

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

THOMAS MORAN, PATRICIA  
BENVENUTO, THOMAS GALLIGHER,  
LARRY DEAN LEWIS and DUANE LEWIS  
on behalf of themselves and all others similarly  
situated,

Plaintiffs,

vs.

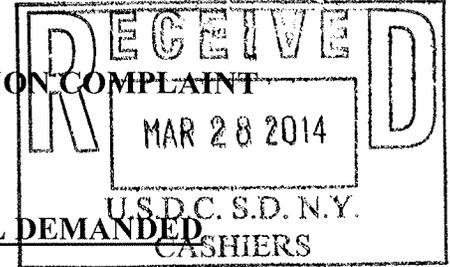
THE BANK OF NOVA SCOTIA,  
BARCLAYS BANK PLC, DEUTSCHE  
BANK AG, HSBC BANK PLC, SOCIÉTÉ  
GÉNÉRALE, and LONDON GOLD  
MARKET FIXING LTD.,

Defendants.

14 CV 2213

Case No. \_\_\_\_\_

CLASS ACTION COMPLAINT



JURY TRIAL DEMANDED

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Plaintiffs Thomas Moran, Patricia Benvenuto, Thomas Galligher, Larry Dean Lewis, and Duane Lewis (collectively “Plaintiffs”), individually and on behalf of all those similarly situated, as defined below, bring this class action for treble damages and injunctive relief and allege as follows:

### **NATURE OF THE ACTION**

1. This case concerns naked price fixing by five of the largest bullion banks in the world, who have for years jointly worked together on a daily basis to rig the gold market for their collective benefit.

2. Twice daily in London, these banks, the Defendants here, meet to exchange price information for the purported purpose of determining a benchmark rate for the price of gold. These meetings are carried out over conference calls at 10:30 a.m. and 3:00 p.m., London time, typically lasting ten minutes or less.

3. This benchmark-setting process, which is called the London Gold Market Fixing (hereafter the “London Gold Fixing” or “Fixing”<sup>1</sup>), dates back to 1919. It was tolerated for this long because it was understood to be an arm’s-length benchmark-rate setting process achieved by an auction involving actual supply and demand in the market.

4. But the incentives to abuse this process proved too strong. Today, the outcome of the Fixing affects trillions of dollars worth of gold. While gold is bought, sold, speculated upon, or otherwise invested in, almost all of these transactions are either tied to or directly affected by the London Gold Fixing benchmark price for gold. With so many gold transactions tied to or influenced by the results of the Fixing, the benchmark rate can result in millions of dollars of gains or losses for the Defendants. When the benchmark rate for gold moves lower, Defendants

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<sup>1</sup> The morning benchmark rate is known as the “AM Fixing” and the afternoon rate is known as the “PM Fixing.”

and their clients pay less for gold purchased from gold miners and dealers. When the benchmark rate moves higher, Defendants take losses on “short” positions they maintain on the gold futures market.

5. Defendants thus had a strong incentive to influence the outcome of the Fixing process. As Defendants began taking larger proprietary trading positions on the futures market, this incentive became even stronger. In addition, in 2004, certain changes to the process occurred that facilitated Defendants’ ability jointly to manipulate the benchmark rate to set it at artificial levels that would benefit their trading positions.

6. In particular, Defendant Barclays, which maintains large proprietary trading positions, purchased the “seat” of N.M. Rothschild, the last remaining original member of the fixing process. In addition, during this same period, the banks shifted from having their representatives meeting in one location in person to conducting the fix telephonically. This enabled each representative to coordinate with their respective trading desks in connection with setting the benchmark and to disseminate information about the direction of the benchmark back to their trading desk while the process was occurring.

7. Thus, the London Gold Fixing became a way for the Defendants jointly to manipulate the price of gold for their collective benefit. Rather than operating as a neutral “auction,” through which a benchmark was determined based on actual market dynamics, there was no longer anything neutral about the process. Rather than generating a benchmark rate by determining the rate at which there was an equilibrium between buyers and sellers, Defendants began working together to fix the rate at levels that would make them the greatest profit.

8. Defendants’ collusive manipulation was facilitated by the fact that there is no third-party administration or oversight of this process. Unlike many other benchmark rates, the

London Gold Fixing occurs largely in the shadows and the discussions among the purported competitors involved in the process were kept secret.

9. Defendants used this antiquated structure to manipulate the gold benchmark rate so as to reap greater profits on their spot and futures transactions. Since at least 2004, Defendants acted in concert and through joint agreement to suppress the benchmark rate for gold at the PM Fixing. Defendants carried out this manipulation through multiple types of unlawful agreements.

10. *First*, Defendants agreed to systematically suppress the gold benchmark rate through the submission of low net demand during the Fixing process and through the publication of a rate that does not reflect actual supply and demand.

11. *Second*, Defendants reached specific agreements to manipulate the price of gold on particular days on which they expected to buy large quantities of physical gold or execute or settle futures positions. In carrying out those agreements, Defendants agreed to submit net demand levels that do not actually reflect their order books. Defendants' joint action was required to carry out such manipulation, as the submission of fake small orders to buy or large orders to sell by just one Defendant would not be sufficient to alter the Fixing process significantly so to produce a depressed price.

12. *Third*, Defendants entered into fictitious trades so as to create artificial supply or demand at the time of the PM Fixing. These illusory trades influence the price of gold during the Fixing process, but following the completion of the PM Fixing the trades are not executed.

13. *Fourth*, Defendants, knowing the outcome of the PM Fixing ahead of time, used this nonpublic, valuable information to execute transactions on the futures market and reap additional profits at Class Members' expense, while agreeing to keep this blatant misconduct

hidden from their customers and from the public..

14. Defendants' collusive manipulation has been confirmed by numerous economic analyses and studies. As detailed below, *see infra* ¶¶ 93-112, these studies show that Defendants' conduct has led to highly anomalous and statistically significant downward price spikes at the time of the PM Fixing. Such price movements do not occur at other times of the day and reverse soon after the completion of the PM Fixing.

15. These studies have also confirmed that Class Members – all persons and entities who sold gold futures or options at or around the PM Fixing – were impacted by this conduct in the form of artificial losses on their trades that would not have occurred absent Defendants' misconduct. Defendants, in turn, realized hundreds of millions (if not billions) in ill-gotten gains as a result.

16. Antitrust and market manipulation laws exist to prevent the very conduct in which Defendants have engaged for at least the past decade. Defendants should have competed aggressively for market participants' gold trading business. Instead, they attempted to jointly maximize their "short" positions on the gold futures market and make illegal profits from trading on the basis of nonpublic information.

17. Defendants' anticompetitive conduct has attracted the attention of government enforcement agencies in the United States and Europe, which have opened active investigations into the practices alleged in this Complaint. As the pressure has mounted, Defendants have confirmed that they are the subject of investigation and are in the process of analyzing how to "improve" the London gold fix. At least one Defendant, Deutsche Bank AG, announced its intention to withdraw from London Gold Market Fixing Ltd. and the London Gold Fixing entirely.

18. Nonetheless, damages to Plaintiffs and the Class remain unremedied. By conspiring to submit artificial orders to buy and sell gold in order to suppress the price reached at the PM Fixing, Defendants caused the price of gold futures during and around the Fixing to be suppressed. The result was that Defendants were able to maximize their profits from their “short” positions on the futures market, and the Class repeatedly had futures contracts they had purchased devalued. At the same time, Defendants reaped additional inflated profits by trading in gold futures with advanced, nonpublic information about the outcome of the PM Fixing. Again, Class Members were the victims of this manipulative trading scheme. To redress these injuries, Plaintiffs bring the instant suit on behalf of the Class.

#### **JURISDICTION AND VENUE**

19. 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).

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

21. 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; and/or committed overt acts in furtherance of their illegal scheme and conspiracy in the United States. In addition, the 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.

22. 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**

23. Plaintiff Thomas Moran is an individual residing in Atlanta, Georgia. During the Class Period, as defined below, Mr. Moran purchased and/or sold Commodity Exchange, Inc. (“COMEX”)<sup>2</sup> gold futures contracts at artificial prices proximately caused by Defendants’ unlawful manipulation as alleged herein. Mr. Moran was deprived of transacting in a lawful, non-manipulated, competitive market in gold futures contracts, and otherwise suffered legal injury as a direct and proximate result of Defendants’ unlawful conduct.

24. Plaintiff Patricia Benvenuto is an individual residing in Phoenixville, Pennsylvania. During the Class Period, as defined below, Ms. Benvenuto purchased and/or sold COMEX gold futures contracts at artificial prices proximately caused by Defendants’ unlawful manipulation as alleged herein. Ms. Benvenuto was deprived of transacting in a lawful, non-manipulated, competitive market in gold futures contracts, and otherwise suffered legal injury as a direct and proximate result of Defendants’ unlawful conduct.

25. Plaintiff Thomas Galligher is an individual residing in Phoenixville, Pennsylvania. During the Class Period, as defined below, Mr. Galligher purchased and/or sold COMEX gold futures contracts at artificial prices proximately caused by Defendants’ unlawful manipulation as alleged herein. Mr. Galligher was deprived of transacting in a lawful, non-

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<sup>2</sup> 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 the COMEX and the New York Mercantile Exchange (“NYMEX”).

manipulated, competitive market in gold futures contracts, and otherwise suffered legal injury as a direct and proximate result of Defendants' unlawful conduct.

26. Plaintiff Larry Dean Lewis is an individual residing in Robinson, Illinois. During the Class Period, as defined below, Mr. Larry Lewis purchased and/or sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Larry Lewis was deprived of transacting in a lawful, non-manipulated, competitive market in gold futures contracts, and otherwise suffered legal injury as a direct and proximate result of Defendants' unlawful conduct.

27. Plaintiff Duane Lewis is an individual residing in Effingham, Illinois. During the Class Period, as defined below, Mr. Duane Lewis purchased and/or sold COMEX gold futures contracts at artificial prices proximately caused by Defendants' unlawful manipulation as alleged herein. Mr. Duane Lewis was deprived of transacting in a lawful, non-manipulated, competitive market in gold futures contracts, and otherwise suffered legal injury as a direct and proximate result of Defendants' unlawful conduct.

**B. Defendants**

28. 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.

29. Defendant The Bank of Nova Scotia is a corporation organized and existing under the laws of Canada with its principal place of business in Toronto, Canada and branches and/or offices 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 bullion division of BNS.

30. ScotiaMocatta executes client trades in the physical gold market and in gold

derivatives. 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 conducts proprietary trading in the gold market. ScotiaMocatta maintains a COMEX licensed gold vault in New York. During the Class Period, BNS was a member and owner of the London Gold Market Fixing Ltd., and entered directly into gold spot and futures transactions with members of the Class.

31. 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/or offices in New York, New York. As used herein, the term “Barclays” includes Barclays Bank plc and its subsidiaries and affiliates.

32. Barclays executes client trades in the physical gold market and in gold derivatives, 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 conducted proprietary trading in the gold market. During the Class Period, Barclays was a member and owner of the London Gold Market Fixing Ltd., and entered directly into gold spot and futures transactions with members of the Class.

33. 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/or offices in New York, New York. As used herein, the term “Deutsche Bank” includes Deutsche Bank AG and its subsidiaries and affiliates.

34. Deutsche Bank executes client trades in the physical gold market and in gold derivatives. Deutsche Bank conducts proprietary trading in the gold market. During the Class Period, Deutsche Bank was a member and owner of the London Gold Market Fixing Ltd., and

entered directly into gold spot and futures transactions with members of the Class.

35. Defendant HSBC Bank plc (“HSBC”) is a company organized and existing under the laws of the United Kingdom with its principal place of business in London, England and branches and/or offices in New York, New York. As used herein, the term “HSBC” includes HSBC Bank and its subsidiaries and affiliates.

36. HSBC executes client trades in the physical gold market and in gold derivatives. While HSBC does not have a formal proprietary trading business, it does take positions on the gold derivatives market. During the Class Period, HSBC was a member and owner of the London Gold Market Fixing Ltd., and entered directly into gold spot and futures transactions with members of the Class.

37. Defendant Société Générale SA is a corporation organized and existing under the laws of the France with its principal place of business in Paris, France and branches and/or offices in New York, New York. As used herein, the term “Société Générale” includes Société Générale SA and its subsidiaries and affiliates.

38. Société Générale executes client trades in the physical gold market and in gold derivatives. Société Générale conducts proprietary trading in the gold market. 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 entered directly into gold spot and futures transactions with members of the Class.

39. Defendant 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.

40. Various other entities and individuals unknown to Plaintiffs at this time 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. History of the International Gold Market**

41. Gold was first used as a form of currency around 1091 B.C. and has been intimately tied to the financial markets for centuries. Many European countries implemented gold standards in the latter half of the 1800s.

42. In 1900, Congress passed the Gold Standard Act, which officially placed the United States on the gold standard and committed the United States to maintain a fixed exchange rate in relation to other countries on the gold standard. From the late 1800s to World War I, world trade increased from less than \$8 billion to more than \$18 billion. During the same period global gold reserves also increased almost 350% as gold was discovered and utilized as part of the new system of international trade.

43. Following World War II, the world's major industrial states including the United States, Great Britain, France, Germany, Japan, Italy and Spain adopted the Bretton Woods system. The chief feature of the Bretton Woods system was an obligation that each country adopt a monetary policy that maintained foreign exchange rates by tying currencies to the United States dollar, which was in turn pegged to gold.

44. From 1945 to 1971, United States dollars could be converted to gold by foreign

countries and foreigners for \$35 per troy ounce. Thus, the United States was committed to backing every dollar overseas with physical gold during this period. In its early years, the Bretton Woods system worked well. However, following World War II, Europe and Japan recovered, the United States' share of the world's economic output began to drop, and the dollar became overvalued as many more people began to hold their assets in dollars. Thus, the United States did not have sufficient gold reserves to back all of its currency.

45. In an effort to maintain the fixed price of gold, in 1961 the United States, the United Kingdom and six other European countries entered into the London Gold Pool. The London Gold Pool was the pooling of gold reserves to help maintain the Bretton Woods system of fixed-rate convertible currencies and defend the gold price of \$35 per troy ounce by interventions in the London gold market. From 1961 to 1967, the central banks of these eight countries helped balance spikes in the market price of gold as determined by the London fix while also buying gold on price weaknesses. The London Gold Pool was successful in stabilizing the price of gold until 1968 when France withdrew from the pool and runs on gold, the British pound, and the United States Dollar occurred. The London Gold Pool collapsed in March 1968.

46. From 1968 to 1971, the major industrial countries of the world undertook various efforts to suppress the price of gold, but the writing was on the wall. By 1971, the United States' gold reserves were low and foreign banks held many more dollars than the United States held in gold, leaving the United States vulnerable to a run on its gold. In 1971, President Richard Nixon issued Executive Order 11615, which ended convertibility between United States dollars and gold (the "Nixon Shock"). Following the Nixon Shock, the dollar floated freely on the international market and Bretton Woods was abandoned.

47. The events of 1971 meant that the price of gold was no longer artificially tied to the dollar and ignited the onset of a gold bull market culminating at a price of \$850 per troy ounce in January 1980 – an increase of more than 2300% in less than a decade. On December 31, 1974, gold ownership by Americans was again legalized (from 1933 to 1974 such ownership was generally not legal), and gold futures trading commenced within a few years.

**B. The London Gold Fixing**

48. The global physical gold market is a large and opaque over-the-counter market that operates alongside exchange-based gold derivative markets. Investors can buy and sell gold in the spot market, and (much more often) trade gold-based futures contracts and options. In the United States, most gold futures contracts and options trade on the COMEX.

49. The London Gold Fixing was established to determine a daily benchmark price for gold at predetermined times during the trading day. In the physical gold market there is not a central price at any given time. Instead, all of the gold market making banks – including Defendants – and dealers provide competing bid and ask quotes directly to their clients and customers. As such, the Fixing price was supposed to provide buyers and sellers a benchmark that isolated either party from the noise of the trade day, or the bias of any one market maker.

50. The benchmark rate issued by the London Gold Fixing fixes the price of “Good Delivery” gold. Good Delivery is a set of rules for physical gold bars issued by the London Bullion Market Association (“LBMA”).<sup>3</sup> The Good Delivery rules lay out the physical specifications for gold bars and provide a verifiable chain of custody, beginning with the refiner

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<sup>3</sup> “The LBMA is the international trade association that represents the market for gold and silver bullion, which is centred in London but has a global client base, including the majority of the central banks that hold gold, private sector investors, mining companies, producers, refiners and fabricators. The current membership stands at 143 companies which are either actively involved in the London bullion market or which provide services to the market, such as supervising or assaying. The LBMA was formally incorporated in 1987[.]” LBMA, About the LBMA, *available at* [www.lbma.org.uk/pages/index.cfm?page\\_id=9&title=about\\_the\\_lbma](http://www.lbma.org.uk/pages/index.cfm?page_id=9&title=about_the_lbma).

and assayer, and continuing through storage in LBMA recognized gold vaults. 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. Most buyers and sellers of gold will not deal in anything but Good Delivery gold.

51. The benchmark rate for “Good Delivery” gold issued by the London Gold 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.

52. The London Gold Fixing fixed its first gold price on September 12, 1919. The Fixing began 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 (the Fixing’s original members): N.M. Rothschild, Mocatta & Goldsmid, Pixley & Abell, Samuel Montagu & Co., and Sharps & Wilkins. Meetings of the London Gold Fixing were held originally at N.M. Rothschild’s offices in St. Swithin’s Lane, London. N.M. Rothschild, the last remaining original member, sold its seat to Barclays in 2004.

53. The contemporary London Gold Fixing is now administered by London Gold Market Fixing Ltd., the five members of which are the Defendants here.

54. The London Gold Fixing occurs twice each business day, at 10:30 a.m. and 3 p.m., London time, via conference call. The PM Fixing was introduced in 1968 to overlap with the opening of the financial markets in the United States. The fixing process typically lasts 10-

15 minutes or less, depending on the trade conditions of the day, but on a few occasions has lasted more than an hour.

55. The London Gold Fixing is purported to proceed through what is known as a “Walrasian” auction: the designated chairman (a position that rotates annually among the Defendants and is currently held by Société Générale) provides a figure which is supposed to be the then-prevailing United States Dollar spot price for gold.

56. 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. Each Defendants’ trading room is in constant communications with clients who are interested in dealing in gold if the price is right. Once the chairman declares the opening price, the other members declare how many bars of gold they wish to buy or sell at that price based on the orders of their clients and their own proprietary positions. Fixing members are required to declare their interest in increments of five gold bars. If there is no buying or selling interest, the chairman may announce the initial price as “fixed,” thus concluding the call.

57. If, however, the opening price elicits solely selling interest or solely buying interest – or a disproportionate amount of one or the other – the chair can adjust the opening price up or down until the offers to buy and sell are closer to even. Generally, when the offers are within 50 bars of each other, the chair will declare the price to be “fixed.”

58. Once the benchmark rate has been “fixed,” the call concludes and the price is transmitted to the LBMA for publication.

59. Like most commodities, the price of gold at the London Gold Fixing is driven – or at least is supposed to be driven – by supply and demand. The London Gold Fixing is meant to

find the equilibrium price at which the demand for gold equals supply for gold by surveying the leading gold bullion banks.

60. Because the supply of gold is relatively fixed, the main factor affecting the price of gold is demand. There are three main sources of demand: demand for gold by central banks and the International Monetary Fund; demand for gold as an investment to hedge against financial stress such as inflation, deflation or currency devaluation; and demand for gold as a material for use in jewelry or industrial uses.

61. Some of the international demand for gold is met through spot contracts on the over-the-counter market. 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. Many spot contracts – such as contracts for the sale of raw gold by miners – are tied to the London Gold Fixing price.

### **C. The Gold Derivatives Market**

62. A large part of the gold market is also comprised of gold derivatives. Gold derivatives are financial instruments whose value depends, in part, on the underlying price of physical gold. Gold derivatives include gold futures and options contracts.

63. A gold futures contract is a bilateral agreement for the purchase or sale of gold, generally 100 troy ounces, at a specified date in the future. In the United States, most gold futures and options are traded on COMEX, which is a designated contract market and has been designated by the Commodity Futures Trading Commission 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.

64. For each gold futures contract, the buyer takes a “long” position on gold, meaning

it agrees to pay for 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. If a market participant holds its position to the end of the settlement period for a gold futures contract, the market participant is obligated to “go to delivery,” meaning that the futures contract has become a present obligation for the purchase and sale of physical gold. Longs must take delivery and shorts must make delivery of 100 troy ounces per contract over the course of the delivery month. The price for the gold that goes to delivery is the “settlement price” of the COMEX gold futures contract on the final trading day of a particular contract month and year.

65. Only a small percentage of all futures contracts traded each year on COMEX and other exchanges result in actual delivery of the underlying commodities. In fact, prior to entering a COMEX futures contract, a buyer must inform the seller if the buyer intends to take physical delivery of gold. 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 their 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.

66. In addition, gold option contracts are also traded on COMEX. There are two types of options: calls and puts. A call gives the holder of the gold option the right, but not the obligation, to buy the underlying gold futures contract 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 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”.

