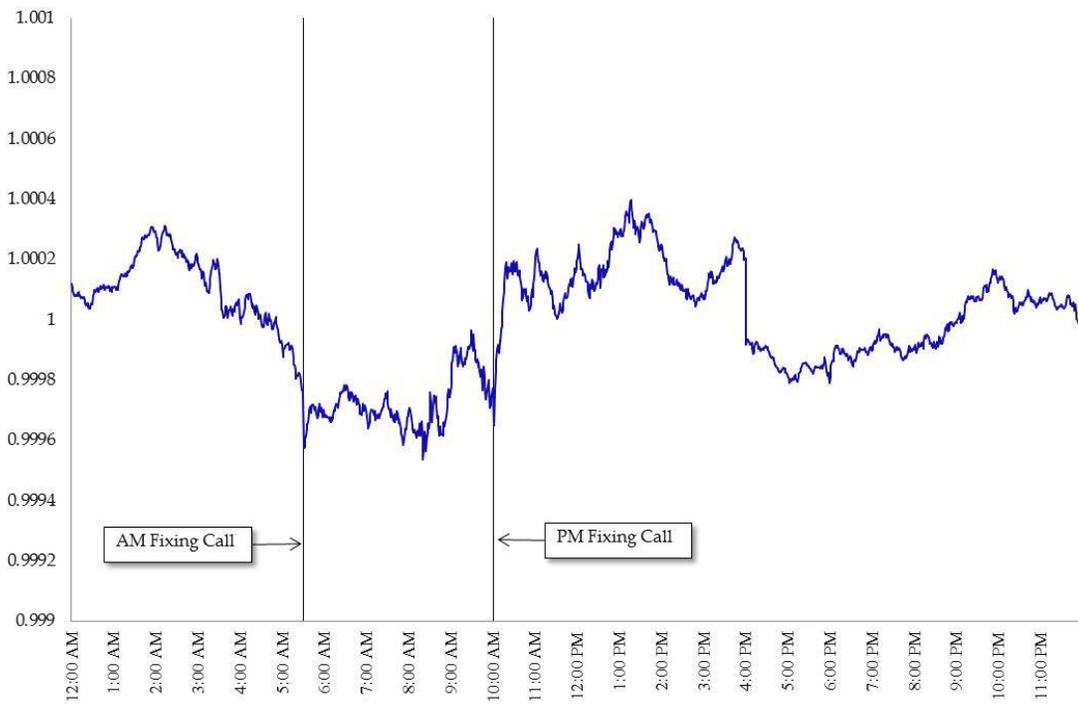
Normalized Intraday Gold Prices Average for 2010



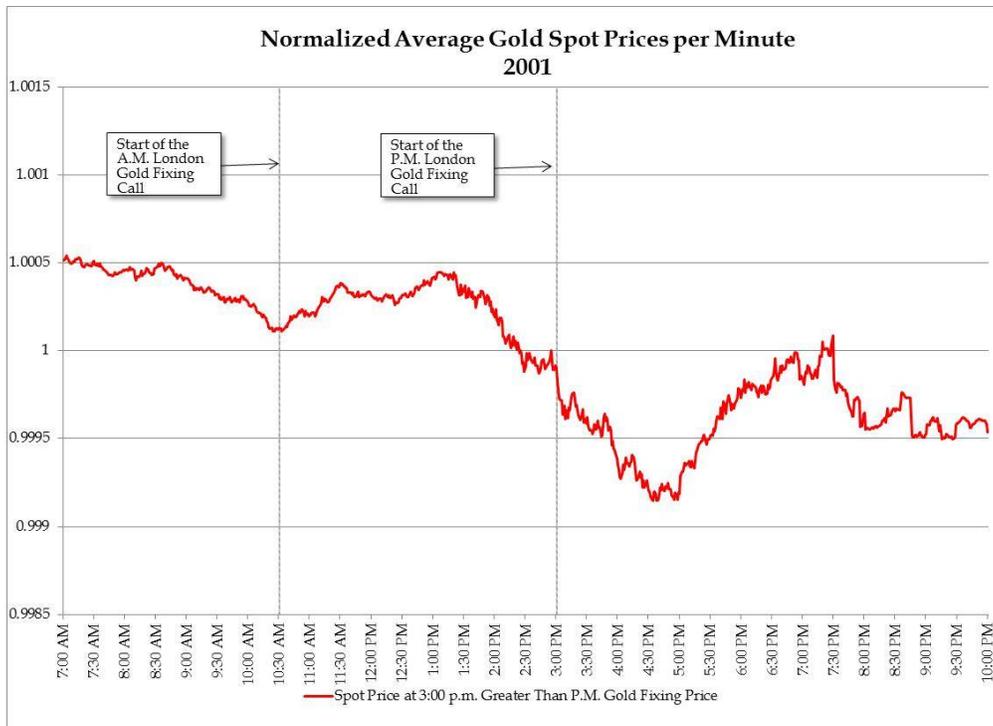
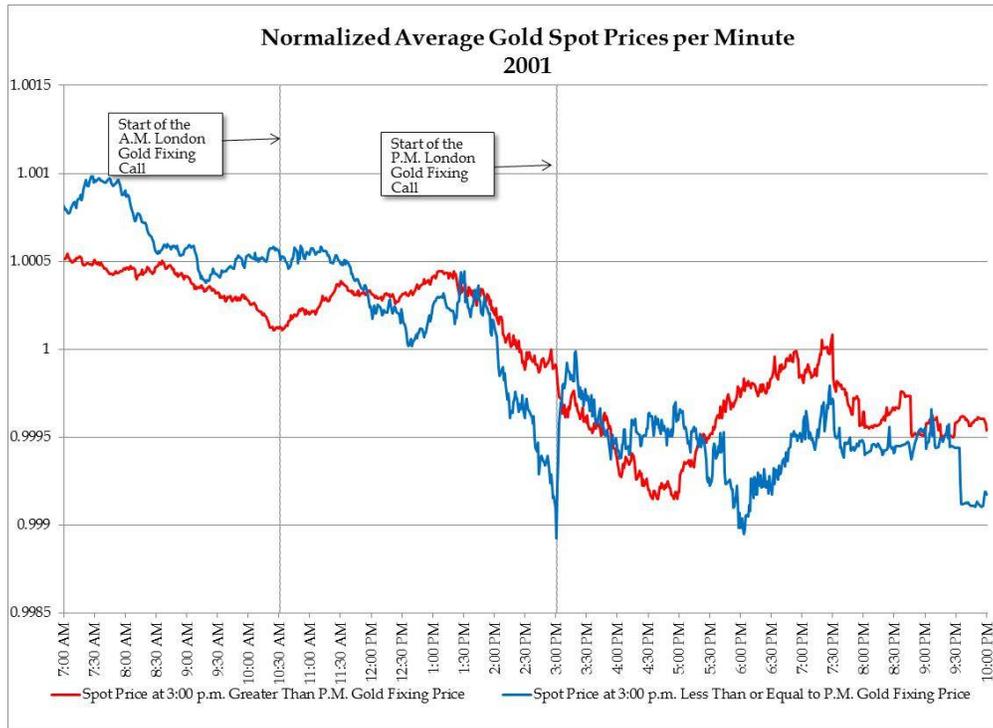
Normalized Intraday Gold Prices Average for 2011

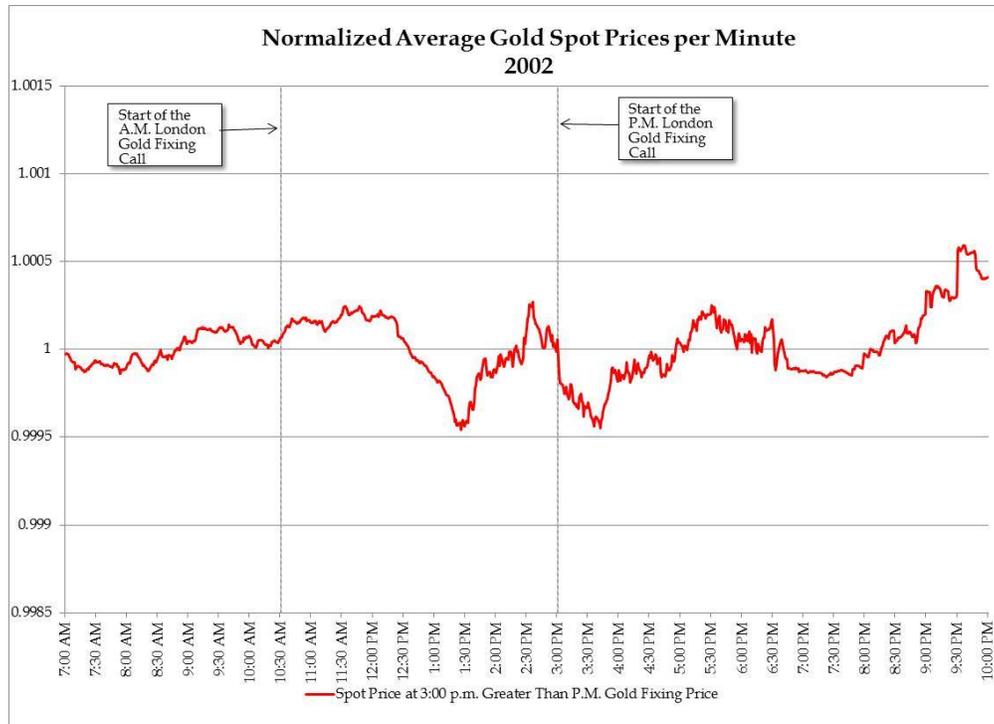
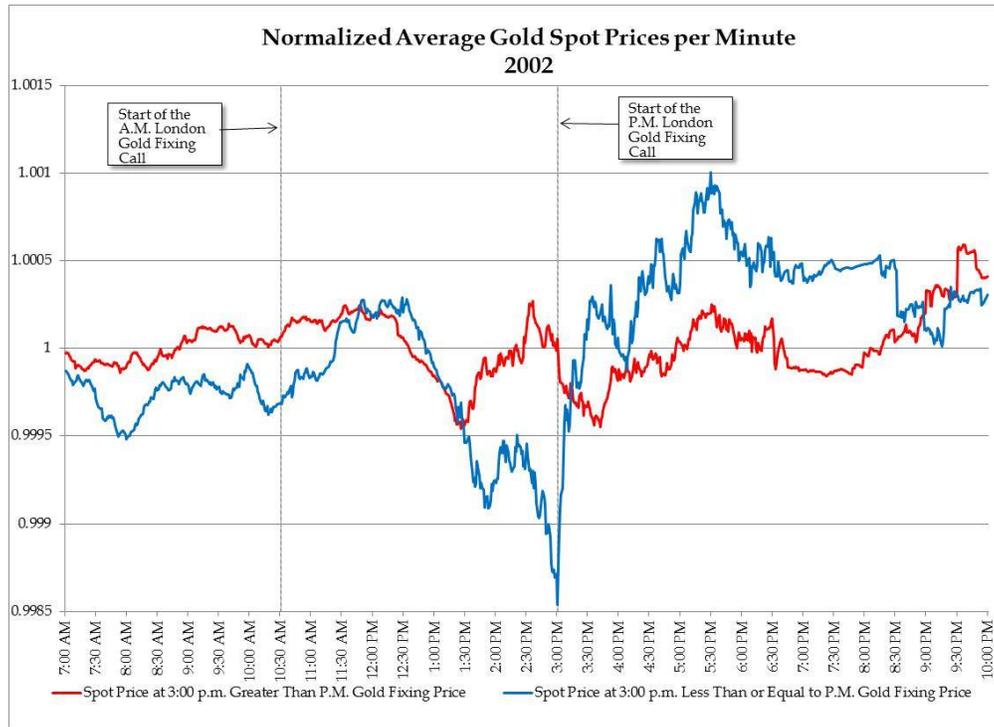


