EXHIBIT A

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)

[PROPOSED] THIRD CONSOLIDATED AMENDED CLASS ACTION COMPLAINT

JURY TRIAL DEMANDED

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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; Hamilton Place Associates LLC; KPFF Investment, Inc.; Duane Lewis; Larry Dean Lewis; Kevin Maher; Robert Marechal; David Markun; Trieste Matte; Blanche McKennon; Kelly McKennon; Thomas Moran; Eric Nalven; Nando, Inc.; J. Scott Nicholson; Ken Peters; 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

[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."

price, the benchmark price for gold adopted at that session of the Fixing. That price would be 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 Bank[3] 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 : - |"

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 "hahahhahahahahahahahha 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

[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.

alliance." That same day in 2012, that same Deutsche Bank trader remarked to a different trader 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

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

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never executed), "wash sales" (placing large orders that are executed then quickly reversed), and "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).

setting their own price on Fix price-linked transactions, but were simultaneously creating 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.

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[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.

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

[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").

going to go down on a given day, at a given time. Large gold investors like Defendants could 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

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[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.

UBS AG. At least Defendants Barclays and HSBC have been subpoenaed relating to their precious metals practices.[12]

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.

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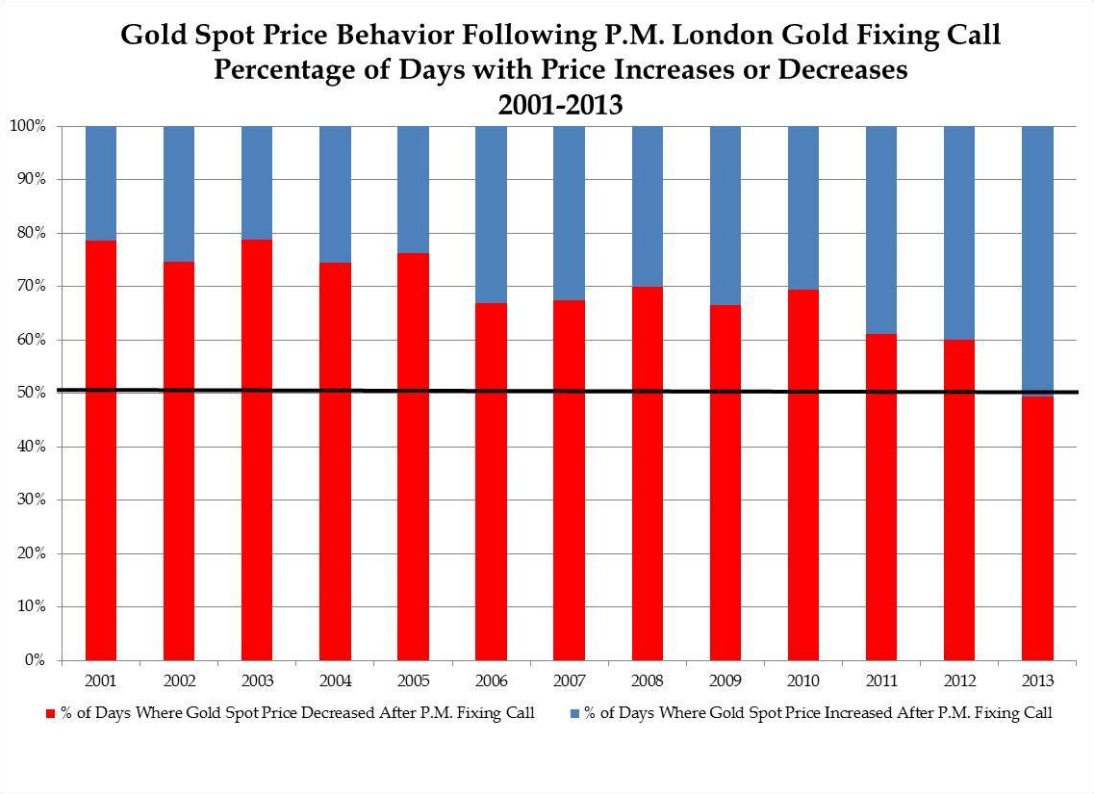
[12] *Id.*

[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 member[14]), 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,

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[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. 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. Plaintiff Trieste Matte is an individual residing in Flower Mound, Texas. During the Class Period, Ms. Matte sold physical gold at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Ms. Matte sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Ms. Matte 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.

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 COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. As reflected in Appendix B, Nando sold gold futures contracts 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 gold futures contracts, 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. Plaintiff Ken Peters is an individual residing in Irvine, California. During the Class Period, Mr. Peters sold physical gold at artificial prices proximately caused by Defendants'

unlawful manipulation as alleged herein. As reflected in Appendix B, Mr. Peters sold physical gold on many of the specific days on which Plaintiffs' economists have demonstrated manipulation of the market for Gold Investments. Mr. Peters 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.

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" 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

[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.

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 LPMCL[18]; (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 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."

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[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."

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.

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

[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*.

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.

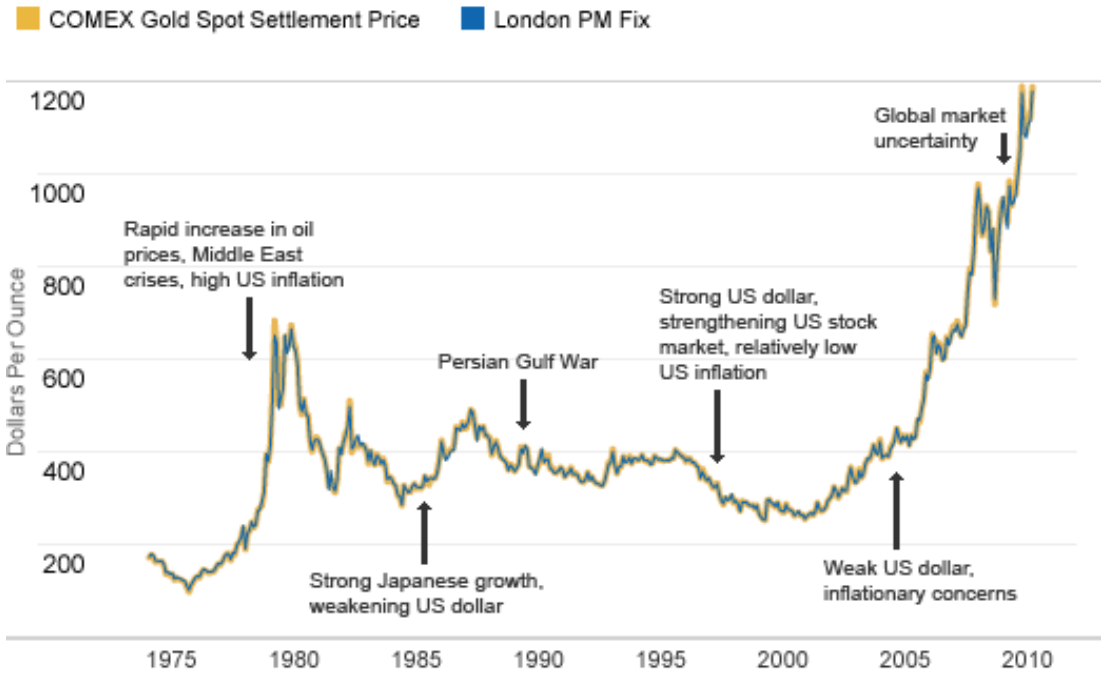
113. This is because the various ways to invest in gold move together. This is unsurprising. Regardless of how "gold" is technically defined for one contract or another, it is still the same stuff coming out of the earth. Thus, prices for gold futures, prices in the spot market, and the Fix price are 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 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

