UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE LIBOR-BASED FINANCIAL INSTRUMENTS ANTITRUST LITIGATION	MDL No. 2262, 11 Civ. 2613
THIS DOCUMENT RELATES TO: EXCHANGE-BASED PLAINTIFF ACTION	
METZLER INVESTMENT GmbH, FTC FUTURES FUND SICAV, FTC FUTURES FUND PCC LTD., ATLANTIC TRADING USA, LLC, 303030 TRADING LLC, GARY FRANCIS AND NATHANIAL HAYNES, on behalf of themselves and all others similarly situated, Plaintiffs, - against - BANK OF AMERICA CORPORATION, BANK OF AMERICA, N.A., J.P. MORGAN CHASE BANK, N.A., BARCLAYS BANK PLC, UBS GROUP AG, UBS AG, DEUTSCHE BANK AG, DB GROUP SERVICES (UK) LIMITED, COOPERATIVE RABOBANK U.A., CITIBANK N.A., and CITIGROUP GLOBAL MARKETS, INC., Defendants.	**FOURTH AMENDED CONSOLIDATED CLASS ACTION COMPLAINT** **JURY TRIAL DEMANDED**

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1. Plaintiffs Metzler Investment GmbH, FTC Futures Fund SICAV, FTC Futures Fund PCC Ltd., Atlantic Trading USA, LLC, 303030 Trading LLC, Gary Francis, and Nathanial Haynes ("Plaintiffs"), by their undersigned attorneys, bring this action against defendants identified below (collectively, "Defendants") pursuant to the Commodity Exchange Act, as amended, 7 U.S.C. §§ 1, *et seq.* (the "CEA"), and the Sherman Act, 15 U.S.C. § 1, on behalf of themselves and all others who transacted in Eurodollar futures contracts and options on futures contracts on the Chicago Mercantile Exchange ("CME") between January 1, 2005 and May 31, 2010 (the "Class Period").

I. SUMMARY OF ALLEGATIONS

2. The London Interbank Offered Rate ("LIBOR") is a reference interest rate used as the basis for the pricing of fixed income futures, options, swaps and other derivative products traded on the CME and the Chicago Board of Trade ("CBOT"). This action arises from Defendant banks' unlawful and intentional misreporting and manipulation of LIBOR rates, as well as their combination, agreement and conspiracy to fix LIBOR rates and to restrain trade in the market for Eurodollar futures and other LIBOR-based derivatives during the respective Class Period in violation of Sections 2(a)(1)(B), 4s(h), 9(a)(2) and 22(a) of the CEA, and the Sherman Act, 15 U.S.C. § 1.[1]

3. Plaintiffs' claims are made on information and belief (except as to allegations pertaining to Plaintiffs and their counsel, which are made on personal knowledge) based on the investigation conducted by and under the supervision of Plaintiffs' counsel. That investigation

[1] To the extent that Plaintiffs' claims against Former Defendants (now "Former Defendants /Co-Conspirators) were dismissed for lack of personal jurisdiction, Plaintiffs reserve their rights to appeal from such dismissal and include references to those Former Defendants in this Complaint in further support of their claims against Defendants. Plaintiffs also reserve their rights to appeal from the Court's dismissal in whole or in part of any of Plaintiffs' claims previously dismissed on other grounds, including claims arising under the CEA and Sherman Act Section 1 and common law.

included reviewing and analyzing information concerning Defendants and LIBOR, which Plaintiffs (through their counsel) obtained from, among other sources: (i) analyses by consulting experts engaged by Plaintiffs and other plaintiffs in these coordinated proceedings; (ii) publicly available press releases, news articles, and other media reports (whether disseminated in print or by electronic media); (iii) filings Defendants made to the United States Securities and Exchange Commission ("SEC"); (iv) settlement documents between governmental authorities on the one hand and certain Defendant banks on the other; (v) documents and information concerning the alleged manipulation of U.S. Dollar LIBOR produced to Plaintiffs by Barclays [defined herein] pursuant to their private settlement agreement (the "Barclays Cooperation Materials");[2] and (vi) scholarly literature concerning LIBOR during the Class Period. These sources collectively support Plaintiffs' allegations that Defendants collusively and systematically manipulated LIBOR and restrained trade in the exchange-based market for LIBOR-based derivatives during the Class Period.

4. Except as alleged in this Complaint, neither Plaintiffs nor other members of the public have access to the underlying facts relating to Defendants' improper activities. Rather, that information lies exclusively within the possession and control of Defendants and other insiders, which prevents Plaintiffs from further detailing Defendants' misconduct. Moreover, numerous pending government investigations – both domestically and abroad, including by the United States Department of Justice ("DOJ"), the Commodity Futures Trading Commission ("CFTC"), the SEC, and state governments – concerning potential LIBOR manipulation could yield additional information from Defendants' internal records or personnel that bears significantly on Plaintiffs'

[2] On December 2, 2014, this Court granted the Barclays Settlement Preliminary Approval. *See In re LIBOR-Based Fin. Instruments Antitrust Litig.*, No. 11 MDL 2262 (NRB), 2014 WL 2815645 (S.D.N.Y. Dec. 2, 2014). Assuming the settlement is finally approved, Barclays will be dismissed from the Complaint.

claims. Indeed, as one news report observed in detailing U.S. regulators' ongoing investigation, "[i]nternal bank emails may prove to be key evidence. . . because of the difficulty in proving that banks reported borrowing costs for LIBOR at one rate and obtained funding at another."[3] Plaintiffs thus believe further evidentiary support for their allegations will come to light after a reasonable opportunity for discovery.

II. NATURE OF THE ACTION

5. This case arises from the manipulation of LIBOR for the U.S. dollar ("USD-LIBOR" or simply "LIBOR")[4] - the reference point for determining interest rates for trillions of dollars in financial instruments - by a cadre of prominent financial institutions. Defendants perpetrated a scheme to manipulate LIBOR for two primary reasons. First, well aware that the interest rate a bank pays (or expects to pay) on its debt is widely, if not universally, viewed as embodying the market's assessment of the risk associated with the bank, Defendants understated their borrowing costs to the British Bankers' Association ("BBA") (thereby suppressing LIBOR) to portray themselves as economically healthier than they actually were – which was of particular importance given investors' trepidation in light of the widespread market turmoil during the financial crisis. Second, throughout the Class Period, and sometimes as often as on a daily basis, Defendants artificially suppressed or inflated LIBOR to profit (or avoid losses) from their trading positions in LIBOR-based interest rate derivatives like Eurodollar futures.

6. Each business day, Thomson Reuters calculates LIBOR – a set of reference or benchmark interest rates priced to different ranges of maturity, from overnight to one year – on

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[3] David Enrich, Carrick Mollenkamp & Jean Eaglesham, "U.S. Libor Probe Includes BofA, Citi, UBS," *MarketWatch*, March 17, 2011.

[4] While the term "LIBOR" generally encompasses rates with respect to numerous currencies (which are separately referred to as, for example, USD-LIBOR or Yen-LIBOR), for convenience Plaintiffs use the term "LIBOR" to reference USD-LIBOR in most contexts.

behalf of the BBA, which first began setting LIBOR on January 1, 1986. During most of the Class Period, the BBA established LIBOR based on the rates that 16 major banks, including Defendants, would have to pay for an unsecured loan for each designated maturity period. Every day, the banks responded to the BBA's question: "At what rate could you borrow funds, were you to do so by asking for and then *accepting* inter-bank offers in a reasonable market size just prior to 11 am?" (emphasis added). On its website, the BBA explains "a bank will know what its credit and liquidity risk profile is from rates at which it has dealt and can construct a curve to predict accurately the correct rate for currencies or maturities in which it has not been active." The banks informed the BBA of their costs of borrowing funds at different maturity dates (*e.g.*, one month, three months, six months). The BBA discarded the upper four and lower four quotes and set LIBOR by calculating the mean value of the remaining middle eight quotes, known as an "inter-quartile" methodology. Thomson Reuters then published LIBOR, also reporting the quotes on which the BBA based its LIBOR calculation.

7. The composition of the LIBOR panel is intended to reflect the constituency of the London interbank money market for U.S. Dollars.

8. The BBA describes itself on its website as "the leading trade association for the UK banking sector", claiming that it "is the voice of UK banking" and represents over 200 member banks from 50 countries on the full range of UK and international banking issues."[5] At all relevant times, certain Defendants were among the member banks of the BBA. As the BBA itself concedes, it is not a regulatory body and has no regulatory function.[6] Its activities are not overseen by any U.K. or foreign regulatory agency. It is governed by a board of member banks that meets four

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[5] http://www.bba.org.uk/about-us, last accessed on June 2, 2015.

[6] https://www.bba.org.uk/contact-us/, last accessed on June 2, 2015.

times each year. The board is composed of senior executives from twelve banks, including Barclays Bank plc, Citibank NA, Credit Suisse, Deutsche Bank, HSBC Bank, J.P. Morgan, and the Royal Bank of Scotland.[7]

9. No regulatory agency oversaw the setting of LIBOR during the Class Period by the BBA and its members. The resultant rates were not filed with, or subject to the approval of any regulatory agency. As the BBA has been quoted as saying, it "calculates and produces BBA Libor at the request of our members for the good of the market."[8]

10. During the Class Period, LIBOR was set by the BBA and its member banks. Each of the ten currencies (namely U.S. dollar, Japanese Yen, pound sterling, the Australian dollar, the Canadian dollar, the New Zealand dollar, the Danish krone, the Euro, the Swiss Franc and the Swedish krona) was overseen by a separate LIBOR panel created by the BBA. During the majority of the Class Period, the designated contributing panel for U.S. Dollar LIBOR was comprised of sixteen banks. There is substantial overlap in membership among the panels for U.S. dollar, pound sterling, Euro, and Japanese yen currencies. It is a requirement of membership of a LIBOR contributor panel that the bank is regulated and authorized to trade on the London money market. As the BBA told Bloomberg: "As all contributor banks are regulated, they are responsible to their regulators, rather than us."[9]

11. As "the primary benchmark for short term interest rates globally,"[10] LIBOR has occupied (and continues to occupy) a crucial role in the operation of financial markets. For

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[7] https://www.bba.org.uk/about-us/bba-board/, last accessed on June 2, 2015.

[8] *See* http://www.businessweek.com/news/2012-03-06/libor-links-deleted-as-bank-group-backs-away-from-tarnished-rate, last accessed on April 30, 2012.

[9] http://www.bba.org.uk/blog/article/bba-repeats-commitment-to-bba-libor, last accessed on April 30, 2012.

[10] *See* http://www.bbalibor.com/bbalibor-explained/the-basics, last accessed on April 19, 2012.

example, market participants commonly set the interest rate on floating-rate notes as a spread against LIBOR (*e.g.*, "LIBOR + [X] bps")[11] and use LIBOR as a basis to determine the correct rate of return on short-term fixed-rate notes (by comparing the offered rate to LIBOR). Additionally, the pricing and settlement of Eurodollar futures and options—the most actively traded futures contracts on the Chicago Mercantile Exchange—are priced entirely on three-month LIBOR. LIBOR thus affects the pricing of trillions of dollars' worth of financial transactions, rendering it, in the BBA's own words, "the world's most important number."[12]

12. Accordingly, it is well-established among market participants that, as *The Wall Street Journal* has observed, confidence in LIBOR "matters, because the rate system plays a vital role in the economy."[13] Moreover, given the vast universe of financial instruments LIBOR impacts, "even a small manipulation" of the rate "could potentially distort capital allocations.[14]

13. Throughout the Class Period, Defendants betrayed investors' confidence in LIBOR, as these financial institutions conspired to, and did, manipulate LIBOR by misreporting to the BBA the actual interest rates at which the Defendant banks expected they could borrow unsecured funds in the London interbank market – *i.e.*, their true costs of borrowing – on a daily basis. The Defendant banks were aided and abetted by certain Interdealer Broker Defendants who helped the banks communicate what their intended LIBOR submissions would be. The BBA then relied on the false information Defendants provided to set LIBOR. By acting together and in concert to knowingly understate their true borrowing costs, Defendants caused LIBOR to be set at

[11] The term "bps" stands for basis points. 100 basis points equal 1%.

[12] BBA press release, "BBA LIBOR: the world's most important number now tweets daily," May 21, 2009, available at http://www.bbalibor.com/news-releases/bba-libor-the-worlds-most-important-number-now-tweets-daily, last accessed on April 28, 2012.

[13] Carrick Mollenkamp and Mark Whitehouse, "Study Casts Doubt on Key Rate --- WSJ Analysis Suggests Banks May Have Reported Flawed Interest Data for Libor," *The Wall Street Journal*, May 29, 2008.

[14] Rosa M. Abrantes-Metz and Albert D. Metz, "How Far Can Screens Go in Distinguishing Explicit from Tacit Collusion? New Evidence from the Libor Setting," *CPI Antitrust Chronicle*, March 2012.

artificial levels.

14. Plaintiffs, however, could not detect Defendants' manipulation of U.S. Dollar LIBOR as Defendants consciously sought to avoid the scrutiny of their LIBOR submissions. For example, on April 17, 2008, Barclays U.S. Dollar LIBOR submitter, Peter Johnson ("Johnson"), and a senior member of Barclays' Treasury group, Miles Storey ("Storey") discussed the continued artificial submissions of U.S. Dollar LIBOR and the need to avoid attention. Storey cautioned, "And ***we need to be careful about quote collusion unquote***. . . . Um, and then there will be your amount of verbiage . . . . on the wires." (Emphasis added).

15. Through frequent communications with other Defendants and former Defendants, individual Defendants were well aware that they themselves and other panel banks were not submitting U.S. Dollar LIBOR rates in line with "true" LIBOR during the financial crisis. The fear of getting caught manipulating LIBOR was subordinate to the concern over submitting U.S. Dollar LIBOR rates that were out of line with the other Panel Bank Defendants. To avoid being the outlier, Defendants chose to fall in line by ensuring that their LIBOR submissions were in line with other Defendants and Former Defendants. As Johnson noted in an October 29, 2008 email to senior Barclays executives, "Following on from my conversation with you I will reluctantly, gradually and artificially get my libors in line with the rest of the contributors as requests. . . . I will be contributing rates which are nowhere near the clearing rates for unsecured cash and therefore will not be posting honest prices."

16. Evidence from the various government settlements available to date and the Barclays Cooperation Materials make clear that Defendants adopted a ready willingness to manipulate U.S. Dollar LIBOR throughout the Class Period. The casual and routine nature of Defendants' manipulation is typified by a November 27, 2009 phone conversation between

Barclays derivative trader Jonathan Mathew ("Mathew") and Tullett Prebon's Neil Burgess ("Burgess"). In the conversation, Burgess comments that Lloyds "wanted LIBORs lower, like everyone else." Mathew's response, "Yeah, yeah, yeah, yeah, yeah," is one of absolute agreement. The coordination among Defendants to manipulate LIBOR is encapsulated in this mundane exchange, which quickly brings together the interests of Lloyds' with that of Barclays and others. Communications such as these provide direct evidence that derivative traders at the panel banks knew about the U.S. Dollar LIBOR suppression and constructed trading strategies to benefit from it.

17. The suppression directly affected the LIBOR-based derivative market in products like Eurodollar futures. Defendants' affiliates actively traded in the markets for LIBOR-based derivatives, including and especially in the Eurodollar futures market on the CME. Defendants' manipulation of LIBOR allowed them to manipulate the price of Eurodollar futures contracts, which move in lockstep with LIBOR, and profit by trading against unsuspecting investors.

18. Defendants' manipulation of LIBOR also allowed them to pay unduly low interest rates to investors, on LIBOR-based financial instruments offered during the Class Period. Moreover, by understating their true borrowing costs, Defendants provided a false or misleading impression of their financial strength to investors and the rest of the market.

19. Thus, as Defendants and Manipulator Panel Banks suppressed LIBOR during the financial crisis, their trading operations continued to use LIBOR manipulation as a profit center. As described in the Deutsche Bank government settlement documents (*see* Section V.I, *infra*), traders at certain banks opportunistically sought to employ trading strategies that enabled them to profit from the *widening of the spread* between the 1-month, 3-month and 6-month LIBOR tenors at the behest of U.S. Dollar derivatives traders. Deutsche Bank employed this strategy *almost*

every day during the financial crisis and made enormous profits from it. Deutsche Bank's U.S. Dollar LIBOR submitter altered the bank's submissions *to line up with* the needs of this trading strategy. If the U.S. Dollar LIBOR submitter failed to comply with the U.S. Dollar derivatives traders' demands, those traders voiced their discontent to the U.S. Dollar LIBOR submitter, conveniently seated nearby. Such findings not only demonstrate that manipulation of U.S. Dollar LIBOR was more frequent and nuanced than previously disclosed, but also muddles the distinction between trader-based manipulation and the suppression of U.S. Dollar LIBOR. Both forms of manipulation could be and were coincident during the financial crisis.

20. Defendants' suppressive manipulation depressed returns on various types of financial instruments, including notes Defendants issued to raise capital during the Class Period. In addition to floating-rate notes, whose interest rates are specifically set as a variable amount over LIBOR, market participants use LIBOR as the starting point for negotiating rates of return on short-term fixed-rate instruments, such as fixed-rate notes maturing in one year or less. Thus, by suppressing LIBOR, Defendants ensured that artificially low interest rates would attach to fixed-rate and variable notes.

21. Plaintiffs now seek relief for the damages they have suffered as a result of Defendants' violations of federal law.

III. JURISDICTION AND VENUE

22. This action arises under Section 22 of the CEA, 7 U.S.C. § 25, and Section 1 of the Sherman Antitrust Act, 15 U.S.C. § 1, Sections 4 and 16 of the Clayton Act, 15 U.S.C. §§ 15 and 26, respectively.

23. This Court has jurisdiction over this action pursuant to Section 22 of the CEA, 7 U.S.C. § 25, Sections 4 and 16 of the Clayton Act, 15 U.S.C. §§ 15 and 26(a), and 28 U.S.C. §§ 1331 and 1337. This Court also has jurisdiction under 28 U.S.C. § 1332 because the amount

in controversy for the Class exceed $5,000,000 and there are members of the Class who are citizens of a different state than Defendants.

24. Venue is proper in the Southern District of New York, pursuant to, among other statutes, Section 22 of the CEA, 7 U.S.C. § 25(c), 15 U.S.C. § 22 and 28 U.S.C. § 1391(b), (c) and (d). Each of the Defendants transacted business in the Southern District of New York and a part of the events or omissions giving rise to the claims occurred in the Southern District of New York.

IV. THE PARTIES

A. Plaintiffs

25. Plaintiff Metzler Investment GmbH ("Metzler") is a fund company that launches and manages investment funds under German law. The range of funds includes various types of securities, money market, and derivative funds, as well as general and specialized investment funds. Metzler manages assets totaling approximately €47 billion and is based in Frankfurt, Germany. Its funds traded on-exchange based products tied to LIBOR such as Eurodollar futures and were harmed as a consequence of Defendants' unlawful conduct.

26. Plaintiff FTC Futures Fund SICAV ("FTC SICAV"), a fund based in Luxembourg, traded on-exchange based products tied to LIBOR such as Eurodollar futures and was harmed as a consequence of Defendants' unlawful conduct.

27. Plaintiff FTC Futures Fund PCC Ltd. ("FTC PCC"), a fund based in Gibraltar, traded on-exchange based products tied to LIBOR such as Eurodollar futures and was harmed as a consequence of Defendants' unlawful conduct.

28. Plaintiff Atlantic Trading USA, LLC ("Atlantic") is an Illinois limited liability company with its principal place of business in Chicago, Illinois. Atlantic Trading USA, LLC traded on-exchange based products tied to LIBOR such as Eurodollar futures and was harmed as a consequence of Defendants' unlawful conduct.

29. Plaintiff 303030 Trading LLC ("303030") is an Illinois limited liability corporation with its principal place of business in Lake County, Illinois. 303030 traded on-exchange based products tied to LIBOR such as Eurodollar futures and were harmed as a consequence of Defendants' unlawful conduct.

30. Plaintiff Gary Francis ("Francis") is a resident of Chicago, Illinois. Plaintiff Francis traded on-exchange based products tied to LIBOR such as Eurodollar futures and was harmed as a consequence of Defendants' unlawful conduct.

31. Plaintiff Nathanial Haynes ("Haynes") is a resident of Chicago, Illinois. Plaintiff Haynes traded on-exchange based products tied to LIBOR such as Eurodollar futures and was harmed as a consequence of Defendants' unlawful conduct.

32. Plaintiffs traded on-exchange based products tied to LIBOR such as Eurodollar futures in various periods prior to and during the Class Period were harmed as a consequence of Defendants' unlawful conduct.

33. Plaintiffs were harmed by Defendants' LIBOR suppression and their trader-based manipulation as more fully depicted in Appendix A to this Complaint.

B. Defendants and Former Defendants (Parties of Interest/Co-Conspirators)

1. The Bank of America Defendants

34. Defendant Bank of America Corporation ("Bank of America Corp.") is a Delaware corporation headquartered in Charlotte, North Carolina.

35. Defendant Bank of America, N.A. ("BofA") is a federally chartered national banking association headquartered in Charlotte, North Carolina and an indirect, wholly owned subsidiary of Bank of America Corporation. Bank of America, N.A. was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA.

36. Defendants Bank of America Corporation and Bank of America, N.A. are

hereinafter referred to collectively sometimes as "BAC."

2. The Barclays Defendants

37. Defendant Barclays Bank plc ("Barclays") is a British public limited company headquartered in London, England. Barclays was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. Barclays' New York branch, located at 745 Seventh Avenue, is subject to the New York State Department of Financial Services regulatory supervision. One of Barclays' subsidiaries, Barclays Capital, Inc., employed traders that participated in the manipulation of LIBOR during the Class Period.

3. The Citigroup Defendants

38. Defendant Citibank, N.A. ("Citibank") is a federally chartered national banking association headquartered in New York, New York and a wholly owned subsidiary of Defendant Citigroup, Inc. Citi was at relevant times a member of the panel of banks that submitted LIBOR rates to the BBA.

39. Defendant Citigroup Global Markets, Inc. ("CGMI") is a New York corporation and an affiliated investment bank of Citibank. CGMI is an indirect wholly-owned subsidiary of Defendant Citigroup, Inc. CGMI is registered as a broker-dealer and investment adviser and a swap dealer and FCM with the CFTC. CGMI has its principal place of business in New York, New York. During the Class Period, CGMI employed traders that participated in the manipulation of LIBOR.

40. Defendant Citigroup, Inc. ("Citigroup") is a Delaware corporation headquartered in New York, New York. Citigroup, which is the parent of Citibank and CGMI, reaped significant financial benefit from the suppression of LIBOR, actively participated in the conspiracy and manipulation of LIBOR. Citibank and CGMI are wholly-owned subsidiaries of Citigroup.

4. The Former Credit Suisse Defendants/Co-Conspirators

41. Former Defendant/Co-Conspirator Credit Suisse Group AG ("Credit Suisse Group") is a Swiss holding company headquartered in Zurich, Switzerland. Through its subsidiaries, Credit Suisse Group has more than 8,000 employees in the United States, substantially all of which are in New York. In 2014, Credit Suisse Group filed a Global Recovery and Resolution Plan with the Federal Reserve. In its Resolution Plan, Credit Suisse Group disclosed that it "operates as an integrated global bank" with "divisions supported" by "Shared Services functions". The Shared Services establishes group-wide policies for Credit Suisse Group and its consolidated entities, including Defendant Credit Suisse AG. Credit Suisse Group also disclosed that it provide investment banking services to clients through "regional and local teams based in major developed and emerging market centers." Credit Suisse Group's Investment Banking Department houses a Rate Products team that is a global market maker in cash and derivatives markets and a primary dealer in the United States, Europe and Japan and covers, inter alia, interest rate swaps and options and other risk management structures and forms. The global head of investment banking for Credit Suisse Group, James Armine, is based in New York. Also, the global head of Mergers and Acquisitions at Credit Suisse Group, Scott Lindsay, is based in New York. Mike Paliotta, Credit Suisse Group's co-head of U.S. Equities, is a senior manager based in New York. Dan Mathisson, the head of U.S. cash trading and execution and Timothy O'Hara, global head of equities, likewise are based in the United States, with O'Hara based in New York. Another senior manager, Colin Lovemason, the head of market risk and quantitative analytics at Credit Suisse Group, is based in New York. Credit Suisse Group also disclosed in its Resolution Plan that it operates a global structure in four separate regions, which includes the "Americas" consisting of the United States, Canada, the Caribbean and Latin America. The Chief Executive Officer of Credit Suisse Americas is Robert Shafir, a citizen of the United States, and

Mr. Shafir serves as the Chief Executive Officer of Asset Management for Credit Suisse Group and also serves as a member of the Executive Boards of Defendant Credit Suisse Group and Defendant Credit Suisse AG.

42. The Resolution Plan filed by Credit Suisse Group also confirmed that it is active in interest rate derivative trading markets and other activities using swaps, futures, options and a combination of derivatives for market making, positioning and arbitraging activities. Credit Suisse Group disclosed in its Resolution Plan that its "US derivatives businesses, currently booked in London through Credit Suisse International, are expected to be transferred to the US broker-dealer" known as Credit Suisse Securities (USA) LLC. Credit Suisse Group's shares are listed as American Depositary Shares on the New York Stock Exchange ("NYSE").

43. Former Defendant Credit Suisse AG ("Credit Suisse") is a financial institution incorporated under the laws of Switzerland. Credit Suisse is a subsidiary of Defendant Credit Suisse Group and is reported as a material legal entity in Credit Suisse Group's Resolution Plan filed with the Federal Reserve. In 2014, Credit Suisse Group renewed for 15 years its lease for a massive 1.1 million square feet building lease at 11 Madison Avenue in Manhattan to house Credit Suisse and accommodate the American headquarters of Credit Suisse Group, which has held offices in the building since 1997.

44. Credit Suisse and its parent company share Executive Board members responsible for the day-to-day operations of Credit Suisse Group and its consolidated entities, including Credit Suisse. In the United States, Credit Suisse has a branch office in New York and representative offices in Los Angeles, San Diego and San Francisco, California. From 1999 until 2009, Credit Suisse operated a representative office in New York City, which was licensed by the New York State Banking Department (the predecessor to the New York State Department of

Financial Services). In May 2014, Credit Suisse entered into a Consent Order with the New York State Department of Financial Services and pled guilty to an Information filed in the U.S. District Court for the Eastern District of Virginia, which accused Credit Suisse of conspiracy to assist U.S. citizens in tax evasion and the filing of false tax returns and conducting an illegal cross-border banking business to open and maintain Swiss accounts that were undeclared and hidden from U.S. authorities. The Consent Order details significant and continuous contacts and services that Credit Suisse and its employees used and operated out of Credit Suisse's New York Representative office to further the illegal cross-border banking scheme, including Swiss-based employees regularly traveling to New York to conduct activities that "furthered the illegal tax evasion scheme and constituted improper banking and investment advising activities". Through the illegal scheme, Credit Suisse provided assistance for tax evasion to "thousands of New York taxpayers", according to the Consent Order. Credit Suisse paid a civil monetary penalty to the New York State Department of Financial Services in the amount of $715 million for operating the illegal scheme in New York. Credit Suisse's New York branch is defined in the Resolution Plan as a material legal entity.

45. Credit Suisse also operates in the United States through direct and indirect subsidiaries, including Credit Suisse Holdings (USA), Inc., Credit Suisse (USA), Inc., Credit Suisse Securities (USA), Inc., Credit Suisse Securities (USA) LLC and Credit Suisse International, which all have offices in New York. Credit Suisse Securities (USA) LLC is a registered broker-dealer in the United States and transactions in derivatives, including exchange-traded instruments, and is a dealer for money market instruments. In November 2014, a managing director of Credit Suisse filed a declaration with this Court in related actions stating that Credit Suisse was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA.

46. Credit Suisse itself employs approximately 98 people in the United States and describes its New York branch as "significant to the activities of a core business line or critical operation." Credit Suisse's New York branch is located at 11 Madison Avenue, New York, New York 10010, and is registered with and subject to the New York State Department of Financial Services regulatory supervision. In its Form 20-F filed annually with the U.S. Securities Exchange Commission, Credit Suisse lists numerous securities that are listed on NYSE and other U.S. exchanges and discloses that Credit Suisse's banking operations are subject to extensive federal and state regulation and supervision in the U.S. It also discloses that the business of Credit Suisse Group is "substantially similar" to the business of Credit Suisse and that Credit Suisse is a wholly owned subsidiary of Credit Suisse Group. Both Credit Suisse and Credit Suisse Group are registered as financial holding companies for purposes of U.S. federal banking laws, which enables them to engage in a broad range of financial activities in the U.S. Credit Suisse's fiscal year Form 20-F discloses that Credit Suisse has 80 percent of voting rights and 94 percent of equity interest in Credit Suisse International, which along with other Credit Suisse affiliates was fined 9.2 million Euros in 2014 by the European Commission for operating an illegal cartel to manipulate the spread of Swiss franc LIBOR-based derivatives to benefit traders' positions during the period May to September 2007, thereby harming competition. Credit Suisse International describes itself as a global market leader in OTC derivatives products and maintains an office in New York, from which in 2013, its operations derived $266 million in revenues.

5. The JPMorgan Defendants

47. Defendant JPMorgan Chase Bank, N. A. ("J.P. Morgan"), a wholly owned subsidiary of JPMorgan Chase, is a federally chartered national banking association headquartered in New York, New York. JPMorgan was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA.

6. The Former HBOS Defendants/Co-Conspirator

48. Former Defendant/Co-Conspirator HBOS plc ("HBOS") is a wholly-owned subsidiary of Lloyds Banking Group plc, and a corporation organized under the laws of Scotland with its registered office located at The Mount, Edinburgh, Scotland and its principal place of business in the United Kingdom. Prior to its acquisition in January 2009 by Defendant Lloyds TSB Group plc (now known as Lloyds Banking Group plc) and merger with Defendant Lloyds TSB Bank plc, HBOS was a member of the USD LIBOR panel. In January 2010, Lloyds Bank plc acquired HBOS from Lloyds Banking Group plc. HBOS also was the holding company for Bank of Scotland plc. HBOS through wholly-owned subsidiaries such as HBOS Treasury Services plc and Bank of Scotland operated a banking branch in New York, New York. HBOS also maintained Treasury operations in its New York branch to manage and fund liquidity positions. In the weeks leading to HBOS's imminent demise prior to the Bank of England arranged acquisition by Lloyds, HBOS borrowed approximately $18 billion from the U.S. Fed through its Bank of Scotland subsidiary. During the Class Period, HBOS had a substantial presence in the United States, with a banking branch supported by a network of nine loan production offices.

49. Former Defendant/Co-Conspirator Bank of Scotland plc ("Bank of Scotland") is a public limited company located in Edinburgh, Scotland. Bank of Scotland was a LIBOR panel bank member from September 2007 until February 6, 2009 and was a direct, wholly-owned subsidiary of HBOS. Following the merger of HBOS with Lloyds TSB Bank, Bank of Scotland ceased being a member of the LIBOR panel, although Bank of Scotland traders subsequently continued to influence LIBOR by making requests to Lloyds Bank traders to take Bank of Scotland money market positions into account when making Lloyds Bank's LIBOR submissions. Bank of Scotland operates a branch office in New York and is licensed as a New York branch of a foreign bank by the New York State Department of Financial Services and regulated by the Federal

Reserve Bank of New York. Bank of Scotland also has operated representative offices in the United States in Chicago, Houston, Los Angeles, Minneapolis, Seattle and Boston. In a settlement agreement, the FCA disclosed that it found that Bank of Scotland traders made requests to traders at the Bank of Scotland and Lloyds who were responsible for determining LIBOR and that these requests were taken into account by the traders making the LIBOR submissions.

7. The Former HSBC Defendants/Co-Conspirators

50. Former Defendant/Co-Conspirator HSBC Holdings plc ("HSBC Holdings") is a British public limited company headquartered in London, England. HSBC Holdings is the ultimate parent company of Defendant HSBC Bank plc. HSBC Holdings and its subsidiaries provide services in HSBC's network covering 75 countries and territories organized into geographic regions, with approximately 21,000 employees in the U.S. HSBC Holdings discloses approximately $22.6 billion in profit before tax for the year ended December 31, 2013, with $8.8 billion in revenue and $1.221 billion in profit before tax in North America. HSBC North America Holdings Inc. ("HSBC Holdings U.S."), a wholly owned subsidiary of HSBC Holdings, is a Delaware corporation headquartered in New York. HSBC Holdings U.S. is a bank holding company, and is the holding company for HSBC Holdings' operations in the U.S., including HSBC Bank USA, N.A. In its Resolution Plan filed with the Fed in 2014, HSBC designates each of HSBC Bank U.S.A., N.A., HBSC U.S. and HSBC Securities (USA), Inc. as a "material entity" because of each of its important U.S. operations. HSBC Holdings' ADRs are listed on the NYSE.

51. Former Defendant/Co-Conspirator HSBC Bank plc ("HSBC"), a wholly-owned subsidiary of HSBC Holdings, is a United Kingdom public limited company headquartered in London, England. HSBC was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. HSBC has 23 affiliates actively registered to do business in New York, including HSBC Securities (USA) Inc., which is a registered broker-dealer with the SEC and a

registered Futures Commission Merchant with the CFTC. HSBC Securities (USA) Inc. engages in trading debt and equity securities, including as a primary dealer of US government and government agency securities and futures contracts. In the July 2014 Resolution Plan that HSBC Holdings submitted to the Federal Reserve, HSBC Holdings identified HSBC Securities (USA) Inc. as a material entity to HSBC's U.S. operations. HSBC Bank USA, N.A. ("HSBC US") also is an indirect wholly owned subsidiary of HSBC Holdings N.A. and is a national banking association with its principal place of business in New York, New York. HSBC U.S. is HSBC's principal U.S. banking subsidiary, with 244 branches and 30 representative offices in the U.S., including 157 branches and 13 representative offices in the State of New York. HSBC U.S. has its principal executive offices at 452 Fifth Avenue, New York, New York. In its Resolution Plan, HSBC Holdings designates HSBC Bank as a non-U.S. material entity because of its close connections with HSBC's U.S. operations. According to HSBC Bank's Annual Report and Accounts for the years 2009-2011, HSBC discloses revenues of between £1.9 and £2.2 billion per year for geographically segmented business, including those in the United States.

8. The Former Lloyds Defendants/Co-Conspirator

52. Former Defendant/Co-Conspirator Lloyds Banking Group plc, formerly known as Lloyds TSB Group plc ("Lloyds Banking Group") is a corporation formed under the laws of Scotland with its principal place of business in London, England. Lloyds Banking Group was formed in 2009 as a result of the acquisition and merger of HBOS with Defendant Lloyds TSB Bank plc, which is now known as Lloyds Bank plc. Lloyds Bank plc is a wholly-owned subsidiary of Lloyds Banking Group and also is the principal banking subsidiary of Lloyds Banking Group. In addition, Lloyds Banking Group conducts its U.S. capital markets activities through its registered broker-dealer subsidiary Lloyds Securities Inc. Lloyds Banking Group generates on average £9.6 billion per year from its U.S. operations. Lloyds Banking Group's commercial

banking activities in the U.S. are concentrated in and undertaken by New York branches of its subsidiaries Defendant Lloyds Bank plc and Bank of Scotland plc. Lloyds Bank and Bank of Scotland each maintain a branch office in the same location in New York, and the Bank of Scotland also has representative offices in Chicago and Houston. In 2014, Lloyds Banking Group employed approximately 326 full-time employees in the United States, with 306 of those employees based in New York.

53. Former Defendant/Co-Conspirator Lloyds Bank plc, which formerly was known as Lloyds TSB Bank plc ("Lloyds Bank"), is a corporation organized and existing under the laws of England and Wales with its principal place of business in the United Kingdom. Lloyds Bank acquired HBOS from Lloyds Banking Group in 2010. Lloyds Bank was at all relevant time a member of the panel of banks that submitted LIBOR rates to the BBA. Lloyds Bank maintains a New York branch that is listed as a "material entity" and as "the primary operating entity for the [Lloyd Bank Group's] U.S. operations." Lloyds Bank's New York branch, located at 1095 Avenue of the Americas, New York, New York 10036, employed more than 300 full-time employees as of September 2014, and is registered with and subject to the New York State Department of Financial Services regulatory supervision.

9. The Former Merrill Lynch Defendant/Co-Conspirator

54. Former Defendant/Co-Conspirator Merrill Lynch International ("Merrill Lynch") is a subsidiary of Merrill Lynch UK Capital Holdings, a company incorporated in the United Kingdom. Merrill Lynch's ultimate parent company is Bank of America Corporation. At least one trader at Merrill Lynch who was based in London, Stylianos Contogoulas ("Mr. Contogoulas"), had regular communications with US-based traders at LIBOR panel and other banks, and participated in the manipulation of LIBOR, which harmed Plaintiffs.

10. The Former Portigon and WestLB Defendants/Co-Conspirators

55. Former Defendant/Co-Conspirator Portigon AG ("Portigon"), formerly known as WestLB AG ("WestLB"), is an international financial services company, headquartered in Dusseldorf, Germany. Up until August 2011, WestLB was a member of the panel of banks that submitted LIBOR rates to the BBA. Following a decision by the European Union Commission (the "EU") in December 2011, WestLB began a rapid and orderly resolution and government-mandated cessation of all commercial banking and capital market activities, and in December 2012 changed its name to Portigon AG. WestLB's financial troubles began to be publicly exposed in November 2008, when it announced its intention to obtain a government bailout and subsequently transferred billions of dollars in problem assets to a wind-down "bad bank" in Germany called Erste Abwicklungsanstalt or "EEA". Portigon continues to act as the service provider and portfolio manager for assets and liabilities that were transferred from WestLB to EEA. The wind down plan includes initiatives to close all locations other than New York, London and Dusseldorf. Portigon maintains a banking license where necessary, including in New York where from at least 2005 through 2012, it provided financial services through its New York branch where it employed approximately 200 full-time employees. Portigon's New York branch currently employs approximately 50 full-time employees. Portigon's U.S. headquarters is in New York and is located at 7 World Trade Center, 250 Greenwich Street, New York, New York. Portigon's New York branch is subject to Federal Reserve regulations and is registered with and subject to regulation by the New York State Department of Financial Services.

56. In 2011, WestLB AG, New York Branch filed a civil action in this District for breach of contract to enforce loan agreements with defendants known as BAC Florida Bank and U.S. Mortgage Finance LLC and U.S. Mortgage Finance II, LLC, and with which WestLB AG New York had entered into a Wholesale Warehouse Mortgage Agreements in 2005 and 2006.

WestLB AG loaned in excess of $360 million under these agreements. *See* Complaint, *WestLB AG, New York Branch v. BAC Florida* Bank, No. 11 Civ. 05398 (S.D.N.Y. 2011) [ECF No. 8]. WestLB New York Branch also accessed the U.S. financial markets, for example launching a $3 billion commercial paper program for Canadian dealers. As WestLB's successor, Portigon has continuously operated through an Executive Committee in New York with Treasury and Capital Markets business units located in the New York headquarters. According to a Resolution Plan filed with the Federal Reserve in 2013, Portigon NY monitors an interest rate derivatives business consisting largely of an interest swap portfolio that is monitored by Portigon NY and managed by Portigon's London branch. Portigon also reported to the Fed that Portigon NY manages a municipal guaranteed contracts portfolio. Portigon has maintained a corporate center in New York with departments consisting of human resources, compliance, audit and cost & service management, which support Portigon NY.

57. Portigon continues to operate as an international provider of portfolio and other management services for the financial industry, and with its wholly-owned subsidiary, Portigon Financial Services GmbH ("Portigon Financial") is known as the Portigon Group. Portigon Financial is an internationally operating financial services provider with offices in New York, London and Dusseldorf. Portigon and Portigon Financial share supervisory Board members and managers. Portigon also has wound down the operations of its investment banking enterprise and wholly owned subsidiary in the United States known as Portigon Securities, Inc. ("Portigon Securities"), which is a Delaware corporation and wholly-owned subsidiary of Portigon AG. Portigon Securities was until recently an authorized broker-dealer under the regulatory control of the Financial Industry Regulatory Authority ("FINRA"). Portigon Securities engaged in trading for its own account, private placement of securities and brokering security transactions. Since

2008, Portigon Securities' activity consisted primarily of clearing and custody for Portigon's New York branch, including winding down assets as of September 30, 2013 in the amount of $32 million. Portigon Securities no longer is registered with FINRA.

58. Former Defendant/Co-Conspirator Westdeutsche ImmobilienBank AG ("WestImmo") is a German company headquartered in Mainz, Germany. Prior to September 2012, WestImmo was a wholly owned subsidiary of Portigon f/k/a WestLB. WestImmo operates a real estate finance corporation and formerly was a wholly-owned subsidiary of WestLB and its real estate lending subsidiary. In the wake of WestLB's collapse and wind down process, WestImmo was spun into bad bank EEA after a failed sales effort by WestLB. The European Commission forced WestLB to sell WestImmo as a condition of its bail-out package in October 2008, and WestImmo was transferred into EAA. WestImmo's main business is the financing of commercial real estate transactions in the United State, Europe and Asia. WestImmo has two offices in Germany and five outside of Germany, including a representative office in New York, New York. WestImmo maintains at least 4 full-time employees in WestImmo's New York representative office. At the end of 2010, WestImmo had North American assets of approximately $3.84 billion and a broad customer base serviced from its "branch in New York, including REITs, pension funds and asset managers for high net worth individuals." WestImmo also was part of a consortium of lenders that provided $1.3 billion in financing for the Bank of America tower at One Bryant Part, the second-tallest building in New York, which was completed in 2009.

11. The UBS Defendants

59. Defendant UBS Group AG ("UBS Group") is a Swiss corporation and the holding company of the UBS Group, the largest wealth manager in the World. In December 2014, UBS Group initiated proceedings to acquire all issued shares of Defendant UBS AG, which when completed will enable UBS Group to become a 100 percent owner of UBS AG. Defendant UBS

Group filed a Resolution Plan with the Federal Reserve in 2014 in which it acknowledged that it is a global institution with the majority of its operations located in Switzerland, the United Kingdom and the United States. UBS Group's shares are registered as Global Registered Shares on the New York Stock Exchange.

60. Defendant UBS AG ("UBS") is a Swiss banking and financial services corporation headquartered in Zurich and Basel, Switzerland. UBS was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. UBS AG has entered a guilty plea with the United States DOJ for manipulating LIBOR. One former UBS Yen-LIBOR trader, Hayes testified that UBS distributed "an instruction manual on fixing LIBOR" to suit UBS's trading positions.

61. UBS provides investment banking, asset management, and wealth management services for private, corporate and institutional clients worldwide. UBS maintains a principal office and several branch offices in the United States, including in Connecticut, Illinois, Florida, California and New York, with its U.S. headquarters and "flagship" office in located at 1285 Avenue of the Americas, New York, New York 10019, where it has maintained a massive 700,000 square feet of space and bases the bulk of its investment banking operations. During the Class Period, UBS also maintained an office and trading floors in Stamford, Connecticut, where it housed one of the largest trading spaces in the United States, as well as the world (according to Guinness World Records), with 103,000 square feet, although the office space has been converted over time for use by back office, legal and technology staff with approximately 2,000 employs, after traders have transitioned back to trading floors in Manhattan. UBS engages in investment banking and employs derivatives traders throughout the world, including in Stamford, Connecticut and New York, who trade financial instruments tied to LIBOR, including interest rate swaps and

Eurodollar contracts. During the Class Period, UBS's Rates Division and Short Term Interest Rate ("STIR") desk transacted in interest rate derivatives, such as interest rate swaps whose value depended on LIBOR. The STIR desk also managed UBS's interest rate risk and short-term cash position by engaging in interest rate derivative transactions and transactions in the money markets for each currency, including LIBOR, through traders located in Connecticut. Many of UBS's counterparties to interest rate derivative transactions tied to LIBOR were located in the United States, including banks and other financial institutions, foreign banks with branches in the United States, asset management corporations, mortgage and loan corporations and insurance companies.

62. UBS also maintains a corporate headquarters in New Jersey located at Lincoln Harbor in Weehawken, New Jersey. UBS is registered with the Office of the Comptroller of the Currency and the CFTC as a swap dealer. UBS has elected treatment as a foreign bank and a financial holding company and is supervised by the Board of Governors of the Federal Reserve System. As a financial holding company, UBS has broad authority to engage in activities to underwrite and deal in securities and commodities and to make merchant banking investments in commercial and real estate entities.

12. The Former Royal Bank of Scotland Defendants/Co-Conspirators

63. Former Defendant/Co-Conspirator The Royal Bank of Scotland Group plc ("RBS Group") is a United Kingdom bank holding company and public limited company incorporated in Scotland with its principal office in Gogarburn, Scotland. RBS Group is registered in the U.S. as a bank holding company and a financial holding company, and it is subject to regulation and supervision by the Federal Reserve. According to the Resolution Plan filed with the Federal Reserve in October 2014, the RBS Group is a "covered bank" under Dodd-Frank. In 2013, RBS Group generated approximately 20 percent of its global revenue and 24 percent of its consolidated income from operations in the United States.

64. Former Defendant/Co-Conspirator The Royal Bank of Scotland plc ("RBS") is a United Kingdom corporation incorporated in Scotland with its principal offices at Gogarburn, Edinburgh and in London, England. RBS is the principal operating subsidiary of RBS Group. Also, RBS was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. As part of a Deferred-Prosecution Agreement with the Criminal Fraud Section of the DOJ, RBS admitted various facts relating to its involvement in fraudulent and collusive practices relating to LIBOR submissions (which were the subject of a two-count criminal information charging RBS with wire fraud and price fixing), and that Agreement refers to an ongoing investigation into misconduct related to additional, unidentified benchmark rates. RBS has admitted that from 2006 to 2010, its Global Banking and Markets ("GBM") business unit employed money market traders and derivatives traders throughout the world, including in New York. These derivative traders were responsible for trading a variety of financial instruments, including ones tied to LIBOR. RBS enters into economic hedges primarily to manage its interest rate risk, in financial assets/liabilities and non-trading positions. Derivative products, which are traded by the Rates core business line, include cleared and uncleared OTC swaps and uncleared OTC options; derivative trading conducted by the Asset-Backed Products and Rates core business lines.

65. RBS's New York branch was supervised by the New York State Department of Financial Services, and has recently been revised into a representative office. RBS maintains a branch office in Stamford, Connecticut and is supervised by the Connecticut Department of Banking. RBS also maintains representative offices in Chicago, Houston, San Francisco and Jersey City, New Jersey. RBS has approximately 350 employees based in the United States, with the majority of these employees based at the branch office in Connecticut.

66. In July 2011, RBS and RBS plc entered into an agreement with the Federal Reserve, the New York State Banking Department, the Connecticut Department of Banking and the Illinois Department of Financial and Professional Regulation to enter into a Cease and Desist Order to address risk management and compliance deficiencies at RBS and other subsidiaries and created a plan to strengthen board and senior management oversight of the corporate governance, management, risk management and operations of RBS Group's U.S. operations on an enterprise-wide and business line basis.

67. RBS Greenwich Capital, now known as RBS Securities, Inc. ("RBS Securities"), is a Delaware corporation with its headquarters in Stamford, Connecticut. RBS Securities is an indirect wholly-owned subsidiary of RBS Group. In 2011, RBS's investment bank made 35 percent of its revenues in the U.S., compared to only 27 percent in the United Kingdom, according to an investor presentation in March 2012. In 2011, RBS generated $3.4 billion in revenues in the U.S., with $640 million generated by banking and $2.8 billion by RBS Securities. RBS Securities is RBS Group's primary U.S. broker-dealer and is subject to regulation by the SEC and FINRA for securities activities, and is registered as a Futures Commission Merchant with the CFTC. RBS and RBS Securities both are members of the CME. As of June 30, 2010, RBS was among the fourteen largest broker/dealers of interest-rate derivatives. RBS also has an affiliated U.S. retail and commercial bank known as Citizens Financial Group, Inc. RBS also is a member of ICE Clear Credit, NYMEX, CBOT and COMEX.

68. RBS Group's affiliate, RBS Americas Property Corp. ("RBS Property"), is a Delaware corporation that provides property services to RBS Group's U.S.-based affiliates. One of RBS Property's principal assets is the Stamford, Connecticut headquarters of RBS, which comprises its North American headquarters. In 2009, RBS consolidated offices from Manhattan

and Greenwich, Connecticut and underwent a $341 million renovation to create a state-of-the-art building located on 4.25 riverfront acres at 600 Washington Boulevard. RBS's headquarters in Stamford, Connecticut boasts approximately 1 million square feet of commercial space over twelve floors, with the 100,000 square-foot trading floor for up to 1,400 traders. This RBS Property entity is a new allegation.

13. The Deutsche Bank Defendants

69. Defendant Deutsche Bank, AG ("Deutsche Bank") is a German financial services company headquartered in Frankfurt, Germany. Deutsche Bank was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. Deutsche Bank maintains a United States headquarters in New York located in this District at 60 Wall Street, New York, New York, which employs approximately 1,600 personnel, including 1,000 executives. Deutsche Bank also has subsidiaries (*e.g.*, Deutsche Bank Securities, Inc., headquartered in New York) with substantial operations in the United States, employing more than 10,000 full-time employees in the United States, with 1,700 employees at Deutsche Bank New York alone. Deutsche Bank's Branch in New York is registered with the New York Department of Financial Services, is subject to U.S. Federal Reserve System regulations, and is regulated by the CFTC as a registered swap dealer. Deutsche Banks's New York office operates as the North American Regional Head Office for Deutsche Bank, and serves as a critical hub of Deutsche Bank's core banking operations.

70. Deutsche Bank also has banking divisions and subsidiaries around the world, including in the United States, including a business unit known as Global Finance and Foreign Exchange ("GFFX"), which has employees in multiple legal entities around the world, including in London and New York. From 2006 through 2011, Deutsche Bank operated its Global Finance and Foreign Exchange business unit ("GFFX"), which, according to a criminal Deferred Prosecution Agreement dated April 23, 2015 between Deutsche Bank and the DOJ, is responsible

for the misconduct related to interest rate benchmark submissions. Deutsche Bank's derivative traders that were responsible for trading a variety of financial instruments linked to LIBOR were primarily located in London and New York. Deutsche Bank also operated a money market derivatives desk in New York that traded derivative products tied to LIBOR. Deutsche Bank has admitted that its submitters, traders, desk managers, and at least one of its senior managers engaged in systemic and pervasive manipulation of U.S. Dollar LIBOR and submissions for other currencies through its New York office.

71. Defendant DB Group Services (UK) Limited ("DBGS") is a wholly owned, indirect subsidiary of Deutsche Bank. DB Group Services is incorporated and operates its principal place of business in the United Kingdom. DB Group Services also entered into a criminal Deferred Prosecution Agreement with the DOJ, admitting that it employed many of Deutsche Bank's London-based pool and MMD traders who were responsible for manipulating the LIBOR benchmarks. Derivative traders employed by DBGS were responsible during the period January 1, 2003 through May 31, 2011 for trading a variety of financial instruments that were tied to LIBOR. Many traders in Deutsche Bank's GFFX business unit were employed by DBGS, and the DOJ statement of facts related to DB Group Services' plea agreement and Deferred Prosecution Agreement, notes that Deutsche Bank's counterparties to interest rate derivative transactions tied to various LIBOR currencies were located in the United States, including, among others, asset management corporations, business corporations, universities, non-profit organizations, insurance companies, banks and other financial institutions.

14. The Royal Bank of Canada Former Defendants/Co-Conspirators

72. Former Defendant/Co-Conspirator Royal Bank of Canada ("RBC") is a Canadian chartered bank organized under the laws of Canada with its corporate headquarters in Toronto, Ontario, Canada and its head office in Montreal, Quebec, Canada. At all relevant times,

RBC was a member of the panel of banks that submitted LIBOR rates to the BBA. RBC and its subsidiaries presently employ more than 8,000 people in their U.S. branches and offices. RBC maintains (at the present time) ten corporate offices and branches in the United States, including three federally licensed branches in New York, one federally licensed branch in Florida and additional representative offices and agencies in the United States, including in Texas, California, Delaware and Washington. RBC and its subsidiaries generated substantial revenue of more than $4.7 billion CAD (2012) and more than $5.5 billion CAD (2013) from their U.S. operations, a substantial portion of which has been derived from RBC's three New York offices.

73. In the United States, RBC's derivative activities include the sale and trading of derivatives on behalf of clients in addition to using derivatives to hedge in conjunction with the management of interest rate, credit, equity and foreign exchange risk related to its funding, lending, investment activities and asset/liability management.

74. Former Defendant/Co-Conspirator RBC Capital Markets LLC ("RBC Capital") is a Minnesota limited liability company and indirect wholly-owned subsidiary of Defendant RBC. RBC Capital is a registered broker-dealer with the U.S. Securities and Exchange Commission and a registered FCM with the CFTC. RBC Capital also is a member of the NYSE and other securities and commodities exchanges in the U.S. RBC Capital enters into derivative transactions to manage its exposure to risk resulting from trading activities and to satisfy the needs of its customers, including interest rate swaps and options and futures contracts. RBC Capital maintains a short-term (overnight) credit facility with RBC in the amount of $850 million and a $3.0 billion revolving credit agreement to manage short-term liquidity needs. Traders at RBC Capital entered into derivative transactions tied to U.S. LIBOR rates and caused LIBOR submitters to submit false LIBOR rates to the BBA.

15. The Former Société Générale Defendant/Co-Conspirator

75. Former Defendant/ Co-Conspirator Société Générale S.A. ("SocGen") is limited liability company incorporated in France, with its headquarters in Paris, France. SocGen was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. On August 24, 2017, the U.S. Attorney for the Southern District of New York issued bills of indictment for two former Société Générale personnel for the manipulation and suppression of LIBOR during the period of May 21, 2010 to October 2011 to benefit the Bank's financial reputation. SocGen offers commercial, retail, private banking services and investment banking services, including financial and commodities futures brokerage services. SocGen maintains two branches in the United States, including a branch in New York located at 245 Park Avenue, New York, New York 10167 and a branch in Chicago, Illinois. SocGen's New York branch is subject to the New York State Department of Financial Services regulatory supervision. SocGen also has an agency office in Dallas, Texas and a representative office in Houston, Texas. SocGen's U.S. branches and agency and non-banking subsidiaries are subject to a variety of U.S. regulations and laws, including the International Banking Act of 1978, the Bank Holding Company Act of 1956, as amended, and the Dodd Frank Act. SocGen also is a swap dealer regulated by the CFTC. SocGen's New York branch is subject to examination by the Federal Reserve Bank of New York.

76. SocGen's operations in the United States are conducted within its Corporate and Investment Banking division and its Global Investment Management and Services division, which in September 2013 were merged into a division now known as Global Banking and Investor Solutions. SocGen also conducts activities through its affiliated U.S. registered broker-dealer subsidiary, SG Americas Securities, LLC, and through Newedge USA, LLC, a registered broker-dealer, swap dealer and futures commission merchant, in which SocGen holds a 100 percent ownership interest. SocGen's U.S. entities employ approximately 2,700 employees. SocGen's

U.S. entities are members or participants in a number of clearing house systems in the United States, including the OCC Settlement and Clearing, the Federal Reserve Wire Network, SWIFT, CME clearing, Depository Trust & Clearing Corporation, Government Securities Clearing Corporation, ICE Clear U.S., and New York Portfolio Clearing.

77. SocGen also maintains a support services company in the United States known as SG Americas Operational Services, Inc., which is a Delaware company with its headquarters in Jersey City, New Jersey and which employs accounting, finance, human resource, information technology and operations services to SocGen's U.S. entities, including its New York branch.

16. The Former Defendant/Co-Conspirator Bank of Tokyo – Mitsubishi

78. Former Defendant/Co-Conspirator The Bank of Tokyo-Mitsubishi UFJ, Ltd. ("Bank of Tokyo" or "BTMU") is a financial institution incorporated in Japan with its headquarters in Tokyo, Japan. BTMU was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. BTMU maintains numerous branches and offices in the United States, including a New York branch, and employs more than 2,300 full-time employees all over the United States. Until March 2012, BTMU also maintained two branches in California, and subsequently BTMU has had only one branch and one representative office in California and one or more additional branches in the United States. BTMU also has an agency office in Dallas, Texas and several subsidiaries in the U.S.

79. Between 2010 and 2014, BTMU's U.S. branches and offices generated substantial revenue totaling more than 692 billion yen (approximately $5.7 billion) and profit totaling more than 276 billion yen (approximately $2.3 billion). BTMU is subject to the New York Banking Laws, and has recently entered into a Consent Order and paid a $315 million fine to the New York Department of Financial Services for misleading the Department about transactions that were settled through its New York Branch and other New York-based financial institutions. The

fines arose out of violations of New York Banking Law § 44 based upon unlawful clearing of 28,000 U.S. dollar payments, valued at approximately $100 billion, on behalf of foreign countries.

17. The Rabobank Defendant

80. Defendant Coöperatieve Rabobank U.A. (formerly known as Coöperatieve Centrale Raiffeisen-Boerenleenbank B.A.) ("Rabobank") is a financial institution organized under the laws of the Netherlands, and its headquarters is in Utrecht, Netherlands. Rabobank was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. Rabobank is a cooperative banking organization and maintains banking divisions and branches around the world, including an FDIC insured branch in the United States in New York, New York. Rabobank's New York branch, located at 245 Park Avenue, New York, New York 10167, is registered as a foreign bank branch in New York and is subject to the New York State Department of Financial Services regulatory supervision. As of December 2013, Rabobank had approximately 550 employees in its New York branch, and it also maintains representative offices in Atlanta, Chicago, Dallas, St. Louis and San Francisco from which Rabobank employs additional fulltime employees. Rabobank conducts client marketing and service activities in the United States through its representative offices.

81. Defendant Rabobank employs derivatives traders throughout the world, including in New York, London, Utrecht, Tokyo, Hong Kong and Singapore. Rabobank's derivatives traders trade financial instruments tied to LIBOR, including interest rate swaps and Eurodollar futures contracts. From at least as early as September 2005 through approximately December 2008, in New York, London and Utrecht, multiple Rabobank swaps traders made frequent requests for favorable LIBOR contributions to Rabobank's US Dollar LIBOR submitters on the London money markets desk, which the Rabobank submitters accommodated on numerous occasions and submitted Rabobank's LIBOR contributions consistent with the traders' requests.

In March 2015, a former Rabobank derivatives trader, Lee Stewart, pled guilty to criminal charges in U.S. federal court for his role in manipulating U.S. Dollar LIBOR. The Rabobank trader pled guilty to one count of conspiracy to commit wire and bank fraud.

18. The Former Defendant/Co-Conspirator Norinchukin

82. Former Defendant/Co-Conspirator The Norinchukin Bank ("Norinchukin" or "Norin") is a Japanese cooperative bank incorporated under the laws of Japan and headquartered in Tokyo, Japan. Norinchukin was at all relevant times a member of the panel of banks that submitted LIBOR rates to the BBA. Norin maintains a U.S. branch office, which is located at 245 Park Avenue, New York, New York, where it leases 36,300 square feet on the 21st floor of the building. Norinchukin was at all relevant times a member of the LIBOR Panel. Norinchukin's New York branch is licensed by the New York State Department of Financial Services, and it is deemed a bank holding company under the International Banking Act of 1978. Norinchukin's New York branch also is overseen by the Federal Reserve in the United States.

83. According to Norinchukin's Annual Report for the fiscal period ending March 31, 2011, Norinchukin managed foreign currency funding operations through its head office in Tokyo and its three overseas branches in New York, London and Singapore. *Id.* at 77. According to Norinchukin's Annual Report and "Milestones" in its 91-year history, Norinchukin opened a Representative Office in New York in 1982, which was its "first overseas foothold". *Id.* at 189. In 1984, Norinchukin upgraded the Representative Office to Branch status. *Id.* Norinchukin's New York branch also is a member of several U.S. payment clearing and settlement systems that enable Norinchukin to access systems necessary to service its customers and clients, such as SWIFT, Fedwire and the Fixed Income Clearing Corporation ("FICC").

84. For the fiscal year ended March 31 2014, Norinchukin's Annual Report disclosed ordinary income from its New York branch and Cayman Islands office (*i.e.*, "the

Americas") in the amount of $63 million, and further reported that the "U.S. Department of the Treasury" was a "Major Customer" that generated over $1.5 billion of ordinary income for Norinchukin in the fiscal year ended March 31, 2014. *Id.* at 101. The Annual Report also disclosed "Tangible Fixed Assets" in the Americas of $4 million. *Id.*

85. Norinchukin has designated the New York branch as a "material entity" because of the significance to its investment activities and ability to directly access U.S. dollar funding markets in the U.S. The New York branch primarily engages in short-term U.S. dollar funding in support of Norinchukin's Head Office securities investment activities through repo transactions and unsecured funding such as Certificates of Deposit ("CDs"); wholesale corporate lending to Japanese agricultural, forestry and fishery co-operative members and subsidiaries of Japanese companies located mainly in the United States and Canada; and research on the U.S. economy and financial markets. Norinchukin's New York branch's total assets as of March 31, 2013 were approximately $81.1 billion. It generated substantial income of approximately $237 million and it employed approximately 70 people during each of the years during period 2011 through 2014.

86. Norinchukin holds a controlling interest in a broker-dealer subsidiary, Grosvenor Securities LLC, in Chicago, Illinois, and a commercial leasing business in New York, New York, known as JA Mitsui Leasing Capital Corp.

87. Norinchukin also maintains The Norinchukin Foundation, a New York domestic 501(c)(3) not-for-profit corporation operating a charitable foundation in the greater New York area. The foundation was established in 1994 to commemorate the tenth anniversary of Norinchukin's New York branch.

88. During the Class Period, Defendants and Former Defendants/Co-Conspirators, including BAC, Credit Suisse, JPMorgan, HSBC, Barclays, Lloyds, HBOS, Bank of Scotland,

WestLB (n/k/a Portigon), RBS, UBS, Deutsche Bank, Citibank, Royal Bank of Canada, Rabobank, Société Générale, BTMU and Norinchukin were members of the BBA's U.S. Dollar LIBOR panel and are sometimes collectively referred to herein as the "Manipulator Panel Banks".

C. Former Defendants/Co-Conspirators Interdealer Broker

89. Interdealer brokers, also known as voice or electronic brokers, act as intermediaries between major dealers in the money markets and the OTC derivatives markets to facilitate transactions and counterparties of traders and dealers. Interdealer brokers assist banks in obtaining funding by facilitating the negotiation of deposits and loans, and in hedging those transactions with derivative trades, which are often referenced to LIBOR. Interdealer brokers match buyers and sellers in return for commissions, and provide market information for banks, including Panel Bank Defendants. Typically, broker commissions are based on a percentage of the notional value of consummated transactions (*i.e.*, the larger the notional value of a trade, the greater the commission). Based on their role in the financial markets, interdealer brokers had a significant impact on LIBOR Panel Bank Defendant's views of the interbank markets for cash deposits, and therefore had the distinct ability to potentially influence a panel bank's LIBOR submissions.

1. The Former ICAP Defendant/Co-Conspirator

90. Former Defendant ICAP plc ("ICAP") through and including its subsidiaries is a leading voice and electronic interdealer broker and provider of post trade services with its head office in London, England. ICAP is active in the wholesale markets in interest rates, credits, commodities, foreign exchange, emerging markets and equity derivatives. ICAP and certain of its subsidiaries are involved in the brokering of cash deposits and derivatives based on U.S. LIBOR between banks, including Defendants. According to ICAP's 2015 Annual Report, ICAP employs more than 1,500 brokers across its "Global Broking" group and reported revenues of £789 million

during 2014.

91. Former Defendant ICAP Europe Limited ("ICAP Europe") is an indirect wholly-owned subsidiary of ICAP Group Holdings plc ("ICAP Group"), and a wholly-owned subsidiary of Defendant ICAP plc. Defendant ICAP Europe is headquartered in London, England and is responsible for managing some of ICAP Group's brokering business in Europe, including the unlawful conduct alleged herein. Defendants ICAP and ICAP Europe are collectively referred to herein as "ICAP." As detailed in its 2003 Annual Report, ICAP relocated its U.S. broker-dealer operations to New Jersey in November 2002 in order to capitalize on a local tax incentive programs over a ten-year period. ICAP and its affiliates maintain an extensive presence across the United States, including four offices located in New York, New York, in addition to other offices in California, Connecticut, Florida, Illinois, Georgia, Kentucky, North Carolina and Texas.

2. The Former Tradition Defendant/Co-Conspirator

92. Former Defendant Tradition (UK) Limited ("Tradition") is a limited company in London, England and is one of the world's largest interdealer brokers in financial and commodity related products. Tradition is a subsidiary of and operates the interdealer broking arm of Companie Financière Tradition S.A., which is headquartered in Lausanne, Switzerland and is listed on the Swiss stock exchange. Defendant Tradition operates in the interdealer market along with affiliates in London known as Tradition Financial Services Limited and TFS Derivatives Limited, and in New York as Tradition (North America), Inc. and TFS Derivatives Corporation. Tradition acts as an intermediary and facilitates transactions between financial institutions and other professional traders in the capital markets. The financial markets that Tradition covers include money markets, interest rate and currency derivatives, equities and equity derivatives, bonds and repurchase agreements, and credit derivatives, and it operates in both exchange-traded and OTC markets. Tradition employs over 125 voice brokers and operates global dealing desks,

with offices in the United States in New York, New York, Boston, Massachusetts, Dallas and Houston, Texas and Stamford, Connecticut. Tradition was in continual contact with the Panel Bank Defendants, and Tradition's role as an intermediary made it a key conduit for impermissible sharing of information to manipulate LIBOR during the Class Period by the Panel Banks and their co-conspirators.

3. The Former Tullett Prebon Defendant/Co-Conspirator

93. Former Defendant Tullett Prebon plc ("Tullett Prebon"), an interdealer broker, is a United Kingdom public limited company headquartered in London, England. Tullett Prebon has offices in New York City, as well as Texas and New Jersey. The company has three subsidiary corporations registered as Foreign Business Corporations doing business in New York State: Tullett Prebon (Americas) Holdings Inc., Tullett Prebon Americas Corp., and Tullett Prebon Financial Services LLC. All three subsidiaries have designated agents for service of process in New York State. Tullett Prebon's revenue attributed to operations in the Americas for 2014 was £201.6 million and it employs roughly 550 brokers in the region. Tullet Prebon's CEO of the Americas, John Abularrage, recently stated that "The US is a key market for Tullett Prebon."

94. Persons and entities employed by or constituting interdealer brokers that directly or indirectly inappropriately influenced or attempted to influence submissions used to compile LIBOR. During the Class Period, interdealer brokers provided voice and electronic brokering services to the Panel Banks, including sharing information between and among banks regarding pre- and post-trading information regarding interest rates and derivative transactions, including where the Panel Banks wanted to set LIBOR on certain days during the Class Period. In certain instances these interdealer brokers received bribes from Defendants in the form of wash trades.

95. Former Defendants/Co-Conspirators ICAP, ICAP Europe, Tradition, and Tullett Prebon are sometimes referred herein as the "Interdealer Broker Defendants".

V. FACTUAL ALLEGATIONS

A. The BBA LIBOR

1. The BBA Was A Trade Association Of Horizontal Competitors

96. During the Class Period, the BBA was a trade association composed of horizontal competitor banks. The BBA was not a regulatory body and had no regulatory function; its activities were not overseen by any U.K. or foreign regulatory agency. Rather, as the BBA has acknowledged, it was the leading trade association for the United Kingdom banking and financial services sector. The BBA advocated on behalf of its more than 200 member banks from 60 countries on a full range of U.K. and international banking issues.

97. During the Class Period, this banking trade association was described as an insider's club, self-governed by a board of member banks that met four times each year. The board at relevant times was composed of senior executives from twelve banks, including Barclays, Citibank, Credit Suisse, Deutsche Bank, HSBC, JPMorgan, and RBS.

98. The BBA member banks were competitors among themselves and with other firms (including non-banks) in seeking to borrow funds, attract deposits and/or provide a broad range of other financial services customarily associated with banking. As a BBA member bank, each Defendant carried out that competition, among other ways, by reflecting its respective costs of borrowing in its individual LIBOR submissions, which was publicized. Another part of the Defendants' horizontal competition with one another and many other firms and persons, is Defendants' competition in the exchange-based markets for LIBOR-based derivatives. Each Defendant competed to trade Eurodollar futures contracts and sought to attract customers for Eurodollar futures contracts and/or other LIBOR based derivatives products. In taking their own investing positions and risks in these products each Defendant competed with each other and other similar market participants.

99. Defendants thus were horizontal competitors across a broad spectrum of banking, trading and brokerage services. Defendants and Former Defendants/Co-Conspirators were the banks serving as members of the BBA U.S. dollar panel (described below) that together controlled the setting of LIBOR during the Class Period (the "Panel Banks").[15]

100. As is alleged in detail hereafter, by colluding on the LIBOR submissions, Defendants harmed their foregoing and other forms of competition with one another.

2. The BBA Created LIBOR Panels And Reported Daily LIBOR Rates

101. One of the principal functions of the BBA during the Class Period was to publish LIBOR rates for ten different currencies, which included the U.S. dollar, Australian dollar, New Zealand dollar, Japanese yen, European Union euro, British pound sterling, Swedish krona and Danish krone. To set LIBOR for each currency, the BBA established and maintained panels for each currency, consisting of BBA member banks that agreed to serve as panel members.

102. The composition of the LIBOR panel was intended to reflect the constituency of the London interbank money market for U.S. dollars. During most of the Class Period, the LIBOR panel consisted of sixteen banks.[16] The BBA has maintained that panel member banks, generally, were chosen based on their scale of market activity, credit rating and perceived expertise in the currency concerned.

103. SocGen replaced HBOS as a member of the BBA's LIBOR panel beginning on 2009. On September 5, 2012, the CEO of Société Générale, Frederic Oudea, stated the bank was

[15] While the capitalized term "Panel Banks" refers to the U.S. Dollar LIBOR Panel Banks, "panel banks" refers to all banks, collectively, that served on any of the ten currency panels.

[16] On February 9, 2009, Société Générale replaced defendant HBOS on the BBA's LIBOR panel, and subsequently Société Générale participated in the LIBOR Panel Banks' collusive suppression of LIBOR. In February 2011, the BBA added four more banks to the panel. On August 1, 2011, WestLB, at its request, was removed from the panel. As of December 2011, the LIBOR panel consisted of 18 banks. The U.K. government also has stripped the BBA from its LIBOR rate-setting role and will establish a new administrator and institutions for LIBOR.

cooperating with U.S. authorities in connection with their LIBOR investigation, while the bank continued its own internal probe. On February 12, 2013, Mr. Oudea said SocGen was "carrying on with cooperating with the regulators" in the LIBOR investigation and that SocGen's general provision of $404 million for litigation issues in the fourth quarter of 2012 may also cover risks for possible LIBOR fines.[17]

104. The panel banks followed an agreed daily process to determine LIBOR. Under this daily process, governed by the BBA LIBOR panel rules, each panel bank submitted its individual borrowing rates, for a range of maturities (called tenors) extending from overnight to one year, to Thomson Reuters, which acted as the agent of the BBA in the LIBOR setting process. Following the panel bank submissions, daily LIBORs were calculated pursuant to an "interquartile methodology." Under this methodology, the highest one-quarter and lowest one-quarter of rates submitted for each currency and tenor were disregarded. The LIBOR was then calculated as the mean value of the remaining middle two-quarters of submitted rates. The interquartile methodology thus excluded outliers – both high and low – from the final calculation of the published LIBOR. Acting on behalf of the BBA, pursuant to this methodology, at around 11:30 a.m. London time each business day during the Class Period, Thomson Reuters published LIBOR for each currency and tenor.

3. The Various Forms Of LIBOR

105. LIBORs served as benchmarks for interest rates because they were established by competition in the London interbank market. As the BBA put it, LIBOR was important because, *inter alia*, it "represent[ed] a unique snapshot of competitive funding costs." Through operation of the BBA LIBOR setting process in accordance with the BBA LIBOR panel rules, as discussed

[17] *See* Fabio Benedetti-Valentini & Caroline Connan, SocGen Cooperating With Authorities on Libor, Chief Says, Bloomberg (Feb. 13, 2013), *available at*: http://www.bloomberg.com/news/2013-02-13/socgen-still-cooperating-with-authorities-on-libor-chief-says.html.

below, LIBORs were set, and moved from day to day based upon, competitive conditions in the London interbank loan market, including the demand for and supply of unsecured interbank loans of cash, and the relative creditworthiness of the banks making up the LIBOR panels. Because it reflected a competitively determined rate set on a daily basis, each Panel Bank's published submission represented part of their competition with one another, and the LIBOR indices derived from the composite of their submissions became accepted and were used as competitively-determined rates in numerous types of financial instruments, including Eurodollar futures contracts.

106. The valuable information about each Panel Bank's individual competitively determined costs of borrowing was an important part of Defendants' and Former Defendants' competition with one another and with non-Defendants to attract deposits, borrow funds, trade Eurodollar futures contracts, and otherwise. In submitting its own published competitively determined borrowing rates each Defendant was competing with the other Defendants and Former Defendants in all of these areas.

107. In addition, the benefits of using such a benchmark to market participants, like Plaintiffs and the Class, included, *inter alia*, reducing the risks and costs of gathering and interpreting information. These costs and risks to suppliers of credit would include, for example, requiring individuals to each separately gather information regarding debt funding costs from individual or multiple sources by calling numerous different lenders and/or borrowers to obtain information about competitive market rates. Use of a benchmark that accurately reflected competitively determined interest rates paid by major banks would enhance market efficiency and reduce credit supplier risk. This increased efficiency and reduced risk would, in turn, lead to increased availability of funding from credit suppliers at prices (amounts of interest) reflective of

the reduced informational risks.

108. Accurate individual submissions further the competition among Defendants and others for funds, deposits, in trading Eurodollar futures contracts, and otherwise. Also, only a competitively determined LIBOR would discover the fair interest rate that reflects the risk of the borrowing banks in the current market conditions. Because LIBOR was determined, when set in accordance with the BBA LIBOR panel rules, by the competitive forces of supply and demand and the competitive credit risk posture of the panel banks, it would represent an effective price discovery mechanism leading to efficient allocation of capital and risk. Indeed, the utility of the LIBOR indices to, and acceptance by, the financial markets depended upon their ability to accurately capture and reflect competitively determined funding costs.

109. Additionally, the use of an index reflecting competitively determined interest rates would facilitate the use of longer term floating rate debt contracts by obviating the need for and cost of periodic renegotiation of the interest rate payable under such contracts. In the absence of such an index, floating rate debt contracts would require periodic competitive renegotiation of the interest rate payable at each reset date. By interposing a standardized interest rate reset mechanism based on a competitively determined index in the place of periodic renegotiation, more efficient transaction structures, and thus a more efficient market for floating rate funding, would be enabled. This market convention did not remove competition from the determination of prices (amounts of interest) paid in this market, but instead became the means by which such prices (amounts of interest) were determined by competitive forces.

4. The BBA LIBOR Panel Rules

110. As noted above, the agreed daily process for setting LIBOR was designed to proceed in accordance with the BBA LIBOR panel rules. Three key BBA LIBOR panel rules described below operated to make the LIBOR setting process a competitive process that produced

competitively determined daily LIBOR rates and established a daily contest between the panel banks to signal their relative ranking in terms of credit risk, access to funding, and liquidity profile.

111. The first key BBA LIBOR panel rule defined the daily submissions to be made by the panel banks (with respect to LIBOR, the Defendants). This rule required the panel banks for each currency to answer the following question: "At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am?"[18] Thus, under this rule, each panel bank was required to independently exercise its good faith judgment each day about the competitive interest rate that it would be required to pay, based upon its own expert knowledge of market conditions, including supply and demand conditions and the panel bank's own competitive posture as a borrower within the market for interbank loan funds. Through the mechanism of individual submissions reflecting each submitting bank's honest competitive posture as a borrower each day, the composite LIBOR reflected, and moved from day to day based upon, actual competitive conditions.

112. The second key BBA LIBOR panel rule mandated that each panel bank's daily submissions would remain confidential until after the calculation and publication of the daily LIBOR rates. Adherence to this rule would prevent collusion and ensure that each panel bank's submission would be independent of the others, and therefore reflect only that panel bank's

[18] The LIBOR definition is amplified as follows:

a. The rate each bank submits must be formed from that bank's perception of its cost of unsecured funds in the London interbank market. This will be based on the cost of funds not covered by any governmental guarantee scheme.

b. Submissions must represent rates at which the bank would be offered funds in the London interbank market.

c. Submissions must be for the specific currency concerned and not the cost of producing the currency by borrowing in a different currency and obtaining the required currency via the foreign exchange markets.

d. The rates must be submitted by bank personnel with primary responsibility for management of the bank's cash, rather than the bank's derivative book.

e. The subject funds are unsecured interbank cash or cash raised through primary issuance of interbank certificates of deposit.

independent expert judgment of the competitive rate at which its own competitive posture as a borrower allowed it borrow.

113. The third key LIBOR panel rule mandated that upon the publication of each day's LIBOR, the BBA, through Thomson Reuters, simultaneously published the individual rates submitted in the LIBOR setting process for each panel bank, currency and tenor for that day. This third rule made the process and the individual panel bank submissions transparent on an *ex post* basis, to the capital markets and the panel banks themselves.

114. Moreover, this third rule provided the incentive to the panel banks that, operating in conjunction with the first two rules, ensured that the LIBOR-setting process was in fact a competitive process that would reflect the competitive rates at which the banks could borrow. Also, because the capital markets view the competitive funding costs of the panel banks as reflective of their relative creditworthiness and financial strength, the daily disclosure of the panel bank submissions signaled each panel bank's relative creditworthiness and financial strength to the market. Lower funding costs reflected greater creditworthiness and financial strength, and vice versa.

115. The third rule thus created an incentive for each panel bank to submit the lowest honest competitive funding cost estimate, consistent with market conditions as required by the first BBA LIBOR panel rule. This goal for submissions mirrors precisely the goal that would be pursued in actually entering into interbank borrowing transactions – obtaining the lowest competitive funding cost obtainable in the market. By creating this incentive to signal the lowest competitive funding cost, this third BBA LIBOR panel rule ensured that the LIBOR-setting process was in fact competitive, and produced, as the BBA termed it, "a unique snapshot of competitive funding costs."

116. These three BBA LIBOR panel rules were the safeguards ensuring, if faithfully adhered to, that LIBOR would reflect, and change from day to day based on, the forces of competition. Correspondingly, these rules were meant to prevent collusion among the panel banks to set, peg, stabilize, or otherwise manipulate LIBOR at mutually desired levels. LIBOR could not reflect and move day to day based upon actual competitive conditions if it were not based upon independent, good faith submissions of the individual panel banks. Collusion to submit artificial and/or coordinated rates would, by definition, remove LIBOR's linkage to day-to-day competitive forces.

117. In addition to these three key BBA LIBOR panel rules, several other aspects of the BBA LIBOR setting process emphasized and enhanced the fact that the LIBOR rates reflected competitive funding costs. *First*, the use of the Thomson Reuters agency to collect submissions, calculate, and publish the daily LIBOR rates signaled their independence from the collective self-interests of the BBA and the panel members. *Second*, the interquartile averaging method used for calculating daily LIBOR, which excluded the highest and lowest quartile of daily panel submissions, meant that no individual panel bank could easily affect the daily LIBOR through an independent falsely high or low submission. *Third*, the fact that any bank that traded in the London market could apply to be on any currency panel added to the robustness of the competitive LIBOR setting process through the ability to add additional competitors.[19]

B. Defendants Misreported LIBOR During The Class Period

118. Throughout the Class Period, the Defendants and Former Defendants conspired to suppress LIBOR below the levels it would have been set had they accurately reported their competitive offered rates to the BBA or otherwise manipulated LIBOR for trading gain. Plaintiffs'

[19] For example, on December 8, 2010, the BBA announced that beginning February 1, 2011, the LIBOR panel would be expanded from 16 to 20 members.

allegations that Defendants and Co-Conspirators suppressed LIBOR are supported by (i) Defendants' and Co-Conspirators' powerful incentives to mask their true borrowing costs and to reap unjustified revenues by setting artificially low interest rates on LIBOR-based financial instruments that investors purchased; (ii) an independent analysis by other plaintiffs' consulting experts, comparing LIBOR panel banks' daily individual quotes with the banks' probability of default, as measured by Kamakura Risk Information Services, as well as by Plaintiffs' consulting experts conducting analyses of the spread between LIBOR as reported and the Federal Reserve Eurodollar Deposit Rate; (iii) publicly available economic analyses, by prominent academics and other commentators, of LIBOR's behavior during the Class Period compared with other well-accepted measures of Defendants' and Co-Conspirators' borrowing costs, as well as the notable tendency of their daily submitted LIBOR quotes to "bunch" near the bottom quartile of the collection of reported rates used to determine LIBOR; (iv) revelations in connection with the numerous domestic and foreign governmental investigations into potential manipulation of U.S. Dollar LIBOR and LIBOR for other currencies; and (v) the Barclays Cooperation Materials.