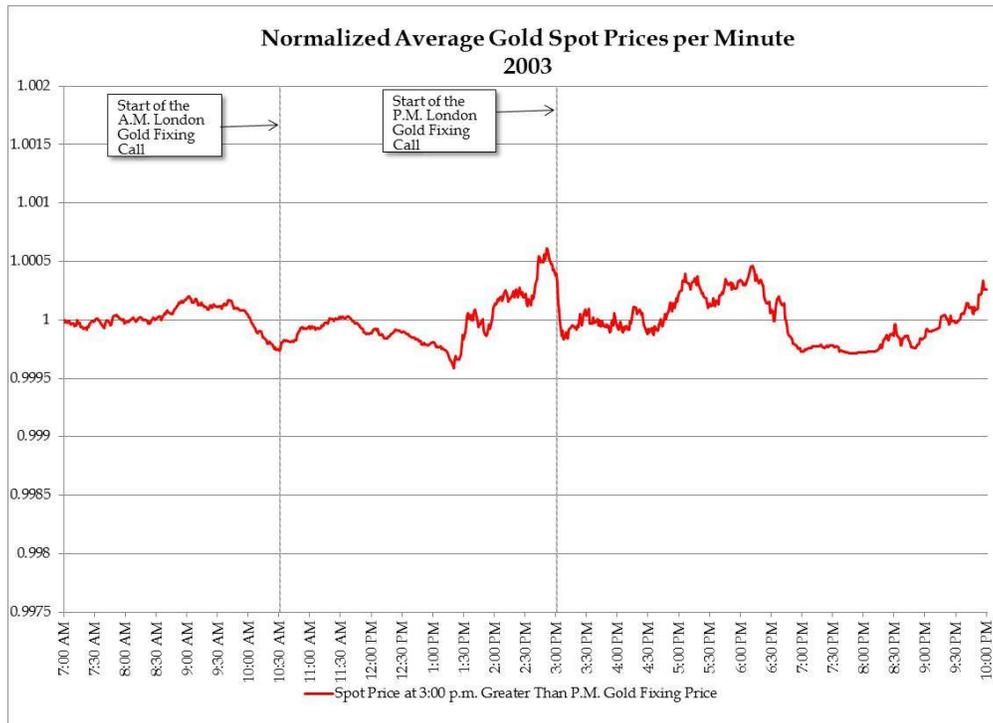
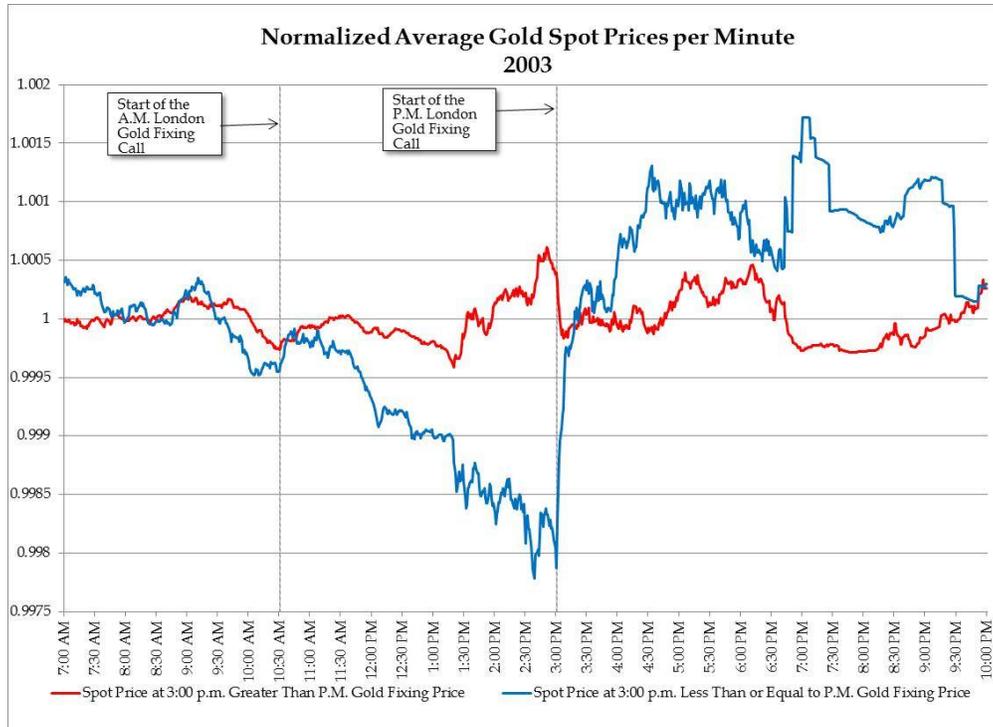
Normalized Intraday Gold Prices Average for 2012

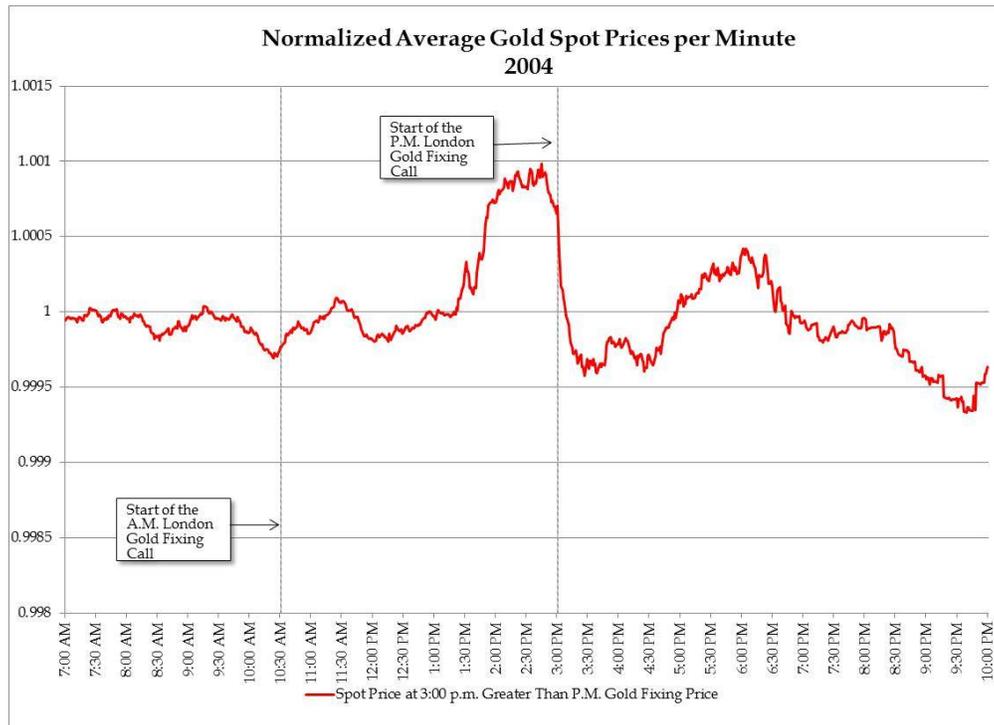
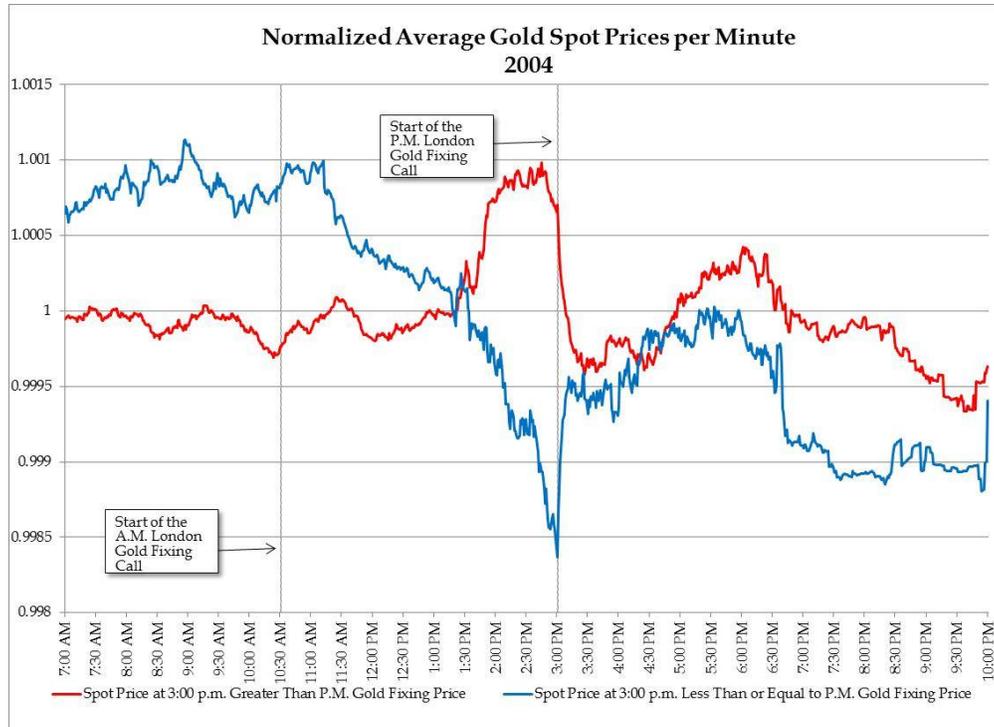


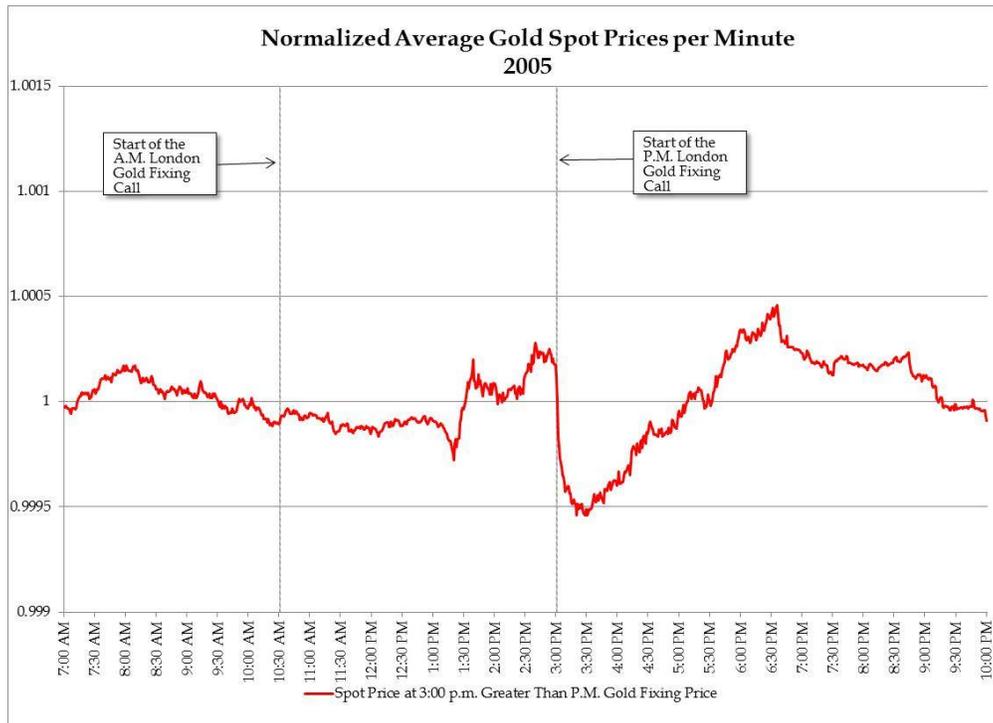
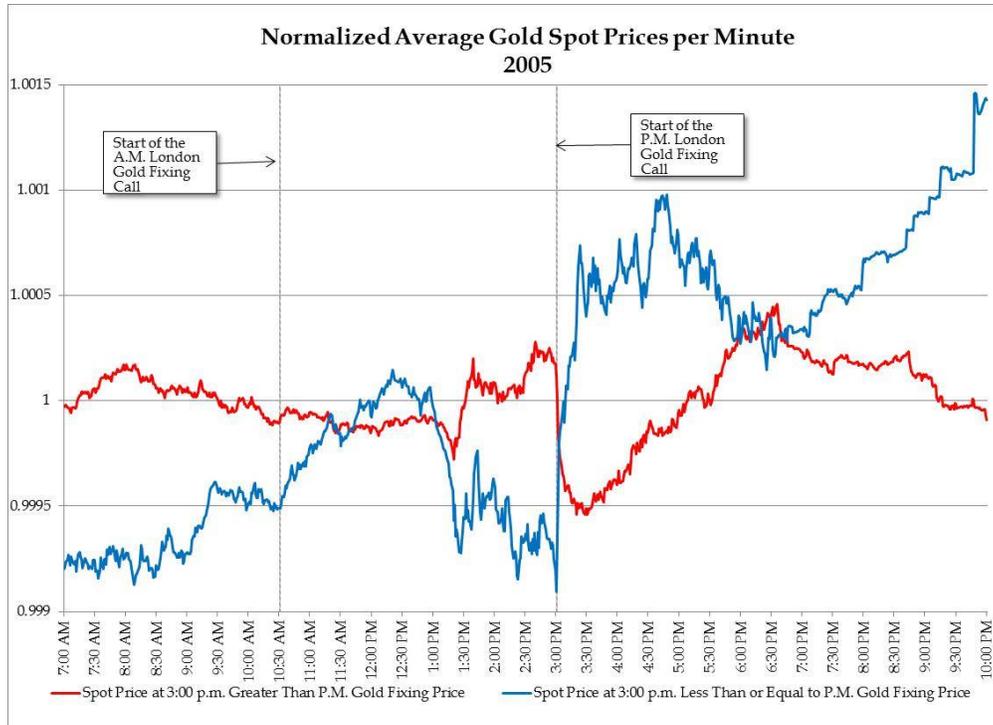
APPENDIX E