67. There are various ways to use options to “go short” (*i.e.*, profit from gold price decreases) or “go long” (*i.e.*, profit from gold price increases). An investor that wants to short the gold market can sell a futures contract, obligating that investor to deliver gold at a specific date in the future at a specified price. That investor can also buy gold put options, which confer upon the put buyer the right to sell gold to the investor at a specific strike price until the option’s expiry. An investor can also sell gold call options, which confer upon the buyer of the call option the right to buy gold from the call seller at a specified strike price until the option’s expiry. The seller of the call option, in exchange for the option premium, commits to selling gold at the strike price, at the buyer’s election, until the option’s expiry.

68. The entity that is short benefits as prices fall. The seller of a futures contract, for instance, then offsets the position by purchasing another futures contract and then pockets 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.

69. 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 their position, paying the difference between the prevailing price and the strike price.

70. As noted above, *see supra* ¶¶ 30, 32, 34, 36, 38, Defendants conduct proprietary trading in the physical gold market and in the market for gold derivatives. Defendants and other dealer banks have “large-scale proprietary trading activities” in the futures and over-the-counter markets which “have contributed to the downward trend in gold prices during the past couple of

years.”<sup>4</sup>

71. Defendants disclose very little about their proprietary trading in gold; however, it focuses heavily on COMEX futures and options. Specifically, throughout the Class Period, Defendants maintained large short positions on the futures market.

72. While the CFTC does not publish bank-specific data, as of March 4, 2014, according to CFTC Bank Participation Reports, non-U.S. banks are short on 54,385 gold futures contracts and long on only 17,526 gold futures contracts. Meaning, on 76% of gold futures contracts non-U.S. banks (including the Defendants here) have taken a short position. Defendants sizeable short position is further confirmed by data from the past two years appearing in Appendix D.

73. As a result, during the Class Period it was in Defendants’ economic interest to keep the price of gold *low* at the PM Fixing so as to maximize the value of their short positions.

**D. Prices on the Gold Futures Market Track the Price of Gold on the Spot Market**

74. The price of gold futures on COMEX closely tracks the price of gold on the spot market. As a result, changes in the price in one of the markets will be immediately reflected in the other market. In addition, the London PM fixing, determined at around 10:10 a.m. New York time, influences the COMEX settlement prices for the active gold futures contracts reached approximately four hours later.

75. Even when there are dramatic changes in market price, high liquidity or market volatility, economic analyses have repeatedly found that the COMEX gold prices and spot prices closely track each other. In particular, over the last 40 years the COMEX gold price almost

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<sup>4</sup> Jeffrey Nichols, *The Volcker Rule – Good for Gold*, Rosland Capital (Dec. 12, 2013), available at <http://www.roslandcapital.com/news/the-volcker-rule-good-for-gold/>.

perfectly tracks movements in the PM Fixing price, as shown in the following figure:



76. A recent academic study by Andrew Caminschi and Richard Heaney analyzed high-frequency spot and futures price data for a six year period and found that gold futures contracts “are significantly impacted by the London PM gold price fixing process.”<sup>5</sup>

77. As a result, as described herein, Defendants’ collusive manipulation of the gold benchmark directly affected the price of gold futures and caused the Class to trade gold futures at artificial prices.

## II. DEFENDANTS CONSPIRED TO MANIPULATE GOLD PRICES

### A. The Structure and Process of the London Gold Fixing Invites Collusion and Manipulation

78. The structure of the London Gold Fixing invites, facilitates, and enables collusion and manipulation, as it has for Defendants for at least a decade.

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<sup>5</sup> Andrew Caminschi & Richard Heaney, *Fixing a Leaky Fixing: Short-Term Market Reactions to the London PM Gold Price Fixing*, JOURNAL OF FUTURES MARKETS 35 (Sept. 2013) (hereafter “Caminschi-Heaney”).

79. *First*, the London Gold Fixing is a direct exchange of intended or future price information among horizontal competitors. Defendants compete across a wide range of financial services markets, including the markets for gold and gold derivatives. Defendants compete to attract customers, including those that trade gold and gold futures, and they compete against each other in the proprietary trading of gold. Despite the fact that they are competitors, Defendants communicate directly and privately through the London Gold Fixing to set the price of gold. Through this exchange of price impacting information, Defendants have the opportunity to signal pricing desires to their competitors.

80. *Second*, this exchange of pricing information takes place among a very small group of competitors with large market shares in the markets for gold and gold derivatives. Unlike a benchmark rate based on market-wide data, the London Gold Fixing vests control over the rate-setting process in the hands of a small group of competitors, making it easy for them to influence prices. This structure makes collusion a rational strategy for increasing profits at the expense of the vast majority of the market that does not have the opportunity to set the spot price. Additionally, maintaining the membership at just five allows Defendants to move the price in a direction at odds with overall market trends.

81. *Third*, these communications among competitors are undisclosed and thus the Defendants have access to nonpublic, real time information about changes in the price of gold. As Thomas Polleit, a former economist at Barclays, commented, “Traders involved in this price-determining process have knowledge which, even for a short time, is superior to other people’s knowledge. That is the great flaw of the London gold-fixing.”<sup>6</sup> This privacy not only presents

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<sup>6</sup> Liam Vaughan, Nicholas Larkin & Suzi Ring, *London Gold Fix Calls Draw Scrutiny Amid Heavy Trading*, Bloomberg (Nov. 26, 2013), available at <http://www.bloomberg.com/news/2013-11-26/gold-fix-drawing-scrutiny-amid-knowledge-tied-to-eruption.html>.

Defendants with unique informational advantages in the gold derivatives market, as detailed below, *see infra* ¶¶ 120-134, but it also means the market cannot monitor Defendants' conduct in setting the price of gold.

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

83. *Fifth*, there is no independent administration or oversight of the London Gold Fixing. Unlike other benchmarks that are administered by third parties, which compile quotes or use real-time data, the Fixing is not administered by an independent entity. There is no entity which monitors the Fixing process and can guard against manipulation or ensure that information will not be misused.

84. *Lastly*, the gold market itself is virtually unregulated. Neither the LGMF nor the LBMA have promulgated rules directly restricting manipulative trading strategies. Likewise, there is little oversight over the London Gold Fixing's activities by any United Kingdom or foreign regulatory agency.

85. Collectively, these structural factors invite collusion among competitors and manipulation of the London Gold Fixing. For good reasons, no other benchmark rate involves such unrestricted, direct price-setting among horizontal competitors. As alleged herein, Defendants have seized upon this structure and have manipulated the price of gold.

**B. Defendants Colluded to Manipulate the London Gold Fixing**

86. Since at least June 7, 2004, when N.M. Rothschild left the London Gold Fixing and Defendant Barclays joined, and continuing into the present, through concerted action and joint agreement, Defendants jointly manipulated the PM Fixing in order to profit from the

purchase of gold on the spot market and their short positions on the gold futures market.

Defendants sought to avoid the uncertainties and risks associated with gold bullion trading and the gold derivatives market – *i.e.*, that the market will move against a Defendant’s position – by collectively agreeing to manipulate the PM Fixing through repeated agreements to suppress the price of gold artificially.

87. Defendants conspired to and did manipulate the PM Fixing by jointly agreeing to “fix” the price of gold at artificially low levels on numerous days throughout the Class Period. Since 2004, Defendants have had an overarching agreement to suppress the price of gold through keeping the gold benchmark artificially low. Defendants have colluded to suppress the benchmark rate so that they purchase physical gold at cheaper prices than the spot market, and so as to maximize the profits from their short positions on the futures market.

88. Defendants’ traders, through electronic communications and telephone calls placed in advance of the PM Fixing, agreed on certain days to suppress the price of the gold benchmark. Defendants’ traders colluded in advance of and during the Fixing on days in which they knew they or their clients would be purchasing large amounts of physical gold on the over-the-counter market, or were entering into or settling a sizeable futures position.

89. Defendants’ manipulation of the PM Fixing occurred in multiple ways. *First*, on numerous occasions Defendants reached naked agreements to suppress the price. On those days, either prior to or during the fixing call the Defendants’ traders agree that regardless of the price at which gold was being traded, they would submit demand levels resulting in lower prices. During the course of the Fixing – which is not public – Defendants simply fix the price of gold at a lower level than what the Fixing members were actually quoting.

90. *Second*, Defendants conspired to submit demand levels which would result in a

price below the Fixing chairman's opening figure in order to push the price of gold down to artificial levels. This manipulation required concerted action as such a manipulative strategy by a single Fixing member would be unlikely to impact the overall benchmark rate significantly.

91. *Third*, Defendants placed large fictitious orders in advance of the Fixing – orders that they did not actually intend to execute – in order to manipulate the price of gold downward. Defendants put a “flag” in the order, which meant that the order should be quoted for the purposes of the Fixing but was not intended to actually be executed. These fictitious trades created the appearance of greater supply or demand, depending on the direction of the trade, distorting the auction prices throughout the call, resulting in artificial prices at the Fixing. “The intent is often manipulative with large strategically timed selling, at key chart points [such as the PM fixing], intended to beget more selling and the opportunity for [banks] to close out positions soon thereafter with attractive trading profits.”<sup>7</sup>

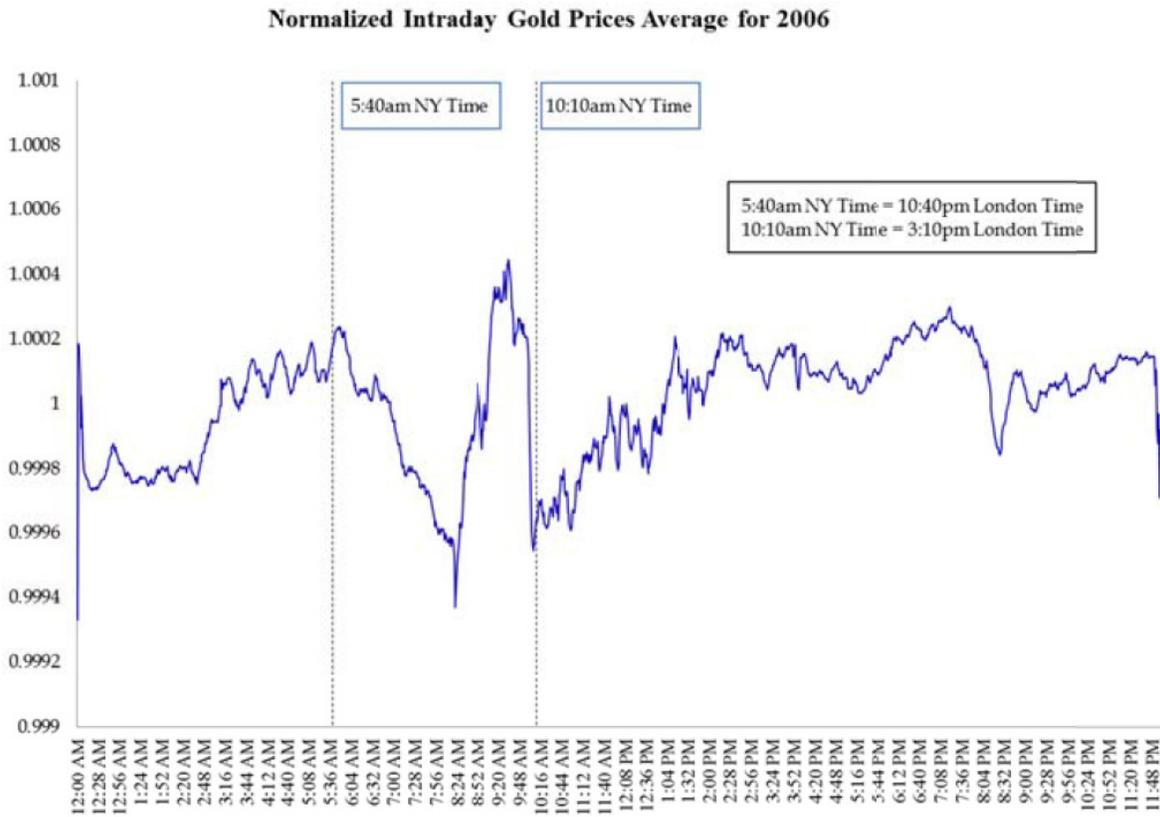
92. As a result of Defendants' joint agreement to manipulate the PM Fixing, from the time Barclays joined the Fixing in 2004 there has been statistically significant, highly anomalous price movements at the time of the PM Fixing. This has been demonstrated by numerous economic analyses.

93. Plaintiffs have retained Professor Rosa Abrantes-Metz of the New York University Stern School of Business, who is an expert in, among other topics, financial market collusion and whose research was important in uncovering LIBOR (London Interbank Offered Rate) manipulation. Professor Abrantes-Metz has analyzed intraday-minute level tick data for spot prices of gold and has found “unusually large downward price spikes timed to the PM fixing

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<sup>7</sup> Nat Rudarakanchana, *Volcker Rule Impacts: Gold, Silver & Precious Metals Proprietary Trading by Major Banks*, International Business Times (Dec. 12, 2013), available at <http://www.ibtimes.com/volcker-rule-impacts-gold-silver-precious-metals-proprietary-trading-major-banks-1507536> (quoting gold strategist Jeffrey Nichols).

start emerging in 2004[.]”<sup>8</sup> For example, the following charts for the years 2006 and 2009 show the dramatic downward spike at the time of the Fixing followed by a quick reversal.<sup>9</sup>



<sup>8</sup> Rosa M. Abrantes-Metz and Albert D. Metz, *Are Gold Prices Being Fixed?*, at 2, February 2014 (unpublished draft on file with Quinn Emanuel).

<sup>9</sup> Charts for additional years of the Class Period may be found in Appendix A.

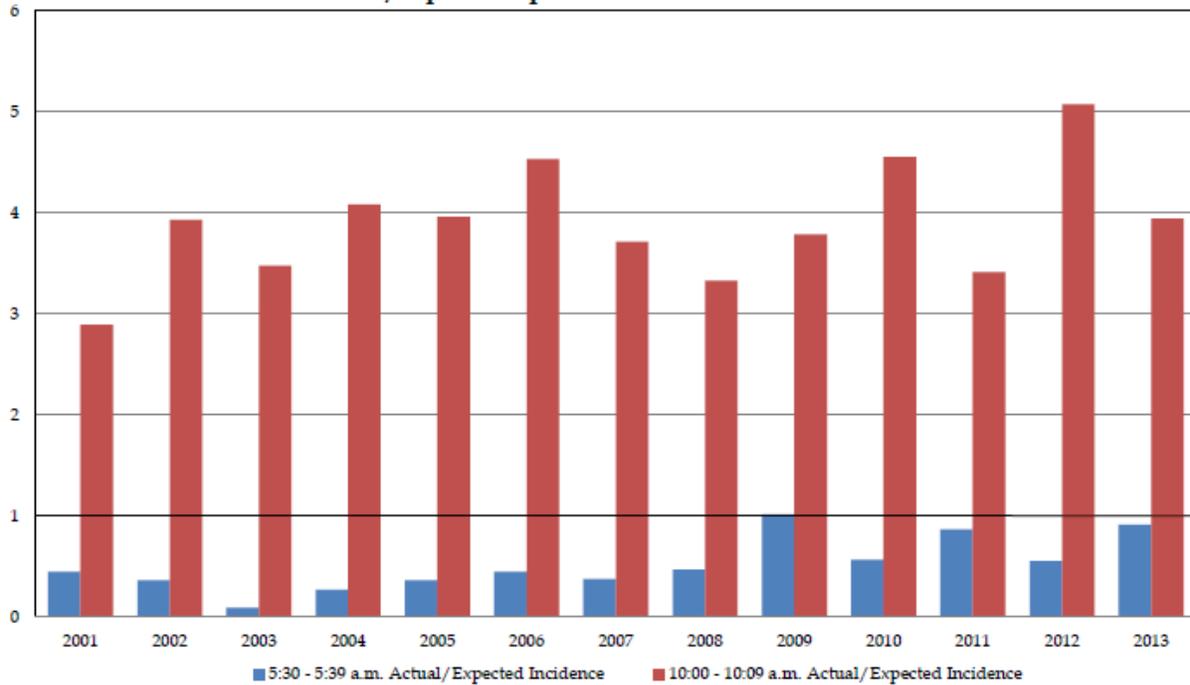
Normalized Intraday Gold Prices Average for 2009



94. Each of these charts show a dramatic, unexplained downward price spike at the time of the PM Fixing. These downward spikes did not exist prior to 2004, which is when Barclays became involved in the fixing process.

95. The following chart shows the incidence of downward spikes for gold spot prices within 10 minutes of the start of the Fixing. The incidence of price spikes after the start of the PM Fixing is approximately four times larger than would be expected while the same pattern does not occur for the AM Fixing (a value of 1 is read as Actual Spikes equal to Expected Spikes).

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



96. This chart shows that using data from throughout the day and comparing it to the price spikes at both daily Fixings, the incidence of spikes at the PM Fixing is about four times larger than would be expected due to random price movements and normal market activity or price discovery.

97. An analysis of gold spot and futures prices on a day-by-day basis also reveals statistically significant, dramatic plunges in the price of gold at the PM Fixing, followed by reversals in the price soon after. For instance, the following charts from April 2, 2009, May 8, 2009, and June 2, 2010, demonstrate this phenomenon.<sup>10</sup>

<sup>10</sup> Additional charts for flagged days are in Appendix B.

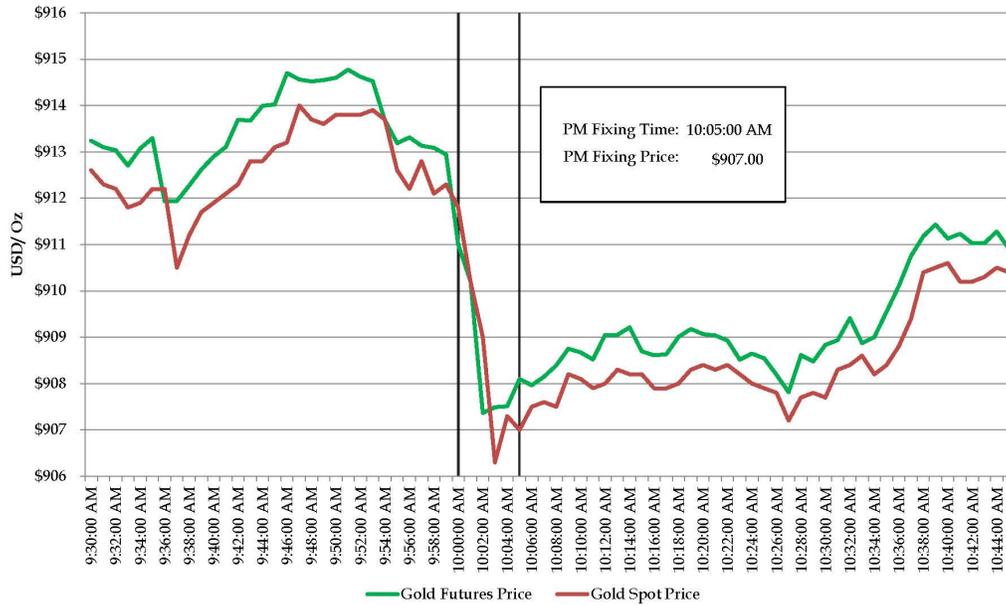
## April 2, 2009 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



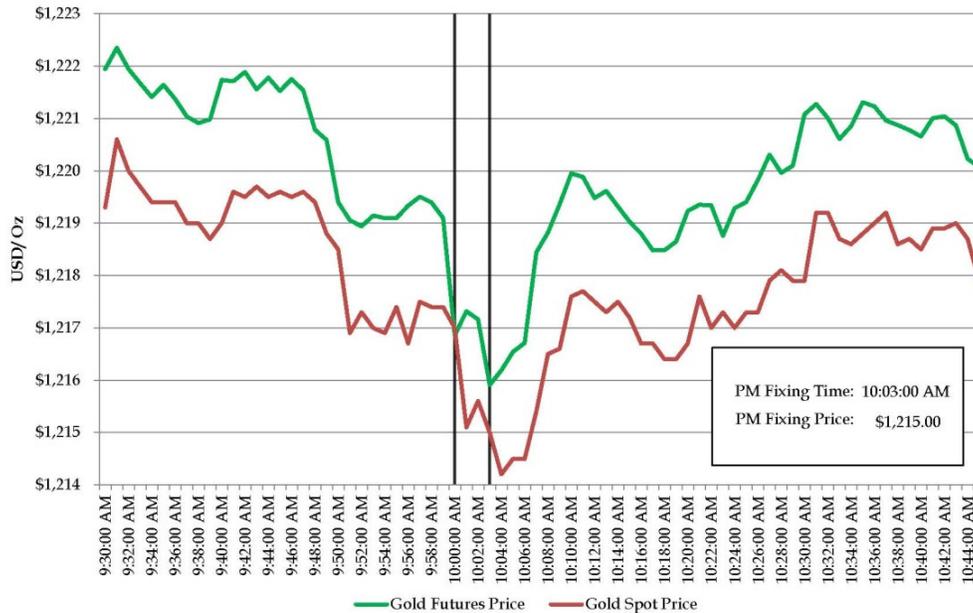
## May 8, 2009 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## June 2, 2010 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



98. In addition, Professor Abrantes-Metz tested whether the PM Fixing tends to reflect the largest spike in price of the day when compared to prices immediately before and after the Fixing. Specifically, for every minute of the day, Professor Abrantes-Metz compared the price at that minute with the average of prior prices (the “lagging average”), subsequent prices (the “leading average”), and prior and subsequent prices (the “centered average”). For example, her study compares the price at 10:10 a.m. New York time with an average of prices from 9:40 a.m. through 10:09 a.m. (the lagging average), an average of the prices from 10:11 a.m. through 10:40 a.m. (the leading average), and the average of the prices from 9:40 a.m. to 10:40 a.m. (the center average).