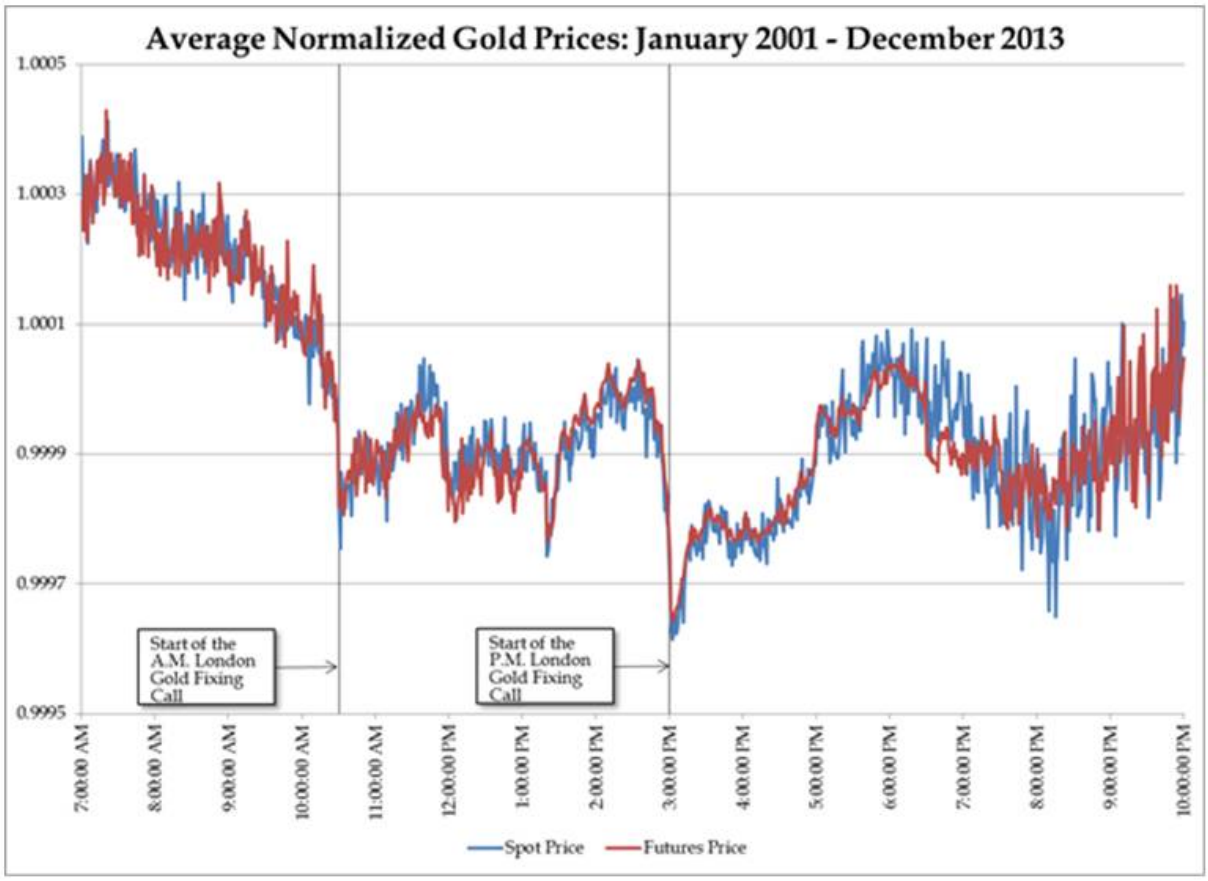
[21] London Bullion Market Association, *London Gold Price: Market Consultation – First Survey Results* (Oct. 10, 2014), at 8; *see also id.* at 4 (providing chart).

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 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.

[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).



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 indistinguishable.[24]

[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.

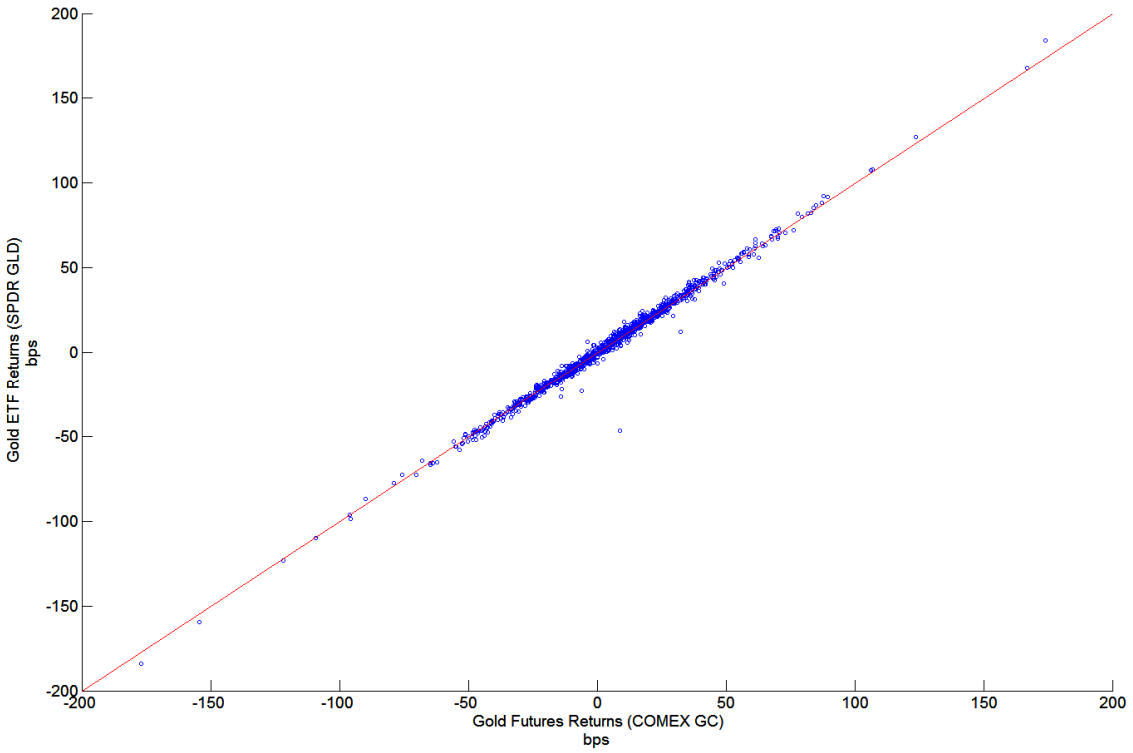
[24] The "spike" mentioned above does not appear in the chart on this page, which tracks prices on a *daily* basis – the chart above tracked *intraday* prices.

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 two.

Correlation between COMEX Futures returns and the returns on SPDR Gold Shares at the time of the London PM Fixing



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

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[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.

[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.

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.

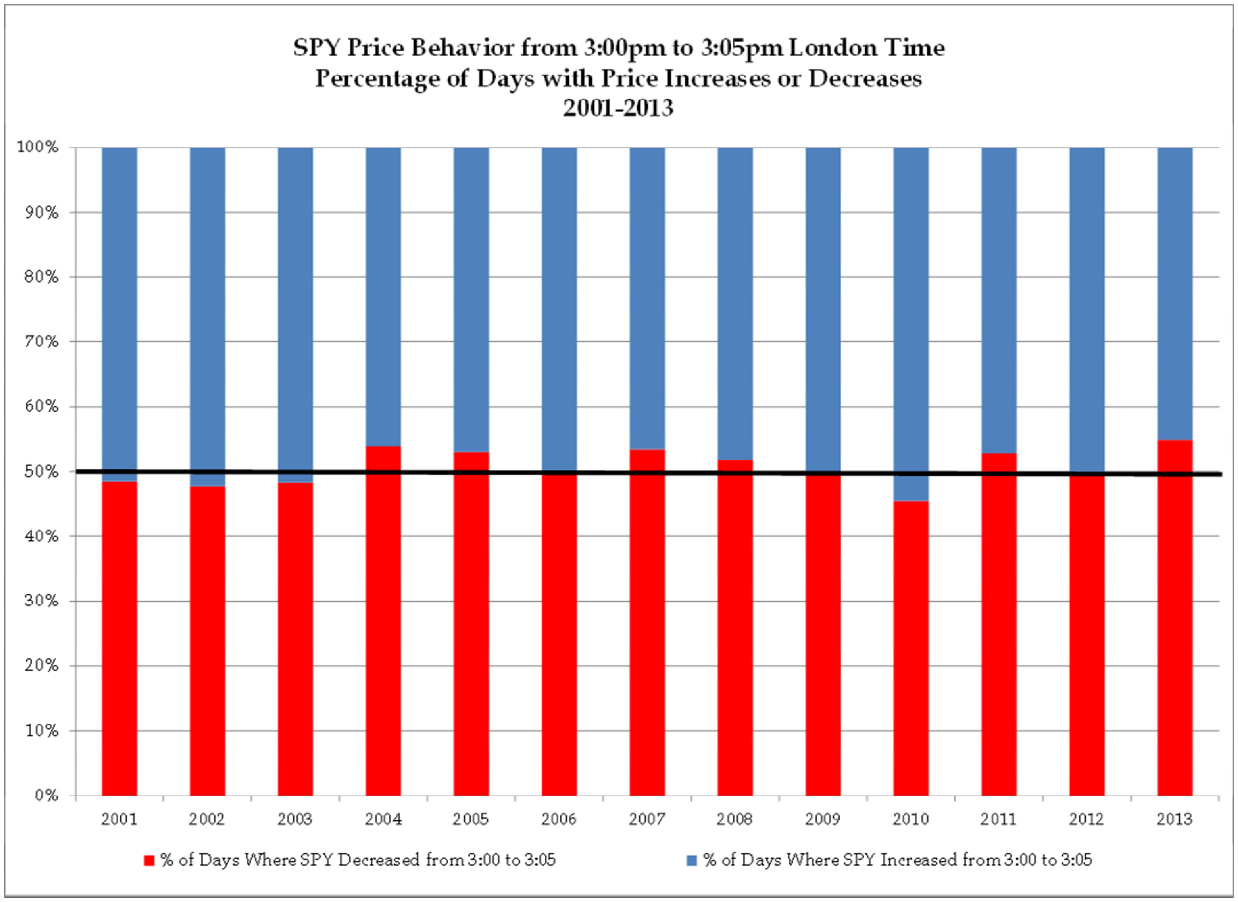
126. A bullet-point summary of much of the data below, and other evidence discussed in this Complaint, is attached as Appendix C.