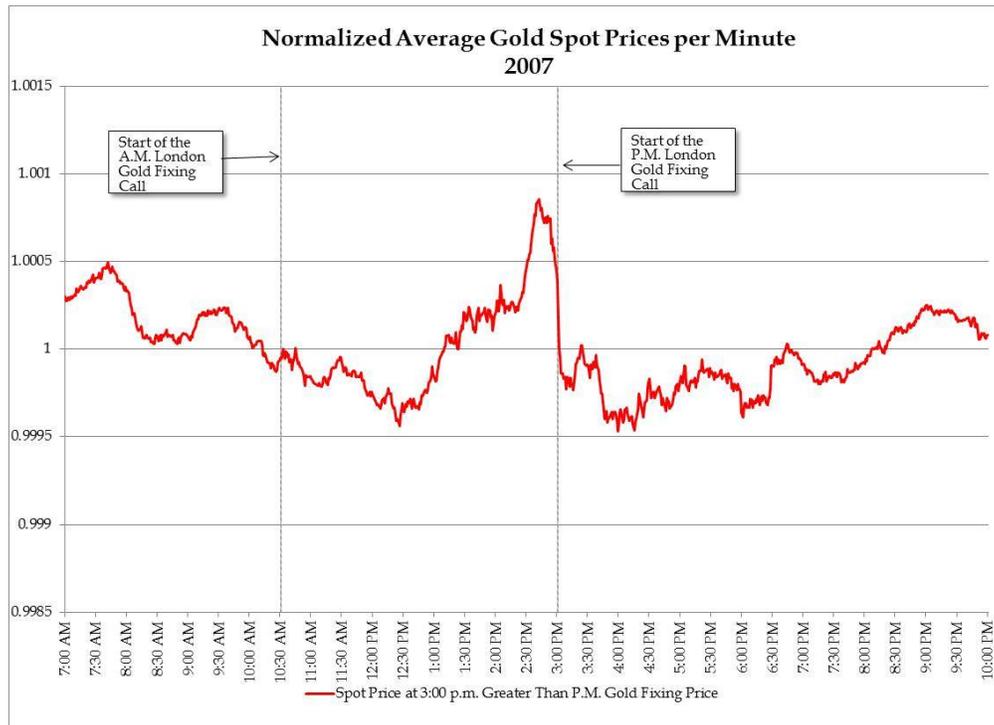
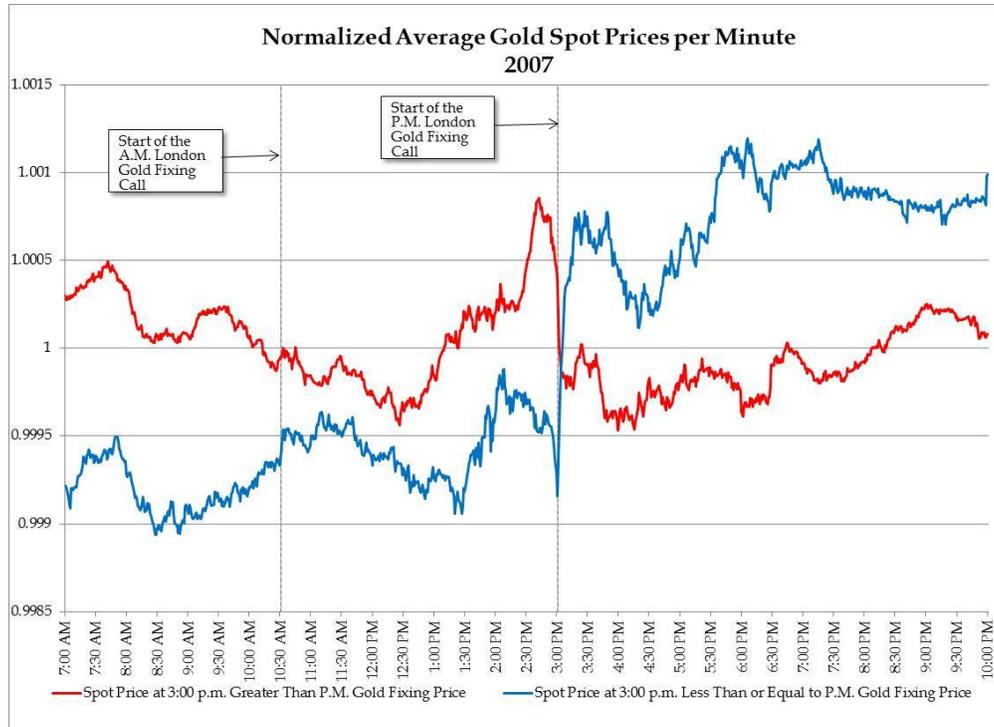


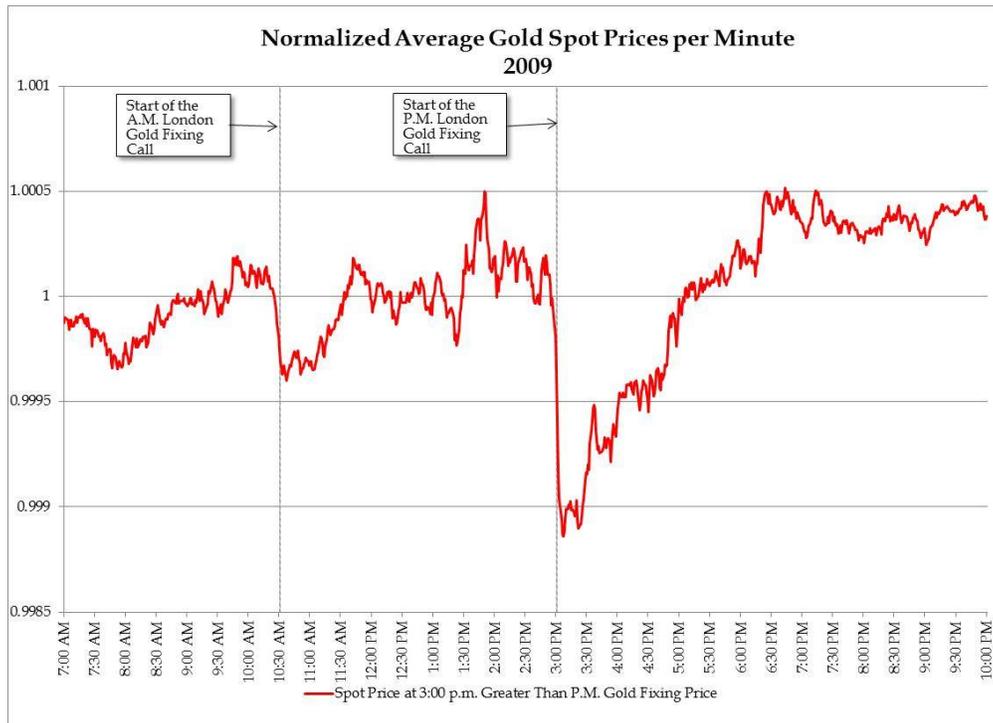
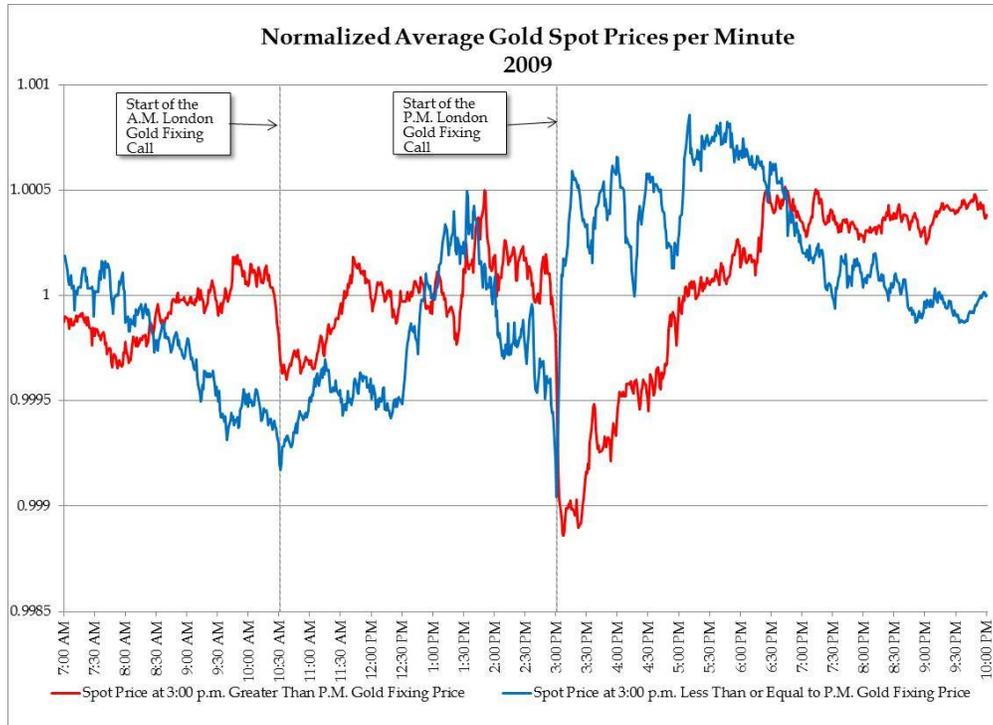


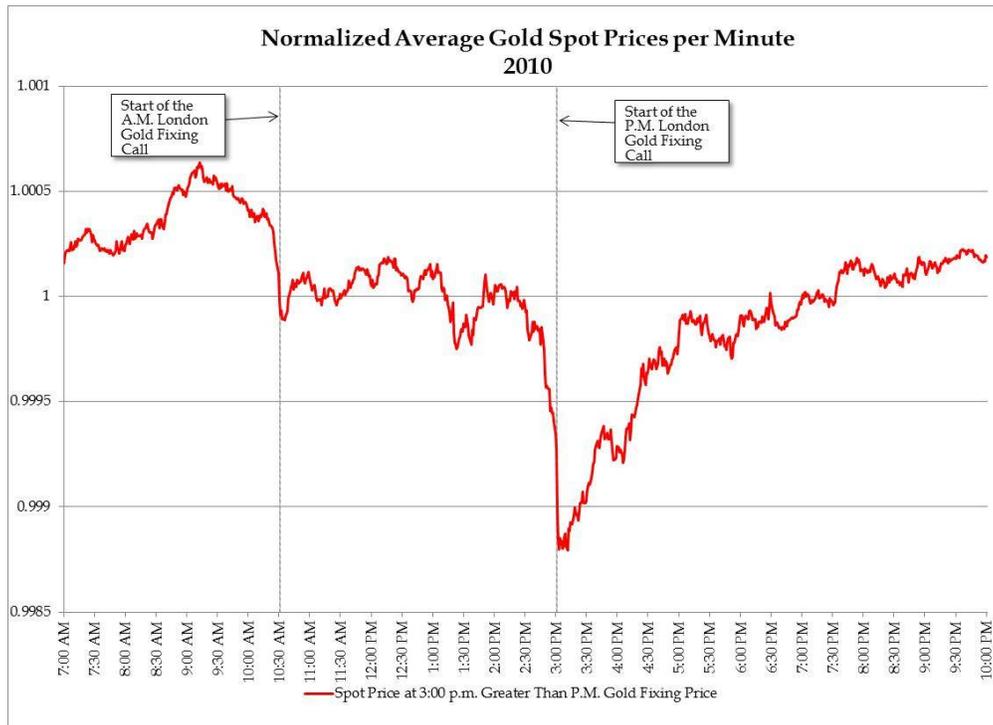
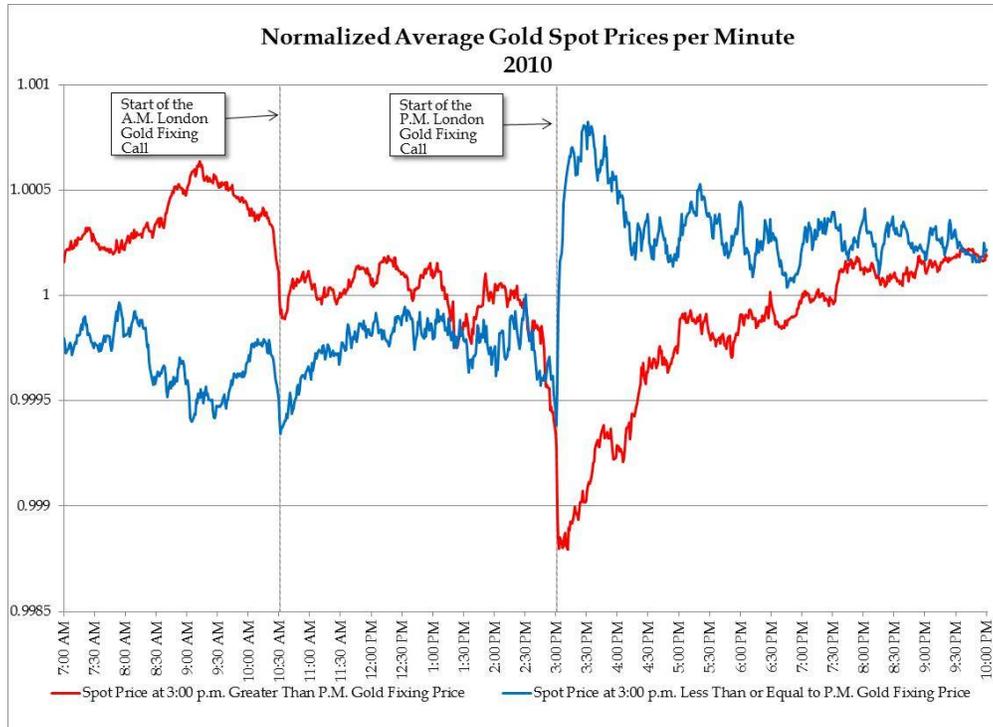