99. Professor Abrantes-Metz next determined the squared deviation between the price at each minute and its lagging, leading, and centered averages, and identified the minutes of each day with the largest deviation from their corresponding averages (the “Worst Minute” of the day). The study looked at Worst Minutes that occur in the minutes before or after the AM or

PM Fixings, and considers any day with such an occurrence as “suspicious” for purposes of determining manipulation. Notably, the study took a conservative approach to determining suspicious days, since it did not count a day as suspicious where significant spikes occur around the AM or PM Fixing that are not the Worst Minutes of the day.

100. The results of the analysis are striking. Professor Abrantes-Metz found that the concentration of Worst Minutes around the PM Fixing is much greater than around the AM Fixing – sometimes by a factor of 10. Additionally, over the course of the years studied, the incidence of Worst Minutes around the AM Fixing does not change in a meaningful way, while the Worst Minutes around the PM Fixing increases significantly, particularly following Barclay’s replacement of N.M. Rothschild.

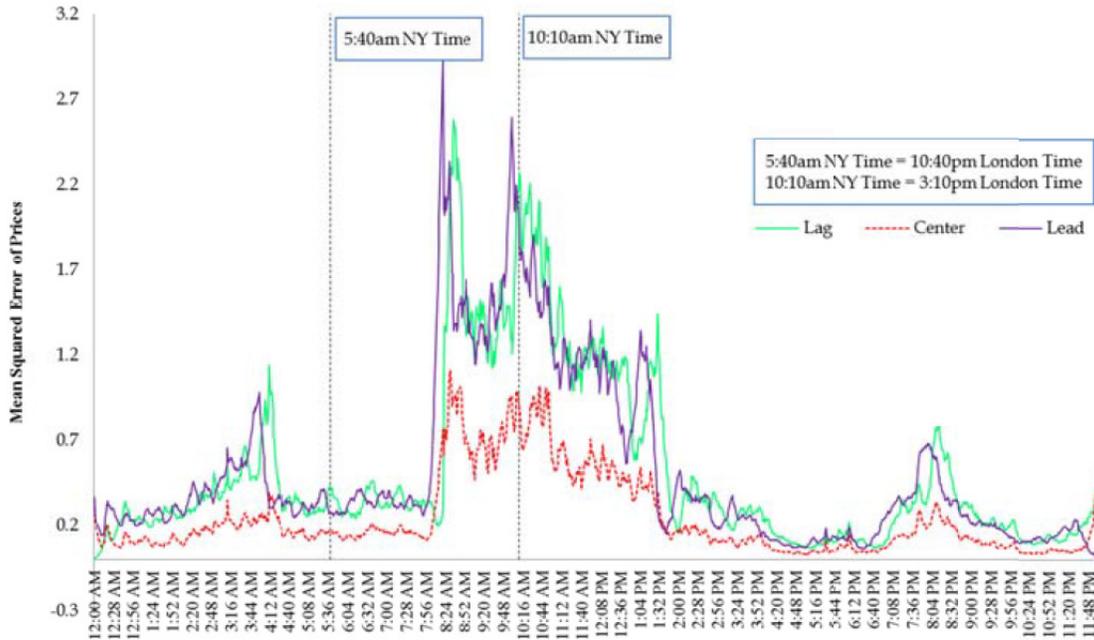
101. Critically, the incidence of Worst Minutes around the PM Fixing is much greater than would occur with random distribution of price movements during the day. Professor Abrantes-Metz found that, under conditions of random distribution, the 60-minute interval around the fix has a 12.24% chance of containing the Worst Minute, the 40-minute interval has an 8.16% chance, and the 20-minute interval has a 4.08% chance. But in 2006, for example, the incidence of Worst Minutes within 60 and 40-minute intervals around the PM Fixing was more than three times as likely as random distribution of prices would predict, and the incidence of Worst Minutes within a 20-minute interval of the PM Fixing was more than four times as likely as random distribution of prices would predict.

102. The following charts for 2006 and 2011 (in New York time) demonstrate the extent to which the price movement at the PM Fixing is an outlier when compared to the lagging, leading or centered average.<sup>11</sup>

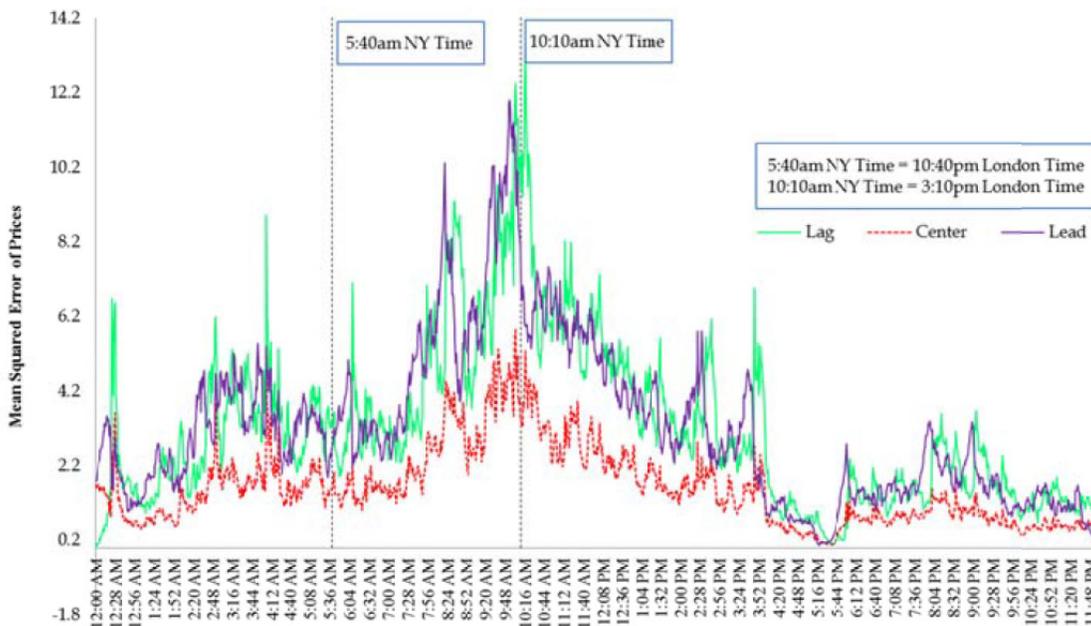
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<sup>11</sup> Charts for all other years during the Class Period may be found in Appendix C.

**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2006**



**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2011**



103. Not only do Worst Minutes cluster around the PM Fixing, but the outlier prices that occur during those Worst Minutes tend to be *low* outliers, and Professor Abrantes-Metz has found that the downward price spikes were larger on average than upward spikes around the PM

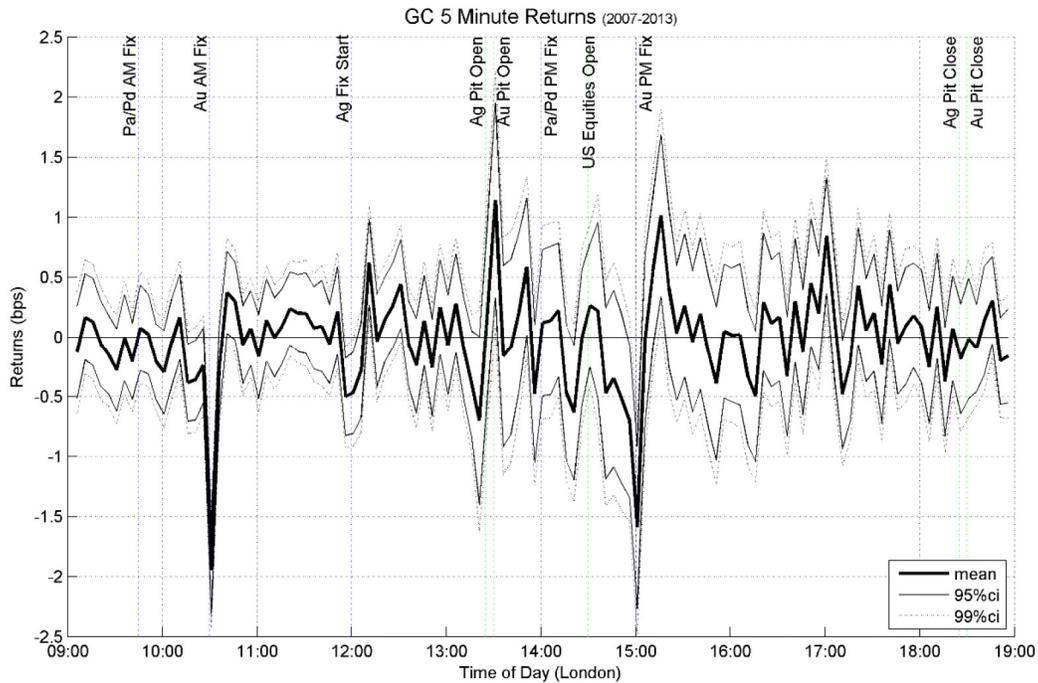
Fixing. Professor Abrantes-Metz has thus concluded that “the unusually large (and typically downward) price movements around the PM fixing, often followed by upward movements showing price recovery, combined with the means, motive and opportunity to manipulate the fixing, lead us to conclude that these results are consistent with the possibility of collusion and manipulation of the PM Fixing.”<sup>12</sup>

104. In addition, Plaintiffs have retained Andrew Caminschi, a gold markets researcher at the University of Western Australia, who has published on the gold market and analyzed various economic explanations for the market’s highly anomalous price movement. He has found that manipulation was consistent with these price spikes, and that purported innocent explanations are flawed.

105. For instance, Mr. Caminschi examined the five minute returns on gold futures to determine whether the price dips shown in the above charts are the result of market noise or another benign explanation. His results indicate that the only intervals throughout the London trade day that show significant negative returns (at 95 and 99% confidence intervals) coincide with the Fixings. Because of the statistical confidence of the finding in the chart below, these price movements are exceedingly unlikely to be the result of random market noise.

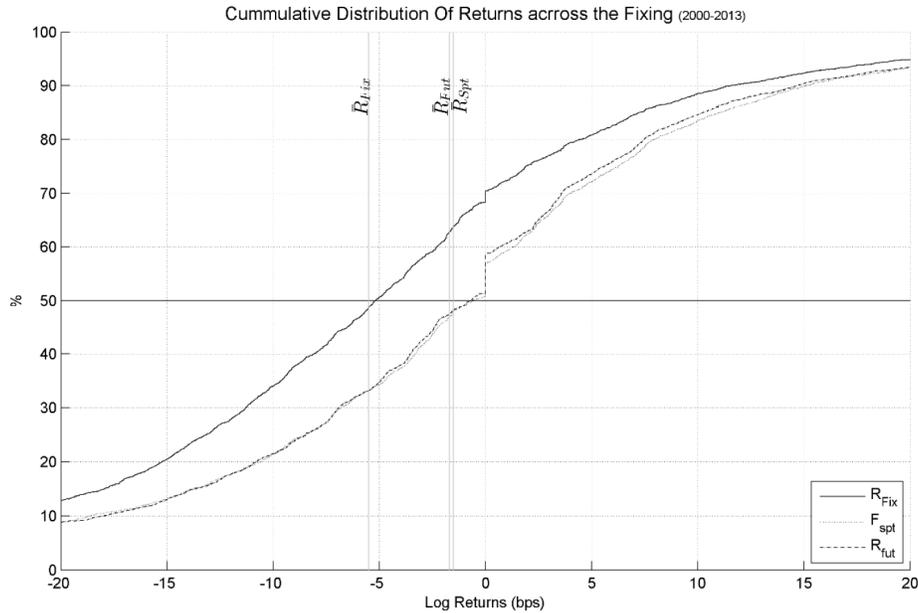
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<sup>12</sup> Abrantes-Metz & Metz, *Are Gold Prices Being Fixed?*, at 13.



106. In other words, overwhelmingly, Class Members trading in proximity to the PM Fixing on futures markets suffer monetary injury. The above chart shows that the rate of returns for persons trading gold futures at all times other than the PM Fixing are considerably greater (and more often positive) than the returns obtained by Class Members trading at or around the PM Fixing.

107. Additionally, Mr. Caminschi compared the distribution of returns on gold futures contracts at the Fixing with the distribution of returns on open market instruments and found a significant difference between these distributions, suggesting manipulation.



108. The above chart shows that open futures market returns to be near identically distributed, while PM Fixing returns are heavily skewed to negative returns. For example, while only about approximately 50% of futures (and spot) returns are negative (left of the 0 bps vertical), some 67% of PM Fixing's returns are negative, while only about approximately 30% are positive. The similarity of spot and future returns distributions indicates that participants are able to access either market to trade away any price divergence. This stands in stark contrast to the PM Fixing return distribution. The large difference in the Fixing distribution suggests open futures market participants are trading at a disadvantage to the Defendants, explaining the lack of convergence to the open market prices.

109. Based on these findings, a number of alternative explanations for price movement at the PM Fixing may be rejected. The suggestion that this price movement is the result of a systemic imbalance of PM Fixing participants (*i.e.*, more gold sellers than buyers) is inconsistent with the evidence. While Defendants do compete with the sellers of gold for lower prices, Defendants are also supposed to compete with each other (and other buyers) in an open market. Such competition should drive prices to an equilibrium level. The finding that price equilibrium

in the open market is different from that of the Fixing equilibrium suggests the Fixing is limiting the ability of potential buyers to compete at the Fixing price.

110. Defendants' collusive manipulation of the PM Fixing is further confirmed by an analysis of the price movement at the PM Fixing prior to 2004 and following the announcement of the CFTC's investigation on March 13, 2013. Professor Abrantes-Metz analyzed price movements at the PM Fixing from 2001 to 2003 – prior to the introduction of Barclays to the London Gold Fixing – and did not find the same anomalous downward price spikes that began in 2004.

111. Another recent study confirms that after reports emerged of the CFTC investigating the gold market, the trend of gold price spikes suddenly reversed and the PM Fixing has had considerably less frequent negative price spikes. It has been demonstrated (as shown in the following chart) that prior to the announcement of the CFTC investigation the price of gold was depressed at the PM Fixing. However, following the announcement of the CFTC investigation, even though the overall gold market continued to decline, the price of gold *increased* at the PM Fixing.<sup>13</sup>

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<sup>13</sup> James McShirley, *The Curious Case of the PM Fix v. the AM Fix*, Zero Hedges (May 14, 2014), <http://www.zerohedge.com/contributed/2014-03-16/curious-case-pm-fix-vs-am-fix-james-mcshirley>.



112. This disappearance of anomalous price movement following the announcement of a government investigation is probative of manipulation.

**C. Defendants’ Manipulation of the London Gold Fixing Resulted in Artificial Prices on COMEX**

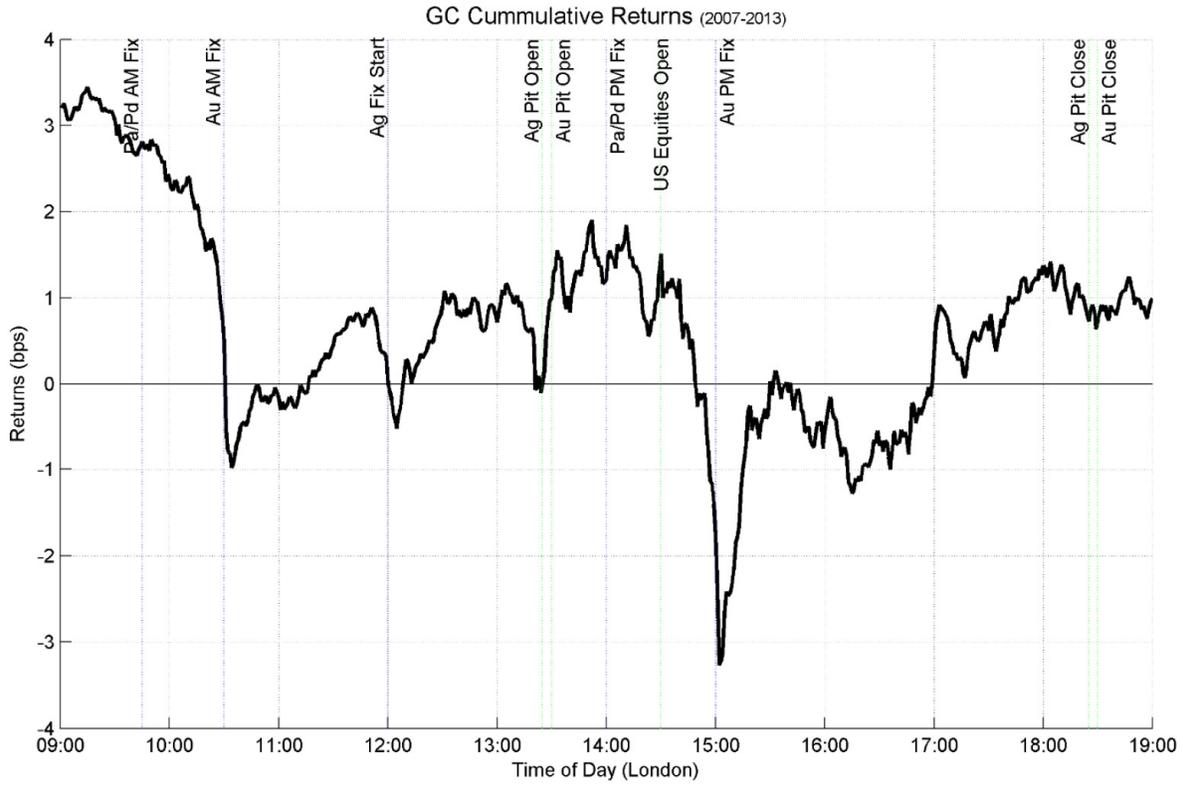
113. Defendants’ joint agreement to manipulate the spot gold benchmark through the PM Fixing caused artificial prices for gold on COMEX.

114. As explained above, *see supra* ¶¶ 74-77, 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 nothing more than an expectation of the future spot price, futures and physical prices are correlated.

115. The manipulation of the PM Fixing has caused COMEX gold futures and options to be artificially priced.

116. Mr. Caminschi has found that on average the PM Fixing introduces a 4 basis point

downward bias in the intraday returns on gold futures, as indicated in the following chart.



117. The chart shows that returns on gold futures purchased in the 10 to 20 minutes prior to the PM Fixing are negative and dramatically lower than any time of day.

118. The above price movements show the influence of manipulative and collusive behavior. These negative returns are the result of manipulation – as illustrated, the price of gold (and returns on futures) at least partially recovers following the conclusion of the PM Fixing. The pattern cannot be explained by neutral or benign explanations, but demonstrates the manipulative conduct of Defendants to move prices on both the physical and derivative markets to their benefit.

119. As a result, on average, persons and entities that traded gold futures immediately before, during, or right after the PM Fixing experienced gold price returns at least four basis points lower than investors trading during the rest of the day.

**D. Defendants Took Further Advantage of Their Conspiracy and Unlawful Manipulation by Trading on Nonpublic Information**

120. In addition to colluding to manipulate the gold benchmark to artificial levels, Defendants have also collectively taken advantage of their manipulation by trading on nonpublic information gleaned through the fixing process.

121. Specifically, according to four traders interviewed by *Bloomberg*, “dealers and their clients are using information from the [Fixing] to bet on the outcome.”<sup>14</sup> By participating in the Fixing, traders employed by the Defendants are able to “bet on the direction of the market with a high degree of certainty minutes before the fix is made public,” according to the same traders interviewed by *Bloomberg*.<sup>15</sup>

122. Defendants profited off this nonpublic information in two ways: by coordinating trades for their own proprietary trading desks and by coordinating their client trades.

123. The fact that Defendants have been trading on nonpublic information gleaned from the London Gold Fixing is further confirmed by the aforementioned 2013 study by Andrew Caminschi and Richard Heaney. That study examined one-minute interval price and volume records for gold to determine the effect of the London Gold Fixing on the futures market. Caminschi and Heaney found powerful evidence confirming that Fixing participants have traded regularly using nonpublic information.