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 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

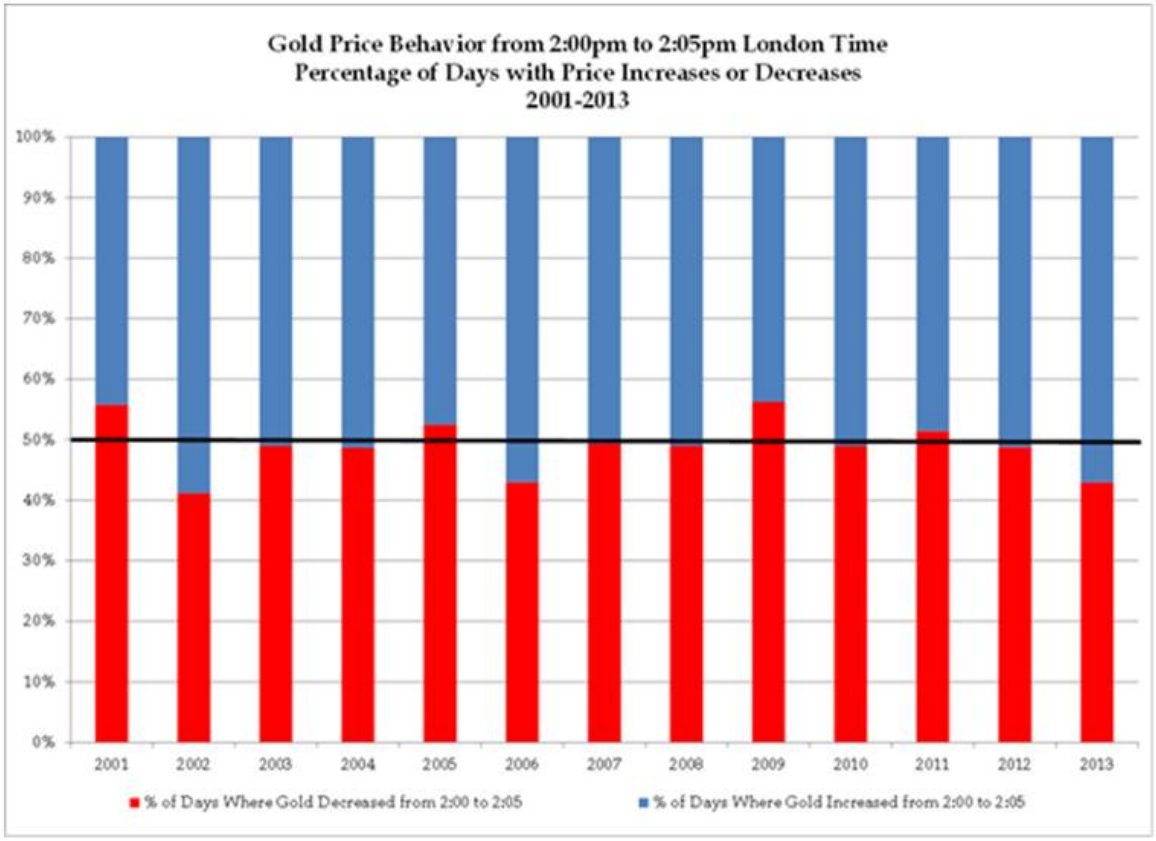
predominantly one way or the other over many repetitions.

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.

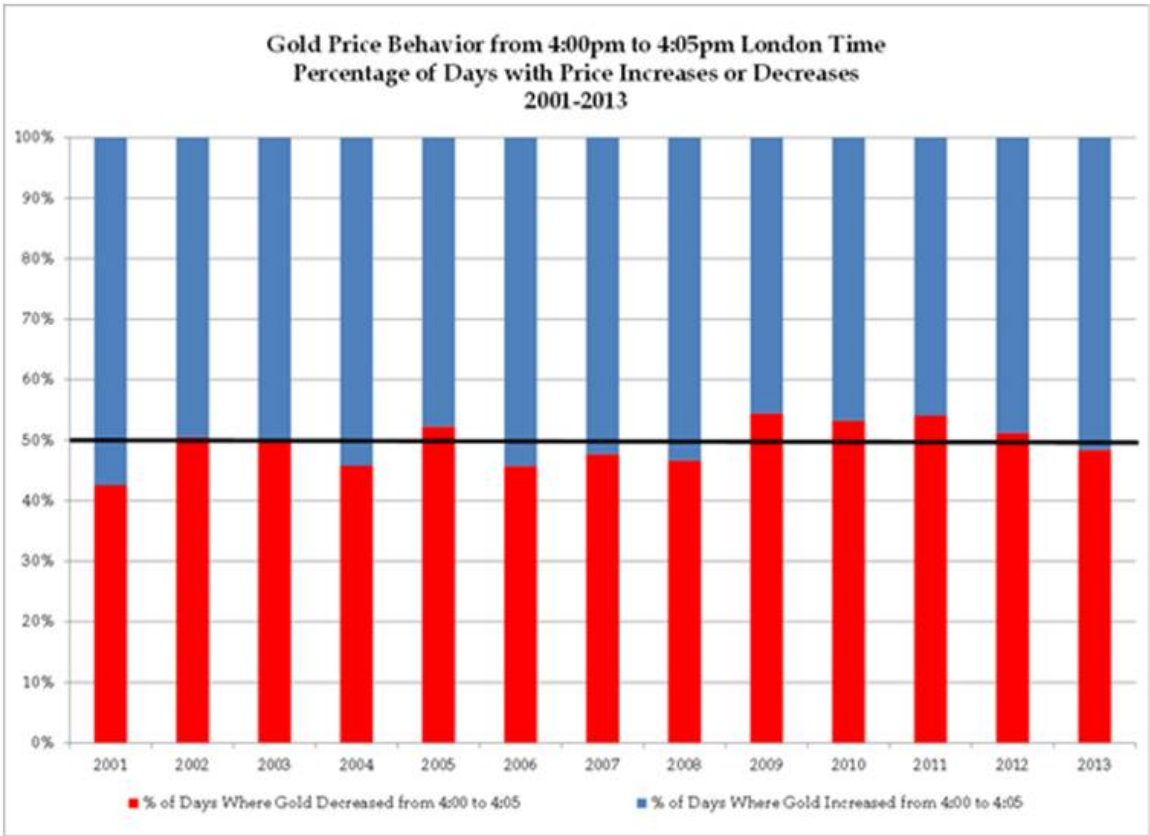


129. To further establish a baseline for observations, the graphs below illustrate the spot price of gold at 2:00 – 2:05 p.m. and 4:00 – 4:05 p.m., *i.e.*, at times *other* than those directly surrounding the PM Fixing. Again, the red bars indicate prices went down during the