1. Defendants and Former Defendants/Co-Conspirators Possessed Strong Motives To Suppress LIBOR

119. Defendants each had substantial financial incentives to suppress LIBOR. *First*, each of the Defendants actively traded Eurodollar futures and other Libor-based derivative products on a large scale. Manipulating LIBOR gave Defendants an unfair trading edge that allowed them to make sizable profits in trading Eurodollar futures and other Libor-based derivative products at the expense of unsuspecting investors.

120. *Second*, Defendants and Former Defendant Co-Conspirators were motivated, particularly given investors' serious concerns over the stability of the market in the wake of the financial crisis that emerged in 2007, to understate their offered rates —and thus the level of risk

associated with the banks.

121. A bank that submits high LIBORs runs the risk of being perceived as a weak institution, which can lead to negative consequences for the bank. As the DOJ explained, and UBS admitted:

> Because a bank's LIBOR contributions, even if they are not based entirely on actual money market transactions, should correspond to the cost at which the bank perceives that it can borrow funds in the relevant market, a bank's LIBOR contributions may be viewed as an indicator of a bank's creditworthiness. If a bank's LIBOR contributions are relatively high, those submissions could suggest that the bank is paying more than others to borrow funds. Thus, a bank could be perceived to be experiencing financial difficulties because lenders were charging higher rates to that bank.

122. Moreover, because no one bank would want to stand out as bearing a higher degree of risk than its fellow banks, each Defendant shared a powerful incentive to collude with its co-Defendants and Former Defendants to ensure it was not the "odd man out."

123. *Third*, by artificially suppressing LIBOR, Defendants paid lower interest rates on LIBOR-based financial instruments they sold to investors during the Class Period.

124. Defendants thus possessed reputational and financial incentives to manipulate LIBOR—which, as detailed below, they did.

2. That At Least Some Defendants Faced Dire Financial Circumstances During The Class Period Further Renders Their Unduly-Low LIBOR Quotes Striking

125. The independent economic analyses performed in connection with these proceedings, whose findings are corroborated by the publicly available scholarly work detailed above, strongly indicate Defendants' LIBOR quotes during the Class Period did not appropriately reflect those banks' actual offered rates at that time – and, indeed, that Defendants *collectively* suppressed LIBOR. Further illustrating the striking discrepancy between Defendants' submissions to the BBA and their actual offered rates, during 2008 and 2009 at least some of those banks' LIBOR quotes were too low in light of the dire financial circumstances the banks faced, which were described in numerous news articles from the Class Period.

3. Citigroup

126. On November 21, 2008, *The Wall Street Journal* reported that Citigroup executives "began weighing the possibility of auctioning off pieces of the financial giant or even selling the company outright" after the company faced a plunging stock price. The article noted Citigroup executives and directors "rushing to bolster the confidence of investors, clients and employees" in response to uncertainty about Citigroup's exposure to risk concerning mortgage-related holdings.[20] Similarly, On November 24, 2008, *CNNMoney* observed:

> If you combine opaque structured-finance products with current fair-value accounting rules, almost none of the big banks are solvent because that system equates solvency with asset liquidity. So at this moment Citi isn't solvent. Some argue that liquidity, not solvency, is the problem. But in the end it doesn't matter. Fear will drive illiquidity to such a point that Citi could be rendered insolvent under the current fair-value accounting system.[21]

127. On January 20, 2009, *Bloomberg* reported that Citigroup "posted an $8.29 billion fourth-quarter loss, completing its worst year, and plans to split in two under Chief Executive

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[20] *See* http://online.wsj.com/article/SB122722907151946371.html?mod=testMod.

[21] *See* http://money.cnn.com/2008/11/21/news/companies/benner_citi.fortune/.

Officer Vikram Pandit's plan to rebuild a capital base eroded by the credit crisis. The article further stated, "***The problems of Citi, Bank of America and others suggest the system is bankrupt***." (Emphasis added).[22]

4. Former Defendants RBS, Lloyds, and HBOS

128. An April 23, 2008 analyst report from Société Générale reported, with respect to RBS's financial condition in the midst of its attempt to raise capital:

> Given the magnitude and change in direction in a mere eight weeks, we believe that management credibility has been tarnished. We also remain unconvinced that the capital being raised is in support of growth rather than merely to rebase and recapitalise a bank that overstretched itself at the wrong point in the cycle in its pursuit of an overpriced asset.
>
> * * *
>
> [I]n our eyes, RBS has not presented a rock solid business case that warrants investor support and the bank has left itself almost no capital headroom to support further material deterioration in either its assets or its major operating environments. We believe £16bn (7% core tier I ratio) would have provided a solid capital buffer.

The analysts also opined, "[W]e are not of the belief that all of RBS' problems are convincingly behind it." They further explained, "When faced with the facts and the events leading up to yesterday's request for a £12bn capital injection, we believe shareholders are being asked to invest further in order to address an expensive mishap in H2 07 rather than capitalise on growth opportunities."

129. On October 14, 2008, *Herald Scotland* reported a £37 billion injection of state capital into three leading banks, including RBS and HBOS. The article observed, "Without such near-nationalisations, . . . Royal Bank of Scotland and HBOS, would almost certainly have suffered a run on their remaining reserves and been plunged into insolvency. Their share prices could

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[22] *See* http://www.bloomberg.com/apps/news?pid=21070001&sid=aS0yBnMR3USk.

scarcely have taken much more of their recent hammering."[23]

130. On December 12, 2008, *Bloomberg* reported that shareholders approved HBOS's takeover by Lloyds TSB Group plc following bad-loan charges in 2008 rising to £5 billion and an increase in corporate delinquencies. The article also quoted analysts characterizing HBOS's loan portfolio as "'generally of a lower quality than its peers.'" *Bloomberg* further observed that HBOS suffered substantial losses on its bond investments, which totaled £2.2 billion, and losses on investments increased from £100 million to £800 million for the year.[24]

131. A January 20, 2009 analyst report from Société Générale stated: "We would note that given the 67% drop in the share price following [RBS]'s announcements yesterday [relating to capital restructuring due to greater-than-expected credit-market related write downs and bad debt impairments in Q4], the loss of confidence in the bank's ability to continue to operate as a private sector player and concern over the potential ineffectiveness of the Asset Protection Scheme may prompt the UK government to fully nationalise the bank. In this instance, the shares could have very limited value, if at all."[25]

132. On March 9, 2009, *Bloomberg* reported that Lloyds "will cede control to the British Government in return for state guarantees covering £260 billion ($A572 billion of risky assets)." The article further observed that in September 2008, Lloyds agreed to buy HBOS for roughly £7.5 billion as the British Government sought to prevent HBOS from collapsing after credit markets froze. The HBOS loan book was described as "more toxic than anyone ever dreamed."[26]

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[23] *See* http://www.heraldscotland.com/reckless-banks-brought-this-financial-firestorm-down-upon-their-own-heads-1.891981.

[24] *See* http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a4BTqdgwhPTc&refer=uk.

[25] *See* January 20, 2009 Société Générale analyst report on Royal Bank of Scotland titled "Little value left for shareholders."

[26] *See* http://www.businessday.com.au/business/lloyds-the-latest-uk-bank-to-be-rescued-20090308-8sfd.html.

133. On November 24, 2009, *Bloomberg* reported the Bank of England provided £62 billion ($102 billion) of "taxpayer-backed emergency financing" to RBS and HBOS at the height of the financial crisis in October 2008 and that "[t]he [financing] operations were kept secret until now to prevent unnerving markets." The Bank's Deputy Governor Paul Tucker was quoted as stating in evidence to the Treasury Committee in London that "'[h]ad we not done it, the cycle would have been a lot worse…[and that] [t]his was tough stuff, a classic lender of last resort operation.'"[27]

5. Former Defendant WestLB

134. A September 9, 2008 article in *Spiegel Online* reported WestLB was "heavily hit as a result of the US sub-prime crisis and the resulting credit crunch. Ill-advised speculation resulted in a 2007 loss of €1.6 billion – leading the bank to the very brink of insolvency." The article reported that in early 2008, a special investment vehicle was set by WestLB's primary shareholders to "guarantee €5 billion worth of risky investments." The European Commissioner approved the public guarantee but demanded that the bank be "completely restructured to avoid failing afoul of competition regulations." The European Commissioner for Competition later warned that if WestLB did not significantly improve its restructuring package, Brussels would not approve the public assistance that European Union had already provided to the bank. Further, if that occurred, WestLB would have to pay back €12 billion to the EU.[28]

135. On November 24, 2009, *Bloomberg* reported that BNP Paribas SA said "[i]nvestors should buy the euro [ ] on speculation that capital will need to be repatriated to support German bank WestLB AG." Furthermore, two German regional savings bank groups that hold a majority

[27] *See* http://www.bloomberg.com/apps/news?pid=21070001&sid=a9MjQj6MNTeA

[28] *See* Anne Seith, Germany's WestLB under Attack from Brussels, SPIEGEL ONLINE, Sept. 9, 2008, http://www.spiegel.de/international/business/0,1518,druck-577142,00.html.

stake in WestLB were "prepared to let the Dusseldorf-based lender become insolvent" and that "the prospect of insolvency may force state-owned banks and savings banks outside North Rhine-Westphalia, WestLB's home state, to contribute to capital injections." Moreover, WestLB needed "as much as 5 billion euros ($7.5 billion) in capital and may be shut by Nov. 30 unless a solution for its capital needs can be found."[29]

C. Defendants' Improper Activities Have Incited Governmental Investigations, Legal Proceedings and Disciplinary Action Worldwide

136. As described in more detail below, investigations regarding LIBOR have been conducted in the United States, Switzerland, Japan, United Kingdom, Canada, the European Union, and Singapore by nine different governmental agencies, including the DOJ, the SEC and the CFTC. Many of these investigations are still ongoing.

137. The investigations uncovered a widespread manipulation of various LIBOR rates, including U.S. Dollar LIBOR. In the FCA's settlement agreement with Citibank, the British Financial Conduct Authority ("FCA") expressly noted that in response to Final Notices issued to other defendants by regulatory authorities for LIBOR manipulation, Citibank engaged in a remediation program to improve policies, procedures and training in connection with Citibank's LIBOR and other benchmark assessments and price formation processes.

138. On June 27, 2012, defendant Barclays settled civil and criminal actions with the DOJ, CFTC and the FCA concerning, *inter alia*, the manipulation of USD-LIBOR. Pursuant to these settlements, Barclays paid the U.S. and U.K. authorities a total of approximately $453 million. In addition, on May 19, 2015, Barclays entered into a criminal plea agreement with the DOJ for manipulation of foreign exchange rates and benchmarks and paid an additional penalty of

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[29] *See* Matthew Brown, BNP Says Buy Euro on Speculation WestLB to Be Rescued (Update 1), BLOOMBERG, Nov. 24, 2009, http://www.bloomberg.com/apps/news?pid=21070001&sid=aI9ZPZShrjWI.

$60 million for violation of its previous non-prosecution agreement with the DOJ for LIBOR manipulation. The Barclays plea agreement notes that by manipulating foreign exchange rates and benchmarks during the period December 2007 through at least August 2012, Barclays committed a crime that violated the terms of its previous LIBOR non-prosecution agreement.

139. On December 19, 2012, defendant UBS settled civil and criminal cases with the DOJ, CFTC and FCA concerning, *inter alia*, the manipulation of USD-LIBOR. Pursuant to the settlements and plea agreement, UBS paid the U.S. and U.K. authorities a total of approximately $1.5 billion. Subsequently, in May 2015, the DOJ assessed and UBS agreed to pay an additional fine in the amount of $203 million for violation of the deferred prosecution agreement, which enabled UBS to avoid prosecution if for two years it did not commit any United States crime whatsoever. By engaging in manipulation of foreign exchange rates and benchmarks during the two-year period covered by its deferred prosecution agreement, UBS violated its agreement with the DOJ and accepted the additional $203 million fine and a three-year term of probation.

140. On February 6, 2013, former defendant RBS settled civil and criminal cases with the DOJ, CFTC and FCA concerning the manipulation of various LIBOR rates. Although the RBS settlements and deferred prosecution agreements did not primarily focus on the manipulation of USD-LIBOR, the DOJ specifically reserved "other benchmark rates" (listed in a redacted Attachment C to the Deferred Prosecution Agreement, dated February 5, 2013 ("RBS DPA")), because they "are the focus of an ongoing investigation." The DOJ deferred prosecution agreement further stated that the DOJ would not file any additional criminal charges against RBS "relating to information that the RBS Group of Companies disclosed to the Department prior to the date on which [the RBS DPA] was signed, limited to the manipulation, attempted manipulation, or interbank coordination of benchmark rates identified in . . . Attachment C." Pursuant to the

settlements and plea agreement, RBS paid the U.S. and U.K. authorities a total of approximately $615 million.

141. On October 29, 2013, defendant Rabobank settled civil and criminal cases with the DOJ, CFTC and FCA concerning, *inter alia*, the manipulation of USD-LIBOR. Pursuant to the settlement and the deferred prosecution agreement, Rabobank paid the U.S. and U.K. authorities a total of approximately $1 billion.

142. On July 28, 2014, former defendant Lloyds settled civil and criminal cases with the DOJ, CFTC and FCA concerning, *inter alia*, the manipulation of USD-LIBOR. Pursuant to the settlement and the deferred prosecution agreement, Lloyds paid the U.S. and U.K. authorities a total of approximately $370 million.

143. On April 23, 2015, defendant Deutsche Bank settled civil and criminal cases with the DOJ, CFTC, New York Department of Finance and FCA concerning, *inter alia*, the manipulation of USD-LIBOR. Pursuant to the settlement and the guilty plea, Deutsche Bank paid the U.S. and U.K. authorities a total of approximately $2.5 billion, making it the largest LIBOR settlement to date.

144. The above-mentioned settlements have exposed evidence of manipulation of USD-LIBOR by one or several entities for, *inter alia*, the express purpose of manipulating Eurodollar futures. Evidence from the settlements shows that at least some banks sought to manipulate LIBOR as early as January 2005. The evidence is discussed below.

D. <u>Findings from Barclays Settlements Involving U.S. Dollar LIBOR</u>

145. Internal emails from the various governmental settlements with Barclays demonstrate that, as early as 2005, Barclays traders intended to manipulate *Eurodollar futures contracts* so as to benefit their trading positions by improperly requesting improper USD-LIBOR

submissions.[30] Because of the high value of the notional amounts underlying derivative transactions tied to USD-LIBOR, even very small movements in those rates had a significant impact on the profitability of a trader's trading portfolio. Appendix A to the Barclays DOJ Criminal Non-prosecution Agreement, dated June 26, 2012, containing the Statement of Facts ¶ 22 ("Barclays DOJ SOF").

146. The Barclays Non-prosecution Agreement also expressly states that the "false and misleading Dollar LIBOR contributions affected or tended to affect the price of commodities, including Eurodollar futures contracts." *Id.* ¶ 33 (emphasis added); *see also* FCA Final Notice to Barclays Bank plc, dated June 27, 2012, ¶ 45 ("Barclays FCA Final Notice").

147. Additionally, the Barclays DOJ SOF expressly states that "[t]he parties agree" that the information in it "is true and accurate." Barclays DOJ SOF at 1. It further states "Barclays acknowledges that the wrongful acts taken by the participating employees in furtherance of this misconduct set forth [in the Barclays DOJ SOF] were within the scope of their employment at Barclays" and that "the participating employees intended, at least in part, to benefit Barclays through the actions described [in the Barclays DOJ SOF]." *Id.* ¶ 50.

148. For example, on September 28, 2005, in a series of electronic messages between two Barclays traders – Trader-3 and Trader-1 – discussing the next day's 3-month USD-LIBOR submission, Trader-3 stated:

> "WE WANT TOMORROW'S FIX TO BE 4.07 MINIMUM," repeating, "4.07....NOTHING LESS..." (emphasis and ellipses in original). Trader-3 explained: "We have turn exposure of 837 ***futures contracts***. [F]or every 0.25 bps tomorrows [sic] fix is below 4.0525 we lose 154,687.50 usd [United States Dollars]...if tomorrows [sic] fix comes in at 4.0325 we lose 618,750 usd." (ellipses in original). Trader-1 replied in part, "I'll ask [Submitter-1] to go for 4.07." Barclays's 3-month Dollar LIBOR submission on September 29, 2005 was 4.07%, which was the highest rate submitted by any Contributor Panel bank.

[30] Plaintiffs also have significantly more evidence that various Defendants engaged in LIBOR manipulation from the Barclays Cooperation Materials. Those allegations are in SectionV.J, *infra*.

Barclays DOJ SOF ¶ 22 (emphasis added).

149. Barclays' suppression of U.S. Dollar LIBOR was also often timed to coincide with the last trading date of Eurodollar futures contracts (*e.g.* the second London bank business day prior to the third Wednesday of the contract's named month of delivery) so as to ensure that such contracts would be governed by artificially low USD-LIBOR at the time of settlement. Most Eurodollar futures contracts settle on four quarterly International Money Market ("IMM") dates, which are the third Wednesday of March, June, September, and December. Barclays DOJ SOF ¶ 9. If the rates that Barclays reported for USD-LIBOR were artificially low, then at the time of expiration, the settlement price for Eurodollar futures would be artificially high because the underlying value of the Eurodollar contract is inversely related to the interest rate. Internal emails suggest that Barclays manipulated USD-LIBOR with the specific intent to manipulate the Eurodollar futures contracts settling on March 2006, September and December 2006, as well as on September 2007 and March 2010.

150. For example, on Friday, March 10, 2006, a Barclays dollar swaps trader located in London ("Trader-1") sent an email to a Barclays USD-LIBOR submitter ("Submitter-1") stating: "Hi mate[.] ***We have an unbelievably large set on Monday (the IMM)***. We need a really low 3m [3-month] fix, it could potentially cost a fortune. Would really appreciate any help, I'm being told by my NYK [counterparts in New York] that it's extremely important. Thanks." Barclays DOJ SOF ¶ 13 (emphasis added); Barclays FCA Final Notice ¶ 59(i). The last trading day for the March 2006 Eurodollar futures contract was Monday, March 13, 2006. On Monday, March 13, 2006, at approximately 7:48 a.m., the Barclays dollar swaps trader wrote to the Barclays USD-LIBOR submitter stating:

> "The big day has[] arrived…My NYK were screaming at me about an unchanged 3m libor. As always, any help wd be greatly appreciated. What do you think you'll go for 3m? Submitter-1 responded, "I am going 90 altho 91 is what I should be posting." Trader-1 replied in part: "I agree with you and totally understand. Remember, when I retire and write a book about this business your name will be in golden letters…" Submitter-1 replied, "I would prefer this not be in any books!"

Barclays DOJ SOF ¶ 13; Barclays FCA Final Notice ¶ 59(iii). Barclays' 3-month USD-LIBOR submission on this date was 4.90%, which was a rate unchanged from the previous trading day and was tied for the lowest rate submitted. Barclays DOJ SOF ¶ 13.

151. Also on March 13, 2006 (the last trading day for Eurodollar futures contracts), another Barclays trader sent a separate email to a Barclay submitter explaining, "I really need a very very low 3m fixing on Monday – preferably we get kicked out. We have about 80 yards [billion] fixing for the desk and each 0.1 [one basis point] lower in the fix is a huge help for us. So 4.90 or lower would be fantastic." Barclays FCA Final Notice ¶ 59(ii). The trader also indicated his preference that Barclays would be kicked out of the average calculation. *Id.*

152. On Thursday, December 14, 2006, a Barclays trader emailed a Barclays submitter requesting a low three month USD-LIBOR submission for the following Monday, December 18, 2006 – the last trading day for the December 2006 Eurodollars futures contract. The Barclays trader stated:

> "*For Monday we are very long 3m cash here in NY and would like the setting to be set as low as possible…thanks.*" The Submitter instructed another Submitter to accommodate the request: "*You heard the man*" and confirmed to Trader F, "[X] *will take notice of what you say about a low 3 month*."

Barclays FCA Final Notice ¶ 75 (emphasis in original). Two seconds after the above message was sent, the Barclays submitter sent himself an electronic calendar reminder to make a low 3-month submission at 11 am on Monday, December 18, 2006: "*USD 3mth LIBOR DOWN*." *Id.* ¶ 76. Barclays' 3-month USD-LIBOR submission, which had been higher than the final benchmark rate,

reduced by half a basis point to the same level as the benchmark rate for one day only - December 18, 2006 - which corresponded to the date of the request made by the Barclays trader. Barclays' position relative to other banks also moved down on this same date and its submission, therefore, was consistent with the trader's request for a low 3-month USD-LIBOR submission on December 18, 2006. *Id.* ¶ 78.

1. Barclays' Derivatives Traders' Internal Requests for Favorable USD LIBOR Submissions to Benefit Their Trading Positions

153. Information that had not been disclosed in any forum prior to the Barclays settlements on June 27, 2012 demonstrates that Barclays and other banks manipulated USD-LIBOR to advantage their financial derivatives positions, including manipulating the prices of various settling Eurodollar futures contracts on the CME. Prior to the Barclays settlement, this information could not have been discovered through any reasonable diligence of a person of ordinary intelligence.

154. Between January 2005 and June 2009, Barclays, through the acts of its swaps traders and submitters, attempted to manipulate LIBOR, which includes USD-LIBOR, in order to benefit Barclays' derivatives trading positions by either increasing their profits or minimizing their losses. Barclays FCA Final Notice, ¶ 53; Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodities Exchange Act, as Amended, Making Findings and Imposing Remedial Sanctions, filed in *In the Matter of: Barclays PLC, Barclays Bank PLC and Barclays Capital Inc.*, CFTC Docket No. 12-25, at 2-3 (June 27, 2012) ("Barclays CFTC Order").

155. Barclays traders made requests to submitters in person, via email, and through electronic "chats" over an instant messaging system. Barclays CFTC Order at 8; Barclays DOJ SOF ¶ 11. At times, requests made by email alone were sent by Barclays Derivative Traders almost every day. Barclays FCA Final Notice ¶ 55. For example, requests were made by Barclays'

U.S. dollar Derivatives Traders on 16 out of the 20 days on which Barclays made USD-LIBOR submissions in February 2006 and on 14 out of the 23 days on which it made USD-LIBOR submissions in March 2006. *Id.*

156. The USD-LIBOR submitters regularly considered the swap traders' requests when determining and making Barclays' USD-LIBOR submissions as shown in their frequent affirmative responses to the traders that they would accommodate the requests. Barclays CFTC Order at 10. In response to traders' requests, submitters would respond affirmatively that they would accommodate the requests such as saying "sure," "will do my best," and similar wording. *Id.* Submitters would also make entries in their own electronic calendars to remind themselves what rate to submit the following day in order to accommodate a request by a swap trader. *Id.*; Barclays FCA Final Notice ¶ 76.

157. Between January 2005 and May 2009, at least 173 requests for U.S. Dollar LIBOR submissions were made to Barclays' Submitters (including 11 requests based on communication from traders at other banks). Barclays FCA Final Notice ¶ 56(i). Moreover, between January 3, 2006 to August 6, 2007, Barclays Derivatives Traders made 111 requests relating to USD-LIBOR submissions. *Id.* ¶ 71(i). This suggests that potentially up to 62 requests were made relating to USD-LIBOR submissions during the suppression period beginning in August 2007. None of this particularized information, either before or after August 2007 was known publicly before the Barclays government settlement. However, as detailed herein (*see* SectionV.J., *infra*), the Barclays Cooperation Materials make clear that the frequency and extent of LIBOR manipulation was greater than what had been previously disclosed in the government settlements.

158. On the majority of occasions where Barclays' submitters were contacted by Barclays Derivatives Traders with requests, Barclays' submissions for USD-LIBOR were

consistent with those requests. Barclays FCA Final Notice ¶ 71. Specifically, of the 111 requests made by Barclays Derivative Traders from January 2006 through August 2007, on around 70% of those occasions, the submissions were consistent with the traders' request. *Id.* ¶ 71(i). On 16% of those occasions, it was unclear if the submissions were consistent with the requests and on only 14% of those occasions were the submissions inconsistent with the requests. *Id.*

159. Internal emails demonstrate that the number of requests and the period of time over which they were made indicate that the Barclays Derivatives Traders regularly made requests for specific USD-LIBOR submissions. For example, on May 27, 2005, a Barclays submitter sent an email stating, "Hi All, Just as an FYI, I will be in noon'ish on Monday [. . .]" to which Trader B (a Barclays U.S. dollar Derivative Trader) responded, "Noonish? Whos going to put my low fixings in? hehehe." The Barclays submitter replied, "[. . .] [X or Y] will be here if you have any requests for the fixings." Barclays FCA Final Notice ¶ 60.

160. One submitter also adjusted Barclays' submissions one or more basis points up or down in order to comply with the swap traders' requests. Barclays CFTC Order at 10. The numbers submitted were different than the numbers the submitter would have submitted absent the requests and were not consistent with the USD-LIBOR definition. For example, on November 14, 2005 a swaps trader requested a very high 1-month USD-LIBOR submission, preferably a submission of "13+." The submitter responded, "Am going 13. think the market will go 12-12 ½." *Id.*

161. In another instance, on February 15, 2006, a Barclays U.S. dollar derivatives trader made a request in relation to Barclays' 3-month USD-LIBOR submission: "*Please go for* [unchanged], *or lower if poss*". A submitter sent a positive response to this request. Barclays' 3-month USD-LIBOR submission, which had been at or higher than the final benchmark rate,

reduced to a level below the benchmark rate on the day a Barclays U.S. dollar derivatives trader requested a lower submission. It then increased to the same level as the benchmark rate on the following day. On the same date, Barclays' position relative to other banks also moved down. Barclays' submission on February 15, 2006 was therefore consistent with the trader's request for a low 3-month submission. Barclays FCA Final Notice ¶¶ 73-74 (emphasis in original).

162. On February 22, 2006, at approximately 9:42 a.m., a Barclays U.S. dollar swaps trader located in London sent an email to another Barclays USD-LIBOR submitter stating, "Hi (again) We're getting killed on our 3m resets, we need them to be up this week before we roll out of our positions. Consensus for 3m today is 4.78 – 4.7825, it would be amazing if we could go for 4.79…Really appreciate ur help mate." Barclays DOJ SOF ¶ 14 (ellipses in original). The Barclays submitter responded, "Happy to help." Barclays' 3-month dollar USD-LIBOR submission on this date was 4.79%. *Id.*

163. On March 16, 2006, a Barclays U.S. dollar derivatives trader requested a high one-month and low three-month USD-LIBOR. A Barclays submitter responded: "For you…anything. I am going to go 78 and 92.5. It is difficult to go lower than that in threes, looking at where cash is trading. In fact, if you did not want a low one I would have gone 93 at least." Barclays FCA Final Notice ¶ 64; Barclays CFTC Order at 10.

164. On March 22, 2006, a Barclays U.S. dollar derivatives trader stated in an email to a manager at Barclays that Barclays' submitter "*submits our settings each day, we influence our settings based on the fixings we all have*". Barclays FCA Final Notice ¶ 57(i) (emphasis in original). The manager took no action as a result of this email. *Id*. Two days prior, on March 20, 2006, a Barclays' LIBOR submitter responded to a trader's request and agreed to make a false submission to manipulate LIBOR. Barclays CFTC Order at 10.

165. On April 7, 2006, at 10:52 a.m. (shortly before the submissions were due to be made), a Barclays U.S. dollar derivatives trader requested low one month and 3-month USD-LIBOR submissions: "If it's not too late low 1m and 3m would be nice, but please feel free to say 'no'…Coffees will be coming your way either way, just to say thank you for your help in the past few weeks." A Barclays submitter responded, "Done…for you big boy." Barclays FCA Final Notice ¶ 65.

166. On October 26, 2006 an external trader made a request to Barclays for a lower three month USD-LIBOR submission. The external trader stated in an email to Trader G at Barclays "If it comes in unchanged I'm a dead man". Trader G responded that he would "have a chat". Barclays' submission on that day for three month USD-LIBOR was half a basis point lower than the day before, rather than being unchanged. The external trader thanked Trader G for Barclays' LIBOR submission later that day: "Dude. I owe you big time! Come over one day after work and I'm opening a bottle of Bollinger". Barclays FCA Final Notice ¶ 83.

167. As demonstrated in another email exchange, on December 18, 2006 a Barclays swap trader located New York ("Trader-2") sent a request to a Barclays USD-LIBOR submitter ("Submitter-1") with the subject line, "3m Libor," asking:

> "Can you pls continue to go in for 3m Libor at 5.365 or lower, we are all very long cash here in ny." Submitter-1 asked, "How long for [Trader-2]? Trader-2 replied, "Until the effective date goes over year end (i.e., turn drops out) if possible." Submitter-1 replied, "Will do my best sir." Trader-2 replied, "Thx." On December 19, 20, and 21, 2006, Barclays' 3-month dollar LIBOR submissions were 5.37%, 5.37%, and 5.375%, respectively. On December 21, 2006, at approximately 12:05 p.m., Trader-2 forwarded the December 19 correspondence to Submitter-1. At approximately 12:05 p.m., Submitter-1 forwarded Trader-2's email to Submitter-2, stating, "whoops." At approximately 1:03 p.m., Submitter-1 created an electronic calendar entry that was scheduled to begin on December 22, 2006 at 9:00 a.m. and continue until January 1, 2007 at 9:30 a.m. stating, "SET 3 MONTH US$ LIBOR LOW!!!!!!" (emphasis in original). On December 22, 2006, and on the subsequent trading days through the end of the year, Barclays' 3-month dollar LIBOR submissions were 5.36%, 5.365%, 5.35%, and 5.36% respectively.

Barclays DOJ SOF ¶ 15.

168. On February 8, 2007, Trader B at Barclays made a request to an external trader in relation to three month US dollar LIBOR "duuuude… whats up with ur guys 34.5 3m fix…tell him to get it up!!" The external trader responded "ill talk to him right away". Barclays FCA Final Notice ¶91.

169. On July 29, 2007, at approximately 9:45 p.m., a Barclays trader sent an email to a Barclays USD-LIBOR submitter, with a copy to a supervising trader in New York , with the subject line, "3m cash," stating, "Pls go for 5.36 libor again, very important that the setting comes as high as possible…thanks." Barclays DOJ SOF ¶ 16 (ellipses in original). Barclays' 3-month USD-LIBOR submission on the following day, July 30, 2007, was 5.36%. *Id.*

170. On August 6, 2007, a Barclays submitter even offered to submit a U.S. dollar rate higher than that requested. A Barclays trader stated, "Pls set 3, libor as high as possible today." The Barclays submitter replied, "Sure 5.37 okay?" The Barclays trader responded, "5.36 is fine." Barclays FCA Final Notice ¶ 67.

171. On September 12, 2007, Barclays U.S. Dollar LIBOR submitter received a request from Barclays US dollar Derivatives Traders for a "high three month LIBOR submissions 'for about about a couple of million dollars a basis point.'" The Barclays submitter responded: "Ah, but I don't know how much longer I'm gonna be able to keep it up at seventy seven". Barclays FCA Final Notice ¶ 164. A senior manager at Barclays e-mailed the Compliance department with questions regarding conflicts of interest between submitters and traders, noting that "Monday [September 17, 2007] is particularly important as all of the 3 month futures contracts fix". *Id.* at

165.[31]

172. In response to the inquiry, Barclays' Compliance department considered whether information barriers between LIBOR submitters and other areas of the bank were necessary and concluded that "no such information barriers were necessary, even though there was a potential conflict of interest between Barclays' Submitters and its Derivatives Traders." *Id.* at 167. No "systems and controls were put in place to deal with the potential conflict and "Barclays' Submitters continued to receive requests from Barclays' Derivatives Traders after this issue had been flagged to Compliance." *Id.* at 167-68.

173. On September 26, 2007, a Barclays trader stated to Barclays' LIBOR submitter that "We're all rooting for a high LIBOR tomorrow", and although "the Submitter had been made aware by a senior manager that he should not know what the Derivatives Traders' positions were" he responded: I reckon you should be about four to five ticks higher". *Id.* at 168.

174. On February 5, 2008, a Barclays U.S. dollar derivatives trader stated in a telephone conversation with a Barclays manager that Barclays' submitter was submitting "*the highest LIBOR of anybody [...] He's like I think this is where it should be. I'm like, dude, you're killing us*". The manager instructed the Barclays trader to: "*just tell him to keep it, to put it low*". The trader said that he had "*begged*" the submitter to put in a low USD LIBOR submission and the Submitter had said he would "*see what I can do*." Barclays FCA Final Notice ¶ 57(ii) (emphasis in original).

2. Additional Traders' Requests Concerning USD-Dollar LIBOR Submissions

175. Barclays derivative traders would attempt to influence the official LIBOR fixing so

[31] Allegations of trader-based manipulation between August 7, 2007 and April 14, 2009 are alleged for purposes of "course of conduct" allegations. To the extent that Plaintiffs' trader-based manipulation claims are dismissed, Plaintiffs reserve their right to appeal from such dismissal from this period. Plaintiffs also reserve their rights to appeal from the Court's dismissal in whole or in part of any of Plaintiffs' claims previously dismissed on other grounds, including claims arising under the CEA and Sherman Act Section 1 and common law."

as to benefit Barclays' trading positions by asking its submitters to try to have Barclays excluded (*e.g.* "kicked out" or "knocked out") from the LIBOR calculation by being in the top or bottom quartile. Examples of such conduct include:

- On November 22, 2005 a Senior Trader in New York wrote to a Trader in London, "WE HAVE TO GET KICKED OUT OF THE FIXING TOMORROW!! We need a 4.17 fix in 1m (low fix) We need a 4.41 fix in 3m (high fix)." Barclays CFTC Order at 9.

- On February 7, 2006, Trader C (a US dollar Derivatives Trader) requested a "*High 1m and high 3m if poss please. Have v. large 3m coming up for the next 10 days or so*." Trader C also expressed his preference that Barclays would be "*kicked out*" of the average calculation. Trader C's aim was therefore that Barclays' submissions would be high enough to be excluded from the final benchmark rate. Barclays FCA Final Notice ¶ 58 (emphasis in original).

- In a separate request also on February 7, 2006, a Submitter responded, "[Senior Trader] owes me!" when a swaps trader called him a "superstar" for moving Barclays' U.S. dollar LIBOR submission up a basis point more than the Submitter wanted and for making a submission with the intent to get "kicked out." Barclays CFTC Order at 10.

- On February 8, 2006 a swaps trader requested high 1-month and 3-month LIBOR submissions and the Submitter responded, "Going 58 [in 1 month] and 73 [in 3 month] and fully expecting to be knocked out." Barclays CFTC Order at 10.

176. Barclays traders also made frequent requests for favorable high or low U.S. dollar LIBOR contributions to U.S. dollar submitters in order to affect the daily, official published LIBOR rate. For example, on February 1, 2006 a New York Trader communicated with a Trader in London: "You need to take a close look at the reset ladder. We need 3m to stay low for the next 3 sets and then I think that we will be completely out of our 3M position. Then its on. [Submitter] has to go crazy with raising 3M Libor." Barclays CFTC Order at 9.

177. In another instance, on February 3, 2006, a Trader in London messaged a Submitter, stating, "Your annoying colleague again … Would love to get a high 1 m Also if poss a low 3m

… if poss … thanks." Barclays CFTC Order at *9*.

178. On March 27, 2006, a trader in New York messaged a trader in London stating: "This is the [book's] risk. We need low 1M and 3M libor. Pls ask [Submitter] to get 1M set to 82. That would help a lot." Barclays CFTC Order at 9.

179. On May 31, 2006 a Trader in New York messaged a Submitter: "We have another big fixing tom[orrow] and with the market move I was hoping we could set the 1M and 3M Libors as high as possible." Barclays CFTC Order at 9.

180. On September 13, 2006, a Senior Trader in NY communicated to a Submitter: "Hi Guys, We got a big position in 3m libor for the next 3 days. Can we please keep the libor fixing at 5.39 for the next few days. It would really help. We do not want it to fix any higher than that. Tks a lot." Barclays CFTC Order at 10.

181. On March 5, 2007, a swaps trader requested a high 3-month U.S. dollar LIBOR and a Submitter responded, "Set it at 5.345 against a consensus of 34." Barclays CFTC Order at 11.

182. On May 23, 2007 a Trader in New York sent a message to a Submitter: "Pls. go for 5.36 Libor again tomorrow, very long and would be hurt by a higher setting…thanks." Barclays CFTC Order at 10.

E. <u>Findings From UBS Settlement Involving USD-LIBOR</u>

183. On December 18-19, 2012, Defendant UBS also settled with governmental authorities in the United States, the United Kingdom and Switzerland over its manipulation of LIBOR. *See* Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodity Exchange Act Making Findings and Imposing Remedial Sanctions, filed in *In the Matter of: UBS AG and UBS Securities Japan Co., Ltd.*, CFTC Docket No. 13-09 (Dec. 19, 2012) ("UBS CFTC Order"). Evidence relating to UBS's involvement in misrepresenting its USD-LIBOR submissions is summarized below. Even small shifts in LIBOR settings can have a significant impact on the

profitability of Defendants' LIBOR-based instruments. For example, in October 2008, a UBS manager advised that "UBS had trading positions that would cause losses of USD 4m per basis point if 'libors move higher.'" UBS FCA ¶ 103. The evidence includes that UBS submitted false USD-LIBOR reports to benefit its trading positions. For example:

- UBS CFTC Order at 45: "On November 30, 2007, U.S. Dollar Trade 1, when providing the rates to be submitted under Group Treasury's instruction, told U.S. Dollar Trader-Submitter 1, "go 5.18 (will be low) if you have exposure, let me know, happy to go a bit higher."

184. In addition, the evidence shows that UBS submitted false USD-LIBOR reports so as not to appear weaker or less creditworthy than other LIBOR submitters. For example:

- UBS CFTC Order at 2: "[F]rom approximately August 2007 to mid-2009, UBS, at times, used false benchmark interest rate submissions, including U.S. Dollar LIBOR, to protect itself against media speculation concerning its financial stability during the financial crisis."

- UBS CFTC Order at 41: "During the financial crisis, commencing in early August 2007, certain managers of UBS's Group Treasury and ALM [Asset and Liability Management] issued directions concerning the determination of its U.S. Dollar LIBOR and other benchmark interest rate submissions arising out of a concern of protecting UBS's reputation and avoiding what it perceived as unfair and inaccurate negative media speculation about UBS's fundraising ability and creditworthiness. The key directions were, at first, to "err on the low side" of the submissions of the panel banks, and, later, to make submissions in the "middle of the pack" of the panel banks. Certain Group Treasury and ALM managers issued the broad directions without ascertaining or requiring the Trader-Submitters to ascertain the costs of borrowing unsecured funds in the relevant markets or ensuring that such directions were in accord with the definitions and criteria of the benchmark interest rates. These Group Treasury and ALM managers did not provide any guidance to its submitters as to how to implement these directions, other than simply to follow them. When the submitters followed the directions, they impacted UBS's submissions. As a result, at times during the financial crisis, UBS's submissions did not accurately or solely reflect or relate to UBS's assessment of the costs of borrowing funds in the relevant interbank markets."

Instruction to "err on the low side":

- August 9, 2007: "UBS promptly disseminated the direction to err on the low side. That same day, August 9, Rates Manager A confirmed that the necessary coordination was in place: 'We have already co-ordinated our efforts with [Senior Rates/STIR Manager] and [U.S. Dollar Trader-Submitter 1] on the usd libors will be speaking to [U.S. Dollar Trader

1]…before our numbers are input.' U.S. Dollar Trader 1 in Zurich and U.S. Dollar Trader-Submitter 1 in London discussed the 'err on the low side' direction, and their submissions immediately started reflecting the directions." UBS CFTC Order at 43;

- August 14, 2007: "[O]n August 14, 2007, U.S. Dollar Trader 1 confirmed again, my indications are deliberately on the low side ..." and U.S. Dollar Trader-Submitter 1 agreed, "y[es] pls err on the side of caution as before- once teh mkt normalises ... then we can adj accordingly ...." UBS CFTC Order at 44;

- September 3, 2007: "On September 3, 2007, U.S. Dollar Trader 1 explained to an ALM Manager his understanding of why UBS wanted to "err on the low side," stating that UBS did not want "to be seen to pay higher or at libor in the market to avoid trouble." UBS CFTC Order at 44; and

- September 5, 2007: "On September 5, 2007, U.S. Dollar Trader-Submitter 1 explained he was following the "err on the low side" direction to his supervisor, Senior Rates Manager C: 'fyi libor has been fuctioning well for many years – current turbulance and american home owners exposure to libor may trigger further questions - since the mkt dislocation I am now keeping a record of UBS libor fixings vs the implied rates - **we are fixing on the low side of all other banks in the libor panel in the 4- 12 mo period by several bps** - and we are still fixing 12 - 15 over implied rates - **I can justify my fixings each day if asked** - I se longer dated libors even lower however the rest of he mkt continue to call libors higher than UBS[32] – we should be protected from moral hazard as a bank. Short rates coming grom Zurich now - again asa bank we are erring on the low side.'" CFTC UBS Order at 44 (emphasis in original) (also noting that "this particular Trader-Submitter never had direct access to information about UBS's actual costs of borrowing unsecured funds in the relevant market for U.S. Dollar LIBOR.")

F. Findings From RBS Settlement Involving USD LIBOR

185. Former Defendant RBS has also settled with regulators for part of its manipulation of LIBOR. These settlements disclose that:

- "In addition, Derivative Traders made at least 5 written requests to influence RBS's USD submissions during the Relevant Period [defined as January 2006 and March 2012] (although it does not appear that these requests were taken into account)." FCA Final Notice to Royal Bank of Scotland plc, dated February 6, 2013, ¶ 7 ("RBS FCA Final Notice").

- "RBS also inappropriately considered the impact of LIBOR and RBS's LIBOR submissions on the profitability of transactions in its money market trading books as a factor when making (or directing others to make) … USD LIBOR submissions." *Id.* at ¶ 5.

[32] This comment is apparently a reference to the spread manipulation admitted to by Deutsche Bank and discussed more fully in Section V.I, *infra*.

186. The agreement with the DOJ explicitly states that RBS has only settled for manipulation of LIBOR as to certain currencies, not including the US Dollar, but that the investigation remained open certain other currencies. According to Attachment A to the DOJ Deferred Prosecution Agreement, dated February 5, 2013, containing the Statement of Facts ("RBS DOJ SOF"):

> Although not addressed in Attachment A, this Agreement also encompasses ***RBS's submissions for the additional benchmark rates*** listed in Attachment C, which is also incorporated into this Agreement. ***The rates listed in Attachment C are the focus of an ongoing investigation and, for that reason, Attachment C will be held in confidence by the parties to this Agreement,*** will not be included in the public filing of this document, and will not be made available to the public unless and until the Department of Justice, in its sole discretion, determines that such information can and should be disclosed.

RBS DOJ SOF at 2 n.1 (emphasis added).

187. Nonetheless, the RBS settlement documents include factual content related to US Dollar LIBOR manipulation. For example, the RBS FCA Final Notice ¶ 73 states:

> With respect to USD, on 16 August 2007, Primary Submitter C directed a junior Money Market Trader to make a USD LIBOR submission on his behalf that took into account the pricing of a large forthcoming floating rate transaction that would impact the USD money market book on 17 August 2007. Specifically, Primary Submitter C told a RBS colleague, "I've got massive fixing in ones, so I said to [Money Market Trader A, who was making RBS's USD LIBOR submissions on the day in question] I just want the really, really low ones, in case they do f*cking cut."[33] Primary Submitter C's reference to "massive fixings" was a reference to a repeating USD 4 billion borrowing facility that was set to fix on 17 August 2007. On 17 August 2007, RBS's 1 month LIBOR submission was two basis points lower than 16 August 2007 and seven basis points lower than 15 August 2007. However, as many Panel Banks also reduced their 1 month LIBOR submissions on 17 August 2007, RBS's submission ranking relative to the Panel Banks only fell slightly on that day. On 20 August 2007, the date of its next submission, RBS's 1 month submission went back up 2 basis points (and its submission ranking moved up significantly).

Additionally, the RBS FCA Final Notice ¶ 74 states:

[33] "They" in this context refers to the US Federal Reserve. *See* RBS FCA Final Notice ¶ 73, n.8.

> Also, in relation to USD, between 9 March 2010 and 18 March 2010, Primary Submitter D made USD submissions which took into account the pricing of large forthcoming floating rate USD transactions. A communication on 9 March 2010 illustrates the consideration that Primary Submitters, including Primary Submitter D, gave to these transactions. Specifically, on that date, Money Market Trader B, emailed Primary Submitter C whilst Primary Submitter C was on holiday and told him of a conversation he had had with Primary Submitter D who was filling in for Primary Submitter C and making RBS's USD LIBOR submissions. According to Money Market Trader B, Primary Submitter D told Money Market Trader B that even though Money Market Trader B wanted them higher, he [Primary Submitter D], "wanted to keep them [USD LIBORs] down because of some fixes." Primary Submitter C replied to Money Market Trader B's email and confirmed to him, "we do have some big fixes in London so suits for low libors." Notably, RBS's USD LIBOR submissions stayed low during this period when there were five large USD floating rate transactions (but they were unchanged from the rates submitted over the previous three weeks). RBS's USD LIBOR submissions went up after the last large transaction fixed.

Also in some instances, the same traders manipulating Yen and USD LIBORS held positions that required both USD and Yen LIBORs to move in particular:

> So on Monday, usd libor will drop 5 bps…but jpy [LIBOR] will only follow suit a few days later.

See RBS CFTC at 17.

G. Findings from the Rabobank Settlements Involving USD LIBOR

188. On or about October 29, 2013, Rabobank settled with various regulators for conduct related to U.S. Dollar LIBOR Manipulation. Specifically, Rabobank paid $325 million to the U.S. DOJ, $475 million to the CFTC, $170 million to the FCA and approximately $96 million to the Openbaar Ministerie (the Dutch Public Prosecution Service). Rabobank's chief executive officer resigned after Rabobank's confessions of this systematic manipulation of LIBOR and other rates.

189. More specifically, the Rabobank settlement documents detail how from 2005 through early 2011, "Rabobank derivatives and cash traders frequently asked Rabobank's LIBOR…submitters to submit preferential rates in attempts to manipulate U.S. Dollar…to benefit Rabobank traders' cash and derivatives trading positions that were tied to those benchmark interest

rates."[34] In addition, the CFTC determined that the conflict of interest between submitting honest LIBOR submitters rates and benefitting Rabobank's trading positions was heightened because Rabobank "grouped the submitters on the same desks with other derivative traders, which further facilitated the ease of coordinating on the submissions."[35]

190. According to the CFTC, Rabobank "regularly attempted to manipulate the official LIBOR fixings for U.S. Dollar in particular tenors, and knowingly delivered false, misleading or knowingly inaccurate reports concerning LIBOR for U.S. Dollar,… commodities in interstate commerce."[36] As a result, Rabobank's actions had the ability to influence the daily rates at which U.S. LIBOR was fixed.[37] In addition, Rabobank's false and misleading U.S. Dollar LIBOR submissions "affected or tended to affect the price of commodities, *including futures contracts*."[38] Eurodollar futures and option contracts traded on the CME are settled based on LIBOR and are among the commodities directly impacted by Rabobank's manipulative activities.[39]

1. Rabobank Made False Reports and Attempted to Manipulate USD LIBOR to Benefit Its Trading Positions

191. During a period of more than three years between at least mid-2005 and through at least late 2008, Rabobank regularly attempted to manipulate U.S. Dollar LIBOR and made false

[34] Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodity Exchange Act Making Findings and Imposing Remedial Sanctions against Rabobank, dated October 29, 2013 ("Rabobank CFTC Order") at 5; Attachment A, Statement of Facts attached to the Deferred Prosecution Agreement entered into by Rabobank with the United States Department of Justice, Criminal Division, dated October 29, 2013 ("Rabobank DOJ SOF") at ¶ 15; Final Notice of the Financial Conduct Authority issued to Rabobank, dated October 29, 2013 ("Rabobank FCA Final Notice") at ¶ 2.2; Letter from Dr J. Sijbrand to Rabobank's Executive Board and the Supervisory Board dated October 29, 2013 ("Rabobank BNB Findings Letter") at 6.

[35] Rabobank CFTC Order at 2.

[36] Rabobank CFTC Order at 38.

[37] *Id.* at 46.

[38] Rabobank DOJ SOF ¶ 97.

[39] Rabobank CFTC Order at 7-8; *see also* Rabobank DOJ SOF ¶¶ 12, 97; Rabobank CFTC Order at 3.

LIBOR submissions in furtherance of this goal.[40] The CFTC determined:

> [T]wo traders ("U.S. Dollar Trader-Submitter 1" and "U.S. Dollar Trader-Submitter 2"), who were supervised by Senior Manager 1. Senior Manager 1 accepted and relayed requests for preferential LIBOR submissions from traders and, as noted above, encouraged the submitters and traders he supervised to speak openly about their trading positions and make LIBOR submissions to benefit Rabobank traders' U.S. Dollar trading positions.[41]

192. The CFTC also found that "Rabobank had its LIBOR…submitters sitting next to and working with the other derivatives traders on trading desks. Rabobank managers and at least one senior manager expected the traders and submitters to communicate about relevant market conditions and individual trading positions."[42] Following the instruction of Rabobank management, traders and submitters openly discussed trading using electronic means such as email and Bloomberg messenger.[43] In addition, Rabobank employees regularly made oral requests to alter U.S. Dollar LIBOR.[44] Proximity fueled these requests. As the CFTC determined:

> **For the entire relevant period of mid-2005 through 2008**, a senior London derivatives trader ("Senior U.S. Dollar Trader"), ***known by the submitters and others as the "Ambassador" or "Ambass," sitting with the U.S. Dollar Trader-Submitters at the same desk***, ***regularly made oral requests for preferential U.S. Dollar LIBOR submissions***. In a few instances, the Senior U.S. Dollar Trader made ***written requests*** as well. The Senior U.S. Dollar Trader ***often barked his requests across the desk and expected his requests to be followed***.[45]

193. While the frequency of oral requests for preferential U.S. Dollar LIBOR submissions prevented the regulators from providing an exhaustive summary, the Rabobank Settlement documents are replete with examples of Rabobank's U.S. Dollar LIBOR submitter

[40] Rabobank CFTC Order at 7; *see also* Rabobank DOJ SOF ¶16; Rabobank FCA Final Notice ¶ 2.6.

[41] *Id.*; *see also* Rabobank DOJ SOF ¶19; Rabobank FCA Final Notice ¶ 2.5.

[42] Rabobank CFTC Order at 6 (emphasis added).

[43] *Id.*; *see also* DOJ SOF ¶ 15.

[44] Rabobank CFTC Order 2-3; Rabobank DOJ SOF ¶15, 18; Rabobank FCA Final Notice ¶¶ 2.8, 4.11, 4.34.

[45] Rabobank CFTC Order at 7 (emphasis added).

accommodating such requests. In fact, the CFTC was able to uncover instances where a New York-based U.S. Dollar derivatives trader and his manager requested preferential U.S. Dollar LIBOR submissions via Bloomberg chats and internal email.[46]

2. Examples of Traders' Requests Within Rabobank for Favorable U.S. Dollar LIBOR Settings

194. Regulators uncovered instances of Rabobank attempting to submit false U.S. Dollar LIBOR submissions during a three year period extending from at least mid-2005 through at least late 2008.[47] Due to the length of the period covered and the frequency of the manipulation, the Rabobank settlement documents provide only a "*few examples of the written requests* from the traders to the submitters and the acceptance of those requests by the submitters."[48]

195. In fact, the FCA uncovered at least 112 documented internal requests by Rabobank derivatives traders to Rabobank's U.S. Dollar LIBOR submitter.[49] The frequency of the requests prompted one manager to quip to one trader that the U.S. Dollar LIBOR submitter was in "fact turning into [that trader's] b*tch."[50] In total the FCA determined that at least 21 individuals were directly involved in internal requests for beneficial U.S. LIBOR settings.[51]

196. The following examples highlight internal requests at Rabobank when its manipulated submissions alone impacted 3 month U.S. Dollar LIBOR.

197. On June 30, 2006, a Rabobank U.S. Dollar Trader wrote the U.S. Dollar Trader-

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[46] *Id.* at 7.

[47] Rabobank CFTC Order at 8; Rabobank Dutch Central Bank/Dutch Public Prosecution Letter at 10 (". . . . between September 2005 and late November 2010 . . . ."); Rabobank DOJ SOF ¶16 ("From at least as early as September 2005 through approximately December 2008 . . . . "); Rabobank FCA Final Notice ¶2.6 ("From May 2005 to November 2010. . . .").

[48] Rabobank CFTC Order at 8.

[49] Rabobank FCA Final Notice ¶ 2.6(2).

[50] *Id.*

[51] Rabobank FCA Final Notice ¶ 4.13.

Submitter, "MORNING MATE, HOPE U GOT THROUGH YESTERDAY OK. *USUAL REQUEST* .. LOW 1S, HIGH 3S IF U CAN."[52] The Rabobank U.S. Dollar Trader-Submitter acknowledged the request by responding "will do fella . . ." On that day, Rabobank's 3 month U.S. Dollar submission fell within the interquartile range. Plaintiff Atlantic Trading, which was a net seller of Eurodollar futures contracts on that date, can plausibly allege that it was injured by Rabobank's alleged manipulation.

198. Other examples of Rabobank's U.S. traders successfully requesting that the bank's U.S. Dollar LIBOR submission be artificially increased include the following:

- On September 1, 2006, a U.S. Dollar Trader wrote the U.S. Dollar Submitter, "HEY, HIGH 3MTH LIBOR FOR UR OLD MUCKER PLS CHIEF!" In response the U.S. Submitter wrote, "sure mate."[53] On September 1, 2006, Rabobank's U.S. Dollar LIBOR submission was kicked out up from the interquartile range. Plaintiffs 303030 Trading and Atlantic Trading, which were net sellers of Eurodollar futures contracts on that date, can plausibly allege that they were injured on this date by Rabobank's alleged manipulation.

- On September 15, 2006, a U.S. Dollar Trader wrote the U.S. Dollar Submitter, "HEY LONG TIME NO SPEAK ... USUAL FAVOURS, CAN U KEEP 3S LIBORAT 39 FOR THE NEXT FEW DAYS PLS MATE, CHEERS SPK 2 U SOON." In response, the U.S. Dollar Submitter wrote, "will do mate." On September 21, 2006, Rabobank continued to submit a 3 month LIBOR submission of 5.3900 and was kicked out up from the interquartile range.[54]

- On November 29, 2006, Trader-2 [USD Trader] again wrote to Submitter-3 [Rabobank's Global Head of Liquidity and Finance and the head of Rabobank's money markets desk in London]: 'Hi mate, low 1s high 3s LIBOR pls !!! Dont tell [Trader-1] haa haaaaaaa. Sold the market today doooooohhhh!' Submitter-3 replied: "ok mate , will do my best.. .speak later." That day, Rabobank's 1-month U.S. Dollar LIBOR submission went up by two and a half basis points. In light of changes in the submissions of other banks on the Contributor Panel, however, Rabobank's submission went from being tied with the submissions of thirteen other banks on the Contributor Panel for the second highest submission to being tied for the twelfth highest submission. Rabobank's 3-month U.S. Dollar LIBOR submission was unchanged from the previous day. Given changes in the submissions of other banks on the Contributor Panel, however, Rabobank's submission went from being

[52] Rabobank CFTC Order at 9 (emphasis added).

[53] Rabobank CFTC Order at 9.

[54] Rabobank CFTC Order at 9.

tied for the third highest submission on the previous day to being tied for the second highest on November 29, 2006."[55] On this day, Rabobank's 3 month U.S. Dollar submission was kicked out up from the interquartile range. Plaintiff Atlantic Trading, which was a net seller of Eurodollar futures contracts on that date, can plausibly allege that it was injured by Rabobank's manipulative activity on this date.

- On August 13, 2007, U.S. Dollar Trader ("Trader-2") messaged Submitter-1: "High 3s and 6s pls today mate (esp 6mths!!) if u would be so kind.. Gotta make money somehow!"[56] Submitter-1 [for USD LIBOR] replied: 'cool..' Trader-2 messaged back: 'Cheers [Submitter-1].. Every little helps!' That day, Rabobank's 3-month U.S. Dollar LIBOR submission went down two basis points, while the other banks in the Contributor Panel ranged from decreasing their submissions by seven basis points to increasing them by seven basis points. Rabobank's submission went from being tied for the seventh highest submission on the previous day to being tied for the fifth highest submission. Rabobank's 6-month U.S. Dollar LIBOR submission went up by one basis point from its previous submission, from 5.40 to 5.41, while the other banks' submissions remained constant, on average. Rabobank went from being tied for the third lowest submission on the Contributor Panel on Friday, August 10, 2007, to making the second highest submission of any bank on the Contributor Panel."[57] On that day, Rabobank's 3 month U.S. Dollar submission fell within the interquartile range.

- Later on August 13, 2007, traders pushed the U.S. Dollar LIBOR submitter to push LIBOR higher the following day.[58] On August 14, 2007, desk managers corresponded with each other making clear that a high 3 month LIBOR was also preferred: "Manager 2: *any feeling for libors today? specifically 6mth.* Manager 1: *hi 1, 2, 3 month . . . 59, 56, 53.5 . . . 6 month 42, I think thats what* [Trader 3] *needs*. Manager 2: *it's actually me that needs it, but thanks.* Manager 1: **ahh** [Trader 3]*, taking all the credit!!.* Manager 2: *Typical*."[59]

- "On another occasion, on September 26, 2007, Trader-2 [USD Trader] wrote Submitter-2 [for USD LIBOR] and Submitter-3 [Rabobank's Global Head of Liquidity and Finance and the head of Rabobank's money markets desk in London] with the subject line: **'High 3s tomorrow pls gents.'** Submitter-2 wrote back: 'What . . . 21 . . . hahahahha.' Trader-2 replied: 'I'll get u [Submitter-2]!!' Submitter-2 wrote: 'I'm setting it [tomorrow],' to which Trader-2 responded: '25 (or higher) would be great CHEERS.' Submitter-2 responded: 'U do realise [Trader-1] wants the opposite ,ill do my best mate.' Trader-2 replied: 'Bugger.. We **fixed** at 24, anything higher is a bonus!' **On September 27, 2007, Rabobank's 3-month U.S. Dollar LIBOR submission was 5.24, an increase of five**

[55] Rabobank DOJ SOF ¶ 28; Rabobank CFTC Order at 11.

[56] According to the Rabobank DOJ SOF, "'3s' and '3m' refer to the 3-month LIBOR tenor. Other tenors are commonly referenced in a similar manner such as "1s" and "lm" to refer to the 1-month LIBOR tenor, including the use of 'w' to refer to weeklong tenors." *Id.* at ¶ 21 n.2.

[57] Rabobank DOJ SOF ¶ 21.

[58] Rabobank DOJ SOF ¶ 22; Rabobank CFTC Order at 10; Rabobank FCA Final Notice ¶4.16(3).

[59] Rabobank FCA Final Notice ¶ 4.16(3) (emphasis added).

basis points, whereas the other panel banks' submissions increased by approximately three basis points on average. Rabobank's submission went from being tied as the twelfth highest submission on the Contributor Panel on the previous day to being tied as the fifth highest submission on the Contributor Panel."[60] Plaintiff 303030 Trading, which was a net seller of Eurodollar futures contracts on this date, can plausibly allege that it was injured by Rabobank's manipulative activities.

- "[O]n **March 12, 2008**, Trader-2 [USD Trader] wrote to Submitter-2 [for USD LIBOR] and asked: '**High 3s and 6s pls tomorrow**.' Submitter-2 wrote back: '**Yes ..Low 1s though**.' Trader-2 responded: '**Low 1s is fine, I have a lot in 3s and 6s tho (about 75k/bp)**!'[61] **On March 13, 2008, Rabobank's 3-month U.S. Dollar LIBOR submission declined by two and a half basis points, whereas the other panel banks' submissions decreased by approximately five basis points on average.** Rabobank's submission went from being the lowest of any bank on the Contributor Panel on March 12, 2008, to being only the fifth lowest submission. Likewise, Rabobank's 6-month U.S. Dollar LIBOR submission declined by six basis points, whereas the other panel banks' submissions decreased by approximately eight and a half basis points on average. Rabobank's submission went from being the second lowest submission of any bank on the Contributor Panel on March 12, 2008, to being tied as the sixth lowest submission. In contrast, Rabobank's 1-month U.S. Dollar LIBOR submission declined by five basis points, whereas the other panel banks' submissions decreased by approximately four and three-quarters basis points on average. Rabobank's submission was the lowest submission of any bank on the Contributor Panel on both March 12, 2008, and March 13, 2008."[62]

- On March 17, 2008, Rabobank "Trader-2 [USD Trader] messaged Submitter-1 [for USD LIBOR] and asked: '**where r u gonna fix 3m today, any idea**?' Submitter-1 replied: 'no idea mate ..ive only been in 10 mins .. you want me to ask about ..**don't think we have anything in 3's so hap[p[y to help**.' Trader-2 wrote back: '**yes, I have 3k <u>fixing</u> today,,, highere the better**.' Submitter-1 responded: '**ok mate ..[<u>a specific swaps broker</u>] is going 56 area..' Trader-2 replied: 'go 60 pls!' Submitter-1 wrote back: 'sure**.' Later in the conversation, Trader-2 asked: '**can u go high 1s as well today pls**.' Submitter-1 wrote back: '**me & [Submitter-2] have got a couple of yards <u>fixing</u> today** ..how much you got in it mate .. not sure we make a huge difference anyway .' Trader-2 wrote back: '2 bio... just 3s then matey.' Submitter-1 replied: 'ok cool.. i'll go flat to what [the swaps broker] says as probably won't make huge diff.' That day, as requested, Rabobank's 3-month U.S. Dollar LIBOR submission was 2.60, tied for the highest submission of any bank on the Contributor Panel. On the previous trading day, Rabobank's submission had been tied for the ninth highest submission. Rabobank's 1-month LIBOR submission went down 22 basis points, approximately the same as the average change in the submissions of

[60] Rabobank DOJ SOF ¶ 26; Rabobank CFTC Order at 11.

[61] According to the DOJ SOF, "'75k/bp' refers to a profit/loss exposure of $75,000 per basis point change in the final fixing of the U.S. Dollar LIBOR rate (*i.e.*, for every basis point increase or decrease in the U.S. Dollar LIBOR fixing, the trade would make or lose an additional $75,000 respectively)." *Id.* at ¶ 25 n.3.

[62] Rabobank DOJ SOF ¶ 25.

the other banks on the Contributor Panel."[63] Plaintiff Atlantic Trading, which was a net seller of Eurodollar futures contract on that date, can plausibly allege that it was injured by Rabobank's alleged manipulation.

199. On other days, Rabobank traders requested artificially low U.S. Dollar LIBOR submissions. For example, on August 15, 2006, a U.S. Dollar Trader wrote the U.S. Dollar LIBOR Submitter, "IF THE AMBASS DOESN[']T HV ANY PREFERENCES, CAN I HAVE LOW 1S AND 3S THE NEXT FEW DAYS PLS MATEY ... CHEERS HOPE U R GOOD." In response the U.S. Dollar LIBOR Submitter granted the request by noting that the Ambassador did not "give a f*ck."[64] On August 16 and 17, 2006, Rabobank was kicked out down from the interquartile range in a manner consistent with the requested manipulation. Plaintiff Atlantic Trading, which was a net buyer of Eurodollar futures contracts on August 17, 2006, can plausibly allege that it was injured on this date by Rabobank's alleged manipulation.

200. Other days where Rabobank's manipulated submission impacted 3 month U.S. Dollar LIBOR include the following:

- On October 13, 2006, a U.S. Dollar trader wrote the U.S. Dollar Submitter: "HOW'S IT GOING [. . ..]?? LOOKING FORWARD TO THE WEEKEND I BET -AM OFF ON HOLS FOR A WEEK MYSELF, CANNOT WAIT!! **IF U WOULD BE SO KIND AND KEEP 3S LOW FOR MONDAYS FIX ... THINK IT'LL COME IN AT 37.5, WOULD BE A BIT PAINFUL IF WAS MUCH HIGHER** ... ANYWAYS I'M BLABBING .. HOPE U R GOOD." The U.S. Dollar LIBOR Submitter acknowledged this request: "hallo mate .. this week has been awful . Worst for me for a long long time . what's your thoughts on this mate .. **I'll sort out the 3's** & where u off to on holiday."[65] On the next trading day, October 16, 2006, Rabobank's U.S. Dollar LIBOR submission was kicked out down from the interquartile range.

- On September 7, 2007, a U.S. Dollar trader wrote to the U.S. Dollar Submitter: "WOW ... WHAT DO LIBORS DO NOW.. WILL U DROP THEM TOMORROW?" The Submitter responded, "I think banks need to keep them high mate .. how can they drop them too much if they can't get the cash in to cover exsposure ..." The U.S. Dollar trader then indicated a

[63] Rabobank DOJ SOF ¶ 24 (emphasis added).

[64] Rabobank CFTC Order at 11; *see also* Rabobank DOJ SOF ¶ 27.

[65] Rabobank CFTC Order at 9 (emphasis added).

preference for a low LIBOR submission: "OK MATE, IF U CAN KEEP EM UP THERE **THAT WOULD SAVE MY ARSE A BIT** (TIL SEP ROLLS OFF!), CHEERS MATEY," to which the Submitter indicated he would "do [his] best."[66] On September 10, 2007, the next trading day, Rabobank lowered its 3 month U.S. Dollar LIBOR submission and was kicked out down from the interquartile range. Plaintiff Atlantic Trading, which was a net buyer of Eurodollar futures on that date, can plausibly allege that it was injured on this date by Rabobank's alleged manipulation.

- On September 19, 2007, the U.S. Dollar Submitter took his own trading positions into account when submitting a low U.S. LIBOR. He informed Rabobank's Euribor submitter: "'today i have **fixing** so am low on the 3mth ...' **That day, Rabobank's 3-month U.S. Dollar LIBOR submission went down 39 basis points, whereas the average submission on the Contributor Panel went down approximately 34 basis points**. Rabobank's submission went from being tied for the third highest submission on the previous day to being tied for the lowest submission on the Contributor Panel."[67] Consequently, Rabobank's 3 month LIBOR submission was kicked out down from the interquartile range.

- "[O]n Wednesday, October 17, 2007, a U.S. Dollar swaps trader ("Trader-1") emailed the Rabobank U.S. Dollar LIBOR submitter ("Submitter-1"): 'A nice low 1 month for the rest of the week please matey. Cheers.' **Rabobank's submissions for the rest of the week were consistent with this request.** That day, Rabobank's 1-month U.S. Dollar LIBOR submission dropped four basis points whereas the rest of the Contributor Panel's submissions either remained unchanged or dropped one or two basis points from the previous day. The day before the request, Rabobank's 1-month U.S. Dollar LIBOR submission had been the fifth lowest submission of the banks on the Contributor Panel. Immediately after this request for a low submission, Rabobank's 1-month LIBOR submission sank to the lowest submission of any bank on the Contributor Panel. On Thursday, October 18, 2007, Rabobank's 1-month submission was tied for the second lowest on the Contributor Panel, and on Friday, October 19, 2007, Rabobank's 1-month submission was again the lowest submission of any bank of the Contributor Panel."[68] On each of these days, Rabobank's 3 month LIBOR submission was kicked out down from the interquartile range.

- "On **November 15, 2007**, another Rabobank [Euribor] submitter ('Submitter-9') explained to Submitter-1 [for USD LIBOR]: 'The fixinh should be done by cash desk in agreement with deriv. I do the fixing I ask swap desk what they have.' Submitter-1 replied: **'[Trader-**

[66] Rabobank CFTC Order 10 (emphasis added).

[67] Rabobank DOJ SOF ¶23 (emphasis added).

[68] Rabobank DOJ SOF ¶17 (emphasis added; internal footnote omitted); *see also* Rabobank CFTC Order at 10. The Rabobank settlement documents describe instances of manipulation of 1-month and 6-month LIBOR in addition to 3-month LIBOR. Because of arbitrage and other facts that may be pleaded, Plaintiffs have good grounds to allege plausibly that Rabobbank's manipulation of these other two tenors had a similar manipulative impact on the 3-month submissions and Eurodollar futures contract prices. Such allegations would include the generally strong correlation (around 80%) between 3-month LIBOR on the one hand and 1- and 6-month LIBOR on the other. In addition, there are other exchange-based products tied to these other tenors that were affected by this conduct.

1 for USD swaps] had big fixing so we help him today,' and further explained: '**i am low because [Trader-1] has fixing ..i go higher tomorrow**.'"[69] On November 15, 2007, Rabobank's 3 month U.S. Dollar LIBOR submission fell within the interquartile range.

3. Rabobank's Manipulation of LIBOR in Collusion with Other Panel Banks

201. The FCA determined that "Rabobank ***colluded*** with individuals from ***other Panel Banks to make submissions in relation to***…***USD LIBOR that benefited trading positions*** ('External Requests')."[70] Moreover, specifically the FCA found that during a period between June 2005 and October 2008, "at least one Rabobank Trader and one Rabobank Submitter made at least 12 documented External Requests to at least two individuals from one other Panel Bank."[71] Two of these requests were made to another LIBOR panel bank in connection with U.S. LIBOR.[72] Rabobank made such requests as "part of a collusive effort to manipulate the published…USD [LIBOR] rates."[73]

H. Findings from the Former Defendants' Lloyds and HBOS Settlements Involving USD LIBOR

202. On July 28, 2014, Lloyds publicly disclosed that it had settled with various regulators and government agencies and admitted to U.S. Dollar LIBOR manipulation. The Lloyds Settlements revealed the same types of misconduct by Lloyds with respect to its LIBOR submissions that previous settlements with other Defendants have exposed. In total, Lloyds agreed to pay $105 million to the CFTC for violations of anti-manipulation and other provisions of the CEA. In addition, Lloyds agreed to pay $176 million to the FCA. Lloyds also entered into a criminal deferred prosecution agreement with, and paid an $86 million penalty to, the DOJ.

[69] Rabobank DOJ SOF ¶19 (emphasis added).

[70] Rabobank FCA Final Notice ¶2.11.

[71] *Id.* ¶¶ 2.11, 4.23.

[72] *Id.* ¶ 4.23.

[73] *Id.* ¶ 4.24.

203. Pursuant to the DOJ Statement of Facts, Lloyds admitted facts demonstrating CEA violations and accepted responsibility for its false and misleading LIBOR submissions.[74] Among admitted facts are that Lloyds entered into derivatives transactions that were tied to LIBOR and that its LIBOR submitters contributed rates that were intended to benefit Lloyds' trading positions, instead of rates that complied with LIBOR submission requirements.[75] Lloyds further admitted that on occasion when Lloyds TSB and HBOS submitters "contributed rates to benefit their own or others' trading positions, the manipulation of the submissions affected the fixed rates", which was the purpose of the unlawful activity.[76]

204. Lloyds' settlement agreements show that LIBOR submitters at Lloyds TSB and HBOS "knowingly" made "false" U.S. Dollar LIBOR submissions and engaged in trader-based manipulation from mid-2006 through at least as late as July 2009.[77] Furthermore, the settlement documents also reveal how from at least September 2008 through at least January 2009, during the "financial crisis period" HBOS submitted artificially low U.S. Dollar LIBOR quotes to keep its submissions in line with the artificially suppressed quotes of its fellow banks and avoid the appearance of financial weakness. Also, subsequent to Lloyds' acquisition of HBOS in January 2009, the Lloyds TSB and HBOS submitters "coordinated with one another to adjust LIBOR submissions to benefit their respective trading positions."[78] The likelihood that the U.S. Dollar LIBOR fix was affected increased when multiple LIBOR contributors also manipulated their

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[74] *See generally,* Statement of Facts attached to the Deferred Prosecution Agreement entered into between Lloyds Banking Group plc and the DOJ dated July 28, 2014 ("Lloyds DOJ SOF").

[75] *See id.* ¶¶ 13-20.

[76] *Id.* ¶¶ 40-41.

[77] *See* CFTC Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the CEA, as Amended, Making Findings and Imposing Remedial Sanctions in the Matter of Lloyds Banking Group plc and Lloyds Bank plc, dated July 28, 2014 ("Lloyds CFTC Order") at 6.

[78] *Id.* at 2, 10.

LIBOR submissions as part of a coordinated effort.[79]

205. In addition, the evidence shows that HBOS submitted false U.S. Dollar LIBOR reports so to benefit HBOS's trading positions instead of the rates that complied with the definition of LIBOR. For example on January 17, 2008, a HBOS derivatives trader and HBOS's LIBOR submitter engaged in the following email exchange:

> Trader-1: 3mth higher today pls!
> Submitter-1: Should be 92 for guide ill put in 93 to get couunted.
> Trader- 1: Good man then lower tomorrow if convenient . . . .[80]

On January 17, 2008, HBOS was "kicked out" up from the LIBOR panel. Plaintiff FTC was a net seller of Eurodollar futures on January 17, 2008 and was injured as a result of HBOS's manipulative conduct. On January 18, 2008, HBOS lowered its LIBOR submission in accord with the derivative trader's request, but was still "kicked out" up from the LIBOR panel.

206. Likewise on September 26, 2008, the HBOS LIBOR supervisor instructed the bank's USD LIBOR submitter that the submissions "should be lower relative to the other panel members and directed him to reduce the spread between the HBOS U.S. Dollar LIBOR submissions and the submissions of the other panel members."[81] That same day the HBOS U.S. Dollar LIBOR Submitter informed an employee at another financial institution that "youll like this ive been pressured by senior management to bring my rates down into line with everyone else."[82] Consequently, on September 26, 2008, HBOS's 3 month USD LIBOR submission fell to the same level as the highest other submission.[83]

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[79] Barclays DOJ SOF ¶ 24.

[80] *See* Lloyds CFTC at 10; Lloyds DOJ SOF ¶ 16.

[81] Lloyds CFTC Order at 15.

[82] *Id.* at 15; Final Notice of the Financial Conduct Authority issued to Lloyds dated July 28, 2014 ("Lloyds FCA Order") ¶ 4.54.

[83] *Id.*

207. After HBOS was dropped from the LIBOR Panel on February 9, 2009 following its acquisition by Lloyds, HBOS "traders were no longer able to influence LIBOR submissions internally by taking their money market positions into account when making LIBOR submissions."[84] Consequently, former HBOS traders became dependent on Lloyds to effectuate their desired manipulation and the former HBOS LIBOR submitters began to discuss their trading positions with Lloyds' LIBOR submitters so as to "coordinate[] on what submissions to make to benefit their trading positions."[85] As the FCA observed, the language used to make the requests to manipulate LIBOR suggested that the practice was "casual and routine."[86]

208. For example, on May 11, 2009, HBOS's former U.S. Dollar LIBOR submitter (defined in the DOJ SOF as "Submitter 1") engaged the trading assistant of the Lloyds USD LIBOR submitter, who by his own admission put in Lloyds' U.S. Dollar LIBOR submission after consulting the Lloyds' submitter in the following exchange:

> Submitter 1: do u put in the usd libors?
> Submitter 2's Assistant: yep [,] why my mate? Don't you?
> Submitter 1: we got kicked off remember but i used too.
> Submitter 1: can you put in a lowe r 1 month today pls cheers.
> Submitter 2's Assistant: hehehe what sort of f ixings have you got?
> Submitter1: 6 yard liability

While HBOS's former submitter went on to explain that he was "being cheeky", the assistant to Lloyds' submitter still acknowledged the request as legitimate by noting, "hehehe [,] will see what we can do . . . !"[87] On May 11, 2009, Lloyds submitted 1 and 3 month USD LIBORs that fell within the interquartile range. Lloyds' attempt to manipulate LIBOR down directly harmed Plaintiff Atlantic Trading, which was a net buyer of Eurodollar future contracts on that day.

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[84] Lloyds FCA Order ¶ 4.32.

[85] *See* Lloyds CFTC Order at 10; Lloyds DOJ SOF ¶¶ 18-20; Lloyds FCA Order ¶¶ 4.32-35.

[86] Lloyds FCA Order ¶ 4.34.

[87] Lloyds DOJ SOF ¶19.

209. The sincerity of HBOS's former submitter's May 11, 2009 request for a "lower 1 month" fixing, however, is underscored by his subsequent suggestion that Lloyds coordinate its LIBOR submission to benefits its trading positions:

> Submitter 1: to be honest we shoudl be coordinating the libor inputs to suit the books. for example later this month i have a 5y 3 month liability reset so we shoudl put in a low one there ill let u know.
> Submitter 2's Assistant: of course, that is very sensible.

210. On May 19, 2009, the former HBOS submitter followed up with the assistant to the Lloyds' LIBOR submitter in a Bloomberg message conversation.

> Submitter 1: have 5 yard 3 month liability rolls today so would be advantageous to have lower 3 month libor setting if doesn't conflict with any of your fix's.
> Submitter 1: do u normally put the usd libors in? or is it [Submitter 2]?
> Submitter 2's Assistant: me, consulting with Submitter 2.
> Submitter 1: ok cool ive already sent Submitter 2 a Bloomberg but he hasn't read it yet can u let him know that we hav 5 yards of 3 month liability resets so if it doesn't conflict with anythign you have a lower 3 month libor would be advantageous.
> Submitter 2's Assistant: ok tks.
> Submitter 1: can u get Submitter 2 back to me when he has a second no rush.
> Submitter 2's Assistant: just ask for him my friend he can hear you and is seating at his chair right now . . . . . . but I will also tell him . . . he will talk to you in a min,
> Submitter 2's Assistant: just to let you know we are going 74 i/o 75 in 3s ;)
> Submitter 1: legend.[88]

Subsequently, the Lloyds USD LIBOR submitter called the former HBOS submitter to confirm that "obviously we got the Libors down for you."[89] On May 19, 2009, Lloyds submitted a 3 month LIBOR that was 5 bps lower than its previous day's submission and the submission fell within the interquartile range.

211. In addition to disclosing representative examples of how HBOS and Lloyds manipulated USD LIBOR, the Lloyds settlement agreements reveal that Lloyds, like other

[88] Lloyds DOJ SOF ¶ 20.

[89] Lloyds CFTC Order at 10.

Defendants, failed to supervise trading desks and implement internal control processes that could mitigate trader-based manipulation until well after the above-described instances. *See, e.g.,* Lloyds CFTC Order at 6. Indeed, Lloyds failed to "[p]ut in place any submissions-related systems and controls until March 2011." Lloyds FCA Notice at 2.16.1. However, the newly-implemented controls remained flawed until September 2012. *Id.* at 2.17.

I. Findings From the Deutsche Bank Settlements Involving U.S. Dollar LIBOR

212. The CFTC began investigating Deutsche Bank's LIBOR manipulation in 2010. It took the CFTC five years to complete its investigation. On April 23, 2015, the CFTC announced for the first time the results of its investigation in an Order Instituting Proceedings Pursuant to Sections 6(c) and 6(d) of the Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions, CFTC Docket No. 15-20 (April 23, 2015) (hereinafter "Deutsche Bank CFTC Order"). The CFTC determined that Deutsche Bank violated Sections 6(c) and 6(d) and 9(a)(2) of the CEA, 7 U.S.C. §§ 19, 13b and 13(a)(2). *See* Deutsche Bank CFTC Order, at 1. Deutsche Bank made an Offer of Settlement and agreed to the entry of a Deutsche Bank CFTC Order making findings and imposing sanctions. *Id.* Deutsche Bank agreed: (i) to pay a civil monetary penalty of $800,000,000.00, *id.* at 42; (ii) to undertake corporate governance and internal controls to prevent further manipulation of U.S. Dollar LIBOR, including separation of its rate submission and trading functions, *id.* at 43. 44-56; (iii) and to cooperate with the CFTC's continuing investigation into LIBOR manipulation. *Id.* at 56-57. Deutsche Bank "consent[ed]" to the CFTC's "findings" that Deutsche Bank violated the Sections 6(c), 6(d), and 9(a)(2) of the CEA, 7 U.S.C. § 9, 13b, and 13(a)(2) (2006) and to cease and desist from further violations. *Id.* at 42.

213. On April 23, 2015, Deutsche Bank pled guilty in connection with the U.S. DOJ investigation and criminal charges in connection with Deutsche Bank's manipulation of LIBOR. Pursuant to its guilty plea, Deutsche Bank has agreed to pay $775 million in criminal penalties to the Justice Department. In addition, Deutsche Bank is required to continue cooperating with the Justice Department in its ongoing investigation and to retain a corporate monitor for three years. As part of the plea, Deutsche Bank admitted its role in manipulating LIBOR and participating in a price-fixing conspiracy in violation of the Sherman Act.

214. Also in April, 2015, the Financial Conduct Authority issued its Final Notice against Deutsche Bank relating to what it deemed "serious misconduct" in connection with manipulation of LIBOR rates, and imposed a fine of €226,800,000.