124. Specifically, Caminschi and Heaney found that: (i) the returns for a trader with information about the PM Fixing prior to its conclusion are significantly greater than those of an uninformed trader; (ii) the price movements of derivatives are too consistent with the ultimate direction of the PM Fixing to be attributable to idiosyncratic market fluctuations; and (iii) the

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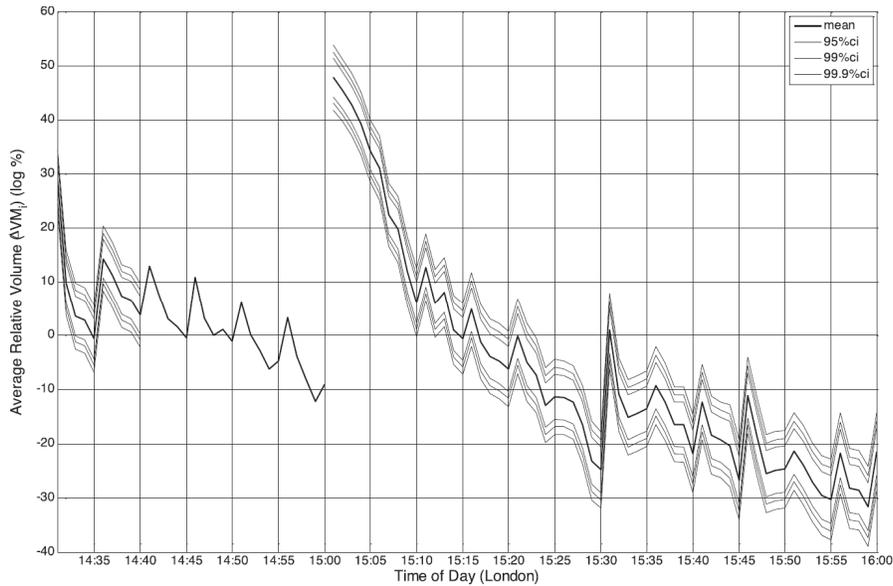
<sup>14</sup> Liam Vaughan *et al.*, *supra*.

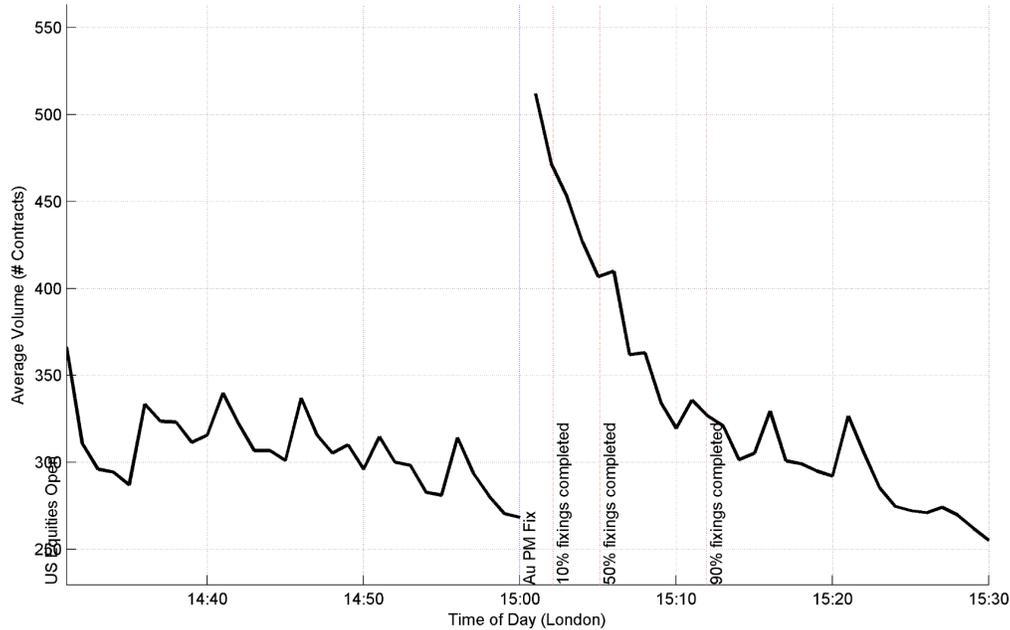
<sup>15</sup> *Id.*

price movements of these instruments at the outset and early minutes of the PM Fixing are highly predictive of the ultimate direction the fixed price will move.

125. Caminschi and Heaney conclude that there is a “dramatic and statistically significant increase in volume immediately after the start of the fixing period” for gold futures, and that trading activity peaks approximately four minutes prior to the end of the PM Fixing. Such a result is “inconsistent with a market reaction to the publication of the fixing price,” since they would expect volume to spike *following* publication, when it should be signaling new information to the market. Instead, the study found that trades tend to cluster immediately after the Fixing *begins*, with no corresponding spike in volume at its conclusion.

126. The following charts indicate that trading volume is highest at the beginning of the Fixing, not at the announcement of the benchmark rate.



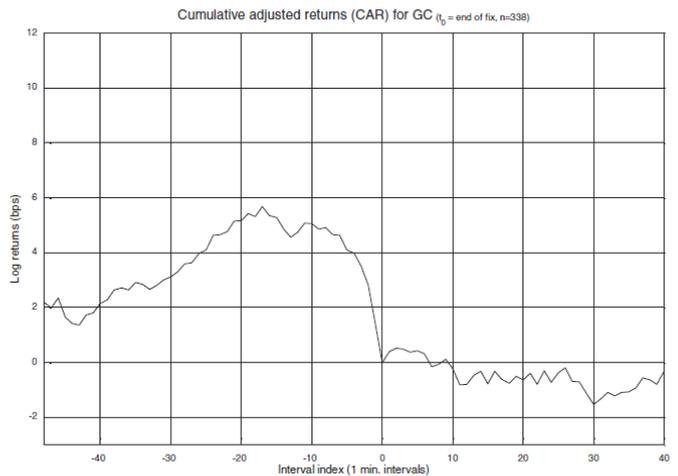
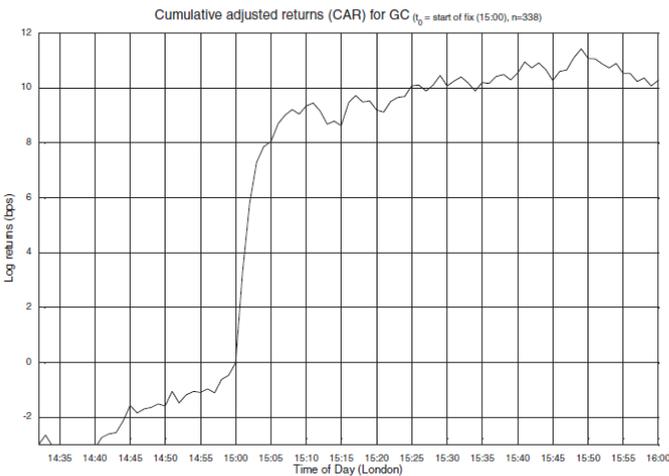
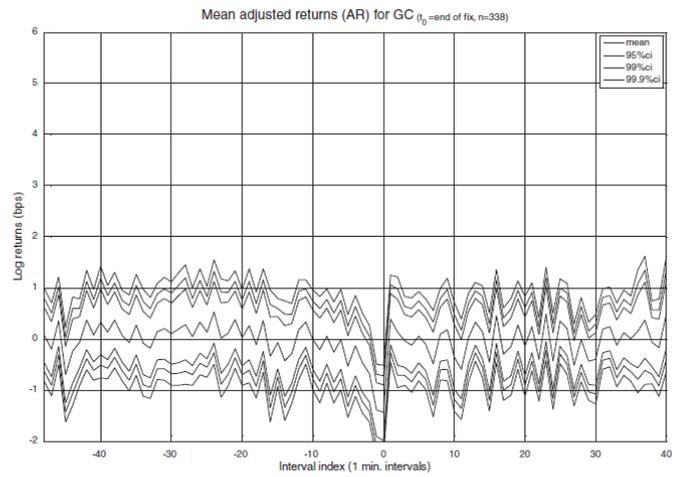
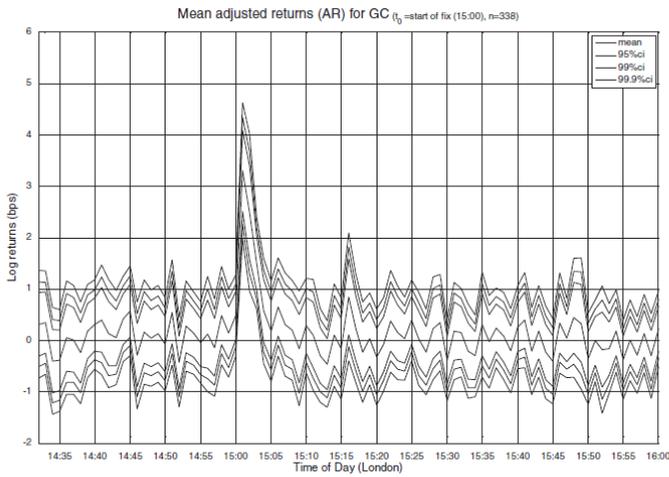


127. Similarly, the study found an increase in the volatility of gold futures “immediately following the start of the fixing,” but again no significant change after the spot price is published.

128. The high volume around the start of the PM Fixing, as shown in the above charts, rather than at the conclusion of the Fixing, confirms that Defendants’ traders execute futures transactions prior to the conclusion of the Fixing, with the benefit of nonpublic information.

129. The Caminschi and Heaney study also examined the ability of an informed trader – *i.e.* one with information about the direction of the PM Fixing prior to its conclusion – to realize greater returns than an uninformed trader. Specifically, the research looked at “unadjusted returns” – *i.e.* those of a trader lacking information about the Fixing process – and “adjusted returns” – *i.e.* those of a trader with access to such information. The analysis found that a statistically significant difference between the two kinds of returns “are clustered in a contiguous 9-minute block . . . around the fixing start” whereas there were no significant adjusted returns prior to the beginning of the Fixing. Once the Fixing begins, however, the study

found that adjusted returns exceed unadjusted returns by a range of between 1.0 and 3.8 basis points for gold futures. It noted that “[t]he significance of these 4 minutes far exceed that of any other period in our analysis.” After this interval, the difference in the two kinds of returns diminishes again. The difference in returns is indicated in the following charts.



130. The size of adjusted and unadjusted returns, relative to one another, are significant only within a seven-minute period following the beginning of the PM Fixing, and adjusted returns themselves are “greatest and most statistically significant immediately following the start of the fixing.” Data illustrated in these charts indicate that adjusted returns are “not only statistically significant, but are also profitable for those with knowledge of the direction of the

fixed price relative to the current price.” Once the PM Fixing begins, adjusted returns jump “dramatically,” with approximately 50% of the jump within the first two minutes, and 80% within the first five minutes.

131. The study determined that the observed behavior is not the result of market trends, despite the general bull market for gold over the sample period until around September 2011. During this period, the results of the Fixing are more or less evenly distributed. Nonetheless, analysis of the returns on the up and down days yields very similar results, with slightly larger adjusted returns on the up days. Thus, the increased volume and volatility described above that takes place at the beginning of the Fixing is “not just uninformed speculation,” since in that case the prices of gold futures would “move in the opposite direction to that implied by the upcoming fix as often as they move in the same direction,” and returns “would balance and there would be no discernible increase in the [cumulative adjusted returns]. Instead, we see a very coherent increase aligned to the fixing start.”

132. Based on the foregoing, the study concludes that Defendants and other informed traders to which they leak information about the direction of the Fixing consistently beat the returns of an uninformed trader.

133. In addition, Professor Abrantes-Metz has found that, when compared to other times of day or days on which she has already determined there was likely no concerted manipulation, futures price volatility was significantly increased in the first few minutes of the Fixing on days with evidence of manipulation. Even when accounting for the higher volume of transactions at the Fixing, price volatility was still significantly greater than expected – a result consistent with price artificiality. She also found enlargement of futures bid-ask spreads during the Fixing, which is consistent with significant gains being made by Defendants during the first

few minutes of the Fixing process.

134. In sum, Defendants are trading on information obtained from the PM Fixing while it is underway, and profiting from this superior nonpublic knowledge. In essence, five of the world's most powerful banks, influenced by their own positions and order books, frequently shared and traded on nonpublic information. Not only are Defendants manipulating futures prices, but they are also using their nonpublic information about the direction of the PM Fixing to reap additional profits at the Class' expense.

### **III. GOVERNMENT AUTHORITIES AND DEFENDANTS HAVE LAUNCHED PROBES INTO THE LONDON FIXING**

135. Financial authorities in the United States and Europe are actively investigating the London Gold Fixing. Specifically, the CFTC, U.K. Financial Conduct Authority, and the German financial regulator BaFin have begun investigating the Fixing for potential misconduct by Defendants.

136. BaFin has already interviewed certain employees of Defendant Deutsche Bank – which abruptly decided to withdraw from the London Gold Fixing – concerning potential manipulation of the Fixing. Officials have also visited Deutsche Bank offices and requested emails and documents. Indeed, BaFin president Elke Koenig stated publicly on January 16, 2014 that allegations concerning the market for precious metals are “particularly serious because such reference values are based – unlike LIBOR and Euribor – typically on transactions in liquid markets and not on estimates of the banks.”<sup>16</sup> The day after Koenig's remarks, *Bloomberg* reported that Deutsche Bank had decided to sell its memberships in both the gold and silver

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<sup>16</sup> Karin Matussek and Oliver Sues, *Metals, Currency Rigging is Worse Than Libor, Bafin says*, Bloomberg.com, Jan. 17, 2014, available at <http://www.bloomberg.com/news/2014-01-16/metals-currency-rigging-worse-than-libor-bafin-s-koenig-says.html>.

fixes.<sup>17</sup>

137. Both Deutsche Bank and Barclays are conducting internal investigations into their roles in the improper manipulation of the London Gold Fixing. Defendants have also formed a steering committee to identify firms to advise on “how the process [of the gold fix] could be improved.”<sup>18</sup> Moreover, the CEO of Defendant BNS has called for an overhaul of the London Gold Fixing, stating that the “fix is dated” and it “should be reviewed[.]”<sup>19</sup>

**EQUITABLE TOLLING OF THE STATUTE OF LIMITATIONS DUE TO DEFENDANTS’ CONCEALMENT OF THE CONSPIRACY**

138. The statute of limitations relating to the claims for relief alleged herein was tolled, due both to Defendants’ affirmative acts of concealment, as well as the inherently self-concealing nature of their private, unaccountable conduct. Neither Plaintiffs nor the Class knew the details and mechanisms of Defendants’ unlawful and self-concealing manipulative acts and could not have discovered them by the exercise of reasonable due diligence, if at all, prior to the March 13, 2013 announcement that the CFTC was examining practices at the London Gold Fixing. In addition, Plaintiffs and the Class did not have a basis for identifying the wrongdoers or calculating damages before that date.

139. Neither Defendants nor their co-conspirators told Plaintiffs or other Class Members that they were conspiring to fix, stabilize, maintain, and/or otherwise manipulate the London Gold Fixing. Furthermore, price-fixing conspiracies are inherently self-concealing.

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<sup>17</sup> Maria Kolesnikova and Nicholas Larkin, *Deutsche Bank Withdraws from Gold Fixing in Commodities Cuts*, Jan. 17, 2014, available at <http://www.bloomberg.com/news/2014-01-17/deutsche-bank-withdraws-from-gold-fixing-in-commodities-cutback.html>.

<sup>18</sup> Suzi Rig, Liam Vaughan & Nicholas Larkin, *Century-Old London Gold Benchmark Fix Said to Face Overhaul*, Bloomberg, Jan. 21, 2014, available at <http://www.bloomberg.com/news/2014-01-21/century-old-london-gold-fix-said-to-face-overhaul-amid-scrutiny.html>.

<sup>19</sup> Sarah Jacob, *Scotiabank CEO Porter Says ‘Dated Gold Fix Needs Review*, Bloomberg, Mar. 5, 2014, available at <http://www.bloomberg.com/news/2014-03-05/scotiabank-ceo-porter-says-dated-gold-fix-should-be-reviewed.html>.

140. Defendants and their co-conspirators conducted their conspiracy secretly, concealed the nature of their unlawful conduct and acts in furtherance thereof, and fraudulently concealed their activities through various means and methods designed to avoid detection.

141. Defendants' affirmative acts intended to conceal their improper actions relating to the Gold Fixing include, *inter alia*: (i) avoiding any discussion in public fora of the manipulation of the London Gold Fixing; (ii) maintaining the secrecy of the London Gold Fixing process; (iii) initiating sham gold trades they never intended to execute in order to influence artificially the price of gold; and (iv) refusing to comment on, or affirmatively denying allegations of, manipulation reported by the press.

142. Further, reasonable due diligence could not have uncovered Defendants conspiracy because: (i) Defendants' trade and trading strategies are not public information; and (ii) the bilateral, non-exchange traded nature of the trades at issue further obscures what Defendants were, and are, doing at any particular time.

143. As a result of Defendants' affirmative steps to conceal their improper conduct, as well as the self-concealing nature of the price-fixing conspiracy and the resulting lack of public information about material aspects of the conspiracy, collusion, and trading based on nonpublic information, the statute of limitations was tolled for Plaintiffs' claims.

### **CLASS ACTION ALLEGATIONS**

144. Plaintiffs bring this action on behalf of itself and as a class action under Rule 23(a), (b)(2), and (b)(3) of the Federal Rules of Civil Procedure, seeking equitable and injunctive relief on behalf of the following class (the "Class"):

All persons or entities who transacted in COMEX gold futures or options contracts at or around the time of the PM Fixing during the period of at least June 7, 2004 through the present (the "Class Period"), and were damaged thereby.

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

145. Plaintiffs believe that there are at least hundreds, if not thousands, of members of the Class as described above, the exact number and their identities being known by Defendants, making the Class so numerous and geographically dispersed that joinder of all members is impracticable.

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

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

147. Plaintiffs' claims are typical of the claims of the other Class Members. Plaintiffs and the Class Members sustained damages arising out of Defendants' common course of conduct

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

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

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

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

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

## **CAUSES OF ACTION**

### **CLAIM ONE**

#### **VIOLATION OF 7 U.S.C. §§ 1 *et seq.* MANIPULATION IN VIOLATION OF THE COMMODITY EXCHANGE ACT INCLUDING CFTC RULE 180.1(a)**

152. Plaintiffs incorporate by reference and realleges the preceding allegations as though fully set forth herein.

153. By their intentional misconduct, the Defendants each violated section 9(a)(2) of the Commodity Exchange Act, 7 U.S.C. § 13(a)(2), and caused prices of gold futures and options to be artificial during the Class Period.

154. Defendants' trading and other activities alleged herein constitute market power manipulation of the prices of gold futures and options in violation of sections 9(a) and 22(a) of the CEA, 7 U.S.C. §§ 13(a) and 25(a).

155. Further, in violation of CFTC Rule 180.1(a), Defendants also caused to be delivered for transmission false or misleading or inaccurate reports of the London Gold Fixing, *i.e.*, false reports concerning market information or conditions that affected or tended to affect the price of gold, a commodity in interstate commerce. Defendants did so either knowingly, intentionally or acting in reckless disregard of the fact that such reports were false misleading or inaccurate.

156. Defendants' foregoing extensive manipulation conduct deprived Plaintiffs and the Class of a lawfully operating market during the Class Period.

157. Plaintiffs and others who transacted in gold futures and options during the Class Period transacted at artificial and unlawful prices resulting from Defendants' manipulations in violation of the CEA, 7 U.S.C. § 1, *et seq.*, and as a direct result thereof were injured and suffered damages.

158. Plaintiffs and Class Members are each entitled to actual damages sustained in gold futures and options for the violations of the CEA alleged herein.

### **CLAIM TWO**

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

159. Plaintiffs incorporate by reference and realleges the preceding allegations as though fully set forth herein.

160. Each Defendants is liable under Section 2(a)(1)(B) of the CEA, 7 U.S.C. § 2(a)(1)(B), for the manipulative acts of their agents, representatives, and/or other persons acting for them in the scope of their employment.

161. Plaintiffs and Class Members are each entitled to actual damages sustained in gold derivatives for the violations of the CEA alleged herein.

### **CLAIM THREE**

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

162. Plaintiffs incorporate by reference and realleges the preceding allegations as though fully set forth herein.

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

164. Plaintiffs and Class Members are each entitled to actual damages sustained in

gold derivatives for the violations of the CEA alleged herein.

#### **CLAIM FOUR**

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

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

166. Defendants and their unnamed coconspirators entered into and engaged in a combination and conspiracy that was an unreasonable and unlawful restraint of trade in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, *et seq.*

167. During the Class Period, Defendants entered into a series of agreements to reduce competition amongst themselves by fixing and/or manipulating the gold benchmark rate and, as a result, the price of gold and gold futures, including COMEX futures.

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

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

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

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

#### **CLAIM FIVE**

#### **UNJUST ENRICHMENT**

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

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

174. Plaintiffs and Class Members seek restoration of the monies of which they were unfairly and improperly deprived, as described herein.

