

RE: Cleveland Fed LIBOR paper

Item ID: 32212
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: DiSanto, Emilia (b) (6)
Subject: RE: Cleveland Fed LIBOR paper
Sent: November 14, 2012 10:31 AM
Received: November 14, 2012 10:31 AM

Exceptionally cogent analysis, Tim. Nice work From: Lee, Timothy Sent: Wednesday, November 14, 2012 10:04 AM To: Linick, Steve Cc: Parker, Richard Subject: Cleveland Fed LIBOR paper Hi Steve, I took a look at the article you mentioned yesterday. Its primary focus is on alternatives to LIBOR in consumer mortgages, especially in light of the recent allegations. There are, of course, homeowner lawsuits alleging that lenders inflated LIBOR settings in an effort to increase interest income on their adjustable rate mortgages. The issues raised in the Cleveland Fed paper do not strike me as a primary topic of concern from our standpoint. While LIBOR is the overwhelmingly dominant short-term interest rate index in the capital markets, it is only one of several indexes in use for adjustable-rate mortgages. According to the Federal Reserve Bank of St Louis , ARMs are most commonly tied to COFI, rather than LIBOR. (One-year Treasury rates are another commonly used index.) Thus, readily available alternatives to LIBOR already exist and are accepted by the markets. While the emergence of these lawsuits is interesting, the subject matter itself appears to fall within the primary jurisdiction of the OCC and CFPB. It is important to note that, while our LIBOR memo is predicated on efforts to lower settings, the two complaints are not necessarily incompatible for two reasons. First, our analysis centers on 1-month and 3-month LIBOR, while many ARMs are tied to longer settings such as 6-month or 12-month LIBOR. Thus, there appears to be more incentive for upward manipulation farther out the yield curve. Second, if ARMs conventionally reference LIBOR on a particular day each month, the upward manipulation has to occur only on that single day. Our work centered on past daily LIBOR settings for 1-month and 3-month LIBOR. Any wrongdoing found to occur in the homeowner ARM lawsuits is already baked into our analysis, and so will not affect its calculations or conclusions. I will keep an eye on this going forward, but at the moment do not see cause for further action. Tim -----
Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

LIBOR release memo draft

Item ID: 32213
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: LIBOR release memo draft
Sent: November 14, 2012 5:25 PM
Received: November 14, 2012 5:25 PM

Hi Old Salt, We can discuss in the morning. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Distribution Memo.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Richard Parker
From: Timothy Lee
Subject: FHFA-OIG interagency assistance on LIBOR
Date: November 15, 2012

(b) (5)

(b) (5)

Points and items for tomorrow

Item ID: 32215
From: Timothy Lee [REDACTED] (b) (6) >
To: Timothy Lee <timothy.lee@fhfaoig.gov>
Subject: Points and items for tomorrow
Sent: November 14, 2012 9:22 PM
Received: November 14, 2012 9:22 PM

LIBOR memo: Agency's response of hiring Dickstein Shapiro is further acknowledgment that our concerns are legitimate. [REDACTED] (b) (5)

[REDACTED].
Wells Fargo call: - This isn't short notice- it is six weeks. - [REDACTED] (b) (5)

[REDACTED]
- [REDACTED] (b) (5)

[REDACTED]
[REDACTED] ----- Timothy Lee 646-359-3710
timoth31@gmail.com

Libor distribution memo, take 2

Item ID: 32216
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: Libor distribution memo, take 2
Sent: November 15, 2012 9:31 AM
Received: November 15, 2012 9:31 AM

Hi Old Salt, Please use this one. Added a couple of points that came to me last night. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Distribution Memo.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Richard Parker
From: Timothy Lee
Subject: FHFA-OIG interagency assistance on LIBOR
Date: November 16, 2012

(b) (5)

(b) (5)

FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32219
From: Grob, George (b) (6)
To: Parker, Richard (b) (6)
Cc: Lee, Timothy <Timothy.Lee@fhfaig.gov>, Bloch, David (b) (6), Linick, Steve (b) (6)
Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 12:22 PM
Received: November 15, 2012 12:22 PM

Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov]
Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina
Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

Attachment #1

Final Memo FHFA-OIG Memo re LIBOR Manipulation dtd Nov 15 2012.pdf

Original view

2 pages (displayed on pages 3 to 4)



Federal Housing Finance Agency

MEMORANDUM

TO: George P. Grob, Deputy Inspector General, Office of Evaluations and
Richard Parker, Director, Office of Policy, Oversight and Review

FROM: Jon D. Greenlee, Deputy Director for Enterprise Regulation 

SUBJECT: FHFA-OIG Memorandum Regarding LIBOR Manipulation

DATE: November 15, 2012

This is a response to the memorandum from Inspector General Linick to Acting Director DeMarco dated November 2, 2012, which describes FHFA-OIG concerns about potential financial losses to the Enterprises resulting from alleged manipulation of the London Interbank Offered Rate. The memorandum included three recommendations and requested the FHFA's response to those recommendations by November 16, 2012. Below are the FHFA-OIG recommendations and FHFA's responses. Please do not hesitate to call if you have any questions.

(1) Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.

In recent months, DER staff had several conversations with Enterprise staff about the press coverage of allegations of LIBOR manipulation and whether there might be any impact on the Enterprises. In early October 2012, DER staff held conference calls with compliance staff at Fannie Mae and Freddie Mac to discuss the issue in more detail, to learn of steps currently underway at each Enterprise, and to alert the Enterprises to a forthcoming supervisory request for Enterprise action.

DER, with input from FHFA's General Counsel, prepared a letter to each Enterprise, requesting that the Enterprise take appropriate steps to determine whether it should take any legal action relating to LIBOR manipulation. The letter was sent to each Enterprise on October 12, 2012 (see copies attached). Each letter stated, in part, that

...it would be prudent for [the Enterprise] to undertake an appropriate process that would result in a basic cost-benefit analysis of whether there may be any action that [the Enterprise] could reasonably pursue. Initial analysis could include a description of what review or monitoring of this issue has been done by [the Enterprise] to date, rough estimates of financial impact, general assessment of

potential legal claims, or other factors that serve as the basis for a conclusion as to advisability of action by [the Enterprise] at this time.

Each Enterprise was requested to submit an initial analysis describing its approach by October 29, 2012.

A written response was received from each Enterprise on November 1, 2012 (see copies attached). The responses indicate that each Enterprise has efforts in process and has dedicated resources to review this issue. Each Enterprise has engaged the law firm of Dickstein Shapiro and additional resources with economic expertise to assist in conducting the assessment requested. Such an assessment is essential to avoid actions that either are misdirected or would not be productive.

(2) Promptly consider options for appropriate legal action, if warranted.

The October 12 letters to the Enterprises noted the questions “whether [the Enterprise] sustained any losses attributable to alleged manipulation of LIBOR and, if so, how such losses could be quantified and whether there would be a viable basis for [the Enterprise] and possibly FHFA in pursuing legal action to recoup such losses.” The Enterprises’ November 1 submissions indicate that once there is an analysis of damages, options for legal actions will be considered. The Freddie Mac response identifies existing class actions that could be joined. The Enterprise is alert to potential timing considerations, but notes that none of the possible classes has yet been certified.

FHFA has not yet made any determination regarding legal action by the Agency. The General Counsel is involved in the ongoing dialogue on this issue and would take into account the Agency’s supervisory responsibilities and its role as conservator in making any recommendation to the Acting Director about Agency legal action.

(3) Coordinate efforts and share information with other federal and state regulatory agencies.

As the Enterprises’ efforts proceed and FHFA learns more about the analysis of potential losses and the costs and benefits of legal options, DER will reach out to its counterparts at other supervisory agencies to share information as appropriate. The General Counsel has already, and will continue, to consult with the Department of Justice, as appropriate.