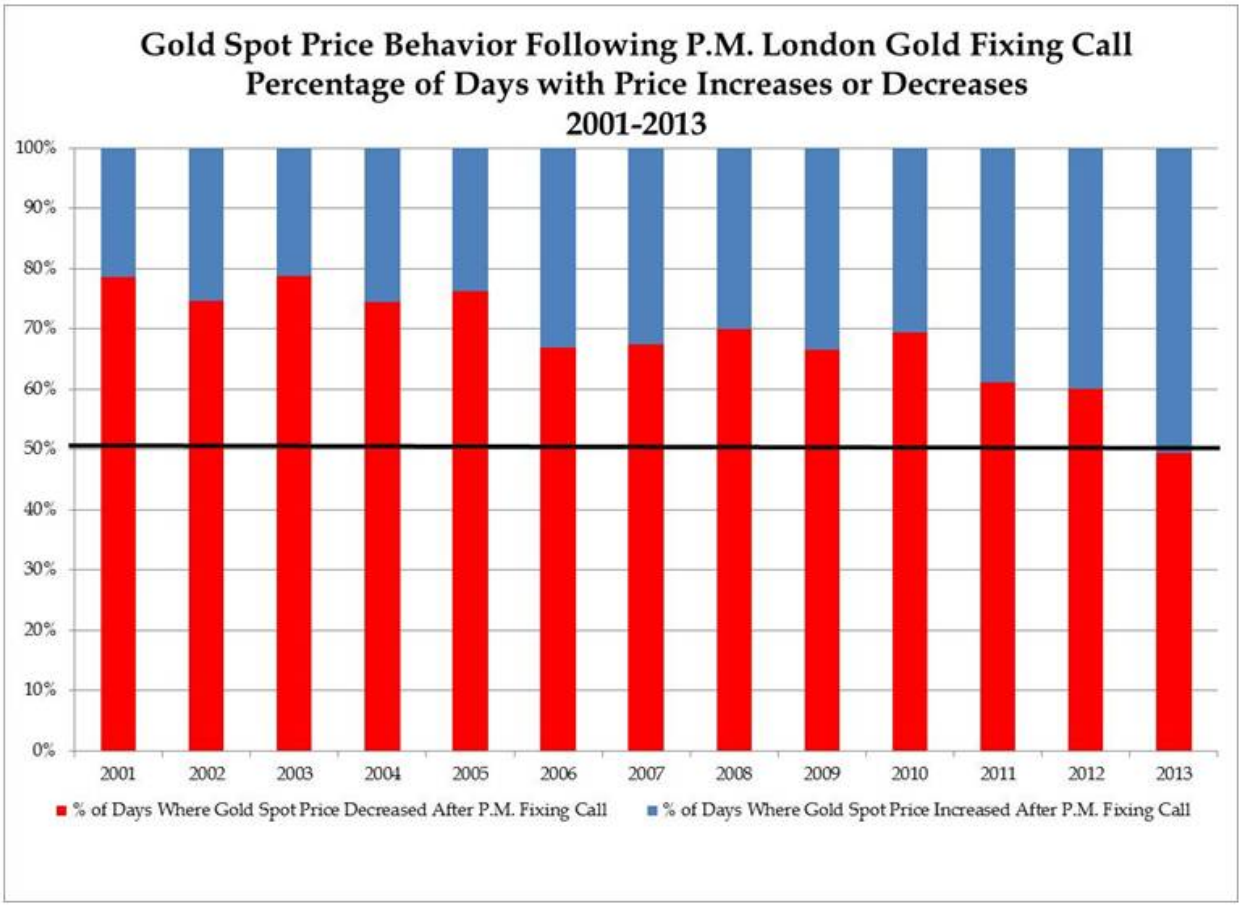
measurement window. The blue bars indicate prices went up during the measurement window.[28] As with the S&P 500, the price is sometimes slightly above or below 50%, but never in one direction all of the time.



[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).

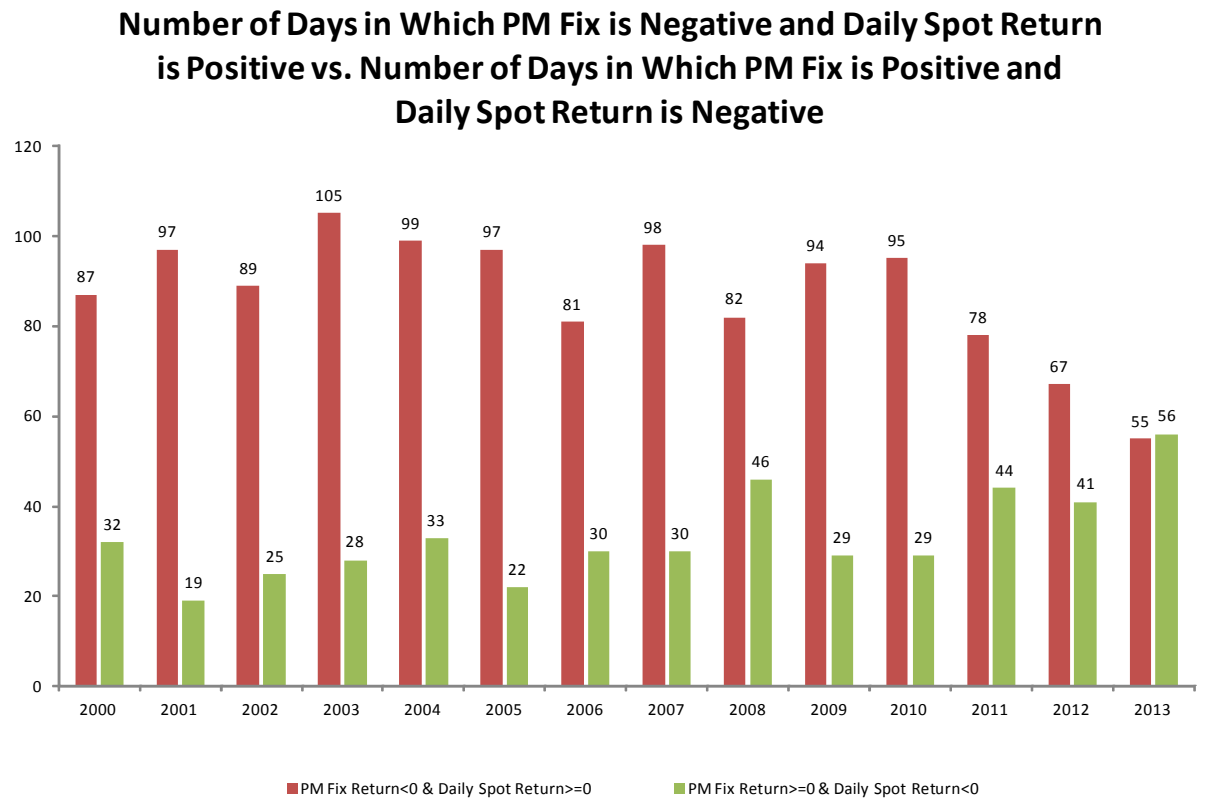
B. To a Statistically Certain Degree, Price Movements Around the PM Fixing are Contrary To Price Trend on a Given Day

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.