#### **PRAYER FOR RELIEF**

Plaintiffs demands relief as follows:

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

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

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

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

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

damages;

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

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

**DEMAND FOR JURY TRIAL**

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

**BERGER & MONTAGUE, P.C.**

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steigolson@quinnemanuel.com

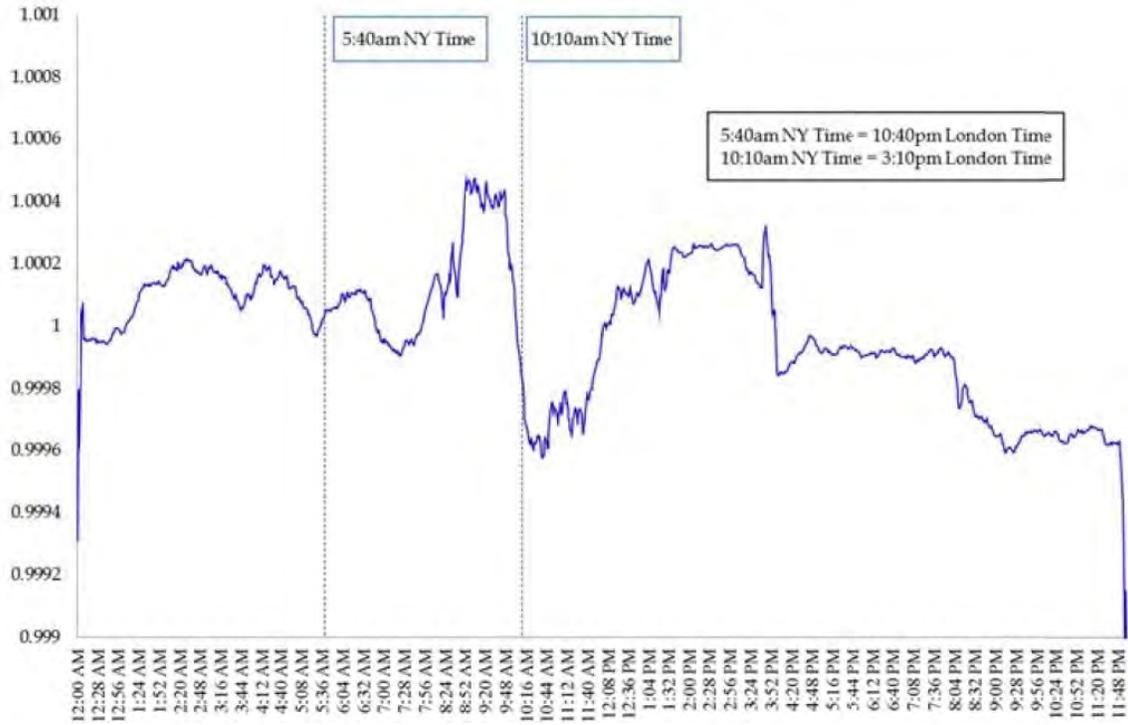
Dale H. Oliver (*pro hac vice* application forthcoming)  
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Telephone: (213) 443-3000  
Fax: (213) 443-3100  
daleoliver@quinnemanuel.com

***Counsel for Plaintiffs and the Proposed Class***

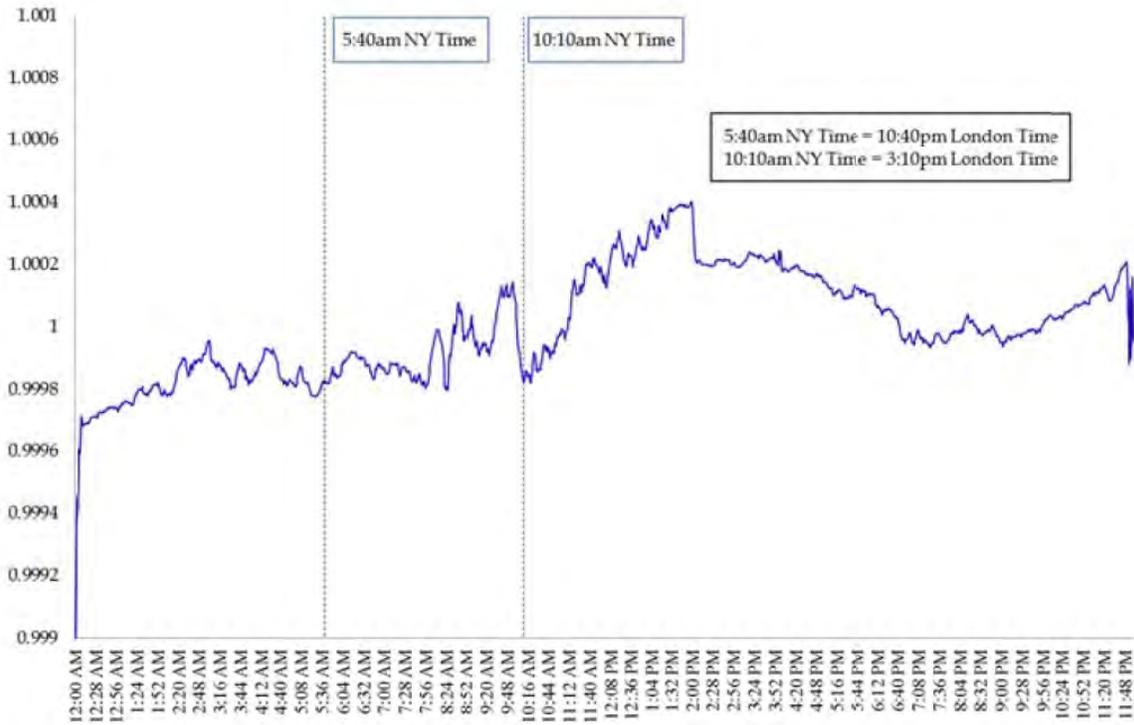
DATED: New York, New York  
March 28, 2014

# APPENDIX A

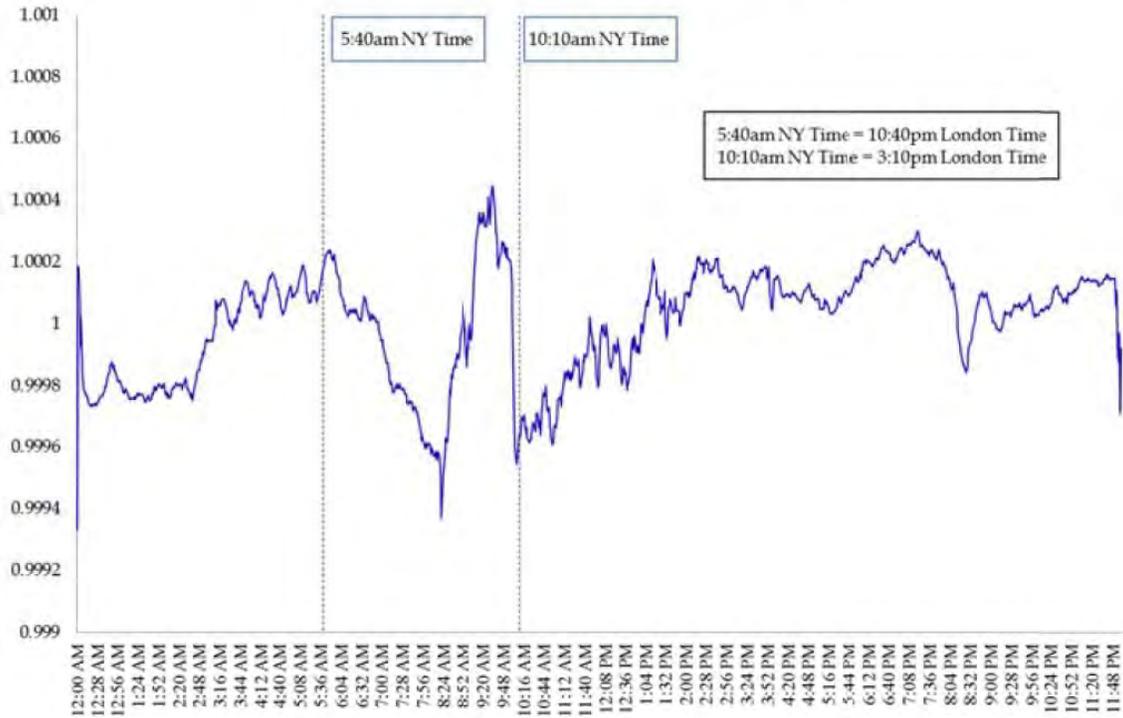
## Normalized Intraday Gold Prices Average for 2004



## Normalized Intraday Gold Prices Average for 2005



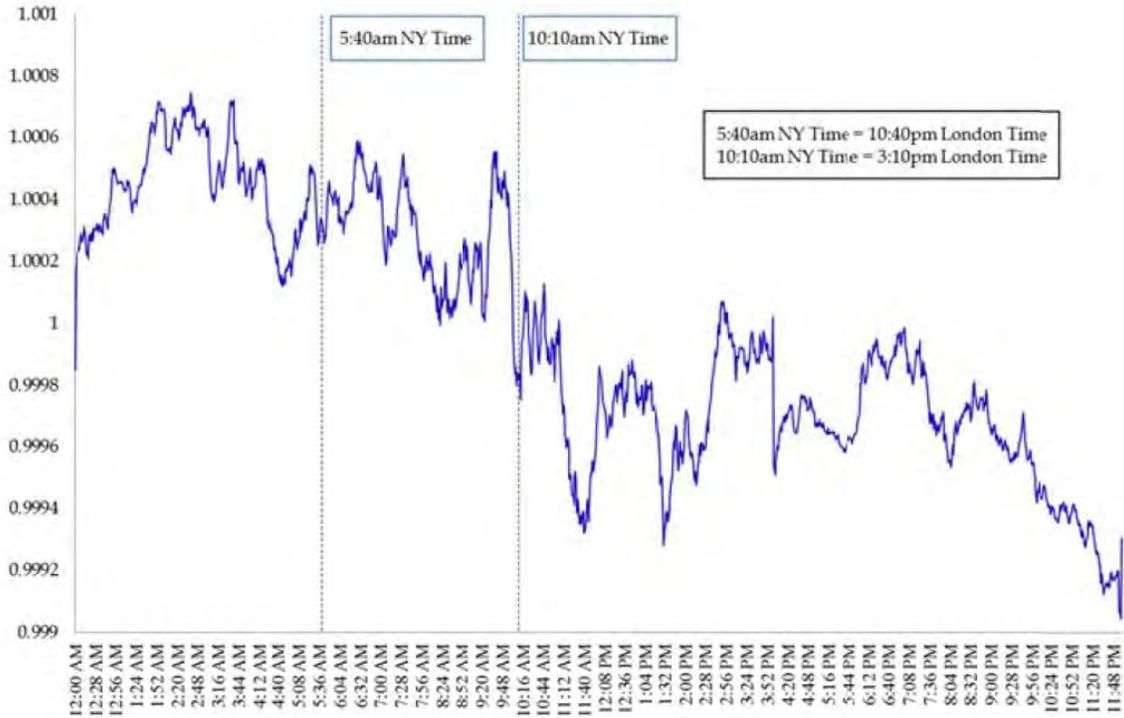
**Normalized Intraday Gold Prices Average for 2006**



**Normalized Intraday Gold Prices Average for 2007**



**Normalized Intraday Gold Prices Average for 2008**



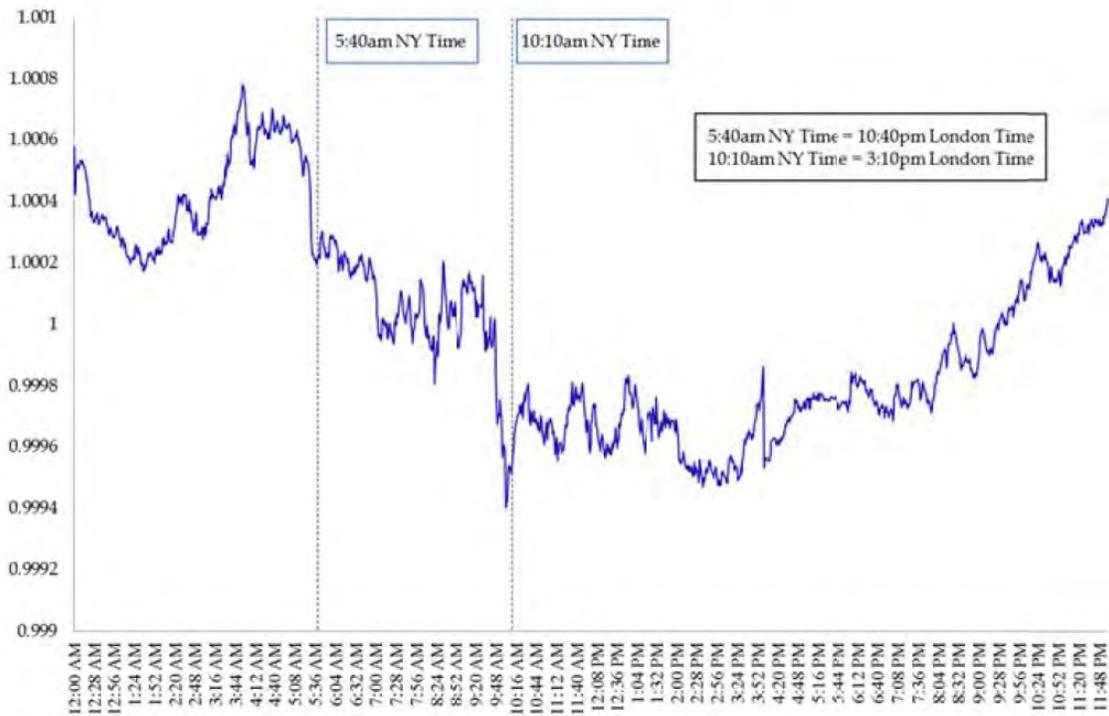
**Normalized Intraday Gold Prices Average for 2009**



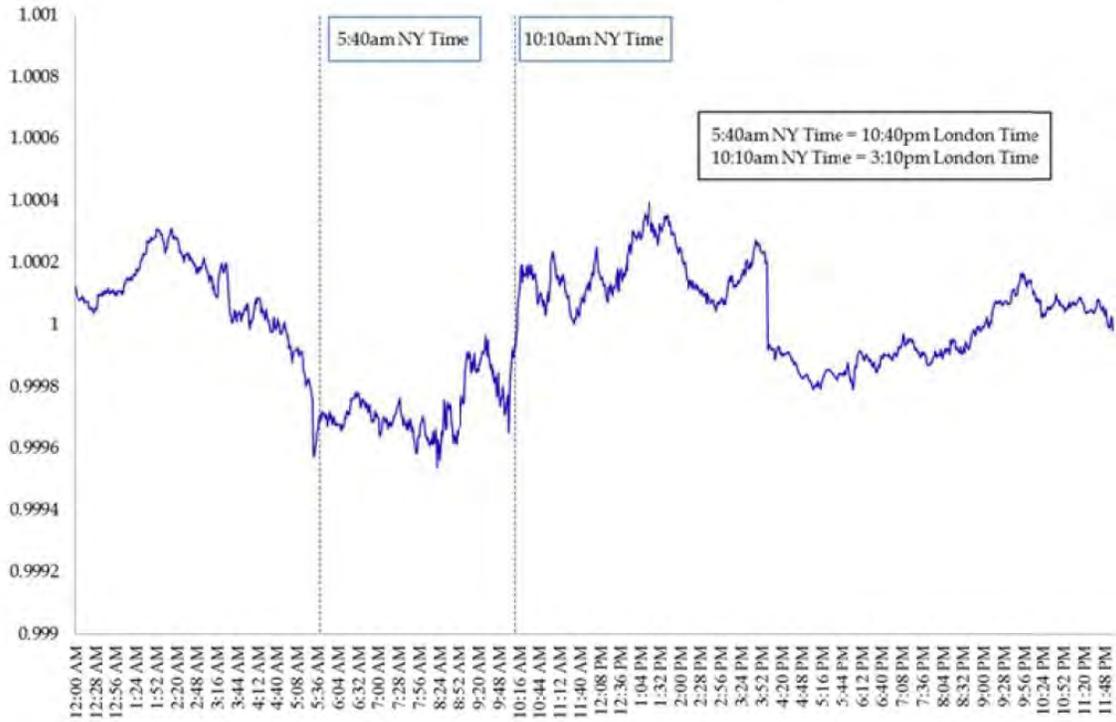
**Normalized Intraday Gold Prices Average for 2010**



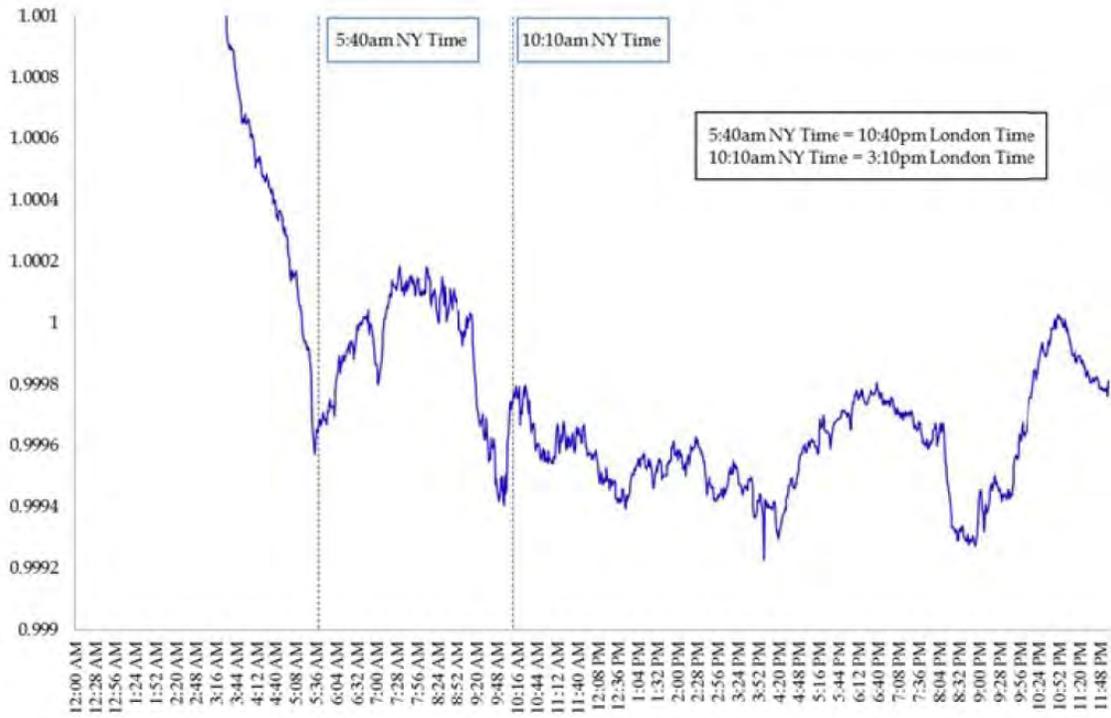
**Normalized Intraday Gold Prices Average for 2011**



**Normalized Intraday Gold Prices Average for 2012**



**Normalized Intraday Gold Prices Average for 2013**



## APPENDIX B

April 2, 2009

### Gold Futures Price and Gold Spot Price

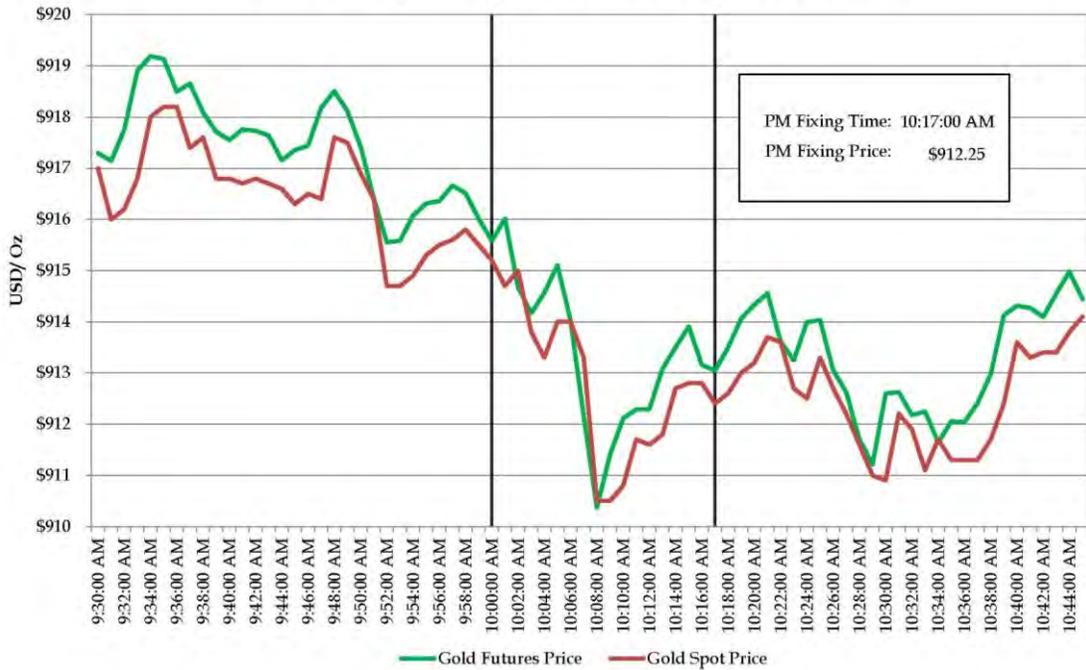
(Vertical bars represent the start and end of the London PM fixing call)