Attachments

Attachment #2

Memo 11022012.pdf

Original view

14 pages (displayed on pages 6 to 19)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

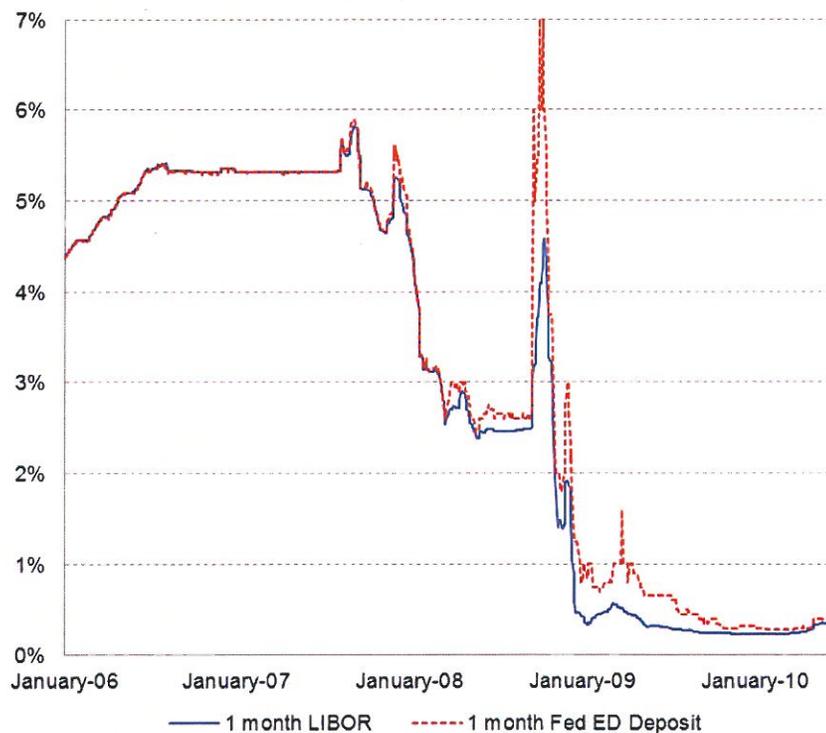
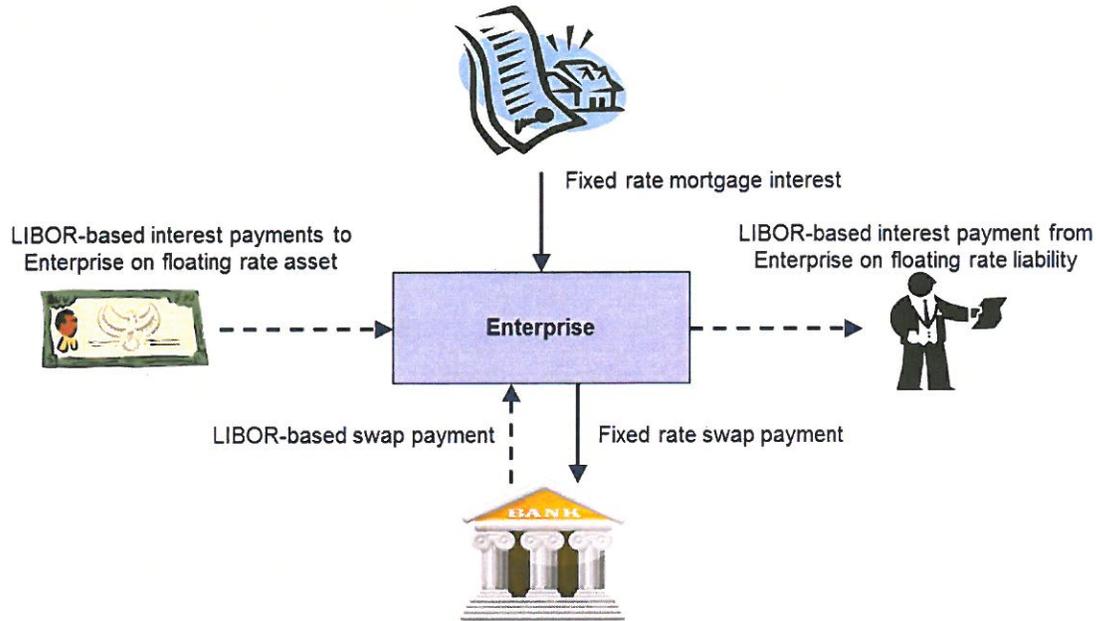


Figure 2. LIBOR-Based Payments to and From the Enterprises



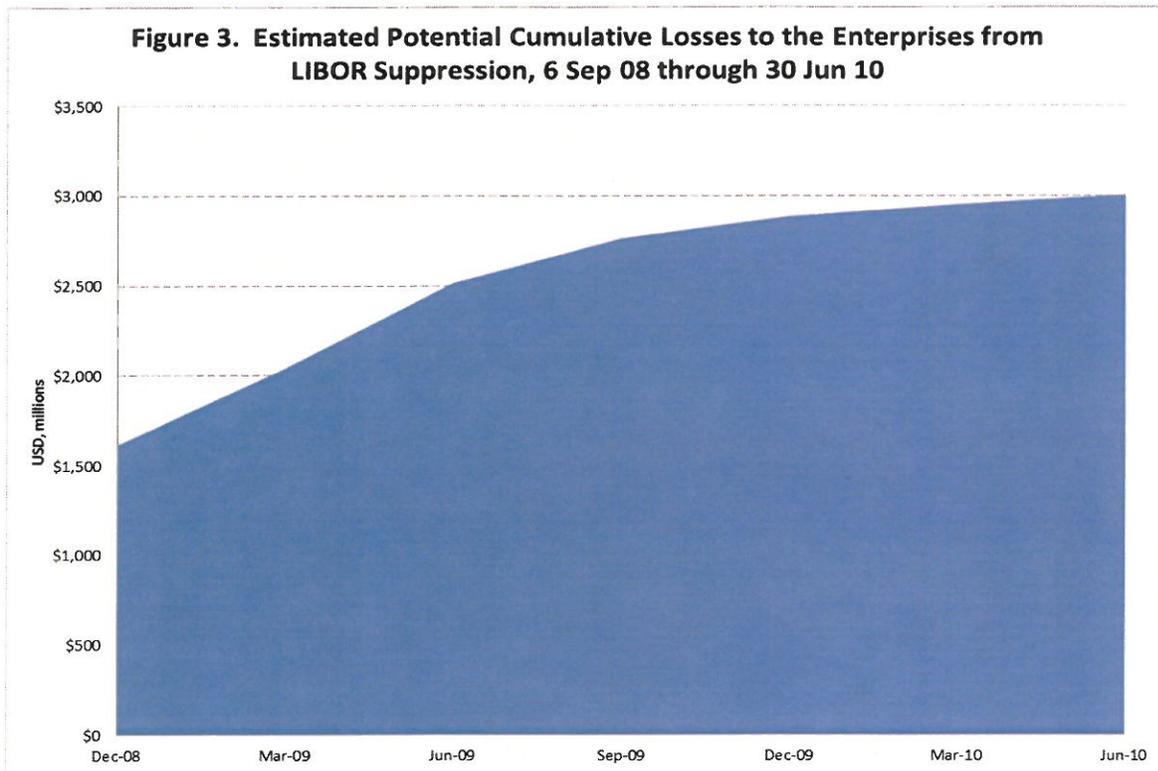
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises’ floating-rate

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32224
From: Bloch, David (b) (6)
To: Grob, George (b) (6)
Cc: Lee, Timothy <Timothy.Lee@fhfa.gov>, Linick, Steve (b) (6), Parker, Richard (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 12:47 PM
Received: November 15, 2012 12:47 PM

Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4)

(b) (4)

David From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32225
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>, Grob, George </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Cc: Linick, Steve </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=28c2cf7b529749f09f7ceff9f71a1cd9-Steve Linic>, Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 12:52 PM
Received: November 15, 2012 12:52 PM

One thing that jumps out at me on first examination of the Fannie deck (b) (4)

(b) (4) From: Bloch, David Sent: Thursday, November 15, 2012 12:48 PM To: Grob, George Cc: Lee, Timothy; Linick, Steve; Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4)

(b) (4) David From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee
Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32226
From: Parker, Richard (b) (6)
To: Bloch, David (b) (6) Grob, George (b) (6)
Cc: Lee, Timothy <Timothy.Lee@fhfa.gov>, Linick, Steve (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 2:03 PM
Received: November 15, 2012 2:04 PM

George, I think David has this right. Freddie's plan is contained in the three page letter on Freddie letterhead. Essentially, they are relying on the law firm/economists to compute the damage estimate before determining whether to intervene in an extant suit or bring one of their own. Rich From: Bloch, David Sent: Thursday, November 15, 2012 12:48 PM To: Grob, George Cc: Lee, Timothy; Linick, Steve; Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4), (b) (8)