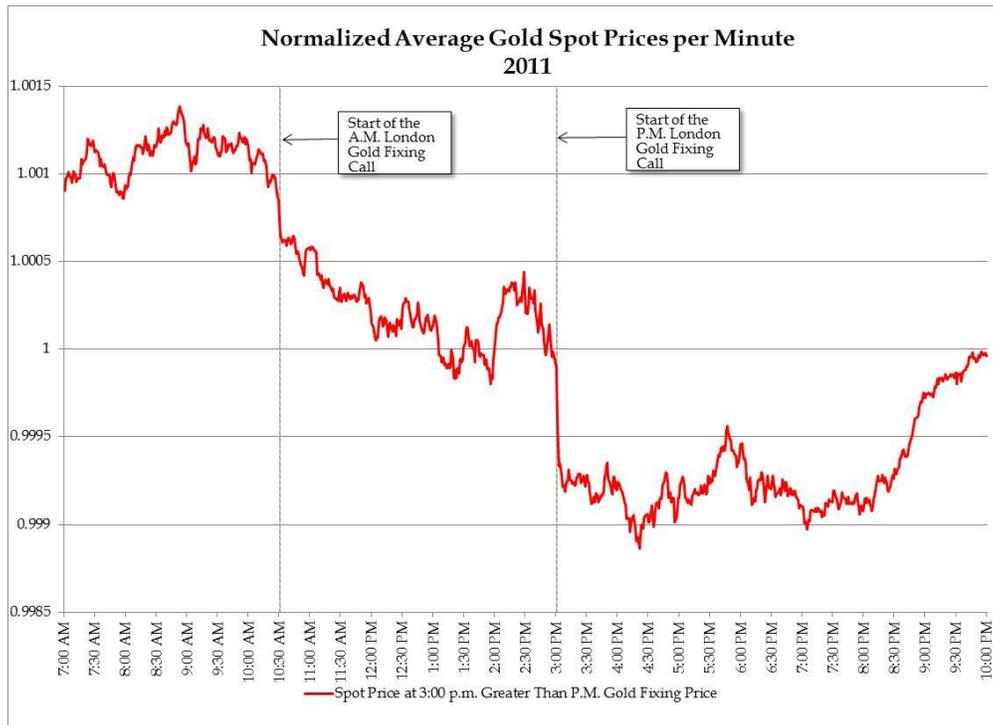
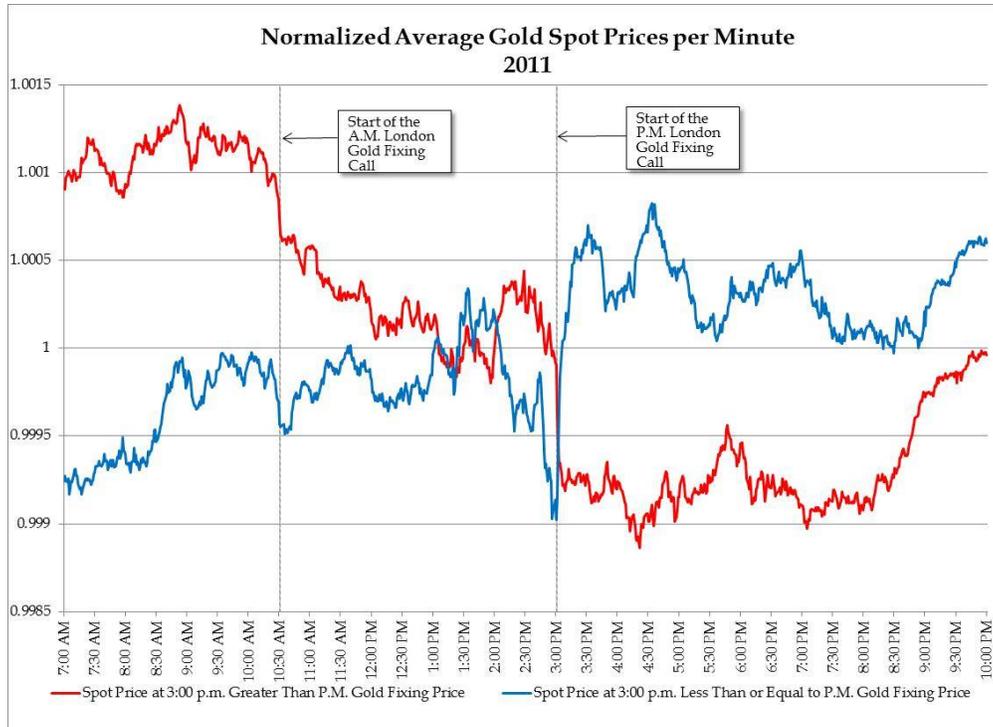


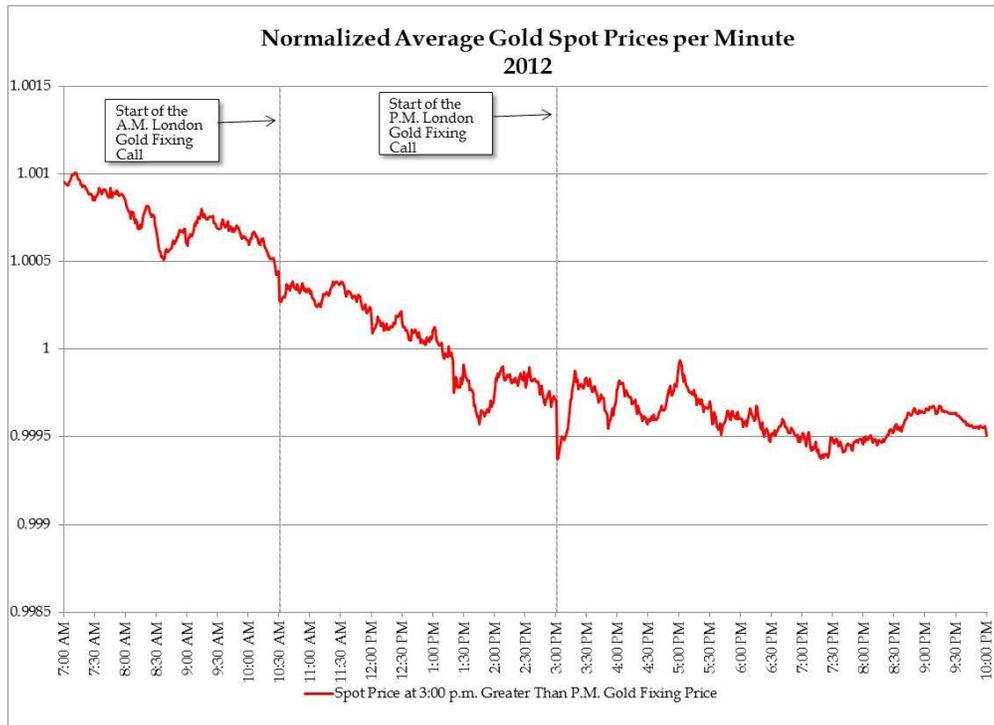
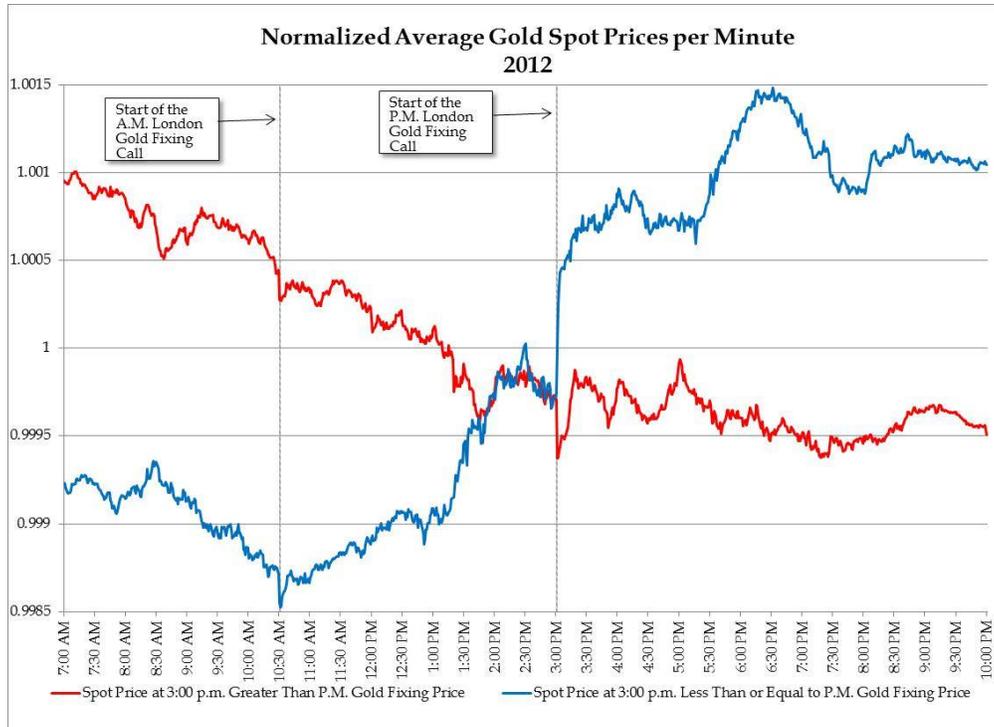