215. The New York State Department of Financial Services ("NY-DFS") also investigated Deutsche Bank and announced the results of its investigation for the first time on April 23, 2015. *See* Consent Order under New York Banking Law §§ 44 and 44-a (hereinafter "Deutsche Bank NYDFS Order"). Deutsche Bank agreed: to pay a civil monetary penalty of $600,000,000, *id.* ¶70; to terminate seven employees involved in the manipulation who had not yet been terminated by the Bank, *id*. ¶73; and to engage an independent monitor selected by the DFS to monitor the bank's LIBOR rate submission and trading policies. *Id*. ¶75.

1. Findings that LIBOR is a Commodity and Linking Deutsche Bank's Manipulation to CME Eurodollar Futures

216. The CFTC Order describes LIBOR as the commodity underlying CME Eurodollar futures. U.S. Dollar LIBOR and other currency-denominated LIBOR "are commodities in interstate commerce." Deutsche Bank CFTC Order at 35. "The Eurodollar futures contract traded on the Chicago Mercantile Exchange ("CME") is one of the largest futures contract in the world based on open interest and notional value of trading volume and settles against U.S.

Dollar LIBOR." Deutsche Bank CFTC Order at 2; *see also id.* at 35. "U.S. Dollar LIBOR is used as the basis for settlement of the CME's Eurodollar futures contracts." *Id*. at 5. Deutsche Bank's LIBOR manipulation "affects or tends to affect the prices of commodities in interstate commerce." *Id*. at 36.

217. The CFTC found that Deutsche Bank's LIBOR manipulation was directly tied to CME Eurodollar futures. Deutsche Bank's "Global Finance and Foreign Exchange Group ("GFFX") included "Pool Trading Desks and Money Market Derivatives ('MMD') desks." Deutsche Bank CFTC Order at 7. Deutsche Bank's LIBOR submitters sat on the Pool Trading desks, where they traded "both cash and derivatives trading products." The Pool Desks – which included LIBOR submitters and other Pool Desk Traders – regularly traded in interbank cash deposits and loans to meet the bank's funding needs, and also had "their own ***derivatives trading books*** that allowed them to not only hedge risk in their cash trading but also to generate profits for the desk in a proprietary fashion." *Id*. at 8 (emphasis added). "MMD traders, who also held proprietary books, primarily traded derivatives trading products." *Id*. "***Some of the derivative products traded by both pool and MMD traders included futures (including the CME Eurodollar futures contract)***, interest rate swaps, forward rate agreements, overnight index swaps and tenor basis swaps." *Id*. "The cash and derivatives positions held by the Deutsche Bank pool traders and MMD traders were often priced off of LIBOR . . . ." *Id*. (emphasis added).

218. Deutsche Bank's Global Senior Manager in charge of the Pool and MMD trading "instructed all traders to have open communications across offices and instilled an expectation that the derivatives traders and submitters would communicate routinely about relevant market conditions and individual trading positions." *Id*. at 8. Deutsche Bank's traders "routinely communicated to submitters their preferential requests for LIBOR . . . submissions which were

beneficial to individual and trading desk positions." *Id*. at 8. These requests came in the form of shouts across the trading floor, requests passed on to traders who sat next to U.S. Dollar LIBOR submitters, and electronic communications via Bloomberg messaging terminals and Deutsche Bank's internal messaging systems.

219. The CFTC found that Deutsche Bank lacked any internal controls to prevent the U.S. Dollar LIBOR manipulation, Deutsche Bank CFTC Order at 4, which enabled the bank to manipulate U.S. Dollar LIBOR in a "systemic," "pervasive," "regular," "common," and "routine" fashion:

a. "For more than six years, from at least 2005 through early 2011 . . . , Deutsche Bank . . . engaged in ***systematic and pervasive misconduct*** directed at manipulating critical, international financial benchmark rates, [including] the London Interbank Offered Rate," and that its "profit-driven misconduct undermined the integrity of LIBOR and . . . the integrity of the U.S. and global financial markets." Deutsche Bank CFTC Order at 2 (emphasis added).

b. "Through its ***regular***, false LIBOR…submissions, Deutsche Bank routinely attempted to manipulate LIBOR in order to ensure that the published rates for each benchmark benefited its trading positions." *Id*. at 2 (emphasis added).

c. "Over this more than six year period and across currencies, Deutsche Bank's submitters ***routinely*** took into account other Deutsche Bank traders' derivatives trading positions, as well as their own cash and derivatives trading positions, when making the Bank's LIBOR…submissions." *Id*. at 2 (emphasis added).

d. The manipulation "was ***systemic and pervasive***, occurring across multiple trading desks and offices, including London, Frankfurt, ***New York***, Tokyo, and Singapore." *Id*. at 2-3 (emphasis added).

e. "As a result of this profit-based submission process, ***improper written and oral submission requests were common practice***, and LIBOR…submitters ***routinely*** skewed Deutsche Bank's contributions, ***routinely*** made false submissions, and ***routinely*** attempted to manipulate, and, at times, successfully manipulated LIBOR..." *Id*. at 4 (emphasis added).

f. "In addition to the ***pervasive*** oral requests, some of which were shouted across the combined trading desks, submitters and traders ***routinely*** communicated on Bloomberg chat terminals or internal Deutsche Bank messaging systems to discuss preferential LIBOR . . .requests." *Id*. at 8-9 (emphasis added).

220. Throughout the period 2005-2011, "the Pool Trading and MMD desks together utilized a basis spread trading strategy (*i.e.*, trading the spread between two or more tenors) to generate profits." Deutsche Bank CFTC Order at 9. During the financial crisis, Deutsche Bank amplified this strategy by "enter[ing] into massive derivatives basis trading positions based upon the bet that the spread between tenors would continue to widen." *Id*. "Deutsche Bank's LIBOR . . . submitters were aware of this strategy, particularly during the financial crisis, and were cognizant of the particular LIBOR . . . submissions desired by traders to benefit those positions based on this strategy." *Id*. As such, the submitters ***routinely*** built this bias into Deutsche Bank's LIBOR . . . submissions, even in the absence of oral or written communications from traders." *Id*.

221. "Deutsche Bank's Pool Trading and MMD desks posted tremendous profits during 2008 and 2009, at the height of the financial crisis, due in part to this trading strategy." *Id*. Deutsche Bank CFTC Order at 9. In particular, the bank's traders bet on the widening of the spread between 1 month, 3 month, and 6 month USD LIBOR that would result from the dislocation of financial markets. DOJ PA SOF ¶ 32. On almost every day during this time period, Deutsche Bank's rate submitters altered the bank's USD LIBOR submissions to align with the needs of this

trading strategy, *i.e.*, persistently low 1 month and high 3 and 6 month USD LIBOR submissions. *Id*. And if the submissions did not align with this strategy, the bank's traders complained to the submitter. *Id*.

222. The CFTC found that, "[o]ver this more than six year period and across currencies, Deutsche Bank's submitters routinely ***took into account other Deutsche Bank traders' derivatives trading positions***, as well as their own cash and derivatives trading positions, when making the Bank's LIBOR…submissions." Deutsche Bank CFTC Order at 2 (emphasis added). "Through its regular, false LIBOR…submissions, Deutsche Bank routinely attempted to manipulate LIBOR…***in order to ensure that the published rates for each benchmark benefited its trading positions***." Deutsche Bank CFTC Order at 2 (emphasis added).

223. The primary motivation for Deutsche Bank's manipulation of LIBOR was to benefit its trading positions, including positions in CME Eurodollar Futures. As the CFTC found:

> Allowing submitters and traders to prioritize profit motives over appropriate submission considerations, Deutsche Bank permitted a culture of trader self-interest to exist and created conflicts of interest, which allowed the misconduct to occur. Certain managers encouraged continual information sharing between derivatives traders, money market traders, and submitters for the various benchmarks, even restructuring business lines such that, in Deutsche Bank's London office, derivatives traders and submitters sat together. In addition to making routine written requests for beneficial LIBOR…submissions, the traders often shouted their requests for beneficial submissions across the trading floor to the submitters. A senior manager regularly sat with the traders and encouraged them and their counterparts in other offices to communicate and exchange trading positions, so submitters became clearly aware of the submissions that were most favorable to the various desks' trading positions. Senior desk managers in London, Frankfurt, New York, and in the Deutsche Tokyo Subsidiary also made requests to benefit their own trading positions, facilitated the requests from their traders for beneficial submissions, and generally promoted the practice of inappropriately using benchmark interest rate submissions to help the traders increase profits and minimize losses on their and the desk's trading positions. The cash and derivatives trading on the desks responsible for Deutsche Bank's misconduct increased throughout the relevant period and the desks generated significant revenues for Deutsche Bank, particularly during the global financial crisis of 2007 through 2009. Deutsche Bank CFTC Order at 3.

224. This practice was enabled by Deutsche Bank's merging of various trading desks around 2006. "Deutsche Bank's merger of Pool Trading and MMD desks proved successful and resulted in significant profits for the bank." Deutsche Bank CFTC Order at 9. This merger of trading desks placed U.S. Dollar LIBOR submitters in close proximity with traders, enabling a conflict of interest in which the rate submissions were based not on anticipated borrowing costs, but on derivatives positions.

225. The CFTC found that "Deutsche Bank further embedded this inherent conflict of interest in its Pool Trading desks when it allowed its pool traders to fill dual roles as both submitters and derivatives traders" which "allowed its pool traders to prioritize their individual and the desk's profits over their responsibility to make honest assessment of the costs of borrowing unsecured funds when submitting rates to the BBA . . . ." Deutsche Bank CFTC Order at 9. "Not only did the submitters ***routinely*** take into account the traders' preferential LIBOR . . . requests, the submitters also ***regularly*** and improperly considered their own trading positions when determining the LIBOR . . . submissions." *Id*. (emphasis added). "By failing to separate responsibilities for making LIBOR . . . submissions from its trading functions, Deutsche Bank allowed an environment to exist that yielded ***significant opportunities*** for traders and submitters to attempt to manipulate LIBOR . . . submissions to the benefit of the bank's trading positions, and the traders and submitters ***took full advantage of those opportunities.***" *Id*. "As a result, the submitters ***routinely*** skewed Deutsche Bank's LIBOR . . . submissions to benefit the bank's trading positions by attempting to manipulate the fixings of LIBOR . . ." and "[a]t times, their attempts to manipulate U.S. Dollar . . . LIBOR . . . were successful." *Id.*

226. During the period between 2003 and 2011, Deutsche Bank's London traders would request U.S. Dollar LIBOR submissions beneficial to their trading positions through

requests "shouted across the trading floor, passed from one trader to another trader sitting next to the [U.S. Dollar LIBOR] submitter, or sent to submitters through electronic communications." Deutsche Bank CFTC Order at 11. In addition, Deutsche Bank's Pool and MMD traders and managers in New York and Frankfurt also requested beneficial LIBOR submissions. *Id*. And Deutsche Bank's LIBOR submitters contacted traders around the world to ask whether "they had requests for beneficial LIBOR submissions." *Id*. One Deutsche Bank rate submitter "became so familiar with the trading positions of the U.S. Dollar traders that he either informed the traders of his intent to submit a skewed LIBOR without waiting for a request or he simply submitted U.S. Dollar LIBOR submissions in a manner he believed would benefit their derivatives trading positions." *Id*.

227. In addition, between January 2008 and July 2009, derivatives traders made requests to broker firms in their attempts to influence the LIBOR submissions of other banks through information disseminated by the broker firms as part of market color they provide to their clients. FCA ¶ 4.46.

228. The CFTC found that Deutsche Bank "made repeated and regular attempts to manipulate U.S. Dollar, . . . LIBOR . . . in order to affect the official fixings of LIBOR . . . in a manner that would benefit its cash and derivatives trading positions," and that the bank "knew it was improper" to do so. Deutsche Bank CFTC Order at 35. Deutsche Bank knew that its U.S. Dollar Libor submissions—which were biased for trading positions—did not meet BBA standards, were therefore "false" and "misleading." *Id*. By attempting to skew U.S. Dollar LIBOR to benefit its trading positions, Deutsche Bank "regularly attempted to manipulate the official fixings for U.S. Dollar . . . " and "knowingly delivered false, misleading, or knowingly inaccurate reports concerning U.S. Dollar . . . LIBOR" which is a "commodity." *Id*.

229. The New York Department of Financial Services also found evidence of general suppression during the financial crisis: From approximately 2007 through 2009, a number of large international banks were receiving negative press coverage concerning their high and potentially inaccurate LIBOR submissions. Certain articles questioned particular banks' liquidity position regarding the high LIBOR submissions and, as a result, the banks' share prices fell. Various Deutsche Bank senior managers circulated and discussed these articles. For example, on October 4, 2007, the Head of Short Term Interest Rate Trading in Australia and New Zealand forwarded an article, which reported a rumor that a large European bank was struggling for financing, including to senior management, commenting on the instability of the market, specifically in regards to bank illiquidity, and commented:

> This market has the feel that we are about to have another run and panic on funding in my opinion just a gut feeling looking at the behavior of LIBORS if we look at the 3mth fix over the lst few days since we have gone over the TURN of the year there has been a bit of pressure… this feels like the period where we were edging up ever so slight back in early august where we fixed at 5.36 for months on end and then started edging up before the panic set in.

Deutsche Bank NYSDFS Order ¶¶55-57. Later that day, a group head within the Global Finance and Foreign Exchange Unit forwarded the email to a London desk head, directing, "Make sure our libors are on the low side for all ccys." *Id*.

230. The CFTC, DOJ, FCA and NYDFS orders list some "examples" of the pervasive manipulation in their settlement papers, as have other regulators. These examples are listed in the chart below.

EXAMPLES OF TRADER-BASED MANIPULATION				
Date	**Direction (Tenor)**	**Finding (emphasis in original)**	**Source**	**¶/p.**
2005-02-21	↑ (6m)	For example, on February 21, 2005, a trader requested of another trader who performed submitter duties on a back-up basis, "can we have a high 6mth libor today pls gezzer?" The trader/submitter agreed, "sure dude, where wld you like it mate ?" The trader replied, "think it shud be 095?" The trader/submitter replied, "cool, was going 9, so 9.5 it is." The trader joked, "super – don't get that level of flexibility when [the usual submitter] is in the chair fyg!"	NYS DFS Consent Order	¶14
2005-03-22	↑	**March 22, 2005:** (emphasis added) U.S. Dollar LIBOR Submitter: **if you need something in particular in the libors i.e. you have an interest in a high or a low fix let me know and there's a high chance i'll be able to go in a different level. just give me a shout the day before or send an email from your blackberry first thing.** New York U.S. Dollar Trader 1: Thanks - our CP guys have been looking for it a bit higher - not a big deal U.S. Dollar LIBOR Submitter: if anything the cash has actually cheapened up since yesterday too albeit	CFTC Examples of Misconduct -Written Comms	p.1
2005-04-01	↓ (6m)	**April 1, 2005:** (emphasis added) London U.S. Dollar Trader 1: **COULD WE PLS HAVE A LOW 6MTH FIX TODAY OLD BEAN?**	CFTC Examples of Misconduct -Written Comms	p.1
2005-06-13	↓ (6m)	Deutsche Bank's six month USD LIBOR submissions on 13 June 2005 was 3.375 down from 3.39 the previous day.	FCA Order	¶4.28
2005-09-21	↓	The London MMD Manager, a submitter, sent daily messages which predicted where USD Libor would fix. **September 21, 2005:** (emphasis added) London MMD Manager: Subject: "$ LIBORS: 83, 89, 96 and 11 **LOWER MATE LOWER !!** U.S. Dollar LIBOR Submitter: will see what i can do	DOJ DBGS SOF CFTC Examples of Misconduct -Written Comms	¶35 p.1

		but it'll be tough as the cash is pretty well bid London MMD Manager: **[Another U.S. Dollar Panel Bank] IS DOIN IT ON PURPOSE BECAUSE THEY HAVE THE EXACT OPPOSITE POSITION** - ON WHICH THEY LOST 25MIO SO FAR - LETS TAKE THEM ON!! U.S. Dollar LIBOR Submitter: **ok, let's see if we can hurt them a little bit more then**		
2005-09-26	↓ (1m) ↑ (3m)	In another example, on September 26, 2005, Manager-1, a DBGS employee, solicited requests from Trader-1, a London-based MMD trader and also a DBGS employee, in an electronic chat: Manager-1: libors any requests? Trader-1: HIGH FREES, LOW 1MUNF Manager-1: what levels?	DOJ DBGS SOF	¶36
2005-11-24	↑ (3m)	Having DB's USD LIBOR pool traders in London both submit LIBOR and trade financial products tied to USD LIBOR presented a conflict of interest that contributed to the manipulation of USD LIBOR submissions for the benefit of the submitting traders. For example, when Manager-2 from New York requested of Submitter-1 and Manager-1, in an email, that "3mo Libor be as high as possible Thursday and Friday, if you see the market higher" on November 24, 2005, Submitter-1 replied, "[Manager-2], we've gone in relatively neutral as a high 3s doesn't suit london at the moment. Hope that's ok."	DOJ DBGS SOF	¶43
2005-11-24		In a separate, related email conversation between Submitter-1 and Manager-1 about Manager-2's request, Submitter-1 admitted to Manager-1 that he "…asked [Trader-1] this morning so went neutral. It's fence sitting I know but better to try to keep both parties somewhat on-side." Soon after this comment to Manager-1, Submitter-1 wrote to Manager-2, with Manager-1 cc'd, "I'll speak to [Trader-1] again tmrw and see if we can get something sorted…"	DOJ DB SOF	¶35
2005-11-28	↑	**November 28, 2005:** (emphasis added) London Pool Trading Manager: **[an]ything either way from you guys? We are still short basis in 1mth so lowere the better** New York Regional Manager: HAHAHAH, NEVER FAILS. WE WOULD PREFER IT HIGHER…WE HAVE ABOUT 15BB 1MO RECEIVES…**THANKS**	CFTC Order	p.12

		JUST ASKING IS VERY MUCH APPRECIATED… London Pool Trading Manger: will do like [U.S. Dollar LIBOR Submitter] then – ask, and do the opposite…let us know the days you rec, first fix tom will set the tone New York Regional Manager: JUST TOMORROW ON THE REC, THEN PAYING 15BB 12/12 THRU		
2005-11-29	↑ (1m)	DB's USD LIBOR traders in New York also made requests of the bank's USD LIBOR submitters in London, Submitter-1, who was employed by DBGS, and were actively encouraged to do so by their supervisor, Manager-2, who was not employed by DBGS. For example, on November 28, 2005, Manager-2 and Manager-1, who was employed by DBGS, discussed, in email messages, Manager-2's present trading strategy and his need for a higher 1-month rate and Manager-1 prompted Manager-2 to keep Manager-1 informed. Then, on November 29, 2005, Manager-1 confirmed that they had taken Manager-2's request into account, in an email, "looking like 29 in 1 mth libor – we went in 295 for u."	DOJ DBGS SOF	¶40
2006-02-24	↓ (1m)	As another example, on February 24, 2006, Manager-1 and a MMD trader, Trader-3, asked Submitter-1 to push DB's 1-month USD LIBOR submission as low as possible. After a broker had informed Manager-1 that USD LIBOR would probably be around 60.5, Manager-1 forwarded the email message to Trader-3, Submitter-1, and Trader-1, asking Submitter-1 to "Push for 60 [Submitter-1]." Trader-3 then pushed further, "or even 58 if u can Coffee on me." Submitter-1, in reply to both Manager-1 and Trader-3, stated, "ok right now we're looking like 60.5 given what people are saying. Will work on it all morning."	DOJ DBGS SOF	¶37
2006-03-20	↑ (3m)	Trader-4, who was in New York and not employed by DBGS, made requests of DB's USD LIBOR submitters in London to benefit his trading positions. For example, on March 20, 2006, Trader-4 sent a USD LIBOR request, in an email, to Submitter-1, "Hi [Submitter-1] Regarding Mondays 3mLibor, MMD NY is receiving 3mL on USD 6.5 Bn so hoping for higher 3mL. Cheers [Trader-4]."	DOJ DBGS SOF	¶41
2006-04-11	↑ (3m)	Trader-4, who was in New York and not employed by DBGS, made requests of DB's USD LIBOR submitters	DOJ DBGS SOF	¶41

		in London . . . Similarly, on April 11, 2006, Trader-4 sent an email request to Submitter-1, "Hi [Submitter-1] FYI I am receiving 3mL on 5.5 Bn of the April 12 fixing so a higher 3m Libor on Wed morning would help me. Regards [Trader-4]." Submitter-1 then passed along the request to Manager-1, in an email, noting "Hi [Trader-4], I'm off today but I'll pass the message on to [Manager- 1]. Thanjs." Submitter-1 passed the request along one minute later.		
2006-05-17	↑ (3m)	Trader-5, another MMD USD LIBOR trader in New York who was not employed by DBGS, likewise made a request. On May 17, 2006 Trader-5 sent a request, in an email, to Manager-1, "Hi [Manager-1], hope you've been well. If you can help we can use a high 3m fix tom," to which Manager-1 replied to Trader-5 and Submitter-1, "[Trader-5], I'm off but [Submitter-1] is your libor man [] [Submitter-1] could you take a look at 3s libor in the morning for [Trader-5]." Submitter-1 then agreed to accommodate the request, replying "Will do chaps." The following morning after he submitted DB's contribution, Submitter-1 wrote to Trader-5, in a chat, "morning [Trader-5], I went in at 19+ for the 3m libor, as you'll see it almost manage to reach 19."	DOJ DBGS SOF	¶42
2006-06-09	?	For example, on June 9, 2006, the Head of the London Money Market Derivatives desk corresponded with an external banker, requesting, "low fix please I'm begging you," to which the external banker replied, "ok."	NYS DFS Consent Order	¶35
2006-07-20	↓ (1m)	Trader-4, who was in New York and not employed by DBGS, made requests of DB's USD LIBOR submitters in London to benefit his trading positions. . . . Again, on July 20, 2006, Trader-4 told Submitter-1, in an email, "FYI I'm short (paying 1mL) on 6bn of the 1mL tomw in case you have a chance to make it lower" and Submitter-1 responded, "leave it with me on the 1m."	DOJ DBGS SOF	¶41
2006-10-02	↑ (6m)	Similarly, on October 2, 2006, an external banker, an employee of Barclays, corresponded with the Head of the London Money Market Derivatives desk requesting, "…if it suits you as well, could you ask your cash guys to put a high 6m fixing?" The Head of the London	NYS DFS Consent Order	¶36

		Money Market Derivatives desk replied, "i will."		
2006-11-28	↓ (1m)	**November 28, 2006:** (email to London Pool Trading Manager) (emphasis added) New York U.S. Dollar Senior Trader: **Altho I don't have a huge 1 mL fix tomw, I am paying 1 mL on about 40bn throughout December so I was hoping for a low 1 mL fix tomw to set the tone**	CFTC Examples of Misconduct -Written Comms	p. 2
2006-12-29	↓ (1m)	**December 29, 2006:** (emphasis added) London U.S. Dollar Trader 2: Hello [U.S. Dollar LIBOR Submitter] Come on 32 on 1. Mth Cu my frd U.S. Dollar LIBOR Submitter: ok **will try to give you a belated Christmas present…!** have a good new year	CFTC Order	p.12
2007-02-28	↑	**February 28, 2007:** (emphasis added) New York U.S. Dollar Trader 2: **LIBOR HIGHER TOMORROW?** U.S. Dollar LIBOR Submitter: shouldn't be New York U.S. Dollar Trader 2: COME ON. **WE ALWAYS NEED HIGHER LIBORS !!!** HAHA U.S. Dollar LIBOR Submitter: **haha, i'll do my best fkcer** New York U.S. Dollar Trader 2: NO WORRIES. JUST CURIOUS, U SURVE THE DEBACLE OF TH PAST 24 HRS>	CFTC Examples of Misconduct -Written Comms	p. 1
2007-03-14	↓ (3m)	**March 14, 2007:** London Pool Trading Manager: These markets falling in is not good for us personally. We need good old fashioned boom time […] U.S. Dollar LIBOR Submitter: […][Broker 1] reckon 3s libor only 34.75 fyg even with edh where it is now which is bllx London Pool Trading Manager: Get it lower, we need it. […] U.S. Dollar LIBOR Submitter: just spoke to him. Now thinking 34.5, I think should be lower still will keep pressing will do	CFTC Order	p.14
2007-03-28	↑ (3m)	**March 28, 2007:** Frankfurt Non-Euro Desk Manager: …I WOULD NEED A HIGH 3MTS LIBOR TODAY, BUT I THINK YOU DO TOO!! London Pool Trading Manager: 35? Frankfurt Non-Euro Desk Manager: YEP PSE	CFTC Order	p.13

2007-06-20	↓ (1m)	On various occasions, Deutsche Bank communicated with broker firms in an effort to influence LIBOR submissions through the information disseminated by brokers as part of the market color they provided to clients. For example, on June 20, 2007, a London desk head wrote to a submitter, "…my friend we really need the 1 mth fixing to come down if you could do anything." The submitter replied, "SURE MAT E..WE TRY BEST HERE …OFFERING AT MOM IN 1M FOR U TO GET IT HOPEFULLY LOW FOR TOM … K I WILL ALSO OFFER LOW TO THE BROKERS AND WILL ALSO SEND LOW 1M FIXING ON GOING FORWARD .. WE WILL DO OUR BEST MATE"	NYS DFS Consent Order	¶43-44
2007-09-26		On September 26, 2007, a submitter communicated with a director regarding LIBOR information obtained through brokers, stating, "Most of us in London want the same kind of fixings tmrw too. Some today thought we'd see 25 in 3s tmrw but I know of 4 banks who are going to leave their libors unchanged. Will let you know first thing."	NYS DFS Consent Order	¶42
2007-08-12	↓ (1m)	**August 12, 2007:** (emphasis added) New York Regional Manager: **If possible, we need in NY 1mo libor as low as possible next few days....tons of pays coming up overall**....thanks! U.S. Dollar LIBOR Submitter: **Will do our best** [New York Regional Manager]. **I'll coordinate the overnight in the same way as we did last week** with [New York U.S. Dollar Trader 1] tomorrow	CFTC Examples of Misconduct -Written Comms	p.2
2007-08-15	↓ (1m)	Three days later, on August 15, Submitter-1 wrote, in an email, that he was still keeping one month USD LIBOR low, noting "1m libor looking like 57 today [Manager-2]," to which Manager-2 replied, "Thanks [Submitter-1], you are the man!"	DOJ DBGS SOF	¶40
2007-12-13	↑ (3m)	**December 13, 2007:** (emphasis added) Frankfurt Non-Euro Desk Manager: [London Pool Trading Manager]**, I NEED YOUR HELP...IF IT SUITS YOU CAN WE PUT IN A HIGH LIBOR TILL NEXT TUESDAY IN THE 3 MTS?** London Pool Trading Manager: ok	CFTC Examples of Misconduct -Written Comms	p.2

2008-02-28	↓ (1m) ↑ (3m)	**February 28, 2008:** Broker 2: which direction do you want tom 1 mth libor pushed? London Pool Trading Manager: lower and 3mth higher Broker 2: imafraid that's not going to happen big boy London Pool Trading Manager: its worked so far	CFTC Order NYS DFS Consent Order	p.14 ¶45
2008-05-15	↓ (1m)	On 15 May 2008, the same Derivatives Trader asked, "*Low 1mth today pls shag, paying on 18 bio*." On 15 May 2008 Deutsche Bank's USD submission was 2.48 one basis point lower than the previous day.	FCA Order	¶4.28
2008-08-13	↑ (3m)	**August 13, 2008:** (response to U.S. Dollar LIBOR Submitter's email) (emphasis added) New York U.S. Dollar Senior Trader: **Subject: $ lsbors unch** **Oh bullshit…..strap on a pair and jack up the 3M. Hahahahaha**	CFTC Examples of Misconduct -Written Comms	p.1-2
2008-09-16	↓ (1m)	In another instance, on September 16, 2008, the Head of the London Money Markets and Pool desk communicated with a broker at ICAP regarding specific LIBOR submissions. The broker wrote, "trying for you," and the Head of the London Money Markets and Pool desk requested, "lower 1mth PLEASE." The broker said, "ok not sure I can go lower than 8o," and the Head of the London Money Markets and Pool desk replied, "please go lower."	NYS DFS Order	¶46
2009-03-24	↓ (1m)	On 24 March 2009, Derivative Trader G contacted Broker Firm 3 and persuaded him to update the prediction he had circulated for the USD one month LIBOR setting with a lower number.	FCA Order	¶4.48
2009-05-20	↑ (1m) ↓ (3m)	On May 20, 2009, a vice president wrote to an employee of Merrill Lynch, "everybody has an advantage to leave m libor high… everybody is received in tib/lib 6m… and we want low 3m right? and high 3m tibor?" The external banker replied, "yeah… still." The vice president replied, "we all ahve same position no?"	NYS DFS Order	¶33

2. Findings Concerning Conspiring with Outside Banks and Entities

231. The New York Department of Financial Services found that Deutsche Bank "communicated and coordinated with employees of other banks and financial institutions regarding their respective rate contributions in advance of an LIBOR submission, including individuals at Barclays, BNP Paribas, Citibank, Merrill Lynch, Societe Generale and UBS, in an effort to manipulate rates." Deutsche Bank NYDFS Order ¶30. For example, on May 20, 2009, a vice president wrote to an employee of Merrill Lynch, "everybody has an advantage to leave m libor high… everybody is received in tib/lib 6m… and we want low 3m right? and high 3m tibor?" The external banker replied, "yeah… still." The vice president replied, "we all ahve same position no?" *Id.* ¶ 33. Similarly, on June 9, 2006, the Head of the London Money Market Derivatives desk corresponded with an external banker, requesting, "low fix please I'm begging you," to which the external banker replied, "ok." *Id.* ¶ 35. And on October 2, 2006, an external banker, an employee of Barclays, corresponded with the Head of the London Money Market Derivatives desk requesting, "…if it suits you as well, could you ask your cash guys to put a high 6m fixing?" The Head of the London Money Market Derivatives desk replied, "i will." *Id.* ¶ 36. On September 26, 2007, a submitter communicated with a director regarding LIBOR information obtained through brokers, stating, "Most of us in London want the same kind of fixings tmrw too. Some today thought we'd see 25 in 3s tmrw but I know of 4 banks who are going to leave their libors unchanged. Will let you know first thing." *Id.* ¶ 42. It appears that some of these examples relate directly to Deutsche Bank's U.S. Dollar LIBOR submissions. Only discovery can confirm this fact, as well as the existence of other examples of conspiracy with outside banks.

232. Likewise, the FCA found instances of collusion between Deutsche Bank and other banks, as well as between Deutsche Bank and interbank brokers. *See* Deutsche Bank FCA Order ¶ 4.34.

3. Findings that Negate Deutsche Bank's Statute of Limitations Defense in this Case

233. The regulatory findings negate Deutsche Bank's statute of limitations defense in several ways: (1) Deutsche Bank's LIBOR manipulation was inherently self-concealing; (2) The regulatory investigations did not commence until early 2010 (notwithstanding the existence of media questions concerning the accuracy of LIBOR in earlier years); (3) Deutsche Bank's senior management did not appreciate the existence of trader-based manipulation until 2011; (4) Deutsche Bank's traders and rate submitters appear to have stymied regulator-requested internal investigations; and (5) Deutsche Bank initially failed to cooperate with regulatory investigations.

234. The regulators' findings indicate that Deutsche Bank's manipulation was self-concealing. For example, Deutsche Bank's USD LIBOR submitter would not simply alter one or two of the tenors for Deutsche Bank's daily USD LIBOR submissions. Instead, when the request was for a particular tenor, such as 3 month USD LIBOR, a submitter often altered the other tenors so that the manipulation was not conspicuous. In other words, a request for a change in one Deutsche Bank USD LIBOR tenor, when accommodated, often resulted in a change to the bank's submission for most tenors on that day. Deutsche Bank DOJ SOF ¶ 30; *see also* Deutsche Bank DOJ SOF ¶ 22-3. Similarly, in an effort to conceal the manipulation and make it less conspicuous, one of the submitters kept his submissions within or near a range he felt could be reasonably justified by market conditions. In other words, that submitter would choose the lower or higher end of the range that would not look conspicuous, based on trader requests, but he typically did not exceed a reasonable range because he did not want the manipulation to be noticeable. Deutsche Bank DOJ SOF ¶ 31.

235. The CFTC appears to have not suspected Deutsche Bank of manipulating LIBOR until early 2010. Deutsche Bank CFTC Order at 10. At that time, it requested Deutsche

Bank to initiate an internal investigation. *Id*. at 4. That the conduct was inherently self-concealing and not known to regulators or the outside world is confirmed by the fact that the misconduct continued even after the CFTC requested Deutsche Bank to conduct an internal investigation: "Deutsche Bank engaged in this wrongful conduct even after the Division of Enforcement requested in April 2010 that Deutsche Bank conduct an internal investigation of its U.S. Dollar LIBOR submission practices." *Id*. Deutsche Bank impeded the CFTC's investigation from April 2010 through mid-2011: "The Commission [CFTC] notes that at the outset of the Division of Enforcement's investigation in April 2010 and continuing until mid-2011, Deutsche Bank's cooperation was not sufficient, and, in part, this affected a timely resolution of this matter." *Id*. at 5.

236. Deutsche Bank's senior management appears to have not known about the Libor manipulation within the bank until at the earliest mid-2011, when it ***for the first time*** began implementing ***any*** internal controls. *See* Deutsche Bank CFTC Order at 4 (emphasis added). Concluding that the public was on inquiry notice before this time suggests one of two alternatives. The first is implausible: Deutsche Bank senior management suspected or knew that Libor manipulation was occurring within the bank but did nothing about it. The second is plausible: Deutsche Bank senior management – which had full access to all pertinent information – did not have sufficient facts to even suspect that LIBOR manipulation was occurring within the bank until mid-2011 or early 2011 (and then took a few months to implement internal controls). And if Deutsche Bank senior management could not have suspected LIBOR manipulation until early- or mid-2011 – notwithstanding its unfettered access to information – there is no way that the public – even sophisticated investors – could have suspected LIBOR manipulation. Indeed, as the CFTC found, despite an internal investigation that commenced in April 2010, Deutsche Bank "**failed to**

appreciate until mid-2011 the extent to which it had systemic and pervasive manipulative conduct by its traders and managers across multiple lines of business in offices around the world." Deutsche Bank CFTC Order at 10 (emphasis added). "As a result, this conduct continued well after the Division of Enforcement began its investigation of Deutsche Bank's U.S. Dollar submissions in early 2010." *Id.*

237. The NYDFS similarly found that Deutsche Bank's senior management failed to recognize the manipulation within the bank. "Notwithstanding their knowledge of the inaccuracies of LIBOR contributions in the industry, members of senior management failed to recognize and respond to warning signs that Deutsche Bank traders may be part of the misconduct." Deutsche Bank NYDFS Order ¶64. "Despite this awareness, it was not until 2011 that the Bank took steps to introduce LIBOR-specific systems and controls, and not until February 2013 that LIBOR-specific systems and controls were put in place to address the inherent conflicts of interest prevalent at the Bank." ¶66.

238. Likewise, the FCA has found that wrongdoers within DB misled their own senior management and compliance personnel, and that Deutsche Bank's internal investigations were slow and stymied as a result: (A) In 2008, for example, notwithstanding his knowledge of LIBOR misconduct, one senior manager denied in internal and external conversations that there was any possibility of improper influence over LIBOR submissions. On April 17, 2008, that senior manager – having been told of the BBA discussion the previous day – responded to the BBA that the suggestion traders "are manipulating [LIBOR] to make P&L is so far from factual" and that "people do not collude, banks do not collude to try and set a LIBOR rating." FCA ¶ 4.63. As late as November 15, 2010, the senior manager insisted to a compliance officer that nobody other than the submitter himself would be interested in Deutsche Bank's LIBOR submissions. FCA ¶ 4.63.

(B). In the beginning of 2009, a group of senior managers reviewed a trading desk and did not find any manipulation. In the Spring of 2009, a senior manager had the bank's internal Business Integrity Review Group (BIRG) review the desk because of the massive profits the desk made in 2008, and in particular that a single trader made. The final BIRG report revealed cultural and conduct issues, including issues relating to certain traders. Despite the fact that the attempts to manipulate LIBOR were occurring openly over written communications and in verbal requests, and that the attempts to manipulate were known to a number of key managers at the bank, and were a natural result of having derivatives traders make submissions for benchmarks referenced in products actively traded by themselves or their direct supervisors, the BIRG review failed to identify *any* misconduct involving LIBOR, and no disciplinary or remedial actions were taken. DOJ DPA SOF ¶ 105. (C) On October 25, 2010, the supervisor of a compliance officer told the compliance officer that, because the authorities were looking into LIBOR systems and controls, he wanted a formal review of those systems and controls across multiple currencies. The compliance officer commented a few days later to another employee that if the review proceeded "the business is going to go completely mental" and that the idea was "crazy." The review did not take place until five months later. FCA ¶ 4.64. Only after evidence of trader manipulation of LIBOR submissions within Deutsche Bank had been ***discovered in May 2011*** did Deutsche Bank begin the process of introducing formal systems and controls into its LIBOR submission processes. Deutsche Bank began to take steps in June 2011 to introduce specific LIBOR systems and controls. But, it was not until February 2013 that systems and controls fully addressing the inherent conflict of interest between traders and submitters were in place. *Id.* ¶ 4.67.

239. Although Deutsche Bank appears to have cooperated during the later stages of the regulators' investigations, initially it failed to do so. Its failure to cooperate is exemplified in

several ways:

a. Deutsche Bank was slow to produce timely information and documents. For example, Deutsche Bank did not timely produce certain information, including key information related to Deutsche Bank's traders. Another example is in a telephone conversation where two executive level managers discussed knowing that the regulators asked for relevant information and that the information had been withheld from the regulators and other U.S. authorities while acknowledging they probably would have to give the information to the European Union.

b. Deutsche Bank was not, by comparison to other settling institutions, proactive in its investigation and disclosure. For example, Deutsche Bank's conduct included interbank coordination between it and other institutions, but it was the other institutions, not Deutsche Bank, which provided that information to the regulators.

c. Deutsche Bank's investigation was hampered by numerous significant mistakes in the preservation, collection, and production of documents, audio files, and data. For example, Deutsche Bank destroyed thousands of hours of potentially responsive audio recordings due to the negligent execution of certain discovery holds. As another example, Deutsche Bank discovered an important communications platform more than two years after receiving the regulators' initial request for information, which platform contained some of the most explicit documents.

d. Deutsche Bank caused the Department to be misinformed that the bank was not permitted to provide a report by Deutsche Bank's primary domestic regulator, BaFin, that discussed shortcomings in Deutsche Bank's internal investigation of LIBOR related misconduct. Deutsche Bank DOJ DPA ¶ 4b. Deutsche Bank gave the FCA misleading

information about its ability to provide a report commissioned by the German regulator, BaFin. Deutsche Bank did not disclose the report to the FCA and claimed that BaFin had prevented it from being shared when this was untrue. *See* Deutsche Bank FCA Order *passim*.

e. Deutsche Bank falsely attested that its systems and controls in relation to LIBOR were adequate when in fact it knew that it lacked any systems and controls whatsoever.

4. Evidence of ICAP's U.S. Dollar LIBOR Manipulation

240. ICAP had casual attitudes towards rate manipulation, and ICAP's compliance failings created conditions ripe that led to ICAP's manipulation of the U.S. LIBOR benchmark. In fact, as previously discussed (*see* Section V.I., *supra*), ICAP corresponded with Deutsche Bank regarding Deutsche Bank's preferred U.S. Dollar LIBOR settings. *See* Deutsche Bank NYS DFS Order ¶¶ 45-46. For example, on September 16, 2008, Deutsche Bank's Head of the London Money Markets and Pool desk requested and an ICAP broker agreed to try to facilitate a low 1 month U.S. Dollar LIBOR submission. *Id.* ¶ 46. On that day, Deutsche Bank was "kicked out" down from the LIBOR fixing in the 1 month U.S. Dollar LIBOR tenor, however, Deutsche Bank was "kicked out" up from the LIBOR fixing in the 3 month U.S. Dollar LIBOR tenor.

241. ICAP's agreement to facilitate Deutsche Bank's manipulation of U.S. Dollar LIBOR is significant for two reasons. By effectuating Deutsche Bank's manipulation, ICAP facilitated Deutsche Bank's "spread" trade whereby the bank sought to profit the widening of the gap between 1 and 3 month (and 1 and 6 month) LIBOR through derivative trading activities. *See* Section V.I., *supra*.

242. In addition, the Barclays Cooperation Materials provide discrete representative examples of how ICAP "tried" to manipulate the setting of the U.S. Dollar LIBOR benchmark on

the behalf of other investment banks. As Peter Johnson, Barclays' U.S. Dollar LIBOR submitter, explained in an October 10, 2008 phone conversation with his New York-based colleagues, consulting interdealer brokers like ICAP and Tullett Prebon was part of his daily ritual prior to submitting his official U.S. Dollar LIBOR:

> *Every morning I go on to, say Prebon or ICAP and say right where do you reckon LIBORs are?* . . .First of all, they tell me where they think London LIBORS will set . . . .That is a totally different think from where they think LIBORs really are. . . . [I]n the morning, when I sort of ask the brokers where is LIBOR gonna set, they're not telling me where they think the market is, they're telling me where they think LIBOR's gonna set. *It's become a bit like a fairy story. . . .And it seems to be being set by derivative traders rather than cash traders.*

(Emphasis added).

J. <u>Findings from the Barclays Cooperation Materials</u>

243. On October 7, 2014, Plaintiffs and Barclays executed a Settlement Agreement ("Barclays Settlement") whereby Barclays agreed to pay $19,975,000 in civil payments to class members (defined herein) in addition to providing cooperation in the form of documents and information concerning the alleged manipulation of U.S. Dollar LIBOR (the "Barclays Cooperation Materials"). The Bloomberg messages, emails, and telephone calls comprising the Barclays Cooperation Materials substantiate Plaintiffs' existing claims in four primary ways:

244. *First,* the Barclays Cooperation Materials confirm that the frequency and extent of U.S. Dollar LIBOR manipulation far exceeded what was previously suggested by the Barclays Government Settlement documents. Whereas the Barclays Government Settlement documents provided discrete representative examples of how Barclays manipulated LIBOR on at least 45 days, the Barclays Cooperation Materials indicates that Barclays engaged in the potential manipulation of U.S. Dollar LIBOR on at least 156 days of the Class Period.

245. *Second*, the Barclays Cooperation Materials provide greater detail regarding the mechanics of how Defendants were able to manipulate LIBOR. In particular, the Barclays

Cooperation Materials provide additional representative examples of how Defendants and Former Defendants successfully engaged in trader-based manipulation of LIBOR. Likewise, these documents also provide additional evidence concerning how Defendants actively suppressed LIBOR rates beginning in early August 2007 and continuing for years thereafter. The Barclays Cooperation Materials also provide further insight into the extent to which senior executives were aware of and participated in the response to LIBOR suppression. As noted by Mark Dearlove, the Head of Barclays Money Market Desk, in a November 30, 2007 telephone conversation, LIBOR was becoming "a real joke" because other banks were "making a Mickey Mouse" out of LIBOR.

246. *Third,* the Barclays Cooperation Materials demonstrate that trader-based manipulation and the suppression of LIBOR were not mutually exclusive, and in fact frequently occurred at the same time. Derivative traders at the panel banks constructed trading strategies designed to capitalize on the suppression of the U.S. Dollar LIBOR benchmark.

247. *Fourth,* the Barclays Cooperation Materials also confirm that previously unnamed defendants who were not actual USD LIBOR Panel members, including ICAP, Tradition, Tullett Prebon and Merrill Lynch, successfully influenced Barclays LIBOR submissions.[90]

1. Defendants Frequently Requested that Barclays Manipulate LIBOR and/or Telegraphed Their Artificial LIBOR Submissions to Other Panel Banks Both Directly and Through Intermediaries

a. Tullett Prebon Participated In The Conspiracy By Acting As An Information Conduit And Encouraging Manipulation

248. The Barclays Cooperation Materials provide substantial evidence of how Tullett Prebon and Tradition facilitated the manipulation of U.S. Dollar LIBOR. Like its fellow interdealer broker ICAP, Tullett Prebon and Tradition routinely collected confidential information

[90] Plaintiffs previously named Defendants John Doe 1-5. John Does 1-5 were defined to include: "persons and entities employed by or constituting interdealer brokers that directly or indirectly inappropriately influenced or attempted to influence submissions used to compile LIBOR."

regarding where Defendants planned to submit their daily LIBOR quotes and disseminated that information among the other Defendants. As Barclays' Peter Johnson explained on October 10, 2008:

> *[E]very morning I go on to, say Prebon or ICAP and say right, where, where do you reckon LIBORs are? . . .* [T]hey tell me where they think London LIBORs will set, uh based on where, ya know FRAs are trading, and ya know zeros threes and things like that have been trading, uh, uh and stuff like that. That is a totally different thing from where they think LIBORs really are."
>
> * * *
>
> . . . [I]n the morning when I sort of ask the brokers where is LIBOR gonna set, they're not telling me where they think the market is, they're telling me where they think LIBOR's gonna set. *It's become a bit like a fairy story.*
>
> * * *
>
> *And it seems to be being set by derivatives traders rather than cash traders. I think.*

(Emphasis added).

249. During the suppression period when the banks artificially lowered their LIBOR submissions to bolster public perceptions of their financial stability, Tullett Prebon and Tradition understood Defendants' mutual interest in keeping LIBOR fixes low and helped them achieve that goal. For example, Tullett Prebon's Burgess noted on November 27, 2009 that HSBC "wants the LIBORs low, like everyone else does." At the same time, Burgess told Barclays where other Defendants, including HSBC, Lloyd's, and other unnamed banks, would be setting LIBOR that day. In response, Barclays' Mathews quipped, "Yeah, yeah, yeah, yeah yeah," highlighting the casual and routine nature of Tullett Prebon's guidance that banks were manipulating LIBOR for their own benefit. This exchange demonstrates that traders at the banks were well aware of the LIBOR suppression and directing their trading to benefit from it.

250. Tullett Prebon and Tradition understood that the fixes it was communicating often reflected banks' trading positions rather than their true cost of borrowing. For example,

transcripts of voice broker calls show that Tradition participated in telephone conferences with Peter Johnson at Barclays regarding Barclays' and other Panel Bank Defendants' LIBOR submissions, including Lloyds, Deutsche Bank, and Bank of Scotland, on November 29, 2007 and September 17, 2008.

251. In addition, Tullett Prebon and Tradition played a key role in coordinating the LIBOR settings in the wake of the *Wall Street Journal* article that first suggested potential problems with LIBOR. For example, on April 17, 2008, Barclays' Johnson said he would "probably go by what Prebon recommends" despite knowing that the resulting quotes would remain below LIBOR's true levels. Barclays' Miles Storey recognized that their conduct could raise concerns about "quote collusion unquote." On April 18, 2008, Barclays' Peter Johnson discussed the difference between Tullett Prebon's and Tradition's predictions of where six-month dollar LIBOR was fixing on April 18, 2008. The call transcript demonstrates that at 10:55 a.m. Barclays was already aware that Lloyds was going to submit its six-month fixing at "three percent."

252. Tullett Prebon and Tradition received two significant benefits from facilitating Defendants' manipulation of U.S. Dollar LIBOR. *First*, helping Defendants achieve their unlawful ends strengthened Tullett Prebon's and Tradition's relationships with bankers, increasing the amount of business it received from them. *Second*, knowing where LIBOR would fix and influencing the final fix benefited Tullett Prebon's and Tradition's clients and, thus, the interdealer brokers, themselves.

b. Merrill Lynch Frequently Requested that Barclays Manipulate LIBOR To Benefits Its Own Trading Positions

253. Barclays employees also communicated directly with traders at non-U.S. Dollar LIBOR Panel banks regarding their requests to manipulate LIBOR submissions to benefit each other's trading positions.

254. Although it was not one of the 16 panel banks, Merrill Lynch requested that various LIBOR submitters to manipulate LIBOR to its advantage. Starting in July 2006, Merrill Lynch employed a London-based interest rates swap trader, Stylianos Contogoulas. Contogoulas previously worked at Barclays as a derivatives trader. Contogoulas routinely contacted his former colleagues at Barclays about LIBOR fixings. Sometimes he simply shared or sought information. Often he made requests to Barclays to make higher or lower LIBOR submissions, which Barclays honored.

255. At least twice in September 2006, for example, Contogoulas requested specific submissions from Barclays, and Barclays obliged. For example, on September 25, 2006, Contogoulas asked Dong (Don) Kun Lee, a New York-based Barclays derivative trader, "Where do you guys think 3m libor will be? 36.5 or 36.75?" Lee responded, "36.75." Contogoulas then told Lee, "great. I wouldn't mind if it came in ay [sic] 37 ha ha . . . I'm short the stub." Barclays submitted at 5.37 – not 5.3675 – that day.

256. Just two days later on September 27, 2006, Contogoulas wrote Lee asking for insight into Barclays' expected LIBOR submission. When Lee informed him that Barclays planned to submit a 3 month LIBOR of 5.3700, Contogoulas enthusiastically wrote back: "i hope it's 37!!! The higher the better." On that day, Barclays did in fact submit a 3 month U.S. Dollar LIBOR of 5.3700 and was "kicked out" up from the LIBOR panel.

257. Later that afternoon, Contogoulas sent a message to Lee, "If it's not too much pain to ask, what are you guys going for 3m libor tomorrow [, September 28]? Have you spoken to P[eter] J[ohnson] at all?" Lee responded, "37.75 or 38. PJ is going with 37.75 for now . . . I want a hihg [sic] print . . . how about you?" Contogoulas replied, "YEEEEAH BABY!!! Please get a high one :-)" The following day, September 28, Contogoulas contacted Lee, and said "I hope

we get a really high print . . . 38 would be great." Lee responded, "we[']re going 38," and Contogoulas replied, "you are STARS. Remind me to buy you all drinks." On September 28, 2006, Barclays was in the top quartile of banks and was "kicked out" up from the LIBOR fixing that day.

258. About a month later on October 26, 2006, Contogoulas again reached out to Lee at Barclays about manipulating three-month LIBOR, but downwards this time. They had the following exchange at 7:12 a.m.:

> Contogoulas: where do u think 3m libor will be today?
> Lee: pj [Peter Johnson] thinks 38
> Contogoulas: wow…unchanged!!!?!??! Short dates have rallied by 0.75bp…So I take it he's going unchanged? If it comes in unchanged I'm a dead man ha ha
> Lee: i'll have a chat.

Then at 10:29 that morning, Contogoulas contacted Lee:

> Contogoulas: Dude I owe you big time! Come over one day after work and I'm opening a bottle of Bollinger! Thanks for the libor.
> Lee: know [sic] worries!!!

Barclays' 3-month LIBOR quote submission for October 26, 2006 fell from 5.3800 to 5.3750, and returned to 5.3800 again on October 27, 2006. In addition, this anecdote provides an example of how the Barclays Cooperation Materials provides greater detail than the regulatory settlement documents. *Compare* Section V.D.1.

259. In a February 27, 2007 email to Barclays trader Jay Merchant, Contogoulas explained why he relied on Barclays to influence LIBOR in ways beneficial to his own trading positions as Merrill Lynch did not have its own U.S. Dollar LIBOR submitter that he could lean on: "*we don[']t have a cash guy who sets libor . . . . [n]ot one of the privileged 16 banks*." (Emphasis added). Consequently, Merrill Lynch's Contogoulas requested that Barclays keep the 3 month LIBOR benchmark as high as possible on February 28, 2007. Merchant provided

Contogoulas with reassurance noting that he had already spoken with the Barclays U.S. Dollar LIBOR submitter and Fred [presumably Frederic Gourtay, their former Barclays colleague and then RBC Capital derivatives trader] for the need for a high 3 month LIBOR in light of their short position in Eurodollar futures.

260. Indeed, on the following day, February 28, 2007, RBC's Gourtay fell in line and sought to ensure that RBC's 3 month LIBOR submission would be high. On that day, Barclays submitted the highest 3 month LIBOR among the panel banks. In addition, RBC's 3 month U.S. Dollar LIBOR submission fell within the interquartile range, which had a direct impact on that day's 3 month U.S. Dollar LIBOR setting. Consequently, Barclays and RBC were apparently successful in helping Merrill Lynch and their former colleague Contogoulas manipulate the 3 month LIBOR setting.

261. Also on February 28, 2007, Contogoulas sought to influence Barclays' 3 month LIBOR rate setting for March 1, 2007, and wrote to the Barclays submitter regarding where Barclays expected to set LIBOR as the "Mar07 future [was] going crazy". On the following day, March 1, 2007, at 7:49 a.m., Contogoulas checked in with Barclays again this time contacting Lee to ask, "is pj going for a high 3m fix again today? If not, PLEEEASE can he? :-)" Subsequently, Contogoulas thanked Lee by noting, "Dude I owe you (and PJ a few drinks." Consistent with Contogoulas' request, Barclays' submission was in the top quartile of the LIBOR panel and was "kicked out" up from the LIBOR fixing. On March 9, 2007, Contogoulas went beyond mere begging and offers of alcohol. Instead, he resorted to asking Lee to "pray for a high one for me." The Merrill Lynch trader's prayers were seemingly answered for on that day Barclays submitted the highest 3 month LIBOR and was kicked out up from the LIBOR panel.

262. Later that month on Friday, March 23 at 7:42 a.m., Contogoulas sent Lee a

message seeking a low 3-month USD LIBOR, "Yo I don't know whic hway [sic] round you are, but if you guys are neutral, 3m libor at 5.345 would be great (not 5.35). If not, it doesnt [sic] matter anyway… :-)" Lee replied, "done," to which Contogoulas responded, "you are a legend i cannot thank you enough." Consistent with Contogoulas's request, Barclays submitted a 5.345 three-month LIBOR on March 23, 2007. Later in the day, Contogoulas sent Lee a message, "Thank you very much for the 3m fix…appreciate it dude." Lee replied, "anything for you." Barclays' 3-month submission for March 23, 2007 was in the bottom quartile of panel bank submissions for the day.

263. Contogoulas made another request later that afternoon on March 23, "I know I'm pushing it…but…I am away monday…If you don't have the opposite interest AND if you remember, can you please tell PJ to set 3m Libor low if poss…5.345 would be great. If not, dont [sic] worry about it at all!! thanks and have a good weekend dude" Lee assured Mr. Contogoulas, "will do." Consistent with Contogoulas's request, on Monday March 26, 2007, Barclays submitted 5.3450 for its 3 month U.S. Dollar LIBOR on Monday, and was "kicked out" down from the LIBOR panel.

264. Later that week on Thursday, March 29, 2007, Contogoulas contacted Lee to ask for a "low 3m libor": "I know I'm asking for much, but ONLY if u guys care, a low 3m libor would be great…anywhere below 5.35…" Barclays submitted a 5.3450 three-month LIBOR that day, which was in the lowest quartile of three-month USD LIBOR submissions, and at 10:49 that morning, Contogoulas sent Lee a message, "Dude, thanks a lot for the libor, can you PLEASE thank PJ as well :-)" Lee replied, "anything for you!!!" to which Contogoulas added, "seriously, thanks a million dude." In addition, this anecdote provides another example of how the Barclays Cooperation Materials provided greater detail than the regulatory settlement documents. *Compare*

Section V.D.1.

265. On April 10, 2007, Contogoulas requested a "low 3m libor" of Lee. Barclays was in the bottom quartile of 3-month LIBOR submissions that day, consistent with Contogoulas's request. Contogoulas thanked Lee for the low fixing, "THANK YOU for the low 3m fixing. You guys are stars."

c. RBC Requested that Barclays Manipulate LIBOR to Benefit Trading RBC's Positions

266. The Barclays Cooperation Materials highlight numerous occasions where RBC sought Barclays' assistance in manipulating the LIBOR fix. The casual nature of these requests is perhaps explained by the fact that the RBC employee who communicated the requests, Frederic Gourtay, the former head of U.S. dollar swaps trading at RBC Capital Markets in New York, was previously employed by Barclays as a Director and U.S. Dollar derivatives trader. In fact, Gourtay and Alex Pabon, a Barclays USD derivatives trader, had also previously worked together in the New York office of BNP Paribas.[91]

267. Gourtay sought to inure benefits from relationships cultivated during his prior employment. For example, on March 17, 2006, Pabon wrote Gourtay and noted: "I have sold all the stub fras against ois. Going to get pj to jam 3m libor lower." In response, Gourtay acquiesced to Barclay's request, noting "Need that as well ill talk to my cash guys!!" On that day, both Barclays and RBC both submitted a 3 month LIBOR of 4.9250 and their submissions were "kicked out" down.

268. RBC contacted Barclays on September 14, 2006 to request that LIBOR be manipulated down on both September 15, 2006 and September 18, 2006. Gourtay specifically

[91] http://www.prnewswire.com/news-releases/barclays-capital-adds-four-derivatives-traders-to-its-new-york-team-72587722.html.

requested, "okay im off for next 1.5 days . . . make sure u tell ur cash guys for low 3m fix next 2 days..ciaoo oo." Barclays and RBC submitted LIBORs of 5.3900 on September 15, 2006 and September 18, 2006 and their submissions were "kicked-out" down on both days.

269. Similarly, as previously discussed (*see* Section V.J.1.b, *supra*), RBC worked with Barclays to increase the 3 month LIBOR rate setting for February 28, 2007, which also was undertaken at Merrill Lynch's behest in order to benefit its Eurodollar futures positions.

270. The collaboration between RBC's Gourtay and his former Barclays colleagues appeared to continue throughout 2008. For example, on September 25, 2008, Gourtay wrote Barclays to request that LIBOR drop by 10 basis points the next day in order to help hedging his short derivative trading position. The casual nature of the request underscores how routine Gourtay manipulating LIBOR for the benefit of his derivative trading book to be.

d. RBS Frequently Communicated Its False LIBOR Submissions to Intermediaries Who Circulated The Submissions to Barclays

271. The Barclays Cooperation Materials also provide evidence that RBS also sought to manipulate LIBOR both to maintain its reputation and to support its trading positions. Similarly, the Barclays Cooperation Materials also highlight how RBS worked with other panel banks and interdealer brokers to ensure that LIBOR moved in the direction RBS hoped.

272. RBS routinely told other banks and interdealer brokers what its LIBOR submission would be before publication, regularly violating the BBA's rule that LIBOR submissions must remain confidential until the day's LIBOR fix was calculated and published. RBS did so to ensure that other banks would submit appropriately skewed LIBOR quotes.

273. Indeed, on February 28, 2007, Jay Merchant, a Barclays derivatives trader, reached out to Neil Smith, a derivatives trader at RBS Securities, to question why RBS was setting its 3 month LIBOR low relative to other panel banks considering that RBS had "to be short march

eurodollars like the rest of us --::).” In response, Smith expressed seeming frustration by acknowledging “what can i say, they [*i.e.*, the LIBOR submitter] are separate from us” before suggesting the RBS submitters set LIBOR low for their own independent purposes: “because of how they fund they want a low libor but the always go to the extreme so they set it so far out that they don’t even influence the fixing which imho is silly. but, hey, i’m not a cash guy so obviously what do i know.”

274. The Barclays Cooperation Materials provide ample evidence that RBS routinely shared its LIBOR submissions with interdealer brokers and other traders prior to the daily LIBOR fix in attempt to gain preferential settings. For example, Johnson learned on September 13, 2007 that both HSBC and RBS planned to submit low LIBORs based on claims of “cheap money” being available, which prompted Johnson’s laughter. Days later, on September 17, 2007, Johnson, upon learning from an unidentified broker, that RBS was planning a low LIBOR fixing quipped, “RBS is obviously . . . setting his stall out.” Subsequently, Johnson suggested that he would set a high LIBOR “just to f*ck [RBS] up”. On September 17, 2007, RBS submitted the lowest 3 month U.S. Dollar LIBOR and was “kicked out” down from the LIBOR setting. Conversely, Barclays submitted the highest 3 month U.S. Dollar LIBOR and was “kicked out” up from the LIBOR setting. Therefore, by telegraphing its LIBOR submission through communications with third parties, RBS demonstrated an ability to influence the LIBOR setting or at least alter the rate submissions of other U.S. Dollar LIBOR panel members.

275. Similarly, on December 14, 2007, RBS disclosed its likely LIBOR submissions to Tullett Prebon, which in turn passed this information along to the Barclays U.S. Dollar LIBOR submitter. After Neil Burgess attempted to share this information blindly and Johnson wrongly guessed that Lloyds was attempting to suppress LIBOR (though Johnson still requested that

Burgess tell Lloyds "to go an' stick it where the [s]un don't shine"), Burgess revealed that RBS intended to submit a low LIBOR. Neil Burgess of Tullett Prebon understood that this setting was made because RBS had just completed a trading position that required a specific fix.

276. The following Monday, December 17, 2007, Johnson continued to hear additional information regarding RBS' artificially low LIBOR submissions. During a conversation with an unidentified broker, Johnson disclosed RBS' LIBOR submissions, which ultimately resulted in RBS being kicked out down from the LIBOR panel. The unidentified broker exclaimed, "Oh, he's a complete c**t" before clarifying that the British vulgarism was in fact a "technical term" and reasoning that the RBS "[m]ust have [had] a fixing today." This anecdote, therefore, provides additional evidence that RBS set its LIBOR to benefit its own trading positions.

277. Based on this information, it is even more significant that other banks often followed RBS's wishes by submitting similar LIBOR quotes. For example, on November 13, 2008, an unknown submitter told Barclays employee Jonathan Mathew that his firm would be "copyin' RBS . . . at the moment." Therefore, by leaking its planned U.S. Dollar LIBOR submissions prior to the LIBOR setting, RBS was able to directly and passively influence how other U.S. Dollar panel members set their own LIBORs, thereby magnifying the impact of its own manipulation.

e. Barclays and Citibank Conspired With One Another To Manipulate LIBOR Submissions

278. The Barclays Cooperation Materials also suggest that Barclays and Citibank requested and accommodated each other's preferred LIBOR setting. For example, on September 28, 2006, Don Lee, a New York-based Barclays derivative trader, sent Citibank trader Rajesh Ghude a Bloomberg message regarding LIBOR asking, "whats your cash guys going for 3m today? I would like it as high as possible!!!" As described above, Lee had already agreed to accommodate

a request for a high 3 month LIBOR on behalf of Merrill Lynch trader Stylianos Contogoulas. Lee's request to Citibank, therefore, could be seen as a way to ensure that 3 month LIBOR would be set to benefit the trading positions of Barclays and Merrill Lynch. Ghude agreed to speak with Citibank's LIBOR submitter. Like Barclays, Citibank was also in the top quartile of banks in the 3 month LIBOR panel and was "kicked out" up from the LIBOR fixing that day.

279. The dialogue between Barclays' Lee and Citibank continued thereafter. For example, on May 16, 2008, Lee sent Citibank trader and CGMI Trader Rajesh Ghude, a Bloomberg message regarding LIBOR, noting "I am same way pleaaaaaase don't push it higher." In response, Ghude noted, "no way. i just have a small position and i am not going to push it up. no worries." Lee then thanked Ghude for the accommodation before launching into gossip about fellow traders. On that day, Barclays was in the top quartile of banks in the 3 month LIBOR panel and was "kicked out" up from the LIBOR fixing that day. Citibank fell within the interquartile range and consequently had a direct impact on the setting of 3 month LIBOR.

2. Throughout the Financial Crisis, Barclays and Other Defendants Repeatedly Discussed the Artificial Suppression of LIBOR Submissions

280. As alleged herein, between August 2007 and May 2011, Defendants predominantly conspired to suppress LIBOR below the levels it would have been set at had Defendants accurately reported their borrowing costs to the BBA. *See* Section V.B, *supra*. The Barclays Cooperation Materials confirm that during this so-called "suppression period" Defendants consistently sought to artificially suppress their reported LIBOR for reasons, including but not limited to, benefiting their own derivative trading positions and to shielding themselves from the perception of financial weakness. Defendants' coordinated conduct to generally lower LIBOR rates, however, did not preclude them from artificially increasing LIBORs opportunistically to benefit their derivative trading positions.

281. Throughout the suppression period, Barclays consistently discussed with other Defendants the suppression of LIBOR and its effects on the market. Barclays U.S. Dollar LIBOR submitter, Peter Johnson, repeatedly expressed exasperation at the conduct of other panel members with equal measures of incredulity and indignation. Consequently, the Barclays Cooperation Materials provide general examples of how Defendants undertook to artificially lower LIBOR rates during the so-called "suppression period". Plaintiffs are confident that these examples, which are based on limited discovery to date, are representative of the degree to which Defendants coordinated their manipulative LIBOR submissions throughout the suppression period.

a. Evidence of LIBOR Suppression During Late 2007

282. The Barclays Cooperation Materials provide substantial evidence of Barclays' internal response to the suppression of U.S. Dollar starting in August 2007. The representative examples in particular demonstrate that trader-based manipulation was coincident with the artificial suppression of U.S. Dollar LIBOR.

283. An early example of the suppression period manipulation is provided by phone conversation transcripts involving Johnson. During the morning of August 31, 2007, Johnson learned in a telephone conversation with an unidentified broker that RBS was planning to submit its LIBOR beneath its borrowing costs. In a subsequent conversation the same morning, Johnson and an unidentified broker touched upon the activities of Bank of America, Credit Suisse, HBOS, RBS and UBS before fixating on Deutsche Bank's planned submission. After the unidentified broker suggested that Deutsche Bank was likely quibbling with Barclays' relatively high LIBOR submissions, Johnson commented, "Well I thought Deutsche's a wanker, I'm quite prepared to justify mine is, he prepared to justify his?" In a response marked by laughter and stammering, the unidentified broker conceded, "They're just too they're too low." Later that afternoon, Johnson spoke with another unidentified broker over the phone. In a conversation focused on the increasing

separation of LIBOR from actual borrowing costs, the broker commented that Lloyds was forced to concede that they could not borrow at a specified rate. In disgust, Johnson retorted, "So why the f*ck, and so they're basically admitting not being honest. And I'm gonna go upset these bastards. I'll be back." On that day, Johnson seemingly acted on his threat by submitting the highest 3 month LIBOR submission, a full 20 basis points higher than the lower submission and nearly 13 basis points higher than that day's 3 month U.S. LIBOR.

284. Barclays' Johnson continued to express his indignation at how other Defendants planned to submit artificially suppressed LIBORs. For example, on September 3, 2007, Johnson observed to an unidentified broker, "It pisses me off that we're the only people being honest about this and we are getting pilloried for it. . . .Really pisses me off." To provide credence to Johnson's concern, the broker observed that RBS was setting its LIBOR below what another RBS trader was paying in the market. Moreover, after Johnson shared with the broker what Tullett Prebon believed LIBOR to be and Johnson requested that the broker try to influence the market, the broker quipped, "I will do my best to influence but. . . it seems the people at Prebon/ICAP keep low balling it." This suggests that ICAP and Prebon actively provided market guidance in line with their clients' desires as opposed to actual insights gleaned from the interbank lending market.

285. Later in the evening of September 3, 2007, Johnson continued to probe for information concerning other panel banks' expected LIBOR submissions. After Johnson suggested that he already had obtained HBOS' expected submissions through "hidden sources", an unidentified broker observed, "I don't think he's [HBOS' submitter] one of the, ah the bad boys as such." In response, Johnson noted, "No he's not, but he's still setting them lower then he should do." Johnson and the unidentified broker also agreed that certain Defendants' LIBOR submission practices, including those of Citibank, Deutsche Bank, Lloyds, and UBS, were particularly

egregious and laughed as they labeled these banks "filth".

286. What prompted laughter in September 2007 provoked ire less than a month later. On October 2, 2007, Johnson engaged an unidentified broker from another bank in conversation regarding what that bank would submit for its LIBORs. After the broker identified where the bank planned to submit its LIBOR, the following conversation ensued:

> PJ: It's bollocks!
> UM: It is bollocks. Total and utter. But he is taking into consideration where the Citibanks [sic], UBSs and all these people are gonna go.
> PJ: Yeah well f*ck them! They're wrong.
> UM: Yeah.
> PJ: That's, that's that's absolute f*cking bollocks.

Later in the same conversation, Johnson disclosed Lloyds' planned LIBOR submission and questioned where WestLB would submit 3 month LIBOR based on his knowledge of what WestLB is paying in the market. Towards the end of the conversation, Johnson forced the broker to acknowledge that LIBOR submissions was flawed.

> PJ: Okay, well I think your LIBORs are just ridiculous.
> UM: Oh a disgrace, yeah, no, they are, but I'm uh uh you understand what we are d- all I'm saying to you is that where we think the market is gonna fix their LIBORs. That's where the fix . . . . is gonna be.

287. The pressure to submit LIBORs in line with other panel members is highlighted further by an October 11, 2007, telephone conversation between Johnson and a broker identified only by his first name Joe. Following a broad discussion about keeping LIBOR rates high in the face of pressure to submit lower LIBORs, Joe suggested, "I think, I think that, I think all the banks that set the LIBORs need to go out, f*cking have a chat about what they're doing." Johnson retorted, "Yeah, well it is crazy."

288. On November 21, 2007, Barclays' Johnson continued to probe other panel banks for insight into their planned LIBOR submissions. After learning HSBC's planned submission

from a broker, Johnson expressed his general frustration to another broker: "My problem is, I know it's too low, but I don't know what this market's gonna do 'cause it's *so scared of sticking its head above the parapet and being the highest fixer*" in the course of learning that Deutsche Bank planned to submit an artificially low LIBOR (emphasis added).

289. On November 29, 2007, Barclays had an internal discussion calling the LIBOR market "broken", and being used by submitters to "deliberately" manipulate the fixing "in order to make money off the derivatives." In addition, through communications with Co-Conspirators Tullett Prebon and Tradition, Barclays participants knew where Co-Conspirators HBOS and RBS would submit LIBOR in advance of the filing. Barclays also knew from these brokers where composite LIBOR would end up on the day. And based on the FX swap market, the Barclays participants knew that the demand for U.S. dollars was 55 basis points above the RBS submission and 40 basis points above the HBOS submission.

290. Johnson distilled his concern over the perceived suppression of LIBOR and the need to avoid being seen away from the pack in a November 28, 2007 internal liquidity report. Johnson observed:

> Libors are not reflecting the trust cost of money. I am going to set 2 and 3 months today at 5.13 and 5.12 probably at the top of the range of rates set by libor contributors, although brokers tell me that RBS is going to set at 5.15 for both (up 8.5 and 10 from yesterday). The true cost of money is anything from 5-15 basis points higher. *Not really sure why contributors are keeping them so low but it is not a good idea at the moment to be seen too far away from the pack, although reality seems to be setting in for a few libor contributors who are belatedly moving libors up in line with where money is really trading.*

(Emphasis added).

In response to this email, Miles Storey ("Storey"), a manager in Barclays' Treasury department, thanked Johnson "for remaining pragmatic but at the upper end". This effectively amounted to an acknowledgment and acceptance that Barclays was not submitting accurate LIBORs, but that

Johnson should be praised for not manipulating LIBOR as egregiously as competitors while nonetheless still moving along with "the pack".

291. The pressure to submit LIBORs in line with other banks' submissions reached a breaking point on November 30, 2007. On that day, Johnson spoke with Storey regarding how Barclays should position its LIBOR submission in the face of other panel banks' artificially low submissions. Johnson advised Storey that he was in the process of figuring out where HBOS planned to submit its LIBOR because HBOS was "sort of was out with [Barclays] yesterday." However, Storey advised Johnson that "the guidance is [to] stick within the bounds" and "no head above parapet, not partial bleeding," as "Mr. [Chris] Lucas [Barclays' then Chief Financial Officer] doesn't want [Barclays] to be outside the top end." After Storey provided this guidance, Barclays received notice of RBS' planned LIBOR submissions, which were higher than RBS's prior day submissions.

> MS: Well that shows that RBS is being dragged up doesn't it?
>
> PJ: Yeah but they're only being dragged up to the to the tower.
>
> MS: I know, but it's a start isn't it.
>
> PJ: But why don't I go 32, 22 and 20? So I'm 2 above the top. So I'm, so I'm something ahead a little bit above the parapet.
>
> MS: Tell you what, 30, 22, and 20. In other words we're slightly above the parapet, but not in the one that people are going to publish.
>
> PJ: Okay so 30, 22, 20.
>
> MS. Yeah, I'm comfortable with that.

292. The attention that senior Barclays management paid to the bank's LIBOR submissions is further evidenced by a telephone conversation Mark Dearlove, the head of Barclays' money market desk, had with a regulator named George (last name unknown) shortly after the 11 a.m. LIBOR fixing on November 30, 2007. In the course of explaining how Barclays felt that LIBOR was artificially suppressed, Dearlove commented, "But what our senior

management has said is what *we don't want to do is attract any publicity where people think oh, Barclays has a funding crisis, and you're, you're thirty basis points higher than everybody else*." (Emphasis added). In response, George commented that LIBOR was being made into a "*Mickey Mouse*", a sentiment that Dearlove quickly seized upon before adding that LIBOR had "become a *real joke*" as the banks had abdicated their "obligation to set the . . . right rates." (Emphasis added).

293. Likewise, Storey shared his own concerns about LIBOR with John Ewan, Director of the BBA, in a November 30, 2007 email in response to Ewan's question from the prior day as to whether LIBOR rates were "artificially low." Storey suggested that Ewan already understood his views but observed, *inter alia*, that "[s]ome banks are getting close to looking like they are actively not recognising the actual market levels" in addition to noting "[a] suggestion which may not be appropriate at the moment is to return to the anonymity of the contribution in some way to remove *the stigma of setting LIBORs too high relative to the pack and thus getting the wrong attention*." (Emphasis added).

294. Johnson echoed these concerns in another internal email to Dearlove on December 4, 2007, which was subsequently forwarded to Barclays' former head of compliance Stephen Morse. Expressing discomfort with how LIBOR rates were generally being set, Johnson explained, "My worry is that we (both Barclays and the contributor bank panel) are being seeing to be contributing patently false rates. *We are therefore being dishonest by definition* and are at risk of damaging our reputation in the market and with the regulators." (emphasis added).

295. The Barclays Cooperation Materials suggest that LIBOR suppression continued unabated. For example, on December 12, 2007, Barclays' Johnson learned in telephone call with an unnamed broker that both RBS and Lloyds planned to submit LIBORs well below what was conceivable in the London funding market. He quipped, "What kind of drugs are they on?" After

pressing the broker further, Johnson added, "It's all a load of bollocks, isn't it?" And the broker was forced to concede, "Eh, it's just complete[ly] false."

296. In fact, the next day, December 13, 2007, Johnson responded, "Give us a laugh" after an unidentified party offered to share Lloyds' U.S. Dollar LIBOR submissions (Lloyds' 3 month LIBOR submission for the day was "kicked out" down from the LIBOR panel). Later that same morning, Johnson spoke with Neil Burgess of Tullett Prebon, who shared market color and in particular divulged details regarding RBS' expected LIBOR submissions. Subsequently, Johnson learned that RBS had received a call from the BBA regarding its persistently low LIBOR submissions. Collectively, these documents evidence the fact that the Panel Bank Defendants routinely disseminated their expected LIBOR submission with the desire and expectation that the information would influence other Panel Bank Defendants' LIBOR submissions.

b. **Evidence of LIBOR Suppression During 2008**

297. The Barclays Cooperation Materials also demonstrate that internal and external communications regarding the suppressive manipulation of LIBOR continued into 2008. For example, in a March 18, 2008 phone conversation, Barclays trader Jonathan Mathew discussed where another bank planned to submit its LIBORs based in part on RBS' expected low submission:

> JM: How are you going fifty, if you got an offer at fifty five in the ones?
>
> UM: Because, it's not to do with the bloody market is it? Nothing to do with markets.
>
> JM: Lovely, I-I'm telling it to PJ, I know but, . . . [h]e will get so infuriated."
>
> * * *
>
> UM: I know. Stupid. I know, ex-exactly where you're coming from. But uh, it's all, it's all grown on deriv-derivatives now, nothing to do with LIBORs, is it?
>
> JM: Which is wrong, but anyway.

298. Approximately, a month later, the separation of LIBOR from the cash market attracted the attention of the *Wall Street Journal* as described herein. *See infra* Section VI.C. Yet, an internal conversation at Barclays between Peter Johnson, the LIBOR submitter, and Miles Storey, a Treasury Manager, suggests that the divergence was attributable to other panel banks' derivative position as opposed to a desire to portray a semblance of financial stability.

> MS: And personally, I think it's derivative driven.
> PJ: Yeah, um, I'm convinced it is.
> MS: Myself. I don't think it's anything to do with . . . umm . . . actual where I can get the cas-, sorry with the uh liquidity perception issue.
> PJ: Yeah.
> MS: Um, I think it's that they are, ya know, I'm being heretical in accusing people here on the phone and therefore I would not uh state this in a court of law, but . . . [y]a know, if you're a permanent seller of OIS swaps . . . [b]ecause you think they're overdone . . . [y]ou ain't going to uh crucify your mark to market are you?

299. Cognizant he was on a recorded line, Storey went on to disclose to Johnson that there were conversations among senior bankers at the BBA board level from various panel banks and gave him permission to move LIBOR "towards were . . . [Johnson] have always wanted to be." However, after Johnson suggested that he would "probably go by what Prebon recommends", Storey cautioned, *"[W]e need to be careful about quote collusion unquote*" and to be mindful of his "*amount of verbiage . . . [o]n the wires*." (Emphasis added).

300. After getting off the phone with Storey, Johnson spoke with unidentified brokers and Neil Burgess of Tullett Prebon to gain a better understanding of where other panel banks, including Credit Suisse, HSBC, Lloyds, RBS, would set LIBOR. In particular, Burgess provided Johnson reassurance that Barclays' planned submissions would not be "too far out" only minutes before that day's LIBOR fixing.

301. Still, Johnson reserved enough time to call Storey back to recount what he had learned about other market participants' expected LIBOR submissions. Johnson suggested that

Barclays could justify its submission publicly by pointing to a sell-off in the futures market since the prior day's LIBOR fixing. However, in summary, Johnson told Storey that "Yeah, well if-if what I'm being told is correct yeah u-u-u-uh it's quite interesting, *everyone wants to know what everybody else is setting*." (Emphasis added).

302. The following day, April 18, 2008, Johnson continued to probe the market for insights into where other panelists planned to submit LIBOR before reporting back to Storey to let him know HSBC, Lloyds and RBS' impending submissions and to where Tullett Prebon believed LIBORs would set. Later in the conversation, Johnson recounted how Mark Dearlove spoke with the *Wall Street Journal* on April 17, 2008 and suggested that Barclays' submissions reflected the market sell off. Recounting that explanation, which did not account for the behind the scenes calibration of LIBOR based on information shared among the panel banks, prompted laughter.

303. Following this April 2008 exchange, Barclays continued to discuss the persistent yet undisclosed manipulation of LIBOR both internally and with other panel banks and broker-dealers like Tullett Prebon. Consider the following examples:

304. On May 1, 2008, Johnson discussed that day's LIBOR expected setting and other panel banks' expected settings with unidentified brokers. In particular, Johnson was interested in where Deutsche Bank was setting LIBOR, after learning that ICAP told Deutsche Bank that its LIBOR submissions were too low. To wit, Johnson "quite like[d] this guy at Deutsche actually" as he believed that "he's [had] the right f*cking idea," based on Deutsche Bank's perceived willingness to at least occasionally rise above the parapet. Conversely, Johnson was less pleased with an unnamed broker who Johnson perceived was encouraging artificially low LIBOR submissions which Johnson suggested was "a load of f*cking bollocks" before labeling the broker a "wanker". Around 10:15 am, Johnson recognized during offline conversation that his expected

submissions would be out of line with other panel banks and quipped, "Well, . . . if they don't like it they can stick it right where it f*cking hurts," before requesting that a colleague tell Deutsche Bank where Barclays planned to set its LIBORs. On that day, Barclays and Deutsche Bank submitted the highest 3 month LIBOR submissions and were consequently "kicked out" up from the LIBOR panel.

c. <u>Evidence of LIBOR Suppression Post-Lehman Brothers Bankruptcy</u>

305. On September 15, 2008, Lehman Brothers filed for bankruptcy. As described herein, in spite of increased risks and worries about the banks after the Lehman bankruptcy filing, LIBOR did not keep pace with the Federal Reserve Eurodollar Deposit Rate during this period of heightened concerns, causing the Spread between the two rates to become more negative. *See* Section V.M.1, *infra*. Anecdotes provided by the Barclays Cooperation Materials confirm that U.S. Dollar LIBOR panel banks continued to manipulate LIBOR in the wake of the Lehman Brothers bankruptcy filing, and actively sought out as much guidance and cooperation from other panel banks as possible.

306. Telephone transcripts from the days immediately following the Lehman filing detail how Barclays painstakingly sought out market color from other panel banks in an effort to calibrate its own submission towards the pack. Consider the following examples:

- On September 16, 2008, Johnson learned in an 8:40 a.m. that Credit Suisse planned to (and ultimately did) submit 3.0000 LIBORs across the board. Johnson responded to the broker who shared this information by declaring, "Now look, can you just tell Credit Suisse uh, you know, anything reasonable he goes for I'm a follow him." An hour later, Johnson informed someone named Bryce [last name unrecorded] that "the general consensus in the market seems, uh-eh, seems to be that this where [Credit Suisse] will set even if this is where they shouldn't be setting. . . ." before adding, "[a]nd by the way if he does, I will, cause I won't stand out."