May 7, 2009

### Gold Futures Price and Gold Spot Price

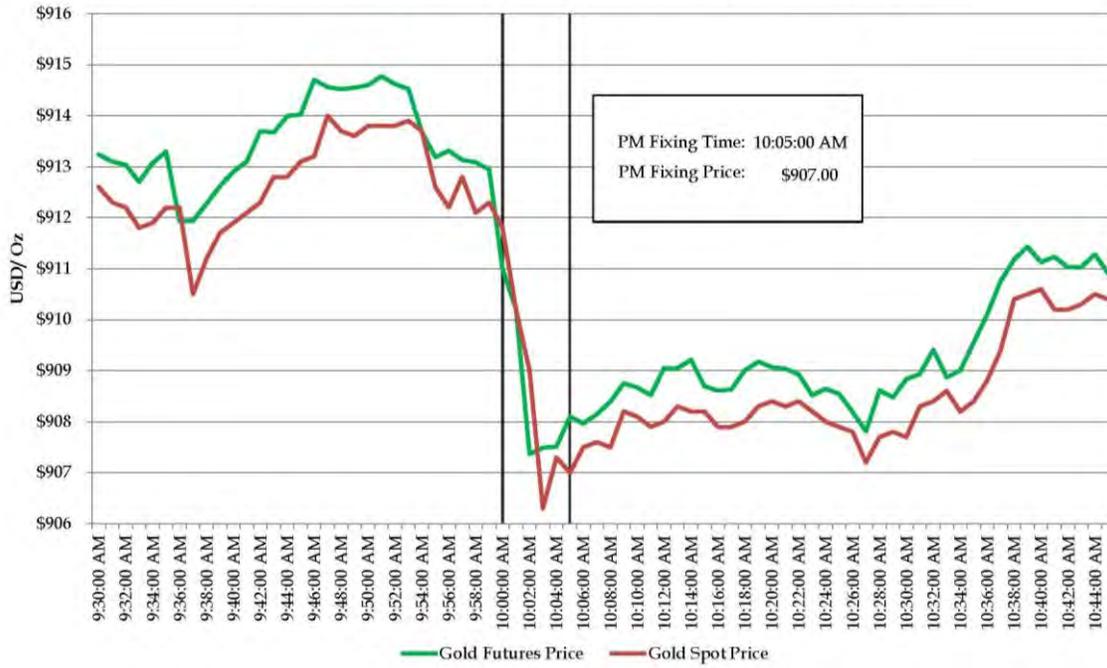
(Vertical bars represent the start and end of the London PM fixing call)



May 8, 2009

### Gold Futures Price and Gold Spot Price

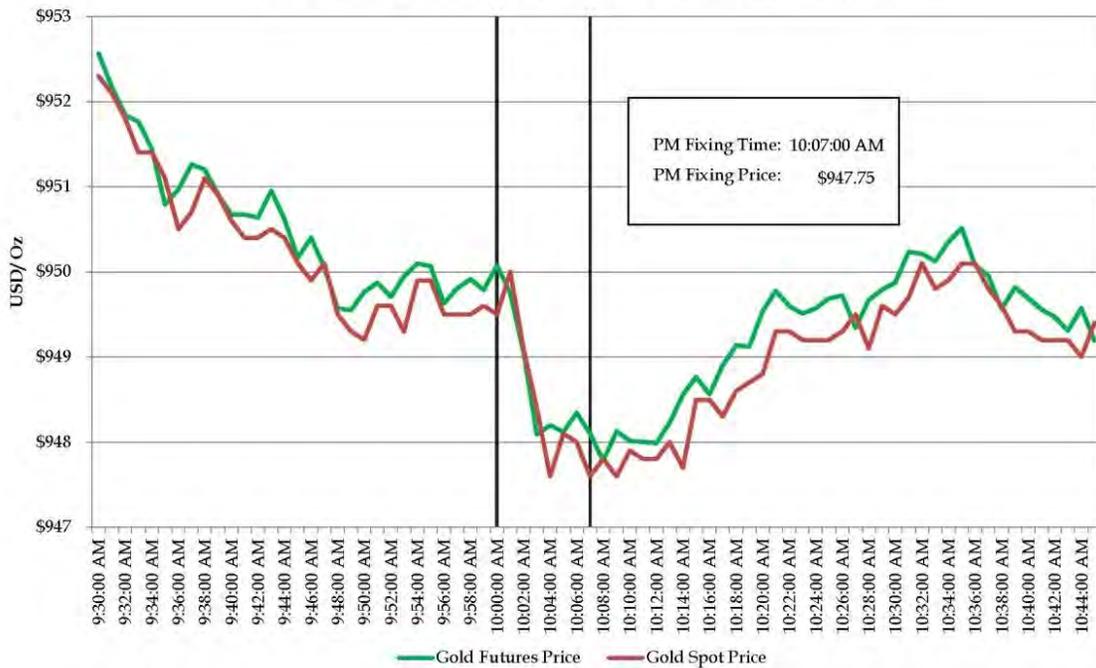
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July 21, 2009

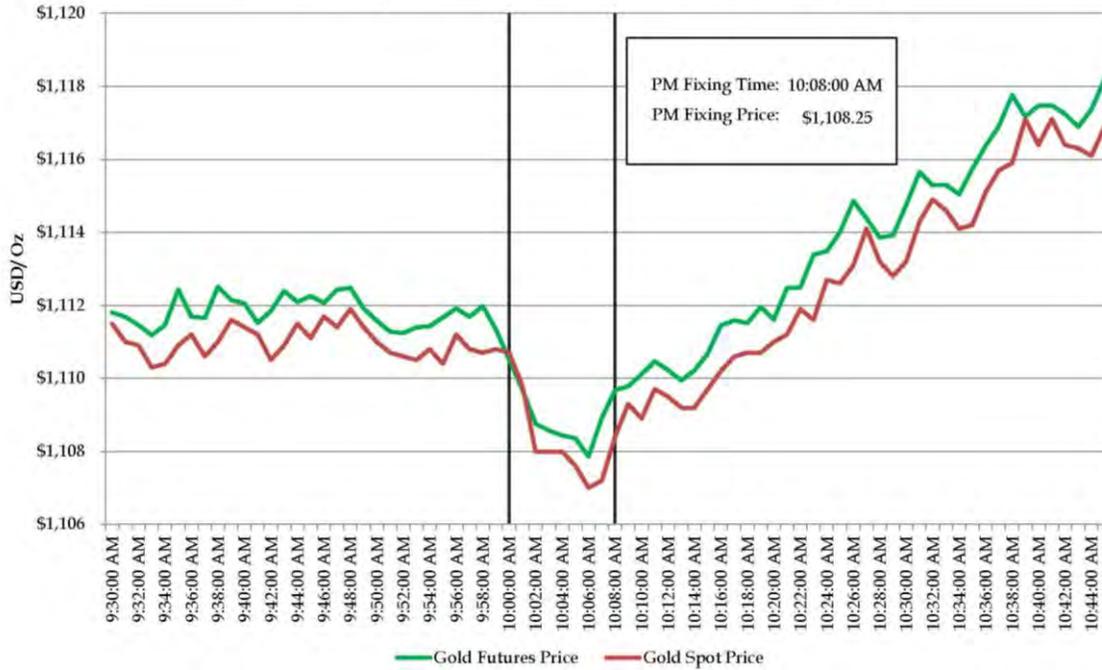
### Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



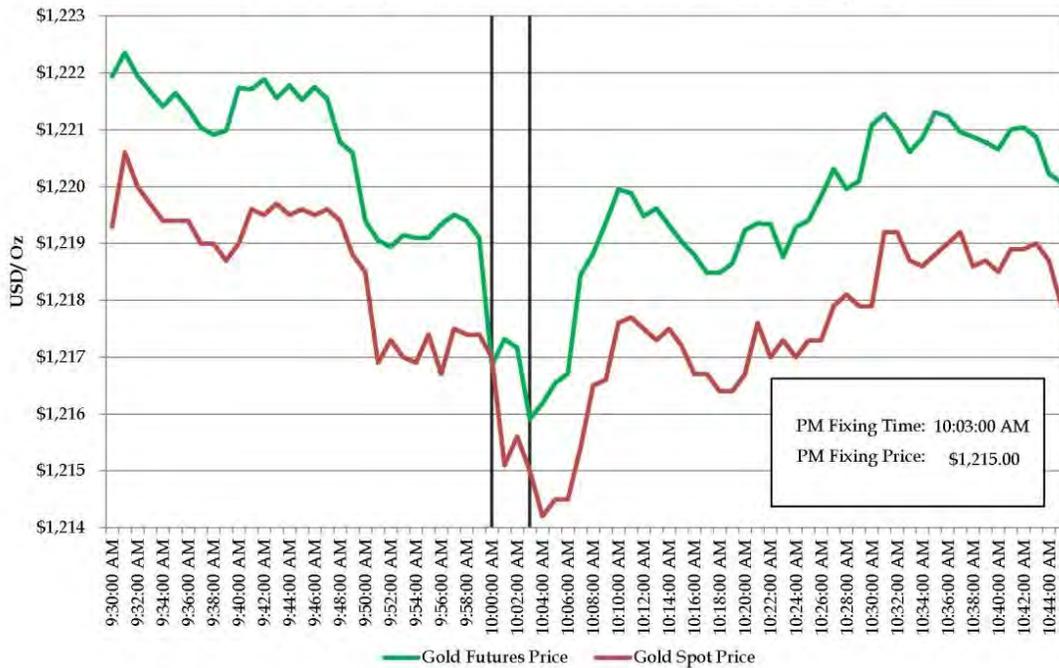
## February 26, 2010 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



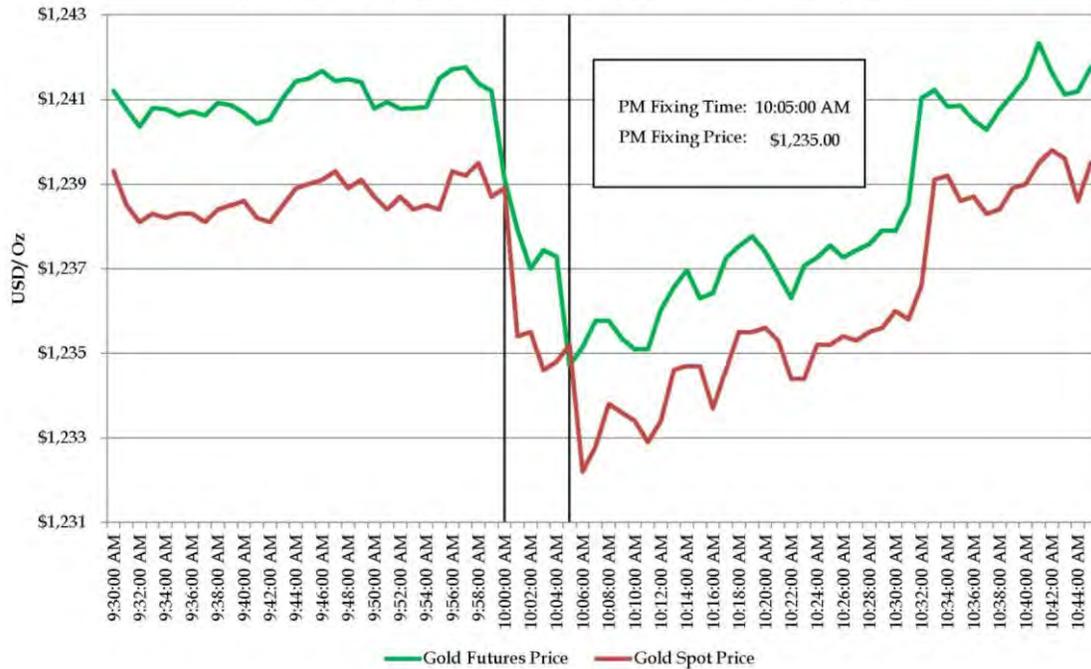
## June 2, 2010 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## August 27, 2010 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## September 23, 2010 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## February 17, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



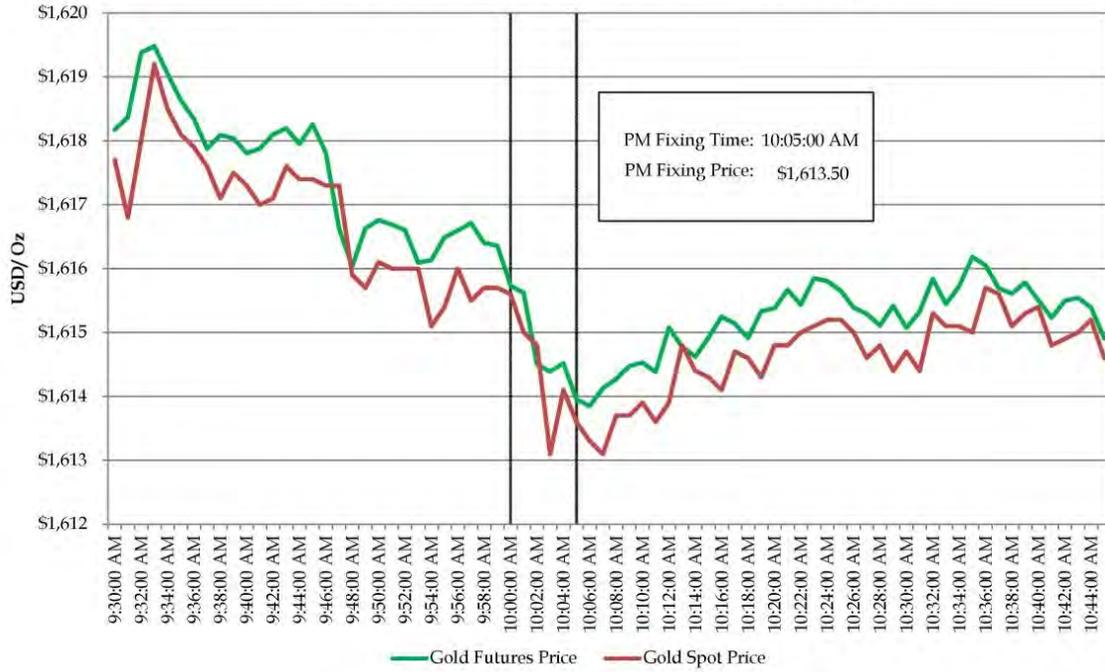
## April 7, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## July 25, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## October 4, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



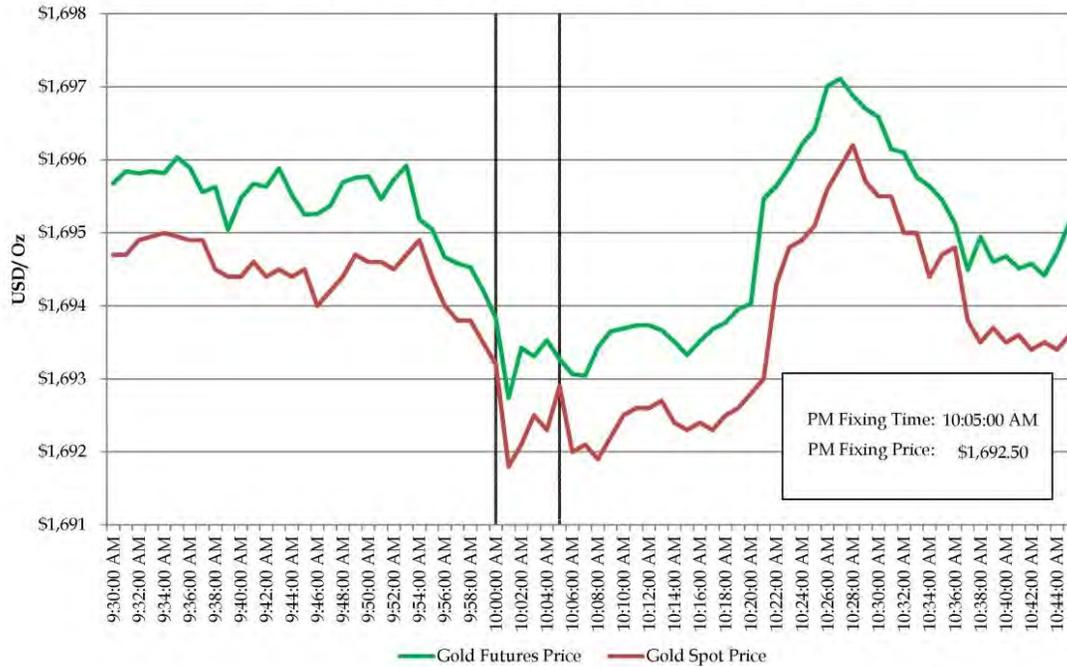
## November 1, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## November 24, 2011 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



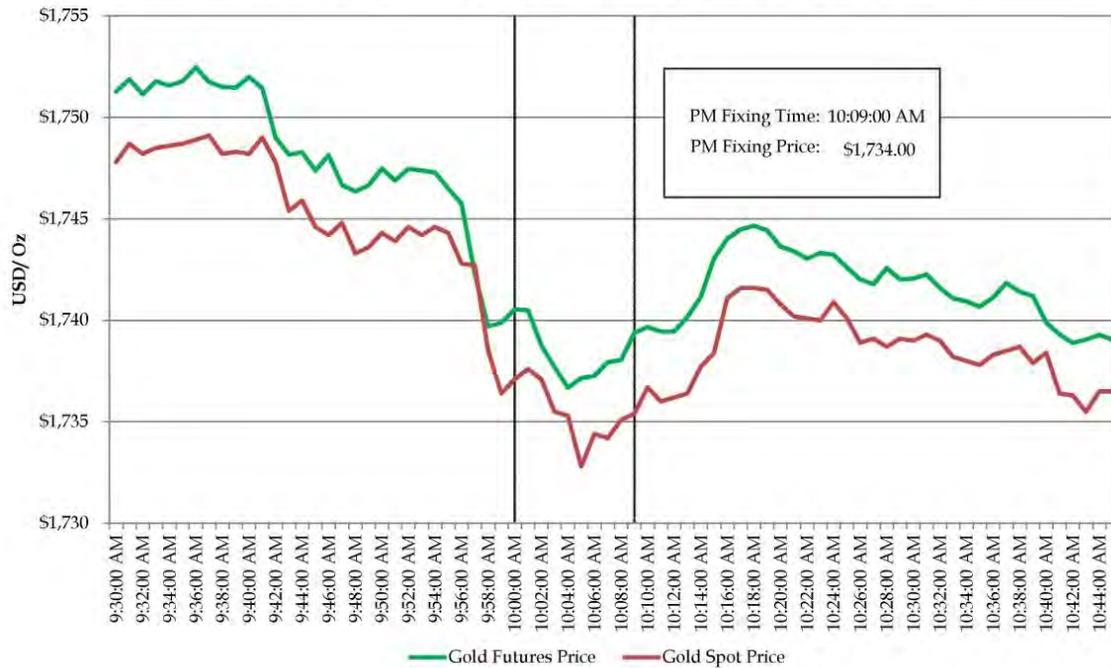
## January 19, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



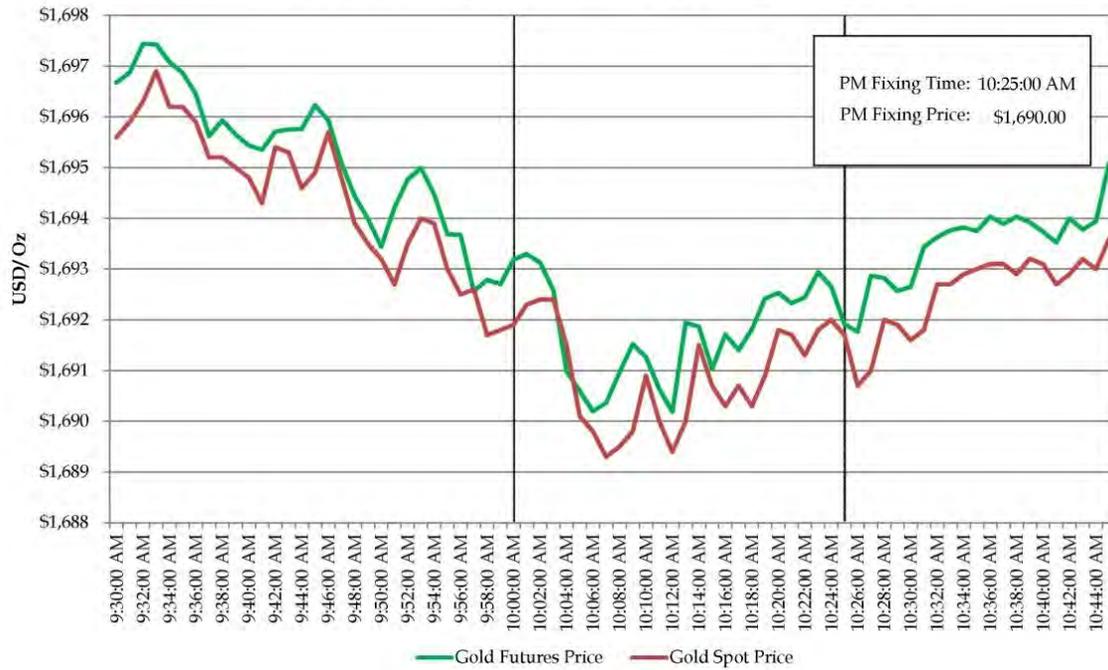
## February 3, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## March 8, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