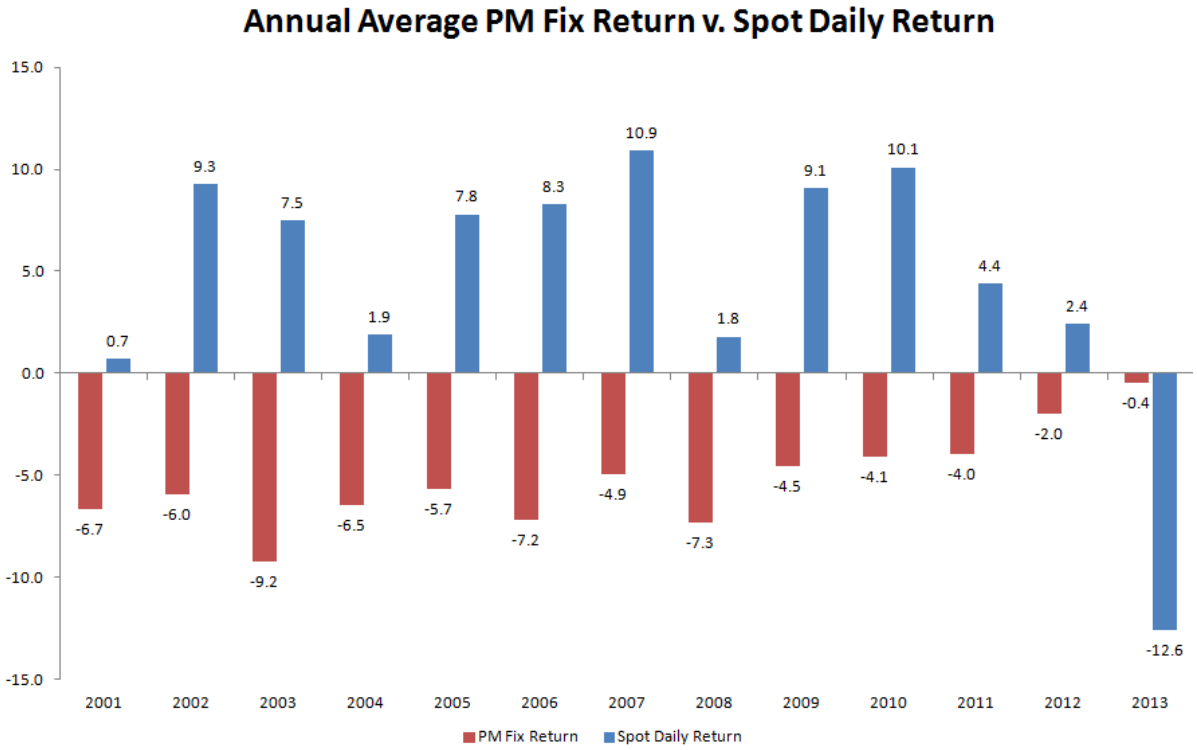


136. The fact that the red bars are much higher than the green indicates that prices

[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% [A]	% of Days With Percentile Rank Greater Than 95% [B]	Difference [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%
2001-2013 Average	*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% [A]	% of Days With Percentile Rank Greater Than 90% [B]	Difference [C] = [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%
2001-2013 Average	*15.7%*	*6.4%*	*9.4%*

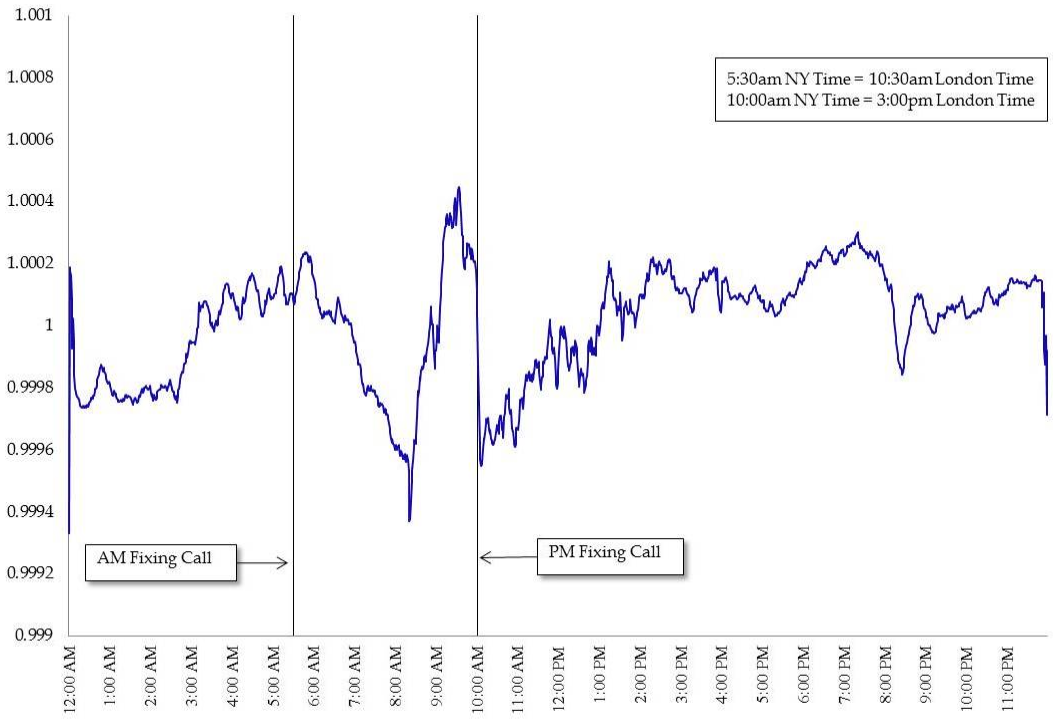
D. To a Statistically Certain Degree, a Comparison of Minute-by-Minute Prices Reveal a Pattern of Price Spikes Around the Fixing

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.

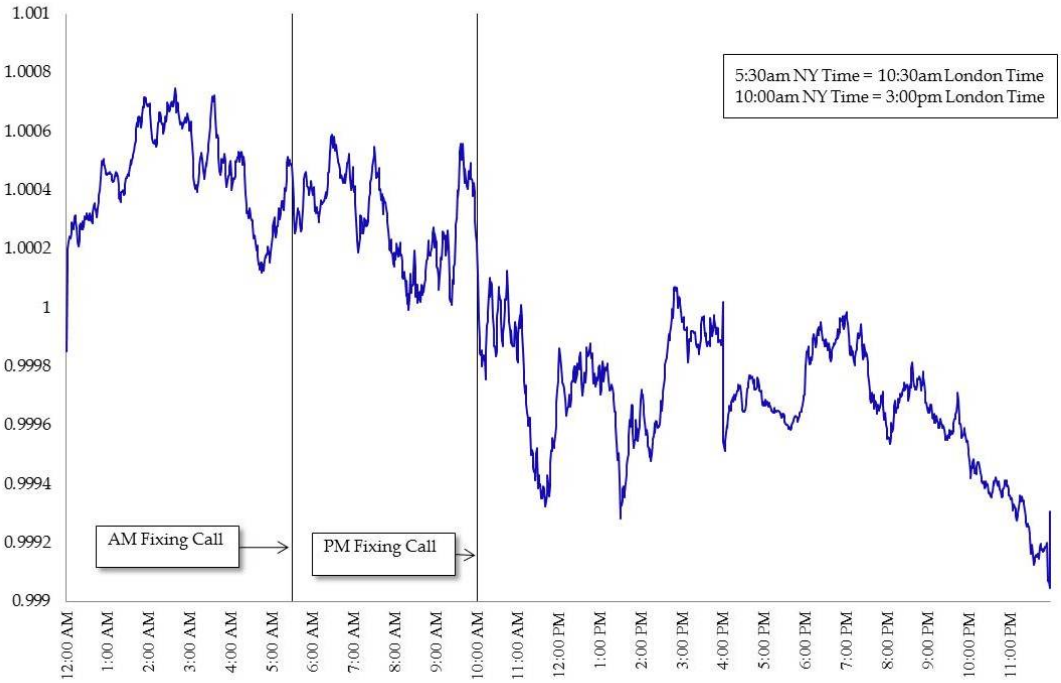
144. To approach this question of "quantum," Plaintiffs considered intraday-minute tick data, which shows the upward or downward movement in price from one minute to the next. Prices were normalized by the average price within the same day so that prices within that day can be compared to the next day's 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.