- Minutes later, Johnson spoke with another broker who offered insight into Deutsche Bank's expected submissions, before speaking with Neil Burgess of Tullett Prebon.

Johnson made the explicit request "Uh, I'd like to know what other people are going for LIBORs." Burgess agreed to try to find additional market color but in the interim informed Johnson of Lloyds' expected submission, which was so low that it prompted Johnson to retort "[h]e's got not f*cking idea."

- On September 17, 2008, Johnson continued to probe for information and share it with other brokers. After learning Credit Suisse's expected submissions, Johnson quipped, "Okay, I-I-I admire his s-s-spunk, but I don't think he's high enough." Subsequently, Johnson spoke with another broker who informed him that they acted on Johnson's intelligence on Credit Suisse's planned submission. Johnson reiterated his prior sentiment this time adding "He's about the only eh-eh-eh *he's about the only person who's being even vaguely realistic out there* . . . . Sorry, apart from me." (emphasis added).

- On September 17, 2008, Johnson engaged in a separate wide-ranging discussion regarding the submission with a broker named Ramsey. Johnson reached out to Ramsey to gather information prior to the LIBOR fix. Initially, Ramsey let Johnson know that he was trying to find out about Credit Suisse's submission, informed him that Deutsche Bank planned to (and did ultimately) submit a 3.1000 3 month LIBOR, and that Lloyds was planning to submit a low 3 month LIBOR of 2.8500 (which was Lloyds' actual submission and the lowest submission that day). In jest, Johnson asked what Lloyds' subsidiary HBOS (terms of the Lloyds acquisition of HBOS were formally announced the next day) planned to submit. After learning that HBOs and RBS both planned to submit higher LIBORs, Johnson responded, "*Good. Now I'm gonna go higher than all of them.*" (Emphasis added). While Barclays did in fact submit the highest 3 month LIBOR on September 17, 2008, this is tempered by the fact that the broker indicated that the cheapest cash offer he observed in the market place was four percent.

- Also on September 17, 2008, Johnson reported on market sentiment in an internal liquidity report and observed "Libor panelists are going to put in yet another wide spread of libors – 1 mth will range from 2.80 to 3.40, 2 months from 2.85 to 3.30 and 3 mths from 2.90 to 3.20. Feeling from brokers is that we will come high 90s in 1 mths, just of 3% in 2 and 3 months. Needless to say I feel these are a tad on the low side."

307. On September 18, 2008, Johnson's frustrations boiled over as demonstrated by an excerpt from a lengthy conversation prior to that day's LIBOR fix:

> I mean these banks, I mean that, the BBA just needs to get 'em together and tell 'em to sort their f*cking lives out. 'Cause this really, it it makes me look likely a f*cking [inaudible]. *There I am, uh, th-there I am, um, just tryin' to set, see I think we should go five and a half, five, and four and a half. Uh, and I will be, uh, up to two and a half percent higher than anybody else. Yeah, and I'm right, I know I'm right. Uh, oh, oh, yep. . . It's bollocks, innit? We know its bollocks. It's absolute bollocks.* I mean, you know, the, the only good thing about yesterday is, when all the Merrill Lynch [inaudible] like Barclays sets at three, [inaudible] three months,

> and Lloyds sets at two eight five is indication [inaudible] worth crap and we need the money, uh, but, then on ICAP three months [inaudible].
>
> * * * *
>
> So, I'm ju- [inaudible]. But I mean [inaudible] my answer, that'll be for these a**holes to set f*cking LIBORs [inaudible] *I'd rather have children set them*. (emphasis added).

308. Separately, and immediately before the September 18, 2008 LIBOR fix, Johnson shared his concerns with Tullett Prebon's Neil Burgess, who concurred with his assessment of the LIBOR settings being divorced from reality:

> PJ: I'm very disappointed at Credit Suisse being such a f*cking tool. You know what that means? He's in the sh*t.
>
> NB: Yeah.
>
> PJ: He must be in the sh*t, he's been told by his management to f*cking go low.
>
> NB: Yeah, I think so. But that's. Yeah, but the thing is, Pete, I [inaudible] th-the off balance sheet's runnin' to cash in. I went so many rounds this mornin'.
>
> PJ: Yeah. Well they're all f*ckin' wrong mate. We're right. They're wrong. We know it.
>
> NB: Mm hmm.
>
> PJ: They know it.

Ultimately, Barclays submitted a 3 month LIBOR of 3.7500 on September 18, 2008, and was kicked out up from the LIBOR panel. Tellingly, Barclays' submission was a full 75 basis points higher than the lowest submitter, and 53 basis points higher than the average submission of the remaining 15 panel banks.

309. On September 19, 2008, Johnson and Barclays Treasury Manager Miles Storey engaged in a wide-ranging discussion on recent LIBOR activity. Storey acknowledged that Johnson was in between "a rock and a hard place at the moment" as they had to stop "short of saying people are lying . . . ", before inviting Johnson to continue his "rant". Among the topics covered by the rant, Johnson noted that he challenged RBS' submissions through ICAP and Tullett Prebon:

> Mm. I got told by Prebon, or ICAP, that RBS is gonna set his one month LIBOR at two, uh three fifteen. So I said, why don't you go back to him and say that I'll pay him, his LIBOR plus a hundred for any amount that he wants to give me, he can just he's got a hundred basis points profit just like that. I haven't heard back from him yet.

Likewise, Johnson invited Storey to comment on recent HSBC and HBOS submissions.

> PJ: Are you just gonna look at HSBC's two week and one month LIBOR [inaudible]?
>
> MS: No, I know, I know, I know, and he's already talked to them about that.
>
> PJ: And, and what about HBOS' two week LIBOR being, uh, fifty basis points below Lloyds's? I, who's in trouble there? You know, it's just fucking ridiculous. It, it [inaudible].

In addition, Johnson speculated that derivative trading positions created perverse incentives for banks to keep LIBOR, and in particular 1 month LIBOR, as low as possible:

> Yeah, well, I-I think so. I mean I'm, I'm telling our sales force who are listening to me, that when their clients ask about my LIBORs, just say look we know we're right, we know they're not getting money where they're saying they're getting money, and we know why they're doing it. You know, like if you think, yo-, uh, uh, lo-, uh, for instance I was just thinking about this, um, like threes ones basis was, uh, um, a-a week ago was forty, plus forty bid, it's now minus fifteen offered. So that's, uh fifty five basis points turnaround in the threes ones basis. *Now, these guys are on wrong side of that. They've got a vested interest in keeping one month down as much as they can. And if it goes to where it really should be, that basis will go about, I don't know, minus a hundred, negative, you know minus a hundred. And they will get taken away on stretchers.*

This trading strategy seemingly comports with the DOJ's findings with respect to Deutsche Bank's attempt to profit from the widening of the spread between 1 and 3 month (and 1 and 6 month) U.S. Dollar LIBOR. *See* Section V.I, *supra*.

310. Concern over how LIBOR rates would be perceived by other market participants and the public extended in October 2008. For example, on October 2, 2008, Johnson learned that RBS would go only slightly higher on the previous day's low LIBOR settings. Subsequently, Johnson blasted a mass internal email noting, "Hearing a libor contributor is paying 4.50 for 6 month USD (2 others are paying 3.97). This particular contributor will be putting his libor

substantially below the 4.5 level." In fact, on that day, RBS submitted a 3 month LIBOR of 4.3500 which fell within the interquartile range, thereby directly impacting the LIBOR setting for the day. After sending his internal email, Johnson called Burgess at Tullett Prebon, opening the dialogue by requesting, "Larrys, laughable Larry LIBORs, please" before going on to describe his dismay at RBS's LIBOR submissions. Burgess acknowledged the absurdity of the submission by exclaiming "bloody hell" before quipping, "Some weird and wonderful things goin' on at the moment Pete it's all, payin' four and a half and . . ." only to have Johnson cut him off and add "And then pretending you're not." Burgess attempted to offer Johnson solace in the fact that "You're the only one that lies straight in bed mate," but such sentiments rang hollow in the face of the persistent manipulation.

311. What seemed to offer Johnson comfort, however, was the hope that at least on occasion other LIBOR submitters would come close to submitting accurate LIBORs and occasionally venture above the parapet. For example, on October 9, 2008, Johnson had a discussion with two unidentified brokers wherein he divulged Credit Suisse's expected (and actual) LIBOR submission for the following day. Johnson initially inquired, "Any other reprobates doing anything thing in the, uh, threes? So, I know Credit Suisse is going five." Later Johnson added, "I know what it is, it's mutual respect, because we're the only two people who even tell, vaguely the truth." Of course, mutual respect for merely approximating the truth was not a ringing endorsement for Credit Suisse, and is in fact an indictment of the accuracy of the LIBOR benchmark resulting from the panel bank's egregious behavior.

312. On October 29, 2008, Johnson emailed Mark Dearlove, Peter Spence, and Colin Bermingham to address their concerns that Barclays' LIBOR submissions were higher than other panel banks. Johnson noted:

> *Following on from my conversation with you I will reluctantly, gradually and artificially get my libors in line with the rest of the contributors as requested.* I disagree with this approach as you are well aware. *I will be contributing rate which are nowhere near the clearing rates for unsecured cash and therefore will not be posting honest prices.*[92] I am not sure that the BBA definition of libor would accept this approach. Today for instance the only cash offer in 3 months has been Chase Nyk who is offering at 4%. Please do not tell me that 3.42% was the correct rate as we both patently know that it was not. I will continue to keep a record where money is or is not offered in the periods.
>
> COF spreads will have to go up massively in USD to compensate for fixing LIBOR rate unrealistically low.

(Emphasis added). As Johnson noted, 3 month U.S. Dollar LIBOR was set at 3.42% on October 29, 2008. Barclays submitted a LIBOR submission of 4.0000%, which was an extreme outlier compared to the next highest submitter, RBS, which submitted 3.6000%, and the lowest submitter, J.P. Morgan, which submitted 3.1500%.

313. During this time period, Barclays internally examined the foreign exchange ("FX") currency market derivatives to ascertain whether U.S. Dollar LIBOR was accurate. A November 21, 2008 internal liquidity report, provides a stunning summary of the artificiality of the U.S. Dollar LIBOR quotes. Colin Bermingham, the author of the report, states that "demand has picked up via the FX swap market, in 3 months the implied bid for USD cash through GBP is 4.26 and EUR 3.57 with the BBA $ Libor fixing at 2.1575." The report goes on to show graphically the level of U.S. Dollar LIBOR implied by the FX swap rates over time. In sum, the analysis shows that the implied bids for U.S. Dollar cash based on spreads against the British Pound and the Euro were significantly higher (sometimes by hundreds of basis points) than the reported LIBOR.

314. As discussed above, Defendants' and Former Defendants/Co-Conspirators' persistent manipulation of the U.S. Dollar became such a routine occurrence that daily chatter

[92] *See also* Barclays CFTC Order at 24.

regarding various banks' suppression of LIBOR or individual requests to move LIBOR was no longer shocking. For example, on November 27, 2009, a Tullett Prebon broker informed a Barclays derivatives trader that neither HSBC nor Lloyds planned to change its LIBOR from the prior day, because they wanted "LIBORs low, like everyone else. . . ." The response: "Yeah, yeah, yeah, yeah, yeah." This anecdote provides direct evidence of derivative traders at the panel banks understanding of U.S. Dollar LIBOR suppression and how they constructed trading strategies around it.

K. <u>The Regulatory Settlements and Barclays Cooperation Materials Provide Substantial Basis to Allege that Defendants Continually Manipulated U.S. Dollar LIBOR Throughout the Class Period</u>

315. The Regulatory Settlements and the Barclays Cooperation Materials provide ample evidence of manipulative intent and many representative examples of dates on which various Defendants and Former Defendants/co-Conspirators manipulated the U.S. LIBOR benchmark. Although the overall the scope of the alleged manipulation, including the amount of collusion and the "but-for" LIBOR, is still unknown, it is clear that Defendants and their Co-Conspirators have engaged in widespread manipulation of U.S. Dollar LIBOR.

316. Annexed hereto as Appendix A is a schedule derived from the Regulatory Settlements and Barclays Cooperation Materials that lists discrete days on which Defendants requested that U.S. Dollar LIBOR be manipulated for their own benefit. This Appendix also shows how the conduct impacted Plaintiffs trading positions in Eurodollar futures. The list of dates on which Defendants' manipulated LIBOR together is necessarily under-inclusive at this early stage of the litigation. For example, as a preliminary matter, the CFTC determined that throughout the period of 2005 through 2011, Deutsche Bank routinely employed a trading strategy dependent upon LIBOR manipulation. *See* Deutsche Bank CFTC Order at 2, 8-9. During the financial crisis, this manipulation is alleged to have occurred almost daily, but only representative examples of the

manipulation were provided. *See* Deutsche Bank DOJ SOF ¶ 32.

317. Nevertheless, the Regulatory Settlements and the Barclays Cooperation Materials provide sufficient evidence to suggest that Defendants' manipulation of U.S. Dollar LIBOR overlapped on certain days, and that the manipulation occurred in the same direction. When two banks manipulate LIBOR, the degree of manipulation increases significantly.[93] Consider the following representative examples:

- *Compare* Barclays CFTC Order at 10 (referring to a September 13, 2006 request that Barclays has a "big position in 3m libor for the next 3 days" and wants a low 3 month LIBOR) *with* Rabobank CFTC Order at 9 (referring to a September 15, 2006 request from a U.S. Dollar trader asking a U.S. Dollar LIBOR submitter to keep 3 month LIBOR at "39 for the next few days");

- *Compare* Barclays FCA Final Notice ¶ 168 ("Trader B [a U.S. dollar Derviatives Trader] stated to a Submitter that 'We're all rooting for a high LIBOR tomorrow on 26 September 2007 . . . [t]he Submitter responded: '*I reckon you should be about four to five ticks higher*") (emphasis in original) *with* Rabobank DOJ SOF ¶ 26 (on September 26, 2007, a U.S. dollar trader asking a U.S. Dollar LIBOR submitter for a higher 3m for the next day, and on September 27, 2007, Rabobank's 3 month LIBOR was 5.24 "an increase of five basis points" whereas other panel banks' submission increased about three basis points on average).

- *Compare* Deutsche Bank NYS DFS Order ¶46 (Deutsche Bank's Head of the London Money Markets and Pool desk requested that and an ICAP broker agreed to try to facilitate a low 1 month U.S. Dollar LIBOR submission on September 16, 2008) *with* Barclays Cooperation Materials (in various pre-fixing telephone transcripts from September 16, 2008 Peter Johnson, Barclays U.S. Dollar LIBOR submitter, *inter alia* observed that Credit Suisse was "gonna go three percent from one month to one year", that he would attempt to mirror Credit Suisse's submission "cause [he] won't stand out", noted that Deutsche Bank was going to submit lower LIBORs than Credit Suisse, and discussed how Barclays could not receive market color from the "American bloke" sitting in for the RBS submitter and noted, "who can get sense out of a fat pig."

- Likewise, the Barclays Cooperation Materials highlight that on September 28, 2006, Merrill Lynch requested that Barclays submit a high 3 month LIBOR. After hearing that the request would be granted, the Merrill Lynch trader noted, ""“you are STARS. Remind me to buy you all drinks." To magnify, the impact of the manipulation, however, Barclays also approached a Citigroup trader about requesting a high submission. The Citigroup trader agreed to speak with the LIBOR submitter. On September 28, 2006, Barclays and Citigroup were in the top quartile of banks in the 3 month LIBOR panel and were "kicked

[93] *See* Barclays FCA Final Notice ¶ 11.

out" up from the LIBOR fixing that day.

L. The Regulatory Settlements and Disclosures Support Collusion during the Class Period.

1. The Panel Banks Submitted Suppressed LIBOR Beginning in August 2007.

318. In addition to the allegations above, the two regulatory settlements that addressed U.S. Dollar LIBOR, with defendants Barclays (announced in June 2012) and UBS (announced in December 2012), support the fact that Panel Banks actively suppressed LIBOR rates beginning in early August 2007 and continuing for years thereafter. In addition, other documents made public in connection with the regulatory settlements further support that other LIBOR Panel Banks actively suppressed their LIBOR submissions during the Class Period.

319. Thus, for example, in a December 4, 2007 internal email, a Barclays LIBOR submitter admitted to submitting a 1-month LIBOR quote lower than what he was actually paying to borrow funds in the market, and expressed concern that "the LIBOR Panel Bank submissions, including Barclays, were false and dishonest." Other internal Barclays documents reflected this same concern. For example, a Barclays LIBOR submitter wrote to his superior: "My worry is that we (both Barclays and the contributor bank panel) are being seen to be contributing patently false rates. We are therefore being dishonest by definition."

320. "On September 3, 2007, U.S. Dollar Trader 1 explained to an ALM Manager his understanding of why UBS wanted to 'err on the low side,' stating that UBS did not want 'to be seen to pay higher or at libor in the market to avoid trouble.'" UBS CFTC Order at 44.

321. "On September 5, 2007, U.S. Dollar Trader-Submitter 1 explained he was following the "err on the low side" direction to his supervisor, Senior Rates Manager C: 'fyi libor has been fuctioning well for many years - current turbulance and american home owners exposure to libor may trigger further questions - since the mkt dislocation I am now keeping a record of

UBS libor fixings vs the implied rates - we are fixing on the low side of all other banks in the libor panel in the 4- 12 mo period by several bps - and we are still fixing 12 - 15 over implied rates - I can justify my fixings each day if asked - I [see] longer dated libors even lower however the rest of [the] mkt continue to call libors higher than UBS – we should be protected from moral hazard as a bank. Short rates coming [from] Zurich now - again [as a] bank we are erring on the low side.'" *Id.* (emphasis in original) (also noting that "this particular Trader-Submitter never had direct access to information about UBS's actual costs of borrowing unsecured funds in the relevant market for U.S. Dollar LIBOR.")."

322. On November 19, 2007, a Barclays Submitter stated in an internal email that he had been asked by Manager D "to keep the libors within the group (pressure from above)". Barclays FCA Final Notice ¶ 116.

323. On November 28, 2007, a Barclays' senior U.S. Dollar LIBOR submitter emailed a large group of Barclays' employees, including the senior Barclays Treasury managers, stating "LIBORs are not reflecting the true cost of money. I am going to set 2 and 3 months, 5.13 and 5.12 probably at the top of the range of rates set by libor contributors, although brokers tell me that [Panel Bank 7] is going to set at 5.15 for both (up 8.5 and 10 from yesterday). The true cost of money is anything from 5-15 basis points higher. Not really sure why contributors are keeping them so low but it is not a good idea at the moment to be seen to be too far away from the pack, although reality seems to be setting in for a few libor contributors who are belatedly moving libors up in line with where money is really trading." A senior Barclays Treasury manager endorsed the submissions, replying "[fine on LIBOR settings - thanks for remaining pragmatic but at the upper end." Barclays CFTC Order at 20; *see also* Barclays FCA Final Notice ¶ 117.

324. On November 29, 2007, the supervisor of the U.S. Dollar LIBOR submitters

convened a telephone discussion with the senior Barclays Treasury managers and the U.S. Dollar LIBOR submitters. The supervisor said if the submitters submitted the rate for a particular tenor at 5.50, which was the rate they believed to be the appropriate submission, Barclays would be twenty basis points above "the pack" and "it's going to cause a shit storm." The supervisor asked that the issue be taken "upstairs," meaning that it should be discussed among more senior levels of Barclays' management. The most senior Barclays Treasury manager agreed that he would do so. For the LIBOR submission, the group decided to compromise by determining to set at the same level as another bank, a rate of 5.3, which was, again, not at the rate the submitters believed to be appropriate for Barclays. In this conversation, the group also discussed their belief that other banks were submitting unrealistically low rates and speculated that other banks were basing submissions on derivatives' positions. The group agreed that their concerns should be raised to the BBA. One of the senior Barclays Treasury managers called a BBA representative and stated that he believed that LIBOR panel banks, including Barclays, were submitting rates that were too low because they were afraid to "stick their heads above the parapet," and that "no one will get out of the pack, the pack sort of stays low." He also relayed his belief that other panel banks relied too much on information from voice brokers to determine appropriate rates in the market, instead of making independent determinations for their own institutions. He encouraged the BBA to react and be heavy handed, suggesting the sanction that banks involved in such conduct be removed from the panel. In apparent response to Barclays' call, the BBA sent an email to the Steering Committee of the BBA, which is comprised of certain panel bank members including Barclays, requesting views on whether rates were artificially low and how to address this. The senior Barclays Treasury manager responded to the email consistent with his conversation with the BBA, noting his belief that "LIBORS are lower than market levels even given the lack of liquidity" and "[s]ome banks

are getting close to looking like they are actively not recognizing the actual market levels." Barclays did not disclose at this time that it was lowering its LIBOR submissions pursuant to a management directive. Barclays CFTC Order at 21. *See also* Barclays FCA Final Notice ¶ 118.

325. On December 4, 2007, senior U.S. Dollar LIBOR submitter emailed his supervisor stating that he submitted Barclays' one month LIBOR at 5.30 percent, which was four basis points over the next highest submission and almost five basis points over the LIBOR fixing. However, this submitted rate was well below the 5.40 percent that Barclays was paying (*i.e.*, asking) to borrow funds in the market, and that "given a free hand [he] would have set around 5.45%." He continued, "My worry is that we (both Barclays and the contributor bank panel) are being seen to be contributing patently false rates. We are therefore being dishonest by definition and are at risk of damaging our reputation in the market and with the regulators. Can we discuss urgently please?" The supervisor directed these concerns to a senior compliance officer and a member of senior management of Barclays. *See* Barclays CFTC Order at 22*; see also* Barclays DOJ SOF ¶ 45.

326. On March 17, 2008, in telephone calls around this date Barclays submitters were told to set their LIBORs where the rest of the market was setting them (rather than reducing Barclays' submissions only so that they were not higher than those of other contributing banks). For example, in a telephone call on Monday, 17 March 2008, a Submitter asked Manager E "I presume, that you want me now to set [Barclays'] LIBORs…exactly where the market is setting them?" Manager E confirmed that he did. Barclays FCA Final Notice ¶ 120-22.

327. October 8, 2008, Barclays Submitter was asked about Barclays' LIBOR submissions during a telephone conversation. He responded that "[Manager E]'s asked me to put it lower than it was yesterday . . . to send the message that we're not in the shit". Barclays' submission the day before had been 5.05, which was 25 basis points higher than the next highest

contributor. Barclays' submission on 8 October 2008 was still the highest submission, but equal with one other contributor. During this period, Barclays continued to believe that other banks were making LIBOR submissions that were too low and did not reflect market conditions. Submitters continued to make comments indicating that Barclays' submissions were being made taking concerns about negative media comment into account until May 2009 (although relevant communications were more sporadic after October 2008). Barclays FCA Final Notice ¶¶ 142-43.

328. In late October 2008, a member of senior management conveyed an instruction to the LIBOR submitter, through their supervisor, that Barclays' U.S. dollar and sterling LIBOR submissions needed to be lowered to be "within the pack," meaning Barclays' LIBOR submissions were to be made at or around the same rate as the other panel banks. The same senior manager confirmed and reiterated this directive in a meeting with the supervisors and some of the submitters a few days later. The LIBOR submitters complied with this additional directive and sent their supervisor emails confirming their reluctant acquiescence. The senior U.S. Dollar submitter emailed his supervisor, "following on from my conversation with you I will reluctantly, gradually and artificially get my libors in line with the rest of the contributors as requested. I disagree with this approach as you are well aware. I will be contributing rates which are nowhere near the clearing rates for unsecured cash and therefore will not be posting honest prices." Barclays CFTC Order at 24.

2. The Panel Banks Actively Communicated Regarding Their LIBOR Submissions As A Primary Means To Implement The Collusion Scheme

329. The various settlements also provide evidence of communications among the Manipulator Panel Banks and other Contributor banks in addition to what is available in the Barclays cooperation materials. As previously alleged, under the BBA LIBOR panel rules in place during the Class Period, the rate submissions were required to be independent and confidential at

the time of submission. To implement their scheme, however, in violation of the BBA LIBOR panel rules, the Defendant banks routinely exchanged information, directly and through interdealer brokers, about their intended rates prior to submission. Thus, for example, the FCA found that on November 28, 2007, a Barclays LIBOR submitter stated in an internal email that "*LIBORs are not reflecting the true cost of money. I am going to set 2 and 3 months, 5.13 and 5.12 probably at the top of the range of rates set by libor contributors, although brokers tell me that [Panel Bank 7] is going to set at 5.15 for both (up 8.5 and 10 from yesterday)*." (Italics in original). This email revealed both that LIBOR rates were actively being suppressed, and that the Panel Banks were communicating with each other to coordinate their intended submissions, using the brokers as one mechanism to facilitate such communication.

330. A review of 3-month LIBOR submissions for November 28, 2007 reflects that former defendant RBS was "Panel Bank 7", submitting the above-reported rate of 5.15 for 3-month LIBOR. As revealed in the email, that submission by RBS was an increase of 10 basis points from RBS's 3-month LIBOR submission of the day before. Also as indicated in the email, Barclays did submit a 3-month LIBOR rate of 5.12 on November 28, 2007.

331. Internal documentary evidence reveals not only the mechanism through which the Defendants and Former Defendants/co-conspirators implemented their scheme – through advance communication of their respective LIBOR submissions – but also that they knew in advance where LIBOR would set on a given day. For example, documents produced by the NY Fed included a telephone transcript between an unnamed person at Barclays and the NY Fed on October 24, 2008, in which the Barclays representative stated that: "[T]hree month libor is going to come in at 3.53. . . . it's a touch lower than yesterday's but please don't believe it. It's *absolute rubbish*." (emphasis added).

332. Evidence shows that Barclays traders made external requests to traders at other Panel Banks to manipulate USD-LIBOR. Barclays admitted in its deferred prosecution agreement with the DOJ that from August 2005 through at least May 2008, "[c]ertain Barclays swaps traders made requests of traders at other Contributor Panel banks for favorable LIBOR…submissions from those banks. In addition, certain Barclays swaps traders received requests from traders at other banks for favorable LIBOR…submissions from Barclays rate submitters." Barclays DOJ SOF ¶ 24.

333. Internal emails from Barclays disclosed in its settlements demonstrate that certain Barclays swap traders received requests from traders at other banks for favorable USD LIBOR submissions from Barclays USD-LIBOR submitters. For example, on October 26, 2006, at approximately 7:12 a.m., a trader who left Barclays and joined a financial institution that was not a member of the USD-LIBOR contributing panel communicated by electronic messages with a current Barclays dollar swaps trader in London, stating, "where do u think 3m libor will be today?" The Barclays dollar swaps trader replied, "[Submitter-1] thinks 38." The external trader responded in part: "wow…unchanged!!!?!??! Short dates have rallied by 0.75bp…So I take it he's going unchanged? If it comes in unchanged I'm a dead man ha ha." (ellipses in original). The Barclays dollar swaps trader replied, "i'll [sic] have a chat." Later that day the external trader wrote: "Dude I owe you big time! Come over one day after work and I'm opening a bottle of Bollinger! Thanks for the libor." The Barclays dollar swaps trader replied, "know [sic] worries!!!" Barclays' 3-month USD LIBOR submission on this date was 5. 375%, which was lower than Barclays' submission on the previous trading day. Barclays DOJ SOF ¶ 26; Barclays FCA Final Notice ¶ 83.

334. On February 28, 2007, a Barclays U.S. dollar derivative trader made a request to

an external trader in regards to the 3-month USD-LIBOR: "duuuude…whats up with ur guys 34.5 3m fix…tell him to get it up!!" The external trader responded, "ill talk to him right away". Barclays FCA Final Notice ¶ 91. (emphasis in original).

335. On March 29, 2007, at approximately 6:22 a.m., a trader of another bank communicated by electronic messages with a Barclays trader, stating in part, "I know I'm asking for much, but ONLY if u guys care, a low 3m libor would be great…anywhere below 5.35…thanks dude." (ellipses in original). Later that day, the external trader wrote to the Barclays trader, "Dude, thanks a lot for the libor, can you PLEASE thank [Submitter-1] as well :-)." The Barclays trader replied, "anything for you!!" The external trader responded, "seriously, thanks a million dude." Barclays' 3-month USD-LIBOR contribution on this date was 5.35%. Barclays DOJ SOF ¶ 27.

336. Another internal Barclays communication further shows the defendants knew in advance the confidential rates other defendants intended to submit:

> On 29 November 2007, all the contributing banks' submissions for one month US dollar LIBOR increased by a range of 35 to 48 basis points. Barclays' submission increased from 4.86 on 28 November to 5.3 on 29 November (an increase of 44 basis points). The offer that Barclays saw in the market was 30 basis points higher, at 5.60. Barclays' Submitter had intended to submit a rate of 5.50 on that day. However he was overruled on a conference call during which the submissions were discussed, as a rate of 5.50 was expected to draw negative media attention **(as this would have been 20 basis points above the next highest submission)**. Manager E said on the call that "*it's going to cause a shit storm*". Barclays therefore submitted a rate of 5.30, **which was in line with another contributing bank's submission that day**. (Bold added; italics in original).

337. A review of the 1-month LIBOR rates submitted by the Defendants and Former Defendant/Co-Conspirator Panel Banks on November 28 and 29, 2007 confirms the Barclays submitter's advance knowledge of the rates:

BANK	11/28/07 RATE	11/29/07 RATE	INCREASE (IN BPs)
BTMU	4.82	5.25	43
BARC	4.86	5.3	44
BAC	4.9	5.25	35
CITI	4.83	5.18	35
CS	4.9	5.25	35
DBK	4.78	5.18	40
HBOS	4.82	5.3	48
HSBA	4.8	5.2	40
JPM	4.82	5.25	43
LLOY	4.82	5.25	43
NORIN	4.85	5.23	38
RABO	4.81	5.2	39
RBC	4.815	5.2	38.5
RBS	4.83	5.18	35
UBS	4.8	5.16	36
WEST	4.82	5.22	40

338. As reflected in the above chart, the Barclays submitter was correct that a submission of 5.50 "would have been 20 basis points above the next highest submission"—with HBOS submitting the next lowest rate of 5.3, and the other Panel Banks submitting rates between 5.25 and 5.16. Likewise, the Barclays submitter was correct that a submission of 5.3 would be "in line with another contributing bank's submission that day" – again, HBOS at 5.3. In light of the increase in 1-month LIBOR rates submitted by Panel Banks between November 28 and 29 – between 35 and 48 basis points, the Barclays submitter could only have known that Barclays proposed 1-month LIBOR rate of 5.50 "would have been 20 basis points above the next highest submission" if he had advance knowledge of the rates that *all* of the other Panel Banks intended to submit on that day.

339. As reflected in the consulting expert's data analysis detailed above, the consistent

and similar pattern and duration of suppression among the LIBOR Panel Banks over the course of the Class Period, the Defendants and Former Defendant Co-Conspirators actively communicated with each other, directly and through brokers to effectuate the conspiracy,. This active communication was evident from the fact that, as noted in the above email, Barclays was able to know in advance that its submission would be "in line with another contributing banks' submission that day."

340. Internal bank documents released in connection with the governmental settlements in mid-2012 revealed that even prior to the Class Period, derivatives traders at the Panel Banks had a long history of communicating about proposed LIBOR rates and submitting false LIBOR rates to support their derivatives portfolios. To effectuate this manipulation, the derivative traders actively communicated with traders at other banks, with the LIBOR submitters within their own banks and through brokers, regarding intended submissions.

341. As discussed above, the regulatory settlements included examples of communications where derivative traders directed LIBOR submitters within Barclays to submit rates favorable to their derivative trading positions on a given day:

> [O]n Friday, March 10, 2006, a Barclays Dollar swaps trader located in London ("Trader-1") sent an e-mail to a Barclays Dollar LIBOR submitter ("Submitter-1") stating: "Hi mate[.] We have an unbelievably large set on Monday (the IMM). We need a really low 3m [3-month] fix, it could potentially cost a fortune. Would really appreciate any help, I'm being told by my NYK [counterparts in New York] that it's extremely important. Thanks." Then, on Monday, March 13, 2006, at approximately 7:48 a.m., Trader-1 wrote to Submitter-1: "The big day has[] arrived...My NYK were screaming at me about an unchanged 3m libor. As always, any help wd [would] be greatly appreciated. What do you think you'll go for 3m?" Submitter-1 responded, "I am going 90 altho[ugh] 91 is what I should be posting."

342. Reflecting the longstanding practice of advance communication between banks regarding favorable LIBOR rates, the FCA quoted multiple other internal Barclays communications, including, for example:

> [O]n 26 October 2006, an external trader made a request for a lower three month US dollar LIBOR submission. The external trader stated in an email to Trader G at Barclays "*If it comes in unchanged I'm a dead man*". Trader G responded that he would "*have a chat*". Barclays' submission on that day for three month US dollar LIBOR was half a basis point lower than the day before, rather than being unchanged.[94] The external trader thanked Trader G for Barclays' LIBOR submission later that day: "*Dude. I owe you big time! Come over one day after work and I'm opening a bottle of Bollinger*". (Italics in original).]

343. Regulators confirmed that the active practice of Barclays derivatives traders requesting favorable LIBOR rate submissions in order to affect daily published LIBOR rates continued through at least May 2009 – *i.e.*, well into the period of active suppression of LIBOR by the Panel Banks. These requests came from Barclays derivatives traders, and through those traders, from traders at other banks. According to the CFTC, Barclays LIBOR submitters "routinely based their LIBOR…submissions on the traders' requests in furtherance of attempts to manipulate LIBOR…." Thus, even when LIBOR was being actively suppressed by Panel Banks during the Class Period, derivative traders, using longstanding avenues of communication, continued to seek to profit on their derivative portfolios at the margins, within the broader scheme to suppress LIBOR rates.

344. Regulatory settlements reveal that Panel Banks facilitated communication between derivatives traders and LIBOR submitters. For example, as early as 2006, RBS combined its money market desk (responsible for making LIBOR submissions) and its derivatives trading desk, with these individuals being actively encouraged by managers to share information about

[94] Barclays 3-month LIBOR quote submission for October 26, 2006 fell from 5.38 to 5.375, and returned to 3.8 again on October 27, 2006.

currencies and markets. At UBS, LIBOR submissions during the relevant period were not even made by independent personnel, but rather were made by the derivatives traders themselves.

345. The regulatory settlements also revealed that communications between traders at the panel banks and with cash brokers regarding LIBOR rate submissions were active and common.

346. In addition to direct discussions regarding advance confidential rate submissions between brokers and panel banks, certain brokers passed information regarding LIBOR rates by, *inter alia*, the practice of circulating each morning a daily "run-through" of the actual rates they expected to be published that day in various currencies and tenors. The practice of run-throughs provided a built-in mechanism through which to communicate respective intended submissions among the Panel Banks in facilitation of the collusion scheme.

347. Further reflecting concern about this practice, a May 21, 2008 Bank of England email from Angela Knight, then head of the BBA, noted that: "Rates must be submitted by the cash desks at banks, not the swap or other derivative teams, and should reflect the bank's own position, not the view of a broker."

3. The Barclays Cooperation Materials Provide Further Evidence of Cooperation Regarding Defendants' Communications Relating to Coordinated LIBOR Submissions

348. The Barclays Cooperation Materials provide further evidence of how Defendants frequently communicated with each other in order to coordinate LIBOR settings both directly in addition to through interdealer brokers such as ICAP and Tullett Prebon. *See* Section V.J.1.a., *supra.* These communications generally highlight how Peter Johnson, Barclays U.S. Dollar LIBOR submitter, and his colleagues made and received requests to accommodate particular LIBOR settings but were also informed of how other panel banks sought to manipulate LIBOR and felt pressure to avoid being viewed as an outlier from the "pack". Consider the following

examples:

- On September 3, 2007, Johnson learned the HBOS was "still setting [LIBOR] lower then he should do," but conceded that HBOS was relatively better behaved compared to other banks. In particular, Johnson believed that the manipulative activities of Citibank, Deutsche Bank, Lloyds, and UBS, were particularly egregious and labeled these banks as "filth";

- On November 21, 2007, Johnson expressed his general frustration to another broker: "My problem is, I know it's too low, but I don't know what this market's gonna do 'cause it's *so scared of sticking its head above the parapet and being the highest fixer*" in the course of learning that Deutsche Bank planned to submit an artificially low LIBOR. (emphasis added).

- On November 28, 2007, Johnson observed in an internal liquidity report, "Libors are not reflecting the trust cost of money. I am going to set 2 and 3 months today at 5.13 and 5.12 probably at the top of the range of rates set by libor contributors, although brokers tell me that RBS is going to set at 5.15 for both (up 8.5 and 10 from yesterday). The true cost of money is anything from 5-15 basis points higher. *Not really sure why contributors are keeping them so low but it is not a good idea at the moment to be seen too far away from the pack*, although reality seems to be setting in for a few libor contributors who are belatedly moving libors up in line with where money is really trading.";

- On April 17, 2008, Barclays U.S. Dollar LIBOR submitter, Johnson, and a senior member of Barclays' Treasury group, Miles Storey ("Storey") discussed the continued artificial submissions of U.S. Dollar LIBOR and the need to avoid attention. Storey cautioned, "*And we need to be careful about quote collusion unquote. . . . Um, and then there will be your amount of verbiage . . . . on the wires*." (emphasis added).

- On October 29, 2008, Johnson emailed senior Barclays executives, "Following on from my conversation with you I will reluctantly, gradually and artificially get my libors in line with the rest of the contributors as requests. . . . I will be contributing rates which are nowhere near the clearing rates for unsecured cash and therefore will not be posting honest prices."

- On May 1, 2008, Johnson instructed to "[t]ell, ask Deutsche where he's going," before adding "Or, tell Deutsche where I'm going";

- On September 16, 2008, in the wake of the Lehman Brothers bankruptcy filing, Johnson instructed a broker, "Can you tell Credit Suisse uh, you know, anything reasonable he goes for I'm a follow him."; and

- On November 13, 2008, an unidentified broker informed Jonathan Mathew, a Barclays derivatives trader, that his firm was "copyin' RBS", explaining to Mathew that the tip was "Just for your guide."

4. Defendants' Failure To Report BBA Rule Violations And Manipulation Further Supports Collusion

349. The statistical and documentary evidence detailed above strongly supports that LIBOR was systematically suppressed during the Class Period and that the Defendants colluded to achieve this suppression.

350. In doing so, Defendants submitted, in the daily LIBOR setting process, U.S. dollar borrowing rates lower than those at which they believed they could borrow. These submissions were in violation of the first key BBA LIBOR panel rule, described above, which required that each Panel Bank's submissions reflect that bank's independent exercise of its good faith judgment about the interest rates it would be required to pay, based on its own expert knowledge of market conditions, including supply and demand conditions and the Panel Bank's own competitive posture as a borrower within the market for interbank funds.

351. Each Defendant knew that each other defendant was breaking the first key BBA LIBOR panel rule by submitting unreasonably low rates in the daily LIBOR setting process.

352. Throughout the Class Period, no Panel Bank insisted to the BBA or any regulatory authority that the first BBA LIBOR panel rule be enforced, or that the other defendants' unreasonably low submissions be the subject of regulatory action.

353. Instead of insisting on enforcement of the LIBOR panel rules, each defendant agreed to continue to participate in the agreed LIBOR setting process, with the understanding among them that the first key BBA LIBOR panel rule had been discarded or suspended to permit continued suppressed daily submissions. This necessarily meant that the daily publication of the Defendants' individual LIBOR submissions would no longer accurately reflect their relative

creditworthiness. Defendants in effect agreed to cease their competition in the daily signaling of their relative creditworthiness to the capital markets, and to replace that competition with a collectively determined false signal not accurately reflective of the differences in their relative creditworthiness.

354. This cessation of competition regarding relative creditworthiness would not have been accepted by other defendants on the U.S. dollar panel absent a countervailing benefit. A rational competitor, seeking to protect its reputation for creditworthiness against suppressed submissions by other Panel Banks, would have a strong incentive to insist on compliance with the BBA LIBOR panel rules, through effective complaints to the BBA or regulatory authorities, or to withdraw from the LIBOR panel and publicly disclose the reasons for its withdrawal.

355. The alternative to insisting on compliance, for such a rational competitor, would be to join the others in submitting suppressed daily quotes, if this alternative offered sufficient benefits over insisting on compliance. Four potential benefits supported this alternative, and given that no defendant insisted on compliance, appear to have driven the conduct of the Defendants.

356. *First*, Defendants had a collective interest in reducing their costs of funding. The business of banking consists of obtaining funding at relatively low costs (determined by interest rates at which the bank borrows) and then lending this money out at rates (determined by interest rates at which the bank lends) higher than their costs of funding. Each defendant derived substantial revenue from this activity, and could increase or maintain profits, or reduce losses, by reducing its cost of funding. Because their interest earning assets, as compared to their funding mix, generally included more longer-term and more fixed-rate instruments, suppression of LIBOR would tend to reduce Defendants' funding costs more than it would reduce their interest income. Thus, by suppression of LIBOR, Defendants would contribute to increasing, maintaining, or

mitigating deterioration of their net interest margins.

357. *Second*, by joining the others in the collusive, coordinated submission of suppressed daily LIBOR bids, the rational competitor could also reduce the reputational costs it faced from other banks submitting suppressed daily LIBOR bids. Through collusion, Panel Banks could ensure they maintained more uniform ranges of submissions, and thereby substantially reduce the risk of ending up as an outlier away from "the pack," creating the appearance of lower creditworthiness relative to the other Panel Banks.

358. *Third*, collusion allows the banks to avoid the race to the bottom: Absent collusion, suppressing the LIBOR rate is not enough. Banks can still impose *relative* reputational costs on each other by suppressing more than the average. The only way to avoid this relative reputational cost is for every bank to suppress more than the average suppression, which is impossible. Thus, absent collusion, Defendants could not maintain a credible level of suppression because individual incentives would create an unstable "race to zero" that would undermine the credibility of LIBOR and harm the reputation of all Panel Bank members.

359. *Fourth*, those Defendants with futures commission merchant ("FCM") subsidiaries had a duty to prevent manipulation of the Eurodollar futures contract. Each Defendant knew of what grew to be hundreds of its own, and thousands of other Defendants' false LIBOR submissions. Each Defendant knew that such extensive misreporting was manipulating Eurodollar futures contract prices. Each Defendant engaged in the parallel, highly unusual violation of their duty to prevent and report such manipulation. This knowing, highly unusual parallel conduct further indicates that Defendants agreed to manipulate Eurodollar futures contract prices as well as LIBOR.

M. Independent Analyses By Consulting Experts Engaged By Plaintiffs And Other Plaintiffs In These Proceedings Strongly Indicate Defendants Colluded To Suppress LIBOR During The Class Period

360. Plaintiffs' consulting experts, as well as consulting experts engaged by other plaintiffs in these coordinated proceedings, have measured LIBOR against other recognized benchmarks for determining banks' borrowing costs. Employing well-reasoned methodologies, these experts have demonstrated that Defendants artificially suppressed LIBOR during the Class Period. The experts' common conclusion is clear: during at least part of the Class Period, LIBOR did not appropriately correspond with other measures of Defendants' borrowing costs, as indicated by: (i) the spread between LIBOR and Eurodollar Deposit rates and (ii) the difference between Defendants' respective LIBOR quotes and their probabilities of default.

361. Additional independent expert analysis performed in connection with these proceedings indicates LIBOR suppression. At one date during the Class Period, when the BBA announced it would investigate the reporting of LIBOR, members of the LIBOR panel increased their rates in unison despite the lack of any market reason. The most plausible explanation for this movement is Defendants' collective fear of detection of their LIBOR suppression. Bolstering this point is that since October 2011, when the European Commission raided most or all of Defendants in connection with the LIBOR probe, reported LIBOR has returned to its historic norm compared with the overall Eurodollar deposit market.

1. The Discrepancy Between LIBOR And The Federal Reserve Eurodollar Deposit Rate During The Class Period Suggests Defendants Collusively Suppressed LIBOR

362. As demonstrated by the work of independent consulting experts retained by counsel in these actions, analysis of the Eurodollar market strongly supports that Defendants suppressed their LIBOR quotes and colluded to suppress reported LIBOR rates. Moreover, this analysis further supports that Defendants colluded to control the amount of suppression over the Class

Period.

363. The U.S. Federal Reserve prepares and publishes Eurodollar deposit rates for banks (the "Federal Reserve Eurodollar Deposit Rate"). These Eurodollar deposit rates are analogous to LIBOR in that they reflect the rates at which banks in the London Eurodollar money market lend U.S. dollars to one another, just as LIBOR is intended to reflect rates at which panel banks in the London interbank market lend U.S. dollars to one another. The Federal Reserve obtains its data from Bloomberg and the ICAP brokerage company.[95] Bloomberg Eurodollar deposit rate is similar to BBA's LIBOR except that the sampling is not limited to the 16 banks chosen by BBA. ICAP is a large broker-dealer in London in Eurodollar deposits.[96] ICAP surveys its client banks and updates its Eurodollar deposit rates about 9:30 AM each morning.

364. While Defendants could have access to the ICAP Eurodollar deposit rates prior to submitting their individual LIBOR quotes at 11:00 each day, they would not – absent collusion – have access to other bank LIBOR quotes, which are confidential until submitted. Thus, even within the context of a suppressed LIBOR, absent collusion, individual panel banks would not know what quote other panel banks intended to submit relative to the Federal Reserve Eurodollar Deposit Rate.

365. The consulting experts determined that because of the nature of the relationship between the Federal Reserve Eurodollar Deposit Rate and LIBOR (detailed below), it would be unusual even for one bank to submit a LIBOR bid below the Federal Reserve's Eurodollar Deposit

[95] *See* http://federalreserve.gov/releases/h15/data.htm, footnote 8. Last visited on April 23, 2012.

[96] "ICAP is the world's premier voice and electronic interdealer broker and the source of global market information and commentary for professionals in the international financial markets. The Group is active in the wholesale markets in interest rates, credit, energy, foreign exchange and equity derivatives. ICAP has an average daily transaction volume in excess of $1.5 trillion, more than 60% of which is electronic. ICAP plc was added to the FTSE 100 Index on 30 June 2006. For more information go to www.icap.com." *See* http://www.icapenergy.com/company/ (last accessed on April 30, 2012).

Rate. For all Defendants to submit bids below the Federal Reserve Eurodollar Deposit Rate would be extremely unusual, and strongly supports evidence of collusion among the banks.

366. Economic and statistical analysis strongly supports the use of the Federal Reserve Eurodollar Deposit Rate as a benchmark for measuring the validity of LIBOR as reported by the panel banks. To measure how well the Federal Reserve Eurodollar Deposit Rate and LIBOR move together, for the purposes of this analysis, the difference between the two rates, the "Spread," is calculated as follows: Spread = BBA LIBOR – Federal Reserve Eurodollar Deposit Rate.

367. Since both LIBOR and the Federal Reserve Eurodollar Deposit Rate measure the lending cost to banks of Eurodollar deposits, important market and financial fundamentals, such as day-to-day changes in monetary policy, market risk and interest rates, as well as risk factors facing the banks generally (collectively "Market Fundamentals"), should be reflected similarly on both variables, and therefore should not affect the Spread. The BBA's LIBOR panel is intended to reflect the Eurodollar deposit market in London. By focusing on the Spread, the model therefore should be able to factor out normal and expected co-movements in banks' LIBOR quotes that arise from changes in Market Fundamentals.

368. To analyze how well the Federal Reserve Eurodollar Deposit Rate captures changes in Market Fundamentals and absorbs variations in LIBOR that are driven by such fundamentals, consulting experts used regression analysis to measure the day-to-day changes in the Spread against changes in the T-Bill rate and the commercial paper rate. The evidence from these regressions strongly supports that day-to-day changes in the Federal Reserve Eurodollar Deposit Rate effectively capture day-to-day movements in LIBOR caused by Market Fundamentals. Thus, once the Federal Reserve Eurodollar Deposit Rate is subtracted to arrive at the Spread, remaining movements in LIBOR reflected in the Spread would be unrelated to movements in Market

Fundamentals.

369. Because Market Fundamentals are fully captured by the Spread, absent manipulation, the Spread should always be zero or close to zero. Thus, as more fully discussed below, negative Spreads provide a strong basis to conclude that Defendants suppressed and colluded to artificially suppress LIBOR.[97]

370. Figures 1 and 2 show the relationship between LIBOR, the Federal Reserve Eurodollar Deposit Rate, and the Spread beginning in 2000 and ending in mid-2012. As can be seen, between January 5, 2000 and around August 7, 2007, Federal Reserve's Eurodollar Deposit Rate tracked LIBOR very closely and the Spread remained positive and very close to zero. This finding indicates that the Spread effectively captures shared risks of the banks sampled by BBA and by Bloomberg and ICAP. The validity of this finding is bolstered by the fact that the Spread remained very close to zero in the face of multiple major financial dislocations, including the bursting of the dot-com bubble in 2000, the terrorist attacks of September 2001, and the 2001 U.S. economic recession. Likewise, the unusual downward movements in the Spread starting in August 2007 strongly evidences that LIBOR was being manipulated and suppressed during this period.[98]

[97] It is important to note that to the extent panel banks submitting LIBOR quotes submit suppressed rates to the BBA, and these suppressed rates are also considered by Bloomberg or ICAP, then the resultant FRED Rate would also be understated by the same suppression. Consequently, the Spread computed above could even understate the true magnitude of the suppression.

[98] The Spread only became consistently positive around the end of October 2011, just after the European Commission raided banks in connection with LIBOR.

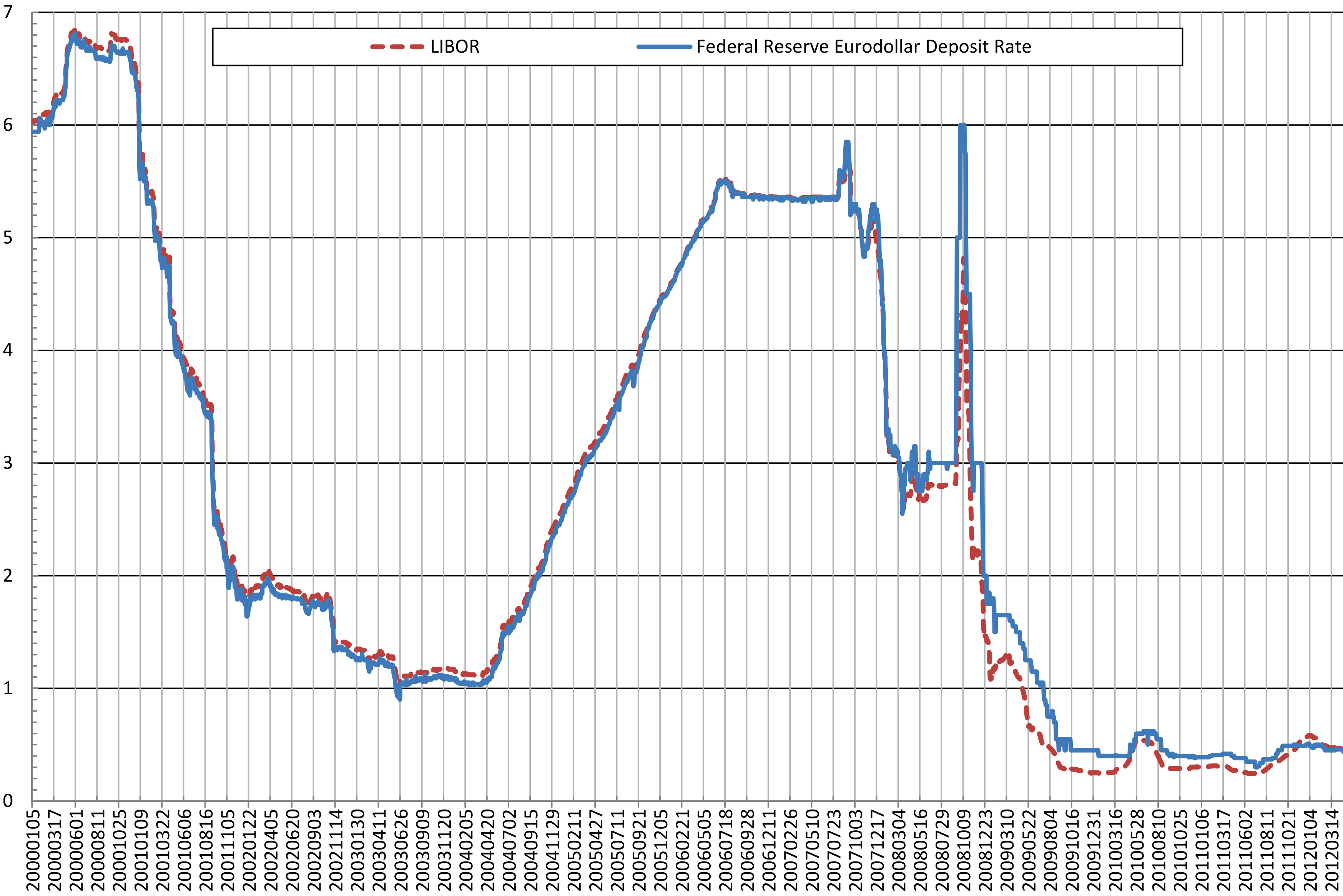
Figure 1: LIBOR and Federal Reserve Eurodollar Deposit Rate
LIBOR
Federal Reserve Eurodollar Deposit Rate
0
1
2
3
4
5
6
7
20000105
20000317
20000601
20000811
20001025
20010109
20010322
20010606
20010816
20011105
20020122
20020405
20020620
20020903
20021114
20030130
20030411
20030626
20030909
20031120
20040205
20040420
20040702
20040915
20041129
20050211
20050427
20050711
20050921
20051205
20060221
20060505
20060718
20060928
20061211
20070226
20070510
20070723
20071003
20071217
20080304
20080516
20080729
20081009
20081223
20090310
20090522
20090804
20091016
20091231
20100316
20100528
20100810
20101025
20110106
20110317
20110602
20110811
20111021
20120104
20120314

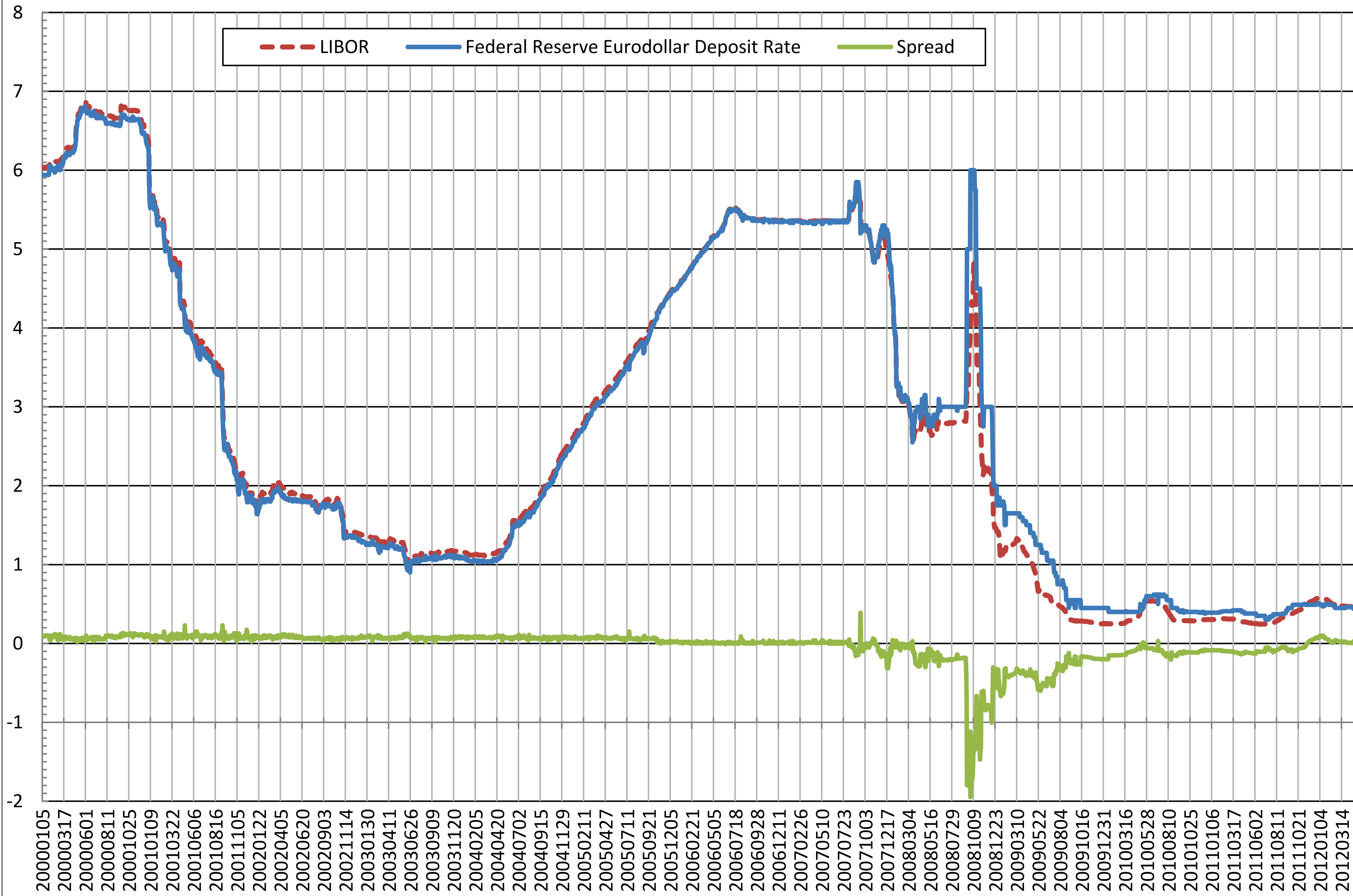
Figure 2: LIBOR and Federal Reserve Eurodollar Deposit Rate
LIBOR
Federal Reserve Eurodollar Deposit Rate
Spread
8
7
6
5
4
3
2
1
0
-1
-2
20000105
20000317
20000601
20000811
20001025
20010109
20010322
20010606
20010816
20011105
20020122
20020405
20020620
20020903
20021114
20030130
20030411
20030626
20030909
20031120
20040205
20040420
20040702
20040915
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20050211
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20050711
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20051205
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20060718
20060928
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20070226
20070510
20070723
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20081009
20081223
20090310
20090522
20090804
20091016
20091231
20100316
20100528
20100810
20101025
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20110811
20111021
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371. Figure 3 shows the Spread between 3-month maturity BBA LIBOR and the Federal Reserve Eurodollar Deposit rate (3-month maturity BBA LIBOR – Federal Reserve Eurodollar Deposit rate), from January 2006 through early April 2012.

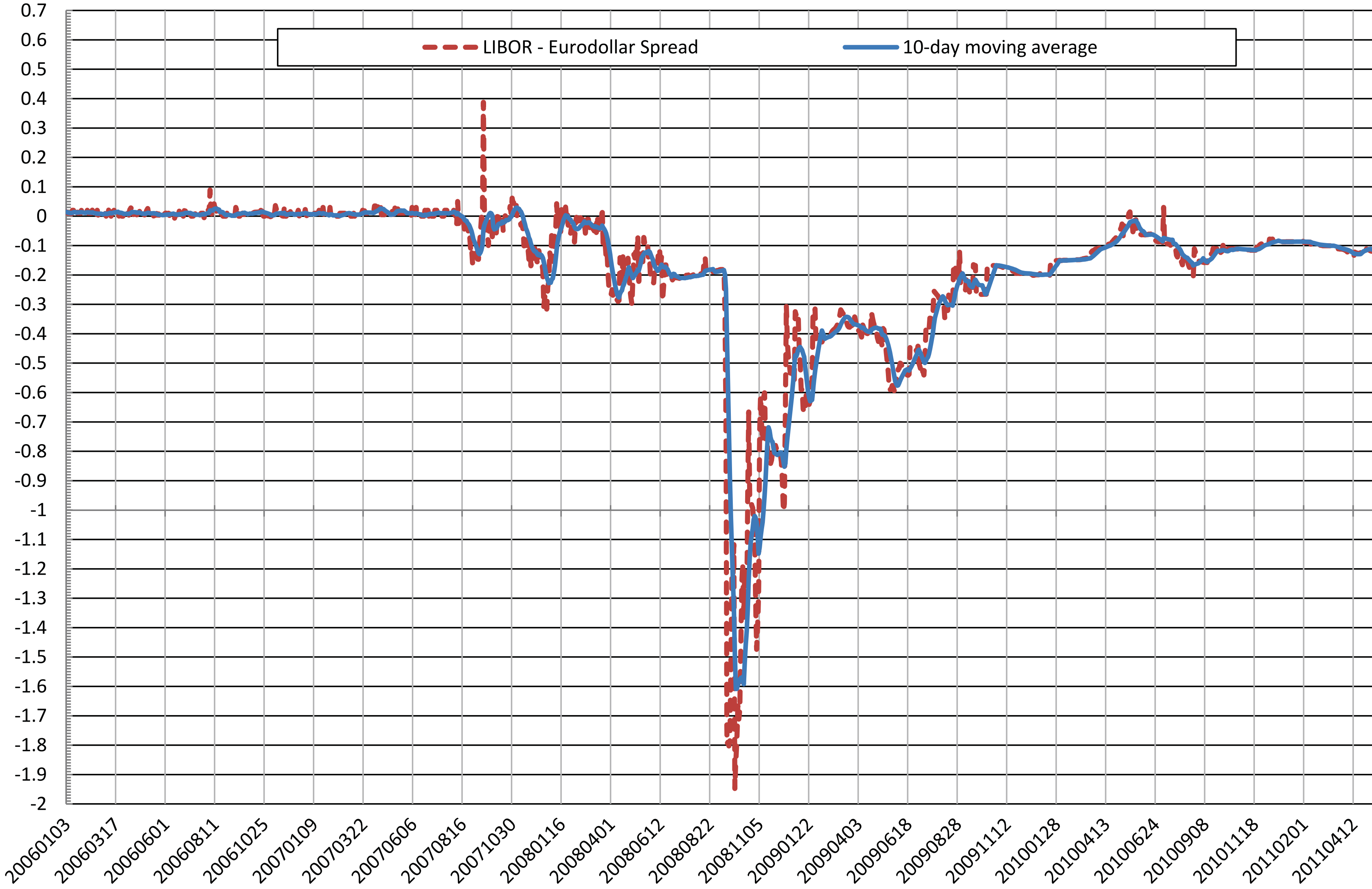
Figure 3: BBA LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
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20080612
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20081105
20090122
20090403
20090618
20090828
20091112
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20110412

372. The shorter period between January 3, 2006 and August 7, 2007 demonstrated above contains 393 trading days. In this sub-period, there were only 3 days when the Spread was negative. Furthermore, the magnitude of these negative Spreads were also very small, equaling -0.9 basis point on June 14, 2006, -0.5 basis point on July 27, 2006 and -0.2 basis point on November 2, 2006.[99] This finding again strongly supports that the Federal Reserve Eurodollar Deposit Rate serves as a good benchmark to control for Market Fundamentals that determine LIBOR. The average magnitude of the Spread during this period equaled less than one basis point. This finding also strongly supports that the risks of the banks sampled by BBA and Bloomberg and ICAP were similar.

373. By August 2007, however, the Spread began to move into negative territory. During the early part of August 2007, the Federal Reserve Eurodollar Deposit Rate stayed around 5.36%. On August 8, the Federal Reserve Eurodollar Deposit Rate increased by 5 basis points to 5.41%, while BBA LIBOR did not keep pace. The Spread turned negative 3 basis points on August 8, 2007. The Spread remained mostly negative after August 7 so that by August 15, 2007, the trailing 10-day moving-average of the Spread also turned negative. By August 31, 2007, the Federal Reserve Eurodollar Deposit rate kept increasing to 5.78%, while LIBOR was lagging. The negative Spread on August 31 grew to -16 basis points.

374. The Spread remained negative over the next year. Between August 31, 2007 and September 15, 2008, the Spread remained negative on 234 of the 255 days, or 91.7% of the days. The magnitude of the negative Spread averaged about -12 basis points. During this approximately one year period, the negative Spread exceeded -25 basis points on 18 days.

375. A big shock to LIBOR (and the Spread) came just after Lehman Brothers filed for

[99] One basis point is one-hundredth of a percentage point.

bankruptcy on September 15, 2008, leading to significantly increased concerns about the health of all banks. The increased concerns about the health of the banks were reflected in substantial increases in the Federal Reserve Eurodollar Deposit Rate. On September 15, 2008, the Federal Reserve Eurodollar Deposit Rate equaled 3.0%, increasing to 3.2%, 3.75%, and 5% on September 16, 17 and 18, respectively. By September 30, the Federal Reserve Eurodollar Deposit Rate doubled to 6%.

376. In spite of increased risks and worries about the banks after the Lehman bankruptcy filing, LIBOR did not keep pace with the Federal Reserve Eurodollar Deposit Rate during this period of heightened concerns, causing the Spread to become more negative. On September 16, 2008, the negative Spread nearly doubled to -32 basis points. The next day, on September 17, the negative Spread doubled again reaching -69 basis points. On September 18, the negative Spread more than doubled once again reaching -180 basis points. Finally, on September 30, 2008, the negative Spread reached -195 basis points.

377. Thus, between September 15, 2008 and September 30, 2008, the Federal Reserve Eurodollar Deposit Rate increased by 300 basis points to reflect increasing concerns about the banks, while LIBOR increased by less than one-half, or by 123 basis points during the same period. This diversion in the behavior of the two rates strongly supports the finding that Defendants intensified their collusive suppression of the LIBOR, and did so to understate their borrowing costs in the face of increasing concerns about the health of the banks.

378. The Spread remained negative for more than one and a half years following the Lehman filing, until May 17, 2010. As concerns about banks' financial health eased, so did the magnitude of the suppression of LIBOR. As stated earlier, Federal Reserve's Eurodollar Deposit Rate reached 6% on September 30, 2008. With the easing of the financial crisis, Federal Reserve's

Eurodollar Deposit Rate fell to 0.45% on May 17, 2010. The average suppression of the LIBOR rate between October 1, 2008 and May 17, 2010 equaled negative 38 basis points. The Spread finally turned positive for the first time during the post-Lehman period on May 17, 2010. Following this date, the Spread again became negative, with the magnitude of the Spread averaging around -10 basis points. The dramatic period of negative Spread during the Class Period, following years of uniform behavior between each individual Defendant bank's LIBOR quote and the Federal Reserve Eurodollar Deposit Rate, is also graphically demonstrated by Figures 4 to 20 below on a bank-by-bank basis. Every Spread during the period August 8, 2007 to May 17, 2010 is statistically significant at the extremely high 99% confidence level.