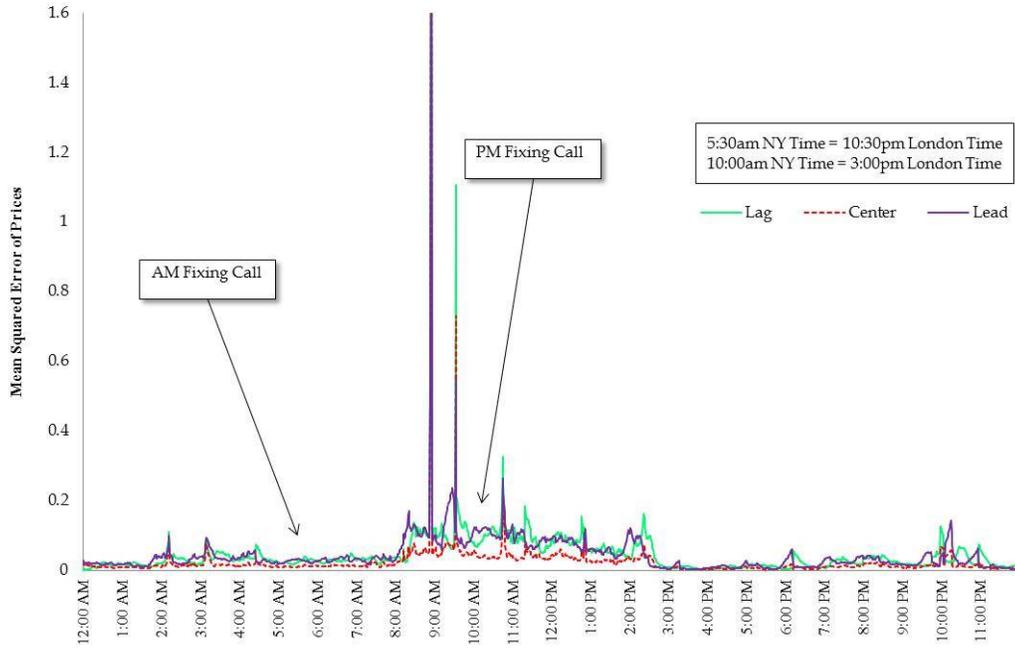




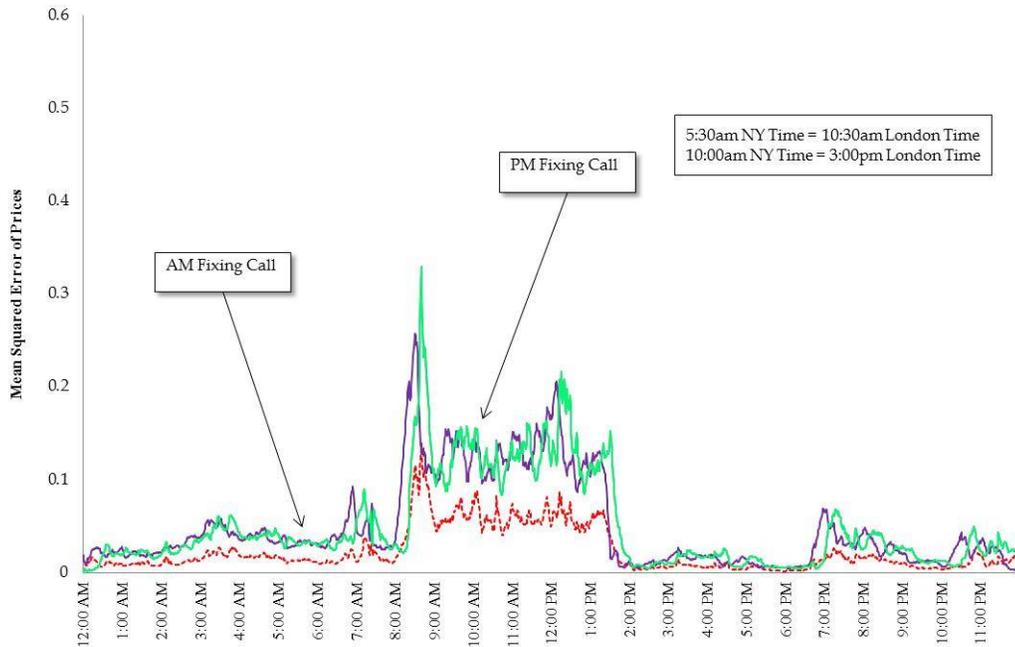


APPENDIX F

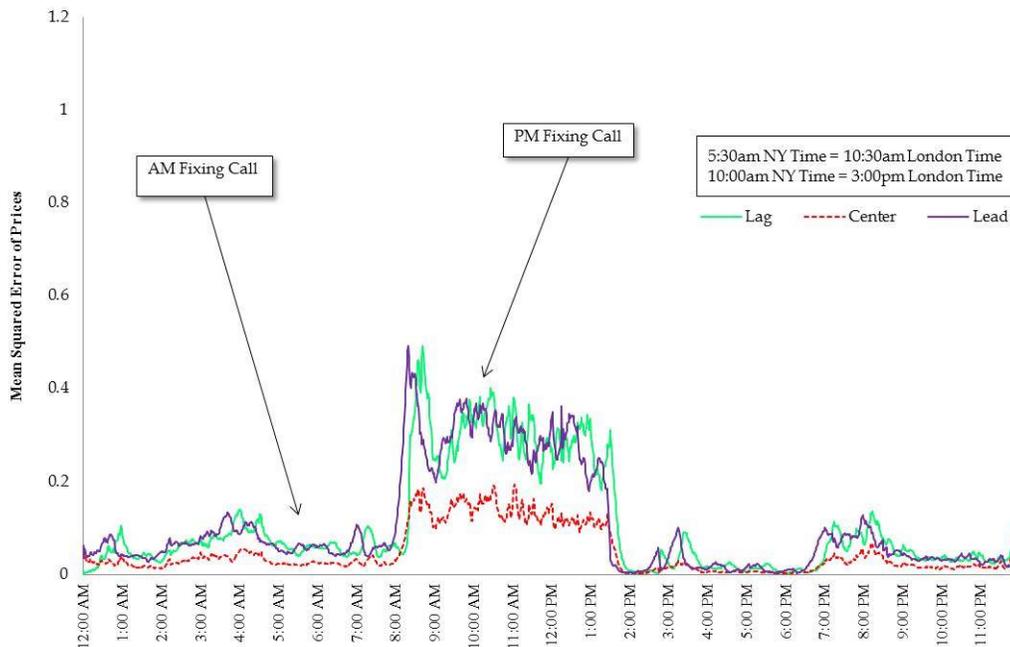
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2001



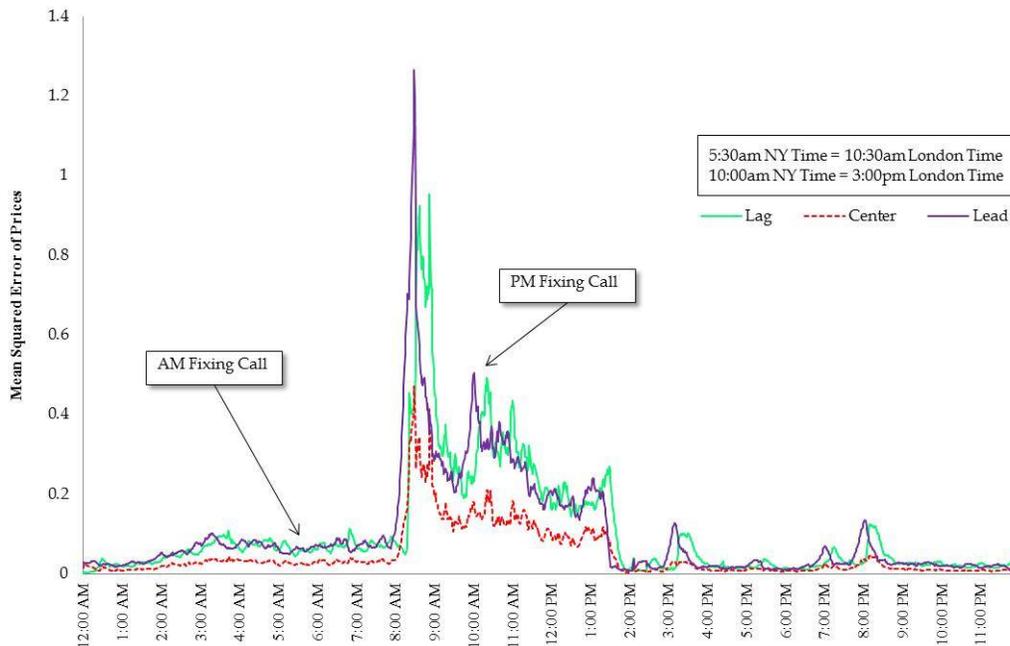
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2002



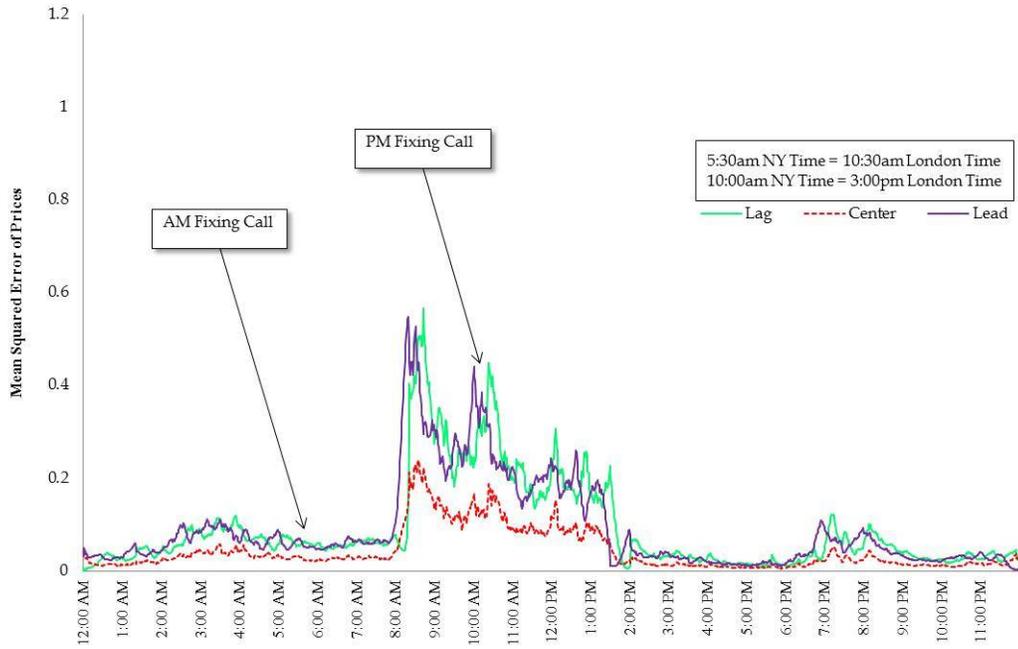
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2003



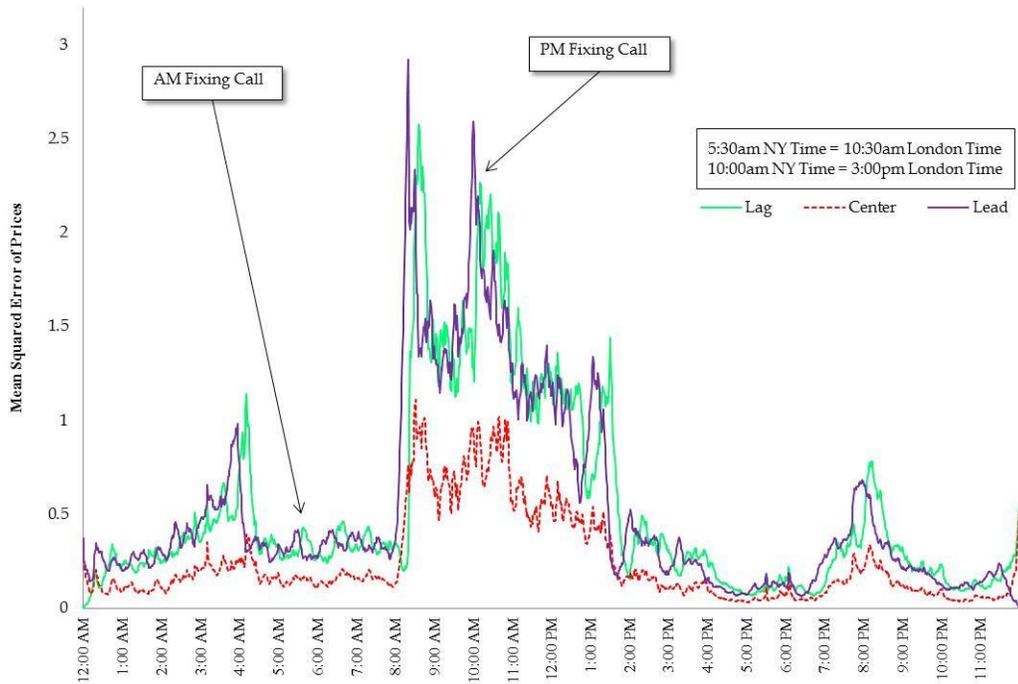
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2004



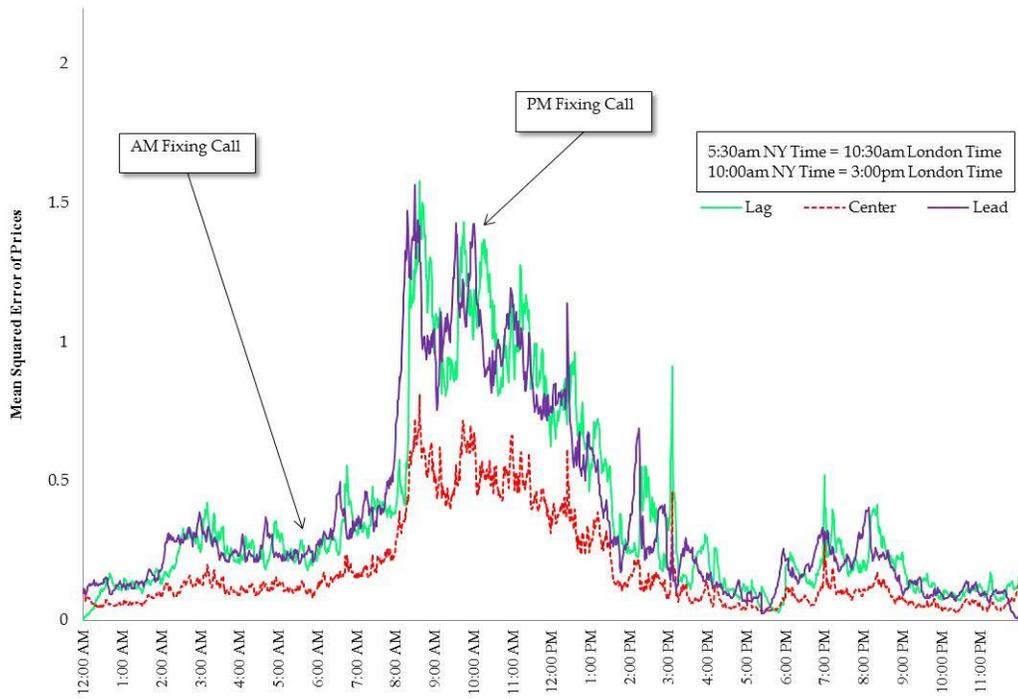
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2005



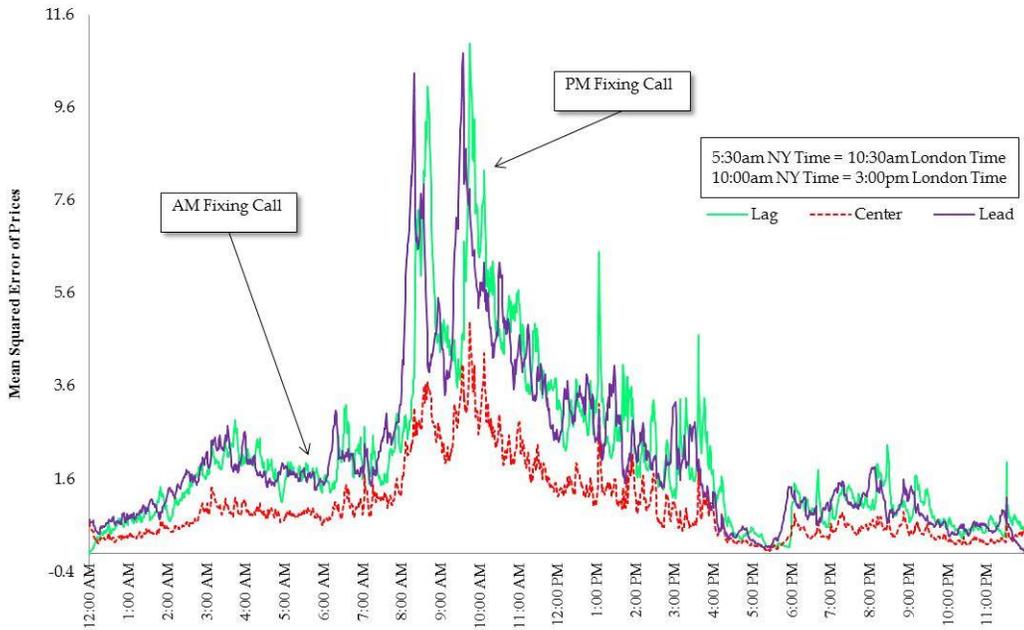
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2006