. David From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

LIBOR distribution memo

Item ID: 32227
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: LIBOR distribution memo
Sent: November 15, 2012 2:08 PM
Received: November 15, 2012 2:08 PM

Hi Steve, With minor changes to reflect today's receipt of the Agency response. In addition to Steve, would Emilia and Mike want to look at this note? Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Distribution Memo.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Richard Parker
From: Timothy Lee
Subject: FHFA-OIG interagency assistance on LIBOR
Date: November 15, 2012

(b) (5)

(b) (5)

FW: LIBOR distribution memo

Item ID: 32228
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: LIBOR distribution memo
Sent: November 15, 2012 2:08 PM
Received: November 15, 2012 2:08 PM

FYI From: Lee, Timothy Sent: Thursday, November 15, 2012 2:08 PM To: Parker, Richard Subject: LIBOR distribution memo
Hi Steve, With minor changes to reflect today's receipt of the Agency response. In addition to Steve, would Emilia and Mike want to look at this note? Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Distribution Memo.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Richard Parker
From: Timothy Lee
Subject: FHFA-OIG interagency assistance on LIBOR
Date: November 15, 2012

(b) (5)

(b) (5)

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32230
From: Grob, George (b) (6)
To: Parker, Richard (b) (6), Bloch, David (b) (6) >
Cc: Lee, Timothy <Timothy.Lee@fhfaig.gov>, Linick, Steve (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 2:22 PM
Received: November 15, 2012 2:22 PM

Actually, I got the two mixed up. I meant to say that I did not see a Fannie plan of action here. The slides are more of a technical explanation. (b) (4) . (b) (5)

(b) (5) . From: Parker, Richard Sent: Thursday, November 15, 2012 2:04 PM To: Bloch, David; Grob, George Cc: Lee, Timothy; Linick, Steve Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation George, I think David has this right. Freddie's plan is contained in the three page letter on Freddie letterhead. (b) (5)

(b) (5) Rich From: Bloch, David Sent: Thursday, November 15, 2012 12:48 PM To: Grob, George Cc: Lee, Timothy; Linick, Steve; Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4), (b) (8)

(b) (5) David From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: (b) (5)

(b) (5); Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32231
From: Parker, Richard (b) (6)
To: Grob, George (b) (6), Bloch, David (b) (6)
Cc: Lee, Timothy <Timothy.Lee@fhfa.oig.gov>, Linick, Steve (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 2:25 PM
Received: November 15, 2012 2:25 PM

Agreed. Moreover, Tim (b) (5)

(b) (5) From: Grob, George Sent: Thursday, November 15, 2012 2:23 PM To: Parker, Richard; Bloch, David Cc: Lee, Timothy; Linick, Steve Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Actually, I got the two mixed up. I meant to say that I did not see a Fannie plan of action here. The slides are more of a technical explanation. (b) (4) (b) (5)

(b) (5) From: Parker, Richard Sent: Thursday, November 15, 2012 2:04 PM To: Bloch, David; Grob, George Cc: Lee, Timothy; Linick, Steve Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
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Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4)

(b) (5) David From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee
Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32235
From: DiSanto, Emilia (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: DiSanto, Emilia (b) (6), Parker, Richard
Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 3:07 PM
Received: November 15, 2012 3:07 PM

Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

Attachment #1

Final Memo FHFA-OIG Memo re LIBOR Manipulation dtd Nov 15 2012.pdf

Original view

2 pages (displayed on pages 3 to 4)



Federal Housing Finance Agency

MEMORANDUM

TO: George P. Grob, Deputy Inspector General, Office of Evaluations and
Richard Parker, Director, Office of Policy, Oversight and Review

FROM: Jon D. Greenlee, Deputy Director for Enterprise Regulation 

SUBJECT: FHFA-OIG Memorandum Regarding LIBOR Manipulation

DATE: November 15, 2012

This is a response to the memorandum from Inspector General Linick to Acting Director DeMarco dated November 2, 2012, which describes FHFA-OIG concerns about potential financial losses to the Enterprises resulting from alleged manipulation of the London Interbank Offered Rate. The memorandum included three recommendations and requested the FHFA's response to those recommendations by November 16, 2012. Below are the FHFA-OIG recommendations and FHFA's responses. Please do not hesitate to call if you have any questions.

(1) Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.

In recent months, DER staff had several conversations with Enterprise staff about the press coverage of allegations of LIBOR manipulation and whether there might be any impact on the Enterprises. In early October 2012, DER staff held conference calls with compliance staff at Fannie Mae and Freddie Mac to discuss the issue in more detail, to learn of steps currently underway at each Enterprise, and to alert the Enterprises to a forthcoming supervisory request for Enterprise action.

DER, with input from FHFA's General Counsel, prepared a letter to each Enterprise, requesting that the Enterprise take appropriate steps to determine whether it should take any legal action relating to LIBOR manipulation. The letter was sent to each Enterprise on October 12, 2012 (see copies attached). Each letter stated, in part, that

...it would be prudent for [the Enterprise] to undertake an appropriate process that would result in a basic cost-benefit analysis of whether there may be any action that [the Enterprise] could reasonably pursue. Initial analysis could include a description of what review or monitoring of this issue has been done by [the Enterprise] to date, rough estimates of financial impact, general assessment of

potential legal claims, or other factors that serve as the basis for a conclusion as to advisability of action by [the Enterprise] at this time.

Each Enterprise was requested to submit an initial analysis describing its approach by October 29, 2012.

A written response was received from each Enterprise on November 1, 2012 (see copies attached). The responses indicate that each Enterprise has efforts in process and has dedicated resources to review this issue. Each Enterprise has engaged the law firm of Dickstein Shapiro and additional resources with economic expertise to assist in conducting the assessment requested. Such an assessment is essential to avoid actions that either are misdirected or would not be productive.

(2) Promptly consider options for appropriate legal action, if warranted.

The October 12 letters to the Enterprises noted the questions “whether [the Enterprise] sustained any losses attributable to alleged manipulation of LIBOR and, if so, how such losses could be quantified and whether there would be a viable basis for [the Enterprise] and possibly FHFA in pursuing legal action to recoup such losses.” The Enterprises’ November 1 submissions indicate that once there is an analysis of damages, options for legal actions will be considered. The Freddie Mac response identifies existing class actions that could be joined. The Enterprise is alert to potential timing considerations, but notes that none of the possible classes has yet been certified.

FHFA has not yet made any determination regarding legal action by the Agency. The General Counsel is involved in the ongoing dialogue on this issue and would take into account the Agency’s supervisory responsibilities and its role as conservator in making any recommendation to the Acting Director about Agency legal action.

(3) Coordinate efforts and share information with other federal and state regulatory agencies.

As the Enterprises’ efforts proceed and FHFA learns more about the analysis of potential losses and the costs and benefits of legal options, DER will reach out to its counterparts at other supervisory agencies to share information as appropriate. The General Counsel has already, and will continue, to consult with the Department of Justice, as appropriate.