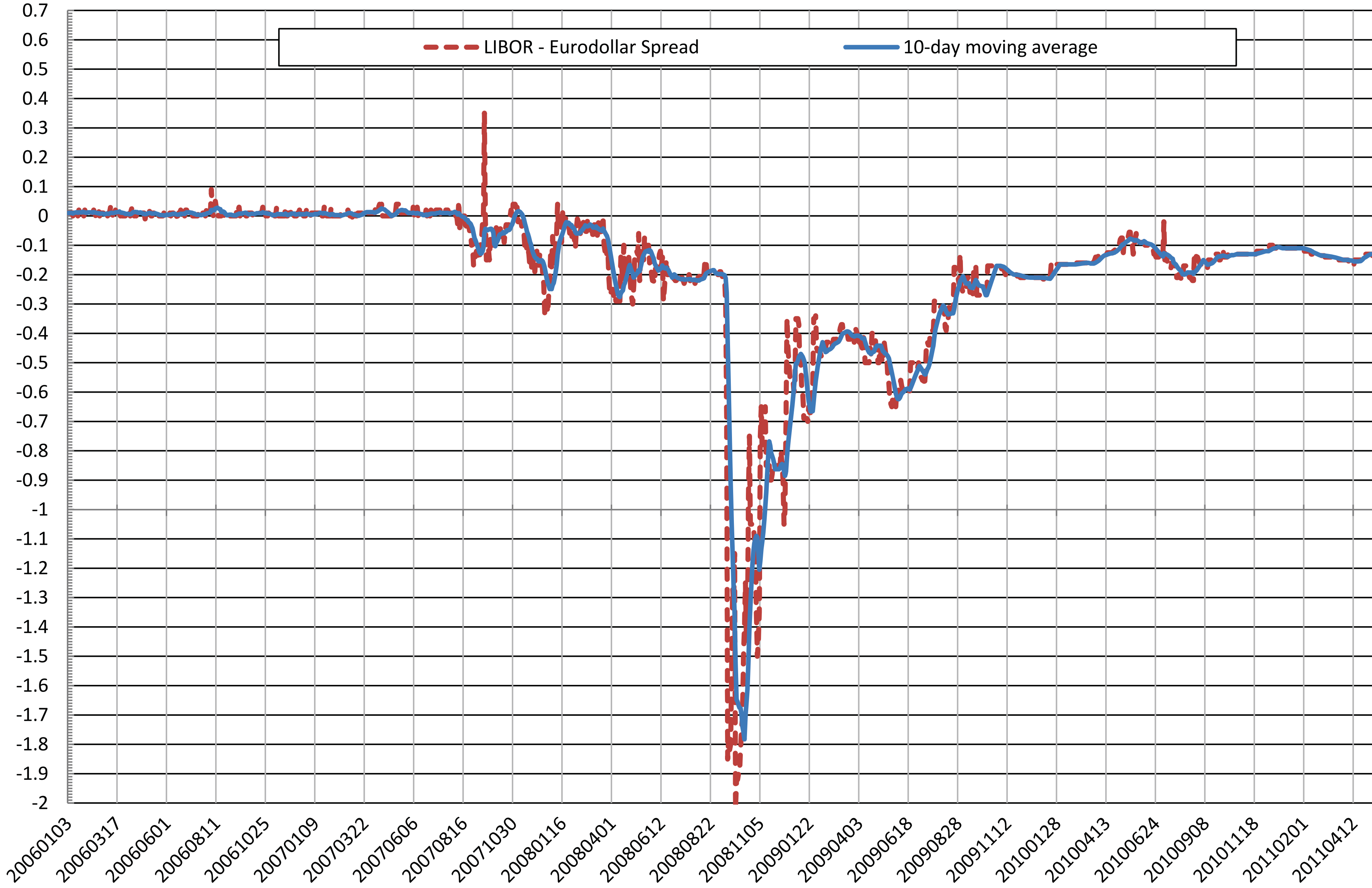
Figure 4: HSBC LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
20071030
20080116
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20080612
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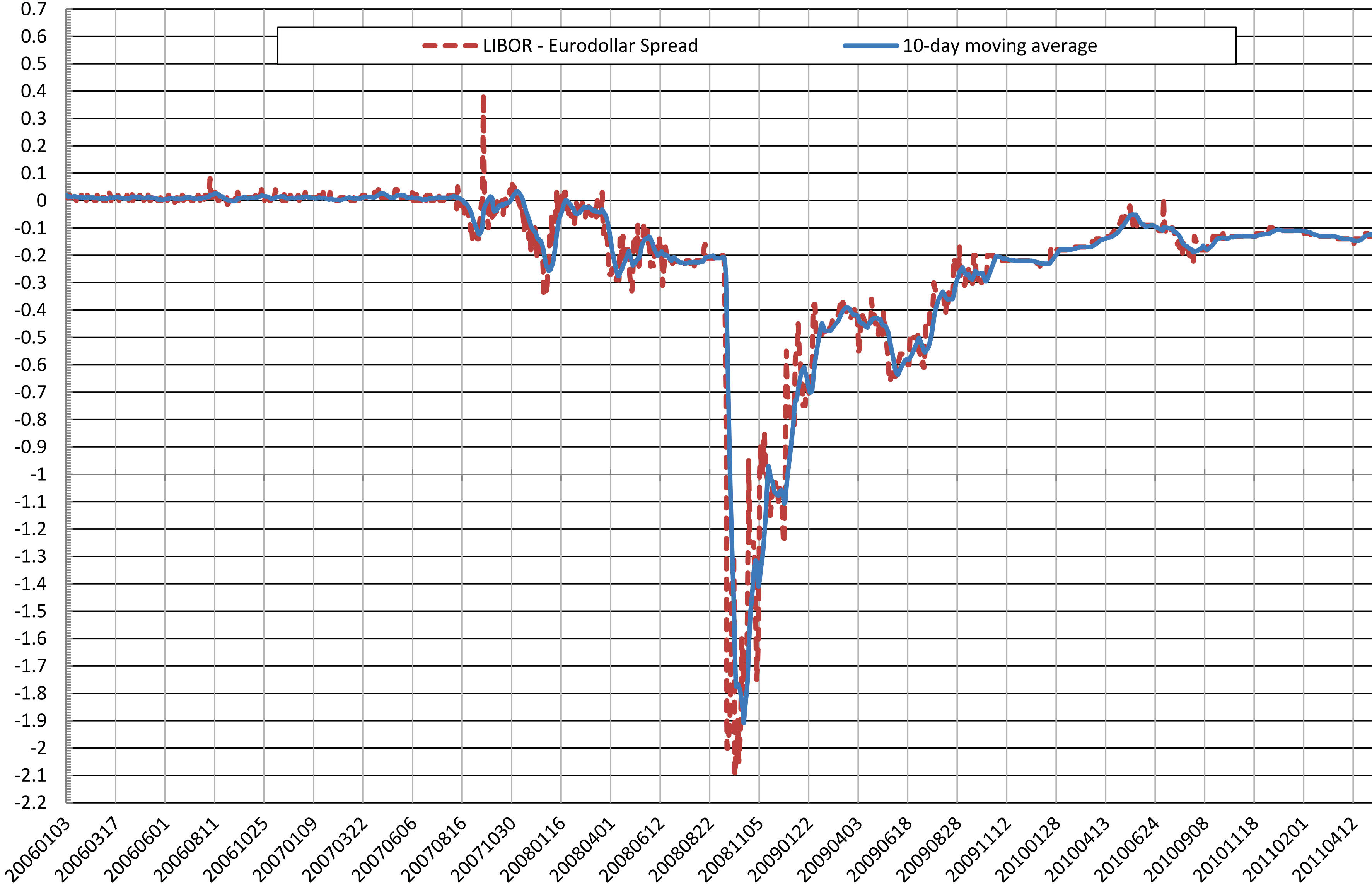
Figure 5: JPMorganChase LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
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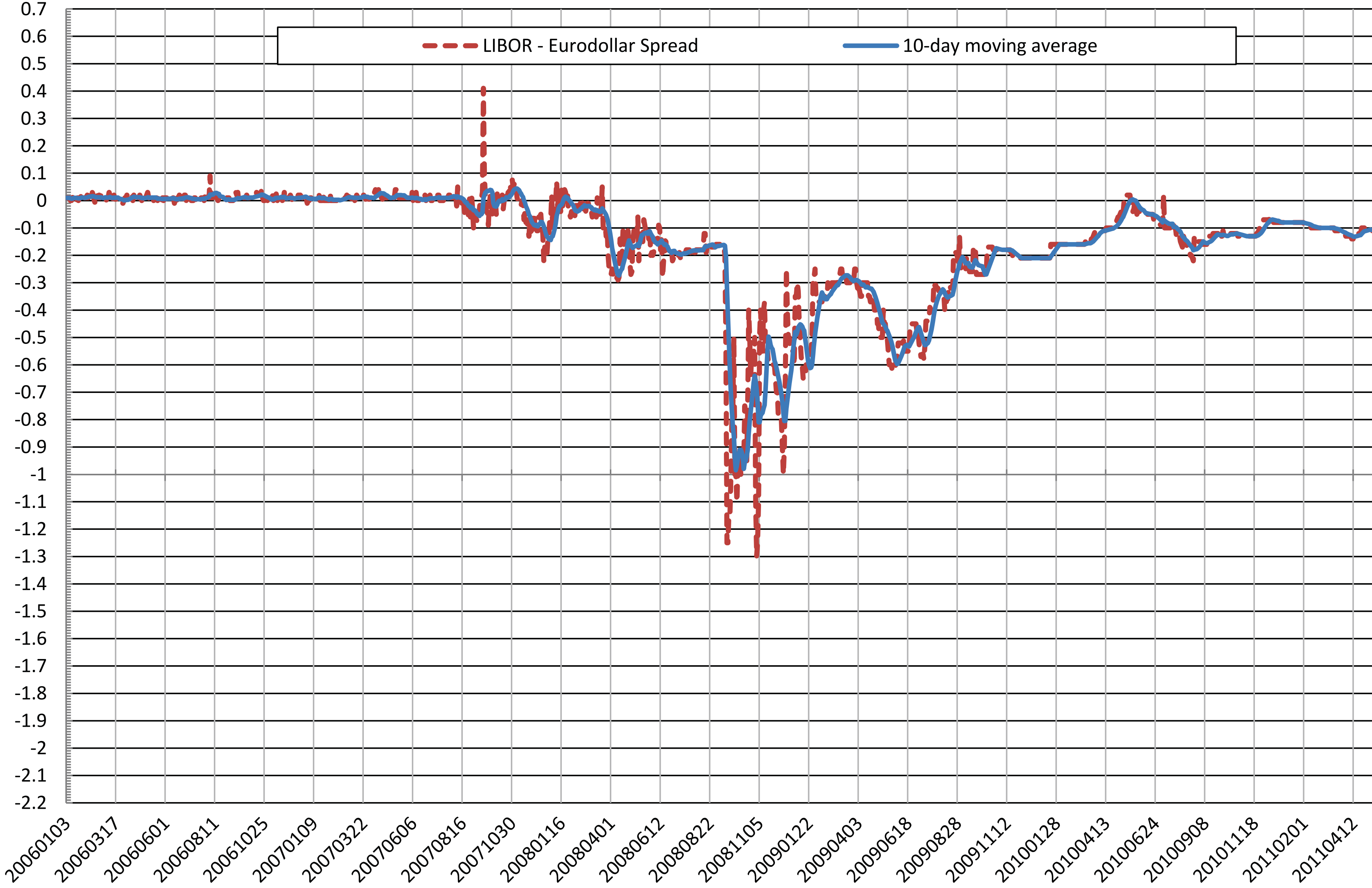
Figure 6: Barclays LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
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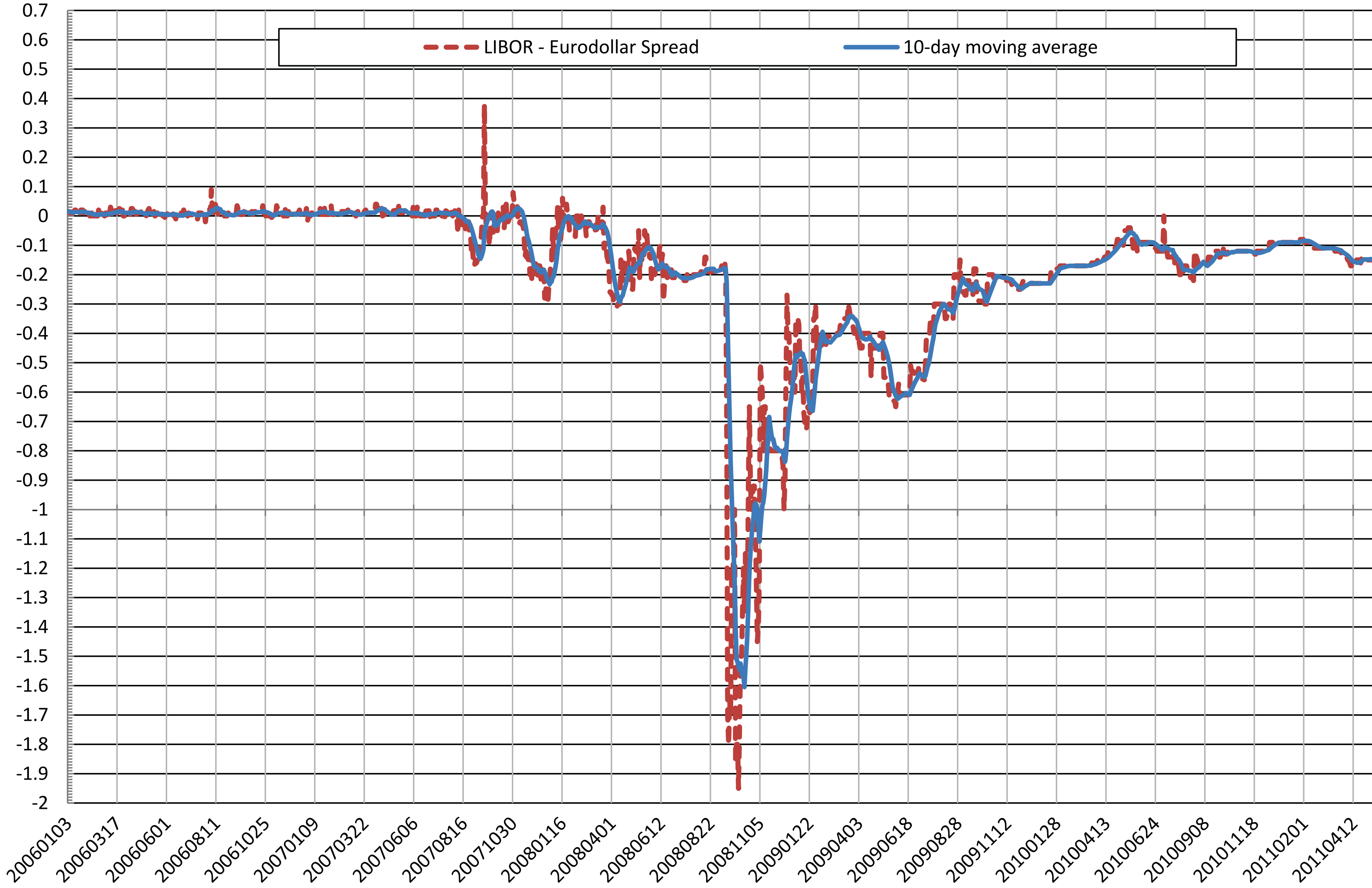
Figure 7: Deutsche Bank LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
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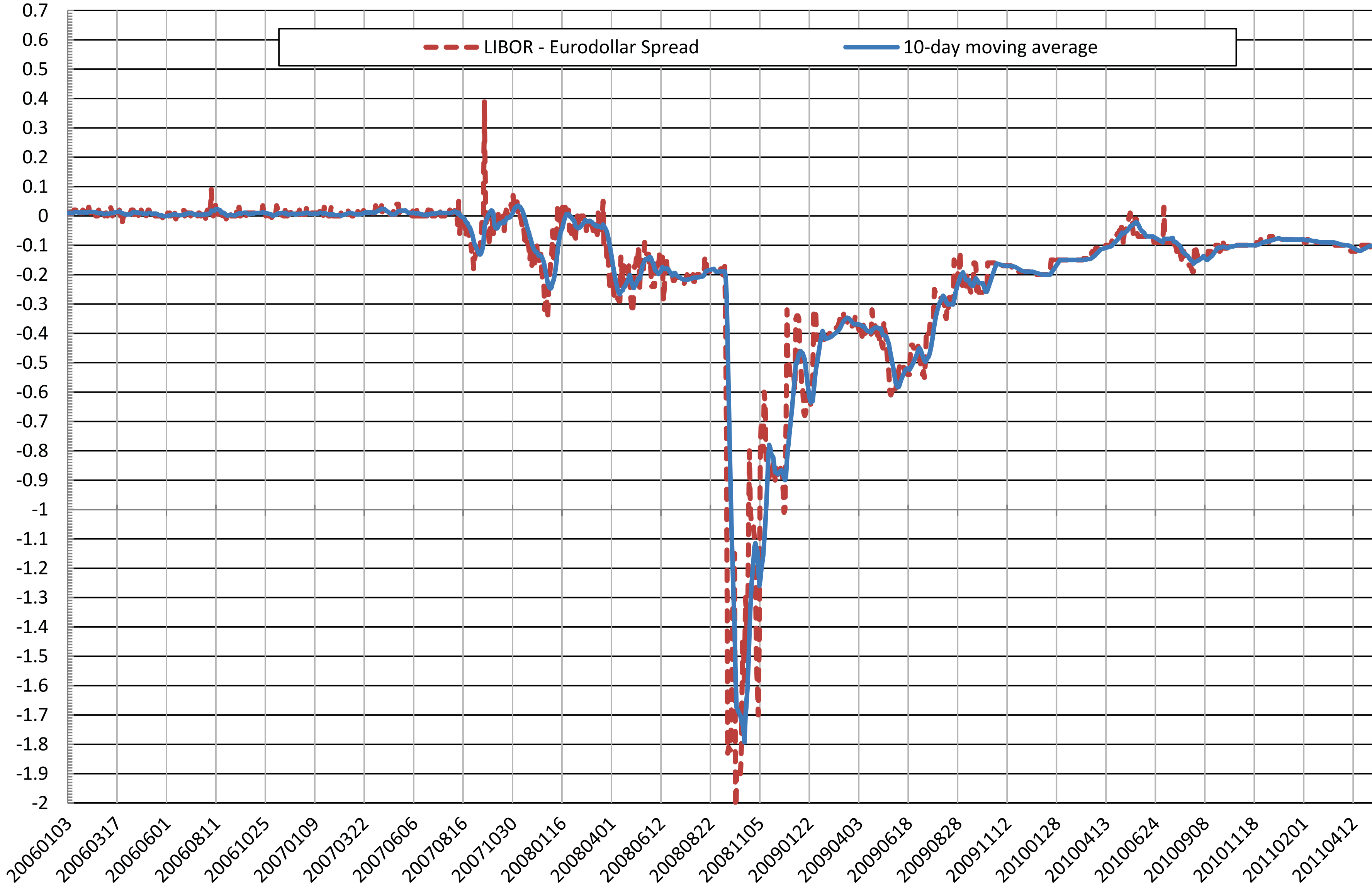
Figure 8: Lloyds LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
20060103
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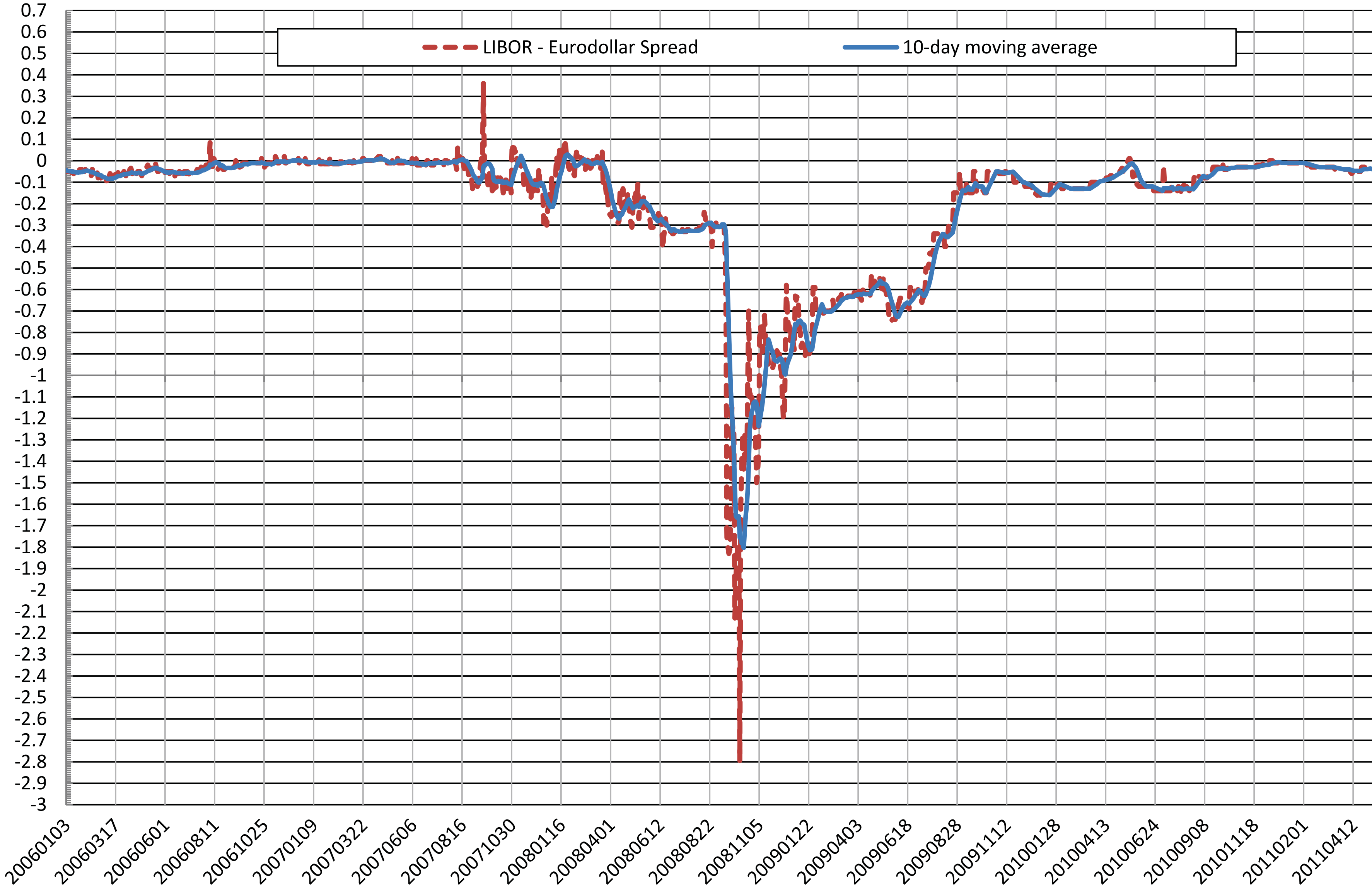
Figure 9: WestLB LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
-2.3
-2.4
-2.5
-2.6
-2.7
-2.8
-2.9
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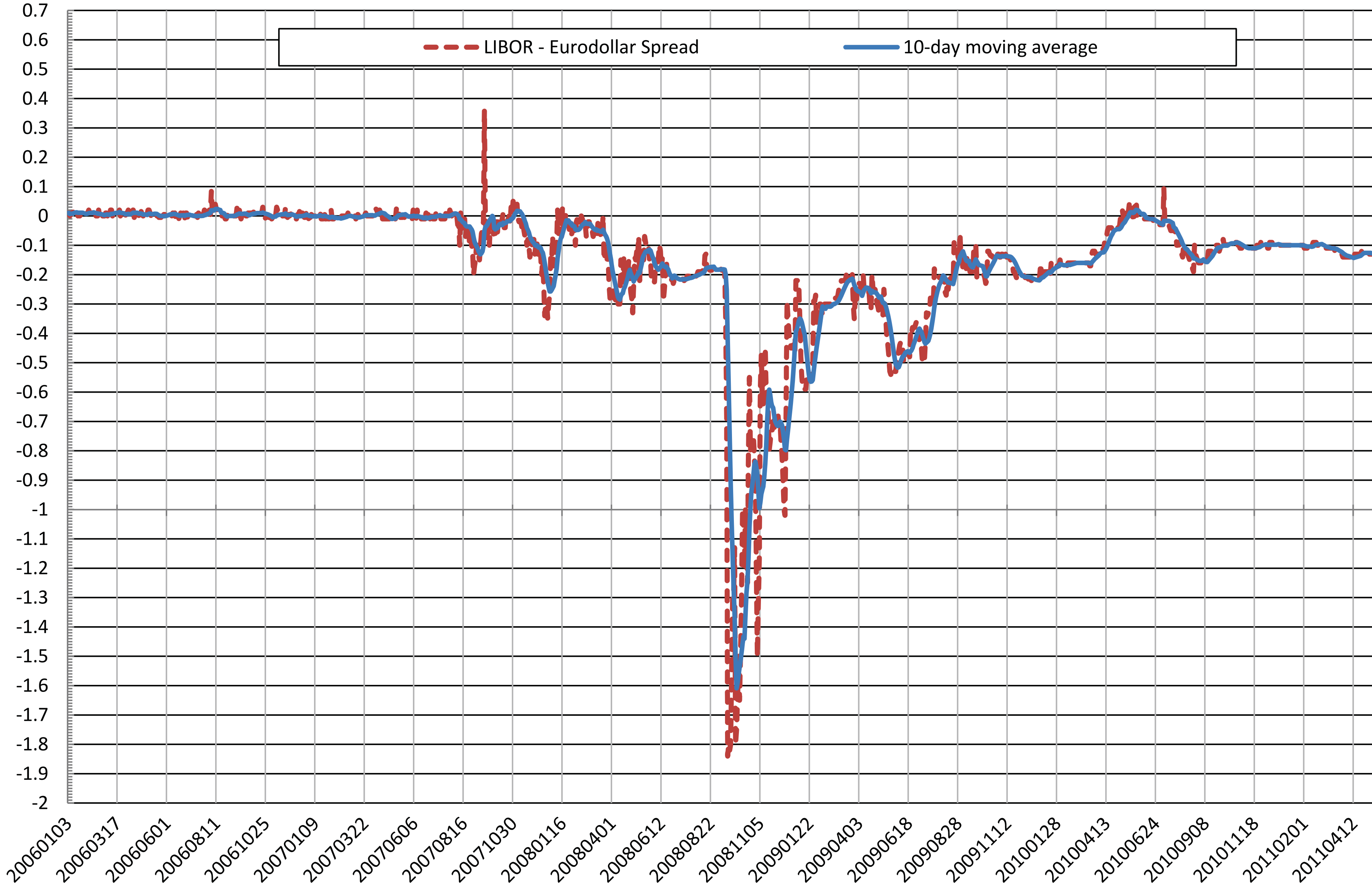
Figure 10: RBS LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
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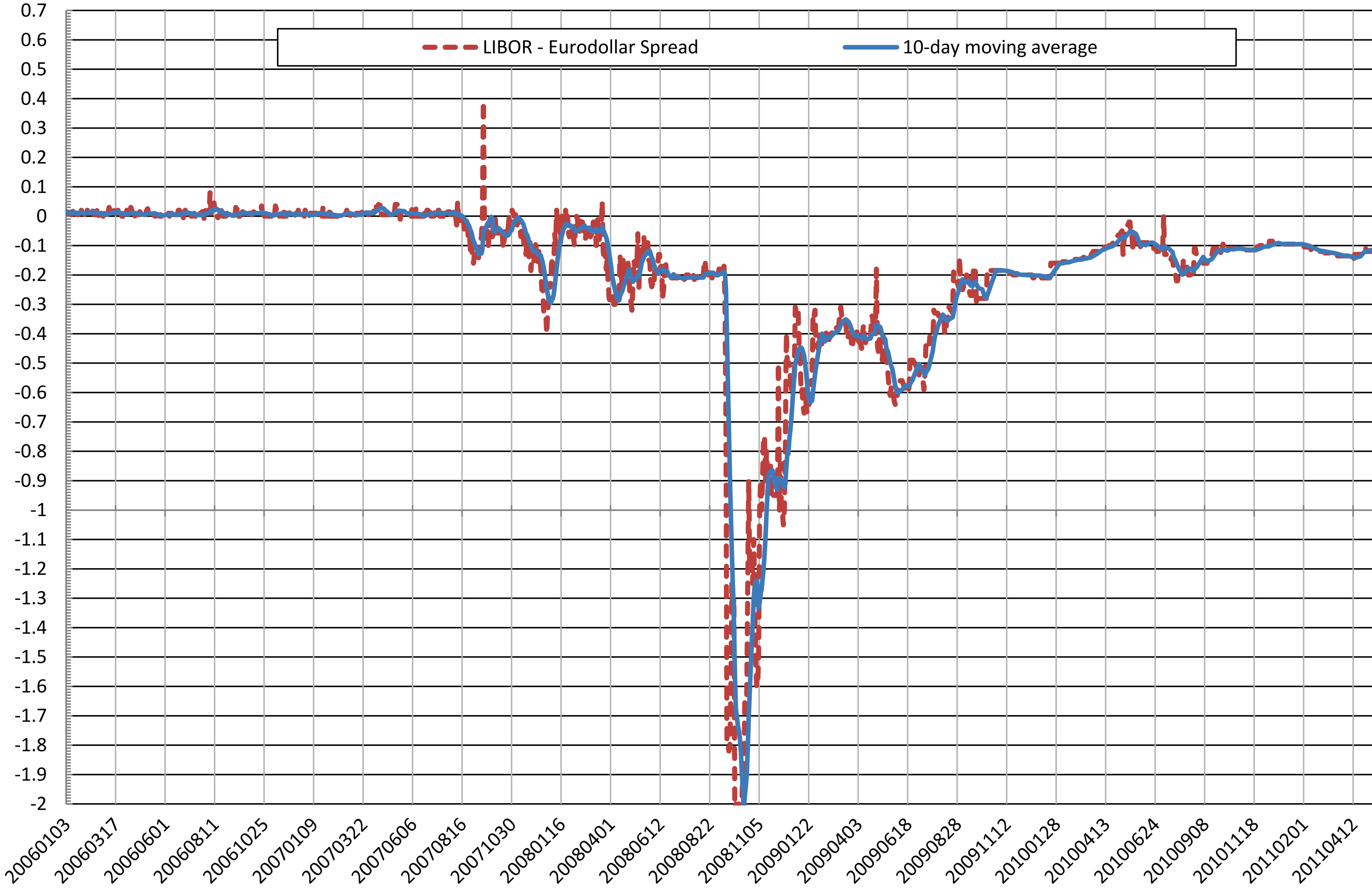
Figure 11: Rabo Bank LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
20060103
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20060601
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20061025
20070109
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20070606
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20080116
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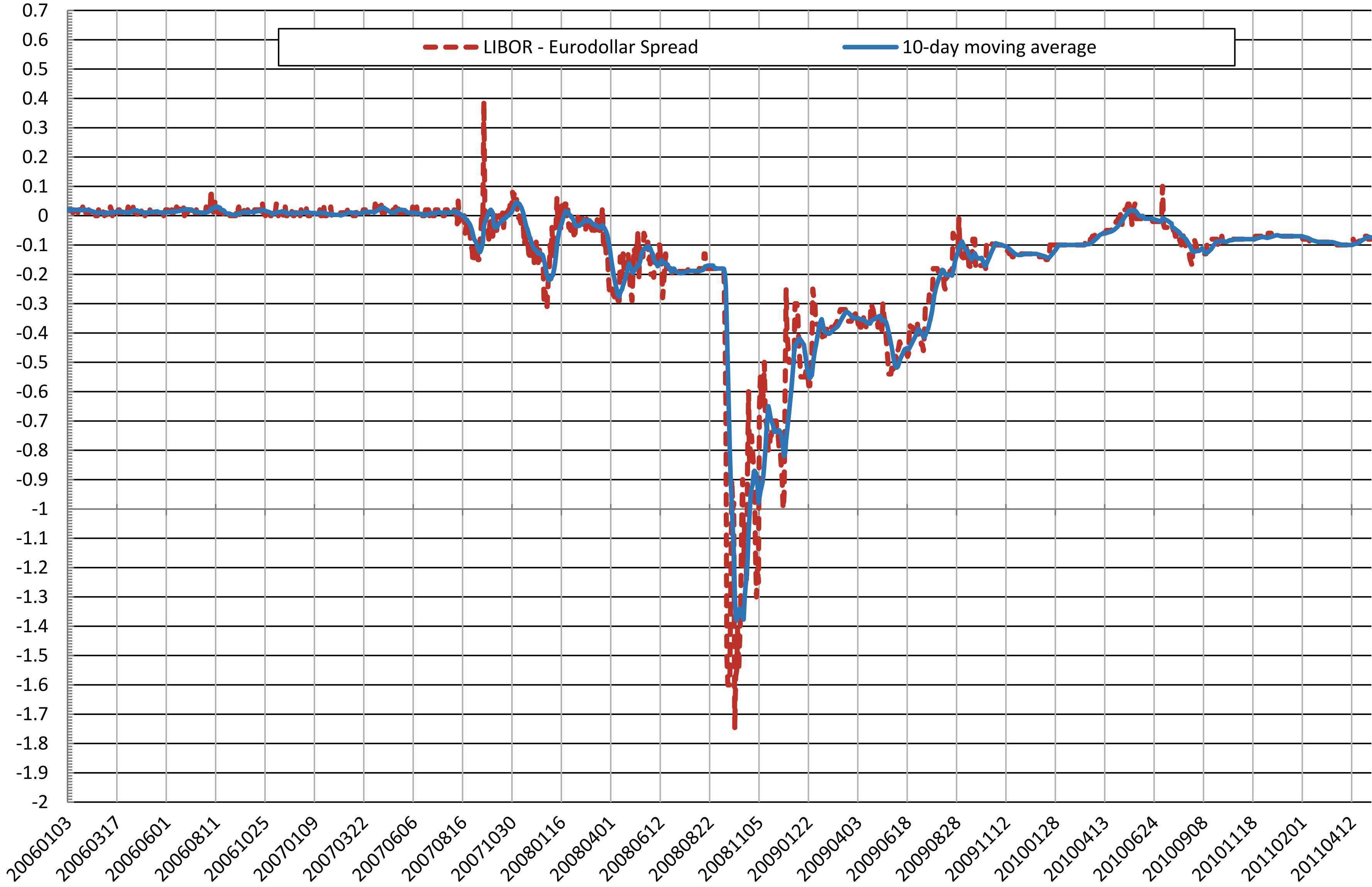
Figure 12: Bank of Tokyo LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
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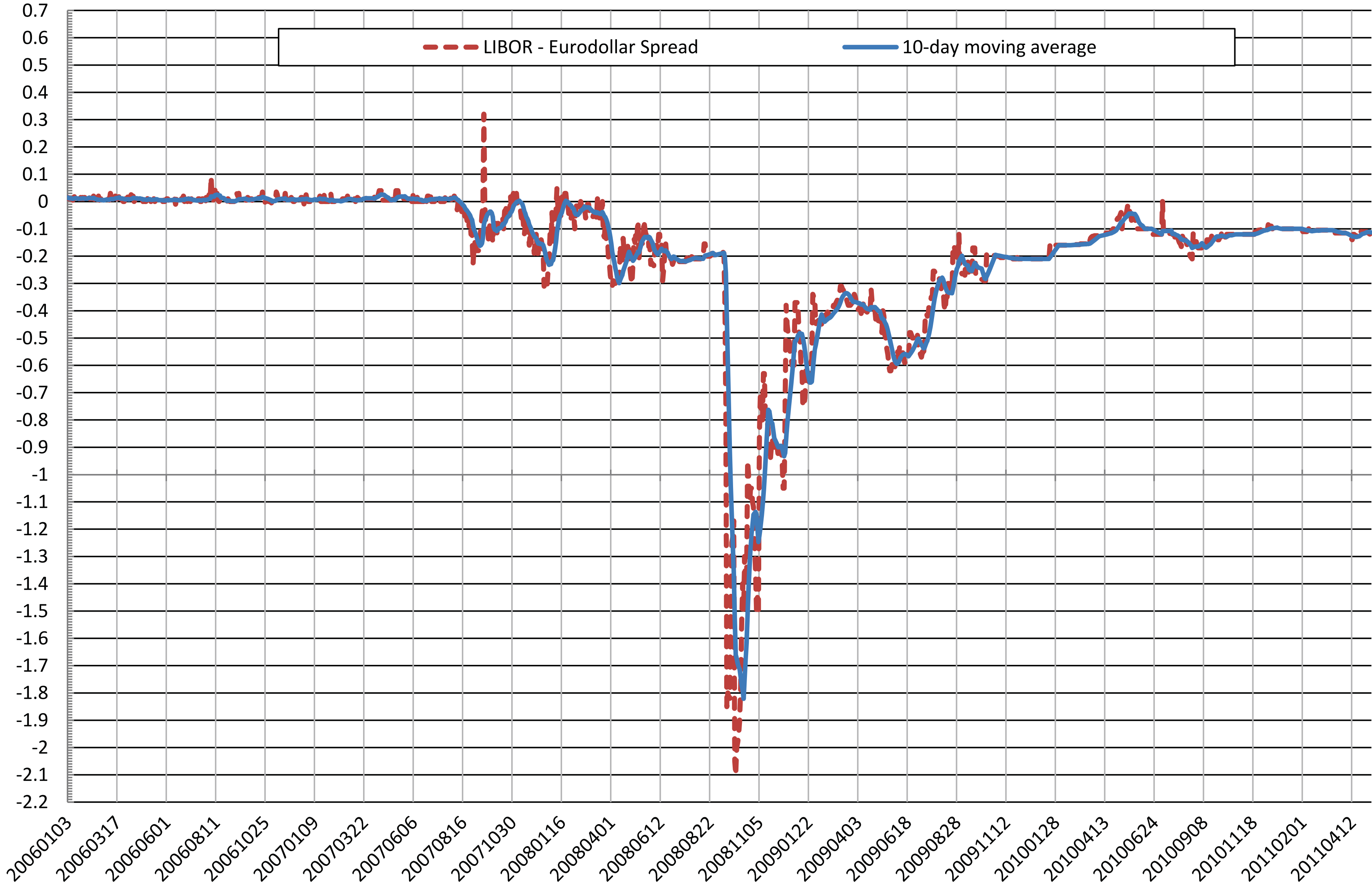
Figure 13: Citi LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
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-1.7
-1.8
-1.9
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-2.1
-2.2
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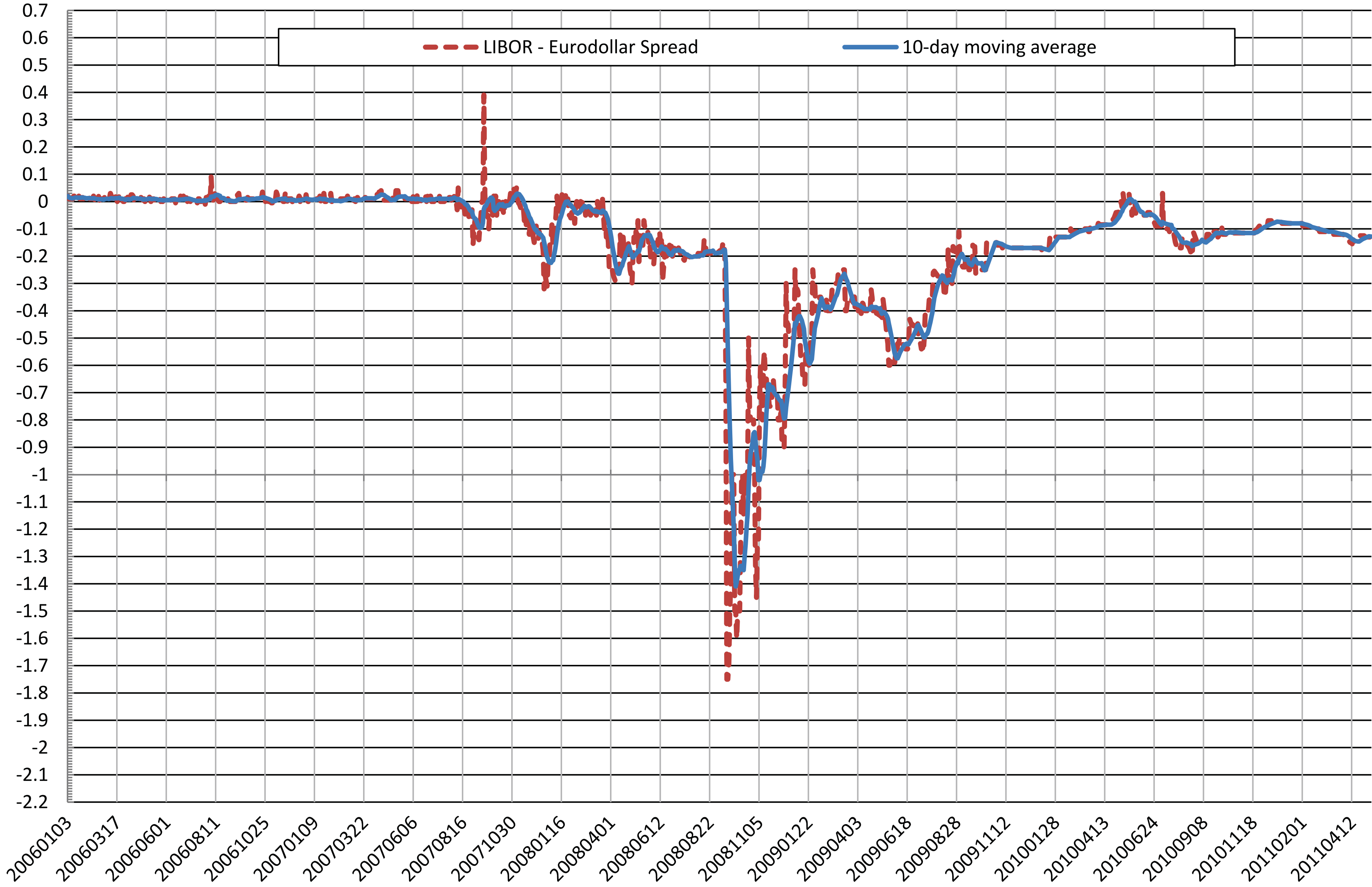
Figure 14: CS LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
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20110201
20110412

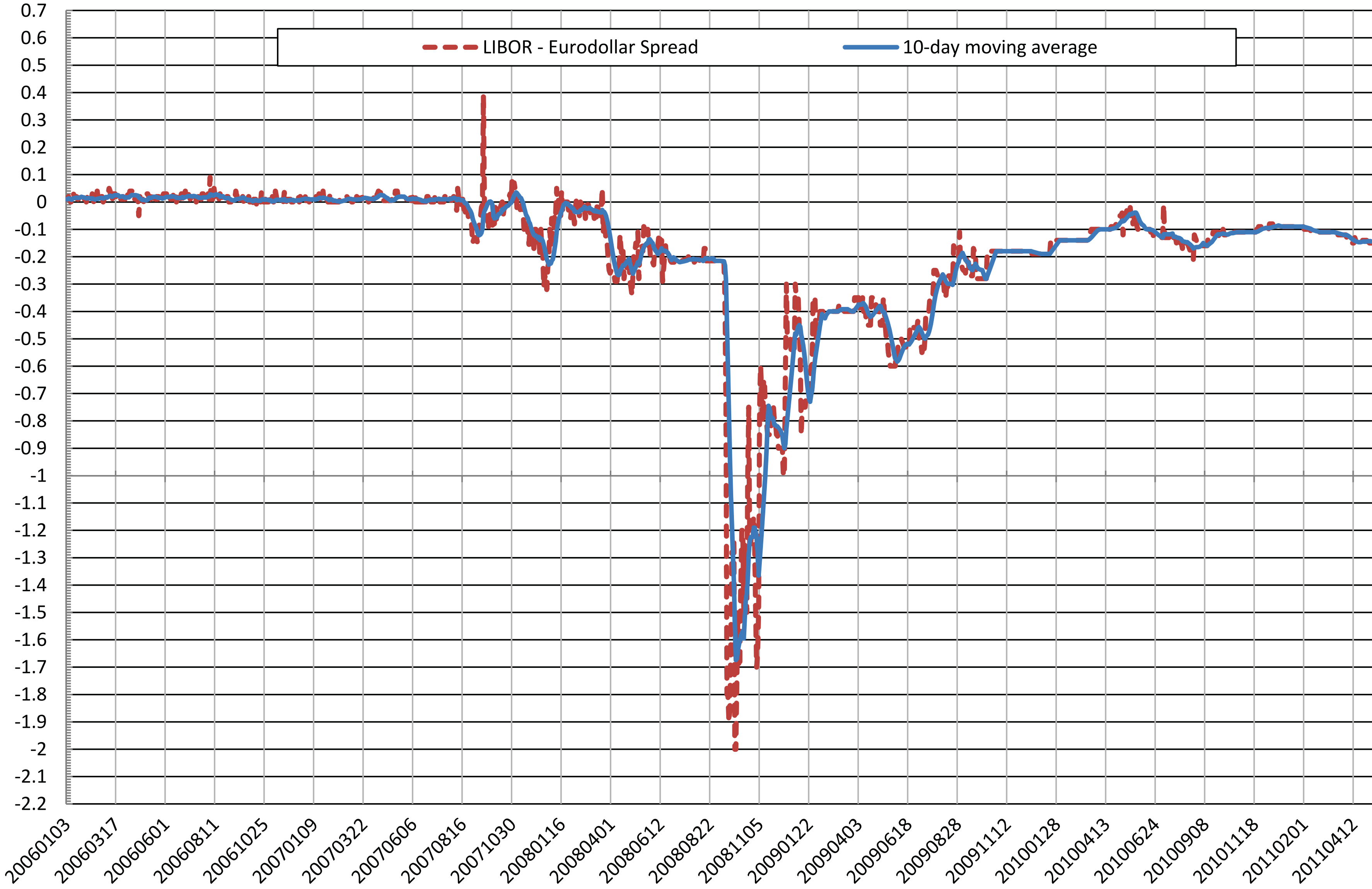
Figure 15: BoA LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
20071030
20080116
20080401
20080612
20080822
20081105
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20091112
20100128
20100413
20100624
20100908
20101118
20110201
20110412

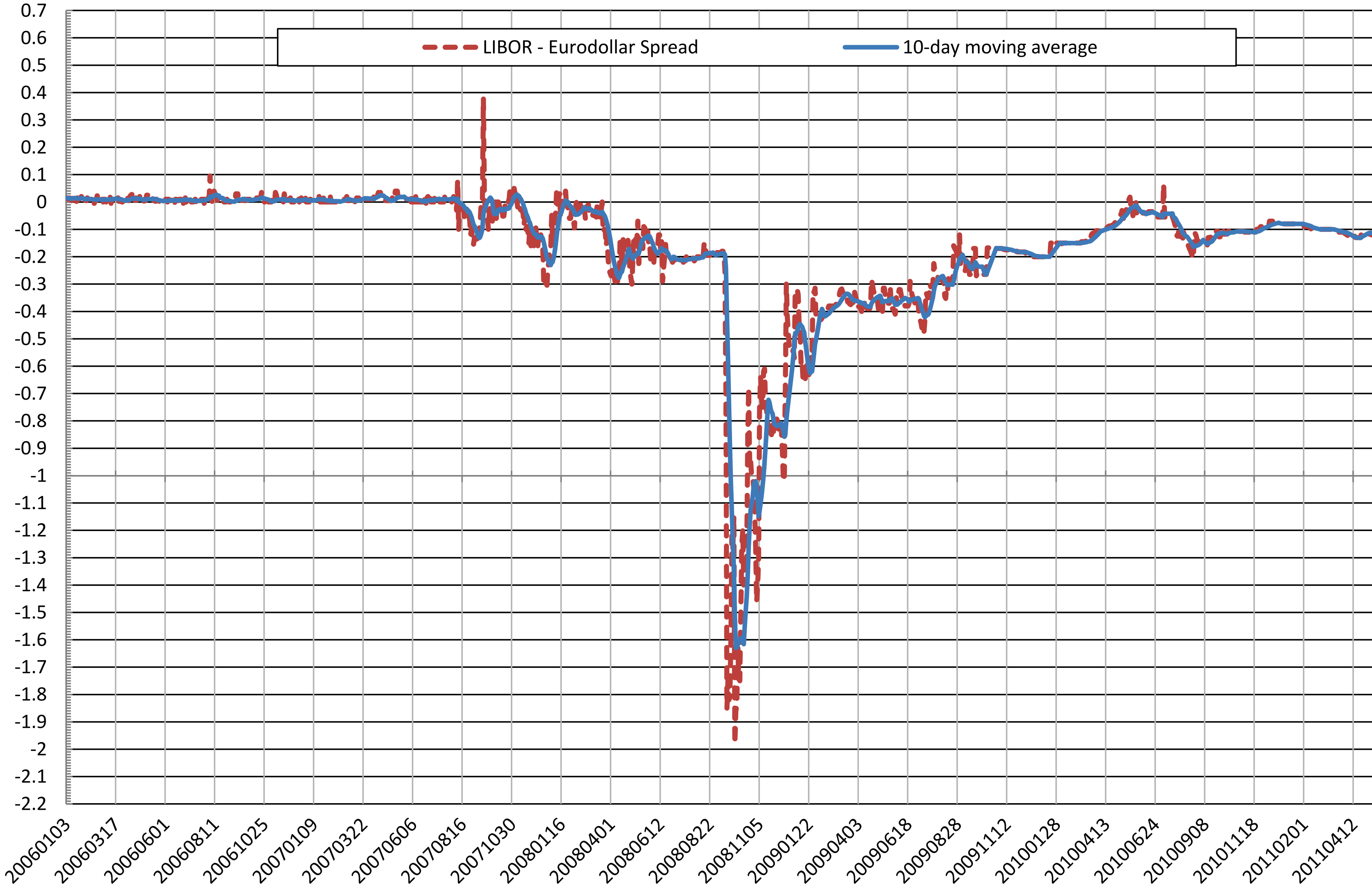
Figure 16: RBC LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
20071030
20080116
20080401
20080612
20080822
20081105
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20091112
20100128
20100413
20100624
20100908
20101118
20110201
20110412

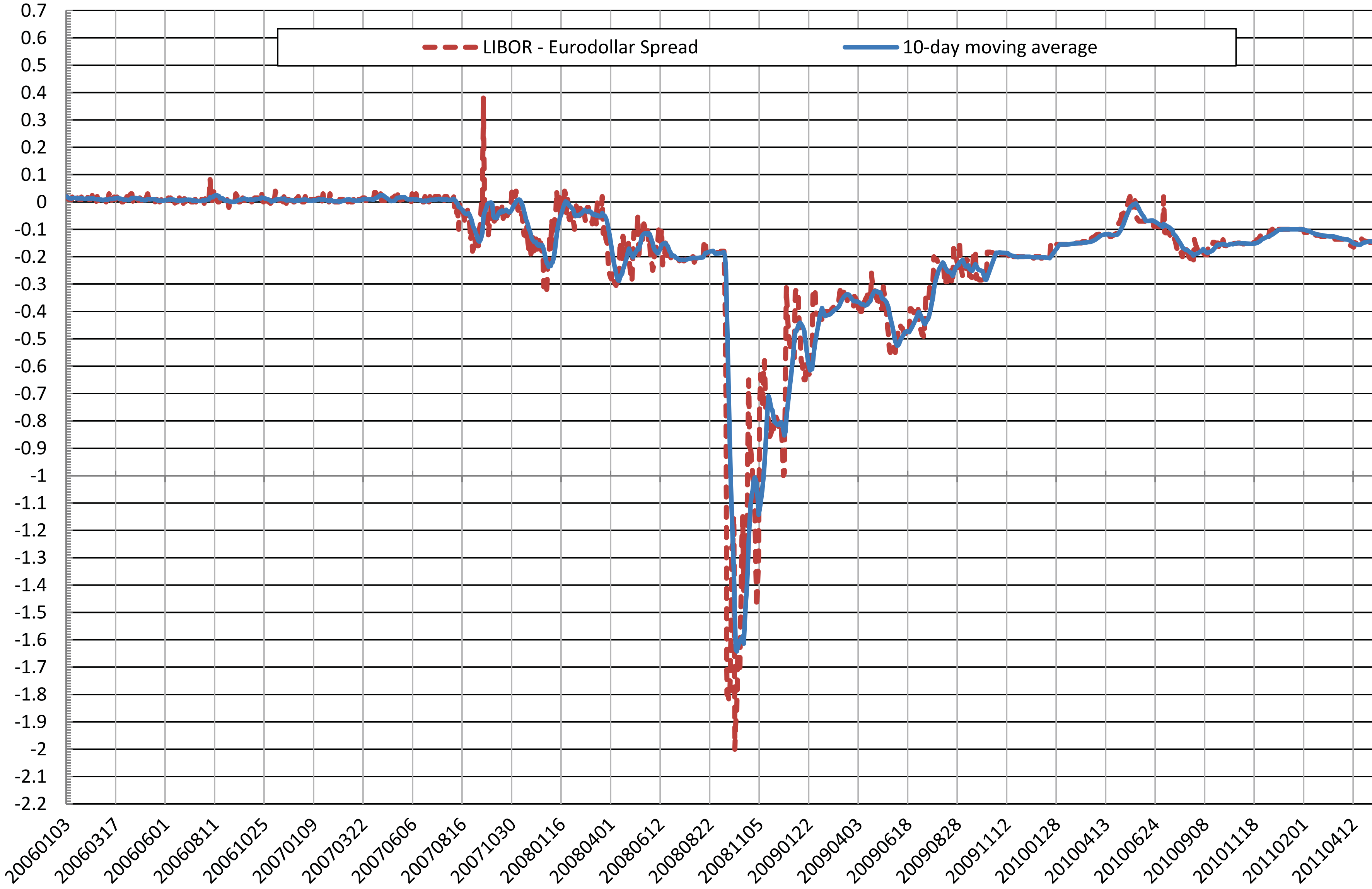
Figure 17: UBS LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
20071030
20080116
20080401
20080612
20080822
20081105
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20100413
20100624
20100908
20101118
20110201
20110412

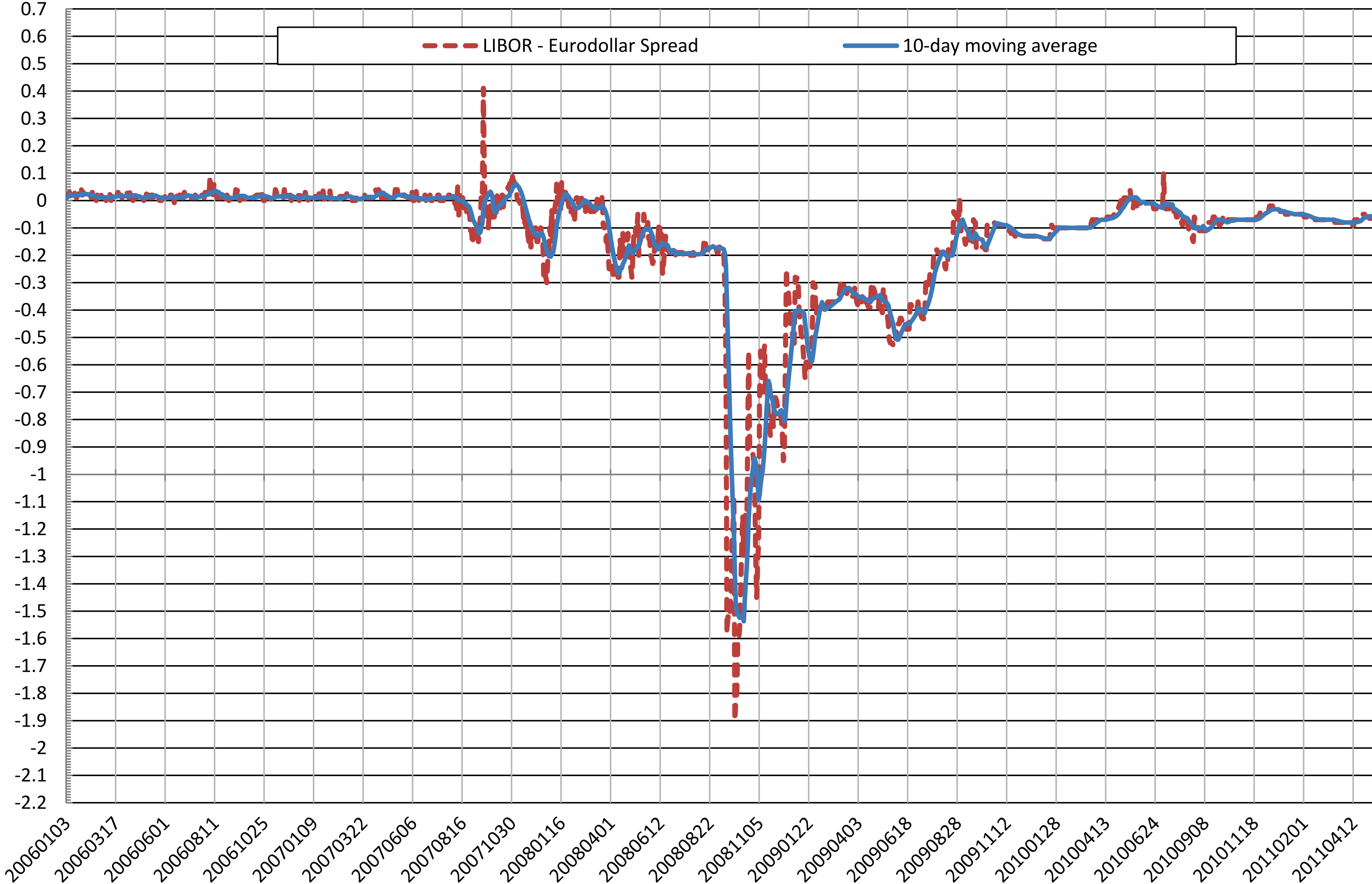
Figure 18: Norin LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
20071030
20080116
20080401
20080612
20080822
20081105
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20090828
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20100413
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20101118
20110201
20110412

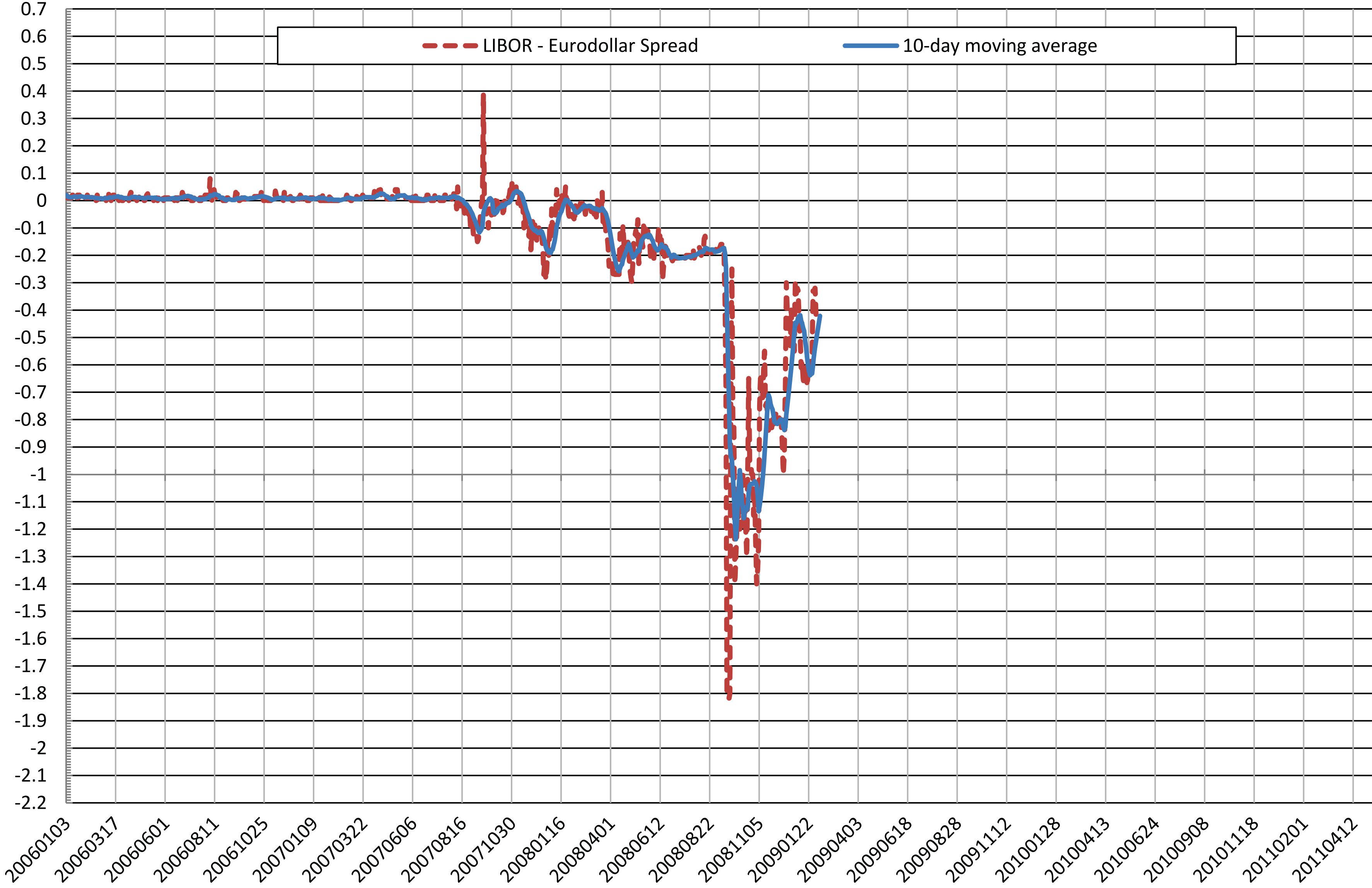
Figure 19: HBOS LIBOR - Federal Reserve Eurodollar Spread in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
20071030
20080116
20080401
20080612
20080822
20081105
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20091112
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20100624
20100908
20101118
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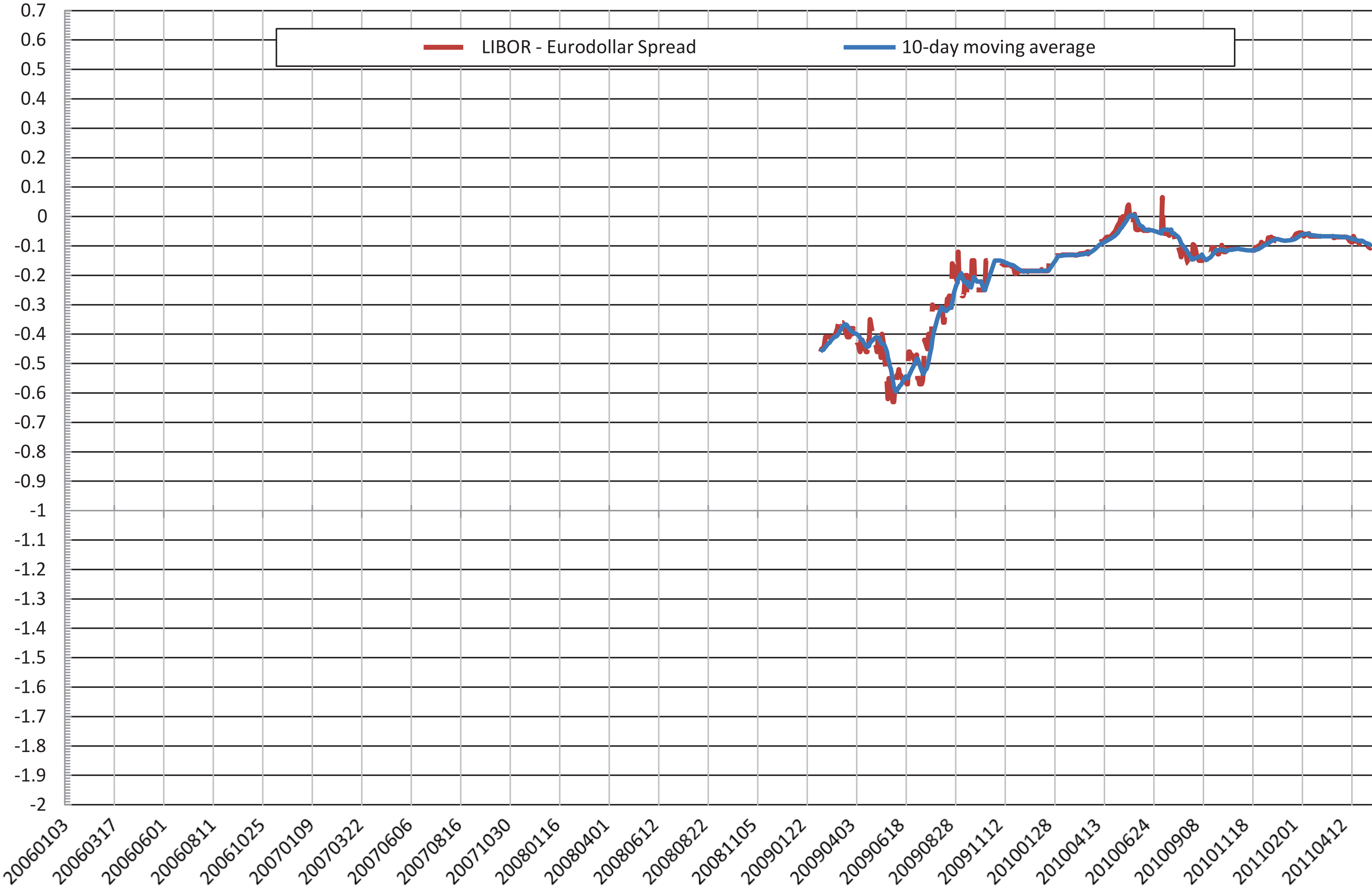
Figure 20: Société Générale LIBOR - Federal Reserve Eurodollar Spread
in Percentage Points
LIBOR - Eurodollar Spread
10-day moving average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
20060103
20060317
20060601
20060811
20061025
20070109
20070322
20070606
20070816
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20080116
20080401
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379. As the following chart demonstrates, the average Spread for each of the individual Defendants and Co-Conspirators was uniformly negative throughout all relevant times during the Class Period, strongly supporting that each of these banks was suppressing its LIBOR quotes, and colluding to suppress reported LIBOR.[100]

BANK NAME	**Average Spread between August 8, 2007 through May 17, 2010**
1. Bank of Tokyo-Mitsubishi	-25 basis points
2. Bank of America	-30 basis points
3. Barclays	-25 basis points
4. Citi	-32 basis points
5. CSFB	-27 basis points
6. Deutsche Bank	-31 basis points
7. HBOS	-29 basis points
8. HSBC	-32 basis points
9. JP Morgan Chase	-35 basis points
10. Lloyds	-30 basis points
11. Norin Bank	-25 basis points
12. Rabo Bank	-32 basis points
13. Royal Bank of Canada	-28 basis points
14. Royal Bank of Scotland	-26 basis points
15. UBS	-29 basis points
16. WestLB	-35 basis points

380. Moreover, as set forth in the following chart, during the critical two week period following the bankruptcy of Lehman Brothers, each of Defendants and Co-Conspirators dramatically increased its collusive suppression of LIBOR.

BANK NAME	**Average Spread between September 16, 2008 and September 30, 2008**
1. Bank of Tokyo-Mitsubishi	-120 basis points
2. Bank of America	-144 basis points
3. Barclays	-87 basis points
4. Citi	-142 basis points
5. CS	-122 basis points

[100] For Société Générale, the average spread between February 9, 2009 and May 17, 2010 was 27.1 basis points.

6. Deutsche Bank	-129 basis points
7. HBOS	-110 basis points
8. HSBC	-141 basis points
9. JP Morgan Chase	-153 basis points
10. Lloyds	-146 basis points
11. Norin Bank	-126 basis points
12. Rabo Bank	-143 basis points
13. Royal Bank of Canada	-140 basis points
14. Royal Bank of Scotland	-140 basis points
15. UBS	-141 basis points
16. WestLB	-138 basis points

381. Every Spread during the period from September 16, 2008 to September 30, 2008 is statistically significant at the extremely high 99% confidence level.

382. Plaintiffs' consulting experts find the results reflected in these two tables to be powerful and statistically significant evidence of Defendants' and Co-Conspirators' collusive suppression of LIBOR during the Class Period.

383. The results show that each Defendant bank and Co-Conspirator banks misreported its LIBOR submissions literally hundreds of times during the Class Period, and that collectively the misreporting by all banks numbered in the thousands.

384. As detailed above, analysis based on well accepted statistical methodologies strongly supports that suppression of LIBOR occurred during parts of the Class Period, accomplished through the collusive conduct of Defendants and the Co-Conspirators. The sustained period during which the Federal Reserve Eurodollar Deposit – LIBOR Spread fell and remained starkly negative, as seen in Figure 2 above, accounting as it does for Market Fundamentals, is not plausibly achievable absent collusion among Defendants and the Co-Conspirators. The intensified suppression from September 16, 2008 to September 30, 2008 (following the Lehman bankruptcy), in defiance of economic expectations, provides further

powerful support for the suppression of LIBOR achieved through collusion by Defendants. Because no Defendant or Co-Conspirator Bank – absent collusive conduct – could know what LIBOR quote another panel bank actually intended to submit prior to those numbers being made public after 11:00 in the morning, the fact that all of them submitted LIBOR quotes below the Federal Reserve Eurodollar Deposit Rate over the Class Period further strongly supports the participation of each Defendant bank and Co-Conspirator bank in the suppressive and collusive scheme.

2. Consulting Expert's Analysis Of Management Directives Supports Collusion

385. The regulatory settlements with Barclays and UBS revealed that these banks actively suppressed their LIBOR submissions at the direction of management. These management directives included, for example, at Barclays, staying within a certain range—ten basis points—of the other Panel Bank submissions, and, at other times, submitting rates that fell where other Panel Banks were setting them that day. The latter directive was described by Barclays employees as "staying within the pack," being "in line," not being an "outlier," or, most colorfully, not "sticking ones head above the parapet." Likewise at UBS, management's directives included being "on the low side," and being "in the middle of the pack" of Panel Bank rates for a given day. Through the advance knowledge of other Panel Banks' daily rate submissions, Barclays and UBS LIBOR submitters were able to comply with their management's directives over the Class Period.

386. Moreover, the active exchange of advance information regarding proposed submissions provided the mechanism through which individual Panel Banks, such as Barclays and UBS, could guarantee their submissions avoided potential adverse press and market reaction by ensuring they were consistent with those of the other Panel Banks on a given day.

387. Based on the specific information provided by regulators in the UBS settlements

regarding the nature and timing of management's directives, the consulting expert was able to test the likelihood that UBS submitters could have complied with management directives absent collusion with the other Defendants.

388. The consulting expert looked specifically at the period beginning on or about June 18, 2008 and continuing until mid-April 2009, during which time UBS LIBOR submitters were directed to be in the middle of the pack. The consulting expert first looked at how often UBS's daily 3-month LIBOR submissions were "in the middle of the pack" during this six month period.

389. The expert then undertook probability analysis to determine how likely it was the UBS LIBOR submitters could have been able to successfully target their submissions "in the middle of the pack" as often as they did absent collusion. To do this, the expert looked at relevant public information available to the LIBOR submitters at the time they made their submissions at around 11:00 a.m. London time. The consulting expert determined the relevant public information reasonably available to UBS LIBOR submitters to be: (i) prior day 3-month LIBOR submissions from the Panel Banks; and (ii) changes in the Federal Reserve Eurodollar Deposit ("FRED") Rate, which would have reflected changes in relevant Market Fundamental from the prior day; and iii) changes in the opening and closing prices of Eurodollar futures prices from one day prior and from two days prior.

390. The expert determined that during the period of June 18, 2008 through April 14, 2009, UBS's LIBOR submitters were highly successful in meeting management's directive. Specifically, over this ten month period, UBS's 3-month LIBOR submissions were at or within the interquartile range (the two middle fourths of Panel Bank submissions that were averaged to calculate each day's LIBOR rates) 99.0% of the time, and were within the interquartile range (*i.e.*, not tied with the 4th lowest or 13th highest submission) 86.7% of the time. Further demonstrating

UBS submitters' stunning ability to consistently target the actual published LIBOR rates despite a volatile market, the DOJ found that from June 18, 2008, and continuing for approximately the same 10 month period, UBS's 3-month LIBOR submissions were identical to the published LIBOR fix, and largely consistent with the published LIBOR fix in the other tenors.

391. Using probability analysis, the consulting expert then calculated the likelihood to be *less than 1%* that UBS could have achieved this remarkable consistency based on consideration of the prior day's interquartile range LIBOR Panel Bank submissions. The expert further determined that there was also a *less than 1%* likelihood that UBS could have achieved its consistent record during this period based on consideration of the prior day's interquartile range LIBOR Panel Bank submissions and changes in the FRED Rate. The expert also determined that there was also a less than 1% likelihood that UBS could have achieved its consistent record during this period based on consideration of the prior day's interquartile range LIBOR Panel Bank submissions and changes in the Eurodollar opening or closing prices from either one day prior or from two days prior.

392. As with the expert's conclusions in connection with the Eurodollar analysis above, the duration of, and the degree of successful compliance with management's specific LIBOR quote submission directives relative to where other Panel Banks' suppressed submissions fell on a daily basis further strongly support that the LIBOR suppression was accomplished through the collusive cooperation and agreement among the Panel Banks.

3. An Independent Analysis By Other Consulting Experts – Showing The Discrepancy Between Defendants' and Former Defendant/Co-Conspirators' LIBOR Quotes And Their Respective Probabilities Of Default – Provides Strong Evidence Of LIBOR Suppression During The Class Period

393. Assessing the likelihood that LIBOR was suppressed during the Class Period, Plaintiffs' expert consultants compared USD-LIBOR panel members' quotes from 2007 through 2008 to the daily default probability estimates for each of those banks—as determined, and updated daily for each maturity (term), by Kamakura Risk Information Services ("KRIS").[101] The study focused on identifying any periods of severe discrepancy between each bank's probabilities of default ("PDs") and the LIBOR quotes the bank submitted to the BBA.

394. The KRIS reduced-form model estimates each bank's default risk on a daily basis by analyzing each bank's equity and bond prices, accounting information, and general economic conditions, such as the level of interest rates, unemployment rates, inflation rates, etc. On its website, KRIS states it "provides a full term structure of default for both corporate and sovereign credit names based upon a multiple models approach" and its default probabilities "are updated daily and cover more than 29,000 companies in 36 countries."[102]

395. PD provides a measure of a bank's credit (default) risk exposure, essentially the likelihood that the bank will default within a specified time period. PD can be estimated using statistical models, whereas LIBOR is a rate of return required by investors lending short-term funds to the bank. A finding of a statistically significant negative correlation coefficient between daily LIBOR quotes and PDs for a given bank over a given term period violates the fundamental relationship between risk and return that is the cornerstone of finance. That is, investors require a

[101] KRIS did not have PDs for WestLB, Rabobank, or Norinchukin, because those companies were not publicly traded. This PD analysis therefore does not include those banks.

[102] *See* http://www.kris-online.com/, last accessed on April 23, 2012.

higher required rate of return as a premium for taking on additional risk exposure. This results in a positive relationship (correlation) between risk and return. An increase in the bank's PD indicates that the risk of default has increased, thereby causing investors to require a higher rate of return for loans to the bank—which should correspond with a higher LIBOR quote.

396. Accordingly, a finding of a statistically significant negative coefficient (of any size) between a bank's daily LIBOR quotes and its PDs shows that increases in PDs correspond with decreases in LIBOR quotes—which violates fundamental finance theory. This would indicate that banks are suppressing their LIBOR quotes to avoid revealing the higher rates that reflect their true (higher) probabilities of default. In other words, any finding of negative, statistically significant correlation coefficients between a bank's PDs and its LIBOR quotes suggests LIBOR suppression by the bank over the analysis period.

397. The magnitude of the correlation coefficient is impacted by the volatility of both PD and LIBOR for each bank during the time period. Thus, for example, if a bank has high volatility in its PDs, the absolute value of the correlation coefficient will tend to be lower (*i.e.*, less negative) as compared to an identical bank with low PD volatility. However, both may be equally engaged in LIBOR suppression if their correlation coefficients are statistically significant and negative.

398. Plaintiffs' consulting experts used the KRIS database to test whether, for the period under study, each bank's daily sealed LIBOR quote correlates with the bank's estimated PD that day for the same maturity term (provided by KRIS). For example, the consultants examined the correlation between Bank of America's sealed quote for three-month LIBOR on each date with the three-month PD for Bank of America, as provided by the KRIS database on that same day. As explained above, standard finance theory implies that a positive correlation between a bank's PD

and its LIBOR quote should exist – *i.e.*, as the bank's default risk (PD) increases, its borrowing rate (LIBOR quote) should increase, and *vice versa*. That is, using the above example, standard finance theory predicts a positive correlation between Bank of America's three-month PD and its three-month LIBOR quote. A finding of either a zero or negative correlation between a bank's PD and its LIBOR quote indicates the latter does not reflect the bank's default-risk probability, which evidences LIBOR suppression. A negative correlation means the two values have an inverse relationship; as one goes up, the other tends to go down. A statistically significant negative correlation between a bank's LIBOR quote and its PD is consistent with the bank's reducing its LIBOR quote in order to mask its higher risk exposure during a period of financial crisis, such as during the 2007-2008 period. By submitting an artificially low LIBOR quote, the bank sends a false signal that it is less risky than it truly is.

399. Plaintiffs' consulting experts found suppression over the 2007-2008 period for one-month, three-month, six-month, and 12-month LIBOR.

400. The LIBOR quotes for all the reporting banks (except HSBC) during 2007 were *negatively correlated* with their daily updated PDs (for the same maturity term) to a statistically significant degree. For example, the correlation between Bank of America's daily LIBOR quotes and its daily PDs, was negative and statistically significant at a very high level for the one-month, three-month, six-month and 12-month terms, *i.e.*, between -0.5857 and -0.6093.[103] In other words, the data indicate that, contrary to fundamental finance theory, the higher a panel bank's PD was, the *lower* its LIBOR quote was.

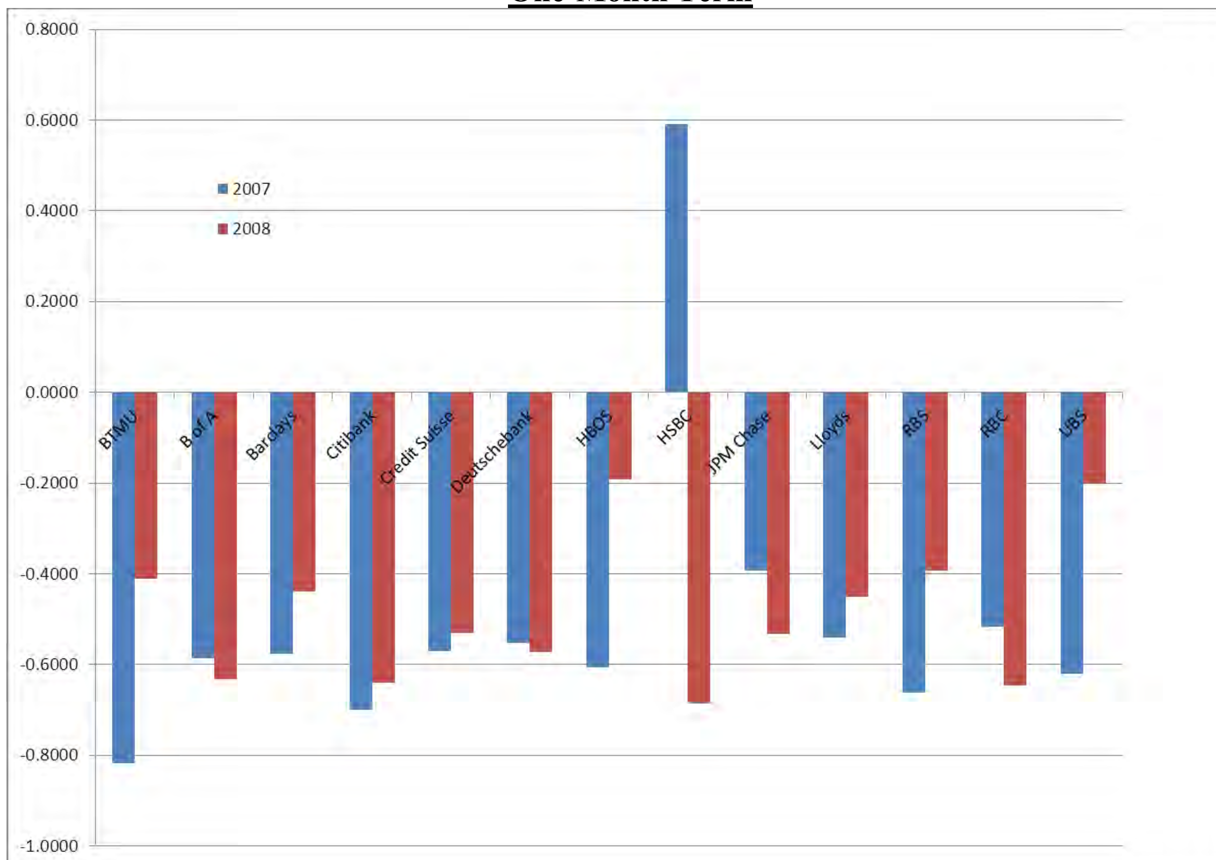
401. Performing the same analysis with respect to the LIBOR panel banks' daily LIBOR quotes and PDs during 2008, the expert consultants found that for all of the banks, the submitted

[103] Correlation coefficients range from a value of -1 to 1. A correlation coefficient of -0.50, for example, would imply that a 1% increase in PD would result in a 50-basis point decline in the bank's LIBOR quote.

LIBOR quotes were negatively correlated with their PDs at the one-month and three-month maturities. Indeed, all of the banks were submitting unduly low LIBOR quotes at all maturities during the time period from August 9, 2007 until September 12, 2008, and, with only one exception, from September 15 through December 31, 2008, the period following the Lehman bankruptcy.

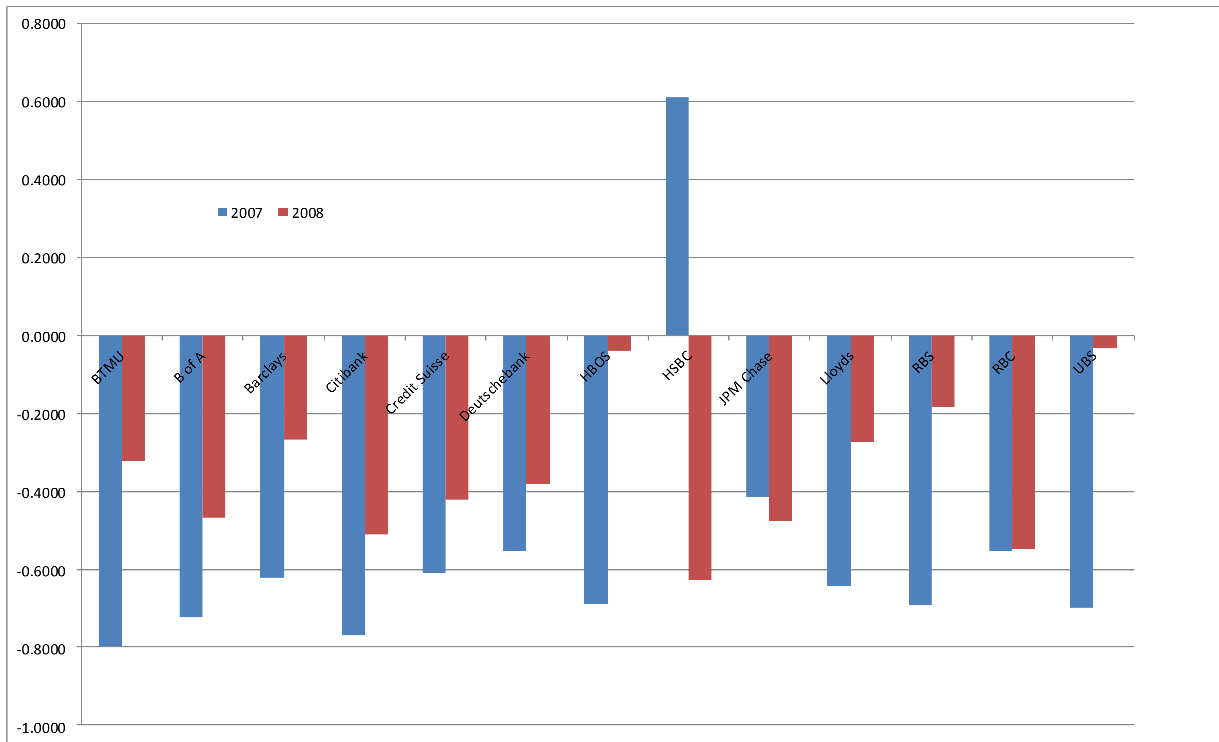
402. The following graphs illustrate the findings of this expert analysis—which demonstrates a striking negative correlation between USD-LIBOR panel banks' LIBOR quotes and PDs during 2007 and 2008, indicating they severely depressed LIBOR during that time.

Graph 1
Correlation Coefficients
Between Each Bank's Daily LIBOR Bid and Probability of Default (PD)
One-Month Term



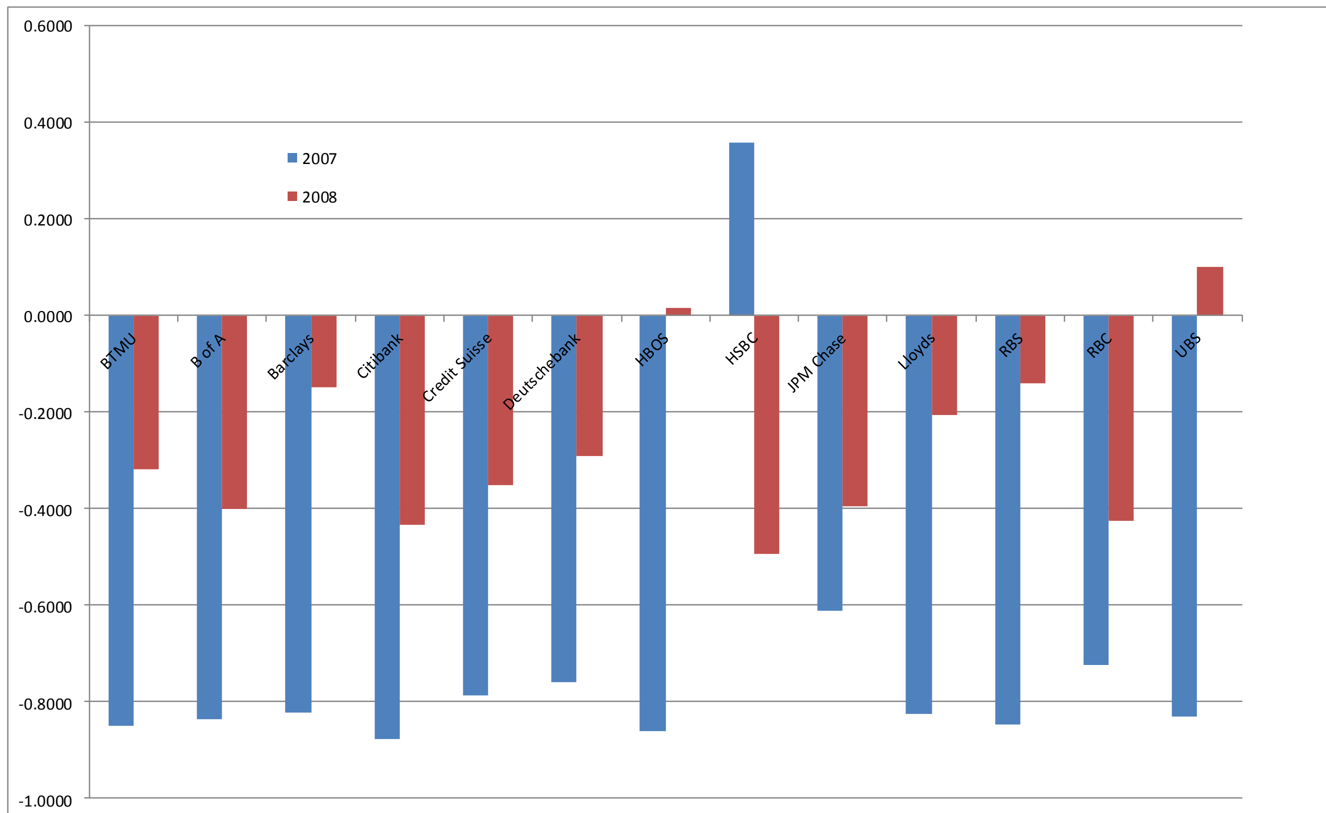
(Note: PDs are estimated daily using the reduced form model of Kamakura Risk Information Services.)

Graph 2
Correlation Coefficients
Between Each Bank's Daily LIBOR Bid and Probability of Default (PD)
Three-Month Term



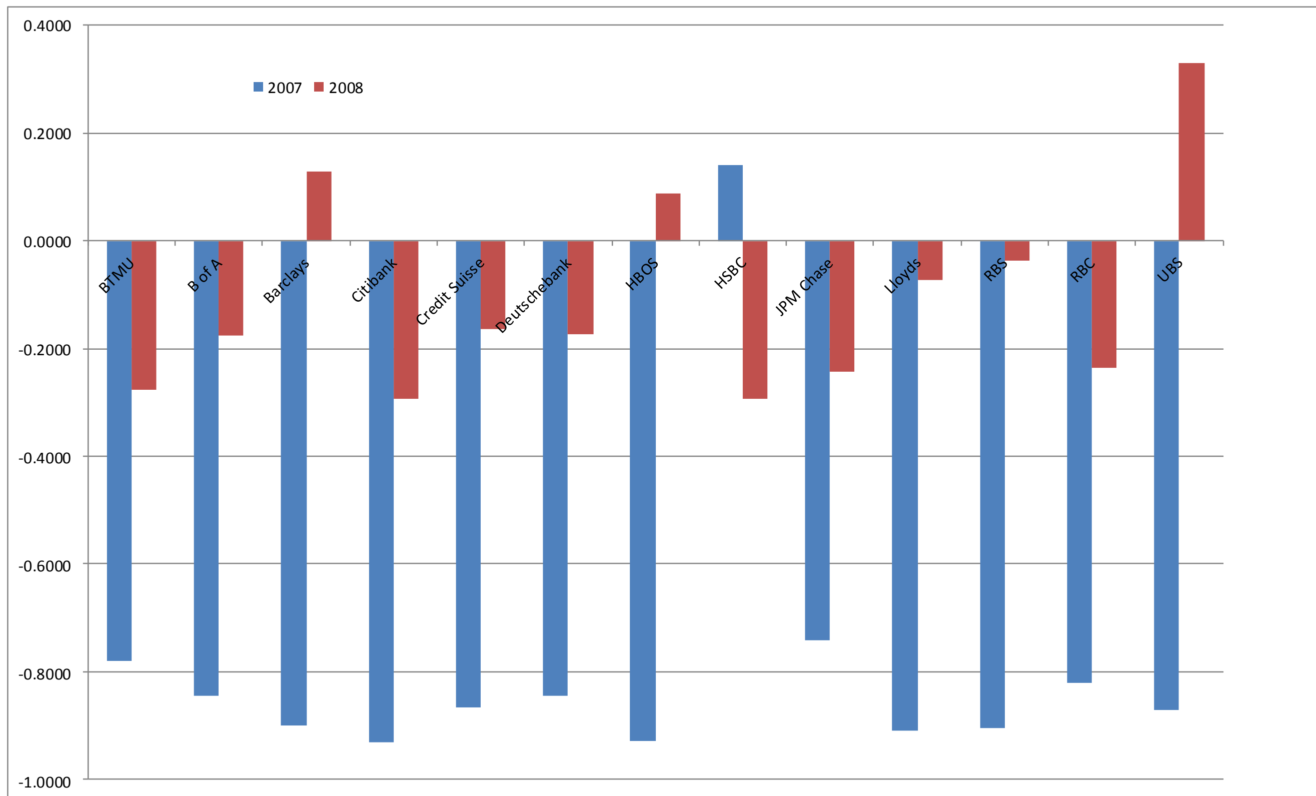
(Note: PDs are estimated daily using the reduced form model of Kamakura Risk Information Services.)

Graph 3
Correlation Coefficients
Between Each Bank's Daily LIBOR Bid and Probability of Default (PD)
Six-Month Term



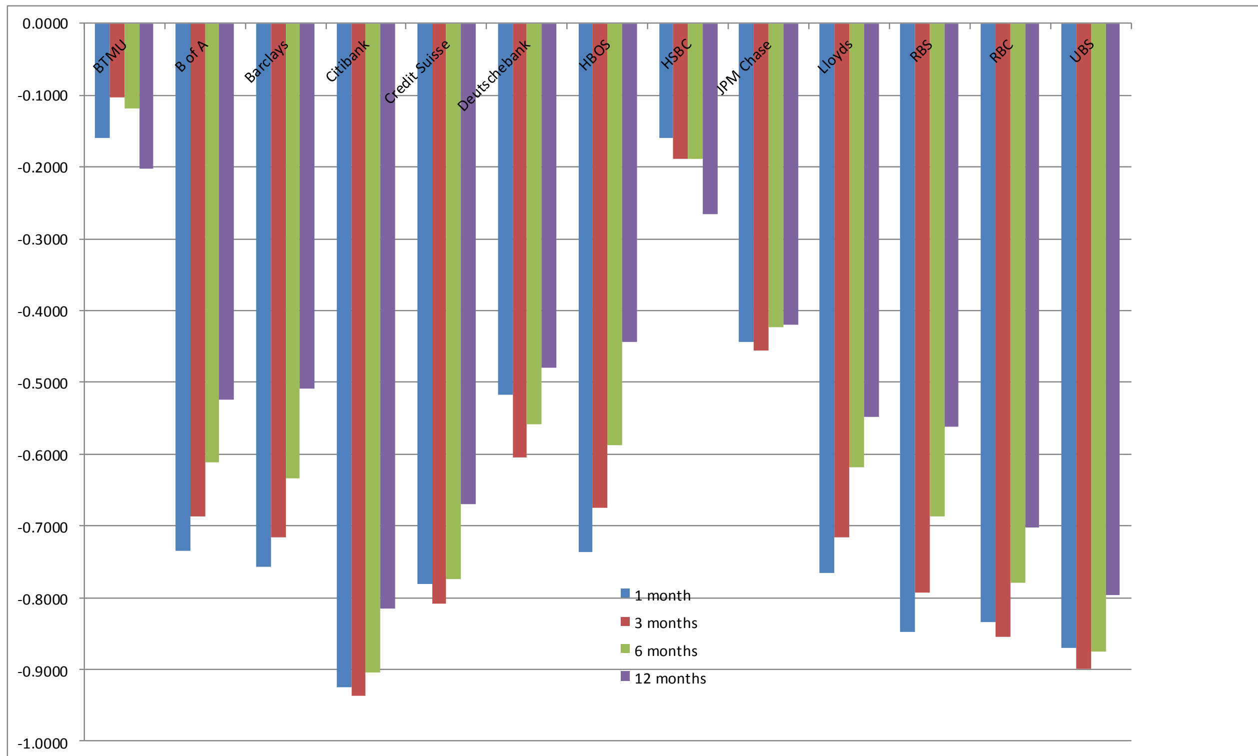
(Note: PDs are estimated daily using the reduced form model of Kamakura Risk Information Services.)