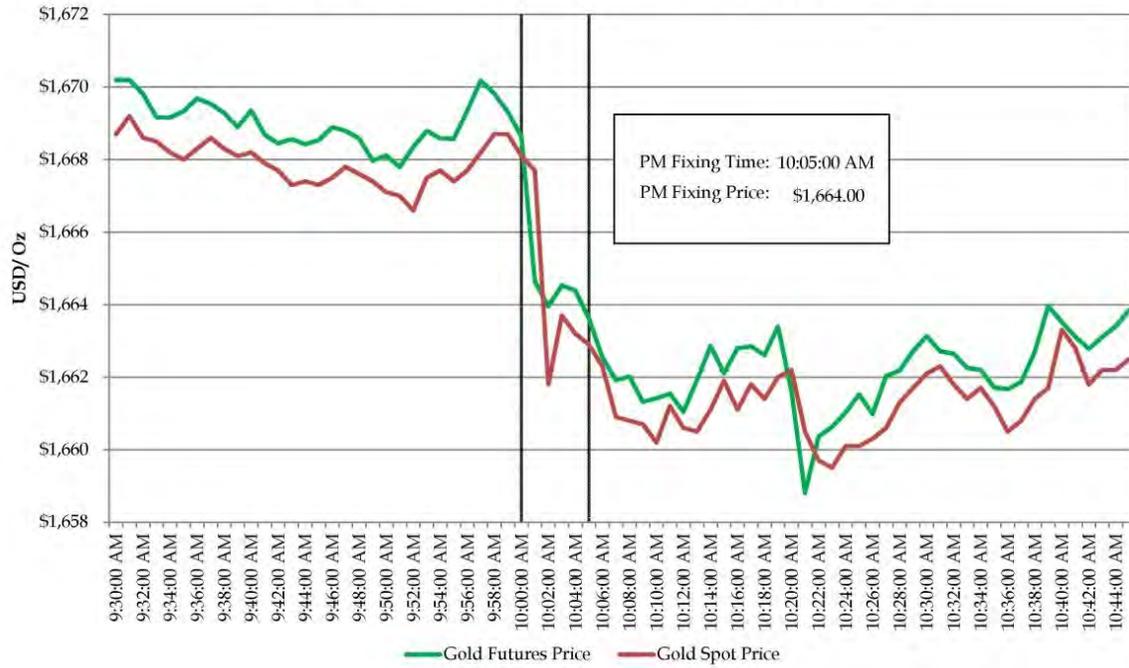
## April 30, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



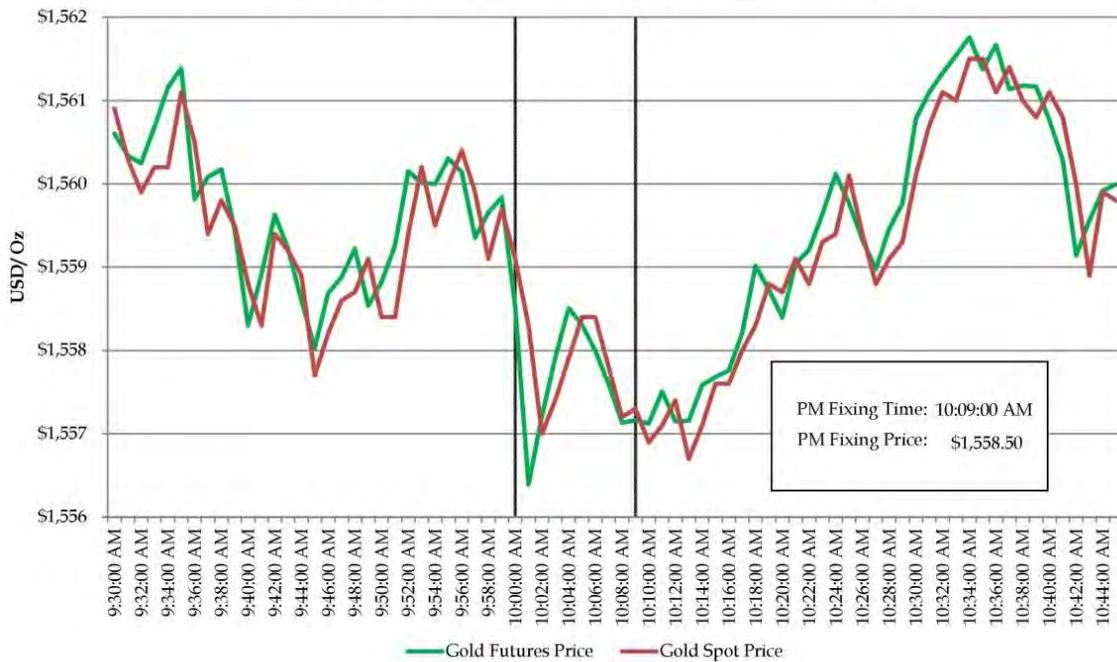
## May 1, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## May 14, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## June 18, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



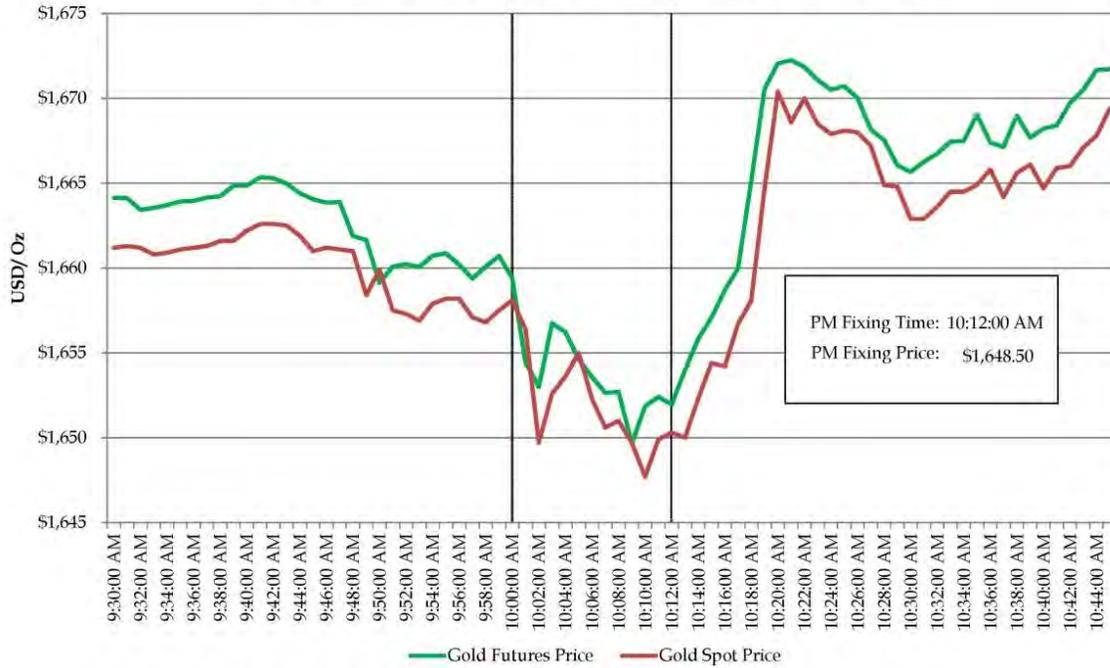
## June 20, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## August 31, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



## September 20, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



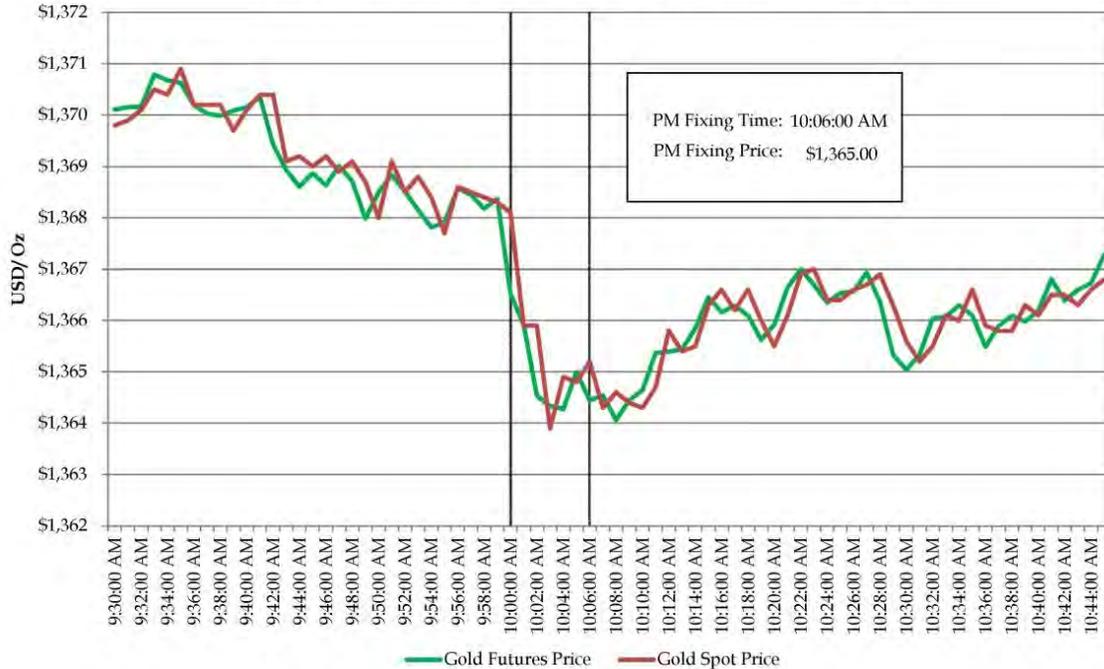
## October 3, 2012 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



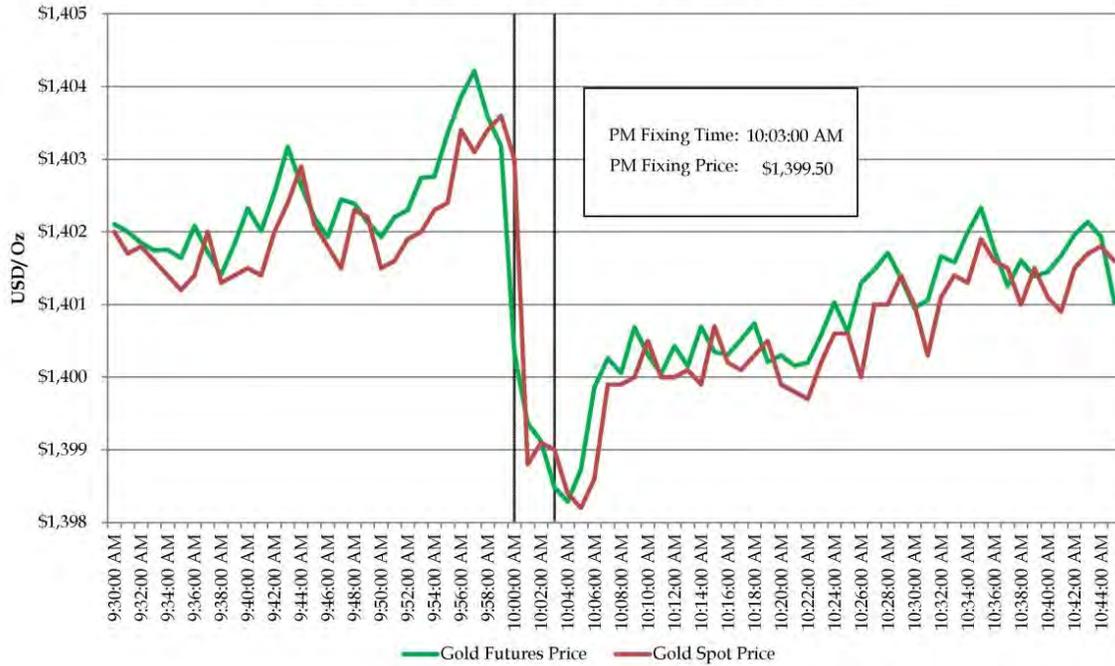
## August 19, 2013 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



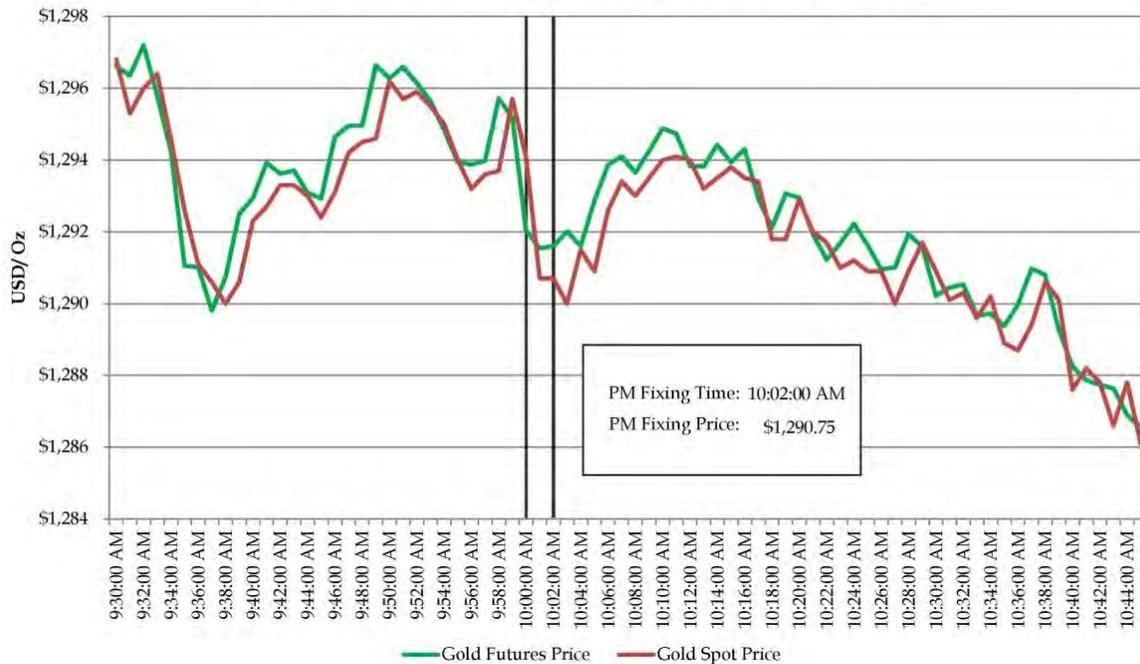
## September 3, 2013 Gold Futures Price and Gold Spot Price

(Vertical bars represent the start and end of the London PM fixing call)



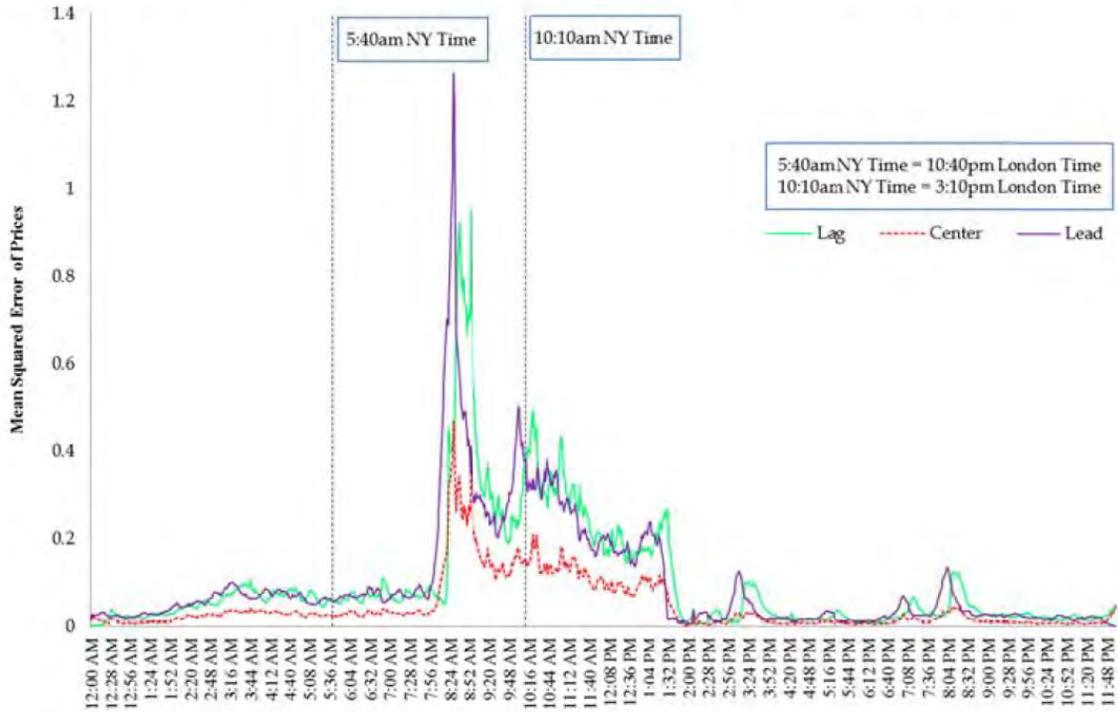
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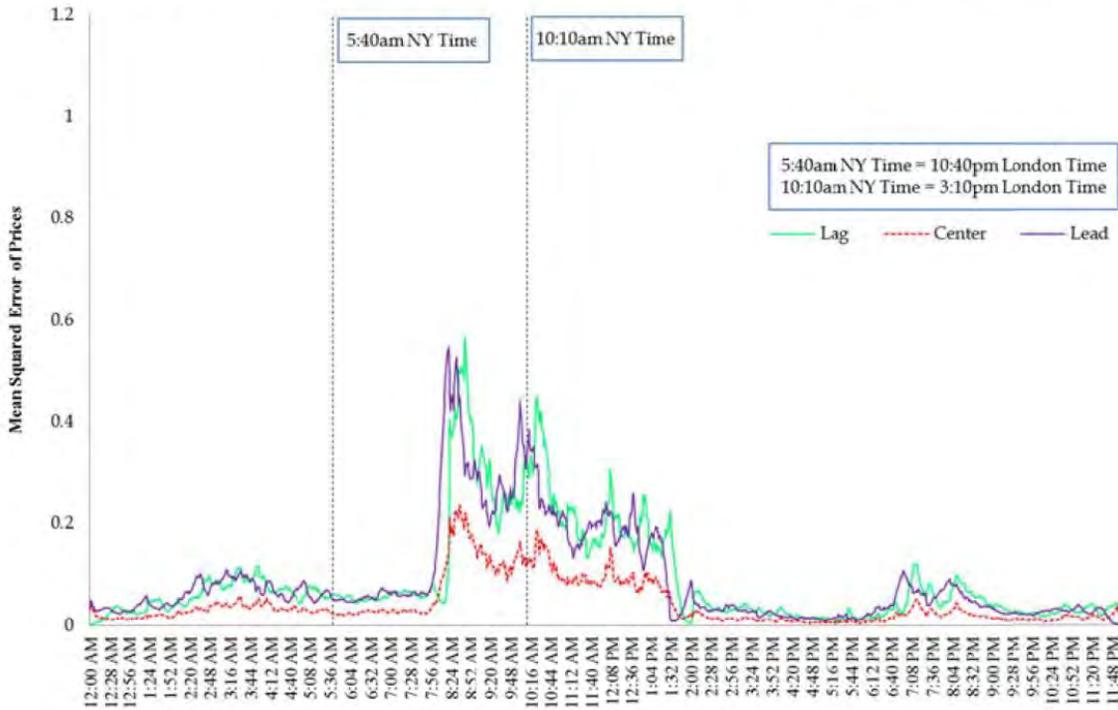


## APPENDIX C

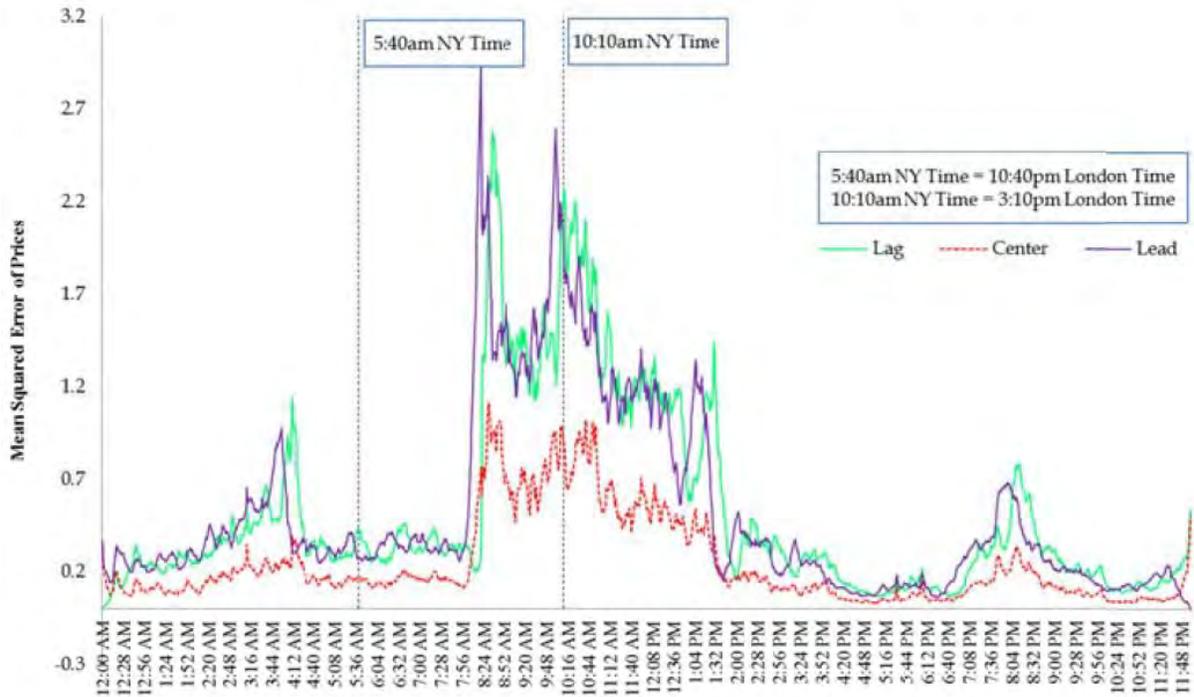
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2004**