Attachments

Attachment #2

Memo 11022012.pdf

Original view

14 pages (displayed on pages 6 to 19)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

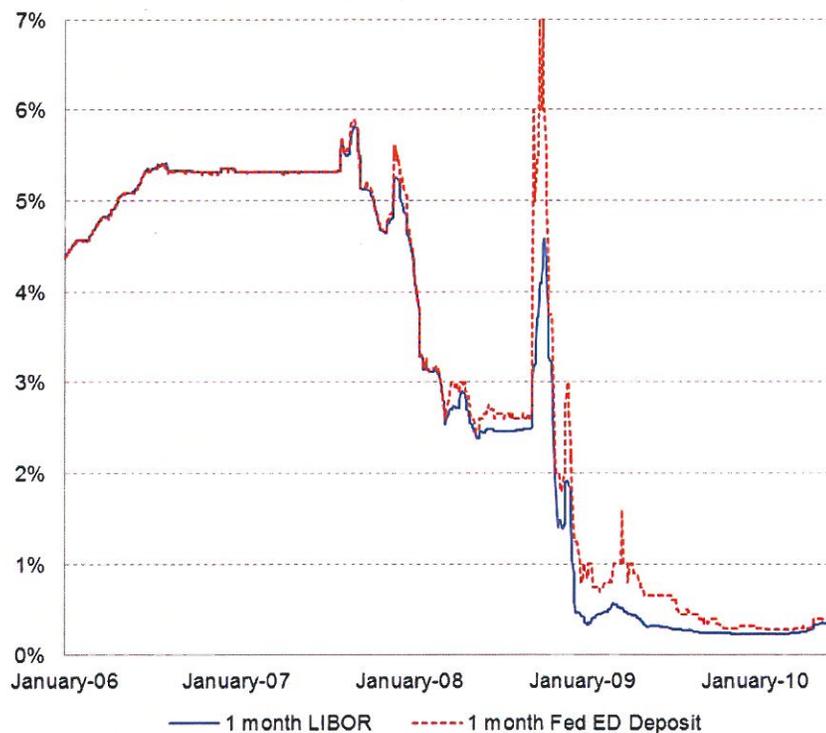
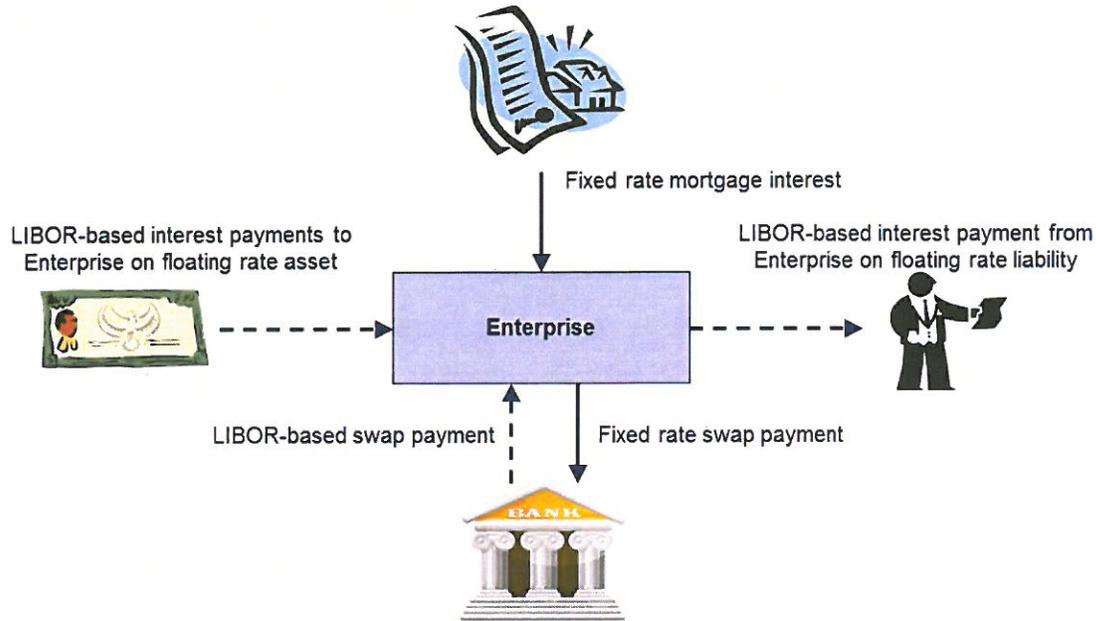


Figure 2. LIBOR-Based Payments to and From the Enterprises



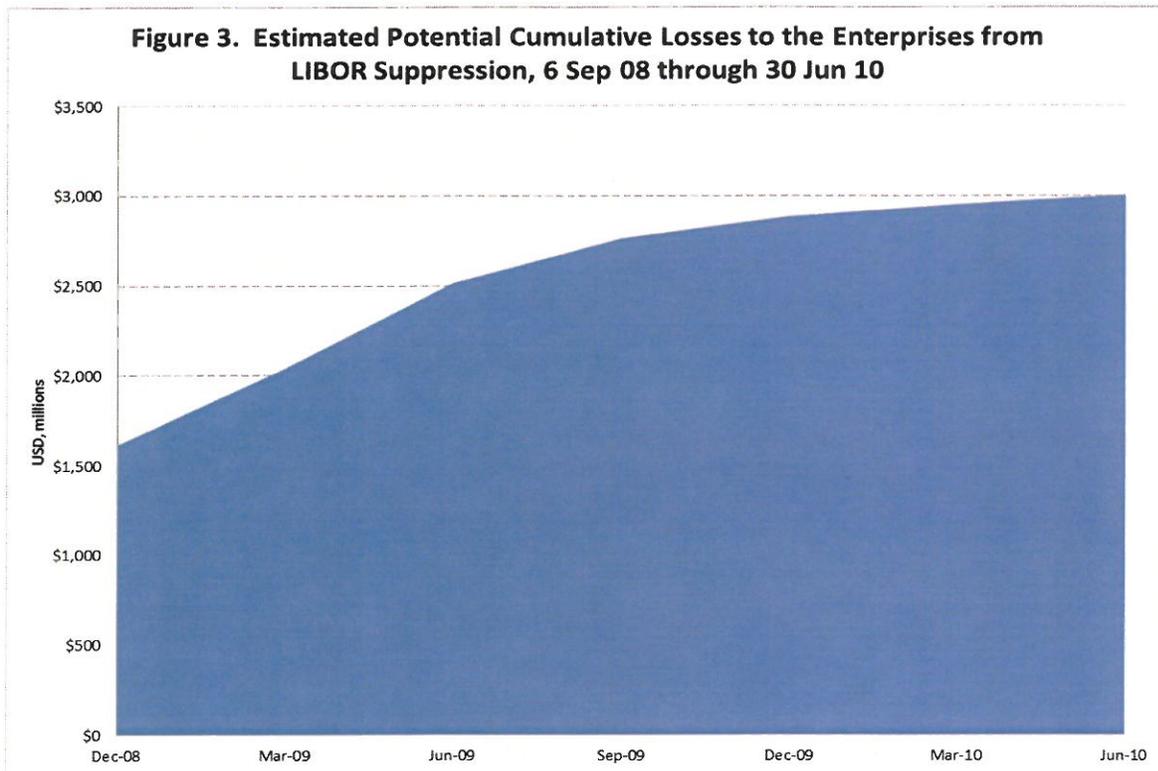
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises’ floating-rate

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32239
From: Parker, Richard (b) (6)
To: DiSanto, Emilia (b) (6), Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 3:14 PM
Received: November 15, 2012 3:14 PM

We read it. It's entirely responsive. Tim has sent me a memo that I forwarded to Steve and you. We're waiting for guidance at this point. I can't speak to the bill. Tim?

Sent from my Windows Phone

From:

DiSanto, Emilia

Sent:

11/15/2012 3:07 PM

To:

Lee, Timothy

Cc:

Parker, Richard; DiSanto, Emilia

Subject:

FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Take a read on thisâ€¦ let me know your thoughtsâ€¦on a separate matterâ€¦really need you to look at the rez bill

FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32245
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Phillips, Wesley </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c1881bcb698c45b096269b8112f87787-Wesley Phil>
Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 3:24 PM
Received: November 15, 2012 3:24 PM

From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee
Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

Attachment #1

Final Memo FHFA-OIG Memo re LIBOR Manipulation dtd Nov 15 2012.pdf

Original view

2 pages (displayed on pages 3 to 4)



Federal Housing Finance Agency

MEMORANDUM

TO: George P. Grob, Deputy Inspector General, Office of Evaluations and
Richard Parker, Director, Office of Policy, Oversight and Review

FROM: Jon D. Greenlee, Deputy Director for Enterprise Regulation 

SUBJECT: FHFA-OIG Memorandum Regarding LIBOR Manipulation

DATE: November 15, 2012

This is a response to the memorandum from Inspector General Linick to Acting Director DeMarco dated November 2, 2012, which describes FHFA-OIG concerns about potential financial losses to the Enterprises resulting from alleged manipulation of the London Interbank Offered Rate. The memorandum included three recommendations and requested the FHFA's response to those recommendations by November 16, 2012. Below are the FHFA-OIG recommendations and FHFA's responses. Please do not hesitate to call if you have any questions.

(1) Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.