Graph 4
Correlation Coefficients
Between Each Bank's Daily LIBOR Bid and Probability of Default (PD)
Twelve-Month Term



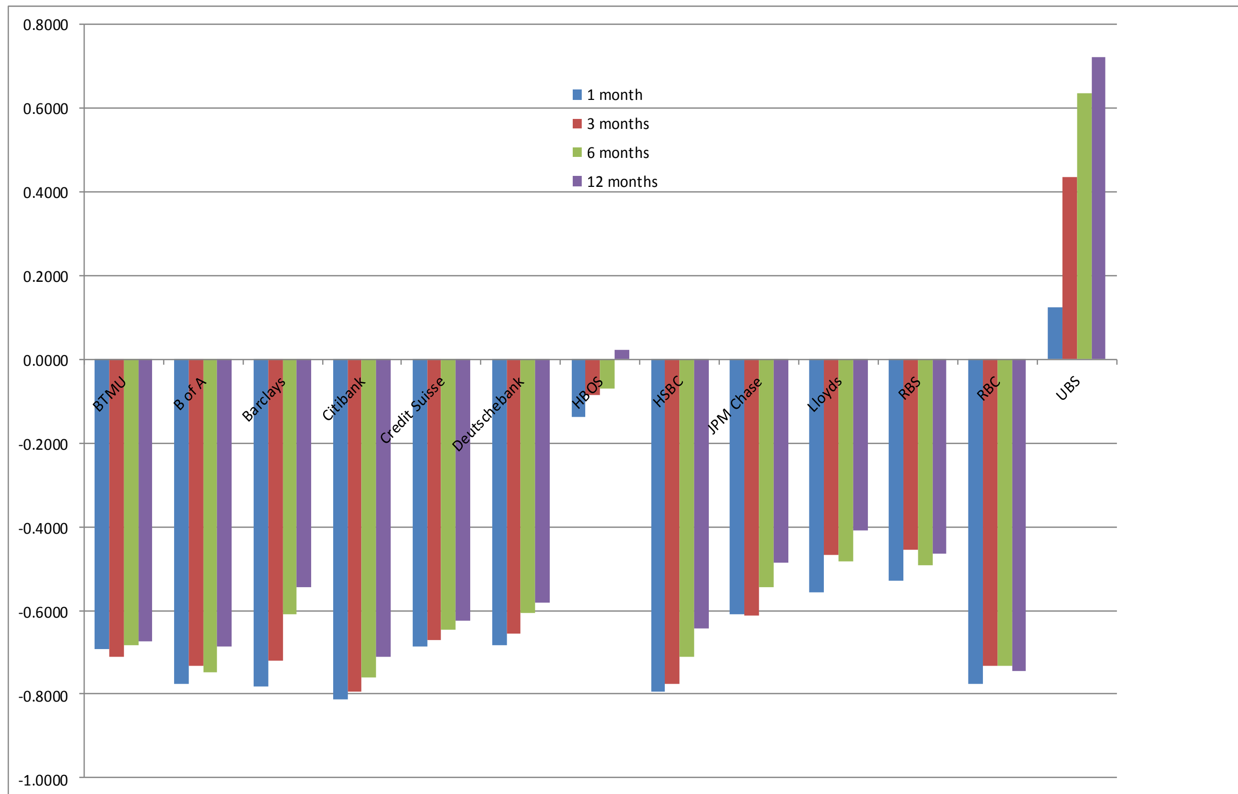
(Note: PDs are estimated daily using the reduced form model of Kamakura Risk Information Services.)

Graph 5
Correlation Coefficients
Between Each Bank's Daily LIBOR Bid and Probability of Default (PD)
9 August 2007 – 12 September 2008 Period



(Note: PDs are estimated daily using the reduced form model of Kamakura Risk Information Services.)

Graph 6
Correlation Coefficients
Between Each Bank's Daily LIBOR Bid and Probability of Default (PD)
15 September 2008 – 31 December 2008 Period



(Note: PDs are estimated daily using the reduced form model of Kamakura Risk Information Services.)

N. Empirical Analyses By Academics And Other Commentators Further Indicate LIBOR Suppression Occurred

403. In addition to the independent expert work detailed above, publicly available analyses by academics and other commentators likewise support Plaintiffs' allegations. While those studies used various comparative benchmarks and did not employ uniform methodologies, they collectively indicate LIBOR was artificially suppressed during the Class Period.

1. The Discrepancy Between Defendants'and Former Defendants' Co-Conspirators Reported LIBOR Quotes And Their CDS Spreads Indicates The Banks Misrepresented Their Borrowing Costs To The BBA

404. One economic indicator that Defendants and Former Defendants/Co-Conspirators suppressed USD-LIBOR during the Class Period is the variance between their LIBOR quotes and their contemporaneous cost of buying default insurance—*i.e.*, a credit-default swap ("CDS")—on debt they issued during that period. A CDS – "the most common form of credit derivative, *i.e.*, [a] contract which transfers credit risk from a protection buyer to a credit protection seller"[104] – constitutes an agreement by which one party, the protection buyer, seeks financial protection in the event of a default on an underlying credit instrument (typically a bond or loan). Typically, a CDS buyer makes a series of payments (often referred to as the CDS "fee" or "spread") to the CDS seller in exchange for a payment if the underlying credit instrument experiences an adverse credit event.

405. The spread serves as a measure of the perceived risk of default by the entity issuing the underlying bond or receiving the loan – the greater the risk of default the underlying bond or loan bears, the greater the CDS spread. In the case of a CDS for which the underlying instrument consists of an interbank loan where a USD-LIBOR panel bank is the borrower, the greater the perceived risk the panel bank will default on the loan, the higher the applicable CDS spread, as this higher spread represents the cost of insuring against the increased risk of a default on the underlying loan.

406. As one commentator has observed, "The cost of bank default insurance has generally been positively correlated with LIBOR. That is, in times when banks were thought to

[104] *Eternity Global Master Fund Ltd. v. Morgan Guar. Trust Co. of N.Y.*, 375 F.3d 168, 171-72 (2d Cir. 2004) (alteration in original) (citation and internal quotation marks omitted).

be healthy, both the cost of bank insurance and LIBOR decreased or remained low, but when banks were thought to be in poor condition, both increased."[105] During the Class Period, however, those historically-correlated indicia of banks' borrowing costs diverged significantly.

407. That discrepancy was detailed in a May 29, 2008 *Wall Street Journal* article reporting the results of a study it had commissioned. The *Journal*'s analysis indicated numerous banks caused LIBOR, "which is supposed to reflect the average rate at which banks lend to each other," to "act as if the banking system was doing better than it was at critical junctures in the financial crisis."[106] The *Journal* found that beginning in January 2008, "the two measures began to diverge, with reported LIBOR rates failing to reflect rising default-insurance costs."

408. The *Journal* observed that the widest gaps existed with respect to the LIBOR quotes of Citibank, WestLB, HBOS, JPMorgan Chase, and UBS. According to the *Journal*'s analysis, Citibank's LIBOR rates differed the most from what the CDS market suggested the bank's borrowing cost was. On average, the rates at which Citibank reported it could borrow dollars for three months (*i.e.*, its three-month LIBOR rates) were about 87 basis points *lower* than the rates calculated using CDS data. WestLB, HBOS, JPMorgan Chase, and UBS likewise exhibited significant LIBOR-CDS discrepancies – of 70, 57, 43, and 42 basis points, respectively – while Credit Suisse, Deutsche Bank, Barclays, HSBC, Lloyds, and RBS each exhibited discrepancies of about 30 basis points. The study's authors concluded "one possible explanation for this gap is that banks understated their borrowing rates."

409. Citing another example of suspicious conduct, the *Journal* observed that on the afternoon of March 10, 2008, investors in the CDS market were betting that WestLB – hit

[105] Justin Wong, "LIBOR Left in Limbo; A Call for More Reform," 13 *North Carolina Banking Institute* 365, 371 (2009) (footnotes omitted).

[106] *See* Carrick Mollenkamp and Mark Whitehouse, "Study Casts Doubt on Key Rate ─ WSJ Analysis Suggests Banks May Have Reported Flawed Interest Data for Libor."

especially hard by the credit crisis—was nearly twice as likely to renege on its debts as Credit Suisse, which was perceived to be in better shape, yet the next morning the two banks submitted identical LIBOR quotes.

410. Additionally, having compared the banks' LIBOR quotes to their actual costs of borrowing in the commercial-paper market, the *Journal* reported, for example, that in mid-April 2008, UBS paid 2.85% to borrow dollars for three months, but on April 16, 2008, the bank quoted a borrowing cost of 2.73% to the BBA.

411. The *Journal* further noted an uncanny equivalence between the LIBOR panel banks' quotes: the three-month borrowing rates the banks reported remained within a range of only 0.06 of a percentage point, even though at the time their CDS insurance costs (premiums) varied far more widely, reflecting the market's differing views as to the banks' creditworthiness. According to Stanford University professor Darrell Duffie, with whom the authors of the *Journal* article consulted, the unity of the banks' LIBOR quotes was "far too similar to be believed."

412. David Juran, a statistics professor at Columbia University who reviewed the *Journal*'s methodology, similarly concluded that the *Journal's* calculations demonstrate "very convincingly" that reported LIBOR rates are lower, to a statistically significant degree, than what the market thinks they should be.

413. Calculating an alternate borrowing rate incorporating CDS spreads, the *Journal* estimated that underreporting of LIBOR had a $45 billion effect on the market, representing the amount borrowers (the banks) did not pay to lenders (investors in debt instruments issued by the banks) that they would otherwise have had to pay.

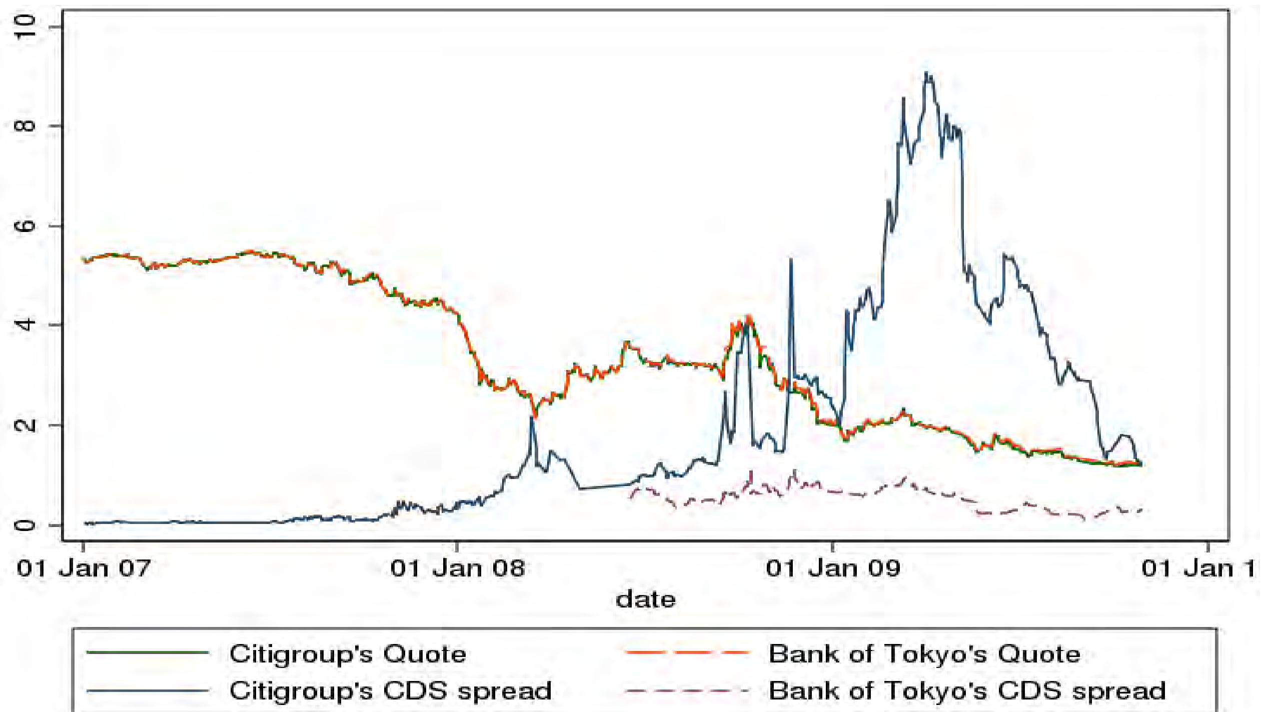
414. According to the *Journal*, three independent academics, including Professor Duffie, reviewed its methodology and findings, at the paper's request. All three deemed the *Journal*'s

approach "reasonable."

415. Further economic analysis supports the correlation seen in the *Journal*'s report. A study by Connan Snider and Thomas Youle – of the economics departments at UCLA and the University of Minnesota, respectively – released in April 2010 concluded LIBOR did not accurately reflect average bank borrowing costs, its "ostensible target."[107] Noting that "[i]n a competitive interbank lending market, banks' borrowing costs should be significantly related to their perceived credit risk," Snider and Youle posited that if LIBOR quotes "express true, competitively determined borrowing costs," they should "be related to measures of credit risks, such as the cost of default insurance." According to Snider and Youle's analysis, however, quotes provided by USD-LIBOR panel banks in fact deviated from their costs of borrowing as reflected in CDS spreads.

416. Comparing, for example, the 12-month USD-LIBOR quotes from Citigroup and Bank of Tokyo together with each banks' corresponding one-year senior CDS spreads, Snider and Youle observed (as illustrated in the graph below) "that while Citigroup has a substantially higher CDS spread than [Bank of Tokyo], it submits a slightly lower Libor quote." Accordingly, the authors explain, while the CDS spreads "suggest that the market perceives Citigroup as riskier than [Bank of Tokyo], as it is more expensive to insure against the event of Citigroup's default," the banks' LIBOR quotes "tell the opposite story."

[107] Connan Snider and Thomas Youle, "Does the LIBOR reflect banks' borrowing costs?", April 2, 2010.

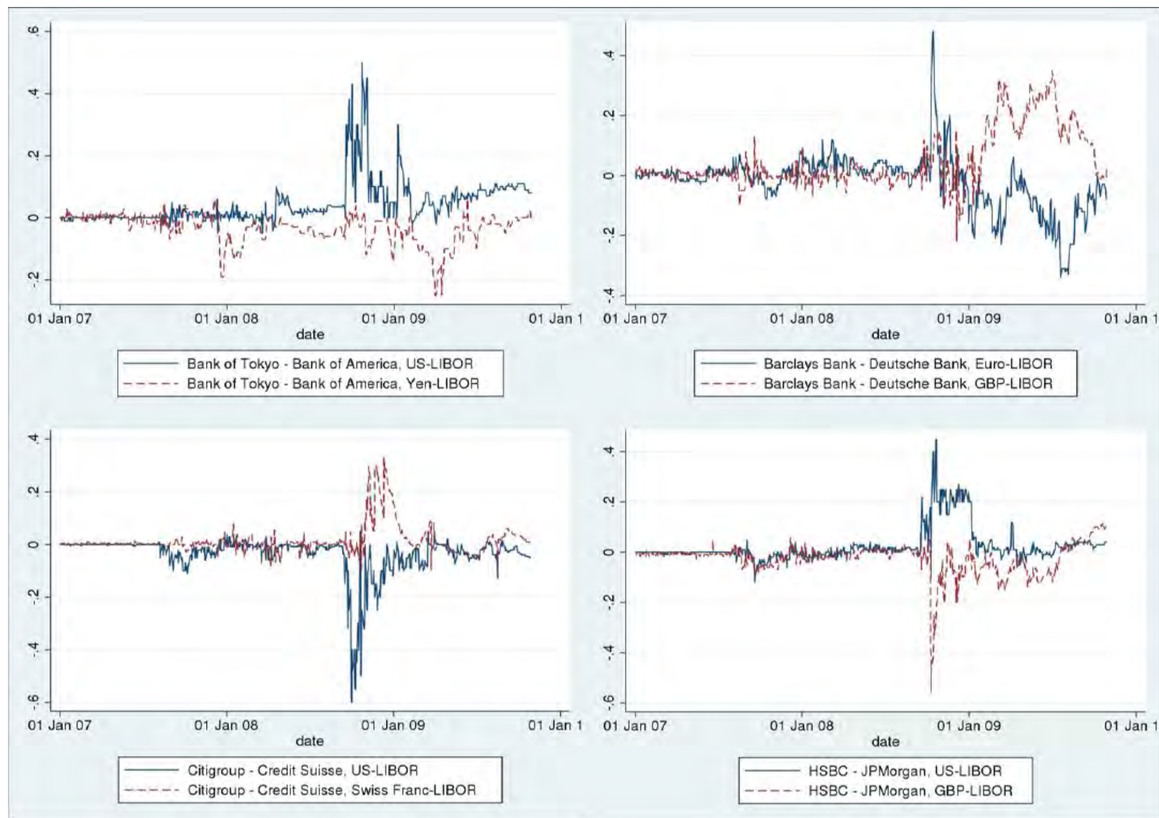


417. Snider and Youle further noted the level of Citigroup's CDS spreads relative to its LIBOR quotes was "puzzling." The authors explained, "Given that purchasing credit protection for a loan makes the loan risk free, one would expect [the] difference between the loan rate and the CDS spread to roughly equal the risk free rate. This corresponds to the idea that a loan's interest rate contains a credit premium, here measured by the CDS spread." But the authors observed that Citigroup's quote was often "significantly below its CDS spread," implying "there were interbank lenders willing to lend to Citigroup at rates which, after purchasing credit protection, would earn them *a guaranteed 5 percent loss*." (Emphasis added). That discrepancy contravenes basic rules of economics and finance, thus indicating Citibank underreported its borrowing costs to the BBA.

2. Cross-Currency Discrepancies In Defendants' and Former Defendant/Co-Conspirators' LIBOR Quotes Indicate They Suppressed USD-LIBOR

418. Defendants' and Former Defendants/Co-Conspirators' LIBOR quotes also

displayed inexplicable "cross-currency rank reversals." That is, as detailed in Snider and Youle's paper referenced above, at least some Defendants and Former Defendants/Co-Conspirators reported lower rates on USD-LIBOR than did other panel members but, for other currencies, provided higher rates than did those same fellow banks. Both BAC and BTMU, for instance, quoted rates for USD-LIBOR and Yen-LIBOR during the period under study, yet BAC quoted a lower rate than BTMU for USD-LIBOR and a *higher* rate than BTMU for Yen-LIBOR. Other Banks included in Snider and Youle's analysis—Barclays, Citigroup, and JPMorgan Chase—displayed similar anomalies across currencies, as the graphs below illustrate. Citigroup, for example, often reported rates at the top of the Yen-LIBOR scale while simultaneously quoting rates at the bottom of the USD-LIBOR scale. Because, Snider and Youle explain, "the same bank is participating in each currency," the credit risk "is the same for loans in either currency"; thus these "rank reversals" demonstrate that differences in the banks' LIBOR quotes "are not primarily due to differences in credit risk, something we would expect of their true borrowing costs."



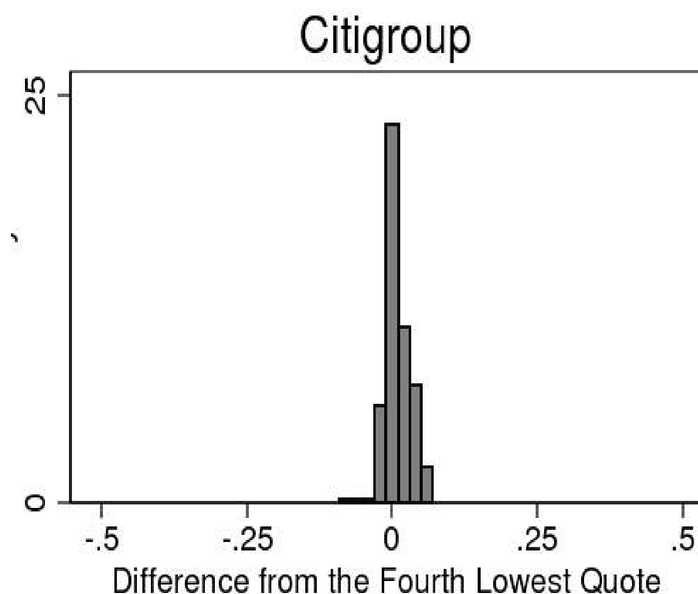
3. The Frequency With Which At Least Certain Defendants' LIBOR Quotes "Bunched" Around The Fourth-Lowest Quote Of The Day Suggests Manipulation

419. During the Class Period, the rates reported by certain Defendants—in particular, Citibank, BAC, and JPMorgan Chase – also demonstrated suspicious "bunching" around the fourth lowest quote submitted by the 16 banks to the BBA. Indeed, Citibank's and BAC's quotes often tended to be identical to the fourth-lowest quote for the day. Because the LIBOR calculation involved excluding the lowest (and highest) four reported rates every day, bunching around the fourth-lowest rate suggests Defendants collectively depressed LIBOR by reporting the lowest possible rates that would not be excluded from the calculation of LIBOR on a given day.

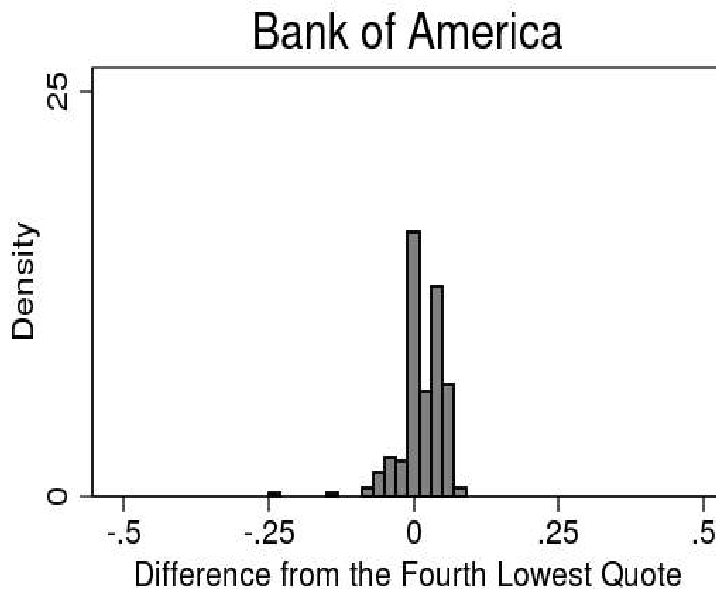
420. Bunching among Defendants' respective LIBOR quotes indicates the banks intended to report the same or similar rates, notwithstanding the banks' differing financial conditions, which, as detailed above, reasonably should have resulted in differing LIBOR quotes.

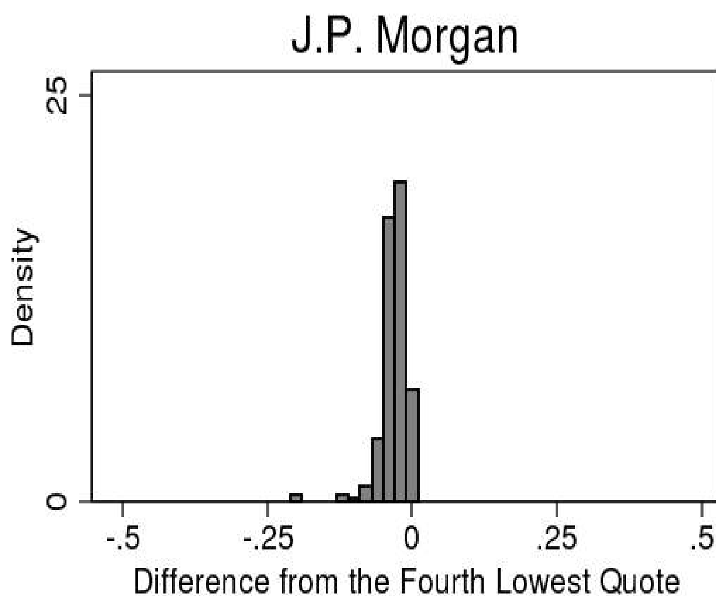
Those discrepancies suggest Defendants colluded to suppress LIBOR.

421. The following charts show the frequency with which the USD-LIBOR quotes submitted by Defendants Citigroup, BAC, and JPMorgan Chase fell within a given percentage rate from the fourth-lowest quote. A negative difference means the reporting bank was below the fourth-lowest quote, and therefore its rate was not included in the daily LIBOR calculation, while zero difference means that the bank reported the fourth-lowest quote on a given day (either by itself or tied with other reporting banks).[108]



[108] In the event of a tie between two or more banks, one of the banks' quotes, selected at random, was discarded.





422. According to Snider and Youle, the fact that observed bunching occurred around the pivotal fourth-lowest reported rate reflected the reporting banks' intention to ensure the lowest borrowing rates were included in the calculation of USD-LIBOR (which includes only the fifth-lowest through the twelfth-lowest quotes).

423. In other words, banks that bunched their quotes around the fourth-lowest

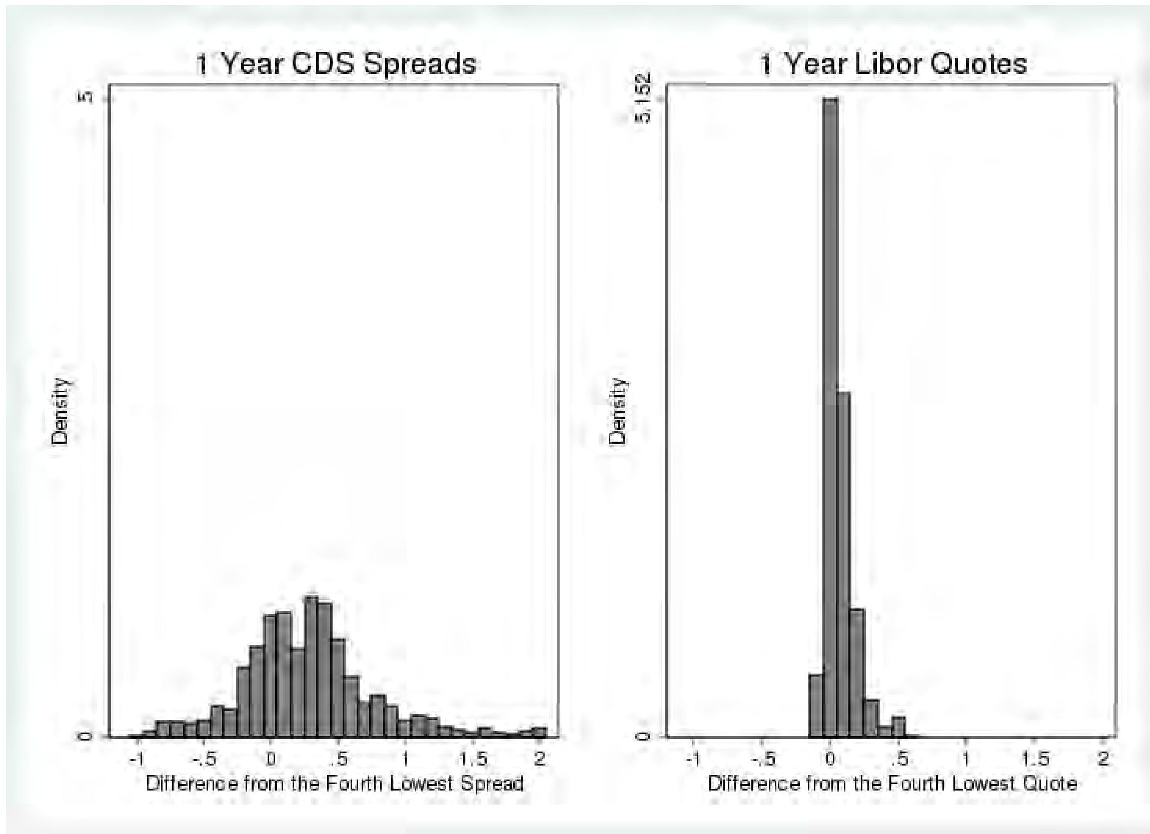
submission helped ensure the maximum downward manipulation of the resulting rate. Furthermore, that a panel bank reported one of the four lowest quotes (*i.e.*, quotes excluded from the ultimate LIBOR calculation) does not mean the bank did not also participate in the collusion.

424. Further demonstrating the aberrant nature of the observed bunching around the fourth-lowest quote, Snider and Youle noted "the intraday distribution of *other* measures of bank borrowing costs do not exhibit this bunching pattern." (Emphasis added).

425. Additionally, Snider and Youle detailed a discrepancy between USD-LIBOR panel banks' LIBOR quotes and their CDS spreads. The authors found that "with the intra-day variation of both Libor quotes and CDS spreads increasing from their historical levels," the CDS spreads' intra-day variation "grew considerably larger than that of Libor quotes."[109]

426. Snider and Youle further observed that – as the graphs below, embodying a composite of all the banks, illustrate – during the Class Period Defendants' quotes tended to "bunch" around the fourth-lowest quote much more commonly than those banks' CDS spreads "bunched" around the fourth-lowest spread. The authors concluded, "If banks were truthfully quoting their costs, . . . we would expect these distributions to be similar."

[109] Snider and Youle, "Does the LIBOR reflect banks' borrowing costs?"



427. Given the method by which the BBA calculates LIBOR – discarding the highest and lowest reported rates and averaging the remainder – that strong concentration around the fourth-lowest rate is exactly what would occur if a number of banks sought in concert to depress LIBOR.

4. That LIBOR Diverged From Its Historical Relationship With The Federal Reserve Auction Rate Indicates Suppression Occurred

428. A comparison between LIBOR and the Federal Reserve auction rate further suggests Defendants artificially suppressed LIBOR during the Class Period. An April 16, 2008 *Wall Street Journal* article, for example, noted the Federal Reserve had recently auctioned off $50 billion in one-month loans to banks for an average annualized interest rate of 2.82% – 10 basis points higher than the comparable USD-LIBOR rate. That differential would make no economic sense if the reported LIBOR rate was accurate, the *Journal* observed: "Because banks put up

securities as collateral for the Fed loans, they should get them for a lower rate than Libor, which is riskier because it involves no collateral."

429. A subsequent *Journal* article raised further concerns about LIBOR's accuracy based on the comparison of one-month LIBOR with the rate for the 28-day Federal Reserve auction.[110] According to the *Journal*, because the Federal Reserve requires collateral:

> banks should be able to pay a lower interest rate [to the Fed] than they do when they borrow from each other [*e.g.*, as ostensibly measured by LIBOR] because those loans are unsecured. It is the same reason why rates for a mortgage, which is secured by a house, are lower than those for credit cards, where the borrower doesn't put up any collateral. In other words, the rate for the Fed auction should be lower than Libor.

To the contrary, though, two days before the *Journal* article (September 22, 2008), the rate for the 28-day Fed facility was 3.75% – much higher than one-month USD-LIBOR, which was 3.18% that day[111] and 3.21% the next day.

5. LIBOR's Divergence From Its Historical Correlation To Overnight Index Swaps Also Suggests It Was Artificially Suppressed During The Class Period

430. Yet another measure of LIBOR's aberrant behavior with respect to other measures of banks' borrowing costs during the Class Period is its observed deviation from the overnight-index swap ("OIS") rate. In his academic article analyzing LIBOR data for the period of the second half of 2007 and 2008, Justin Wong observed that between 2001 and July 2007, when the global credit crisis began, the spread between LIBOR and the OIS rate "averaged eleven basis points."[112] By July 2008, on the other hand, that gap approached 100 basis points, a figure significantly higher than the spread from a year prior, and by October 2008, "it peaked at 366 basis points." While the

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[110] Carrick Mollenkamp, "Libor's Accuracy Becomes Issue Again," *The Wall Street Journal*, September 24, 2008.

[111] The *Journal* initially reported the one-month USD-LIBOR rate for that day as 3.19% but later noted the correct figure.

[112] Justin Wong, "LIBOR Left in Limbo; A Call for More Reform."

spread "receded somewhat in November 2008 to 209 basis points," that was still "far above the pre-crisis level." Wong's analysis provides further support for Plaintiffs' allegations that Defendants and Former Defendants/Co-Conspirators suppressed LIBOR.

6. Expert Analysis Performed In Connection With These Proceedings Indicates LIBOR's Increase Following Expressions Of Concern Over LIBOR's Viability Resulted From Defendants' and Defendant/ Co-Conspirators' Reaction To Events Unrelated To Market Factors

431. On April 17, 2008, the day after *The Wall Street Journal* initially reported on LIBOR's anomalous behavior and the BBA stated it would conduct an inquiry concerning LIBOR, there was a sudden jump in USD-LIBOR – the three-month borrowing rate hit 2.8175% that day, about eight basis points more than the previous day's rate of 2.735%.

432. Suspiciously, reported LIBOR rates for other currencies fell or remained relatively flat at the time USD-LIBOR rose, a sign that the latter was susceptible to manipulation.

433. Consulting experts engaged by Plaintiffs in these coordinated proceedings have conducted an analysis of the change in LIBOR on the single date of April 17, 2008. The analysis tested the hypothesis that if banks did not manipulate LIBOR, there would be no systematic changes in LIBOR expected on April 17, 2008 relative to typical changes on other days between January 5, 2000 to May 13, 2011, whereas if banks did manipulate LIBOR – and were responding to *The Wall Street Journal* article and BBA announcement – the reporting banks would be likely to reduce or abandon the manipulation immediately in response to these events. An immediate reduction in LIBOR manipulation would result in an increase in LIBOR quotes by the member banks on April 17, 2008.

434. To conduct the analysis, the consulting experts ran a regression using the daily changes in LIBOR. Table 1 below shows the studies' results. As discussed above, LIBOR increased on April 17, 2008 at a statistically significant level. Moreover, the increase in composite

LIBOR as well as of the 11 of the 16 bank quotes were statistically significant. These findings were consistent with the hypothesis that the banks manipulated and suppressed LIBOR.

a. Table 1

	Dependent variable	**Average change during non-suppression days**	**Change in the dependent variable on April 17, 2008 relative to non-suppression days' average**	**Statistical Significance at the 1-5% level of the April 17, 2008 move**
1	BBA LIBOR	-0.000371	0.0909*	5%
2	HSBC LIBOR	0.000154	0.1273**	1%
3	JPMC LIBOR	-0.000333	0.0872*	5%
4	BARCLAYS LIBOR	-0.000333	0.1072*	5%
5	WEST LB LIBOR	-0.000314	0.0971*	5%
6	RBS LIBOR	-0.000352	0.0921*	5%
7	RABOBANK LIBOR	-0.000364	0.0872*	5%
8	CITI LIBOR	-0.000344	0.1022*	5%
9	RBC LIBOR	0.002067	0.1021*	5%
10	UBS LIBOR	-0.000777	0.1021*	5%
11	NORIN LIBOR	-0.00038	0.0971*	5%
12	HBOS LIBOR	0.002467	0.1111*	5%
Statistical significance is assessed using a AR(3) model for the residuals				
* While not shown here, an additional dummy variable is used to control for changes during the Relevant Period of August 8, 2007 to May 17, 2010.				

435. An alternative hypothesis is that, in addition to reacting to the *Journal*, other confounding effects that were related to the risk of the banking sector or overall Market Fundamentals could have emerged on April 16, 2008 and April 17, 2008. This alternative hypothesis also predicts an increase in LIBOR. To test this alternative hypothesis, instead of looking at daily changes in LIBOR quotes, it is possible to examine daily changes in the difference between banks' LIBOR quotes and the Federal Reserve Eurodollar Deposit Rate (the "Spread"). If risk-related factors or Market Fundamentals played a role, they would affect both the banks'

LIBOR quotes as well as the Federal Reserve's Eurodollar Deposit Rate. Thus, if this hypothesis is correct, one should not see any changes to the Spread on April 17, 2008, since these two effects should cancel out. However, if there were no risk-related news and only a reaction to *The Wall Street Journal* article and the BBA announcement played a major role, then only LIBOR would be affected, leaving Federal Reserve's Eurodollar Deposit Rate mostly unaffected. In this case, the Spread would again be expected to increase.

436. The test of this alternative hypothesis showed that the Spreads of 11 of the 16 panel banks increased on April 17, 2008 and the change in the overall Spread of the 16 panel banks were statistically significant at levels ranging from 1% to 5%. (*See* Table 2 below) Once again, these findings were consistent with the manipulation hypothesis and inconsistent with the hypothesis that other risk factors explained the April 17, 2008 shock to the LIBOR rate.

b. Table 2

Changes in Spread (BBA LIBOR – Federal Reserve's Eurodollar Deposit Rate) on April 17, 2008 in Percentage Points*				
	Dependent variable	**Average change in Spread during non-suppression days**	**Change in the dependent variable on April 17, 2008 relative to non-suppression days' average**	**Statistical Significance at the 1-5% level of the April 17, 2008 move**
1	BBA LIBOR Spread	-0.000078	0.0838	5%
2	HSBC LIBOR Spread	0.000508	0.1205	1%
3	JPMC LIBOR Spread	-0.000103	0.0803*	5%
4	BARCLAYS LIBOR Spread	-0.000067	0.1002**	1%
5	RBS LIBOR Spread	-0.0001	0.0851*	5%
6	TOKYO LIBOR Spread	-0.000092	0.0797*	5%
7	CITI LIBOR Spread	-0.00012	0.0953*	5%
8	CS LIBOR Spread	-0.000224	0.07*	5%
9	RBC LIBOR Spread	-0.000135	0.0951*	5%

10	UBS LIBOR Spread	-0.000172	0.095*	5%
11	NORIN LIBOR Spread	-0.000179	0.0903**	1%
12	HBOS LIBOR Spread	0	0.1007*	5%
Statistical significance is assessed using a AR(3) model for the residuals				
* While not shown here, an additional dummy variable is used to control for changes during the Relevant Period of August 8, 2007 to May 17, 2010.				

437. Moreover, these eleven Panel Banks listed above increased their 3-month LIBOR quotes on April 17 within a range of 7 to 12 basis points, with nine of the eleven LIBOR Panel Banks falling within the tight range of 8 to 10 basis points. As the amount of increase in the 3-month LIBOR submissions on April 17 was untethered to any changes in Market Fundamentals, the uniformity in the amount of the increase is suggestive of collusion among these banks.

438. In the period between April 17, 2008 and May 28, 2008, the Wall Street Journal ran several articles accusing Defendants and Former Defendants/Co-Conspirators alleged suppression of LIBOR. Some of these articles ran on the front page of the *Wall Street Journal* and the story was widely reported throughout the world. These stories included a study by economists that analyzed LIBOR pricing prior to the article and concluded that it may have been manipulated.

439. Ordinarily, when misconduct is reported by the *Wall Street Journal* article, the criminal scheme ceases. Therefore, a reasonable person of ordinary intelligence would have no cause to believe that the LIBOR manipulation reported in the *Wall Street Journal*, even if true, would have continued past the date of the articles.

440. Furthermore, as discussed above, the data reveal that directly after the first *Wall Street Journal* article appeared, the LIBOR rates went up, a fact which would confirm to the reasonable person of ordinary intelligence who was thinking of investing in Eurodollar futures, that any LIBOR manipulation which might have taken place had ceased.

441. No data or analysis to the contrary existed. The data and data analysis presented

by the *Wall Street Journal* was retrospective and only analyzed LIBOR data from April 2007 to May 2008. Subsequent analysis generally reviewed data from this time period as well, as discussed *supra* at Section V.N.

442. As set forth in allegations more fully below, the *Wall Street Journal* articles at the time were both equivocal especially as to many of the banks and contradicted both by other academic studies, research reports and the denials of the BBA and Defendants and Former Defendants/Co-Conspirators themselves.

VI. INQUIRY NOTICE, EQUITABLE TOLLING AND FRAUDULENT CONCEALMENT

443. Before UBS's March 15, 2011 announcement that it had been subpoenaed in connection with the U.S. government's investigation into possible LIBOR manipulation, a person of ordinary intelligence would not have known that he had probably been defrauded by Defendants' and their Co-Conspirators' conduct.

444. Prior to the public release of facts disclosed in the Barclays settlements in June 2012, there was no information available from which investors could have suspected, much less known of, the probability that LIBOR had been manipulated between 2005 and August 2007. Similarly, until such release, there was no information available from which investors could have suspected, much less known, of the probability that LIBOR, and consequently Eurodollar futures contract prices, had been manipulated by traders at Barclays and other financial institutions from January 2005 through May 2011 to benefit the traders' own proprietary positions by manipulating Eurodollar futures contract prices.

445. Before UBS's March 15, 2011 announcement that it had been subpoenaed in connection with the U.S. government's investigation into possible LIBOR manipulation, any person of ordinary intelligence who invested in Eurodollar futures contracts would not have known

of any probability that they had been injured by a manipulation of LIBOR or Eurodollar futures contract prices by Defendants.

446. Some market participants did voice concerns during 2007-early 2008 that LIBOR did not reflect banks' true borrowing costs, and various media outlets echoed those concerns.

447. Moreover, the concerns raised as to LIBOR were contemporaneously and thereafter repeatedly and overwhelmingly contraindicated by numerous facts. To any extent that it is found that any notice was provided to any persons who traded in Eurodollar futures contracts by the concerns voiced during 2007 to early 2008 by various media outlets, those concerns still did not provide any notice with respect to transactions in Eurodollar futures contracts that occurred after the date of the last such article, *i.e.*, May 29, 2008.

448. On the contrary, as is alleged in detail hereinafter, the repeated facts contraindicating any manipulation coupled with the passage of time without any government action or any new developments that could rebut the contraindicating factors, prevented any notice from being given to a person of ordinary intelligence in respect of Eurodollar futures transactions after May 29, 2008 of the likelihood that she was being injured in such transactions by the manipulation of Eurodollar futures contract prices. Based on the facts alleged below, persons of ordinary intelligence who transacted solely after the news articles received no notice whatsoever and persons of ordinary intelligence who transacted Eurodollar futures both before and after the news articles received no such notice as to their transactions of any real substance after May 29, 2008, and most certainly after August and September 2008, when the BBA concluded from its investigation and reported in the *WSJ* that LIBOR was accurate and constantly monitored.

449. As time passed, these continuing overwhelming contraindicating factors, which are summarized below and alleged in detail hereinafter, tended to eliminate, more and more, even any

chance that there was a probability of manipulation of even LIBOR let alone of Eurodollar futures contract prices. These factors included the original contraindicating factors in existence during 2007-early 2008 and the later facts, all as summarized below and alleged hereinafter:

(a) the subjective and discretionary nature of Defendants'and Former Defendants'/Co-Conspirators' LIBOR submissions that were not verifiable by transactions in the market, combined with the general opacity of the interbank loan market particularly during the height of the financial crisis in 2008;

(b) an investigation by the British Bankers' Association ("BBA") was announced in April 2008, and its results were announced after May 29, 2008: the BBA purported to find no misreporting of LIBOR but rather confirmed the full integrity of the system;

(c) public unequivocal denials by Defendants and Former Defendants/Co-Conspirators, collectively through the BBA after May 29, 2008, of any possible LIBOR misreporting;

(d) other respected studies announced after May 29, 2008 found that and further indicated that there was no LIBOR misreporting;

(e) continued widespread reliance on LIBOR after May 29, 2008 by the government regulators and other entities notwithstanding the earlier questions that had been raised about LIBOR and the lack of public governmental investigation of LIBOR;

(f) the United Kingdom's Financial Conduct Authority's ("FCA")[113] lack of awareness of any LIBOR manipulation until mid-2009 despite having far more information available to it than did any person of ordinary intelligence who was not a banking regulator;

(g) because the May 29, 2008 news articles were retrospective and effectively exonerated certain Defendants even of reporting lower than expected LIBOR numbers, those Defendants

[113] In 2013, the FCA succeeded its predecessor the Financial Services Authority ("FSA"). References to the FCA include references to the FSA.

clearly cannot carry their affirmative defense of limitations period as to Plaintiffs' Eurodollar futures contract transactions entered after the May 29 article; and,

(h) the absence of any statistically significant decline of any of the Defendants' or Former Defendants/Co-Conspirators' stock prices after May 29, 2008 when the LIBOR was questioned (which is wholly unlike the statistically significant declines in their stock prices after the Barclays settlement occurred).

A. Defendants' Unlawful Activities Were Inherently Self-Concealing

450. By its nature, LIBOR reports were designed to reflect a bank's subjective perception of what interest rate it would have to pay the market for an unsecured loan (in various tenors and various currencies). The facts surrounding Defendants' operations were internal to them. *First*, those banks' actual or reasonably expected costs of borrowing were not publicly disclosed, rendering it impossible for Plaintiffs and others outside the banks to discern (without sophisticated expert analysis) any discrepancies between Defendants' publicly disclosed LIBOR quotes and other measures of those banks' actual or reasonably expected borrowing costs. *Second*, communications within and among the Defendants likewise were not publicly available, which further precluded Plaintiffs from discovering Defendants' misconduct, even with reasonable diligence.

451. In addition, the interbank lending market was illiquid and generally opaque to the broader investment community overall. The knowledge of interbank loans and actual trades by particular banks was held secret by brokers and the few active participants in the market.

452. During the financial crisis, the interbank loan market deteriorated and ceased to trade liquidly.

453. The subjective and discretionary nature of Defendants' and Former Defendants'/Co-Conspirators' LIBOR submissions, combined with the general opacity of the

interbank loan market, combined with the highly unreliable condition of the market during the height of the financial crisis in 2008, made it difficult for a person of ordinary intelligence to understand that LIBOR probably was being misreported and Eurodollar futures were probably being manipulated.

454. In addition, a conspiracy to share information regarding their LIBOR quotes and to misrepresent their borrowing costs to the BBA was, by its very nature, self-concealing. Defendants could not expect to suppress LIBOR and the prices of Eurodollar futures if the general public, knew that they were colluding to report artificial borrowing rates. Defendants' and Former Defendants' /Co-Conspirators' conspiracy could only succeed by preventing the investing public, especially investors in Eurodollar futures, from discovering what they were doing.

455. As a result of the self-concealing nature of Defendants' and Former Defendants' /Co-Conspirators' collusive scheme, no person of ordinary intelligence would have discovered, or with reasonable diligence could have discovered before March 15, 2011, facts indicating Defendants and Former Defendants'/Co-Conspirators' were unlawfully suppressing LIBOR during the Class Period. Indeed, particularly given the extraordinary disruption affecting the financial markets during much of the Class Period, no reasonable investor would have had reason to suspect that any observable discrepancies between LIBOR and other measures of Defendants' and Former Defendants'/Co-Conspirators' costs of borrowing were probably due to misconduct – particularly knowing misconduct – rather than market dislocation.

456. More recent analyses and investigations by government entities further demonstrate there was insufficient information about wrongdoing to put investors, including Plaintiffs, on inquiry notice of their claims in 2008. For example, a recently released internal report prepared by the New York Fed in May 2008 observed, "*Beyond the anecdotal evidence and LIBOR re-sets,*

it is difficult to find convincing evidence of actual misreporting. *Few public sources of data on actual Eurodollar transaction rates exist*, and again, the extent of credit tiering makes it difficult to extrapolate from what data there is . . . ." (Emphasis added).

457. Similarly, the FCA – which has been engaged in an intensive and lengthy investigation of LIBOR manipulation – observed that the evidence of "dislocation" with respect to LIBOR "did not in itself . . . carry any implication that 'lowballing' was occurring."[114]

B. The BBA Defendants and Former Defendants'/ Co-Conspirators' Deflected Concerns Raised By Some Market Observers And Participants In Late 2007 And Early 2008 About LIBOR's Accuracy

458. Beginning in or about November 2007 and continuing sporadically into early 2008, concerns arose that the members of the LIBOR panel might be understating their true costs of borrowing, thus causing LIBOR to be set artificially low. Some U.K. banks raised their concerns at a meeting of the Bank of England that month.

459. As a result of the concerns and statements recounted above, the BBA conducted an inquiry regarding LIBOR. Notably, shortly after the BBA announced its investigation in April 2008, the LIBOR panel banks raised their reported rates, causing LIBOR to log its biggest increase since August 2007. This could have been interpreted as a signal that improper reporting of false rates that may have previously occurred had ended.

460. In response to these news articles and the BBA inquiry, Defendants and Former Defendants rapidly took action to further conceal their manipulation as discussed more fully below. Among other things, Defendants made their communications more secret so that their conspiracy would not be detected.

[114] FSA Internal Audit Report, "A Review of the Extent of Awareness within the FSA of Inappropriate LIBOR Submissions, Management Response," dated March 2013, ¶ 1.5, *available at* http://www.fca.org.uk/static/documents/fsa-ia-libor-management-response.pdf ("FCA Management Response").

461. For example, Deutsche Bank engaged in a number of activities designed to hide its participation in LIBOR manipulation. *See* Section V.I, *supra*.

462. Also, as demonstrated by the diminishing number of emails and other documents in the Barclays settlement after mid-2008, Defendants likely shifted their manipulation from emails and texts to forms of communication, like in person discussions or cell phone calls, which are harder to detect, and took other steps in order to conceal their manipulation of LIBOR and Eurodollar futures prices from the public.

463. On June 10, 2008, the BBA issued a request for consultation to contributor panel banks in light of the diminished liquidity during the financial crisis and news articles questioning the accuracy of LIBOR. The BBA noted suggestions that contributor banks may be exhibiting "herd" behavior in their submitted rates to avoid "speculation and rumour mongering." A Barclays' manager formally responded to the request for consultation on behalf of Barclays to the BBA representative but did not disclose Barclays's management directive to submit lower LIBORs in order to avoid negative media attention, which directive had resulted in improperly low LIBOR submissions. Barclays DOJ SOF ¶ 44.

464. Additionally, in providing its results to its "investigation" the BBA ultimately declared in August 2008 that LIBOR had not been manipulated, thus providing further (incorrect) assurance to Plaintiffs and the public that the concerns expressed by some market participants were unfounded.

465. On August 5, 2008, the BBA published a "Feedback Statement" on LIBOR which concluded that "contributing banks that responded to the BBA's request for consultation were confident that their submitted rates were 'truly reflective of their perceived borrowing costs,'" Barclays DOJ SOF ¶ 44 and further that "*all contributing banks are confident that their*

submissions reflect their perception of their true costs of borrowing, at the time at which they submitted their rates." Barclays FCA Final Notice ¶ 138 (emphasis added). The senior executives of at least seven of the Defendants and Former Defendants/Co-Conspirators (or their affiliates) are members of the governing board of the BBA, which oversees the setting of LIBOR.

466. And at that time, the BBA publicly announced it would expel any panel bank that deliberately submitted inaccurate LIBOR quotes.[115] The BBA also stated that it would conduct an expedited "intensive review" of its LIBOR process but that it did not believe panel banks had submitted false quotes.[116]

467. In nearly every article during 2008 in which the integrity of LIBOR was questioned, a BBA spokesperson was quoted stating the benchmark was valid and reliable.

468. In addition to working through the BBA, Defendants engaged in a general media strategy that diffused the speculation that had arisen concerning LIBOR – and further concealed their conduct. On April 21, 2008, for instance, Dominic Konstam of Credit Suisse affirmatively stated the low LIBOR rates were attributable to the fact that U.S. banks, such as Citibank and JPMorgan Chase, had access to large customer deposits and borrowing from the Federal Reserve and did not need more expensive loans from other banks: "Banks are hoarding cash because funding from the asset-backed commercial paper market has fallen sharply while money market funds are lending on a short term basis and are restricting their supply."[117]

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[115] Appendix A to the DOJ Non-Prosecution Agreement, dated Dec. 18, 2012, containing the Statement of Facts, ¶ 114 ("UBS DOJ SOF").

[116] Carrick Mollenkamp & Laurence Norman, "British Bankers Group Sets Up Review of Widely Used Libor," *The Wall Street Journal*, Apr. 17, 2008, *available at* http://online.wsj.com/article/SB120838284713820833.html.

[117] Gillian Tett & Michael Mackenzie, "Doubts Over Libor Widen," FT.com, *available at* http://www.ft.com/cms/s/0/d1d9a792-0fbd-11dd-8871-0000779fd2ac.html#axzz1szdS58jE, last accessed on April 24, 2012.

469. Also that day, Jeffrey Rosenberg, head of credit strategy at Banc of America Securities, asserted that the variations in LIBOR resulted from the way the BBA calculates LIBOR. Specifically, he said the BBA's approach "works when both overall bank risk is low and the dispersion of risks across banks is small . . . [which] is clearly not the case currently."[118] The same article in which Rosenberg's statements were recounted also quoted unidentified "bankers" as stating it was "unlikely that this discrepancy has arisen because banks have deliberately been colluding to keep LIBOR rates down."[119]

470. In an April 28, 2008 interview with the *Financial Times*, Konstam continued to defend LIBOR's reliability:

> Libor has been a barometer of the need for banks to raise capital. The main problem with Libor is the capital strains facing banks … Initially there was some confusion that Libor itself was the problem, with talk of the rate being manipulated and not representative of the true cost of borrowing.[120]

471. On May 16, 2008, in response to a media inquiry, JPMorgan Chase commented, "[t]he Libor interbank rate-setting process is not broken, and recent rate volatility can be blamed largely on reluctance among banks to lend to each other amid the current credit crunch."[121]

472. The same day, Colin Withers of Citigroup assured the public that LIBOR remained reliable, emphasizing "the measures we are using are historic -- up to 30 to 40 years old."[122]

473. In addition, after *The Wall Street Journal*'s April 16, 2008 article questioning

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[118] *Id.*

[119] *Id.*

[120] Michael Mackenzie, "Talk of quick fix recedes as Libor gap fails to close," FT.com, *available at* http://www.ft.com/intl/cms/s/0/3da27a46-5d05-11dd-8d38-000077b07658.html#axzz1szdS58jE, last accessed on April 24, 2012.

[121] Kirsten Donovan, Jamie McGeever, Jennifer Ablan, Richard Leong & John Parry, "European, U.S. bankers work on Libor problems," reuters.com, *available at* http://in.reuters.com/article/2008/05/16/markets-rates-bba-idINL162110020080516, last accessed on April 24, 2012.

[122] *Id.*

LIBOR's accuracy, for instance, the BBA engaged in what its executives characterized as a "charm offensive,"[123] contacting investors and journalists to dispel concerns regarding LIBOR.

474. And in May 2008, *The Wall Street Journal* asked numerous Defendants and other Co-Conspirators to comment on the media speculation concerning aberrations in LIBOR. Rather than declining or refusing to comment, those Defendants made affirmative representations designed to further conceal their wrongdoing. On May 29, 2008, for instance, Citibank affirmatively claimed innocence and stated it continued to "submit [its] Libor rates at levels that accurately reflect [its] perception of the market." HBOS similarly asserted its LIBOR quotes constituted a "genuine and realistic" indication of the bank's borrowing costs.[124]

475. After the reports of LIBOR manipulation, a person of ordinary intelligence would have believed that, if Defendants had been manipulating LIBOR, it would have ceased after the media exposure. This belief would have been confirmed by the rise in LIBOR after announcement of the BBA investigation, the response of the Defendants and other Former Defendants/Co-Conspirators to the questions about LIBOR, and the results of the BBA investigation. There was no information to the contrary extant or available until March 2011, and even then information was scant until the Barclays settlement was disclosed in June 2012 and the FCA subsequently stripped the BBA of its role and responsibilities in setting LIBOR.

[123] David Enrich & Max Colchester, "Before Scandal, Clash over Control of Libor," *The Wall Street Journal*, Sept. 11, 2012, *available at* http://online.wsj.com/article.SB10000872396390443847404577631404235329424.html.

[124] Carrick Mollenkamp & Mark Whitehouse, "Study Casts Doubt on Key Rate."

C. The May 2008 Wall Street Journal Article Exonerated Certain Defendants and Other Co-Conspirators, Did Not Mention Other Defendants and Co-Conspirators, And Transactions In Eurodollar Futures Occurring After Such Article Were Not Subject To Any Notice Of Defendants' and Other Conspirators' Manipulation

476. On May 29, 2008, an article titled "Study Casts Doubt on Key Rate," appeared in the *Wall Street Journal*, Carrick Mollenkamp & Mark Whitehouse, *Study Casts Doubt on Key Rate*, Wall St. J., May 29, 2008, and reported the findings of a study on LIBOR that the newspaper had conducted.

477. The *Journal's* analysis, based on data from January 23, 2008, through April 16, 2008," identified "Citigroup Inc., WestLB, HBOS PLC, J.P. Morgan Chase & Co. and UBS AG" as being "among the banks that ha[d] been reporting significantly lower borrowing costs for [LIBOR] than what another market measure suggest[ed] they should [have been]." *Id.*

478. As the headline suggests, the article "*casts doubt*" on the continuing reliability of LIBOR and suggests that data the banks are providing may be "*flawed*." *Id.* And, though the article posited that "one *possible* explanation for the gap is that banks understated their borrowing costs," *id* (emphasis added), it did not necessarily lead a reasonable person to the conclusion that any wrongdoing was involved.

479. At the time, the article did not suggest the *probability* that plaintiffs had been defrauded, or suffered injury caused by another's wrongdoing. As the article acknowledges, "[t]he Journal's analysis d[id]n't prove that banks are lying or manipulating Libor," and even if the LIBOR data that the banks were submitting in the LIBOR process was in "doubt" or "flawed," various other explanations for the observed data, which did not involve wrongdoing, were accepted at the time to be *at least* just as plausible.

480. One explanation that the *Journal* article offered for the observed data, which did not involve wrongdoing and which is consistent with explanations expressed by both the U.K.'s

FCA and the BBA, is that "since the financial crisis began, banks have all but stopped lending to each other for periods of three months or more, so their estimates of how much it would cost to borrow involve a lot of guesswork."

481. This explanation, considered plausible at the time, considered the "gap" observed in the *Journal* article to be a byproduct of "structural issues in the LIBOR fixing process interacting with the deteriorating market conditions," rather than being the result of any wrongdoing. *See, e.g.*, FCA Internal Audit Report, "A Review of the Extent of Awareness within the FCA of Inappropriate LIBOR Submissions" dated March 2013, ¶ 28, available at http://www.fca.org.uk/static/pubs/other/ia-libor.pdf ("FCA Audit Report"). At the time, even the U.K.s financial regulator held the view (even after the May 29, 2008 publication and consideration of the *Journal's* analysis and other analyses during the April and May 2008 time period), that "[t]he combination of deteriorating market conditions and structural issues in the LIBOR fixing process . . . caused dislocation completely independent of any [wrongdoing]." *Id.* ¶ 26

482. As an additional explanation as to why the *Journal's* analysis did not necessarily lead one to conclude that "banks [were] lying or manipulating Libor," the *Journal* explained that certain banks "have ample deposits and access to loans from the Federal Reserve, meaning they might not need to borrow at higher rates from other banks." Carrick Mollenkamp & Mark Whitehouse, *Study Casts Doubt on Key Rate*, Wall St. J., May 29, 2008.

483. In addition, the *Journal* article suggests that only some banks, but not all, were reporting lower than expected LIBOR numbers. For example, the article identifies Citigroup Inc., WestLB, HBOS, JPMorgan Chase and UBS AG as examples of banks that the *Journal's* analysis indicated to be reporting significantly lower LIBOR. But, for example, a chart accompanying the article also indicates that Lloyds, Rabobank, Bank of Tokyo, and the Royal Bank of Scotland

submitted rates that were, by comparison, not significantly lower than their corresponding default-insurance cost measurements. In particular, the article specifically comments that "Royal Bank of Canada's reported [LIBOR] rates came closest to the market-based calculation – there was no significant difference." *Id.*

484. At the time of the *Journal* article, the information suggested to the ordinary person that some of the LIBOR panel banks, for example, Lloyds, Rabobank, Bank of Tokyo, and Royal Bank of Canada, whose reported LIBOR rates varied less from their costs of default insurance borrowing rates, had not engaged in misconduct. So, the ordinary person would not have been on notice of their misconduct until studies conducted later and other evidence later uncovered identified their misconduct.

485. Similarly, at the time, the *Journal* article also suggested to the ordinary person that Credit Suisse was not among the banks thought to be reporting lower than expected LIBOR numbers. The *Journal* article compares WestLB to Credit Suisse, noting that Credit Suisse was perceived as being in "better shape" than WestLB and that, in comparison, WestLB was nearly twice as likely to renege on its debts. One implication the ordinary person could take from the article is that Credit Suisse was not among the banks reporting lower than expected LIBOR numbers because it had no incentive to try to improve the public perception of its creditworthiness. Also, SocGen was not on the LIBOR panel until the next year, 2009. Thus, the ordinary person would not have been on notice of Credit Suisse's or SocGen's manipulation until studies conducted later identified their misconduct.

486. It was only after Plaintiffs conducted their own sophisticated studies, and after the Barclays settlement was announced, that a person of ordinary intelligence would believe that they had probably been defrauded by misreporting of LIBOR submissions the concomitant

manipulation of Eurodollar futures starting in 2007.

487. It is noteworthy that the Federal Reserve Eurodollar Deposit Rate study alleged herein shows that Barclays was on average the least likely to be suppressing LIBOR, yet the settlement between Barclays and the various government regulators has shown that Barclays was among the banks suppressing. Consistently, the evidence from the settlement documents is that Barclays was trying not to stand out – *i.e.*, to "stay below the parapet" – rather than be the lowest submitter.

488. At the time the *Journal* article was published, the BBA represented that it was conducting a speedy review of the LIBOR process and would remove from the panel any bank determined to be reporting inaccurate LIBOR rates. *Id*. But, thereafter no bank was removed from the panel for reporting inaccurate LIBOR rates, leading the ordinary person to understand that during the BBA's speedy review no bank was found to have been reporting inaccurate LIBOR rates.

D. Contemporaneous Studies Of The Early 2008 Period Contradicted The May 2008 Wall Street Journal Study And Added Uncertainty To A Person Of Ordinary Intelligence As To Whether They Had Been Harmed

489. Although various articles in the business press suggested in 2008 that LIBOR was being suppressed, and the *Wall Street Journal* May 2008 study also provided an analytical framework for possible suppression, the academic literature on the subject in 2008 was decidedly mixed. Indeed, one study attempted to replicate the *Wall Street Journal* analysis and, as discussed below, found the evidence to be "inconsistent with an effective manipulation of the level of the Libor."[125]

490. One academic study in the respected *BIS Quarterly Review* and published in March 2008 found no evidence of collusion or even manipulation in setting LIBOR using data up to January 2008. A study by Gyntelberg and Wooldridge states:

> If a majority of banks engaged in strategic behaviour, then trimming alone would not have mitigated the impact on the fixing. That said, there is little evidence that this was the case. In the US dollar market, the widening of Sibor and H.15 spreads over Libor is consistent with signalling by Libor contributor banks. However, many of the banks on the US dollar Libor panel are also on the euro Libor panel, and there are no signs that signalling distorted the latter fixing. Likewise, available data do not support the hypothesis that contributor banks manipulated their quotes to profit from positions based on fixings.[126]

491. Instead the academics conclude: "A deterioration in market liquidity, an increase in interest rate volatility and differences in the composition of the contributor panels were the main causes of the divergence."[127] These academics thus attributed the dislocation in LIBOR to market factors peculiar to the financial crisis and idiosyncratic to the particular reporting banks. They

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[125] Rosa M. Abrantes-Metz, Michael Kraten, Albert D. Metz and Gim Seow, "LIBOR Manipulation?" mimeo, August 4, 2008.

[126] *See* Jacob Gyntelberg and Philip Wooldridge, "Interbank rate fixings during the recent turmoil", BIS Quarterly Review, March 2008, at 71.

[127] *See* Jacob Gyntelberg and Philip Wooldridge, "Interbank rate fixings during the recent turmoil", BIS Quarterly Review, March 2008, at 59.

also did not find that the reporting banks were manipulating their quotes to profit from trading.

492. Another academic study published in the *BIS Quarterly Review* in 2009 also found no evidence of manipulation as late as May 2008. Notably, this study attempted to "extend" the *Wall Street Journal* study to ascertain whether LIBOR manipulation was occurring. Abrantez-Metz *et al.* state:

> On May 29, 2008, the Wall Street Journal (the Journal) printed an article that alleged that several global banks were reporting unjustifiably low borrowing costs for the calculation of the daily Libor benchmark. Specifically, the writers alleged that the banks were reporting costs that were significantly lower than the rates that were justified by bank-specific cost trend movements in the default insurance market. In this paper, we extend the Journal's study and perform the following analyses: (a) a comparison of Libor with other rates of short-term borrowing costs, (b) an evaluation of the individual bank quotes that were submitted to the British Banker's Association (BBA), and (c) a comparison of these individual quotes to individual CDS spreads and market cap data. We do so during the following three periods: 1/1/07 through 8/8/07 (Period 1), 8/9/07 through 4/16/08 (Period 2), and 4/17/08 through 5/30/08 (Period 3). Furthermore, on April 17, 2008, the Wall Street Journal first published the news that the BBA intended to investigate the composition of these rates.
> Individual Libor quotes are analyzed from January 2007 through May 2008, while the level of the Libor itself is studied from 1990 using Bloomberg data sources. After verifying that the patterns are essentially the same for the one month and three month Libor rates, we generally restrict our attention to the one month Libor. We also study data on other market indicators, both at aggregate levels and for the individual Libor banks. A few missing days are filled by linear interpolation. Our primary findings are that, while there are some apparent anomalies within the individual quotes, **the evidence found is inconsistent with an effective manipulation of the level of the Libor** [emphasis added]."[128]

[128] *See* Abrantes-Metz, , "LIBOR Manipulation?" *supra*.

493. Defendant JPMorgan Chase also issued a research paper on May 16, 2008, unequivocally stating and highlighting in bold:

> "**In our view, the Libor fixing process is not broken; BBA Libor broadly reflects the borrowing costs of top tier large banks. Differences between Libor and other indices can largely be explained by the composition of the Libor panel. The main limitations of Libor are due more to lack of liquidity in the market rather than any bias in the fixing process.**"

494. The May 2008 JPMorgan Chase research report further explained that, in Defendant JPMorgan Chase's view, "the Libor fixing process is not broken" but rather "BBA Libor broadly reflects the borrowing costs of top tier large banks." JPMorgan Chase further pointed out that differences between Libor and other indices could "largely be explained" by limitations that had existed since the inception of the LIBOR in 1984, and stated that the "main limitations of Libor are due more to lack of liquidity in the market rather than any bias in the fixing process." JPMorgan Chase further reported that the composition and "constituents" of the BBA LIBOR Panel consisted of "some of the best known and best capitalized banks in the world." And therefore, [i]n a market where significant credit tiering is evident, it seems plausible the BBA panel banks could enjoy an advantage in credit costs." The research report further explained the reasons that the "Fed data" differed from LIBOR was owing to the fact that the BBA trims the highest and lowest quartile and averages the remaining rates, whereas the "Fed data is untrimmed and is likely to contain more outlying observations," thus tending to "pull" the Federal Reserve's daily published rate "above the BBA Libor level."

495. These analyses show that even among highly sophisticated financial experts in 2008, there was not consensus that LIBOR had probably been manipulated. The second academic analysis also shows that the *Wall Street Journal* study from May 2008, standing on its own, was not sufficient to alert an ordinary person to the probability that LIBOR and Eurodollar futures contracts had been manipulated.

E. <u>Plaintiffs Certainly Could Not Have Known Or Reasonably Discovered – Until At Least March 2011 – Facts Suggesting Defendants and Former Defendants/Co-Conspirators Knowingly Colluded To Suppress LIBOR</u>

496. Notwithstanding the smattering of statements in late 2007-early 2008 questioning LIBOR's viability, Plaintiffs had no reason to suspect – at least until the existence of government investigations was revealed in March 2011 – that Defendants and other Co-Conspirators were *knowingly colluding* to suppress LIBOR. Indeed, as a result of Defendants' secret conspiracy – and their fraudulent concealment of relevant information – no facts arose before March 2011 to put Plaintiffs on inquiry notice that a conspiracy to manipulate LIBOR existed.

497. Due to the Defendants' fraudulent concealment of their communications and conspiracy, any statute of limitations affecting or limiting the rights of action by Plaintiffs or members of the Class was tolled until March 15, 2011.

498. The Defendants are equitably estopped from asserting that any otherwise applicable period of limitations has run.

F. <u>The Absence of Any Statistically Significant Negative Stock Price Reactions for any of the Defendant Banks Based on the Various 2008 Articles That Speculate that LIBOR was Manipulated Demonstrates That Plaintiffs Did Not Have Inquiry Notice of their Injuries</u>

499. A consulting expert engaged by Plaintiffs has conducted an analysis to determine whether the LIBOR panel bank members of the BBA suffered substantial stock price losses in response to the articles on April 10, 2008 (Peng Report, "Special Topic: Is LIBOR Broken?"), April 16, 2008 (*Wall Street Journal*, "Bankers Cast Doubt on Key Rate Amid Crisis"), April 17, 2008 (*Wall Street Journal*, "British Bankers Group Steps up Review of Widely Used Libor"), April 18, 2008 (*Wall Street Journal*, "Libor Surges After Scrutiny Does, Too"), April 21, 2008 (*Financial Times*, "Doubts over Libor Widen"), May 16, 2008 (*Reuters*, "European, U.S. Bankers Work on Libor Problems") and May 29, 2008 (*Bloomberg*, "Libor Banks Misstated Rates, Bond

at Barclays Says" and *Wall Street Journal*, "Study Casts Doubt on Key Rate") (collectively, the "2008 Articles"). In addition, the expert examined stock price reactions on September 24, 2008 *(Wall Street Journal*, "Libor's Accuracy Becomes Issue Again"), as well as around UBS' disclosure in March 2011 and Barclays' settlement announcement in June 2012.

500. The analysis tested the hypothesis that these articles implied to a person of ordinary intelligence, with at least 50% probability, that LIBOR was being manipulated and, consequently, that Eurodollar futures contract prices were being manipulated.

501. The results of the analysis, as described more fully below are that despite the possible negative financial consequences to the health of the banks, the markets did not react to the 2008 Articles and only reacted slightly at most to the March 15, 2011 disclosure by UBS that it had received subpoena in connection with a LIBOR manipulation by punishing Defendants' stock prices. To the contrary, the only time that the stock prices of the Defendants decreased in a statistically significant way against a baseline index was in June 2012 when Barclays announced its settlement with governmental authorities. The conclusion to draw from this is that the market, composed of highly sophisticated investors, did not seriously contemplate that the Defendants would have any exposure for LIBOR manipulation until June 2012 and consequently were not on inquiry notice of such a probability until that time.

502. The consulting expert inquired as to what kind of price reactions would have occurred if typical market participants thought that LIBOR was manipulated with 50% or higher likelihood. In other words, if the average investor would expect that if a bank committed a fraud with a 50% or higher likelihood, the average investor would also expect that this would impose significant costs on the offending banks and the stock price of the offending 16 member banks would decline substantially to reflect the 50% likelihood of paying significant damages.

503. Here, the recent settlements with regulatory authorities with RBS, Barclays and UBS resulted in these defendants collectively paying almost $3 billion for LIBOR manipulation to government regulators alone. The private market for LIBOR-based derivatives is enormous. For the 3-month Eurodollar futures, the total trading volume on the CME for 2012 equaled about 425 million contracts. Since each contract is for $1 million in notional principal, this means that for 2012, the total trading volume in 3-month Eurodollar futures on CME was about $425 trillion dollars in notional principal. The total amount of OTC derivative products is estimated to be between $600 and $700 trillion in 2008.[129] The notational principal of LIBOR-linked financial products is estimated to be $300 trillion.[130] Finally, the *Financial Times* recently estimated that the currently-held LIBOR linked financial products have about $350 trillion in notational value in 2013.[131] Given these enormous dollar volumes of LIBOR-linked financial products, potential exposure to private claimholders could be many multiples greater than the government settlements. Consequently, if the 2008 Articles created an expectation, with at least a 50% likelihood, that banks engaged in an illegal manipulation scheme with a possible cost of tens of billions of dollars each, the expectation is that each of the panel members of the BBA would suffer substantial stock price losses on the revelation of the illegal manipulation scheme when the 2008 Articles were published.

504. To conduct the analysis, the consulting experts regressed the stock returns for each of the panel members of the BBA on the value-weighted stock market index and indicator variables on each date of the 2008 Articles as well as on the announcement of the UBS subpoenas in March

[129] *See* Stephen G Cecchetti, Jacob Gyntelberg, and Marc Hollanders, "Central counterparties for over-the-counter derivatives," BIS Quarterly Review, September 2009, p.46.

[130] *See* "The LIBOR scandal: The rotten heart of finance, A scandal over key interest rates is about to go global," Economist, July 7, 2012, *available at* http://www.economist.com/node/21558281, last visited May 10, 2013.

[131] http://www.reuters.com/article/2013/05/12/us-libor-replacement-idUSBRE94B0DU20130512

2011 and the Barclays settlement in June 2012.[132] If the 2008 Articles created an expectation of possible manipulation by defendants for the average investor, the analysis is expected to show substantial stock price declines for each bank on at least some of the dates after controlling for the overall stock market index. These stock price declines should result in statistically significant negative parameter coefficients for the indicator variables.

505. The results shown below in Table 1 through 14 demonstrate that none of the 2008 Articles are associated with any statistically significant negative stock price reactions for any of the Defendant banks for which stock prices are available. The only exception to this finding is HSBC and Bank of Tokyo on March 16, 2011, when their stock prices declined abnormally at 3% and 4.5% respectively. However, these are the only banks that declined statistically significantly on March 16, 2011, which is approximately when UBS announced that it was being investigated for LIBOR irregularities.

506. Further, the largest stock price reaction for the Defendant banks occurred on June 28, 2012. During June 27-28, 2012, the $453 million Barclays settlement was publicly announced. In reaction to this announcement, Barclays' stock price suffered a decline of almost 12%, resulting in a market cap decline of about $4.5 billion in a single day. This stock price drop exceeded the settlement fine by about ten-fold indicating likely additional future costs for Barclays such as settlements with private claimholders. RBS also declined by a statistically significant 9.4% on June 28, 2012.[133] Moreover, all of the other Defendant banks collectively suffered a statistically significant 2.97% abnormal stock price decline on this day, thus recognizing some of the implications of the Barclays' settlement for the other panel members at this time.

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[132] Because Norinchukin, Rabobank and WestLB are private banks, stock returns are not available for these banks. Thus, these banks could not be included in the intervention study analysis.

[133] RBS announced its own settlement with British regulatory authorities on February 6, 2013.

507. Overall, the evidence shown in Tables 3-16 objectively supports Plaintiffs' assertion that Plaintiffs were not on inquiry notice of their injuries until after March 15, 2011 (when UBS announced that it had been subpoenaed in connection with the U.S. government's investigation of possible LIBOR manipulation) because none of the 2008 Articles changed the expectations of the ordinary investor. Based on this objective statistical evidence, the 2008 Articles do not serve as inquiry notice.

Table 3 – Barclays

Daily returns to Barclays' stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation			
Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	0.00040049	0.78	0.4342
Market return	**1.59139**	**42.2**	**<.0001**
10-Apr-08	-0.02575	-0.88	0.3786
16-Apr-08	0.03366	1.15	0.25
17-Apr-08	0.01248	0.43	0.6692
18-Apr-08	-0.00791	-0.27	0.7868
21-Apr-08	-0.03274	-1.12	0.263
16-May-08	-0.02565	-0.88	0.3804
29-May-08	-0.03328	-1.14	0.2551
24-Sep-08	0.01317	0.45	0.6523
15-Mar-11	0.00128	0.04	0.9651
16-Mar-11	-0.02757	-0.94	0.3459
28-Jun-12	**-0.11787**	**-4.03**	**<.0001**
R-Square	35.47%		
Number of Observations	3269		
Indicator variable takes a value of one on the indicated date and zero otherwise.			

Table 4 – Bank of America

<table>
<tr><td colspan="4">Daily returns to Bank of America stock regressed against value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Variable</td><td>Parameter Estimate</td><td>t Value</td><td>Pr > |t|</td></tr>
<tr><td>Intercept</td><td>0.00016092</td><td>0.36</td><td>0.7214</td></tr>
<tr><td>Market return</td><td>1.60484</td><td>48.27</td><td><.0001</td></tr>
<tr><td>10-Apr-08</td><td>-0.0155</td><td>-0.6</td><td>0.5476</td></tr>
<tr><td>16-Apr-08</td><td>0.00040393</td><td>0.02</td><td>0.9875</td></tr>
<tr><td>17-Apr-08</td><td>0.01503</td><td>0.58</td><td>0.5597</td></tr>
<tr><td>18-Apr-08</td><td>0.00235</td><td>0.09</td><td>0.9272</td></tr>
<tr><td>21-Apr-08</td><td>-0.02392</td><td>-0.93</td><td>0.3533</td></tr>
<tr><td>16-May-08</td><td>-0.01878</td><td>-0.73</td><td>0.4661</td></tr>
<tr><td>29-May-08</td><td>0.01437</td><td>0.56</td><td>0.5772</td></tr>
<tr><td>24-Sep-08</td><td>-0.00182</td><td>-0.07</td><td>0.9436</td></tr>
<tr><td>15-Mar-11</td><td>-0.00125</td><td>-0.05</td><td>0.9612</td></tr>
<tr><td>16-Mar-11</td><td>0.00719</td><td>0.28</td><td>0.7804</td></tr>
<tr><td>28-Jun-12</td><td>-0.00060944</td><td>-0.02</td><td>0.9811</td></tr>
<tr><td>R-Square</td><td>41.54%</td><td></td><td></td></tr>
<tr><td>Number of Observations</td><td>3269</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Indicator variable takes a value of one on the indicated date and zero otherwise.</td></tr>
</table>

Table 5 - Citibank

Daily returns to Citibank common stock regressed against value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.

Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	-0.00028618	-0.6	0.5487
Market return	**1.7376**	**49.39**	**<.0001**
10-Apr-08	-0.00395	-0.15	0.8847
16-Apr-08	-0.01363	-0.5	0.6173
17-Apr-08	0.02756	1.01	0.3119
18-Apr-08	0.01646	0.6	0.5458
21-Apr-08	-0.00194	-0.07	0.943
16-May-08	-0.02965	-1.09	0.2765
29-May-08	0.01306	0.48	0.6319
24-Sep-08	-0.04556	-1.67	0.0946
15-Mar-11	-0.00238	-0.09	0.9304
16-Mar-11	0.01792	0.66	0.5109
28-Jun-12	-0.02222	-0.82	0.415
R-Square	42.74%		
Number of Observations	3269		

Indicator variable takes a value of one on the indicated date and zero otherwise.

Table 6 – Credit Suisse

Daily returns to Credit Suisse stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.

Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	-0.00007536	-0.2	0.8384
Market return	**1.63019**	**58.68**	**<.0001**
10-Apr-08	-0.02928	-1.49	0.1363
16-Apr-08	-0.01418	-0.72	0.4709
17-Apr-08	-0.0075	-0.38	0.7028
18-Apr-08	-0.01671	-0.85	0.3953
21-Apr-08	0.00677	0.34	0.7305
16-May-08	-0.01356	-0.69	0.4901
29-May-08	-0.01585	-0.81	0.4198
24-Sep-08	0.04199	2.14	0.0327
15-Mar-11	-0.00526	-0.27	0.7889
16-Mar-11	0.00979	0.5	0.6185
28-Jun-12	-0.01944	-0.99	0.3227
R-Square	54.83%		
Number of Observations	2836		

Indicator variable takes a value of one on the indicated date and zero otherwise.

Table 7 – Deutsche Bank

<table>
<tr><td colspan="4">Daily returns to Deutsche Bank stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Variable</td><td>Parameter Estimate</td><td>t Value</td><td>Pr > |t|</td></tr>
<tr><td>Intercept</td><td>-0.00002612</td><td>-0.07</td><td>0.9415</td></tr>
<tr><td>Market return</td><td>1.75986</td><td>65.73</td><td><.0001</td></tr>
<tr><td>10-Apr-08</td><td>-0.01942</td><td>-1.03</td><td>0.3048</td></tr>
<tr><td>16-Apr-08</td><td>-0.0026</td><td>-0.14</td><td>0.8903</td></tr>
<tr><td>17-Apr-08</td><td>0.00499</td><td>0.26</td><td>0.7915</td></tr>
<tr><td>18-Apr-08</td><td>-0.01545</td><td>-0.82</td><td>0.4141</td></tr>
<tr><td>21-Apr-08</td><td>0.00427</td><td>0.23</td><td>0.8209</td></tr>
<tr><td>16-May-08</td><td>-0.00225</td><td>-0.12</td><td>0.9056</td></tr>
<tr><td>29-May-08</td><td>-0.01609</td><td>-0.85</td><td>0.3954</td></tr>
<tr><td>24-Sep-08</td><td>0.00768</td><td>0.41</td><td>0.6842</td></tr>
<tr><td>15-Mar-11</td><td>-0.01984</td><td>-1.05</td><td>0.2945</td></tr>
<tr><td>16-Mar-11</td><td>-0.01197</td><td>-0.63</td><td>0.5271</td></tr>
<tr><td>28-Jun-12</td><td>-0.03702</td><td>-1.96</td><td>0.0505</td></tr>
<tr><td>R-Square</td><td>60.47%</td><td></td><td></td></tr>
<tr><td>Number of Observations</td><td>2830</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Indicator variable takes a value of one on the indicated date and zero otherwise.</td></tr>
</table>

Table 8 – JP Morgan Chase

Daily returns to JP Morgan Chase stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.

Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	0.0001862	0.55	0.5786
Market return	**1.5458**	**61.59**	**<.0001**
10-Apr-08	-0.0188	-0.97	0.3336
16-Apr-08	0.02988	1.54	0.1244
17-Apr-08	0.00524	0.27	0.7875
18-Apr-08	-0.0116	-0.6	0.5508
21-Apr-08	-0.01092	-0.56	0.5741
16-May-08	-0.01438	-0.74	0.4595
29-May-08	0.00961	0.49	0.621
24-Sep-08	0.00339	0.17	0.8619
15-Mar-11	0.0018	0.09	0.9262
16-Mar-11	0.00759	0.39	0.6965
28-Jun-12	-0.02137	-1.1	0.2715
R-Square	53.76%		
Number of Observations	3269		

Indicator variable takes a value of one on the indicated date and zero otherwise.

Table 9 – Lloyds TSB

Daily returns to Lloyds TSB stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.

Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	-0.00023761	-0.4	0.6874
Market return	**1.6397**	**37.04**	**<.0001**
10-Apr-08	-0.02869	-0.92	0.357
16-Apr-08	-0.0014	-0.04	0.9641
17-Apr-08	0.01981	0.64	0.5247
18-Apr-08	-0.01827	-0.59	0.5573
21-Apr-08	-0.02125	-0.68	0.495
16-May-08	-0.00284	-0.09	0.9275
29-May-08	-0.02391	-0.77	0.4427
24-Sep-08	-0.03966	-1.27	0.2029
15-Mar-11	0.00827	0.27	0.7906
16-Mar-11	-0.00609	-0.2	0.8451
28-Jun-12	-0.03236	-1.04	0.2988
R-Square	32.89%		
Number of Observations	2792		

Indicator variable takes a value of one on the indicated date and zero otherwise.

Table 10 - UBS

Daily returns to UBS stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.			
Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	0.00011003	0.31	0.7521
Market return	**1.49559**	**57.51**	**<.0001**
10-Apr-08	-0.01734	-0.88	0.3778
16-Apr-08	-0.03331	-1.69	0.0903
17-Apr-08	0.01695	0.86	0.3884
18-Apr-08	-0.00436	-0.22	0.8244
21-Apr-08	0.01543	0.79	0.4324
16-May-08	-0.01437	-0.73	0.4649
29-May-08	-0.02111	-1.07	0.2828
24-Sep-08	-0.01118	-0.57	0.5696
15-Mar-11	-0.00121	-0.06	0.951
16-Mar-11	0.00723	0.37	0.713
28-Jun-12	-0.02039	-1.04	0.2997
R-Square	50.99%		
Number of Observations	3175		
Indicator variable takes a value of one on the indicated date and zero otherwise.			

Table 11 – Bank of Tokyo-Mitsubishi

Daily returns to Tokyo-Mitsubishi bank stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.

Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	-0.00018336	-0.45	0.6534
Market return	**0.99183**	**32.41**	**<.0001**
10-Apr-08	0.01203	0.54	0.5872
16-Apr-08	0.03523	1.59	0.112
17-Apr-08	-0.00368	-0.17	0.868
18-Apr-08	-0.00504	-0.23	0.8201
21-Apr-08	0.00173	0.08	0.9376
16-May-08	-0.00128	-0.06	0.9538
29-May-08	0.03676	1.66	0.0971
24-Sep-08	0.066	2.98	0.0029
15-Mar-11	0.00098555	0.04	0.9645
16-Mar-11	**-0.04544**	**-2.05**	**0.0404**
28-Jun-12	0.01548	0.7	0.4847
R-Square	26.53%		
Number of Observations	2954		

Indicator variable takes a value of one on the indicated date and zero otherwise.

Table 12 - HBOS

Daily returns to HBOS stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.			
Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	0.00039935	0.54	0.5868
Market return	**0.3316**	**6.06**	**<.0001**
10-Apr-08	0.01011	0.34	0.7328
17-Apr-08	0.00248	0.08	0.9333
18-Apr-08	-0.00589	-0.2	0.8423
21-Apr-08	0.00801	0.27	0.7866
16-May-08	-0.00121	-0.04	0.9674
30-May-08	0.07852	2.65	0.008
2-Oct-08	-0.00953	-0.32	0.7482
15-Mar-11	0.001	0.03	0.9729
16-Mar-11	-0.00789	-0.27	0.7898
28-Jun-12	-0.0044	-0.15	0.8818
R-Square	2.04%		
Number of Observations	1632		
Indicator variable takes a value of one on the indicated date and zero otherwise.			
HBOS did not trade on April 16, 2008 so this date is omitted. Similarly, when HBOS did not trade the next available date is examined for stock price effects.			

Table 13 - HSBC

Daily returns to HSBC stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.			
Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	-0.00005346	-0.24	0.8131
Market return	**0.9791**	**58.77**	**<.0001**
10-Apr-08	-0.00164	-0.13	0.8987
16-Apr-08	-0.01035	-0.8	0.4228
17-Apr-08	0.00683	0.53	0.5968
18-Apr-08	-0.01261	-0.98	0.3287
21-Apr-08	-0.00448	-0.35	0.7287
16-May-08	-0.00164	-0.13	0.8986
29-May-08	-0.0028	-0.22	0.8281
24-Sep-08	0.00489	0.38	0.7051
15-Mar-11	0.00153	0.12	0.9059
16-Mar-11	**-0.03128**	**-2.42**	**0.0154**
28-Jun-12	-0.01783	-1.38	0.1672
R-Square	51.43%		
Number of Observations	3269		
Indicator variable takes a value of one on the indicated date and zero otherwise.			

Table 14 – Royal Bank of Canada

Daily returns to Royal Bank of Canada stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.

Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	0.00049558	2.13	0.0329
Market return	**0.84496**	**49.39**	**<.0001**
10-Apr-08	-0.00068529	-0.05	0.9588
16-Apr-08	0.01703	1.28	0.199
17-Apr-08	-0.00054201	-0.04	0.9674
18-Apr-08	0.01034	0.78	0.4353
21-Apr-08	0.01438	1.08	0.278
16-May-08	-0.00413	-0.31	0.7551
29-May-08	0.01741	1.31	0.1889
24-Sep-08	0.02267	1.71	0.0872
15-Mar-11	-0.00892	-0.67	0.5011
16-Mar-11	-0.00295	-0.22	0.8238
28-Jun-12	-0.01067	-0.81	0.4206
R-Square	42.84%		
Number of Observations	3269		

Indicator variable takes a value of one on the indicated date and zero otherwise.

Table 15 - RBS

Daily returns to RBS stock regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.			
Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	-0.00069863	-0.6	0.546
Market return	**2.13179**	**30.45**	**<.0001**
10-Apr-08	-0.02356	-0.56	0.5743
16-Apr-08	0.04789	1.14	0.2522
17-Apr-08	-0.0152	-0.36	0.716
18-Apr-08	0.00975	0.24	0.8156
21-Apr-08	-0.03287	-0.79	0.4317
16-May-08	-0.03372	-0.81	0.4197
29-May-08	-0.02615	-0.63	0.5314
24-Sep-08	0.0453	1.08	0.2784
15-Mar-11	0.00472	0.11	0.91
16-Mar-11	0.00113	0.03	0.9785
28-Jun-12	**-0.09436**	**-2.26**	**0.0241**
R-Square	41.78%		
Number of Observations	1314		
Indicator variable takes a value of one on the indicated date and zero otherwise.			

Table 16 - All Banks

Daily returns to thirteen USD-LIBOR Panel member bank stocks regressed against the value-weighted market returns as well as indicator variables for public news on potential LIBOR manipulation.			
Variable	Parameter Estimate	t Value	Pr > |t|
Intercept	0.00011354	0.51	0.6123
Market return	**1.36451**	**82.67**	**<.0001**
10-Apr-08	-0.01377	-1.08	0.2815
16-Apr-08	0.01043	0.82	0.4148
17-Apr-08	0.00635	0.5	0.6197
18-Apr-08	-0.00393	-0.31	0.7582
21-Apr-08	-0.00609	-0.48	0.6341
16-May-08	-0.01257	-0.98	0.3256
29-May-08	-0.00355	-0.28	0.7811
24-Sep-08	0.00834	0.65	0.5141
15-Mar-11	-0.00205	-0.16	0.8727
16-Mar-11	-0.00713	-0.56	0.5771
28-Jun-12	**-0.02966**	**-2.32**	**0.0204**
R-Square	68.29%		
Number of Observations	3269		
Indicator variable takes a value of one on the indicated date and zero otherwise.			

G. <u>To the Extent Investors Had Notice of Their Injuries or Possible Wrongdoing in April or May 2008, It Applied Only to Injuries and Conduct Occurring Between August 2007 and April 2008</u>

508. In April 2008, as the events giving rise to a severe financial crisis roiled markets, constricting liquidity and the availability of credit in the lending market, including interbank loans, an analyst issued a research report noting that LIBOR had reportedly diverged significantly from other benchmarks and indices. Soon after, the news articles published in April and May of 2008, and the research they cited, suggested only that banks *might have been* suppressing LIBOR – not that they would continue to do so. Indeed, even the April 16, 2008 *Wall Street Journal* article that first questioned LIBOR's accuracy cautioned "no specific evidence has emerged that banks have

provided false information about borrowing costs."[134] Therefore, even assuming that a person of ordinary intelligence would have been on notice of the probability of past injury as of April or May 2008, he or she would have no reason to suspect that Defendants continued to manipulate LIBOR and caused further injury after that time. After all, normally when possible misconduct is reported in newspapers, a person of ordinary intelligence would believe that the conduct, if indeed it occurred, would be stopped given the heightened potential regulatory and law enforcement scrutiny that would result from the publicity.

509. As already discussed, LIBOR rose sharply on April 17, 2008 immediately after the first *Wall Street Journal* on Defendants' apparent suppression, suggesting to observers—including not only Plaintiffs but the same reporters who exposed the possibility of wrongdoing—that Defendants had stopped suppressing LIBOR. For example, Carrick Mollenkamp, the *Wall Street Journal* reporter who first drew significant attention to the possibility of LIBOR suppression, reported on May 30, 2008, that LIBOR was continuing to rise, and that "some analysts attribute rise to increased scrutiny of Libor's accuracy." Carrick Mollenkamp, Under Watch, Libor Rises, *Wall Street Journal*, May 30, 2008. This would have led a person of ordinary intelligence reasonably to conclude that any suppression ceased on or shortly after April 16, 2008. Also, the May 29, 2008 WSJ article did not and could not have put Plaintiffs that entered Eurodollar futures contracts on or after May 30, 2008 on inquiry notice.

510. At the same time, the BBA announced plans to improve LIBOR reporting and better police banks' reported rates. Julia Werdigier, "British Banker Group to Strengthen Libor Oversight," N.Y. Times, May 31, 2008; Carrick Mollenkamp, "UK Bankers to Alter Libor to Address Rate Doubts," Wall St. J., June 11, 2008 (Mollenkamp, "UK Bankers"). The BBA began

[134] Mollenkamp, "Bankers Cast Doubt on Key Rate Amid Crisis."

monitoring banks' LIBOR quotes *daily* to find discrepancies, with a newly established committee reviewing questionable quotes. Mollenkamp, "UK Bankers." It would have seemed wholly improbable that Defendants would continue to suppress their reported rates, in light of this scrutiny. A person of ordinary intelligence would therefore have reasonably expected that Defendants would stop suppressing LIBOR in light of this increased and seemingly strict oversight.

511. Between May 29, 2008 and April 15, 2009, potential LIBOR suppression received virtually no media coverage. A search of the "Major Newspapers" database in Westlaw Next for "Libor" or "London Interbank Offered Rate" in this period reveals just one story making more than passing reference to the concerns raised in April and May 2008. Carrick Mollenkamp, Libor's Accuracy Becomes Issue Again, Wall St. J., Sept. 24, 2008. The article in the WSJ on September 24, 2008, noted that LIBOR had "surged" during the prior week in response to banks' struggle amid AIG's and Lehman Brothers' problems, but contemporaneously reported that doubts about LIBOR centered on whether banks were understating their borrowing rates, and specifically referred to 1-month LIBOR on two days during the week prior to September 24, 2008. The article noted that concerns raised earlier in 2008 when "LIBOR appeared to be sending false signals" and resulted in banks complaining to the BBA that "rival banks might not be reporting their true borrowing costs because they didn't want to admit that others were treating them as if they had troubles," which had led to the BBA review and the pledge that the rates banks contribute would be better policed. The article quoted a BBA spokeswoman as saying: "LIBOR is accurate," and that "It is constantly monitored and currently reflects the extreme market volatility present in these unprecedented circumstances." In context, this article alone is insufficient given all the other factors that play at this time, including the BBA Feedback Statement and the impending collapse

of Lehman Brothers, to have put persons of ordinary intelligence on notice that they probably had been defrauded.

512. Moreover, beginning in October 2008, financial reporting focused extensively on the fact that LIBOR was at historic highs. *See, e.g.*, Carter Dougherty & Landon Thomas, "Europe Searches for Stability," N.Y. Times, Oct. 8, 2008; David Gaffen, "Stabilization, Not Normalization, for the Historically High Libor," Wall St. J., Nov. 18, 2008. Mark Gillispie, "LIBOR gauges state of bank lending worldwide," Cleveland Plain Dealer, Oct. 8, 2008; Barbara Hagenbaugh, et al., "Bank rescue gets mild response," USA Today, Oct. 15, 2008; Randi F. Marshall, "There will be a dawn after economic night," Newsday, Mar. 15, 2009. In light of the fact that LIBOR was at or near record highs, a person of ordinary intelligence could not have suspected that banks were still *suppressing* LIBOR.

513. Even as LIBOR soared to "historically high" levels, financial journalists viewed it as reacting normally to developments in the turbulent economy of 2008. For example, *USA Today* noted that LIBOR was responding positively to the Federal Reserve's efforts to stabilize money markets, quoting a money market investment officer as saying that "Everything we've seen . . . is making a whole lot more sense at this point." John Waggoner & Sue Kirchhoff, "Federal Reserve to shore up money market funds," USA Today, Oct. 22, 2008. Financial analysts and reporters, including those most involved in the spate of stories in April and May 2008, continued to use LIBOR as a barometer for the health of the economy, relying on it as a sound measure of banks' willingness to lend. *See, e.g.*, Carrick Mollenkamp, "Libor Regains Some Cachet," Wall St. J., Jan. 7, 2009.

514. Thus, a person of ordinary intelligence would have concluded that any suppression that might have occurred at the beginning of 2008 ended when the first stories regarding

suppression were published, or shortly thereafter. From all appearances, Defendants' suppression appeared to have ceased at that time, and their continuing manipulation of LIBOR would not come to light until investigating authorities began disclosing the findings of their inquiries.

H. Governmental Authorities Continued to Use LIBOR Evidencing That They Lacked Notice That The Benchmark Was Suppressed Or Otherwise Manipulated

515. The fact that both the United States and the United Kingdom continued to rely upon LIBOR in 2008 and throughout the rest of the Class Period shows that there was not inquiry notice to the ordinary investor as to the manipulation and suppression of LIBOR prior to May 2008, and certainly not after May 2008. Some examples of how governmental authorities continued to use LIBOR in extremely important contexts are listed below.

516. In July 2008, the UK Treasury continued to utilize LIBOR in connection with its Special Liquidity Program despite evidence that three-month LIBOR was declining.[135] That it continued to do so after articles suggesting suppression indicates that the Treasury had faith in LIBOR despite media speculation concerning its accuracy.

517. In late 2008, the US Treasury caused the terms of Treasury-supported Small Business Administration loans to change from "Prime, a domestic interest rate, to LIBOR."[136]

518. On December 31, 2008, the U.S. Treasury agreed to lend General Motors Corporation $13.4 billion based on "LIBOR +3%."[137]

519. On January 2, 2009, the U.S. Treasury agreed to lend Chrysler Holding LLC $4

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[135] Parliament House of Commons Treasury Select Committee, Minutes of Evidence, Testimony of Clive Maxwell (July 22, 2008) at Question 264.

[136] October 2, 2012 Letter from Senators Charles E. Grassley and Mark Kirk to Treasury Secretary Timothy Geithner at 1, *available at*: http://www.grassley.senate.gov/about/upload/2012-10-02-CEG-MK-to-Treasury-LIBOR.pdf.

[137] Special Inspector General Troubled Asset Relief Program Initial Report to Congress (Feb. 6, 2009), at 48 (Table 3.4), *available at*: http://www.sigtarp.gov/Quarterly%20Reports/SIGTARP_Initial_Report_to_the_Congress.pdf.

billion based on "3% or 8% (if the company is in default of its terms under the agreement) plus the greater of a) three-month LIBOR or b) LIBOR floor (2.00%).[138]

520. On January 16, 2009, the U.S. Treasury agreed to lend General Motors $884 million based on "LIBOR +3%." [139]

521. On January 16, 2009, the U.S. Treasury agreed to lend Chrysler Financial $1.5 billion based on "LIBOR + 1% for first year[,] LIBOR + 1.5% for remaining" term.[140]

522. Upon information and belief, General Motors and GM-affiliated entities are still repaying loans indexed to LIBOR.[141]

523. During the period 2009-10, the UK Treasury issued LIBOR-based loans to the Financial Services Compensation Scheme, which was established to repay the depositors of failed banks.[142]

524. Beginning in the Second Quarter of 2009, the FDIC, Federal Reserve and Treasury agreed to extend LIBOR-based loans to financial institutions through TARP's Public-Private Investment Program for Legacy Assets ("PPIP).[143] Upon information and belief, PPIP loans are still tied to LIBOR.[144]

525. In her July 2010 Quarterly Report to Congress, the TARP Inspector General

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[138] Special Inspector General Troubled Asset Relief Program Initial Report to Congress (Feb. 6, 2009), at 48 (Table 3.4), *available at*: http://www.sigtarp.gov/Quarterly%20Reports/SIGTARP_Initial_Report_to_the_Congress.pdf.

[139] Special Inspector General Troubled Asset Relief Program Initial Report to Congress (Feb. 6, 2009), at 48 (Table 3.4), *available at*: http://www.sigtarp.gov/Quarterly%20Reports/SIGTARP_Initial_Report_to_the_Congress.pdf.

[140]Special Inspector General Troubled Asset Relief Program Initial Report to Congress (Feb. 6, 2009), at p. 48 (Table 3.4), *available at*: http://www.sigtarp.gov/Quarterly%20Reports/SIGTARP_Initial_Report_to_the_Congress.pdf.

[141]Special Inspector General Troubled Asset Relief Program Quarterly Report to Congress (Jan. 30, 2013) at 48, *available at*: http://www.sigtarp.gov/Quarterly%20Reports/January_30_2013_Report_to_Congress.pdf.

[142] http://www.fscs.org.uk/uploaded_files/Publications/Annual_Reports/annual_report_2009-10.pdf at 12, 20, 94, 98.

[143] http://www.sigtarp.gov/Quarterly%20Reports/April2009_Quarterly_Report_to_Congress.pdf at 104.

[144] http://www.sigtarp.gov/Quarterly%20Reports/January_30_2013_Report_to_Congress.pdf at 202.

explained that most TALF loans were tied to LIBOR, "a generally accepted short-term interest rate standard."[145]

526. Indeed, on October 12, 2012, Senators Charles E. Grassley and Mark Kirk criticized Timothy Geithner, who during the financial crisis was in charge of the New York Federal Reserve and was privy to exclusive non-public information obtained from the Panel banks, in a letter for not "[taking] action to end the dominance of LIBOR, or at least inform the American public" about the "flawed index."[146]

527. On October 24, 2012, the Special Inspector General for TARP included in its quarterly report to Congress a request the United States Department of Treasury and Federal Reserve to "cease using Libor in TARP programs" because "American taxpayers who funded TARP may have been at risk and continue to be at risk from the manipulation of LIBOR."[147]

528. The above examples demonstrate that the United States Government and the United Kingdom Government were apparently not aware that they were probably being defrauded by manipulated LIBOR during the Class Period because they continued to use LIBOR. By the same logic, a person of ordinary intelligence would not have been on inquiry notice during the Class Period, and certainly after May of 2008 when many of the government programs using LIBOR were instituted, of the probability that they had been defrauded by manipulated LIBOR and Eurodollar futures.

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[145] http://www.sigtarp.gov/Quarterly%20Reports/July2010_Quarterly_Report_to_Congress.pdf at p. 94.

[146] October 2, 2012 Letter from Senators Charles E. Grassley and Mark Kirk to Treasury Secretary Timothy Geithner at 1 (emphasis added), *available at*: http://www.grassley.senate.gov/about/upload/2012-10-02-CEG-MK-to-Treasury-LIBOR.pdf.

[147] http://www.sigtarp.gov/Quarterly%20Reports/October_25_2012_Report_to_Congress.pdf at 175; *see also* http://www.reuters.com/article/2012/10/25/usa-bailout-banks-idUSL1E8LO7R520121025.

I. Recently Published Audit Reports From The United Kingdom Financial Services Authority Indicated That It Was Not Aware Of Intentional Suppression Of LIBOR In 2008 And 2009

529. The contemporaneous uncertainty over whether misreporting actually was occurring is further evidenced by the conduct of the FCA, which did not identify misreporting of LIBOR even though it was privy to enormous amounts of non-public information about the interbank loan market and even though its members had private communications with the banks precisely on the subject of LIBOR. An after-the-fact audit by the FCA substantiates that it would have been extremely difficult for a person of ordinary intelligence to contemporaneously determine that Defendants were misreporting banks simply by comparing their LIBOR submissions with other market indices, because during the financial crisis relationships between traditionally consistent comparator benchmarks and indices were no longer necessarily reliable, since many of the markets had ceased to trade or function normally.

530. Two recent Audit Reports of the FCA, the United Kingdom's financial regulator, became available after March 5, 2013, when the Court held oral argument on Defendants' motions to dismiss Plaintiffs' claims.

531. These Audit Reports are the FCA Audit Report (a 102 page report) and the FA Management Response to the Audit Report (a 22 page report). *See supra* VI.A and note 52.

532. The FCA made its first internal announcement of a formal investigation of LIBOR in May 2010. *See* Transcript, House of Commons, Oral Evidence Taken Before the Treasury Committee, July 16, 2012 at Q1085 (MDL No. 2262 Dkt. No. 209-8).

533. The Audit Reports detail the investigation conducted by the FCA, for the period January 2007 to May 2009, and demonstrate that the FCA was unaware of, or did not seriously pursue any evidence of, intentional suppression of LIBOR in 2008 and 2009.

534. As part of the FCA's investigation, FCA internal auditors reviewed approximately

97,000 documents and found 74 sets of communications "that could have been interpreted as providing information relevant to the 'lowballing' issue." FCA Management Response ¶ 2.4 and summary of communications at FCA Audit Report ¶¶ 64, 82, 99, and 126.

535. Of the 74 sets of communications culled from the 97,000 documents considered by the FCA, only 9 were available to the public. *See* FCA Audit Report, Discussion of Communications 5, 43-49, and 51, at pages 21, 56-61, 63, and 72.

536. As used in the Audit Reports, the term "lowballing" referred to "inappropriate LIBOR submissions to avoid negative media comment." FCA Audit Report ¶ 3.

537. The Audit Reports found that, although many of the communications showed "dislocation" between LIBOR and other indicators, "this does not, in itself, suggest either that there was any awareness of 'lowballing' or that FCA staff should have inferred that 'lowballing' was occurring." FCA Management Response ¶ 2.1.

538. The FCA Audit Report confirms that the FCA was familiar with *Wall Street Journal* and *Bloomberg* articles in April and May 2008, as well as the April 2008 Citigroup analyst report and the BBA Feedback Statement. *See id.*, Discussion of Communications 35-36, 38, 40, 42-49, and 51, at pages 45-46, 50, 53-54, 56-61, 63, and 72.

539. But even though the FCA had access to the 97,000 communications that the auditors considered in their investigation, the United Kingdom's financial regulator did not find that the public information about market dislocation should have provided the FCA with notice that LIBOR was being manipulated. The audit further found that the regulator could not have known about the episodic manipulation for trading gain highlighted most clearly in the Barclays settlement documents.

540. The internal auditors broke the 75 sets of communications analyzed into four

separate time periods. The first two periods, January, 1, 2007 to December 31, 2007 and January 1, 2008 to March 31, 2008, split into two periods merely for the ease of readability due to the length of time, cover the period when the market conditions began deteriorating. The third period, April 1, 2008 to June 25, 2008, covers the period up to when the BBA published a consultation paper on the LIBOR fixing process. The fourth period, June 26, 2008 to May 31, 2009, covers the remaining period in the scope of the auditors' review. *Id.* ¶¶ 59-60.

1. The Period From January 1, 2007 To December 31, 2007

541. In section 3.1 of the FCA Audit Report, detailing the communications for the period from January 1, 2007 to December 31, 2007, the auditors recognize that "[m]arket conditions deteriorated in the second half of 2007 as the subprime mortgage crisis developed. This was reflected by a sharp increase in LIBOR-OIS spreads with the Sterling 3 month spread exceeding 100bps by the beginning of September. A number of financial institutions experienced liquidity issues, and the Bank of England announced on 14 September that it was providing a liquidity support facility to Northern Rock." "Although narrowing towards the end of September, LIBOR-OIS spreads widened to over 110bps at the beginning of December as various financial institutions announced large write-offs and losses and were subject to ratings warnings and downgrades." *Id.* ¶¶ 61-62.

542. After analyzing all of the relevant communications culled from the January 1, 2007 to December 31, 2007 time period, the FCA concluded that the communications showed reports on LIBOR dislocation appeared from September 2007 as LIBOR-OIS spreads began to peak. *Id.* ¶ 66.

543. But rather than attributing "dislocation" to any wrongdoing such as "lowballing," the FCA "noted that <u>deteriorating market conditions</u> were causing dislocation between LIBOR and

other indicators, and interacted with structural issues in the LIBOR fixing process." *Id.* ¶ 67 (underline in original)

544. The FCA noted "dislocation" was being manifested in a number of ways, including:

- the spread between LIBOR fixings and other rates (such as the Overnight Indexed

  Swap rate . . .) widening;
- the volatility in LIBOR fixings and spreads;
- the divergence between LIBOR submissions and actual rates that could be obtained in the market;
- a wider dispersion of LIBOR submissions . . .; and
- a greater divergence between funding rates for different banks depending on their perceived creditworthiness (also known as 'tiering').

Id. ¶ 67.

545. The FCA explained that communications from some of the banks about LIBOR "dislocation" may simply have been the result of misperception on the part of less creditworthy banks. The FCA explained it this way:

> One of the implications of tiering is that LIBOR fixings became a poorer predictor of the rate at which a particular bank might be able to borrow. For example, a less creditworthy bank might only be able to borrow at substantially above the LIBOR fixing, whilst a more creditworthy bank might be able to borrow at substantially below. It may have appeared from the viewpoint of the less creditworthy bank that LIBOR and fixings were artificially low. So tiering may have been the explanation for communications:
>
> - in which contacts mentioned that fixes might be understating true borrowing costs (Communication 8); and
> - that highlighted where specific institutions were paying above LIBOR fixings (Communications 3, 7, 9 and 11).

Id. ¶ 68.

546. In addition to attributing "dislocation" to market conditions, the FCA also recognized the contribution of the following "structural issues in the LIBOR fixing process," which are all attributable to the then-prevailing market conditions:

- "The impact of tightening of liquidity and lack of activity in the market."
- "As LIBOR is fixed at a point of time actual trades could be expected to differ from the 11am fixing, particularly during periods of volatility. This is supported by the comment in Communication 1: "LIBOR is moving intraday and no one knows the true value." The dollar fixing at 11am London time may have been particularly problematic as this was at a point in time when the New York markets were not yet open."
- "The BBA definition of LIBOR included submissions being based on 'reasonable market size' borrowings. Trades of different amounts, particularly in stressed market conditions, could attract different funding rates (in addition to the lack of liquidity)."

Id. ¶ 69.

547. The FCA recognized that several of the communications not available to the public during the January 1, 2007 to December 31, 2007 time period made more direct reference to potential "lowballing." *Id.* ¶ 70.

> Two of the communications from the Bank of England (Communications 10 and 12) reported comments that suggested there was an incentive for LIBOR submitters to provide a submission that was no higher than peer firms, i.e. that banks were conscious of the impact that higher submissions might have on their funding. A further Bank of England market update (Communication 4) referred to banks *"keeping [LIBORs] low."* In addition, the minutes of the Bank of England's Sterling Money Markets Liaison group (Communication 5) cited the quality and control safeguards over LIBOR and noted that dispersion between submissions had fallen back, in part due to BBA clarification on definitions. We considered that one interpretation of these minutes could be a concern about the accuracy of LIBOR submissions and potential lowballing.

Id.

548. Commenting on the FCA's awareness of the significance of the communications during the January 1, 2007 to December 31, 2007 time period, the auditors comment that those communications "clearly show that there was awareness within the FCA of dislocation." *Id.* ¶ 71. But the auditors commented that, even though all of the non-public communications from the Bank of England noted to have a direct link to potential "lowballing" were widely circulated, including to an acting managing director, no one within the FCA viewed the issue as one to be escalated to

the FCA Board. *Id.* ¶¶ 73-74.

549. Despite having more non-pubic information related to lowballing, during the January 1, 2007 to December 31, 2007 time period, "the FCA did not take any specific action to consider or investigate potential lowballing." *Id.* ¶ 75. Nor is there any "evidence that the FCA raised any concerns about LIBOR (structural or other) with the BBA within this period. *Id.* ¶ 77.

2. The Period From January 1, 2008 To March 31, 2008

550. In section 3.2 of the FCA Audit Report, detailing the communications for the period from January 1, 2008 to March 31, 2008, the FCA commented that

> [m]arket conditions continued to deteriorate in the first quarter of 2008, with stock markets falling (the FTSE 100 fell 11%). Significant events included Her Majesty's Treasury (the Treasury) announcing on 17 February that it was bringing Northern Rock into public ownership and on 16 March, Bear Stearns being acquired by JP Morgan Chase (following support from the New York Federal Reserve Bank). Although LIBOR-OIS spreads fell in the first two weeks of January, they increased thereafter to levels just below the peaks of late August 2007 and early December 2007.

Id. ¶ 80.

551. After analyzing all of the relevant communications culled from the January 1, 2008 to March 31, 2008 time period, the FCA concluded that the communications "clearly showed that reports on dislocation were continuing into 2008, similar to those we have described for 2007" and that there continued to be an "awareness within the FCA of a dislocation between LIBOR fixing and market activity." *Id.* ¶¶ 84, 89.

552. The FCA also found that, during the January 1, 2008 to March 31, 2008 time period, a number of non-public communications included "more direct reference to potential lowballing." *Id.* ¶ 84. One example the FCA identified of a more direct reference to lowballing is one referred to in the Barclays' Final Notice. Communication 28 in the FCA Audit Report "was a routine liquidity call to the FCA from 'Manager D' at Barclays. The relevant comment was

Manager D saying: 'what is everybody, open brackets to be honest, including ourselves close brackets, going to do? Keep their heads below the parapet and not stick out'." The FCA "observed that a summary of the call was included in an email summarizing major banks' funding positions, which had a wide general circulation across the [FCA]." But, although the summary contained comments about LIBOR being "too low" and that "the calculation of the LIBOR benchmark might be causing apparent distortions", none of the circulated emails took notice of the particular wording highlighted above. *Id.* ¶ 85.

553. In addition to Communication 28, the FCA also identified a number of other non-public communications in this period related to Barclays (Communications 22, 25 and 29) – "of these, we considered one of these included a more direct reference to potential lowballing (the comment within Communication 25 regarding 'banks […] posting artificially low reference rates so as not to draw attention on themselves')." *Id.* ¶ 86.

554. Similar to the FCA's observations about the preceding period, the FCA auditors commented that, despite the circulation of the various communications considered to contain more direct reference to potential lowballing, no one within the FCA escalated the issue to the FCA Board. *Id.* ¶¶ 90, 92.

555. Based on the communications from the first quarter of 2008, the FCA found that its view based on the 2007 communications remained unchanged – namely:

> we recognised that dislocation was being caused by the interaction of deteriorating market conditions (leading to 'tiering' . . .) with structural issues in the fixing process . . . . We observed many references to these issues in the communications during this period, as described below.
>
> - Tiering - "*Tiering is becoming more apparent*" (included within a separate part of Communication 26) and "*the few lenders […] in the market are increasingly […] name sensitive*" (Communications 25 and 29).

- Tightening of liquidity – "There is very little interbank lending past O/N" (Communication 21), "*There are very few offers around today*" (Communication 23), "*There is little to no cash available where LIBORs are setting*" (Communication 25) and "*There are few cash offers to support where LIBORs are being set*" (Communication 29).
- Other structural issues - Communication 26 includes a comment that "*rate setters are saying that they are getting cheap funding direct from several sources*" – this suggests that some submitters may have been using references other than interbank on which to base their submissions.

Id. ¶ 94.

556. The FCA also commented that, during the first quarter of 2008, it "observed external views in the period that recognised LIBOR dislocation, but did not conclude that there was also lowballing."

> The most significant example was an article within the Bank for International Settlements Quarterly Review published on 3 March 2008. A copy was sent to the [FCA's] Chairman, CEO and managing directors. The article entitled 'Interbank rate fixings during the recent turmoil' analysed the robustness of fixings using statistical data and anecdotal evidence for the second half of 2007. This highlighted that a submitter had an incentive to quote a lower interest rate publicly "for fear of increasing its borrowing costs" and to manipulate submissions to benefit from positions that referenced the fixing. However, it concluded that "alternative methods of estimating LIBOR […] gave no indication that fixings were manipulated" and that movements in fixings "reflected the dislocation in the underlying interbank markets [… c]hanges in the credit quality of [submitters…]and a deterioration in liquidity."

Id. ¶ 95.

557. This study counteracted the other information the FCA had that there might be lowballing. Indeed, the only information that the FCA had that there was lowballing aside from simple market metrics, which it discounted, consisted of private communications not available to the public.

3. The Period From April 1, 2008 To June 25, 2008

558. In section 3.3 of the FCA Audit Report, detailing the communications for the period from April 1, 2008 to June 25, 2008, the FCA commented that

> Stressed market conditions continued into this period, as reflected by LIBOR-OIS spreads which remained at a high level throughout the period . . . . To help improve liquidity in the banking system, the Bank of England launched its Special Liquidity Scheme on 21 April 2008. This allowed banks to swap high quality mortgagebacked and other securities for UK Treasury Bills.

Id. ¶ 95.

559. The FCA also noted that "[o]n 16 April 2008, the BBA announced that it had brought forward its annual review of the LIBOR fixing process on account of dislocation. This culminated in the publication, on 10 June 2008, of a consultation paper seeking comments on proposals to modify the LIBOR fixing process. It also generated speculation on the accuracy of LIBOR fixings. A number of media articles commenting on the accuracy of LIBOR fixings were published during this period." *Id.* ¶ 95.

560. After analyzing all of the relevant communications culled from the April 1, 2008 to June 25, 2008 time period, the FCA concluded that the communications during this period "showed that reports on dislocation increased materially . . . relative to the two previous periods." *Id.* ¶ 101.

561. In addition, the FCA commented that "[t]he communications in this period also made a more direct reference to potential lowballing, particularly following the BBA's announcement of its review on 16 April 2008." "[The FCA] considered that these included:

> - media articles claiming firms were submitting lower rates to avoid speculation about their funding position (Communications 35 and 42 to 49);
> - concerns raised by firms including by two non LIBOR Panel Banks (Communications 30 and 32) and by Barclays (Communications 37, 38, 41);
> - a comment within a Bank of England Market conditions update the day the BBA review was announced regarding the reference to the ban being "*thought*

to be aimed at European banks understating their US$ fixing, given they did not want to publicly acknowledge their higher bidding rates" (see the introduction to Communication 36); and

- comments that secured funding rates were higher than unsecured rates (Communications 33 and 35)."

Id. ¶ 102.

562. Most of these communications were not available to the public. Commenting on the FCA's awareness of the significance of the communications during the April 1, 2008 to June 25, 2008 time period, the FCA acknowledged that there was a wide circulation of most of the communications in this period." *Id.* ¶ 103. It also commented that half of the communications considered for this period went to managing director level or above and that there were examples of the Chairman's office asking for copies of documentation. *Id.* ¶¶ 102, 103.

563. But, as with the earlier periods, many of the communications were not fully escalated, with many neither circulated nor escalated beyond supervisory teams. For example, the FCA singled out one non-public Communication 37, as being particularly significant because it referred to Barclays' sticking its "*head above the parapet*". The FCA commented that "This would have been a particularly useful communication as context to the reference to Barclays in various Bloomberg articles at the time, although it did not add materially to the Bloomberg points." *Id.* ¶ 104.

564. The FCA also found that, during the April 1, 2008 to June 25, 2008 time period, "there was some awareness within the FCA of the significance of potential lowballing." "Relevant comments by FCA staff included:

- The comment from a member of staff below director level within Prudential Risk Division about the claim from the non LIBOR Panel Bank (Communication 30): "*[the] implications if someone wanted to challenge the 'fairness' of the fixes are massive*".
- The comment from a member of staff below director level within General Counsel's

Division in relation to a note on a Market Conditions meeting (Communication 34) –"*there could be a more significant issue if it is not being calculated properly as that would potentially mean that people are paying rates on a false premise.*"

- The comment from a member of staff below director level within Markets Division in relation to the same Market Conditions note: "*Its very difficult to tell if this is a real issue (if it were there may be market manipulation issues).*"
- The minutes of a meeting with the BBA of 22 May 2008 highlighting that the FCA's "*central concern is that some banks have on occasion been posting Libor fixings which do not accurately reflect their cost of funding*" (Communication 36).
- With reference to the contact from the CFTC, the comment from a member of staff below director level within Prudential Risk Division that "*[they would] rather discuss this off email*" (Communication 40)."

Id. ¶ 105.

565. As with the previous periods, the FCA found no indication that anyone at FCA had escalated any communications relating to potential lowballing to the FCA Board during the April 1, 2008 to June 25, 2008 time period. *Id*. ¶ 107. As with the preceding period, "LIBOR rates were mentioned as part of 'general market conditions' updates provided to the April and May 2008 Board meetings. However, these references were used to illustrate funding conditions at the time and made no reference to lowballing." *Id*.

566. Based on the communications analyzed, the FCA saw "no evidence of the [FCA] discussing with the BBA concerns raised by firms, market intelligence or other communications in this period. This was despite some of the primarily non-public communications making direct reference to potential lowballing – particularly the non-public claims from Barclays (made to one of the firm's supervisors - Communication 37). Similarly, [the FCA] found no evidence [that it had received] any information from the BBA regarding potential lowballing by individual firms." *Id*. ¶ 117. As described by a member of the Markets Division: "Its very difficult to tell if this is a real issue (if it were there may be market manipulation issues)."

567. As with the preceding periods, the FCA continued to attribute the dislocation to

market conditions rather than to any wrongful conduct like lowballing and most of its information describing lowballing came from non-public communications. Commenting on the context for the April 1, 2008 to June 25, 2008 time period, the FCA indicated the following several factors that "would have influenced the FCA's actions":

- There continued to be communications referring to dislocation caused by deteriorating market conditions (including the impact of tiering – *see* paragraph 68) interacting with structural issues in the LIBOR fixing process (*see* paragraph 69). For instance, an FCA staff member's understanding of the claim from the non LIBOR Panel Bank (Communication 30, which we considered was a more direct reference to lowballing) was that it was motivated by that bank being disadvantaged in relation to its own particular funding costs and investments due to tiering, particularly as it was a small bank.
- We observed communications in the period that recognised LIBOR dislocation, but did not indicate that there was also lowballing. These included:
- Communications received by the FCA, such as a research paper by JP Morgan dated 16 May 2008 which concluded *"In our view, the LIBOR fixing process is not broken; BBA Libor broadly reflects the borrowing costs of top tier large banks. Differences between Libor and other indices can largely be explained by the composition of the Libor panel. The main limitations of Libor are due more to lack of liquidity in the market rather than any bias in the fixing process".* There were also observations on 20 May 2008 attributed to two LIBOR Panel Banks, referred to in FCA communications on market conditions, that *"Comments in the press around LIBOR reflected their view that LIBOR posted up through 6 months are 'accurate'".*
- Within the FCA, a note dated 25 April 2008 from a member of staff within Strategy and Risk Division, commenting on money market movements and the future of LIBOR, concluded "LIBOR isn't broken: the present level of term LIBOR rates accurately reflects current liquidity conditions". As highlighted in Communication 48, there was also analysis carried out by the Banking Sector team which concluded that the 29 May 2008 Wall Street Journal article contained inaccuracies.
- Although two media articles (Communications 42 and 43) reported that an article within the March 2008 Bank for International Settlements Quarterly Review commented on the potential for lowballing, as we highlighted in paragraph 95 of Subsection 3.2.2, the article's main conclusion was that there was: "no indication that fixings were manipulated".

Id. ¶ 121.

568. As described in Communication 48, the Director of the Banking Sector asked the

Banking Sector team to review the methodology in the May 29, 2008 *Wall Street Journal* article. The Banking Sector team concluded that the article contained inaccuracies because the data "compared different rates with different maturities (3 month LIBOR with data appearing to be 6 month CDS spread)" and the methodology may not have fully accounted for the Credit Default Swap counterparty risk. FCA Audit Report at 62. Thus, the FCA had data that suggested that LIBOR was not being manipulated and based on those data did not escalate the issue even though it had private communications about possible LIBOR lowballing that were not available to the public.

4. The Period From June 26, 2008 To May 31, 2009

569. In section 3.4 of the FCA Audit Report, detailing the communications for the period from June 26, 2008 to May 31, 2009, the FCA noted the continuing poor market conditions throughout most of 2008, noting that:

a. "[s]tressed market conditions continued at the beginning of this period, with LIBOR-OIS spreads remaining wide, although relatively stable, throughout July and August 2008," *Id.* ¶ 122;

b. "[f]rom September 2008, market conditions deteriorated significantly; LIBOR-OIS spreads widened sharply following the collapse of Lehman Brothers on 15 September 2008 and the sale of Merrill Lynch to Bank of America the same day. Many financial institutions were reported as experiencing difficulties and stock markets were volatile - the FTSE 100 index fell by 381.7 points on 10 October 2008 in its highest daily fall since the crash of 1987. The US Dollar LIBOR-OIS spread reached a historic high of 365bps on 10 October 2008 and the Sterling LIBOR-OIS spread to 299bps on 6 November 2008," *Id.* ¶ 123; and

c. "[t]he interventions of central banks meant that, towards the end of 2008, LIBOR-OIS spreads began to fall, indicating a relative improvement in market conditions. Further significant market events included the Bank of England's reduction of its base rate to a historic low of 0.5% and the initiation of its quantitative easing programme on 5 March 2009," *Id.* ¶ 124.

570. During this time period, the FCA identified one non-public communication that it considered "more directly referred to potential lowballing." Id. ¶ 128. This was the note for record

of a meeting with Barclays (Communication 68) which stated: "*Barclays described their LIBOR settings as 'honest', something they don't believe to be the case for all participants [...] They questioned whether some firms had been somewhat disingenuous with their LIBOR fixings*." *Id.*

571. The FCA noted that much of what it considered to be the key the communication from this period was widely circulated, the evidence indicated that it was not circulated or escalated outside the Supervision division that received it to other relevant Divisions. And as with the preceding periods, no one in the FCA escalated any communication concerning the lowballing issue to the FCA Board during this period. *Id.* ¶¶ 129, 130.

572. As in each of the preceding periods, the FCA continued to attribute the dislocation to factors other than wrongdoing such as lowballing. The FCA explained:

> We recognised that in addition to the comments on the BBA's statement, there were other factors that might explain why additional action was not taken:
>
> - . . . market conditions interacting with structural issues continued to cause dislocation (for example, 'tiering' of funding rates across banks - see paragraph 68). A report by the Association of Corporate Treasurers of 23 February 2009 noted that: "*Several banks were reluctant to accept that the market did not regard them as the strongest of credits and had suggested that the panel banks must have been under estimating their real cost when submitting to the calculation panel. More recently, there has been more acceptance that a bank's cost of funds will be dependent on its perceived credit standing.*" On structural issues in the LIBOR fixing process . . . , several communications in this period suggested that a lack of transactions contributed to perceptions that LIBOR fixings did not reflect market conditions (for example, Communications 54, 73 and 74).
> - the context of the financial crisis which peaked during this period, meant that the [FCA's] supervision resources were stretched to breaking point in dealing with the implications of the financial crisis for firms' capital and liquidity positions. Moreover, given that LIBOR rates were increasing, there was focus on the prudential impact of this and feedback from firms that LIBOR fixings and submissions were too high.
> - the International Monetary Fund's October 2008 'Global Financial Stability Report' (a draft of which the [FCA] was sent in August 2008) contained a section entitled 'Is the LIBOR fix broken?'. Although recognising that the integrity of US dollar fixing process had been questioned by some market participants and the financial press, and welcoming the BBA's review of

> LIBOR, the Report noted: *"U.S. dollar LIBOR remains an accurate measure of a typical creditworthy bank's marginal cost of unsecured U.S. dollar term funding."*

Id. ¶ 136.

573. During this period, therefore, the FCA was confronted with a myriad of complex variables surrounding the financial crisis, which served to distract it from being able to evaluate. Included among these variables was the assertion that LIBOR was too high. Also included was a Global Financial Stability Report from August 2008 stating that "U.S. dollar LIBOR remains an accurate measure of a typical creditworthy bank's marginal cost of unsecured U.S. dollar term funding." Many of these same variables associated with the financial crisis confronted ordinary investors, who had many fewer tools and sources of information with which to evaluate the situation.

5. The United Kingdom's Financial Services Authority Conclusion For The Period From January 1, 2007 To May 31, 2009

574. Based on the totality of the communications during all of the relevant time periods from January 1, 2007 to May 31, 2009, the FCA saw no indication of manipulation to benefit derivative traders, *Id.* ¶ 6, and though it was well aware of LIBOR dislocation, it did not attribute the dislocation to wrongdoing such as lowballing. Rather, "[t]he [FCA] recognised that LIBOR dislocation was caused by structural issues in the LIBOR fixing process interacting with the deteriorating market conditions." *Id.* ¶ 28. At the time, the FCA's view was that "[t]he combination of deteriorating market conditions and structural issues in the LIBOR fixing process therefore would have caused dislocation completely independent of any lowballing or trader manipulation." *Id.* ¶ 26.

575. The FCA also found that there was no possibility of detecting trader based, episodic manipulation from the information it had collected.

J. <u>The Manipulation Described In The Barclays, UBS and RBS Settlement Documents Were Not Publicly Available</u>

576. The episodic USD-LIBOR manipulation exposed in the Barclays settlement was a type of manipulation of LIBOR that was of a different kind than the collective suppression highlighted in the Federal Reserve Eurodollar Deposit Rate study above. This LIBOR manipulation was done periodically, at least 153 times for USD-LIBOR beginning in 2005 for Barclays alone, and consisted of individual or collective manipulation of LIBOR for trading gain of certain positions taken by traders, including Eurodollar futures positions.

577. This manipulation as described in the Barclays, Deutsche Bank and other settlement documents was more difficult to detect. Indeed, although the market knew of dislocations in the interbank lending market between August 2007 and into 2010, there was no direct discussion of the smaller misreports used for trading gain that was the hallmark of this sort of manipulation strategy. Because this strategy sometimes involved smaller misreports by the banks,it was therefore largely undetectable without insider knowledge of the activities.

578. As stated by the FCA Audit Report during all of the relevant time periods from January 1, 2007 to May 31, 2009, the FCA saw no indication of manipulation to benefit derivative traders, *Id.* ¶ 6, and though it was well aware of LIBOR dislocation, it did not attribute the dislocation to wrongdoing such as lowballing.

579. Between 2003 and August of 2007, there were no public indications that USD-LIBOR had been manipulated for trading gain. After August 2007, the most any public reports said (before 2010) was that the market was dislocated and banks might be misreporting because of their interest in not appearing unstable. The new information about trading manipulation includes events after August 1, 2007. The misconduct disclosed, especially the strategies used and their timing, in question was not publicly known during the Class Period and only became public

at the time of the settlements. A person of ordinary intelligence would not have known that they had probably been defrauded by this sort of conduct during the Class Period simply by looking at discrepancies between LIBOR and other indices and benchmarks.

580. The suppression discussed in the Rate study is not inconsistent with the trader manipulation described in the Barclays settlement documents. Traders could take advantage of LIBOR misreports to make a gain on the trading positions even as the reporting bank overall suppressed LIBOR in connection with a general suppression strategy. Indeed, knowing that LIBOR would be artificially suppressed made it possible for traders to take positions to advantage themselves of this improper reporting against a market that took positions unaware that the misreporting existed. Nevertheless, there were no public indications that misreporting for trading gain was occurring, only that LIBOR was generally lower than other indices, which raised questions about its accuracy, during the financial crisis.

581. In the period between January 2005 through May 2011, Defendants knowingly and intentionally manipulated the price of Eurodollar futures contracts via their manipulation of LIBOR. The documents and findings from the various settlements, as set forth above in Sections V.D.-V.I. are incorporated herein by reference and illustrate the deliberate manipulation of LIBOR and Eurodollar futures contracts prices to increase the profitability of Defendant's or other affiliate's trading positions in Eurodollar futures contracts and other LIBOR-based derivatives.

582. The incidents in the settlements include both Defendants' day-to-day trading manipulation both before August 2007 and after that period during the Class Period, when Defendants contemporaneously were artificially suppressing their reported LIBORs and manipulating the price of Eurodollar futures contract prices in order to present an artificial, more sanguine view of their financial health to the public.

583. These settlement documents likely represent evidence of only a fraction of the manipulation at issue as Barclays' traders made requests to submitters ***in person***, via email, and through electronic "chats" over an instant messaging system and documents from most of the Defendants are still not available. *See* Barclays CFTC Order at 8; Barclays DOJ SOF ¶ 11. As the manipulation of LIBOR was and is illegal, Defendants likely often used in person conversations or conversations via cellular phone to reduce the chance of detection by the authorities.

584. Moreover, Barclays and UBS are only two of the Defendants who settled cases having to do with USD-LIBOR – doubtless significant more evidence of manipulation will be found in the electronic vaults of the additional Defendants. For example, Bob Diamond, the former head of Barclays, told the British Parliament the day after he stepped down in 2012: "There is an industry-wide problem coming out now."

585. Furthermore, additional discovery will help ascertain the degree to which Defendants' motivation to manipulate LIBOR to increase the profitability of their Eurodollar futures and other LIBOR-based trading positions was concurrent with their motivation to suppress LIBOR to enhance the appearance of their financial stability. That is, it will become clearer how much Defendants may have manipulated LIBOR in a way that simultaneously benefited a trading book and enhanced their aura of financial stability – a likely possibility since "trading manipulation" and "general suppression" often occurred at the same time. *See, e.g.*, Barclays CFTC Order at 2 ("[t]he wrong conduct spanned from at least 2005 through at least 2009; "from at least mid-2005 through the fall of 2007, and sporadically thereafter into 2009, Barclays based its LIBOR submissions for U.S. Dollar (and at limited times other currencies) on the requests of Barclays' swaps traders…who were attempting to affect the official published LIBOR, in order to

benefit Barclays' derivatives trading positions") (trading manipulation finding); Barclays DOJ SOF ¶ 36 ("From approximately August 2007 through at least approximately January 2009, Barclays often submitted inaccurate USD-LIBORs that under-reported its perception of its borrowing costs and its assessment of where its USD-LIBOR submission should have been" in order to submit rates that "would be consistent with the submissions of other USD-LIBOR Contributor Panel banks") (suppression finding).

586. The RBS deferred prosecution agreement and settlement documents disclose that trading manipulation was ongoing in August 2007 and continued into 2010. *See* RBS DPA; RBS FCA Final Notice ¶¶73-74. The Deutsche Bank plea agreement with the DOJ discloses that trading manipulation was ongoing since "at least 2003 through at least 2010." DB DOJ SOF ¶16.

587. None of this information was revealed in the *Wall Street Journal* in 2008 or through any other publicly available source of information until June 2012. Even what was known – that LIBOR appeared to be out of line with other indices – was the subject of debate and uncertainty. The allegations of trading manipulation are therefore tolled because person of ordinary intelligence who read all relevant public information could have discovered that Defendants were concealing their trading manipulation. Thus Plaintiffs in the exercise of ordinary diligence could not have discovered this concealment.

K. <u>The Evidence Produced In The Barclays And UBS Settlements Confirm That After The Wall Street Journal Published Its Article, Defendants and Former Defendants/Co-Conspirators Took Affirmative Steps To Conceal Their Manipulation Of LIBOR For Trading Purposes</u>

588. Prior to the publication of the *Wall Street Journal* article on May 28, 2008, Barclays internal documents revealed that traders recognized that the manipulation of LIBOR and Eurodollar futures prices was at the least improper. *See e.g.,* 122 (Remember, when I retire and write a book about this business your name will be in golden letters…" Submitter-1 replied, "I

would prefer this not be in any books!" Barclays DOJ SOF ¶ 13; Barclays FCA Final Notice ¶ 59(iii). Despite this awareness, Defendants still occasionally created documents that memorialized their manipulation of LIBOR in order to distort the price of Eurodollar futures.

589. After May 28, 2008, however, the documentary pattern changed. Specifically, there are no documents from Barclays traders memorializing their manipulation of LIBOR to distort the price of Eurodollar futures. This does not, however, mean that the manipulation was over. On the contrary, the information about Former Defendant RBS's trading described above in Section V confirms that trading manipulation still occurred after the publication of the *WSJ* Article – just much more surreptitiously. For this reason, among many others, Plaintiffs also were not on inquiry notice of the manipulation of Eurodollar futures contracts prices after May 2008.

VII. EURODOLLAR FUTURES AND OPTIONS ON FUTURES

A. Defendants' Manipulation Of LIBOR Broadly Impacted Eurodollar Futures And Options On Eurodollar Futures

590. In general, Eurodollars are defined as "U.S. dollars deposited in commercial banks outside the United States."[148] While Eurodollar banking began in Europe, this banking is now active in major financial centers all around the world.[149] Banks accepting Eurodollar deposits use the money to make two types of investments: loans and interbank placements. *Id.*

591. LIBOR-based Eurodollar futures and options on futures trade on the CME. These contracts are traded in an open outcry form in Chicago and also electronically on the CME's GLOBEX platform.[150] Eurodollar futures contract is one of the most actively traded futures contracts in the world. For 2012, the trading volume on CME totaled $425 trillion for the 3-month LIBOR futures alone.[151]

592. According to the CME Group, "[i]n practice, Eurodollar futures are a proxy for the ... LIBOR-based credit curve."[152] Eurodollar futures are defined as "an interest rate product that represent the interest earned on U.S. Dollars held overseas [Eurodollars], regardless of where that might be ... The U.S. Dollars on deposit earn interest equivalent to ... LIBOR." Eurodollar Futures, available at http://www.usinterestratefutures.com/eurodollar-futures.html.

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[148] *See* CME Group, Interest Rate Products: Eurodollar Futures, http://www.cmegroup.com/trading/interest-rates/files/IR148_Eurodollar_Futures_Fact_Card.pdf; *see also* Traderslog, Introduction to Trading Eurodollars, *available at* http://www.traderslog.com/trading-eurodollars/ ("A Eurodollar is a dollar denominated deposit held in a bank outside of the United States.").

[149] *See* Eurodollars, *available at* http://wfhummel.cnchost.com/eurodollars.html.

[150] Open outcry hours are Monday through Friday, 7:20AM to 2:10PM, CT. CME Globex hours are Sunday through Friday, 5:00PM to 4PM, CT. See, http://www.cmegroup.com/trading/interest-rates/stir/eurodollar_contract_specifications.html, last visited May 16, 2013.

[151] For the 3-month LIBOR futures, the total trading volume on Chicago Mercantile Exchange for 2012 equaled about 425 million contracts. Since each contract is for $1 million in notional principal, this means that for 2012, the total trading volume was about $425 trillion dollars in notional principal.

[152] *See* Jeff Bauman, John Coleman & Rob Powell, Interest Rate Products: Creating Inexpensive Swaps, CME Group, *available at* http://www.cmegroup.com/trading/interest-rates/files/IR194_CreatingInexpensiveSwaps.pdf.

593. A Eurodollar futures contract is a proxy for a Eurodollar time deposit having a principal value of US $1,000,000 with a three-month maturity. Each Eurodollar futures contract is for a Eurodollar Interbank Time Deposit and has a principal value of $1,000,000 with a three-month term to maturity. Thus, a one percentage point move in Eurodollar futures results in a $2,500 increase or decrease in the value of the futures contract ($1,000,000 x .01 x .25). Eurodollar futures terminate trading on the second London bank business day immediately preceding the third Wednesday of the contract's named month of delivery (*e.g.*, March, June, September or December).

594. The final settlement price of the Eurodollar futures contract is defined as "cash settlement to 100 minus the British Banker's Association survey of 3-month LIBOR" determined at the BBA LIBOR fixing on the second London bank business day immediately preceding the third Wednesday of the contract's named month of delivery.[153] In fact, the terms "LIBOR futures" and "Eurodollar futures" are often used interchangeably.[154] Eurodollars futures contracts have no set settlement price on their own without reference to LIBOR. LIBOR is included in the Eurodollar futures contract's definition and is an integral part of the price of the futures contract. Any fluctuation or manipulation of the LIBOR rate will have a direct and immediate impact on the settlement price of the Eurodollar futures contracts and on their actively trading prices as well.

595. Eurodollar futures are cash settled daily. Each day, gains and losses are computed based on the settlement price for that day compared to the previous trading day's settlement price, and the difference in contract price times the number of contracts is either debited or credited in

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[153] *See* CME Group; *see also* Interest Rate Futures Contracts Explained, *available at* http://www.mysmp.com/futures/interest-rate-futures.html ("CME's Eurodollar contract reflects pricing at 3 month LIBOR on a $1 million offshore deposit.").

[154] *See* Andrew Lesniewski, The Forward Curve, Interest Rate and Credit Models, at 3 (Jan. 28, 2008), *available at* http://math.nyu.edu/~alberts/spring07/Lecture1.pdf ("LIBOR futures (known also as the Eurodollar futures) are exchange traded futures contracts (they trade on the Chicago Mercantile Exchange) on the 3 month LIBOR rate.").

each trader's margin account. The final cash settlement depends on the final settlement price, namely 100 minus the three-month BBA LIBOR fixing on the second London bank business day immediately preceding the third Wednesday of the contract's month of delivery. This value is then rounded to the nearest 1/10,000th of a percentage point per annum.[155]

596. Traders use Eurodollar futures to lock in a borrowing rate or a lending rate at LIBOR. Suppose that on January 8, 2007, a trader wants to lock in a lending rate at LIBOR that will be earned on $1 million for 3 months starting on June 20, 2007. On January 8, 2007, this trader would buy (go long) one Eurodollar futures contract for June 2007 maturity at say, 94.79. Let's suppose that on June 20, 2007, the 3-month LIBOR interest rate is 4% so that the final settlement price equals 96.00. This investor gains $25 * (9600 – 9479) = $3.025 from his long position in Eurodollar futures. By investing $1 million at 4% LIBOR for 3 month on June 20, 2007, this investor would also earn $10,000 in interest. The gain in futures contract brings the total to $13,025. This is the same interest he would have earned had the interest rate been 5.21% ($1,000,000 x 0.25 x 5.21%). Thus, the futures trade has the same effect of locking a lending rate equal to (100 – 94.79) % or 5.21%. Investors interested in locking a LIBOR **borrowing** rate would initially **sell** (short) Eurodollar futures contracts.

597. Eurodollar futures thus are priced specifically on three-month LIBOR as reported to the BBA by Defendants. If the rates that Defendants reported for LIBOR were artificially low, then at the time of expiration, the settlement price for Eurodollar futures would be artificially high. If the rates that Defendants reported for LIBOR were artificially high, then at the time of expiration, the settlement price and, prior to then, the trading price for Eurodollar futures would be artificially low. This is because the underlying value of the Eurodollar contract is inversely

[155] http://www.cmegroup.com/trading/interest-rates/files/final-settlement-procedure-eurodollar-futures.pdf, last visited May 16, 2013.

related to the interest rate. That is, the settlement price is 100 minus the three-month Eurodollar interbank time deposit rate. The lower the rate, the higher the settlement price, and vice versa. Defendants' artificial suppression of LIBOR would have caused higher Eurodollar futures contract settlement prices than would have otherwise occurred. Similarly, Defendants' artificial inflation of LIBOR would have caused lower Eurodollar futures contract settlement prices than would have otherwise occurred. Furthermore, when the Defendants changed the artificial suppression and/or inflation of LIBOR from day to day, the Eurodollar settlement price would additionally move up or down artificially.

598. Any manipulation of LIBOR is in fact a manipulation of the commodity underlying the Eurodollar futures contracts. This is because LIBOR acts just as any other commodity for the purposes of settlement and price discovery. It is the reference price for the futures contract just as the physical prices of soybean or silver are the reference price for their respective futures contracts traded on exchanges.

599. Traders can close their positions early and thus realize gains and losses from changes in futures prices prior to the maturity of the futures contracts. For example, a purchaser of a Eurodollar futures contract can cancel or offset his future obligation to the contract market/exchange clearing house by selling an offsetting the-same-maturity Eurodollar futures contract. Similarly, the initial seller of a Eurodollar futures contract can cancel or offset his future obligation to the contract market/exchange clearing house by purchasing an offsetting the-same-maturity Eurodollar futures contract. The difference between the initial purchase contract price or initial sale contract price and the contract price of the offsetting transaction represents the realized profit or loss per each contract.[156]

[156] CME defines the contract price as 10,000 x [100 – 0.25 x (100 – Q)] where Q is the futures quote. Thus, a settlement price of 94.79 for the June 2007 contract corresponds to a contract price of $986,975 [10000 x (100 – 0.25 x (100 –

600. Traders who exit their positions before settlement are still affected by LIBOR mispricing because the Eurodollar futures contracts trade based on what LIBOR is expected to be in the future. To the extent that LIBOR is mispriced in the present, expectations of what LIBOR will be in the future will also be skewed. Furthermore, to the extent the artificial inflation/suppression in LIBOR changes from day-to-day, traders (either long or short) can be damaged by the additional changes in artificial suppression in LIBOR.

601. A few examples are useful to illustrate these points. Suppose that a trader A sold (shorted) one September 2007 Eurodollar futures contract on January 8, 2007 at 94.79. Suppose that on September 19, 2007, the Defendants artificially suppressed the 3-month LIBOR by 10 basis points, from 5.33% to 5.23%. Consequently, the settlement price of the Eurodollar futures is artificially increased from 94.67 to 94.77 on September 19, 2007. As a result of the Defendants' LIBOR suppression, this trader A would receive a payoff of $50 per contract (25 * (9479 – 9477)), instead of $300 per contract (25 * (9479 – 9467)) on September 19, 2007. Hence, this trader A, seller of the futures contract on January 8, 2007 in this example is damaged by $250 (or $25 per each basis point in LIBOR manipulation) directly as a consequence of the Defendants' manipulative actions.

602. Changes in Defendants' suppression from day to day also damage some traders. Another example is useful to illustrate this point. Suppose that on day 1, trader B bought one futures contract in Eurodollar futures at 94.77, when LIBOR was suppressed by 10 basis points (LIBOR at 5.23% instead of 5.33%). Assume that on day 2 the Defendants reduced the LIBOR suppression to 9 basis points (LIBOR now at 5.24% instead of 5.33%) and trader B sells (shorts) to close the Eurodollar futures contract at 94.76. In this case, the buyer of the Eurodollar futures

94.79)]. When the futures price settles at 96.00, the contract price moves to $990,000. The difference in contract prices, or $3,025 equals the payoff to the long futures contract mentioned above.

is damaged by $25 ($25 x (9676 – 9477)) for each contract because of the reduction in suppression.

603. As a third example, suppose that on day 10, trader C bought one futures contract in Eurodollar futures at 94.57, when LIBOR was artificially inflated by 10 basis points (LIBOR at 5.43% instead of 5.33%). Assume that on day 11 the Defendants increased the artificial LIBOR inflation to 11 basis points (LIBOR now at 5.44% instead of 5.33%) and trader C sells (shorts) to close the Eurodollar futures contract at 94.56. In this case, the buyer of the Eurodollar futures is again damaged by $25 ($25 x (9656 – 9457)) for each contract because of the increase in artificial inflation in LIBOR. As these examples illustrate, Defendants' actions to either inflate or suppress LIBOR and furthermore change the magnitude of the manipulation from day to day will cause damages on either the buyers or the sellers of the Eurodollar futures contracts.

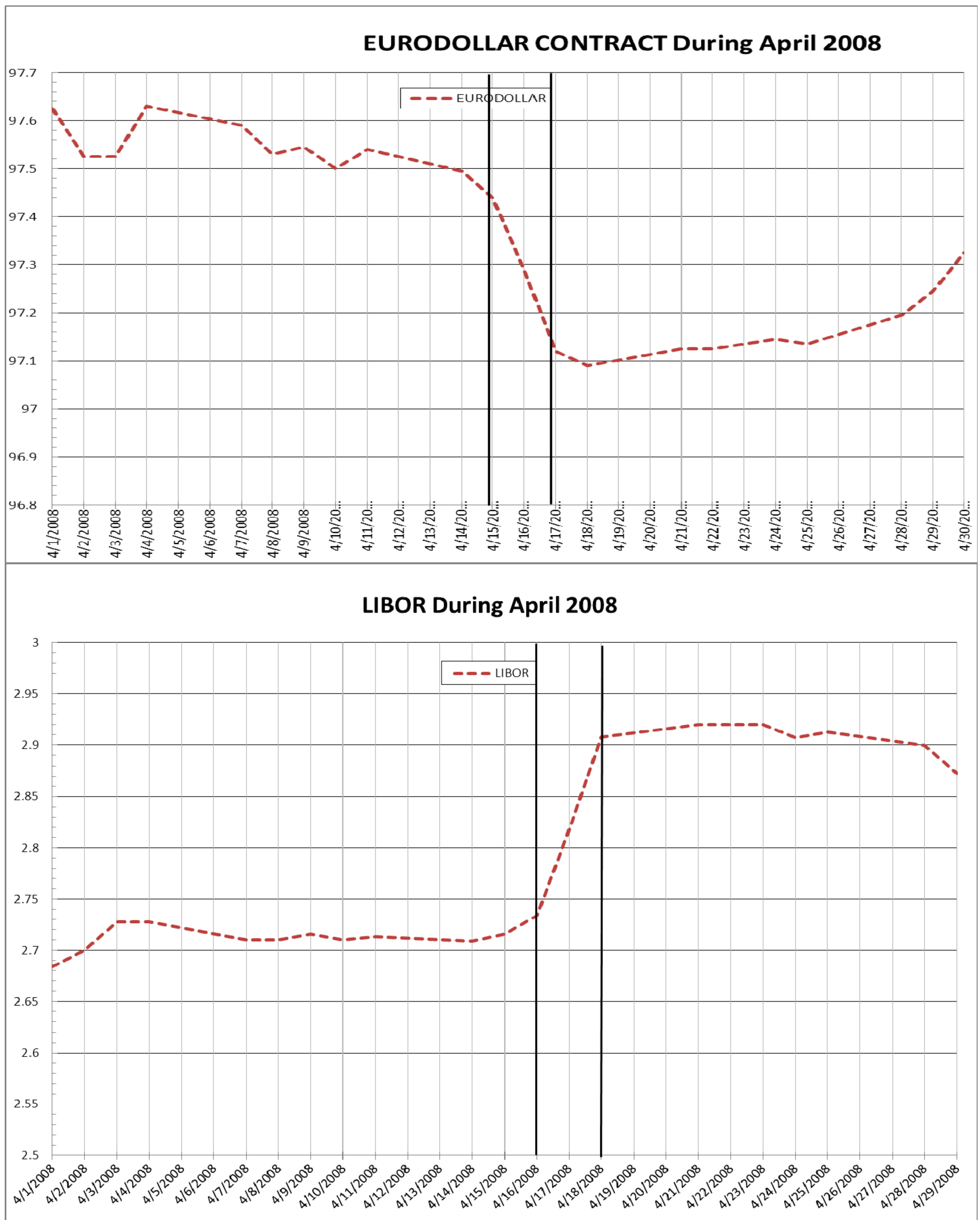
604. In addition to Eurodollar contracts, the CME has other contracts that are based, at least in part, on LIBOR. Options on Eurodollar futures settle according to Eurodollar futures prices and therefore are derivatively based on LIBOR prices. There are two types of options: calls and puts. A call gives the holder of the Eurodollar option the right, but not the obligation, to buy the underlying Eurodollar futures contract at a certain price – the strike price. Conversely, the put gives the holder the right, but not the obligation, to sell the underlying Eurodollar futures contract at the strike price. Puts are usually bought when the expectation is for neutral or falling futures prices; a call is usually purchased when the expectation is for rising futures prices. The price at which an option is bought or sold is the option premium. The option premium is affected by the underlying price of the Eurodollar futures contract, which, in turn, is directly affected by the reported LIBOR.

605. The connection between LIBOR and Eurodollar futures is evident in the events on April 17, 2008. As recounted above LIBOR jumped on that day following the BBA's

announcement that it would investigate the authenticity of LIBOR reporting.

606. Following the LIBOR move, the nearby Eurodollar futures contract decreased 17 basis points from 97.29 to 97.12. Since Eurodollar futures move in the opposite direction as LIBOR, the Eurodollar futures move was a mirror of the LIBOR move. Figure 21 below shows the sharp decrease in the Eurodollar futures price on April 17, 2008. This figure is an example of the general proposition the Eurodollar futures allow traders to borrow and lend at the LIBOR credit curve. Figure 21 also shows the behavior of LIBOR during the same period, which exhibits opposite movements to the Eurodollar futures price. It follows directly that the manipulation of LIBOR as alleged herein had a direct impact on Eurodollar futures and the options tied to those futures.

Figure 21



607. The manipulation of LIBOR not only manipulated Eurodollar futures contract prices but also interfered demonstrably with the competitive, beneficial price discovery mechanism of the Eurodollar futures market. The manipulation of LIBOR caused Eurodollar futures prices, and options on futures prices, to not reflect the legitimate competitive forces of supply and demand. The manipulation disrupted the competitive supply and demand fundamentals for these contracts.

608. Plaintiffs purchased or sold standardized CME Eurodollar futures contracts. By manipulating LIBOR, the Defendants necessarily manipulated and directly inflated or suppressed CME Eurodollar futures contract prices to artificial levels. Defendants also directly and foreseeably caused market participants, like Plaintiffs, to trade such standardized futures contracts at artificial price levels. This is because the futures markets are anticipatory markets. The current and prospective higher settlement prices of CME Eurodollar futures contracts created higher reference points for the expectations of all market participants.

609. Thus, the direct and foreseeable effect of the Defendants' intentional manipulation of their LIBOR submission was to cause Plaintiffs and the Class to pay supra-competitive prices or receive infra-competitive prices for CME Eurodollar futures contracts during the Class Period. Here, the manipulation of LIBOR is the direct and sole cause of the manipulation of Eurodollar futures.

610. Each Defendant well knew, from its financial sophistication and its familiarity with CME Eurodollar futures contracts (which, again, are the largest and most actively traded futures contracts on Earth) and other futures contracts, that such contracts traded with reference, and settled to, USD-LIBOR. Defendants, through their broker-dealer affiliates actively traded Eurodollar futures and options on those futures during the Class Period.

611. As set forth herein, Defendants' participated in significant ways in the Eurodollar futures markets and Plaintiffs incorporate those allegations here by reference as to all Defendants. In addition, Plaintiffs incorporate by reference all discussion of the CME's licensing agreement with BBA, a contract in interstate commerce, to use LIBOR as the pricing component, marketing basis, and underlying commodity of the Eurodollar futures contract.

612. Therefore, each Defendant also necessarily knew, and unavoidably and specifically intended, that its manipulation of LIBOR would directly interfere with the settlement and trading prices of and otherwise manipulate the prices and price trends of the standardized Eurodollar futures and other LIBOR-linked derivatives such as calls and puts that are traded on the CME.

613. Thereby, each Defendant knowingly and intentionally manipulated the prices of the standardized CME futures contracts and other derivatives that settled to LIBOR, specifically including the Eurodollar futures contracts traded on the CME as well as options on the Eurodollar futures that traded on the CME.

B. Statistical Analysis Confirms A Strong Intricate Economic Relationship Between LIBOR and Eurodollar Futures Prices.

614. There exists an empirically validated, strong, and intricate economic relationship between USD LIBOR and Eurodollar futures (EDF) prices.[157] Movements in futures are unquestionably related to movements in LIBOR, as will be amply shown below.[158] Figure 22 plots

[157] *See, e.g.*, Mark Greenblatt and Narasimhan Jegadeesh, "Relative Pricing of Eurodollar Futures and Forward Contracts," The Journal of Finance, September 1996. The authors find that since the mid to late 1980s, "LIBOR futures [namely, Eurodollar futures] and forward rates [based on spot LIBOR] have been virtually the same." (at 1500)

[158] There also exists evidence that Eurodollar futures anticipate the direction of LIBOR changes. Indeed, the two move in lockstep sometimes one leading the other and vice versa. This is not controversial. Eurodollar futures, by definition, are priced at any moment in anticipation of what LIBOR will be at the time of the contract's expiration. As such, the contract pricing today will reflect the market's prediction for what the LIBOR is going to be at the expiration date of the contract. If market participants anticipate an upward trajectory in the LIBOR, it is intuitive that the implied rates of the futures contracts will reflect that and will be higher than current LIBOR. In a sense, Eurodollar futures are then "anticipating" movements in the LIBOR. However, in no way does that mean that changes in the LIBOR do not translate into change in the Eurodollar futures rates. Indeed, changes in the LIBOR today are incorporated into the futures rates precisely because they signal to market participants new information about the

the daily 3-month maturity LIBOR, on whose pricing Eurodollar futures contracts are based, and the implied daily Eurodollar futures rate over the class period for contracts with expirations between one and thirty days.[159] The chart shows that LIBOR and EDF rates move in striking unison with one another. For example, LIBOR increased 59.2% between May 16, 2005 and May 22, 2006. During this same period, the Eurodollar Futures rate with 30 days to maturity increased by 54.8% during the same period.[160]

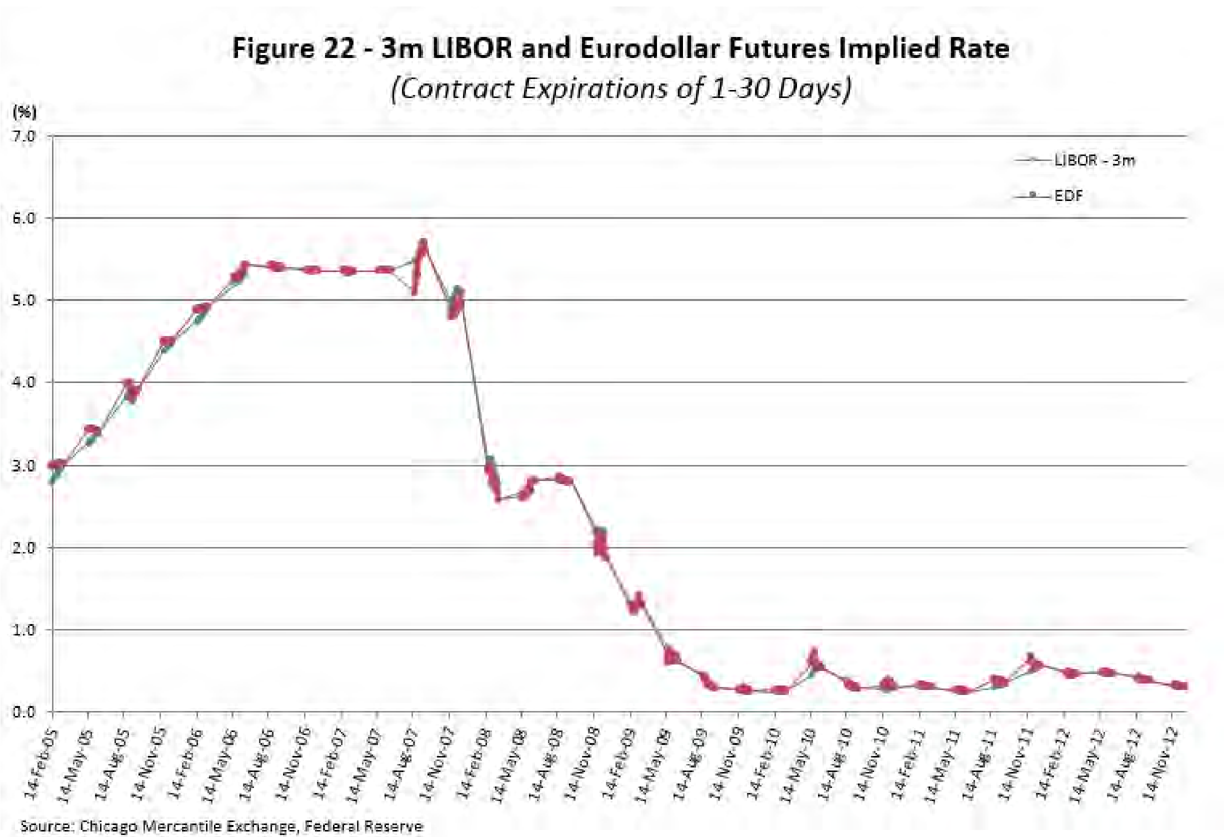
615. One simple statistical means of establishing the relationship between two variables is to measure a correlation coefficient. A correlation coefficient of 1 means the two variables are perfectly correlated, while a correlation coefficient of 0 indicates that there is no correlation between the two variables. The correlation coefficient between the rates of the Eurodollar futures contracts underlying Figure 22 and their corresponding LIBOR is remarkably high 0.999. This coefficient reflects the pricing behavior of all contracts that expired within 1 and 30 days. The correlation coefficients for three other groups of contracts: those expiring within 31 and 60 days (Group 2), within 92 and 182 (Group 3), and within 183 and 273 days (Group 4) were 0.996, 0.984, and 0.974 for Group 2, 3, and 4, respectively. This is solid evidence that EDF

direction of the LIBOR. This is at the heart of the case here. LIBOR manipulation by the banks sent incorrect signals to traders that translated into artificial pricing of contracts such as Eurodollar futures. As shown below, movements in LIBOR translate almost one-for-one into changes in Eurodollar futures rates.

[159] Thus, on each day, this chart plots the rate associated with contracts with expiration of, say, 10 days. On the next day, it plots the rate associated with those same contracts but whose expiration date now is only 9 days away. This continues until these contracts reach their expiration data. The day after these contracts expire, the graph plots the rate for new contracts whose expiration date resets now to the maximum for this chart of 30 days later.

[160] The step-ladder pattern in the Eurodollar futures rate most noticeable between February 2005 and June 2006 occurs simply because this chart combines contracts of different expirations. For instance, on March 14, 2005, the Eurodollar futures contract was expiring in 2 days. On that date, the futures rate was 3.02%. The next day in which a contract with a date to expiration of 30 days or less traded was on May 16, 2005. On that day, there was trade on a contract that expired 30 days later. Because this contract's expiration occurred later, and traders were anticipating the future LIBOR to increase, the implied rate on this Futures contract jumped up to 3.42%. This one-time step jump reflects the switch in contract expiration dates and not any inherent volatility in the relationship between LIBOR and Eurodollar Futures rates. The charts and analyses below account for different expirations in Eurodollar futures contracts.

contracts move in tandem with current 3-month LIBOR across the full range of contract expirations.