Normalized Intraday Gold Prices Average for 2006



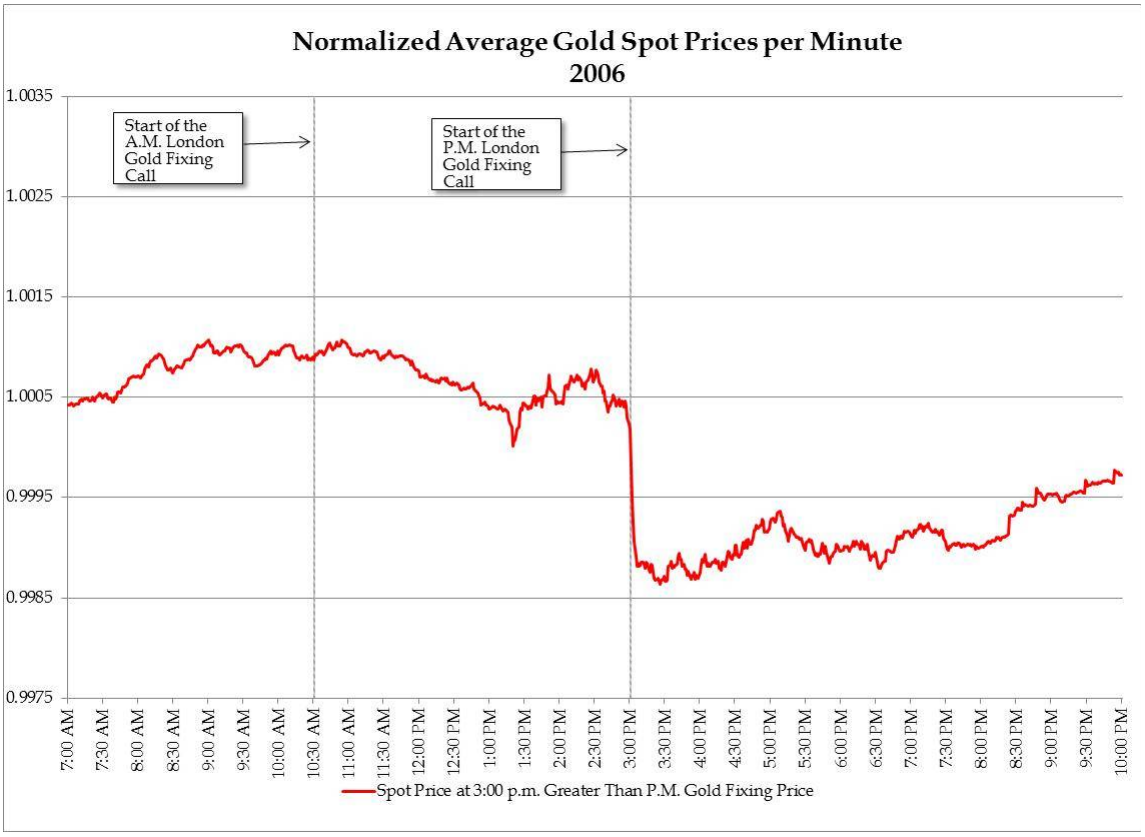
Normalized Intraday Gold Prices Average for 2008

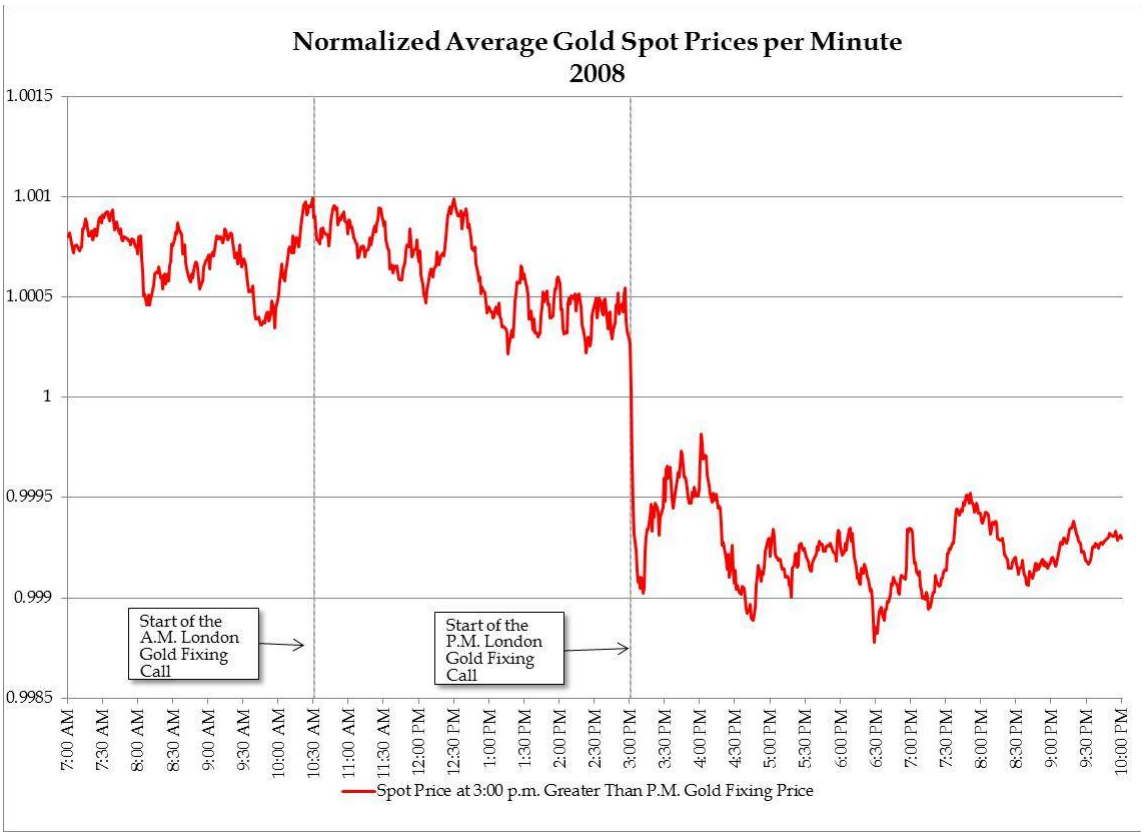


146. The timing of *intra-day* movements around the PM Fixing over a series of days

(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.

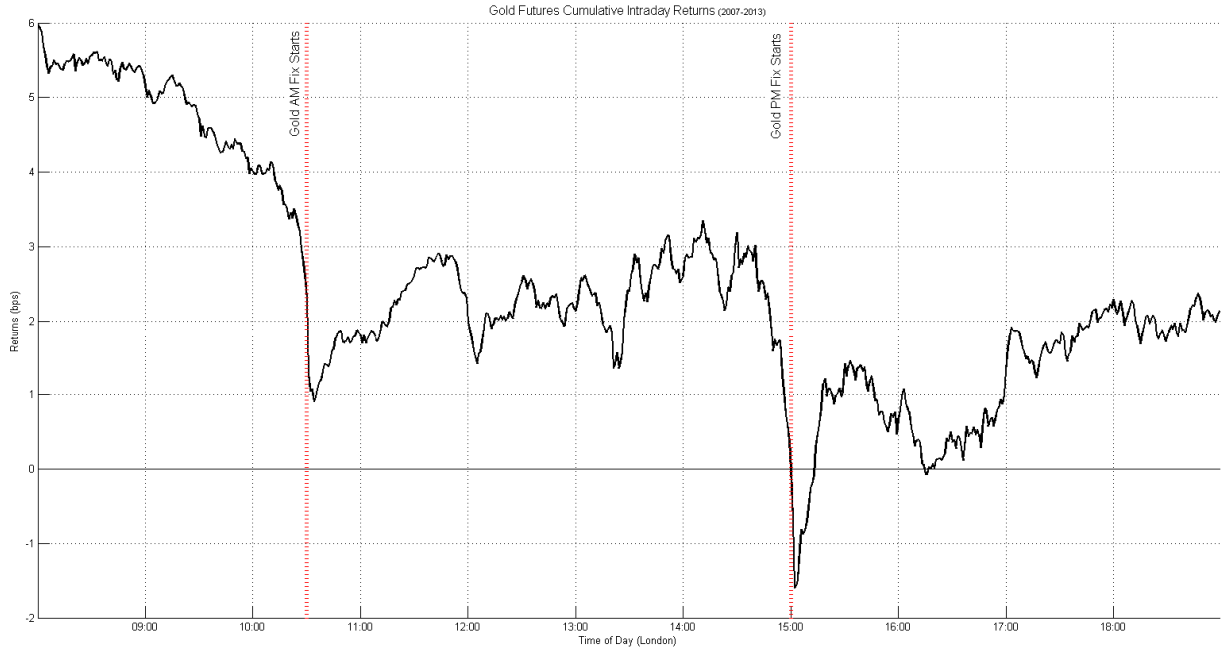




148. Appendix E contains further such graphs, for 2001 through 2012. Each displays the same pattern of prices, over the entire course of the year behaving far differently around the time of the PM Fixing, than they do at any other point in the day.

149. As a consequence of Defendants' manipulation, on average there was a 4 basis point[31] 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.