In recent months, DER staff had several conversations with Enterprise staff about the press coverage of allegations of LIBOR manipulation and whether there might be any impact on the Enterprises. In early October 2012, DER staff held conference calls with compliance staff at Fannie Mae and Freddie Mac to discuss the issue in more detail, to learn of steps currently underway at each Enterprise, and to alert the Enterprises to a forthcoming supervisory request for Enterprise action.

DER, with input from FHFA's General Counsel, prepared a letter to each Enterprise, requesting that the Enterprise take appropriate steps to determine whether it should take any legal action relating to LIBOR manipulation. The letter was sent to each Enterprise on October 12, 2012 (see copies attached). Each letter stated, in part, that

...it would be prudent for [the Enterprise] to undertake an appropriate process that would result in a basic cost-benefit analysis of whether there may be any action that [the Enterprise] could reasonably pursue. Initial analysis could include a description of what review or monitoring of this issue has been done by [the Enterprise] to date, rough estimates of financial impact, general assessment of

potential legal claims, or other factors that serve as the basis for a conclusion as to advisability of action by [the Enterprise] at this time.

Each Enterprise was requested to submit an initial analysis describing its approach by October 29, 2012.

A written response was received from each Enterprise on November 1, 2012 (see copies attached). The responses indicate that each Enterprise has efforts in process and has dedicated resources to review this issue. Each Enterprise has engaged the law firm of Dickstein Shapiro and additional resources with economic expertise to assist in conducting the assessment requested. Such an assessment is essential to avoid actions that either are misdirected or would not be productive.

(2) Promptly consider options for appropriate legal action, if warranted.

The October 12 letters to the Enterprises noted the questions “whether [the Enterprise] sustained any losses attributable to alleged manipulation of LIBOR and, if so, how such losses could be quantified and whether there would be a viable basis for [the Enterprise] and possibly FHFA in pursuing legal action to recoup such losses.” The Enterprises’ November 1 submissions indicate that once there is an analysis of damages, options for legal actions will be considered. The Freddie Mac response identifies existing class actions that could be joined. The Enterprise is alert to potential timing considerations, but notes that none of the possible classes has yet been certified.

FHFA has not yet made any determination regarding legal action by the Agency. The General Counsel is involved in the ongoing dialogue on this issue and would take into account the Agency’s supervisory responsibilities and its role as conservator in making any recommendation to the Acting Director about Agency legal action.

(3) Coordinate efforts and share information with other federal and state regulatory agencies.

As the Enterprises’ efforts proceed and FHFA learns more about the analysis of potential losses and the costs and benefits of legal options, DER will reach out to its counterparts at other supervisory agencies to share information as appropriate. The General Counsel has already, and will continue, to consult with the Department of Justice, as appropriate.

Attachments

Attachment #2

Memo 11022012.pdf

Original view

14 pages (displayed on pages 6 to 19)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

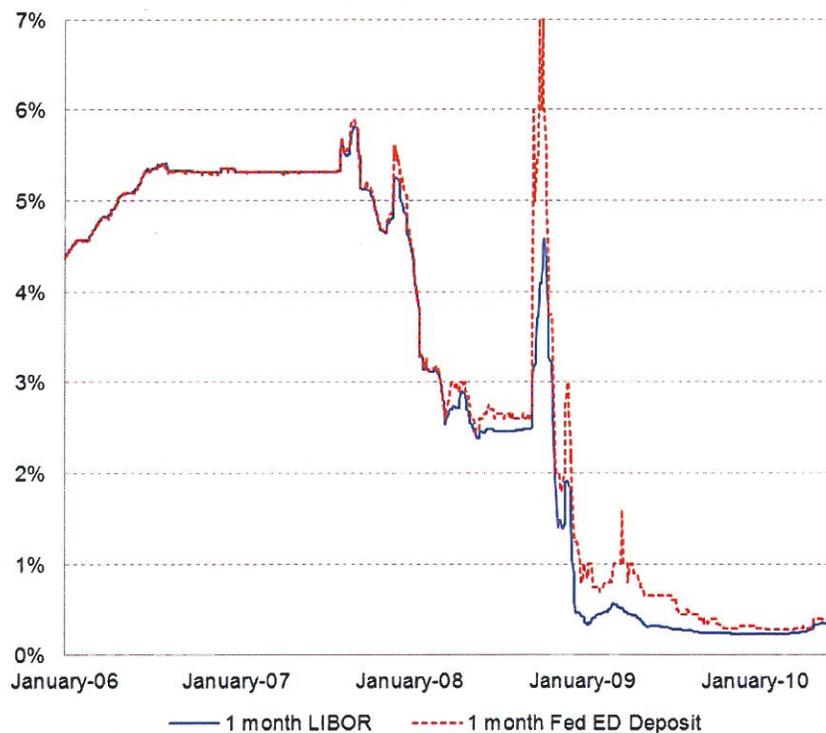
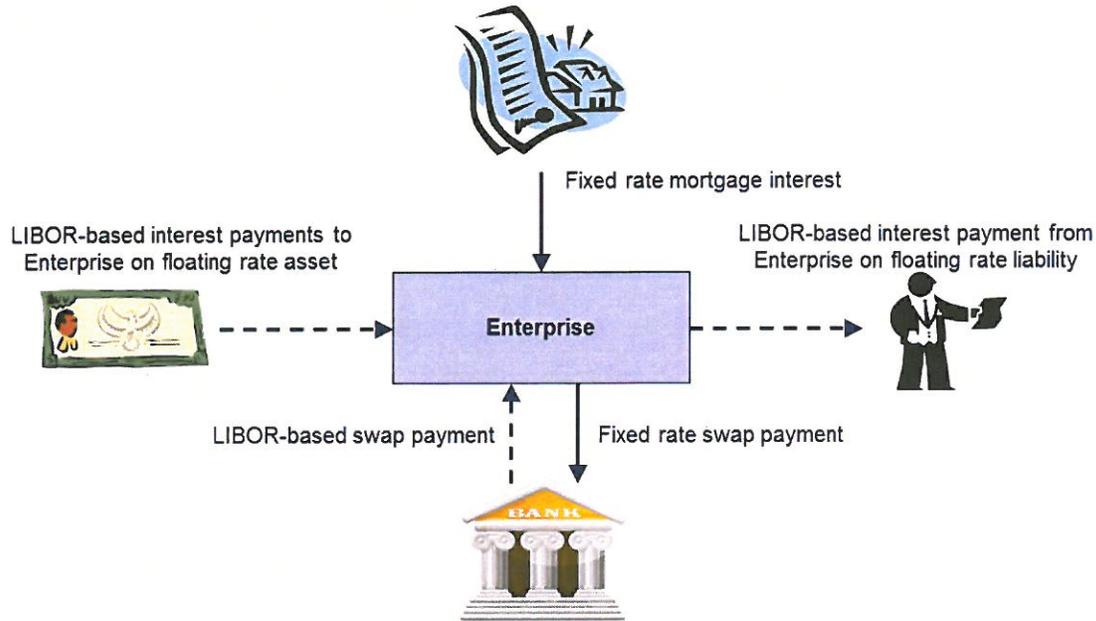