616. Disaggregating the data further by days to expiration shows that the relationship between LIBOR and Eurodollar futures is even stronger. Figures 23a-c plot these two variables holding constant the number of days until the underlying futures contract expires. For example, Figure 23a shows the LIBOR and the implied rates from Eurodollar contracts expiring in 20 days on each corresponding day in the period of January 2005 to December 2012. The relationship observed in this graph does not involve daily price movements muddled by the futures contract getting closer to its expiration; rather, this is a comparison of LIBOR and the implied futures rate holding constant the expiration of the contract. This is a cleaner comparison of the two variables. As can be readily seen from the graph, the relationship between the two variables is as close as it gets. Eurodollar futures contracts with the same number of days left to expiration, here 20, closely

reflect that day's LIBOR in every instance. Figures 23b and 23c show similar two-bar graphs over time for expirations of 35 and 50 days, respectively. In Figure 23c there exists a slight gap between the Eurodollar futures rate and the LIBOR when the LIBOR is steeply increasing or decreasing. This makes intuitive economic sense. As LIBORs are increasing, the futures rate is anticipating the increase and is slightly above the LIBOR. In periods where LIBOR is decreasing steadily, the Eurodollar futures rate is anticipating the decline and is slightly below the LIBOR. However, the fact that the Eurodollar futures rate is above or below LIBOR is only a consequence of how futures contracts function – that is, they are anticipating movements in the LIBOR, not at all a sign that the two variables do not move together or that changes in LIBOR do not affect the Eurodollar futures rate. The gap (above or below) between the futures rate and the LIBOR depends on the days left until the contract expires. More days left until expiration may mean a larger gap but the movement of the futures rate, the change from one period to the next, is closely related to the movement of the LIBOR. In fact, it is visually clear in Figures 23a-c that the two variables track each other almost perfectly regardless of expiration.

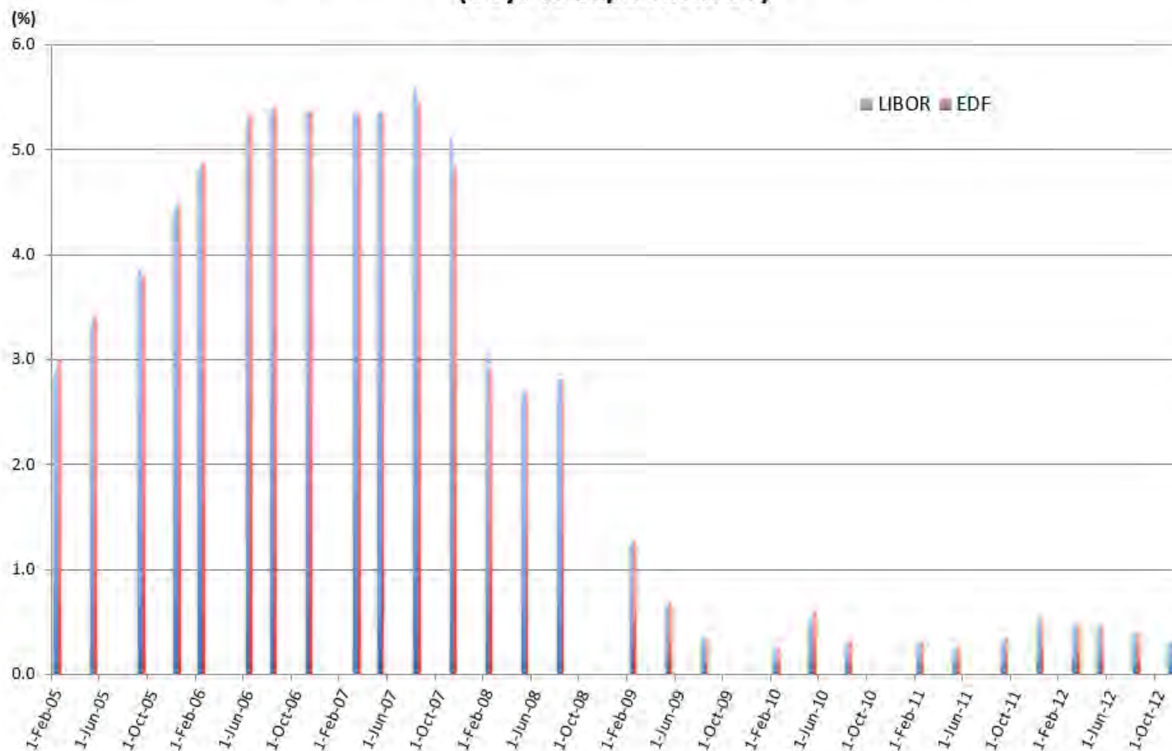


Figure 23a - LIBOR Rate and ED Futures Implied Rate
(Days to Expiration: 20)
(%)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
LIBOR
EDF
1-Feb-05
1-Jun-05
1-Oct-05
1-Feb-06
1-Jun-06
1-Oct-06
1-Feb-07
1-Jun-07
1-Oct-07
1-Feb-08
1-Jun-08
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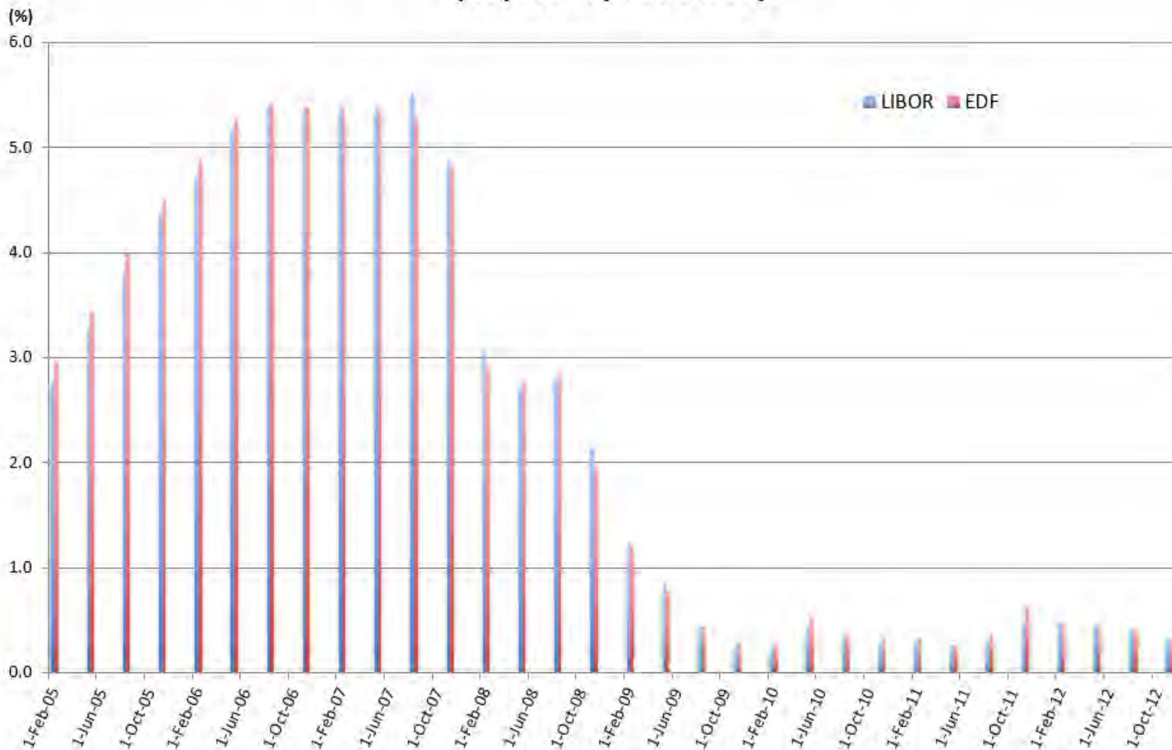
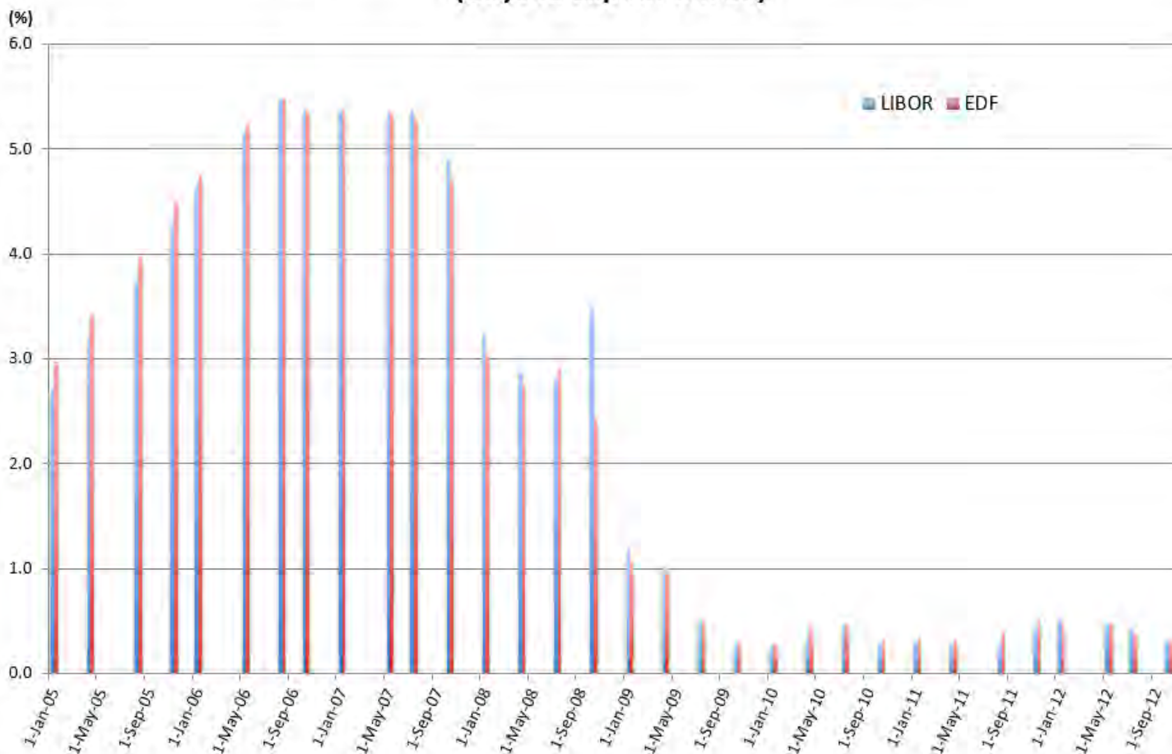
Source: Chicago Mercantile Exchange, Federal Reserve

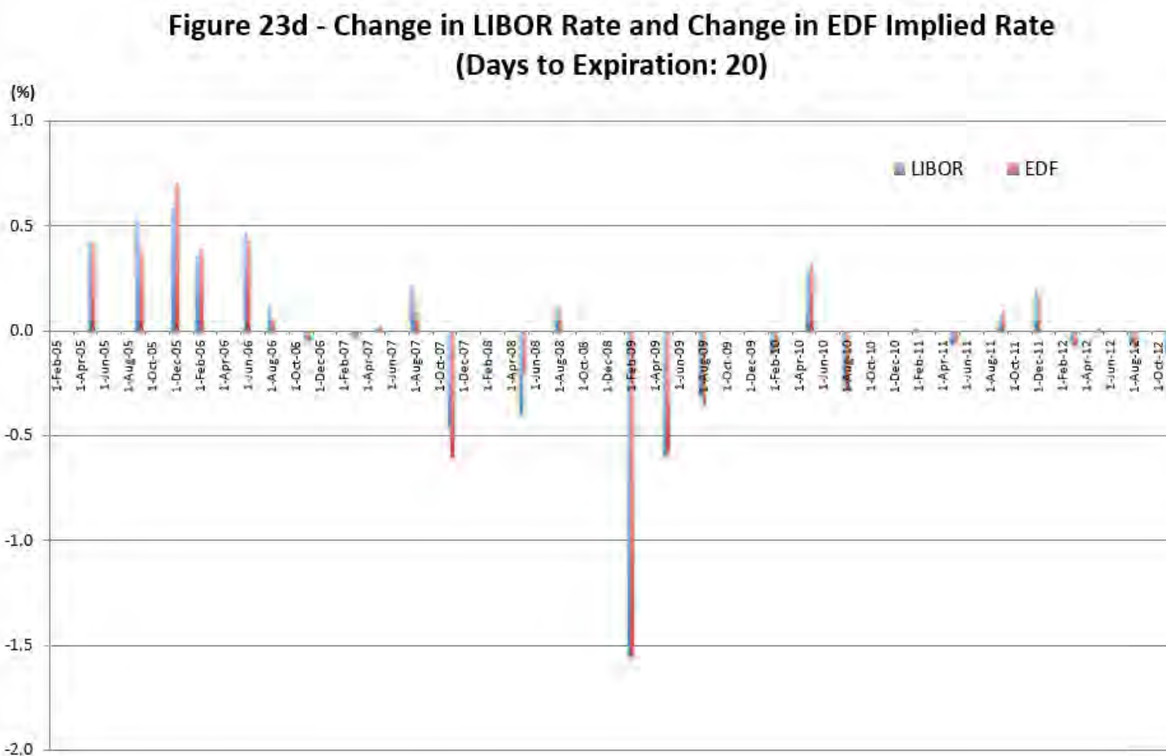


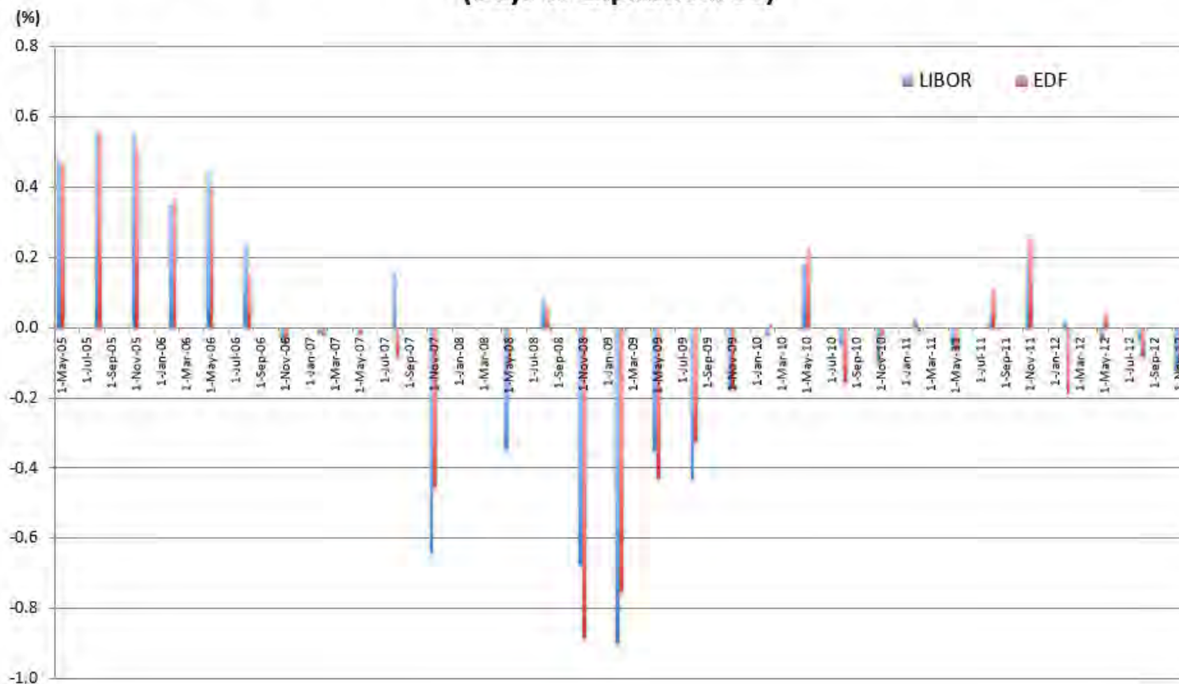
Source: Chicago Mercantile Exchange, Federal Reserve



Source: Chicago Mercantile Exchange, Federal Reserve

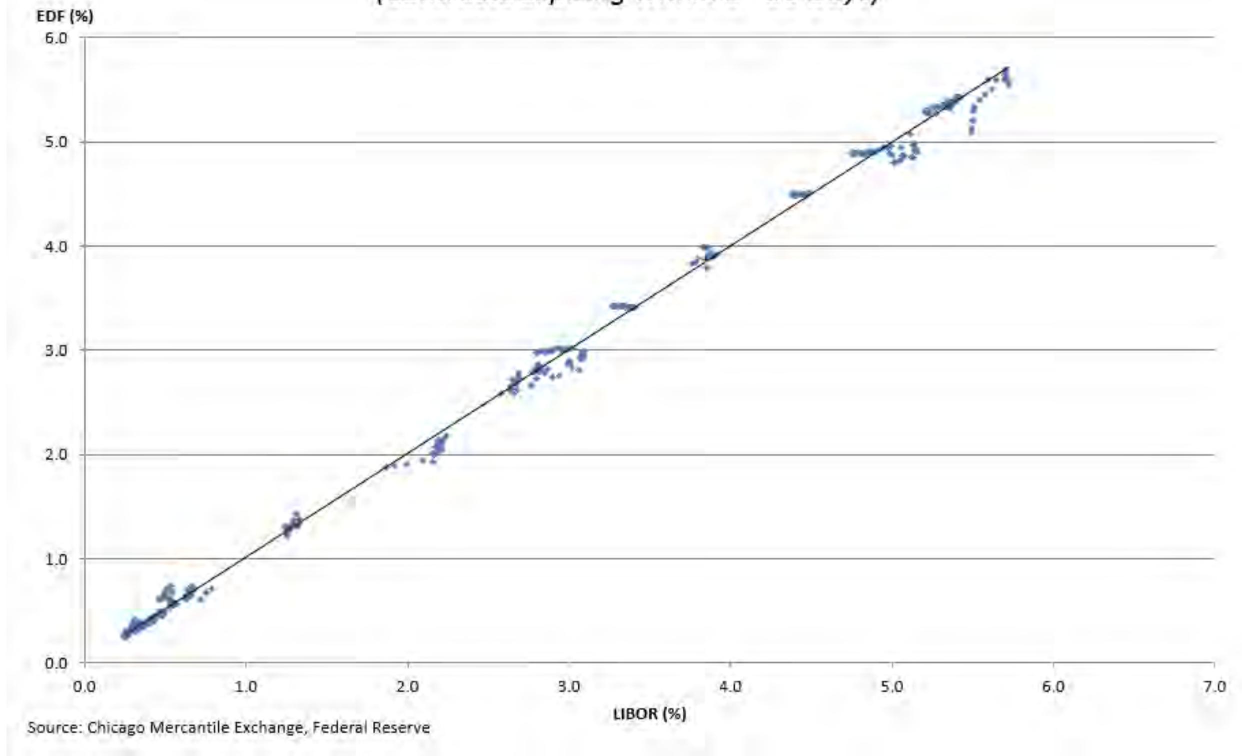
617. A different manner of visualizing the close relationship between LIBOR and Eurodollar futures implied rates is to graph changes in LIBOR versus changes in EDF rates as shown in Figures 23d-f. These charts further show that LIBOR and EDF rates move in unison. For a given day to expiration, whenever LIBOR changes by a certain amount, EDF rates follow in similar magnitudes in almost all instances. For example, Figure 23e demonstrates that on August 17, 2005, LIBOR increased by 55 bps and the implied rate for EDF contracts expiring 35 days later increased by 56 bps.





Source: Chicago Mercantile Exchange, Federal Reserve

618. Yet another way to depict the relationship between LIBOR and Eurodollar futures is via scatter plots. Figure 24 plots the same data as in Figure 22, this time using a scatter plot. This graph shows how tightly the two variables relate to one another in a graph without the time dimension. Each point in the graph corresponds to a pair of Eurodollar future rate and LIBOR. The higher the value of one is, the higher the value of the other in essentially a one-for-one manner. Two perfectly correlated variables would be depicted as a series of points that fall parallel to the diagonal line. The points in Figure 24 are close to that ideal scenario. Outside of a handful of points, the vast majority of the Eurodollar future rate-LIBOR point pairs fall in near proximity to the diagonal line. As an example, when the LIBOR was a low 0.661%, the futures rate took on a similarly low value of 0.650%. However, when the LIBOR jumped up to 5.300%, the futures rate similarly leapt to 5.338%.



619. Figure 24 aggregates many contracts of different expirations together and despite this aggregation, it shows a remarkably stable relationship between LIBOR and Eurodollar futures. In contrast, Figures 25a-c restrict the focus to contracts of single expirations. For example, Figure 25a demonstrates the close relationship between LIBOR and Eurodollar futures rates only for contracts that expire 20 days in the future. This reduces the number of data points, but it increases the precision of the relationship between the points. Each point corresponds to the same type of contract-LIBOR pair, in order to compare apples with apples. The Eurodollar futures rates and LIBOR track each other in startling fashion. Figures 25b and 25c illustrate similar results for contracts with expirations of 35 and 50 days, respectively.

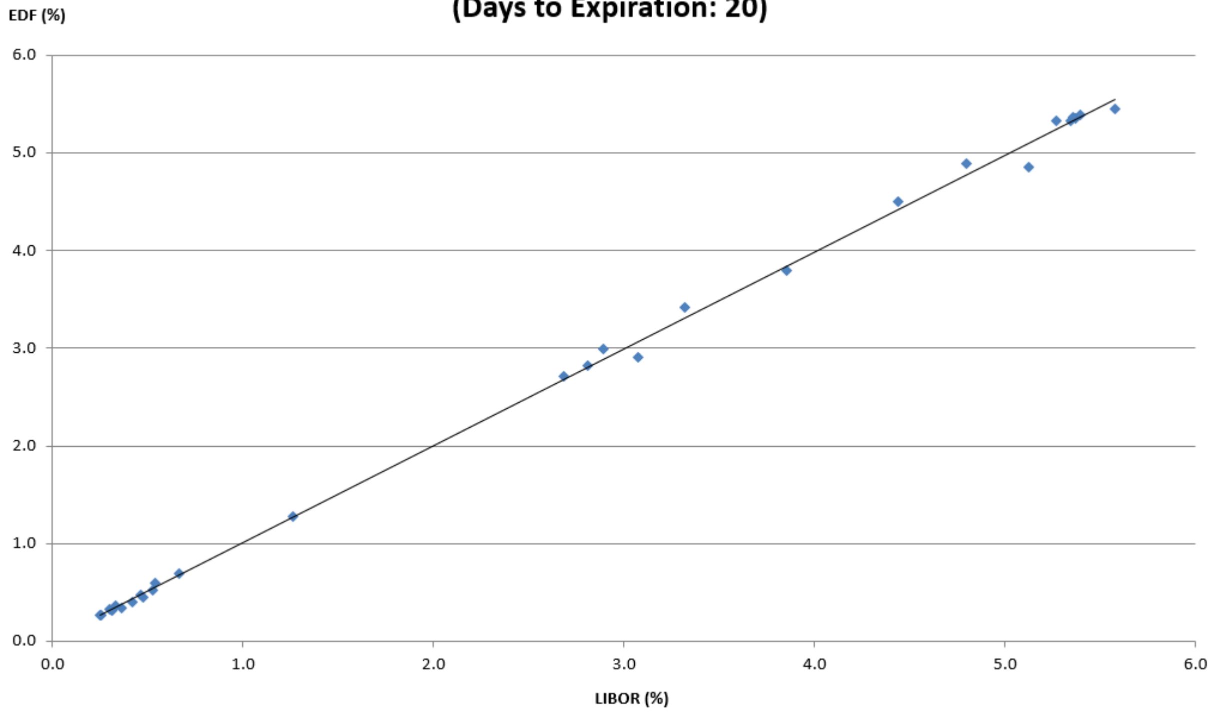


Figure 25a - Eurodollar Futures Implied Rate vs 3m LIBOR
(Days to Expiration: 20)
EDF (%)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
LIBOR (%)
Source: Chicago Mercantile Exchange, Federal Reserve

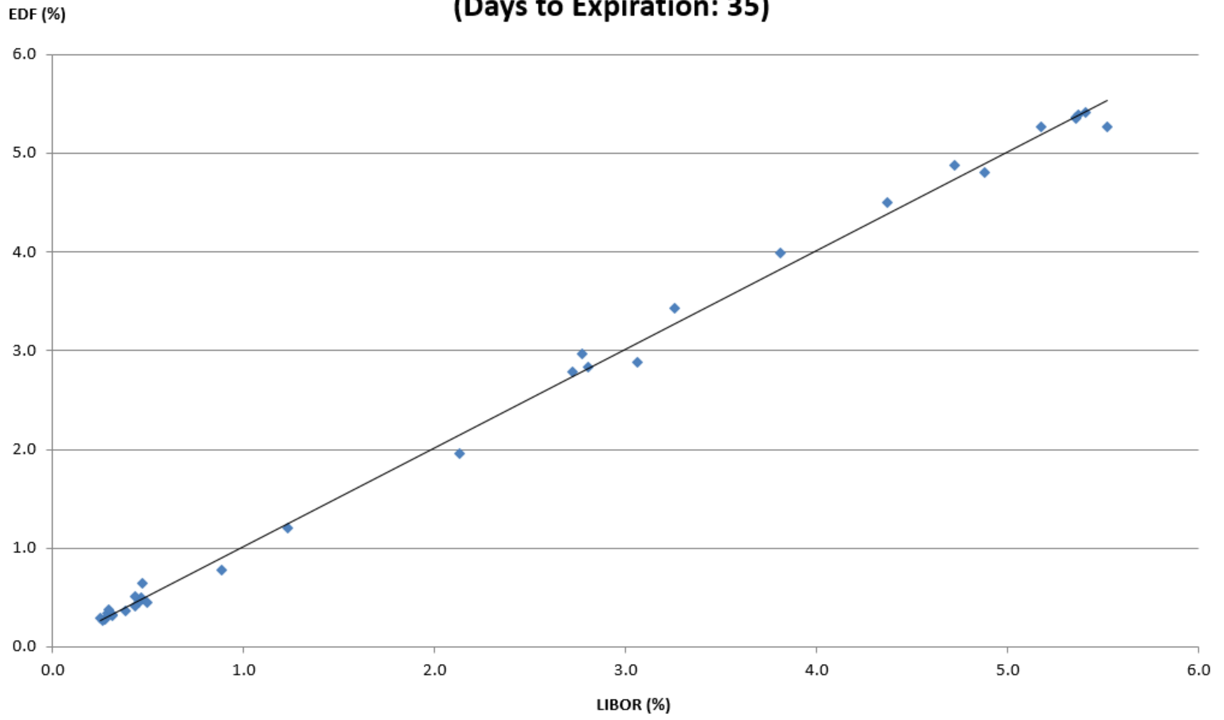
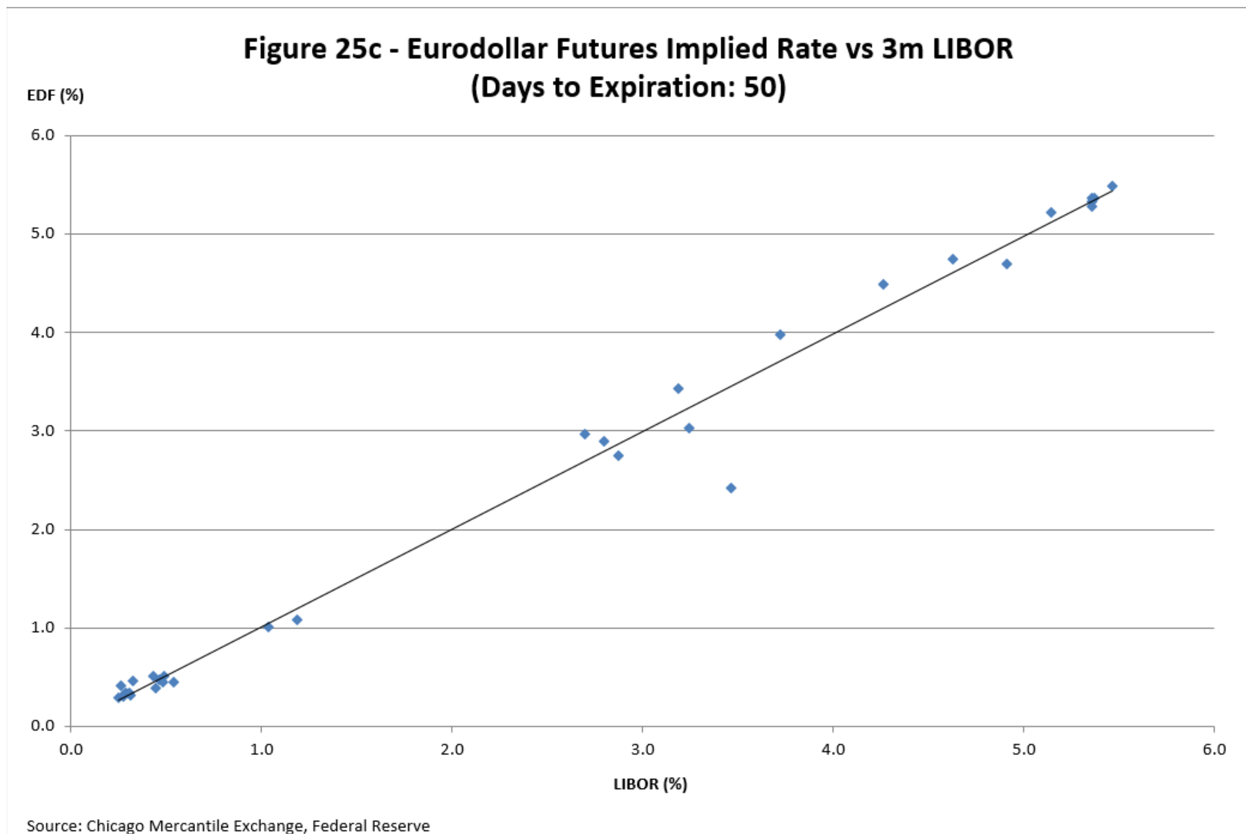


Figure 25b - Eurodollar Futures Implied Rate vs 3m LIBOR
(Days to Expiration: 35)
EDF (%)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
LIBOR (%)
Source: Chicago Mercantile Exchange, Federal Reserve



620. To generalize the results further, it is possible to compute a correlation coefficient between LIBOR and Eurodollar futures rates separately for each contract expiration. The results demonstrate that Eurodollar futures rates are systematically related to LIBOR. This is the case not only for contracts with nearby expiration dates but also contracts with more distant expiration dates. For example, the correlation coefficient between LIBOR and the implied rate of Eurodollar futures contracts that expire in 251 days is a high 0.960. The correlation coefficient for contracts that expire in 1080 days is 0.822. These results are representative of those for other expirations and show that a very close relationship between the two variables exists even for expirations well into the future.

621. Beyond the simple charts and correlations described above, one can more accurately measure the relationship between LIBOR and Eurodollar futures rates by conducting a time series test about the long run stability of the relationship between these two variables. Such

a test finds that the Eurodollar futures rates and LIBOR are "co-integrated" meaning that any difference between them tends to return to a stable constant value despite other factors affecting either or both of them differentially. This provides strong econometric support for the fact that a LIBOR that was manipulated systematically would result in Eurodollar futures rates that would have been affected systematically as well.

622. Furthermore, it is possible to undertake a regression analysis to bolster the evidence above on the relationship between the two variables of interest. Performing a fixed effects Ordinary Least Squares (OLS) regression of Eurodollar futures rates on LIBOR, controlling for days to expiration, leads to a finding that a 100 basis point change in LIBOR is associated with a 99.4 basis point change in the Eurodollar futures rate, for contracts expiring within 1 and 30 days. Similar regressions for contracts expiring within 31 and 60 days (Group 2), 92 and 182 days (Group 3), and 183 and 273 days (Group 4) reveal that a 100 basis point increase in the LIBOR is associated with 99.2, 95.1, and 91.0 basis point increases in the Eurodollar futures rate, respectively for Groups 2, 3, and 4. These regression results are shown in Tables 17-20.

Table 17 – OLS Regression of Eurodollar Futures Rate on LIBOR with Contract Expiration as Fixed Effect

(Contract Expirations 1-30 Days)

	Dependent Variable
VARIABLES	EDF Rate
libor	0.994***
Constant	0.019***
Observations	626
R-squared	0.999
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Table 18 – OLS Regression of Eurodollar Futures Rate on LIBOR with Contract Expiration as Fixed Effect	
(Contract Expirations 31-60 Days)	
	Dependent Variable
VARIABLES	EDF Rate
libor	0.992***
Constant	0.023***
Observations	621
R-squared	0.991
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Table 19 – OLS Regression of Eurodollar Futures Rate on LIBOR with Contract Expiration as Fixed Effect	
(Contract Expirations 92-182 Days)	
	Dependent Variable
VARIABLES	EDF Rate
libor	0.951***
Constant	0.154***
Observations	1,958
R-squared	0.968
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Table 20 – OLS Regression of Eurodollar Futures Rate on LIBOR with Contract Expiration as Fixed Effect	
(Contract Expirations 183-273 days)	
	Dependent Variable
VARIABLES	EDF Rate
libor	0.910***
Constant	0.301***
Observations	1,963
R-squared	0.950
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

623. As a refinement, it is possible to carry out each OLS regression separately for each contract expiration; e.g., 25 days to expiration, 26 days to expiration, etc. Doing so shows that even contracts with distant expirations have a close relationship with LIBOR. For example, the regression involving contracts that expire 225 days in the future shows that a 100 basis point increase in LIBOR is associated with a 93.8 basis point response in the Eurodollar futures rate. Another regression for contracts with expiration 503 days in the future shows a response of 81.0 basis points to a 100-point increase in LIBOR. These regressions are representative of those for contracts with other related expiration dates. These are powerful results that bolster the charts, correlation analyses, and the finding of co-integration described above.

624. It is possible to undertake an even more sophisticated and rich econometric analysis to accurately measure a strong dynamic relationship between the two variables of interest. This can be done by constructing an Auto-Regressive Distributed Lag (ARDL) model that captures the short run and long run dynamics of a change in LIBOR on Eurodollar futures contract rates. The preliminary results demonstrate the existence of a close relationship in the movement of LIBOR and Eurodollar futures rates.

625. Finally, it is possible to perform what is known as a Granger causation test. Doing so here results in statistically significant evidence that LIBOR causes changes in the Eurodollar futures rate. This is a sophisticated but standard tool used by financial economists and macroeconomists studying variables with long time series such as the rates at issue here. These results, along with all the evidence presented above, provide unequivocal empirical support for the proposition that manipulation of LIBOR directly caused artificial prices of Eurodollar futures contracts that affected Plaintiffs and the Class Members.

C. Defendants' Participation in the Eurodollar Futures Market and the Connection Between Defendants' Conduct and Plaintiffs' Injury

626. Plaintiffs and members of the Class suffered injury directly resulting from Defendants' unlawful conduct alleged herein.

1. Defendants' Collusive Conduct Suppressed The Price Received And/Or Inflated The Price Paid By Plaintiffs And Members Of The Class For The Use Of Their Money

627. As discussed above, LIBOR is the sole pricing component of Eurodollar futures. Eurodollar futures, contracts, known also as LIBOR futures, have no other price variable than LIBOR because "The final settlement price of an expiring contract shall be 100 minus the three-month Eurodollar interbank time deposit rate determined at the BBA's LIBOR fixing on the second London bank Business Day immediately preceding the third Wednesday of the contract's named month of delivery."

628. Indeed, the BBA has a licensing agreement with the CME so that the CME can use LIBOR as the basis (*i.e.*, underlying commodity) for Eurodollar futures. That contract states:

> The [CME] has entered into an agreement with the British Bankers' Association ("BBA") which permits the Exchange to use BBA LIBOR as the basis for settling Three–Month Eurodollar futures contracts and to refer to BBA LIBOR in connection with creating, marketing, trading, clearing, settling and promoting

Three–Month Eurodollar futures contracts.[161]

629. Thus, the BBA earned royalty income from the CME for the CME's use of the benchmark LIBOR (a form of intellectual property) as the pricing and marketing component of the Eurodollar futures contract. Defendants, who were part of the BBA LIBOR panel, knew that the BBA benefited financially from this relationship with the CME. This contract between the BBA and CME for LIBOR, a contract in interstate commerce, underscores the strength of the causal connection between the pricing of LIBOR and the pricing of Eurodollar futures, the largest futures contract in the world, and shows that Defendants knew that their manipulation of LIBOR would manipulate Eurodollar futures in turn.

2. Defendants Had And Exercised Control Over LIBOR.

630. Throughout the Class Period, Defendants, as the LIBOR Panel Banks, had and exercised exclusive control over LIBOR rates. Only these banks were permitted to submit LIBOR rates to the BBA, and only rates submitted by these Panel Banks were considered in calculating the daily posted LIBOR rates. Acting together, the Panel Banks could control where the LIBOR would set each day. Only acting together could the Panel Banks achieve the continuous, sustained suppression of LIBOR to the degree and for the duration that they did.

3. Defendants Compete in the Market for Eurodollar Futures Contracts

631. Defendants or their affiliates competed in the market for Eurodollar futures contracts during the Class Period. Defendants' competition comes both in the form of acting as a broker dealer for customers, and competing for customers who seek to trade Eurodollar futures contracts as well as in the form of trading for profit for their own account.

a. <u>Bank of America Corporation</u>

632. Defendant Bank of America owns the US registered broker-dealer Merrill Lynch,

[161] http://www.cmegroup.com/rulebook/CME/V/450/452/452.pdf, visited May 15, 2013.

Pierce, Fenner & Smith Incorporated, which is headquartered in New York, New York.[162] As described on the Bank of America's website, the Company has offered clients futures trading since 1905.[163] Additionally, the "Bank of America Merrill Lynch Global Rates is a leading participant in the world's interest rate markets." This group offers clients services for products including: treasuries, agencies, futures, repurchase agreements, and derivatives- covering the full range of structures: over–the–counter (OTC) swaps, basis swaps, options and structured transactions.[164]

633. Additionally, Bank of America had $26.577 trillion in interest rate derivative contracts outstanding as of December 31, 2008.[165] Plaintiffs allege that this amount includes Eurodollar futures contracts.

b. <u>Barclays Bank plc ("Barclays")</u>

634. Defendant Barclays owns the US registered broker-dealer Barclays Capital Inc., which is headquartered in New York, New York.[166] Barclays provides its clients with "electronic access to 40 exchanges, and access to over 55 exchanges for clearing worldwide."[167] As noted in the CFTC's June 27, 2012 Order, Barclays' New York based Swaps Desk "trades in a variety of products, including interest rate swaps,10 FRAs, Treasury bonds, and Treasury futures, as well as the CME one-month and three-month Eurodollar futures and options contracts."[168]

635. Additionally, Barclays held at least £ 615.321 billion interest rate derivative assets

[162] FINRA Broker Check Report, Merrill Lynch, Pierce, Fenner & Smith Incorporated (CRD # 7691), at 3.

[163] *See* http://corp.bankofamerica.com/business/ci/futures-options-and-otc-clearing/

[164] *See* http://corp.bankofamerica.com/business/ci/fx/

[165] *See* Bank of America, 2008 Annual Report, at 133.

[166] FINRA Broker Check Report, Barclays Capital Inc. (CRD# 19714), at 3.

[167] *See* http://group.barclays.com/corporates-and-institutions/global-markets/futures/

[168] *See* In the Matter of: Barclays PLC, Barclays Bank PLC and Barclays Capital Inc., CFTC Dkt. No. 12-25, at 8 (CFTC Jun 27, 2012).

as of December 31, 2008.[169] Plaintiffs allege that this amount includes Eurodollar futures contracts.

c. **Citibank, N.A. ("Citibank")**

636. Defendant Citibank owns the US registered broker-dealer Citigroup Global Markets Inc., which is headquartered in New York, New York.[170] Citibank is "is one of the world's largest participants in exchange-traded derivative markets, with more than $13 billion in customer-segregated funds" and its Futures group is headquartered in New York, with additional presence in "Chicago, London, Hong Kong, Singapore, Sydney and Tokyo."[171] Citigroup was one of the original CME members that initially made markets in the CME Eurodollar electronically.[172]

637. Additionally, Citibank held at least $23.746 trillion in interest rate contract notional as of December 31, 2008.[173] Plaintiffs allege that this amount includes Eurodollar futures contracts.

d. **Coöperatieve Rabobank U.A. (formerly known as Coöperatieve Centrale Raiffeisen-Boerenleenbank B.A. ("Rabobank")**

638. Defendant Rabobank owns and operates the US registered broker-dealer Rabo Securities USA, Inc., which is headquartered in New York, New York.[174] Rabobank offers sales and trading services through its Global Financial Markets division for products including but not limited to: interbank deposits, short-term loans to banks, security and treasury paper,

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[169] Barclays Plc, Annual Report 2008, at 105.

[170] FINRA Broker Check Report, Citigroup Global Markets Inc. (CRD # 7509), at 3.

[171] *See* http://icg.citi.com/icg/global_markets/product_solutions/citi_futures.jsp/

[172] "Industry Connections: from Zero to 158,000", CME Magazine, Spring 2007.

[173] *See* Citi, Annual Report 2008, at 90.

[174] FINRA Broker Check Report, Rabo Securities USA, Inc. (CRD # 122657), at 3.

CD/CP/MTN, forex transactions, swap, options, futures, FRA's, and bonds.[175]

639. Additionally, Rabobank held at least € 66.759 billion in derivative financial instruments as of December 31, 2008.[176] Plaintiffs allege that this amount includes Eurodollar futures contracts.

e. <u>Deutsche Bank, AG ("Deutsche Bank")</u>

640. Defendant Deutsche Bank owns and operates the US registered broker-dealer Deutsche Bank Securities Inc., which is based in New York, New York.[177] EuroMoney named Deutsche Bank the "Best Commodities House" in 2012.[178] Since 1998, the bank "has been particularly active on the financial or derivative side of commodities" and developed the franchise by "layering" product offerings in "wider banking franchise products."[179]

641. Additionally, Deutsche Bank held at least € 39.772 trillion in interest rate related derivative transactions as of December 31, 2008.[180] Plaintiffs allege that this amount includes Eurodollar futures contracts. Deutsche Bank reportedly earned more than $650 million in profit during 2008 from trades tied to LIBOR because LIBOR was low.

f. <u>HSBC Holdings plc ("HSBC")</u>

642. Defendant HSBC owns the US registered broker-dealer HSBC Securities (USA) Inc., which is headquartered in New York, New York.[181] As detailed noted by HSBC's website, the company "fully supports clients' futures trading requirements with brokers on specialist sales

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[175] *See* https://www.rabobank.com/en/locateus/ap/singapore.html

[176] *See* Rabobank Group, Annual Report 2008, at 88.

[177] FINRA Broker Check Report, Deutsche Bank Securities Inc. (CRD # 2525), at 3.

[178] *See* Deutsche Bank Corporate Banking & Securities – Euromoney Awards for Excellence 2012, at 10, http://cbs.db.com/new/docs/Euromoney_Awards_for_Excellence_Re_DB_low_res.pdf.

[179] *Id.*

[180] *See* Deutsche Bank Aktiengesellschaft, Annual Report (Form 20-F), at 165 (Mar. 24, 2009).

desks across all time zones, and 24-hour desks in Hong Kong and Chicago."[182]

643. Additionally, HSBC held at least $264.153 billion in interest rate related derivative contracts as of December 31, 2008.[183] Plaintiffs allege that this amount includes Eurodollar futures contracts.

g. <u>J.P. Morgan N.A.("JPMorgan Chase")</u>

644. Defendant JPMorgan Chase owns the US registered broker-dealer J.P. Morgan Securities LLC, which is headquartered in New York, New York.[184] JPMorgan Chase claims to be a "pioneer of many of the practices and services that have become standard in the futures and options industry."[185] Through its Futures & Options business, JPMorgan Chase processes "over four million contracts per day."[186] Interest-rate swaps and foreign-exchange spot and futures trading generate approximately over $300 million in revenue for the bank in a typical quarter.[187]

645. Additionally, JPMorgan Chase held at least $71.942 trillion in interest rate related derivative contracts as of December 31, 2010.[188] Plaintiffs allege that this amount includes Eurodollar futures contracts.

h. <u>Defendant UBS AG ("UBS")</u>

646. Defendant UBS owns and operates the US registered broker-dealer UBS Financial Services, which is headquartered in Weekhawken, New Jersey.[189] As reported by the DOJ in its

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[184] FINRA Broker Check Report, J.P. Morgan Securities LLC (CRD # 79), at 3.

[185] *See* http://www.jpmorgan.com/pages/jpmorgan/investbk/solutions/futures#execution

[186] *Id.*

[187] *See* http://www.bloomberg.com/news/2012-02-28/jpmorgan-says-credit-swaps-lead-trading-revenue-sources-in-rare-breakdown.html.

[188] *See* JPMorgan Chase & Co., Annual Report 2008, at 99.

[189] FINRA Broker Check Report, UBS Financial Services Inc. (CRD # 8174), at 3.

December 18, 2012 non-prosecution agreement, "UBS employs derivatives traders throughout the world – including in Stamford, London, Zurich, and Tokyo – who trade financial instruments tied to LIBOR, including interest rate swaps and Eurodollar futures contracts ("derivatives traders")."[190]

647. Additionally, UBS held at least CFH 6.4 billion in exchange traded futures and options contracts as of December 31, 2008.[191] Plaintiffs allege that this amount includes Eurodollar futures contracts.

4. The Collusive Manipulation Of LIBOR Harmed Competition and Plaintiffs

648. As alleged above, when the BBA LIBOR panel rules were followed and LIBOR was not manipulated, it operated to carry the pricing effect of competition in the London interbank loan market into markets utilizing the LIBOR benchmark, including the market for Eurodollar futures contracts on the CME. Because LIBOR was the sole determinant of the price of Eurodollar futures contracts, such prices were, by definition, set by competition.

649. Because LIBOR was designed to reflect competitive pricing of funds in the interbank market, and because of the perceived success of the BBA LIBOR panel rules (prior to the Class Period) in assuring that LIBOR accurately reflected such competition, the LIBOR indices became dominant throughout the financial markets. As a result, Defendants and Former Defendants, as the LIBOR Panel Banks, had the power to control and did control the primary determinant of the price of Eurodollar futures. This control increased the risks to competition inherent in the setting of LIBOR by the BBA and the LIBOR Panel Banks, a combination of horizontal competitors, and this increased risk of harm to competition in turn increased the crucial

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[190] U.S. Department of Justice, Non-Prosecution Agreement - Appendix A, ¶ 16 (December 18, 2012).

[191] *See* UBS, Annual Report 2009, at 315.

importance of Defendants' adherence to the BBA LIBOR panel rules.

650. When Defendants and Former Defendants/Co-Conspirators agreed to continue setting LIBOR, but colluded to manipulate LIBOR rates in direct violation of the BBA LIBOR panel rules, Defendants harmed competition in multiple ways. For example, each Defendant's report ceased to reflect its competitively determined borrowing rate and the benefits to competition from this convenient report were lost. For another example, the composite LIBOR index rate ceased to accurately reflect competition, but instead was fixed at non-competitive manipulated levels, and the prices at which Eurodollar futures contract holders transacted ceased to be competitively set, and instead were fixed at non-competitive, artificial levels. This supplanting of competitive prices (amounts of interest) by non-competitive prices (amounts of interest) constitutes harm to competition and Plaintiffs.

651. This harm to competition is identical to the harm to competition that arises in any horizontal buyer price suppression cartel, and is condemned as an illegal restraint of trade for the same economic social-welfare reasons. Buyer (*i.e.*, issuer) collusion to suppress prices below competitive levels results in reduced output below the optimal level that would be obtained under free price competition, inefficient substitutions, and, over the long run, harm to consumers.

652. Thus, for example, as a group, investors will respond to prices (amounts of interest) suppressed below competitive levels by decreasing their level of savings and investment, and individual savers and investors may select less efficient alternative investments or, in some cases, may elect not to save or invest. Reductions or inefficiencies in investment and savings will deprive some individuals and some forms of enterprise of the competitively priced capital needed to produce the goods and services they sell to ultimate consumers, resulting in, *inter alia*, reduced downstream output, relative scarcity, higher prices, and reduced product quality. Similarly,

individual savers hurt by the manipulation will also suffer by having to reduce their levels of consumption below where they would otherwise be.

D. Plaintiffs' Injury Flowed Directly From Defendants' Anticompetitive Conduct

653. The BBA requirement that each Defendants and Manipulator Panel Banks submit, on a daily basis, the competitive rate at which it could borrow produced what the BBA called "a unique snapshot of competitive funding costs". By collecting and transmitting competitive borrowing rates, the LIBOR process provided the benefits of and enhanced competition in both the LIBOR market and other markets in which the standard contract incorporated LIBOR. Such markets and contracts especially include the market for Eurodollar futures contracts; again, the CME licensed LIBOR from the BBA and the price of the Eurodollar futures contracts was expressly derived from LIBOR.

654. By accurately transmitting the "competitive funding costs" to other markets, the LIBOR process provided price, output, and allocation of resources benefits of competition both to the LIBOR market itself, as well as the market for Eurodollar futures and other markets.

655. Additionally, in the Eurodollar futures markets, the Defendants and Former Defendants were competitors with one another and other traders (including Plaintiffs and Class members). Each trader used their respective judgments about the direction of prices and other factors to purchase or sell Eurodollar futures contracts and produce the price discovery. Price discovery is the main benefit and objective of the futures markets. Through such competition, the Eurodollar futures market produced non-manipulated prices for Eurodollar futures contracts. Such competitive process thereby provided additional price, efficiency, output, and allocation of resource benefits.

656. After LIBOR had become embedded as the price term in Eurodollar futures

contracts (as well as other contracts), Defendants knowingly agreed to and did make false LIBOR submissions. As all Defendants and Former Defendants/Co-Conspirators well knew, these false submissions manipulated Eurodollar futures contract prices. Non-manipulated prices are one of the primary benefits of competition. Through their false submissions and agreements, Defendants knowingly injured Plaintiffs and Class members and had adverse effects on competition. As Defendants well knew, this included by causing artificial LIBOR and artificial Eurodollar futures contract prices. This directly deprived Plaintiffs and Class members of the benefits of competition and thereby caused Plaintiffs and Class members injuries and actual damages from transacting at artificial prices.

657. Plaintiffs' injury, and the injury suffered by members of the Class, flowed directly, with no intervening causal factors, from Defendants' collusive suppression of LIBOR. This direct harm happened because, pursuant to the contract terms of Eurodollar futures contracts, the price of the futures contract changes with the change in LIBOR. The price they paid or received from purchases or sales of Eurodollar futures contracts was reduced by Defendants' violation of Section 1 of the Sherman Act. Moreover, the harm to Plaintiffs and Class members flowed directly from that which makes Defendants' conduct illegal under the antitrust laws – the replacement of a price primarily set by competition with an a price primarily set by Defendants' collusive suppression.

VIII. EFFECT ON INTERSTATE COMMERCE

658. Eurodollar futures are commodities traded in interstate commerce. Many hundreds of trillions of dollars of Eurodollar futures transactions and options on Eurodollar futures transactions are entered into each year in interstate commerce in the United States.

659. The licensing of LIBOR by the BBA to the CME also constitutes a contract for LIBOR in interstate commerce.

660. By manipulating LIBOR, Defendants affected the price of Eurodollar futures

contracts and other LIBOR-linked derivative prices. Thus, Defendants' conduct had a direct, substantial, and foreseeable impact on interstate commerce in the United States.

661. At all relevant times, Defendants knew that LIBOR was an important determinant of price of Eurodollar futures contracts and other LIBOR-linked derivatives prices.

662. Indeed, both before and during the Class Period, Defendants directly or indirectly through affiliated entities traded Eurodollar futures contracts.

663. By conspiring to manipulate LIBOR rates, Defendants intentionally targeted their unlawful conduct to affect commerce, including interstate commerce, within the United States.

664. Defendants' unlawful conduct had a direct and adverse impact on competition in the United States in that, absent Defendants' collusion, LIBOR would have been different.

IX. CLASS ACTION ALLEGATIONS

665. Plaintiffs bring this action as a class action pursuant to Rule 23 of the Federal Rules of Civil Procedure on their own behalf and as representatives of the class ("Class") defined as:

> all persons, corporations and other legal entities (other than Defendants, their employees, affiliates, parents, subsidiaries, and co-conspirators) that transacted in Eurodollar futures and options on Eurodollar futures on exchanges such as the CME between January 1, 2005 and May 31, 2010 (the "Class Period") and were harmed by Defendants' manipulation of LIBOR.

666. The Class is so numerous that the individual joinder of all members is impracticable. While the exact number of Class members is unknown to Plaintiffs at this time, Plaintiffs are informed and believe that at least thousands of geographically dispersed Class members traded on-exchange Eurodollar derivative contracts during the Class Period.

667. Common questions of law and fact exist as to all members of the Class and predominate over any questions that affect only individual members of the Class. These common questions of law and fact include, without limitation:

a) Whether Defendants' manipulation constituted a manipulative or unlawful

act;

b) The scope and duration of Defendants' manipulation of LIBOR and Eurodollar futures and options on futures;

c) Whether Defendants injected into Eurodollar futures and options on futures illegitimate forces of supply and demand;

d) Whether Defendants manipulated Eurodollar futures and options on futures in violation of the CEA;

e) Whether Defendants conspired to manipulate Eurodollar futures and options on futures in violation of the CEA;

f) Whether Defendants combined, agreed, or conspired to suppress, fix, maintain, or stabilize LIBOR in violation of the antitrust laws;

g) The character, extent, and duration of Defendants' manipulation of LIBOR and Eurodollar futures and options on futures;

h) Whether Defendants' unlawful conduct caused injury to the business or property of Plaintiffs and the Class;

i) Whether Defendants' aiding and abetting in the manipulation of Eurodollar futures and options on futures violates the CEA;

j) The fact and degree of impact on Eurodollar futures prices from Defendants' course of unlawful conduct; and

k) The appropriate measure of relief.

668. Plaintiffs' claims are all typical of the claims of the members of one of the Class. Plaintiffs and all members of the Class sustained damages arising out of Defendants' common course of conduct in violation of law as complained of herein. The injuries and damages of each

member of the Class were directly caused by Defendants' wrongful conduct in violation of law as alleged herein.

669. Plaintiffs will fairly and adequately protect the interests of the members of the Class. 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 with substantial experience and success in the prosecution of complex class action litigation, including commodity futures manipulation and class action litigation.

670. A class action is superior to other 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 the duplication of effort and expense that numerous individual actions would engender. Class treatment will also permit the adjudication of claims by many class members who could not afford individually to litigate claims such as those asserted in this Complaint. The cost to the court system of adjudication of such individualized litigation would be substantial. The prosecution of separate actions by individual members of the Class would create a risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for Defendants.

671. Plaintiffs are unaware of any difficulties that are likely to be encountered in the management of this action that would preclude its maintenance as a class action.

X. CLAIMS FOR RELIEF

A. FIRST CLAIM FOR RELIEF

Manipulation of LIBOR and Eurodollar Futures Contract Prices in Violation of the Commodity Exchange Act (7 U.S.C. § 1, *et seq.*)

(Against All Defendants Barclays, Bank of America Corp., BofA, Citigroup, Citibank, Deutsche Bank, DBGS, JPMorgan Chase, J.P. Morgan, Rabobank, UBS, UBS Group)

672. Plaintiffs incorporate the allegations in this Complaint by reference and reallege them as though fully set forth herein.

673. The CME has been designated by the CFTC as a contract market pursuant to Section 5 of the CEA, 7 U.S.C. § 7. CME submits to the CFTC various rules and regulations for approval through which CME designs, creates the terms of, and conducts trading in various on-exchange Eurodollar futures, options on futures. CME is an organized, centralized market that provides a forum for trading on-exchange LIBOR-based futures, options, swaps and other derivative products.

674. **Intent**. The Eurodollar futures contract is the largest volume futures contract traded and its price is directly tied to the LIBOR rate. Defendants intentionally used LIBOR as a tool to manipulate the price of Eurodollar futures contracts in order to benefit their own proprietary trading positions and make improper profits at the expense of members of the Class. Furthermore, Defendants fully understood that the direct, foreseeable, and certain result of any manipulation of LIBOR at all would automatically and necessarily result in a corresponding movement in the price of Eurodollar futures contracts. Defendants well knew that, by manipulating LIBOR, Defendants necessarily manipulated the price of Eurodollar futures contract. Defendants fully and specifically intended the consequences of their manipulation of LIBOR, including the artificial inflation of Eurodollar futures contract prices, in order to accomplish Defendants' goals of manipulating the

price of Eurodollar futures contract prices in order to improperly increase the profits of their own proprietary trading desks at the expense of the Class and artificially suppressing LIBOR in order to present an artificially sanguine view of their financial health to the public.

675. **Artificial Price**. During the Class Period, and specifically, beginning in April 15, 2009 and continuing through at least May 31, 2010, Eurodollar futures contract prices did not result from the legitimate market information, supply factors, and demand factors. On the contrary, Eurodollar futures contract prices were artificially set by the illegitimate factor of the artificially suppressed LIBOR price to which the Eurodollar futures settled, traded, and looked for the correct price for each trade.

676. **Causation**. By causing LIBOR to be artificially low, Defendants caused the Eurodollar futures contract to be artificially high or low at settlement and on each trading day during the Class Period leading up to settlement.

677. **Ability to Influence Prices**. Because Eurodollar futures contract prices settle to, and solely to, LIBOR, persons manipulating LIBOR have the ability to influence and, indeed, manipulate the price of Eurodollar futures contracts.

678. By their intentional misconduct, Defendants each violated Section 9(a)(2) of the CEA, 7 U.S.C. § 13(a)(2), and caused prices of Eurodollar futures and options on futures to be artificial, including artificially inflated and/or maintained, during the Class Period.

679. Defendants' activities alleged herein constitute market power manipulation of the prices of CME Eurodollar futures and options on futures in violation of Sections 9(a) and 22(a) of the CEA, 7 U.S.C. §§ 13(a) and 25(a). Defendants' extensive manipulative conduct deprived Plaintiffs and other traders of a lawfully operating market during the Class Period.

680. Plaintiffs and others who transacted in on-exchange Eurodollar futures and options

on futures during the Class Period, and specifically, beginning in April 15, 2009 and continuing through at least May 31, 2010, 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.

681. Plaintiffs and Class Members paid artificial prices for their Eurodollar futures contracts, were deprived of a lawfully operating market free from manipulation, and are entitled to recover their actual damages resulting therefrom.

682. Plaintiffs and the Class are each entitled to damages for the violations of the CEA alleged herein.

B. SECOND CLAIM FOR RELIEF

Manipulation of LIBOR and Eurodollar Futures Contract Prices in Violation of the Commodity Exchange Act (7 U.S.C. § 1, *et seq.*)

(Against Barclays, Rabobank, Deutsche Bank and DBGS)

683. Plaintiffs incorporate the allegations in this Complaint by reference and reallege them as though fully set forth herein.

684. The CME has been designated by the CFTC as a contract market pursuant to Section 5 of the CEA, 7 U.S.C. § 7. CME submits to the CFTC various rules and regulations for approval through which CME designs, creates the terms of, and conducts trading in various on-exchange Eurodollar futures, options on futures. CME is an organized, centralized market that provides a forum for trading on-exchange LIBOR-based futures, options, swaps and other derivative products.

685. **Intent**. The Eurodollar futures contract is the largest volume futures contract traded and its price is directly tied to the LIBOR rate. Defendants intentionally used LIBOR as a tool to

manipulate the price of Eurodollar futures contracts in order to benefit their own or other traders' proprietary trading positions and make improper profits at the expense of members of the Class. Furthermore, Defendants fully understood that the direct, foreseeable, and certain result of any manipulation of LIBOR at all would automatically and necessarily result in a corresponding movement in the price of Eurodollar futures contracts. Defendants well knew that, by manipulating LIBOR, Defendants necessarily manipulated the Eurodollar futures contract prices. Defendants fully and specifically intended the consequences of their manipulation of LIBOR, including the artificial inflation of Eurodollar futures contract prices, in order to accomplish Defendants' goals of manipulating the price of Eurodollar futures contract prices in order to improperly inflate the profits of their own or other traders' proprietary trading desks at the expense of the Class.

686. **Artificial Price**. During the Class Period, and specifically, beginning in January 2005 and continuing through at least August 2007, Eurodollar futures contract prices did not result from the legitimate market information, supply factors, and demand factors. On the contrary, Eurodollar futures contract prices were artificially set by the illegitimate factor of the artificial LIBOR prices to which the Eurodollar futures settled, traded, and looked for the correct price for each trade.

687. **Causation**. By causing LIBOR to be artificial, Defendants caused the Eurodollar futures contract to be artificially high or low at settlement and on each trading day during the Class Period leading up to settlement.

688. **Ability to Influence Prices**. Because Eurodollar futures contract prices settle to, and solely to, LIBOR, persons manipulating LIBOR have the ability to influence and, indeed, manipulate the price of Eurodollar futures contracts.

689. By their intentional misconduct, Defendants each violated Section 9(a)(2) of the

CEA, 7 U.S.C. § 13(a)(2), and caused prices of Eurodollar futures and options on futures to be artificial, including artificially inflated and/or maintained, during the Class Period.

690. Defendants' activities alleged herein constitute market power manipulation of the prices of CME Eurodollar futures and options on futures in violation of Sections 9(a) and 22(a) of the CEA, 7 U.S.C. §§ 13(a) and 25(a). Defendants' extensive manipulative conduct deprived Plaintiffs and other traders of a lawfully operating market during the Class Period.

691. Plaintiffs and others who transacted in on-exchange Eurodollar futures and options on futures during the Class Period transacted at artificial and unlawful prices resulting from Defendants' manipulations in violation of the Commodity Exchange Act, 7 U.S.C. § 1, *et seq.*, and as a direct result thereof were injured and suffered damages.

692. Plaintiffs and Class Members paid artificial prices for their Eurodollar futures contracts, were deprived of a lawfully operating market free from manipulation, and are entitled to recover their actual damages resulting therefrom.

693. Plaintiffs and the Class are each entitled to damages for the violations of the CEA alleged herein.

C. THIRD CLAIM FOR RELIEF

Vicarious Liability for Manipulation of LIBOR and Eurodollar Futures Contract Prices in Violation of the Commodity Exchange Act (7 U.S.C. § 2)

(Against All CEA Defendants)

694. Plaintiffs incorporate the allegations in this Complaint by reference and reallege them as though fully set forth herein.

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

696. As the Barclays settlement with the DOJ notes: "Barclays acknowledges that the wrongful acts taken by the participating employees in furtherance of this misconduct set forth [in the Barclays DOJ SOF] were within the scope of their employment at Barclays" and that "the participating employees intended, at least in part, to benefit Barclays through the actions described [in the Barclays DOJ SOF]." Barclays DOJ SOF ¶ 50.

697. As the Deutsche Bank settlement with the DOJ notes: "DB acknowledges that the wrongful acts taken by the participating employees in furtherance of the misconduct set forth [in the Deutsche Bank DOJ SOF] were within the scope of their employment at DB" and that "the participating employees intended, at least in part, to benefit DB through the actions described [in the Deutsche Bank DOJ SOF]." Deutsche Bank DOJ SOF ¶ 68.

698. As the Rabobank settlement with the DOJ notes: "Rabobank acknowledges that the wrongful acts taken by the participating employees in furtherance of the misconduct set forth [in the Rabobank DOJ SOF] were within the scope of their employment at Rabobank" and that "the participating employees intended, at least in part, to benefit Rabobank through the actions described [in the Rabobank DOJ SOF]." Rabobank DOJ SOF ¶ 98.

D. FOURTH CLAIM FOR RELIEF

Aiding and Abetting in the Manipulation of LIBOR and Eurodollar Futures Contract Prices in Violation of the Commodity Exchange Act (7 U.S.C. § 25)

(Against All CEA Defendants)

699. Plaintiffs incorporate the allegations in this Complaint by reference and reallege them as though fully set forth herein.

700. Defendants knowingly aided, abetted, counseled, induced, and/or procured the violations of the CEA alleged herein. Defendants did so knowing of other Defendants' manipulations of Eurodollar futures contracts prices, including by false reporting of interest rate information, and willfully intended to assist these manipulations to cause the price of CME Eurodollar futures contracts to reach artificial levels during the Class Period, in violation of Section 22(a)(1) of the CEA, 7 U.S.C. § 25(a)(1).

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

702. As a further direct and proximate result of the acts of Defendants, Plaintiffs and the Class have been required to act in the protection of their interests by filing this action, and have incurred attorneys' fees and other expenditures, in a sum to be proven at trial.

E. FIFTH CLAIM FOR RELIEF

Violations of Section 1 of the Sherman Act (15 U.S.C. § 1)

(Against All Defendants)

703. Plaintiffs incorporate the allegations in this Complaint by reference and reallege them as though fully set forth herein.

704. Defendants combined, conspired and agreed to fix, maintain and suppress or inflate

the prices of LIBOR, and therefore the prices for CME Eurodollar futures contracts and options on futures. Defendant LIBOR Panel Banks intentionally reported false interest rate information to the BBA and Thomson Reuters for the fixing of LIBOR. These are *per se* violations of Section 1 of the Sherman Antitrust Act, 15 U.S.C. § 1.

705. Defendants' conspiracy to fix, maintain, and suppress or inflate the prices of LIBOR, including the Defendant LIBOR Panel Bank's persistent suppression of LIBOR, and the resulting impact on the market for LIBOR and the prices of Eurodollar futures and options on futures occurred in and affected interstate and international commerce.

706. Because of Defendants' combination, conspiracy or agreement, Plaintiffs and the members of the Class have paid artificial prices for Eurodollar futures contracts and options on futures contracts during the Class Period and have been damaged in their property thereby.

707. For example, Atlantic Trading was short at least three different Eurodollar futures contracts as of July 31, 2007. These were: September 2007, September 2008, and March 2009. For September 2007, Atlantic was short because it had sold options of September 2007 Eurodollar futures. On expiration of these three contracts, Atlantic Trading was also net short and held through settlement. Thus, because LIBOR was suppressed during those settlements, the settlement price of these futures contracts was artificially high, and Atlantic Trading was harmed.

708. Unless enjoined, Defendants' contract, combination and conspiracy will continue.

709. Plaintiffs and members of the Class are entitled to treble damages for the violations of the Sherman Act alleged herein.

XI. PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray for relief as follows:

(A) For an order certifying this lawsuit as a class action pursuant to Rules 23(a) and (b)(3) of the Federal Rules of Civil Procedure, and designating Plaintiffs as the Class Representatives, and Plaintiffs' counsel as Class counsel;

(B) For a judgment awarding Plaintiffs and the Class damages against Defendants for their violations of the CEA, together with prejudgment and post-judgment interest at the maximum rate allowable by law;

(C) For a judgment awarding Plaintiffs and the Class appropriate damages against Defendants for their violations of the federal antitrust laws, in an amount to be trebled in accordance with such laws;

(D) For an award to Plaintiffs and the Class of their costs of suit, including reasonable attorneys' and experts' fees and expenses; and

(E) For such other and further relief as the Court may deem just and proper.

XII. JURY DEMAND

Plaintiffs respectfully demand a trial by jury.

Dated: September 29, 2017
New York, New York

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Interim Co-Lead Counsel for Exchange-Based Plaintiffs and the Class

Appendix A: Schedule of Sustained Defendants' Alleged Trader-Based Manipulation of U.S. Dollar LIBOR[1]

Date	Defendant(s) Involved	Direction of Manipulation	Effect on 3-Month LIBOR[2]	Source	Plaintiff(s) Harmed
9/29/2005	Barclays	High 3M	Kicked Up	¶ 148	Atlantic Trading
11/28/2005	Deutsche Bank	High 1M	Kicked Up	¶ 230	Atlantic Trading
4/7/2006	Barclays	Low 3M – Low 1M	Kicked Down	¶ 165	303030 Trading, Atlantic Trading
6/30/2006	Rabobank	High 3M	Interquartile	¶ 197	Atlantic Trading
8/17/2006	Rabobank	Low 3M	Kicked Down	¶ 199	Atlantic Trading
9/1/2006	Rabobank	High 3M	Kicked Up	¶ 198	303030 Trading, Atlantic Trading
10/26/2006	Barclays	Low 3M	Kicked Down	¶¶ 166, 258, 333	Atlantic Trading
11/29/2006	Rabobank	High 3M	Kicked Up	¶ 198	Atlantic Trading
12/22/2006	Barclays	Low 3M	Kicked Down	¶ 167	Atlantic Trading
2/28/2007	Barclays	High 3M	Kicked Up (Barclays)	¶¶ 230, 259-261, 273, 334	Atlantic Trading
3/1/2007	Barclays	High 3M	Kicked Up	¶ 261	Atlantic Trading
7/30/2007	Barclays	High 3M	Kicked Up	¶ 169	Atlantic Trading
8/6/2007	Barclays	High 3M	Kicked Up	¶ 170	Atlantic Trading

[1] This schedule compiles anecdotes of U.S. Dollar LIBOR manipulation detailed in the regulatory settlement documents in addition to anecdotes provided by the Barclays Cooperation Materials. Plaintiffs believe this list is under-inclusive because, for among other reasons, the settlement documents available to date only include representative examples of U.S. Dollar LIBOR manipulation (*e.g.*, ¶¶ 194, 230), concede that oral requests for manipulation were frequent but not documented (*e.g.*, ¶¶ 192, 219) and suggest that at least certain Defendants engaged in manipulative activity on a *daily* basis throughout the Class Period (¶¶ 248, 316). "¶" refers to Plaintiffs' Fourth Amended Consolidated Class Action Complaint.

[2] "Kicked Down" refers to days where a Panel Bank Defendant's 3 month U.S. Dollar LIBOR report was in whole or in part not include in the calculation of U.S. Dollar LIBOR because it was too low relative to other submissions. "Kicked Up" refers to days where a Panel Bank Defendant's 3 month U.S. Dollar LIBOR report was in whole or in part not included in the calculation of LIBOR because it was too high relative to other submissions. On certain days, there were ties between or among Panel Bank Defendants' LIBOR submissions, including those Panel Banks accused of manipulating U.S. Dollar LIBOR. In the instance of a tie, at least a portion of the report by the Panel Bank Defendant alleged to have manipulated LIBOR was disregarded and moved into the upper or lower quartile range. "Interquartile" refers to days where a Panel Bank Defendant's U.S. Dollar LIBOR report was neither kicked out up or down.

Schedule of All Other Defendants' Alleged
Trader-Based Manipulation of U.S. Dollar LIBOR[3]

Date	Defendant(s) Involved	Direction of Manipulation	Effect on 3-Month LIBOR	Source	Plaintiff(s) Harmed
2/21/2005	Deutsche Bank[4]	High 6M	Kicked Up	¶ 230	
3/22/2005	Deutsche Bank	High	Kicked Down	¶ 230	
4/1/2005	Deutsche Bank	Low 6M	Kicked Down	¶ 230	Atlantic Trading
6/13/2005	Deutsche Bank	Low 6M	Kicked Down	¶ 230	Atlantic Trading
9/21/2005	Deutsche Bank	Low	Kicked Down	¶ 230	
9/26/2005	Deutsche Bank	High 3M – Low 1M	Kicked Down	¶ 230	Atlantic Trading
11/14/2005	Barclays	High 1M	Kicked Down	¶ 160	
11/22/2005	Barclays	High 3M – Low 1M	Kicked Up	¶ 175	Atlantic Trading
11/24/2005	Deutsche Bank	High 3M	Kicked Up	¶ 230	
2/1/2006	Barclays	Low 3M	Kicked Up	¶ 176	
2/3/2006	Barclays	Low 3M – High 1M	Kicked Down	¶ 177	
2/7/2006	Barclays	High 3M – High 1M	Kicked Up	¶ 175	
2/8/2006	Barclays	High 3M – High 1M	Kicked Up	¶¶ 168, 175	
2/15/2006	Barclays	Low 3M	Kicked Down	¶ 161	
2/22/2006	Barclays	High 3M	Kicked Up	¶ 162	
2/24/2006	Deutsche Bank	Low 1M	Kicked Down	¶ 230	Atlantic Trading
3/13/2006	Barclays	Low 3M	Kicked Down	¶¶ 150-151, 341	

[3] Allegations of trader-based manipulation between August 7, 2007 and April 14, 2009 are alleged for purposes of "course of conduct" allegations. To the extent that Plaintiffs' trader-based manipulation claims are dismissed, Plaintiffs reserve their right to appeal from such dismissal from this period. Plaintiffs also reserve their rights to appeal from the Court's dismissal in whole or in part of any of Plaintiffs' claims previously dismissed on other grounds, including claims arising under the CEA and Sherman Act Section 1 and common law."

[4] As described in Plaintiffs' Fourth Amended Complaint, Deutsche Bank "engaged in systematic and pervasive misconduct directed at manipulating critical, international financial benchmark rates, [including] the London Interbank Offered Rate" during a 6 year period from "at least 2005 through early 2011." ¶ 219 (citing Deutsche Bank CFTC Order at 2). In particular, during 2008 and 2009, the DOJ determined that Deutsche Bank profited tremendously by employing an almost daily trading strategy dependent upon Deutsche Bank's rate submitters altering the bank's USD LIBOR submissions to generate a wider spread between 1 and 3 month U.S. Dollar LIBOR. ¶ 316 (citing Deutsche Bank DOJ SOF ¶ 32). Plaintiffs traded throughout the period.

Date	Defendant(s) Involved	Direction of Manipulation	Effect on 3-Month LIBOR	Source	Plaintiff(s) Harmed
3/16/2006	Barclays	Low 3M – High 1M	Kicked Down	¶ 163	
3/17/2006	Barclays, RBC, RBC Capital	Low 3M – High 1M	Kicked Down	¶ 267	303030 Trading, Atlantic Trading
3/20/2006	Barclays, Deutsche Bank	Ambiguous (Barclays) High 3M (Deutsche)	Kicked Down (Barclays) Kicked Up (Deutsche)	¶ 179	
3/27/2006	Barclays	Low 3M – Low 1M	Kicked Down	¶ 178	
4/11/2006	Deutsche Bank	High 3M	Kicked Up	¶ 230	Atlantic Trading
5/17/2006	Deutsche Bank	High 3M	Interquartile	¶ 230	
5/31/2006	Barclays	High 3M – High 1M	Kicked Up	¶ 179	
6/9/2006	Deutsche Bank	Low	Kicked Down	¶¶ 230-231	
7/20/2006	Deutsche Bank	Low 1M	Kicked Up	¶ 230	
8/16/2006	Rabobank	Low 3M	Kicked Down	¶ 199	
9/14/2006	Barclays, RBC, RBC Capital	Low 3M	Kicked Down (Barclays and RBC)	¶ 268	
9/15/2006	Barclays, RBC, RBC Capital	Low 3M	Kicked Down (Barclays and RBC)	¶¶ 268, 317	
9/18/2006	Barclays, RBC	Low 3M	Kicked Down (Barclays and RBC)	¶¶ 268, 308	
9/21/2006	Rabobank	High 3M	Kicked Up	¶ 198	
9/25/2006	Barclays, Merrill Lynch	High 3M	Kicked Up	¶¶ 255, 270	
9/27/2006	Barclays, Merrill Lynch	High 3M	Kicked Up	¶¶ 256, 317	Atlantic Trading
9/28/2006	Barclays, Citibank, CGMI, Merrill Lynch	High 3M	Kicked Up (Barclays and Citibank)	¶¶ 257, 278, 317	Atlantic Trading
10/2/2006	Deutsche Bank	High 6M	Kicked Up	¶ 230	
10/16/2006	Rabobank	Low 3M	Kicked Down	¶ 200	

Date	Defendant(s) Involved	Direction of Manipulation	Effect on 3-Month LIBOR	Source	Plaintiff(s) Harmed
11/28/2006	Deutsche Bank	Low 1M	Kicked Up	¶ 230	
12/18/2006	Barclays	Low 3M	Interquartile	¶¶ 152, 167	
12/19/2006	Barclays	Low 3M	Kicked Up	¶ 167	
12/20/2006	Barclays	Low 3M	Kicked Up	¶ 167	
12/21/2006	Barclays	Low 3M	Kicked Up	¶ 167	
12/27/2006	Barclays	Low 3M	Interquartile	¶ 167	Atlantic Trading
12/28/2006	Barclays	Low 3M	Kicked Down	¶ 167	
12/29/2006	Barclays, Deutsche Bank	Low 3M (Barclays), Low 1M (Deutsche)	Kicked Down (Barclays and Deutsche)	¶ 167	
2/28/2007	Barclays, Merrill Lynch, RBC, RBC Capital	High 3M	Kicked Up (Barclays), Interquartile (RBC)	¶¶ 259-261, 269, 273, 334	Atlantic Trading
3/5/2007	Barclays	High 3M	Kicked Up	¶ 181	
3/9/2007	Barclays, Merrill Lynch	High	Kicked Up	¶ 261	
3/14/2007	Deutsche Bank	Low 3M	Kicked Down	¶ 230	
3/23/2007	Barclays, Merrill Lynch	Low 3M	Kicked Down	¶¶ 262-263	
3/26/2007	Barclays, Merrill Lynch	Low 3M	Kicked Down	¶ 263	
3/28/2007	Deutsche Bank	High 3M	Kicked Up	¶ 230	
3/29/2007	Barclays, Merrill Lynch	Low 3M	Kicked Down	¶¶ 264, 335	
4/10/2007	Barclays, Merrill Lynch	Low 3M	Kicked Down	¶ 265	
5/23/2007	Barclays	Low 3M	Kicked Down	¶ 182	
5/24/2007	Barclays	Low 3M	Kicked Down	¶ 182	
6/20/2007	Deutsche Bank	Low 1M	Kicked Down	¶ 230	Atlantic Trading, Metzler
8/12/2007	Deutsche Bank	Low 1M	Kicked Up	¶ 230	

Date	Defendant(s) Involved	Direction of Manipulation	Effect on 3-Month LIBOR	Source	Plaintiff(s) Harmed
8/13/2007	Rabobank	High 3M	Interquartile	¶ 198	
8/14/2007	Rabobank	High 3M	Kicked Up	¶ 198	
8/15/2007	Deutsche Bank	Low 1M	Kicked Down	¶ 230	
9/10/2007	Rabobank	Low 3M	Kicked Down	¶ 200	Atlantic Trading
9/12/2007	Barclays	High 3M	Kicked Up	¶ 171	Atlantic Trading
9/17/2007	Barclays, RBS	Low (RBS), High (Barclays)	Kicked Down (RBS), Kicked Up (Barclays)	¶¶ 171, 274	
9/19/2007	Rabobank	Low 3M	Kicked Down	¶ 200	
9/26/2007	Barclays	High 3M – High 1M	Kicked Up	¶ 173	
9/27/2007	Rabobank	High 3M	Interquartile	¶ 198	303030 Trading
10/4/2007	Deutsche Bank	Low	Kicked Up	¶ 229	
10/17/2007	Rabobank	Low 1M	Kicked Down	¶ 200	
10/18/2007	Rabobank	Low 1M	Kicked Down	¶ 200	
10/19/2007	Rabobank	Low 1M	Kicked Down	¶ 200	
11/15/2007	Rabobank	Low	Interquartile	¶ 200	
11/28/2007	Barclays	High 3M	Kicked Up	¶¶ 290, 323, 329-330, 348	
11/29/2007	Barclays	Ambiguous	Kicked Up	¶¶ 250, 289, 324	
12/3/2007	Barclays	Low 1M	Kicked Up	¶¶ 319, 325	
12/4/2007	Barclays	Low 1M	Kicked Up	¶¶ 319, 325	
12/5/2007	Barclays	Low 1M	Kicked Up	¶¶ 319, 325	
12/13/2007	Deutsche Bank	High 3M	Interquartile	¶ 230	
12/14/2007	RBS	Low 3M	Kicked Down	¶ 296	Atlantic Trading
12/17/2007	RBS	Low 3M	Kicked Down	¶ 276	
1/17/2008	HBOS	High 3M	Kicked Up	¶ 205	FTC
1/18/2008	HBOS	Low 3M	Kicked Up	¶ 205	
2/5/2008	Barclays	Low 3M – Low 1M	Kicked Up	¶¶ 174, 186	
2/28/2008	Deutsche Bank	High 3M – Low 1M	Kicked Down	¶ 230	

Date	Defendant(s) Involved	Direction of Manipulation	Effect on 3-Month LIBOR	Source	Plaintiff(s) Harmed
3/13/2008	Rabobank	High 3M	Interquartile	¶ 198	
3/17/2008	Rabobank	High 3M	Kicked Up	¶ 198	Atlantic Trading, FTC
5/15/2008	Deutsche Bank	Low 1M	Interquartile	¶ 230	Metzler
5/16/2008	Barclays, Citibank, CGMI	Low	Kicked Up (Barclays), Interquartile (Citibank)	¶ 279	
8/13/2008	Deutsche Bank	High 3M	Kicked Up	¶ 230	Metzler
9/16/2008	Deutsche Bank	Low 1M	Kicked Up	¶¶ 230, 240, 306	
9/25/2008	Barclays, RBC, RBC Capital	Low	Kicked Up (Barclays), Interquartile (RBC)	¶ 270	
9/26/2008	HBOS	Low 3M	Kicked Up	¶ 206	
3/24/2009	Deutsche Bank	Low 1M	Kicked Up	¶ 230	
5/11/2009	Lloyds	Low 1M	Interquartile	¶¶ 208-209	Atlantic Trading
5/19/2009	Lloyds	Low 3M	Interquartile	¶ 210	
5/20/2009	Deutsche Bank	Low 3M – High 1M	Kicked Down	¶ 230	
11/27/2009	Barclays, HSBC, Lloyds, Tullett Prebon	Low[5]	Kicked Down (Barclays), Interquartile (HSBC), Interquartile (Lloyds)	¶¶ 16, 249, 314	Various Plaintiffs traded during this period.

[5] Anecdote appears to be directed at general patterns of Defendants' submissions over time.