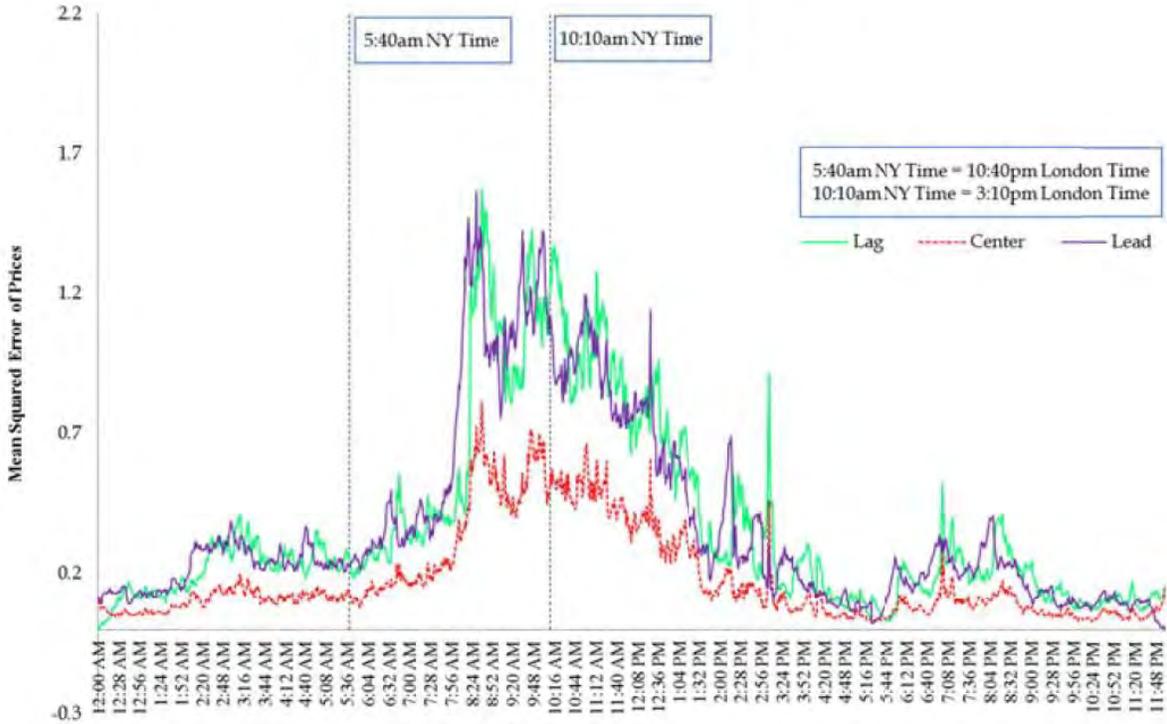
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2005**



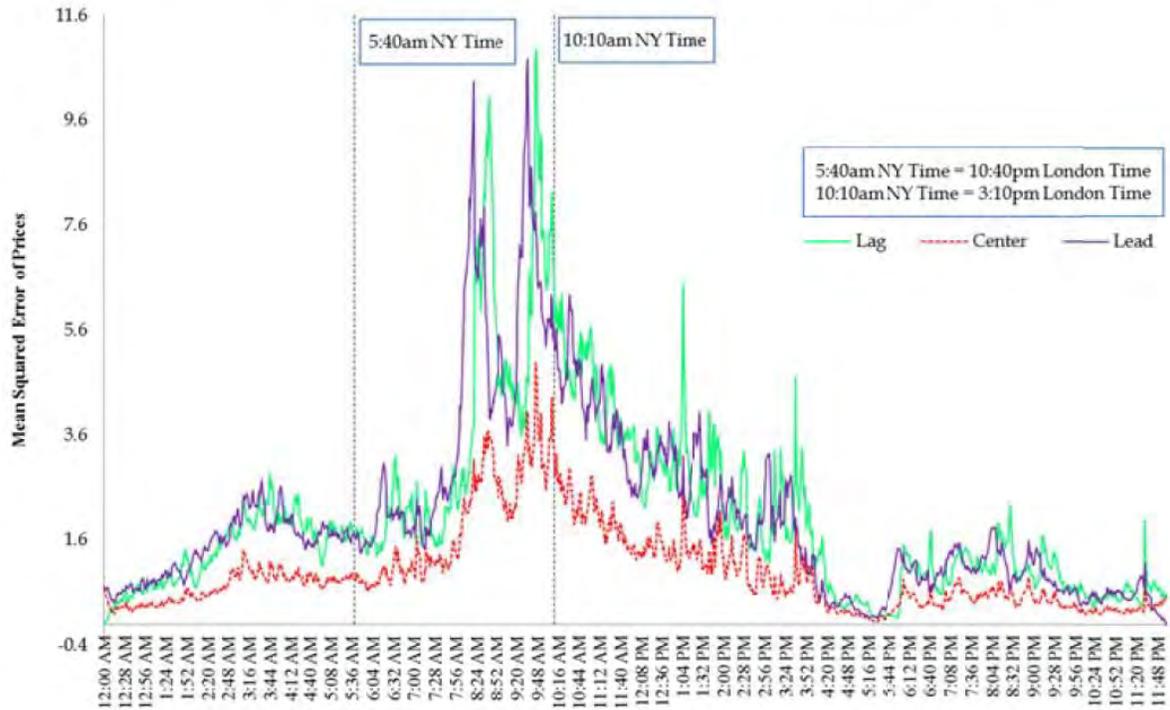
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2006**



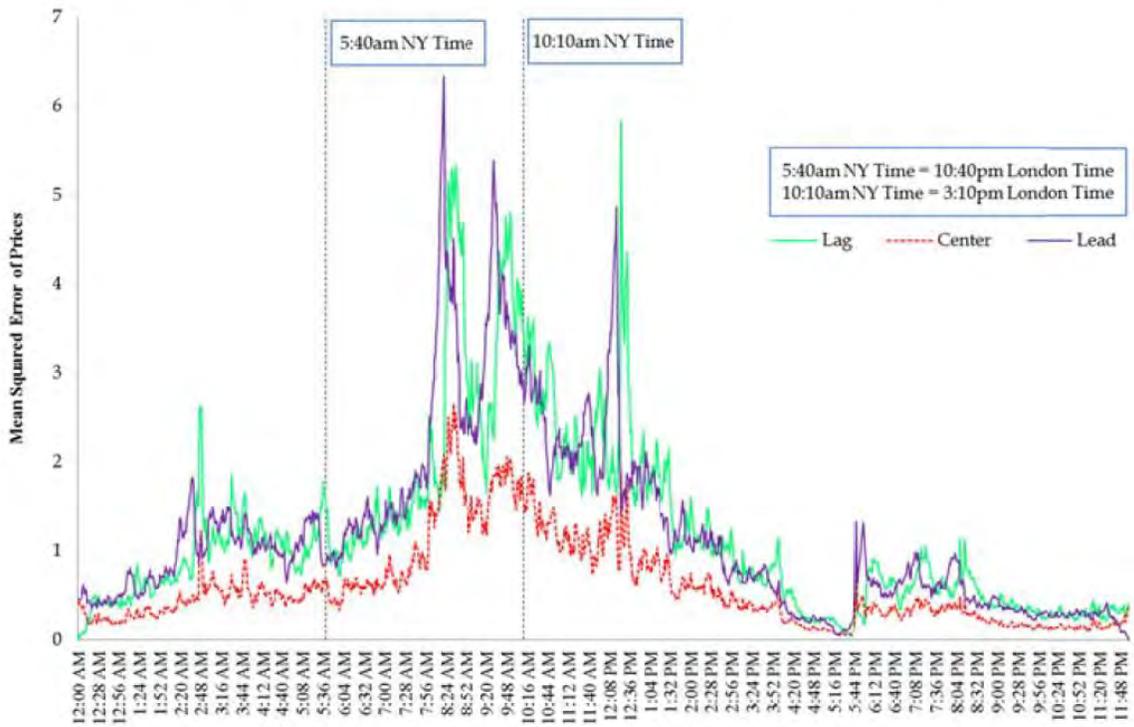
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2007**



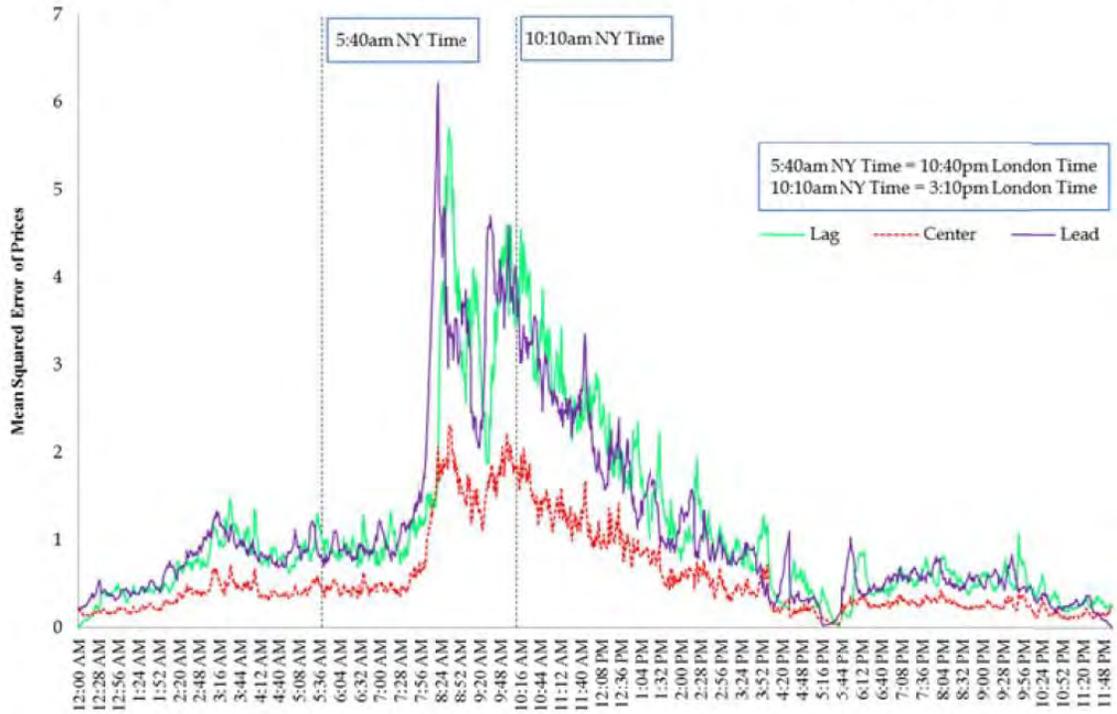
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2008**



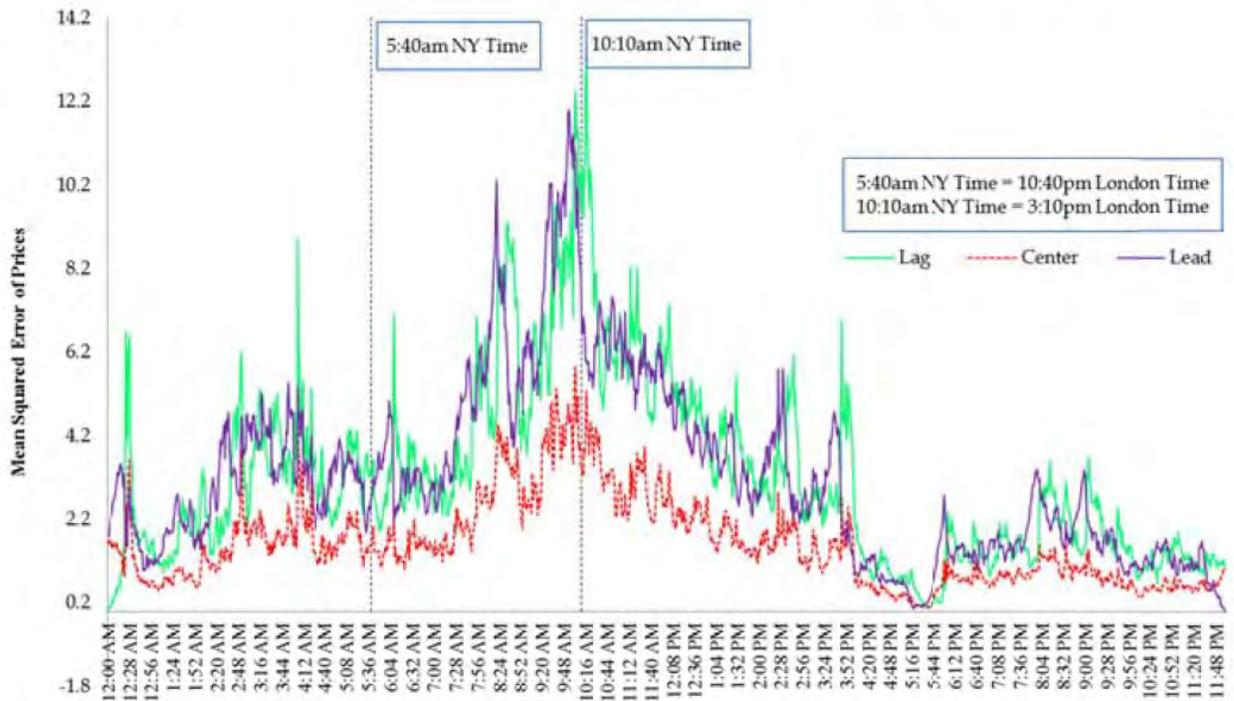
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2009**



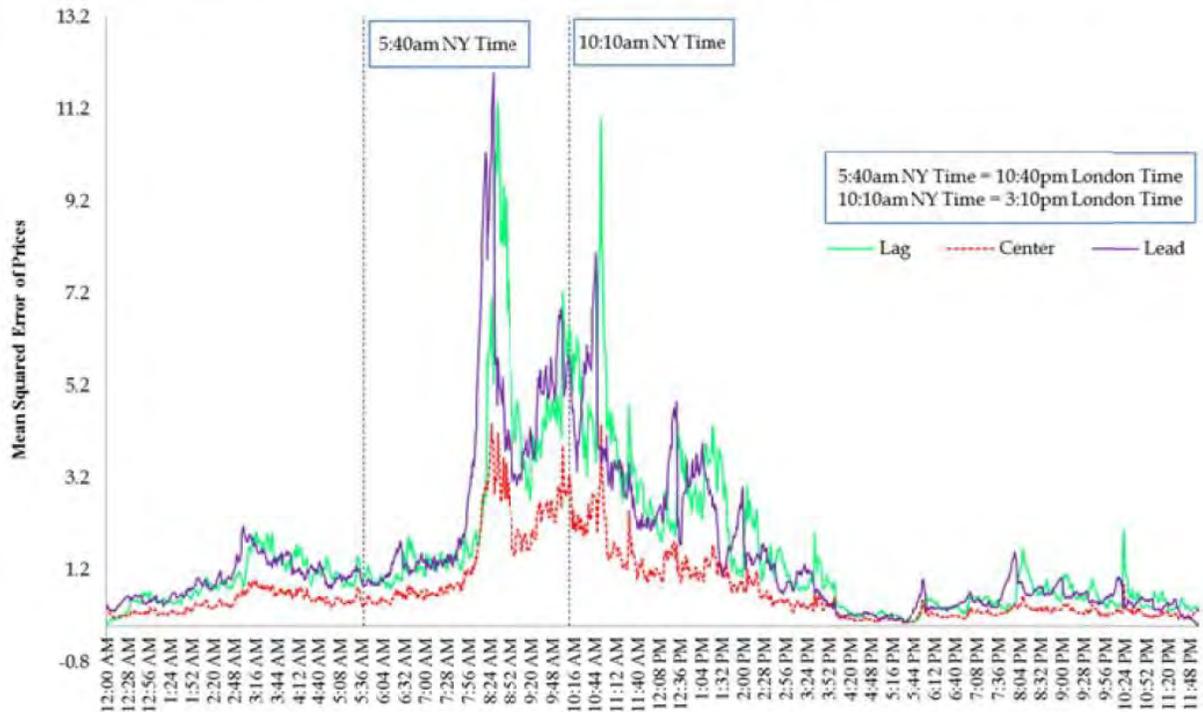
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2010**



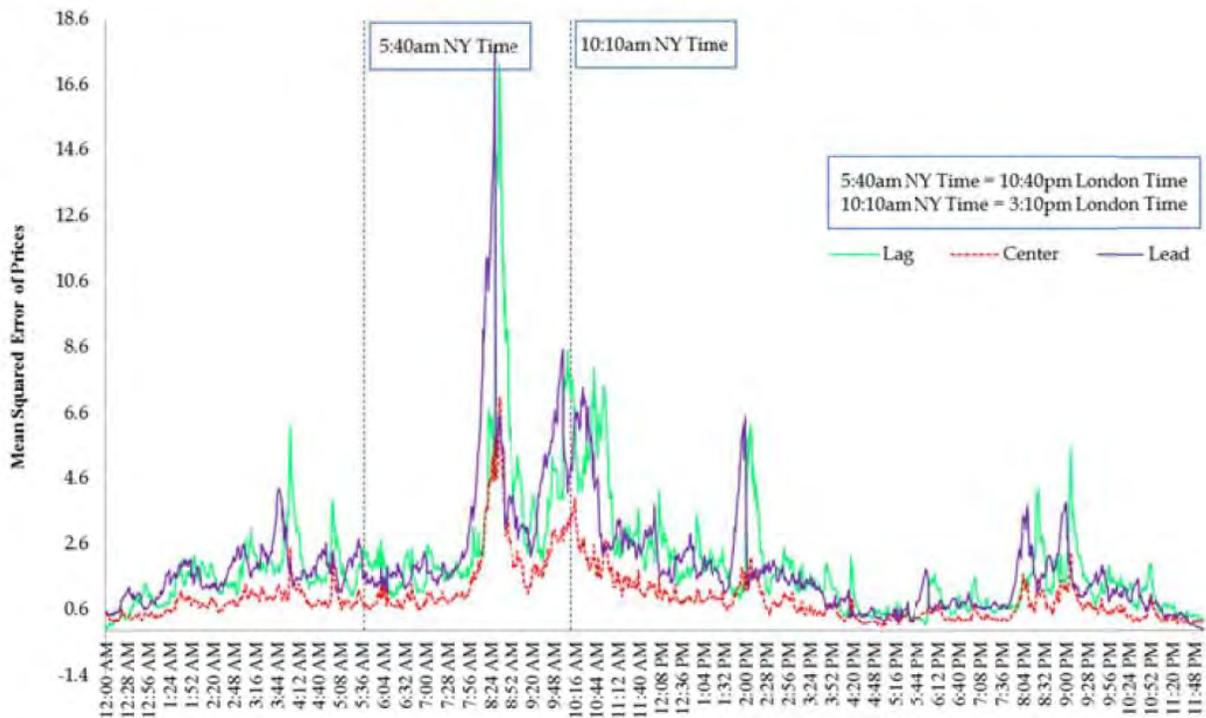
**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2011**



**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2012**



**Timing & Intensity of Outlier Prices Compared to Previous and Following Prices in 2013**



**APPENDIX D**

**CFTC Aggregate Large Trader Positions of Banks for CMX Gold  
2012–Present**

<b><u>Date</u></b>	<b><u>Long Futures</u></b>	<b><u>Short Futures</u></b>
01.03.2012	7,710	38,812
02.07.2012	9,161	44,908
03.06.2012	11,152	47,409
04.03.2012	13,044	50,846
05.01.2012	10,372	51,891
06.05.2012	9,572	54,413
07.03.2012	8,530	58,479
08.07.2012	9,199	49,772
09.04.2012	10,710	64,144
10.02.2012	34,881	113,445
11.06.2012	37,503	96,939
12.04.2012	35,326	80,033
01.08.2013	32,191	78,038
02.05.2013	30,272	79,066
03.05.2013	29,219	72,545
04.02.2013	29,216	73,669
05.07.2013	59,829	76,610
05.07.2013	32,483	54,957
06.04.2013	56,751	27,129
06.04.2013	24,035	49,075
07.02.2013	34,904	58,656
08.06.2013	25,957	47,996
09.03.2013	23,626	60,350
10.01.2013	24,296	57,665
11.05.2013	19,006	58,486
12.03.2013	25,508	39,547
01.07.2014	26,128	32,492
02.04.2014	18,752	48,860
03.04.2014	17,526	54,385