Figure 2. LIBOR-Based Payments to and From the Enterprises



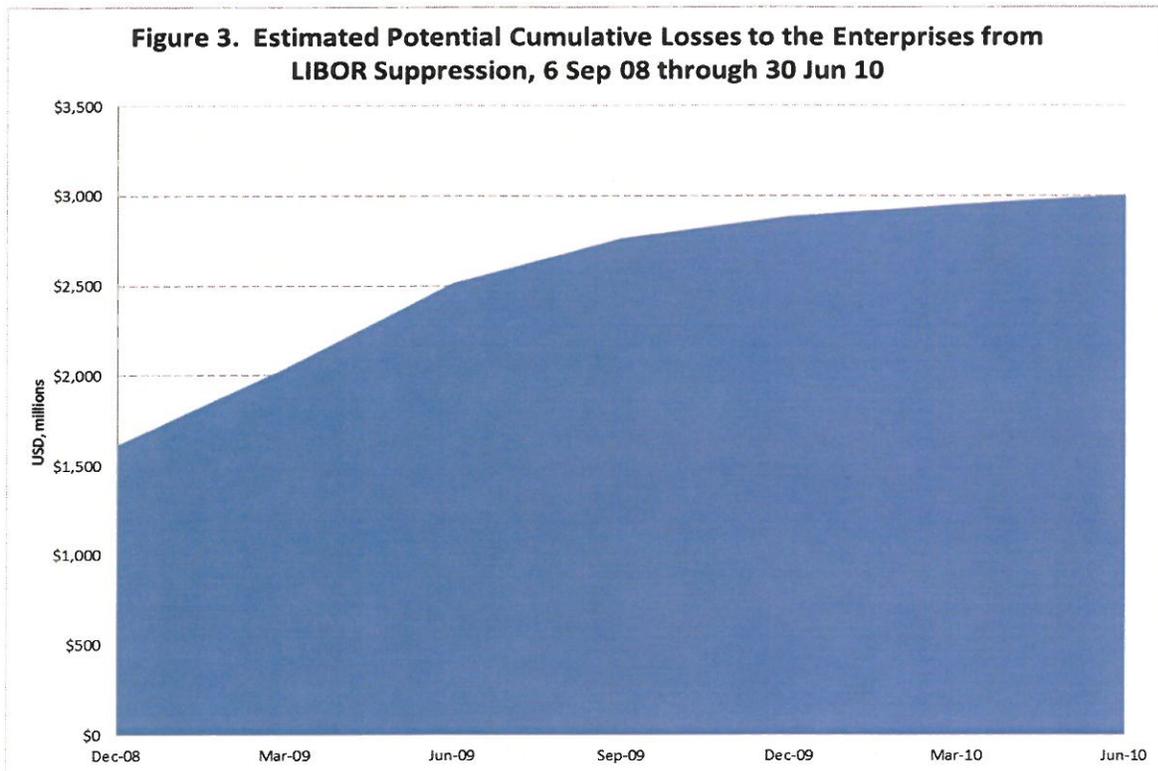
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises’ conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²² However, our review of a small sample of offering documents for the Enterprises’ floating-rate

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32248
From: Linick, Steve (b) (6)
To: Grob, George (b) (6)
Cc: Parker, Richard (b) (6), Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Bloch, David (b) (6), Stephens, Michael (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 3:45 PM
Received: November 15, 2012 3:45 PM

Why don't you raise this issue with Greenlee first and let him know about our intentions as well as how you want him to modify his letter. From: Grob, George Sent: Thursday, November 15, 2012 3:42 PM To: Linick, Steve Cc: Parker, Richard; Lee, Timothy; Bloch, David Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Steve, This is George with Richard by my side. Here are our thoughts. (b) (5)

(b) (5)
George and Richard From: Linick, Steve Sent: Thursday, November 15, 2012 1:17 PM To: Bloch, David; Grob, George Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation What are your thoughts on posting our memo on the website? will it impair any proposed litigation From: Bloch, David Sent: Thursday, November 15, 2012 12:48 PM To: Grob, George Cc: Lee, Timothy; Linick, Steve; Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4)

David From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32249
From: Parker, Richard (b) (6)
To: Linick, Steve (b) (6)
Cc: Lee, Timothy <Timothy.Lee@fhfa.ig.gov>, Bloch, David (b) (6), Stephens, Michael (b) (6), Grob, George (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 3:50 PM
Received: November 15, 2012 3:50 PM

We're on it. -R

Sent from my Windows Phone

From:
Linick, Steve
Sent:
11/15/2012 3:45 PM
To:
Grob, George
Cc:
Parker, Richard; Lee, Timothy; Bloch, David; Stephens, Michael
Subject:

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Why don't you raise this issue with Greenlee first and let him know about our intentions as well as how you want him to modify his letter.

From: Grob, George
Sent: Thursday, November 15, 2012 3:42 PM
To: Linick, Steve
Cc: Parker, Richard; Lee, Timothy; Bloch, David
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Steve,

This is George with Richard by my side. Here are our thoughts. (b) (5)

[Redacted]

George and Richard
From: Linick, Steve
Sent: Thursday, November 15, 2012 1:17 PM
To: Bloch, David; Grob, George
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

What are your thoughts on posting our memo on the website? will it impair any proposed litigation

From: Bloch, David

Sent: Thursday, November 15, 2012 12:48 PM

To: Grob, George

Cc: Lee, Timothy; Linick, Steve; Parker, Richard

Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Freddie's response to FHFA is in letter form. Fannie's response to FHFA is in a slide deck. Freddie has already engaged Dickstein Shapiro and Bates White to run the loss figures. (b) (4)

David

From: Grob, George

Sent: Thursday, November 15, 2012 12:23 PM

To: Parker, Richard

Cc: Lee, Timothy; Bloch, David; Linick, Steve

Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Richard,

I do not see a Freddie Mac action plan here.

George

From: Williams, Diane [mailto:Diane.Williams@fhfa.gov]

Sent: Thursday, November 15, 2012 12:06 PM

To: Grob, George; Parker, Richard

Cc: Greenlee, Jon; Nichols, Nina

Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Dear Messrs. Grob and Parker

Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses.

Please let me know if you have any questions. Thank you. Jon Greenlee

Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s).

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information contained in this e-mail or its attachments. Please call

202-649-3800 if you have questions.

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32251
From: DiSanto, Emilia (b) (6)
To: Parker, Richard (b) (6), Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 15, 2012 4:23 PM
Received: November 15, 2012 4:23 PM

I also sent all the material to bryan so he can include it in the next sar From: Parker, Richard Sent: Thursday, November 15, 2012 3:15 PM To: DiSanto, Emilia; Lee, Timothy Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation We read it. It's entirely responsive. Tim has sent me a memo that I forwarded to Steve and you. We're waiting for guidance at this point. I can't speak to the bill. Tim? Sent from my Windows Phone From: DiSanto, Emilia Sent: 11/15/2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

LIBOR memo

Item ID: 32253
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>, Grob, George </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Subject: LIBOR memo
Sent: November 16, 2012 4:36 PM
Received: November 16, 2012 4:36 PM

Hi gents, If we do decide to distribute, please use this version of the memo. Somehow, in the recommendations, the memo uses "affect" instead of "effect". I have corrected the mistake, which should not have slipped past me in the first place, and ask that I be spared the humiliation of letting anyone else see such an obvious blunder. (Also, we should circulate a version with working hyperlinks.) Thanks, Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR memo final.docx

Original view

14 pages (displayed on pages 3 to 16)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

The memorandum outlines in detail my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. My staff has tentatively estimated that the Enterprises may have suffered \$3 billion in such losses. Those losses, of course, would have been funded by the Department of the Treasury under the Senior Preferred Stock Purchase Agreements in place with each Enterprise. I therefore believe that this matter warrants the Agency's attention. Please do not hesitate to contact me or any of my staff in this regard.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis, Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

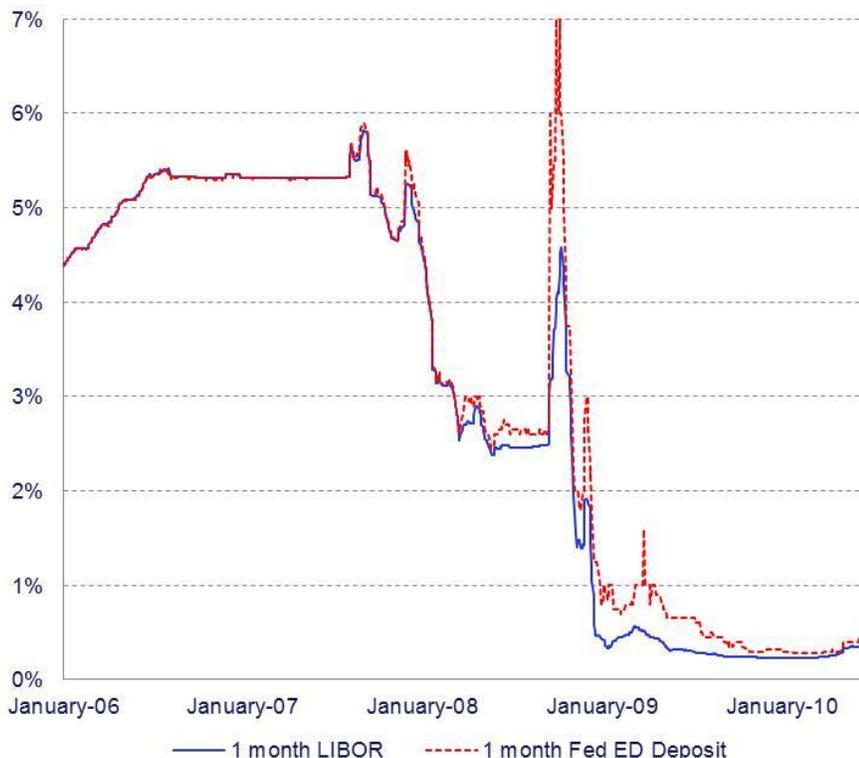
investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