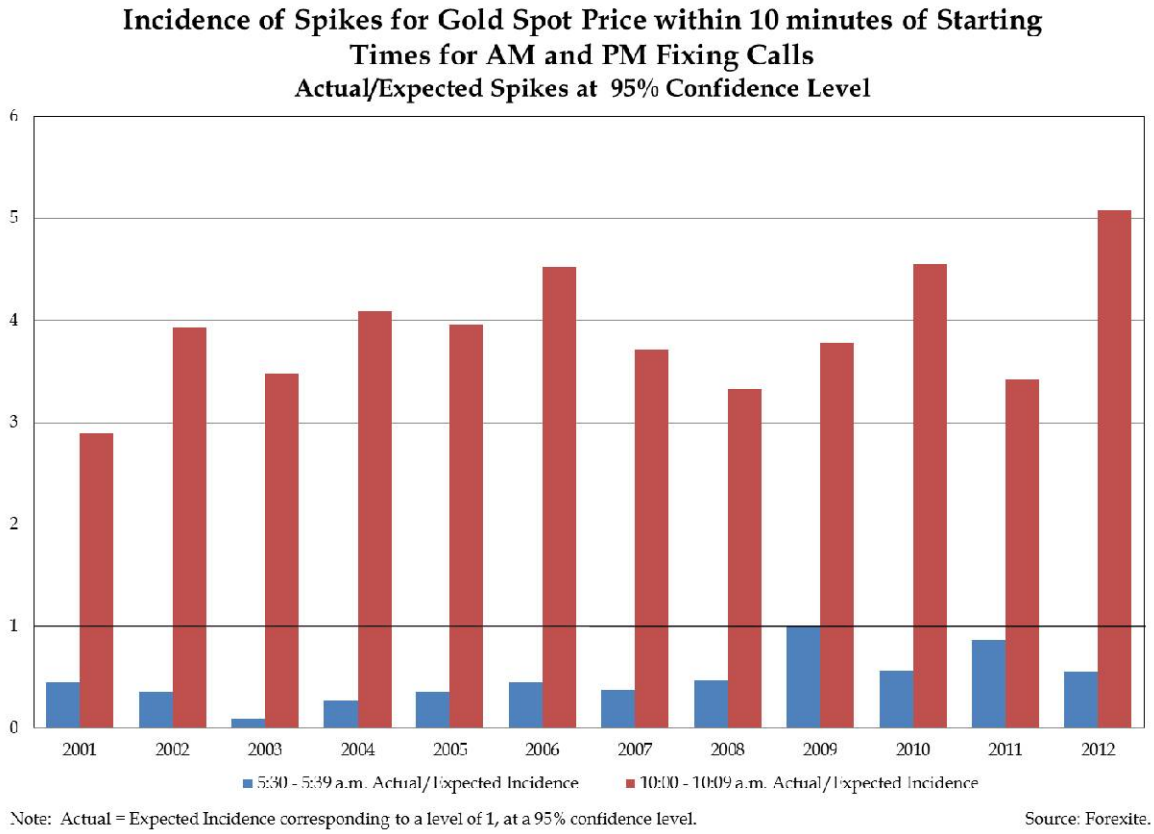
E. To a Statistically Certain Degree, the PM Fixing Downward Spikes Stand Out as Against Movements at Any Other Time of Day – Even the AM Fixing

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.

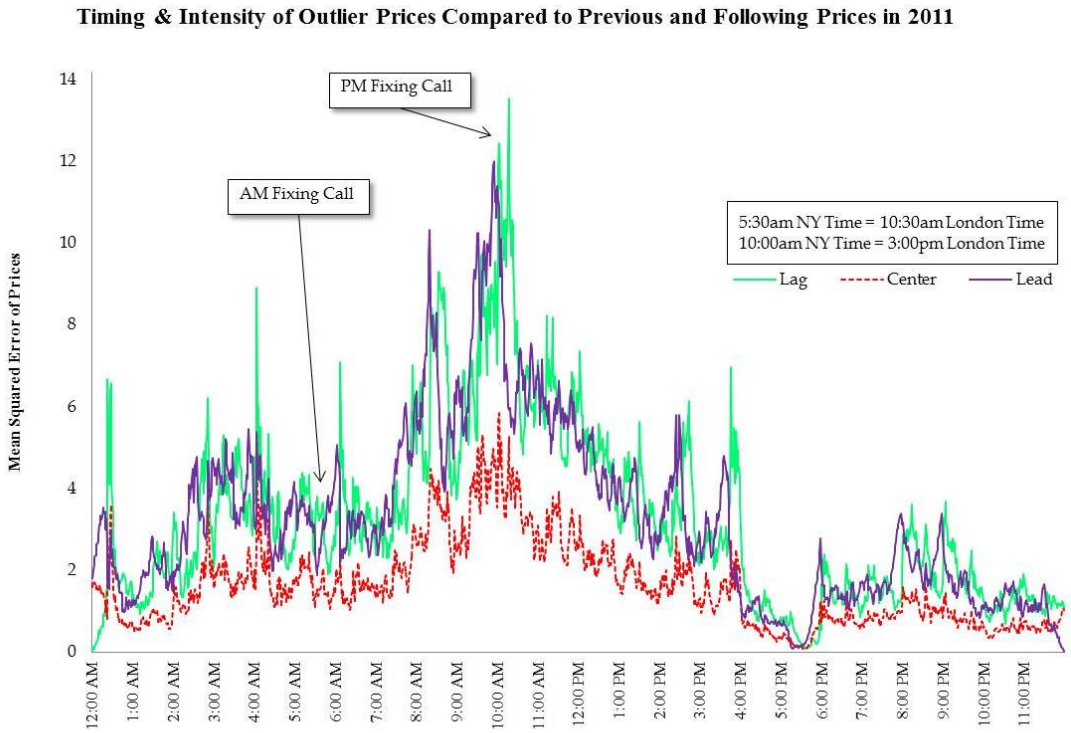
155. There are multiple ways to do such a comparison, but as seen below they all reach the same result. Comparisons can be made to the price for every minute of the day with the average of prior prices (the "lagging average"), subsequent prices (the "leading average"), and prior and subsequent prices (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.



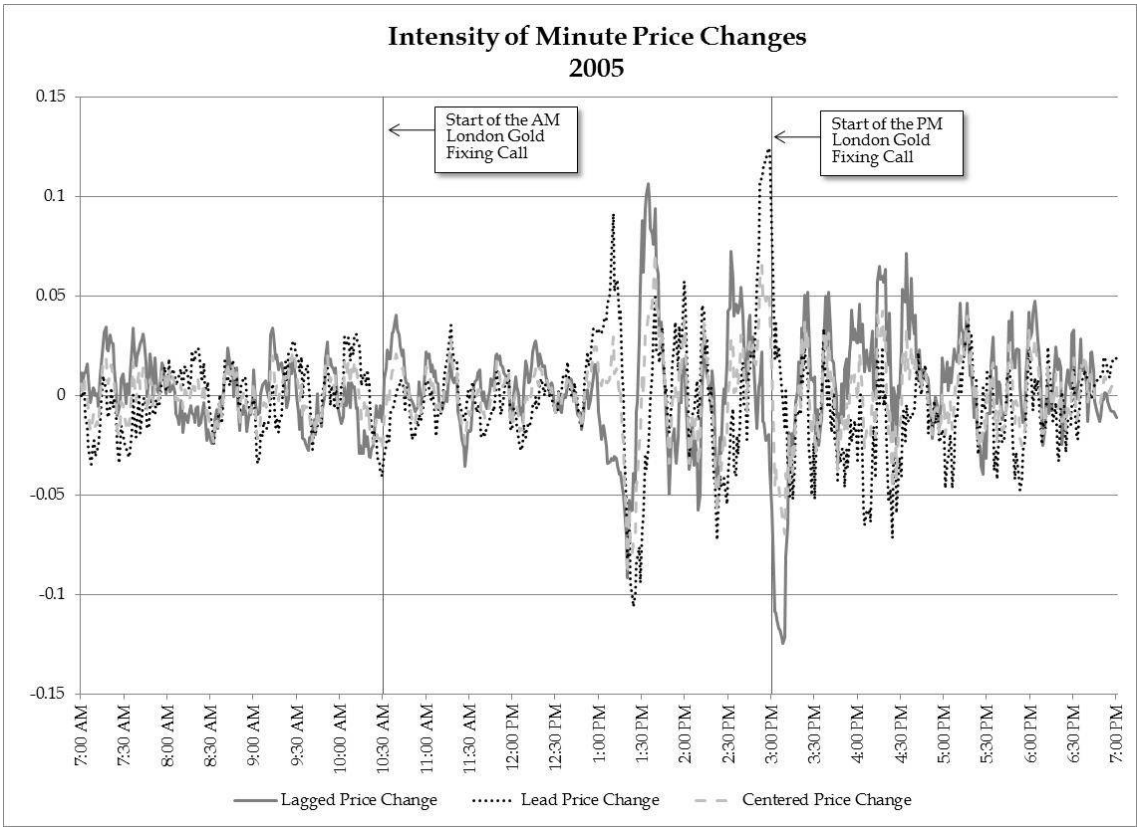
158. The size of the downward spikes occurring around the PM Fixing – whether viewed by the minute's price as compared to the lagging (green), centered (red) or lead (purple) averages – confirms not just that the worst minutes are unnaturally centered around the PM Fixing, but that when they occur around 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.