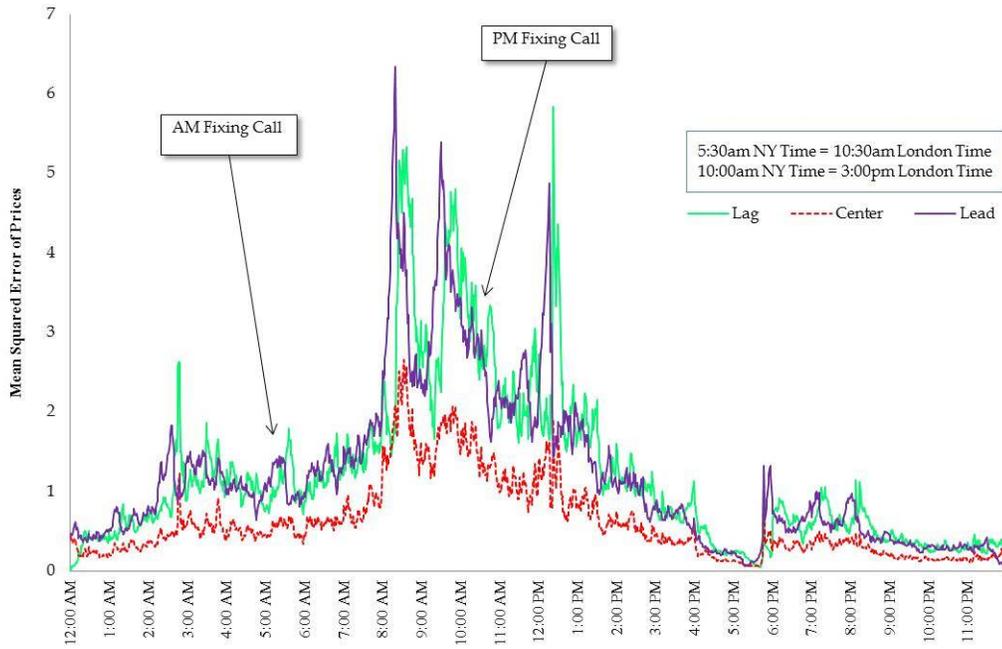
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2007



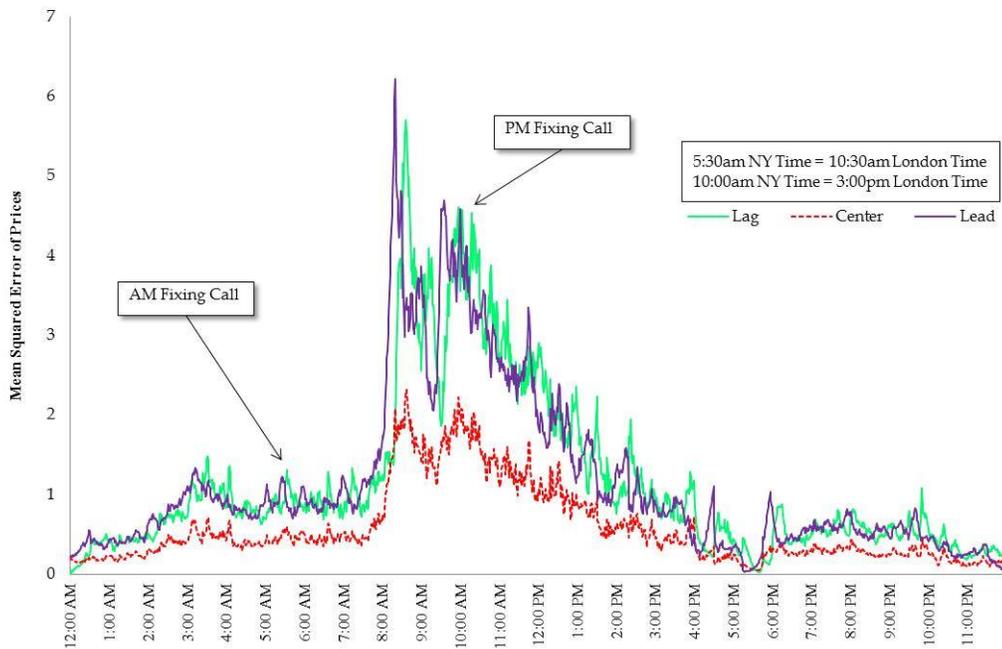
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2008



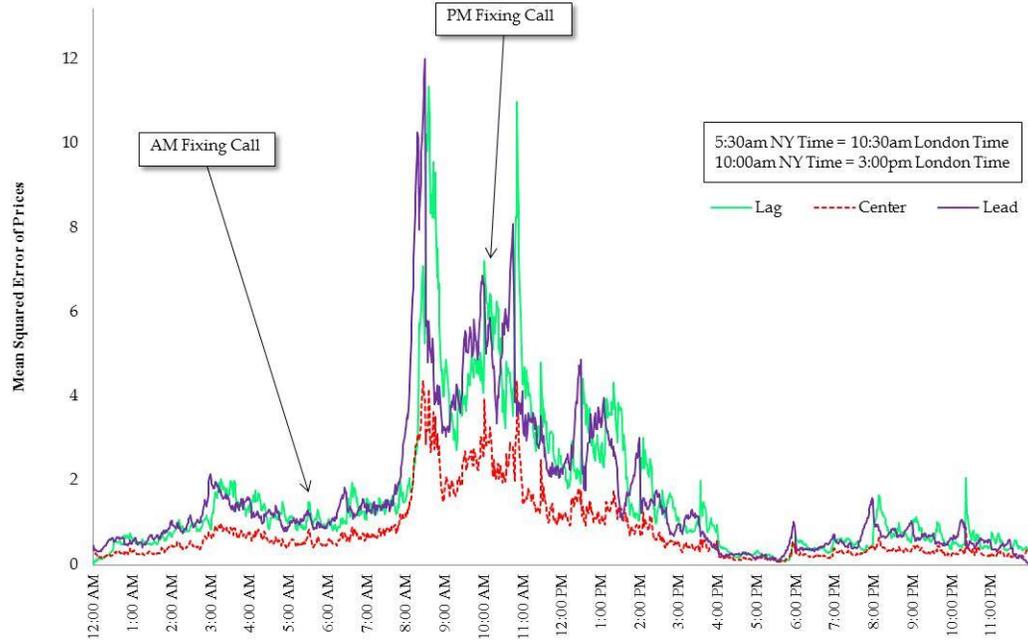
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2009



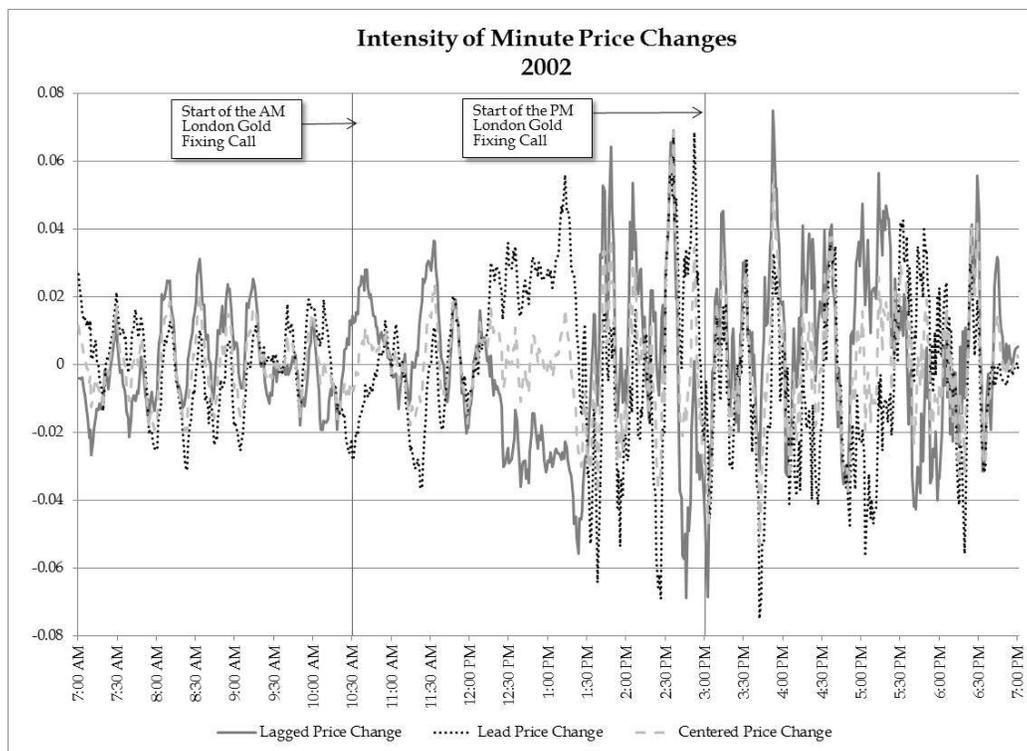
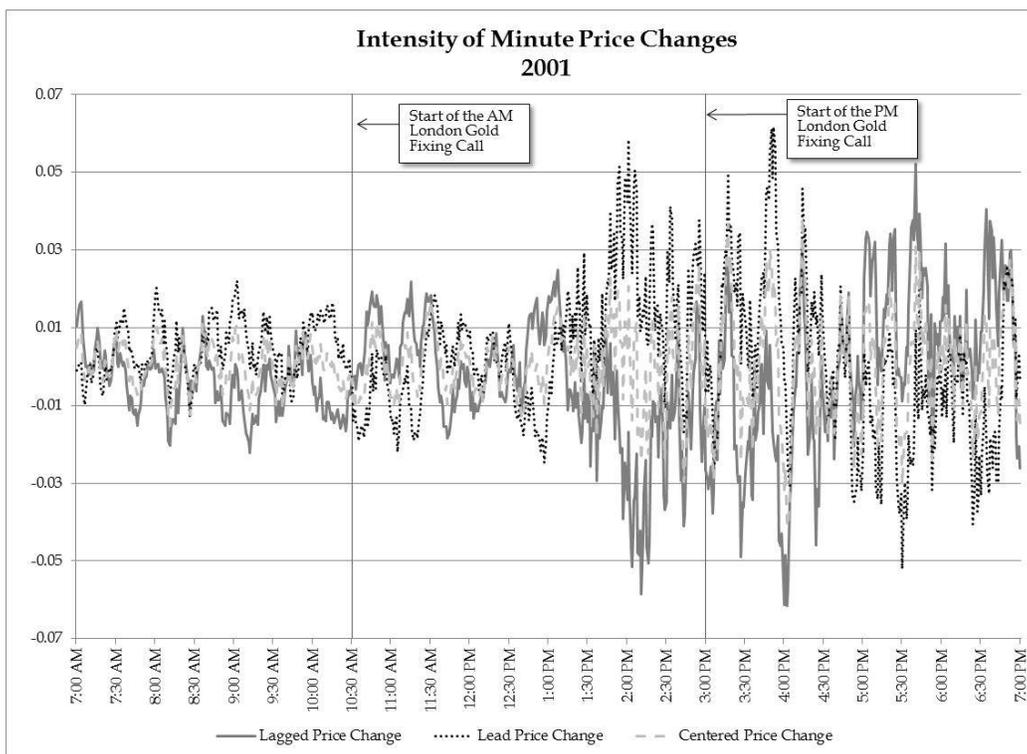
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2010