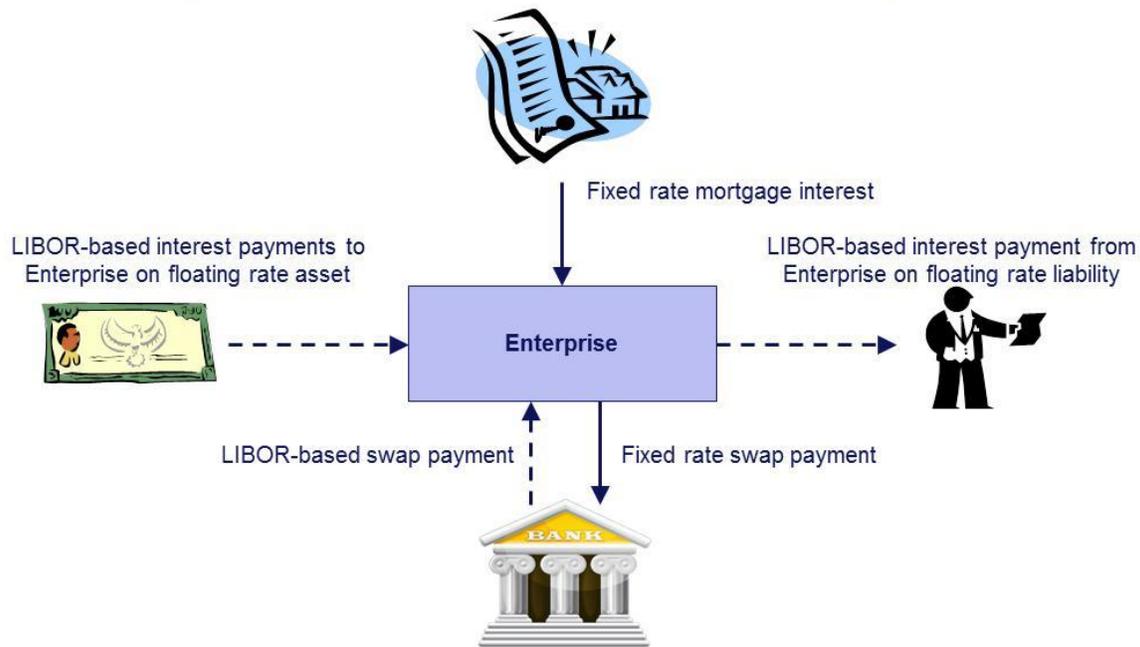
Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



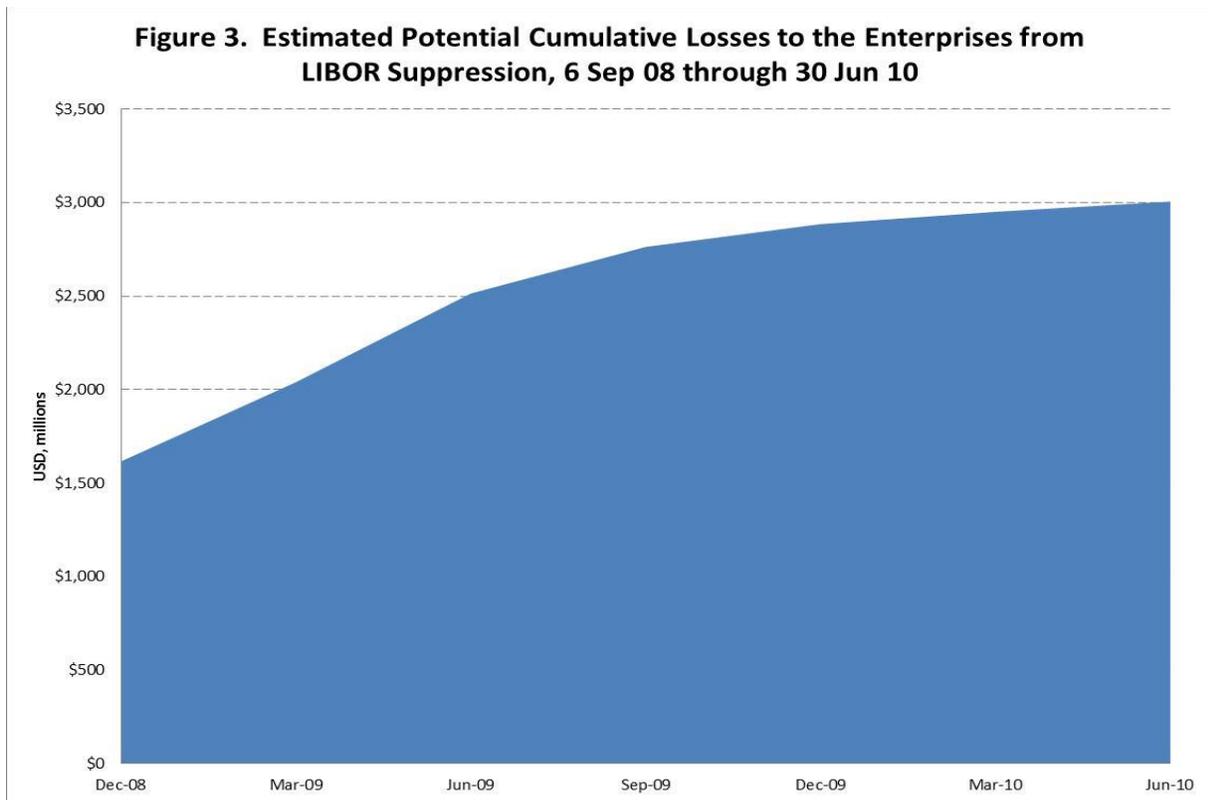
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises’ conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007's ten leading underwriters of "private label" mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises' floating-rate

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained.](#)"
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts.](#)"
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities.](#)"
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.

²⁰ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²¹ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²² See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

Snapshot update

Item ID: 32256
From: [REDACTED] (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Wu, Simon [REDACTED] (b) (6)
Cc: [REDACTED] (b) (6)
Subject: Snapshot update
Sent: November 19, 2012 8:30 AM
Received: November 19, 2012 8:30 AM

Good morning Tim and Simon, Was the LIBOR Action memo published on Friday? If not, do you have an estimated date of publishing I can use on the snapshot? Thank you! Snapshot in SharePoint Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error, permanently delete the e-mail and any attachments; and do not save, copy, disclose, or use any part of the information contained therein. Call the sender if you have questions.

Attachment #1
image001.png
Image



(b) (6)

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Washington, DC 20024

Office:

Mobile:

(b) (6)

RE: Snapshot update

Item ID: 32254
From: Wu, Simon (b) (6) >
To: (b) (6), Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: (b) (6)
Subject: RE: Snapshot update
Sent: November 19, 2012 8:32 AM
Received: November 19, 2012 8:32 AM

Tim and Rich may have a better answer to that, but it was sent to DeMarco as an internal memo on 11/2, and we were supposed to get our comments back from DeMarco on Friday, 11/16. From: (b) (6) Sent: Monday, November 19, 2012 8:31 AM To: Lee, Timothy; Wu, Simon Cc: (b) (6) Subject: Snapshot update Good morning Tim and Simon, Was the LIBOR Action memo published on Friday? If not, do you have an estimated date of publishing I can use on the snapshot? Thank you! Snapshot in SharePoint Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error, permanently delete the e-mail and any attachments; and do not save, copy, disclose, or use any part of the information contained therein. Call the sender if you have questions.