Intensity of Minute Price Changes
2005
Start of the AM London Gold Fixing Call
Start of the PM London Gold Fixing Call
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
7:00 AM
7:30 AM
8:00 AM
8:30 AM
9:00 AM
9:30 AM
10:00 AM
10:30 AM
11:00 AM
11:30 AM
12:00 PM
12:30 PM
1:00 PM
1:30 PM
2:00 PM
2:30 PM
3:00 PM
3:30 PM
4:00 PM
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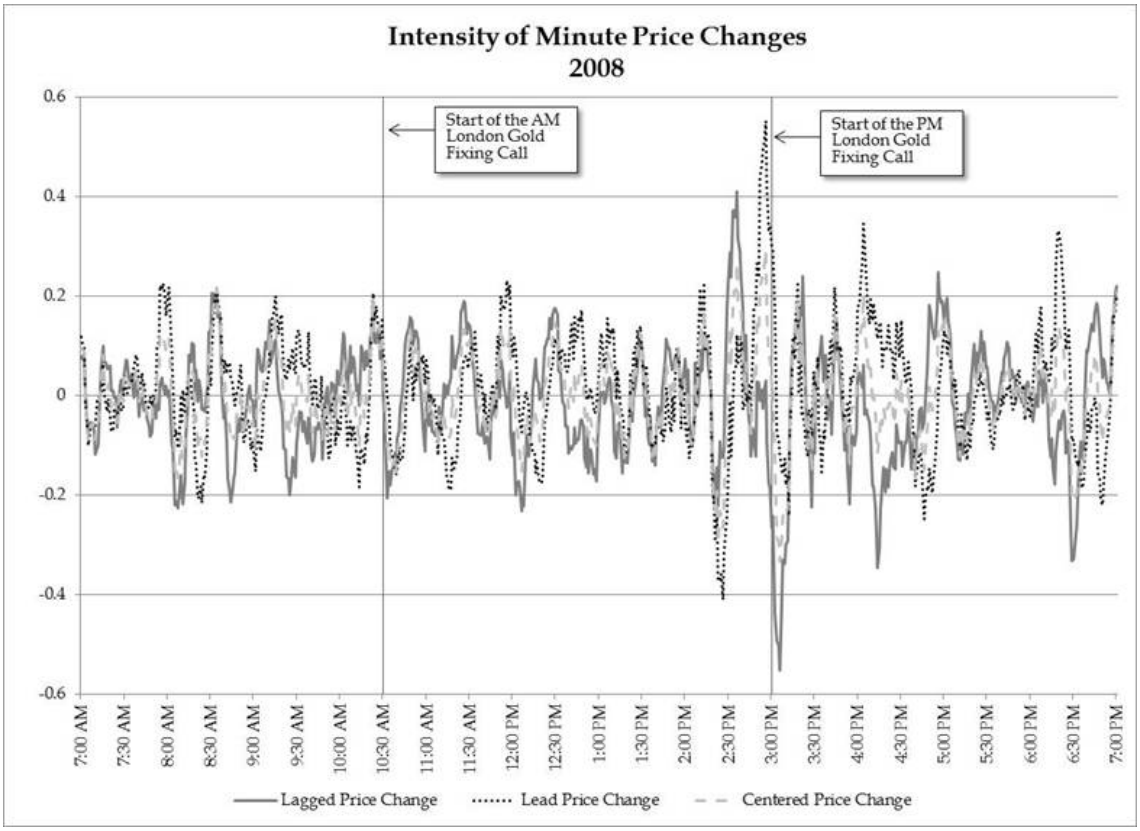
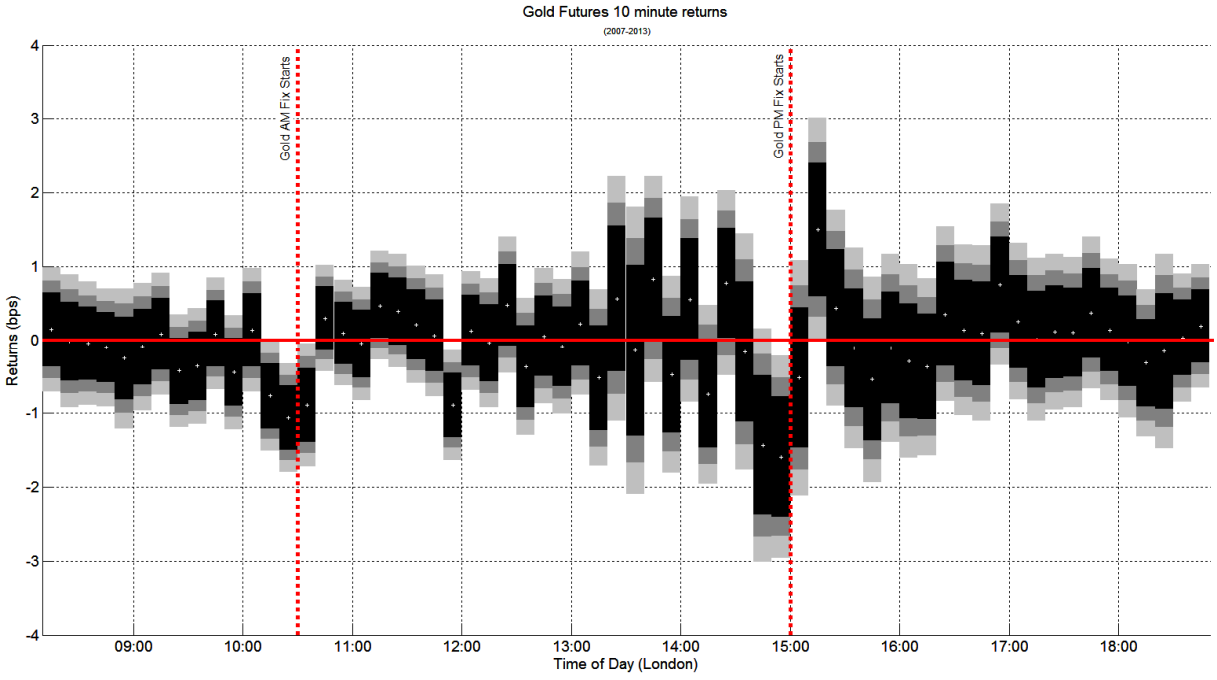
5:00 PM
5:30 PM
6:00 PM
6:30 PM
7:00 PM
Lagged Price Change
Lead Price Change
Centered Price Change


Intensity of Minute Price Changes
2008
Start of the AM London Gold Fixing Call
Start of the PM London Gold Fixing Call
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
7:00 AM
7:30 AM
8:00 AM
8:30 AM
9:00 AM
9:30 AM
10:00 AM
10:30 AM
11:00 AM
11:30 AM
12:00 PM
12:30 PM
1:00 PM
1:30 PM
2:00 PM
2:30 PM
3:00 PM
3:30 PM
4:00 PM
4:30 PM
5:00 PM
5:30 PM
6:00 PM
6:30 PM
7:00 PM
Lagged Price Change
Lead Price Change
Centered Price Change

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]

April 2, 2009
Gold Futures Price and Gold Spot Price
(Vertical bars represent the start and end of the London PM fixing call)

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