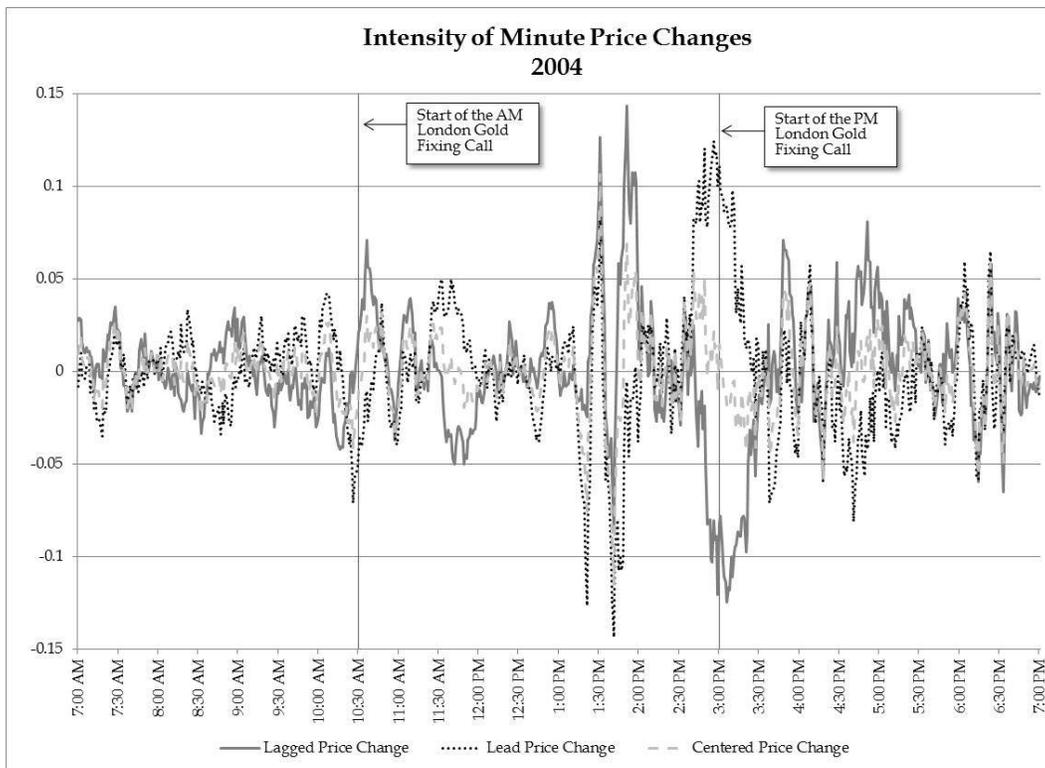
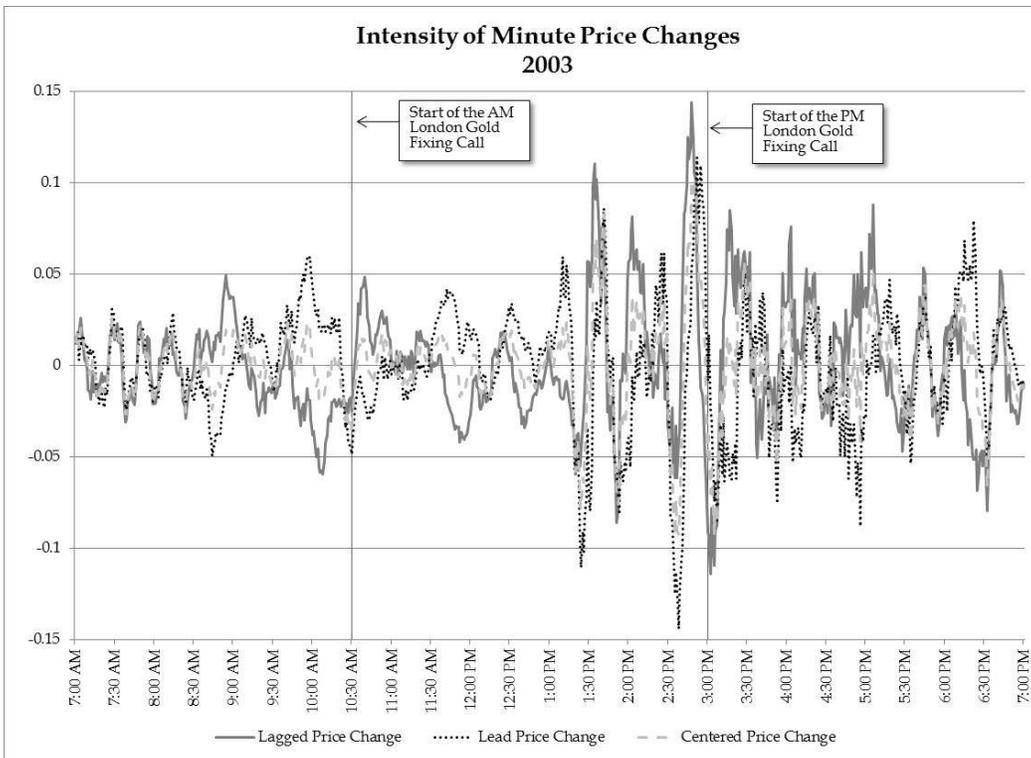


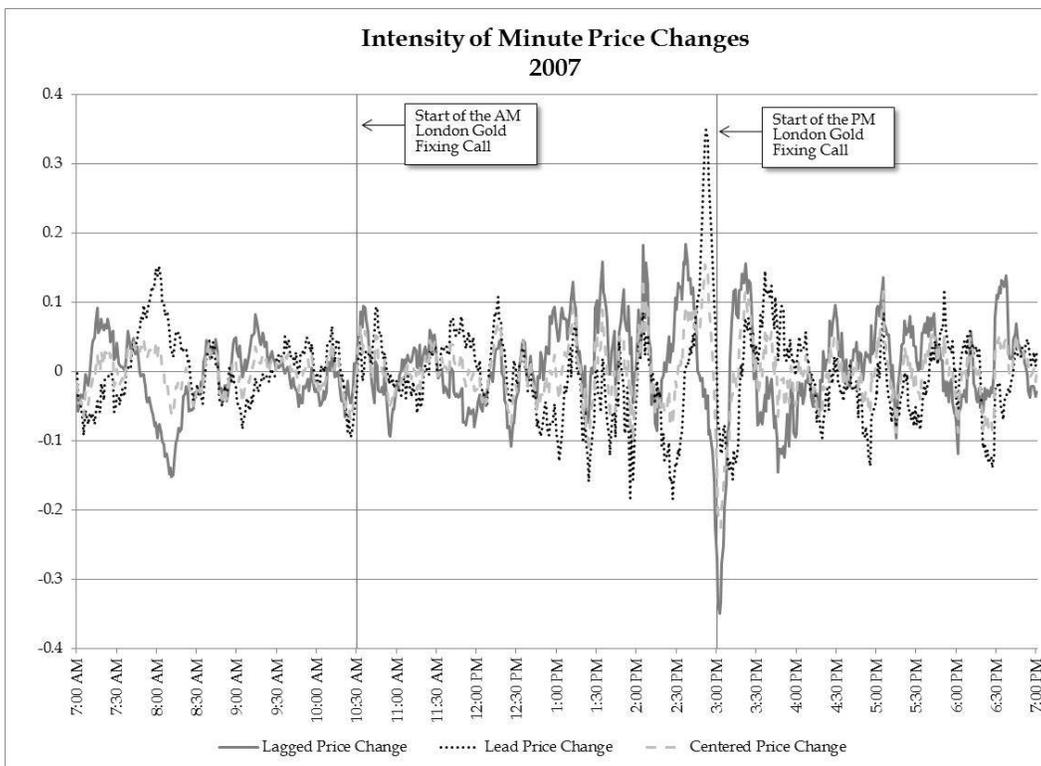
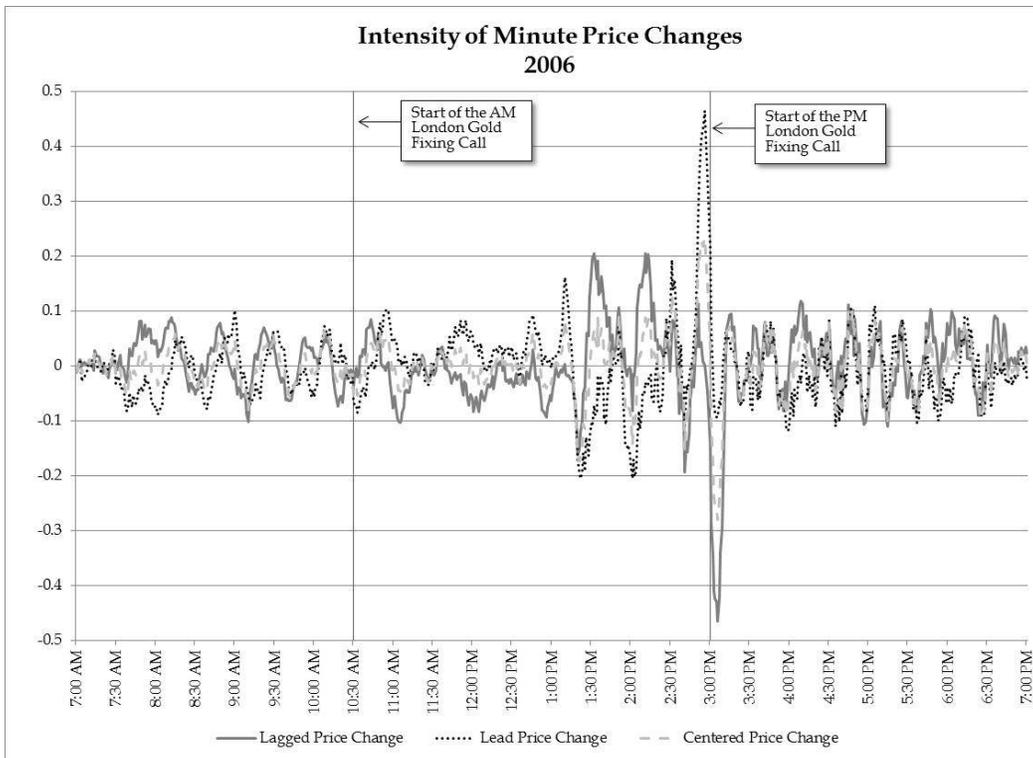
Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2012

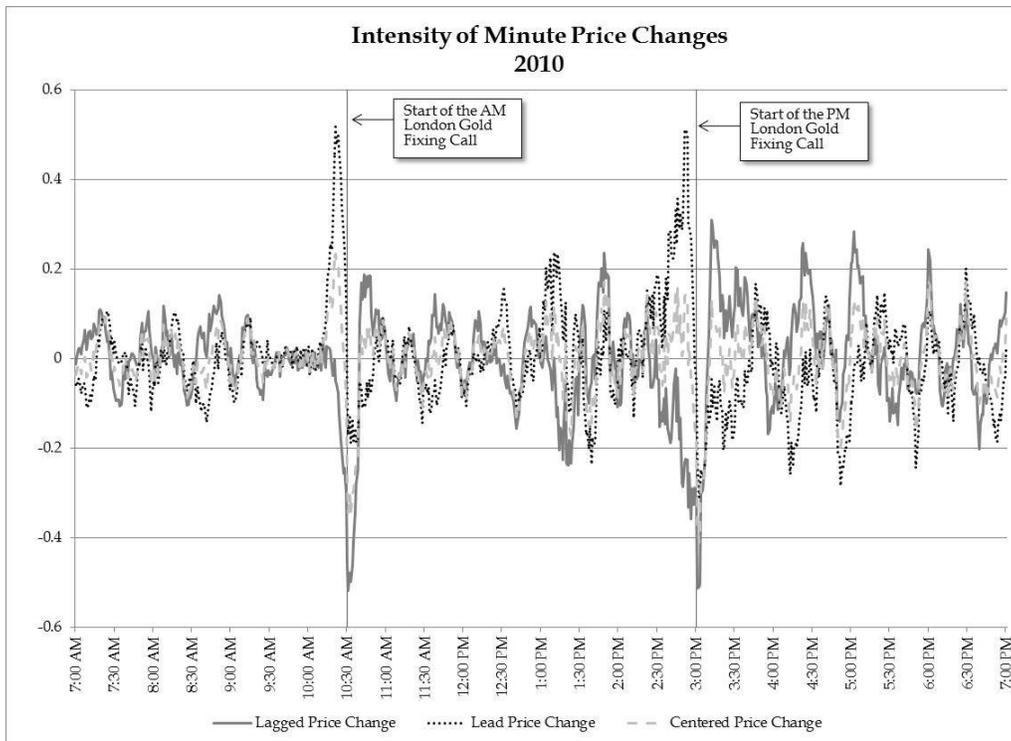
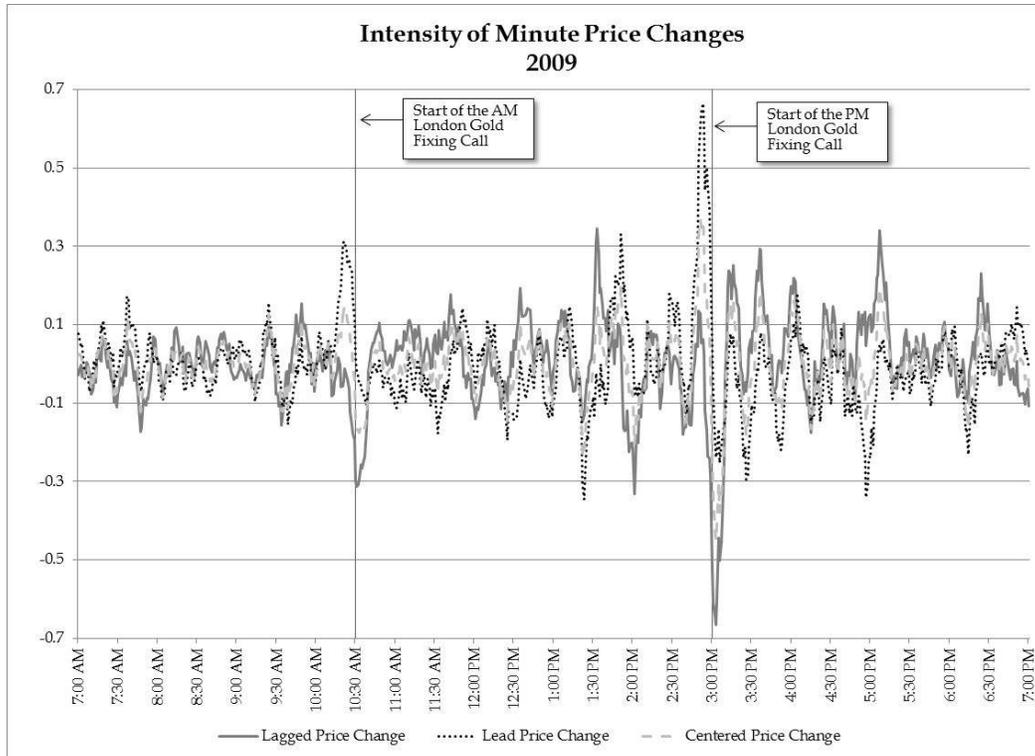


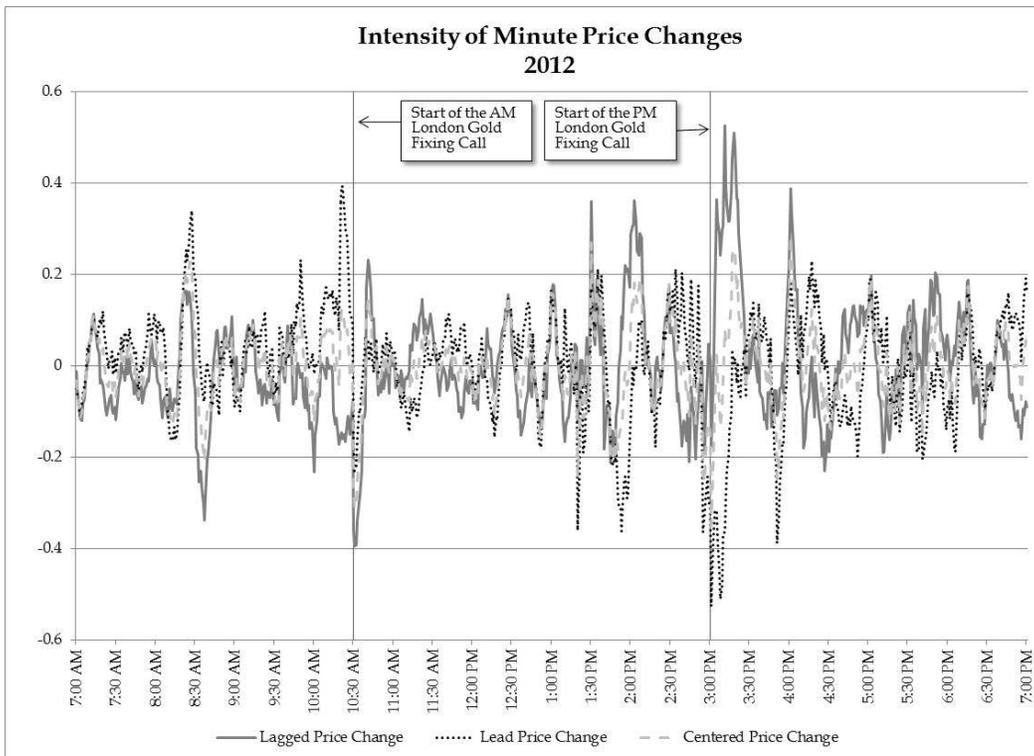
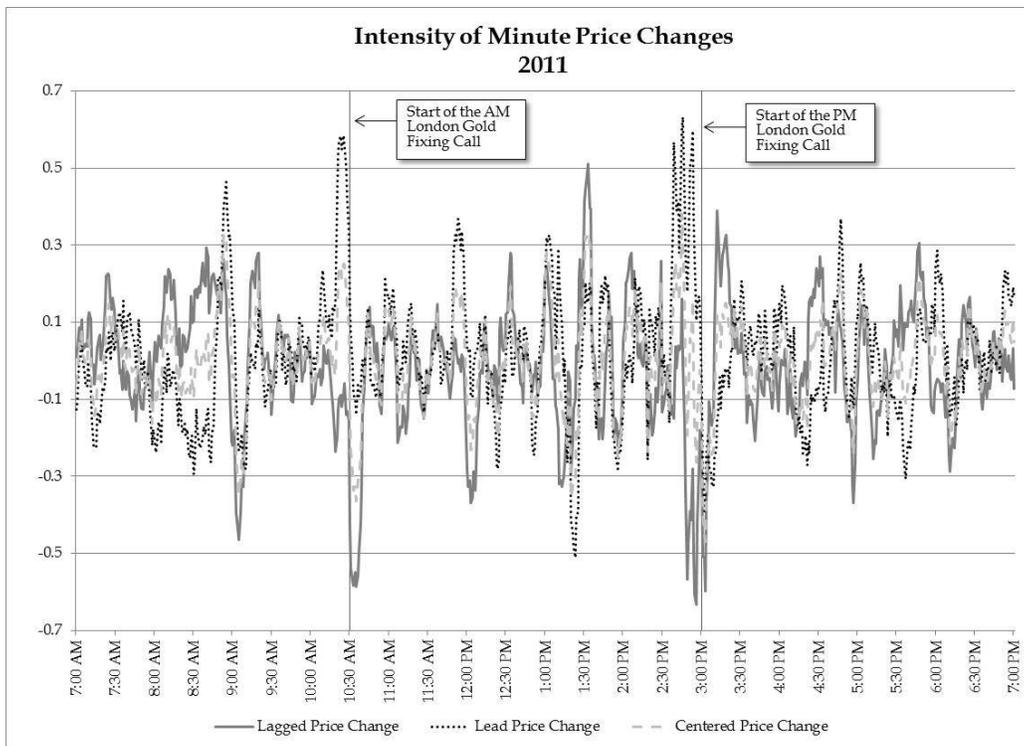
APPENDIX G









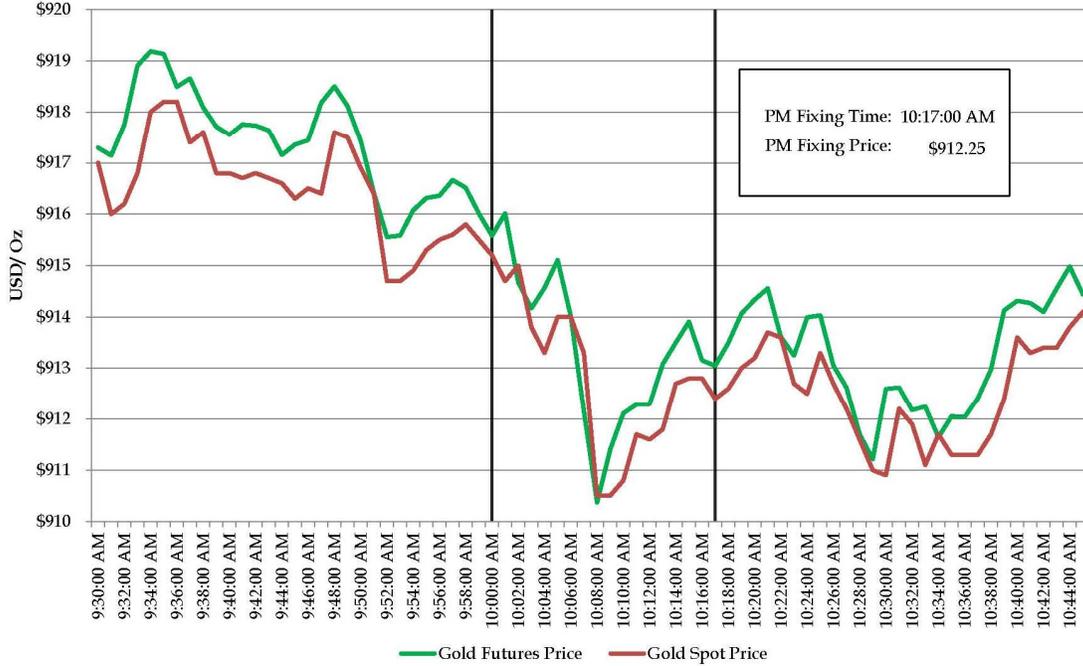


APPENDIX H

May 7, 2009

Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



April 7, 2011

Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



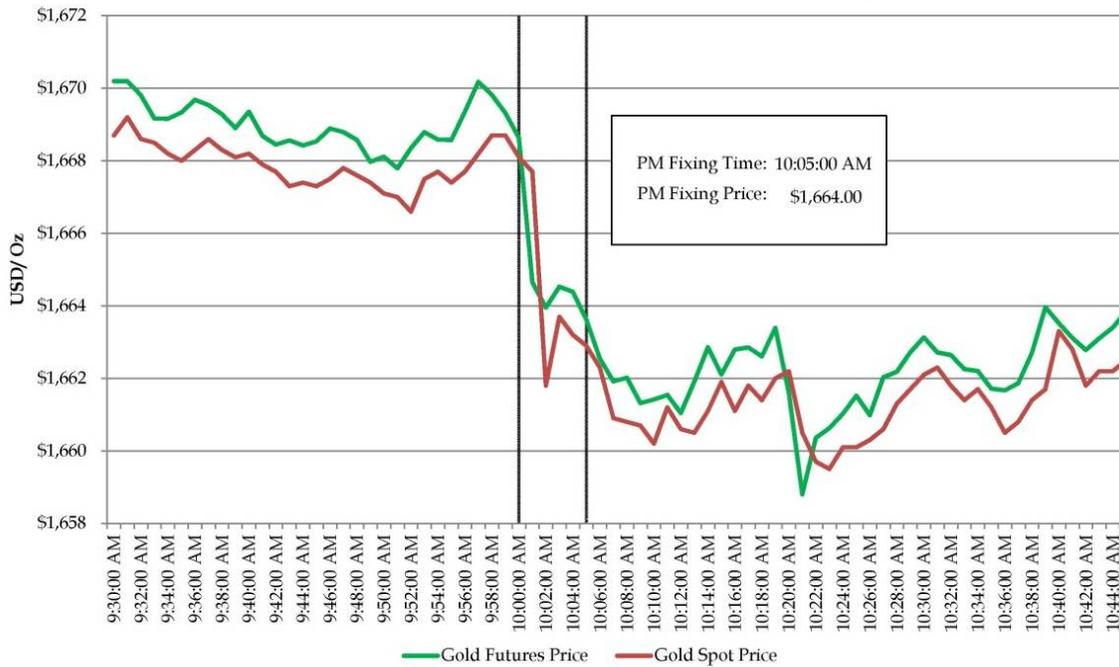
July 25, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



May 1, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)

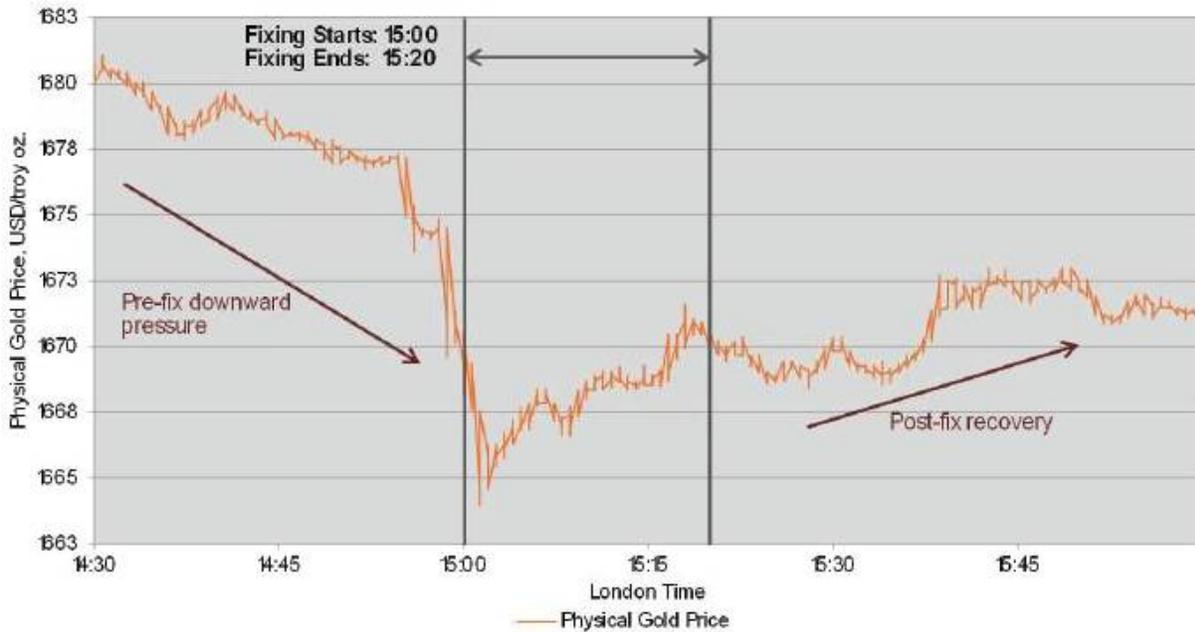


June 20, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



Physical Gold Prices - 01 Feb 2013



APPENDIX I