Attachment #1
image001.png
Image



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FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32261
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>
Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 19, 2012 9:08 AM
Received: November 19, 2012 9:08 AM

Hi Simon, We got an answer back on the LIBOR memo at day's end Thursday. Their response is attached. It is very reassuring from our perspective. We should be hearing from DeMarco soon about getting the OK to publish. Tim
From: DiSanto, Emilia Sent: Thursday, November 15, 2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

Attachment #1

Final Memo FHFA-OIG Memo re LIBOR Manipulation dtd Nov 15 2012.pdf

Original view

2 pages (displayed on pages 3 to 4)



Federal Housing Finance Agency

MEMORANDUM

TO: George P. Grob, Deputy Inspector General, Office of Evaluations and
Richard Parker, Director, Office of Policy, Oversight and Review

FROM: Jon D. Greenlee, Deputy Director for Enterprise Regulation 

SUBJECT: FHFA-OIG Memorandum Regarding LIBOR Manipulation

DATE: November 15, 2012

This is a response to the memorandum from Inspector General Linick to Acting Director DeMarco dated November 2, 2012, which describes FHFA-OIG concerns about potential financial losses to the Enterprises resulting from alleged manipulation of the London Interbank Offered Rate. The memorandum included three recommendations and requested the FHFA's response to those recommendations by November 16, 2012. Below are the FHFA-OIG recommendations and FHFA's responses. Please do not hesitate to call if you have any questions.

(1) Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.

In recent months, DER staff had several conversations with Enterprise staff about the press coverage of allegations of LIBOR manipulation and whether there might be any impact on the Enterprises. In early October 2012, DER staff held conference calls with compliance staff at Fannie Mae and Freddie Mac to discuss the issue in more detail, to learn of steps currently underway at each Enterprise, and to alert the Enterprises to a forthcoming supervisory request for Enterprise action.

DER, with input from FHFA's General Counsel, prepared a letter to each Enterprise, requesting that the Enterprise take appropriate steps to determine whether it should take any legal action relating to LIBOR manipulation. The letter was sent to each Enterprise on October 12, 2012 (see copies attached). Each letter stated, in part, that

...it would be prudent for [the Enterprise] to undertake an appropriate process that would result in a basic cost-benefit analysis of whether there may be any action that [the Enterprise] could reasonably pursue. Initial analysis could include a description of what review or monitoring of this issue has been done by [the Enterprise] to date, rough estimates of financial impact, general assessment of

potential legal claims, or other factors that serve as the basis for a conclusion as to advisability of action by [the Enterprise] at this time.

Each Enterprise was requested to submit an initial analysis describing its approach by October 29, 2012.

A written response was received from each Enterprise on November 1, 2012 (see copies attached). The responses indicate that each Enterprise has efforts in process and has dedicated resources to review this issue. Each Enterprise has engaged the law firm of Dickstein Shapiro and additional resources with economic expertise to assist in conducting the assessment requested. Such an assessment is essential to avoid actions that either are misdirected or would not be productive.

(2) Promptly consider options for appropriate legal action, if warranted.

The October 12 letters to the Enterprises noted the questions “whether [the Enterprise] sustained any losses attributable to alleged manipulation of LIBOR and, if so, how such losses could be quantified and whether there would be a viable basis for [the Enterprise] and possibly FHFA in pursuing legal action to recoup such losses.” The Enterprises’ November 1 submissions indicate that once there is an analysis of damages, options for legal actions will be considered. The Freddie Mac response identifies existing class actions that could be joined. The Enterprise is alert to potential timing considerations, but notes that none of the possible classes has yet been certified.

FHFA has not yet made any determination regarding legal action by the Agency. The General Counsel is involved in the ongoing dialogue on this issue and would take into account the Agency’s supervisory responsibilities and its role as conservator in making any recommendation to the Acting Director about Agency legal action.

(3) Coordinate efforts and share information with other federal and state regulatory agencies.

As the Enterprises’ efforts proceed and FHFA learns more about the analysis of potential losses and the costs and benefits of legal options, DER will reach out to its counterparts at other supervisory agencies to share information as appropriate. The General Counsel has already, and will continue, to consult with the Department of Justice, as appropriate.

Attachments

Attachment #2

Memo 11022012.pdf

Original view

14 pages (displayed on pages 6 to 19)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

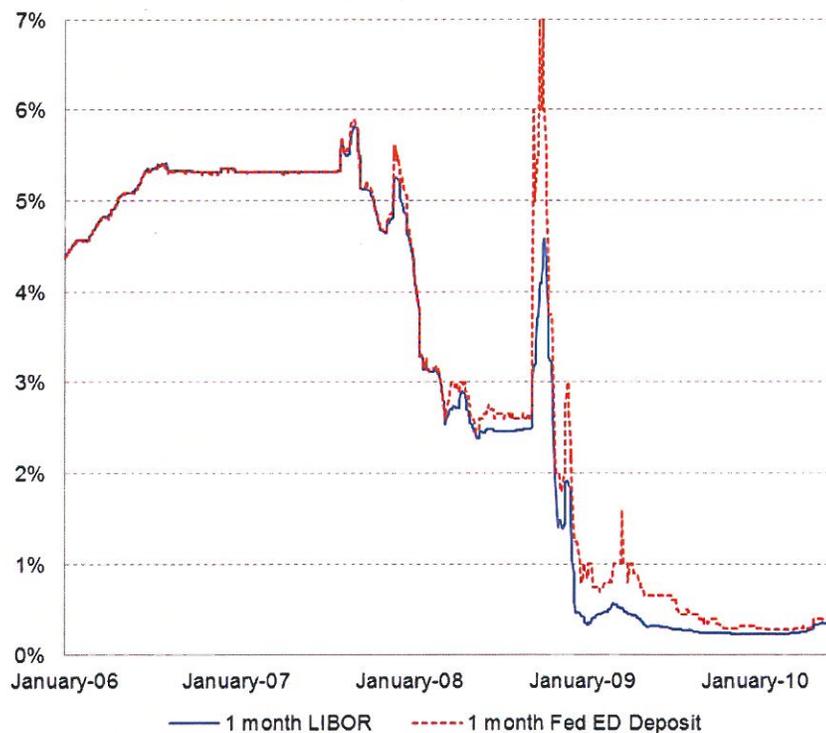
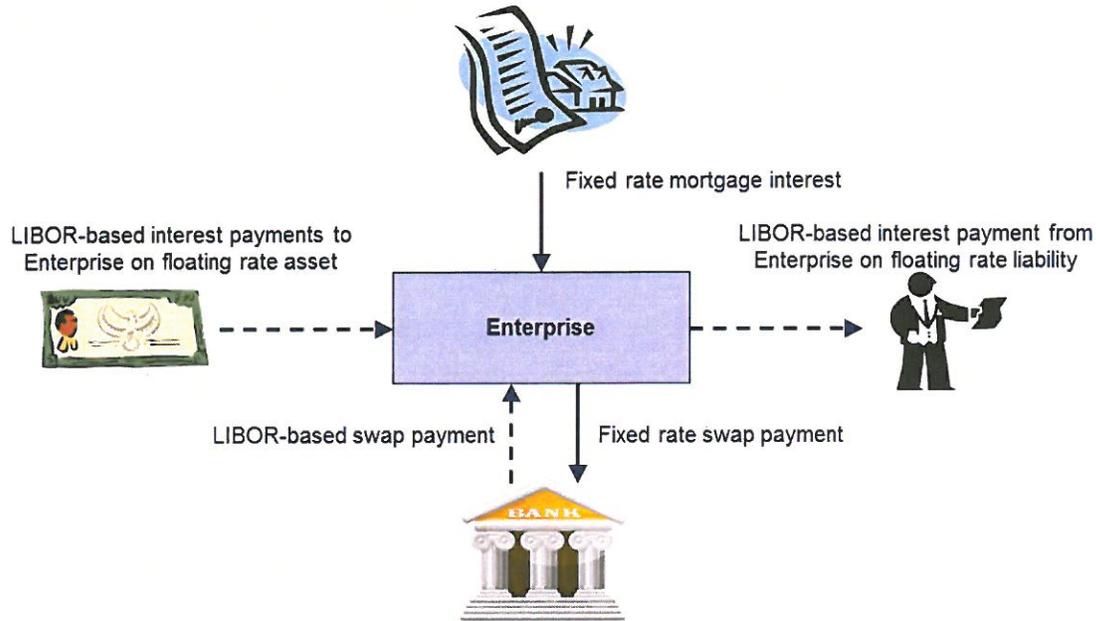


Figure 2. LIBOR-Based Payments to and From the Enterprises



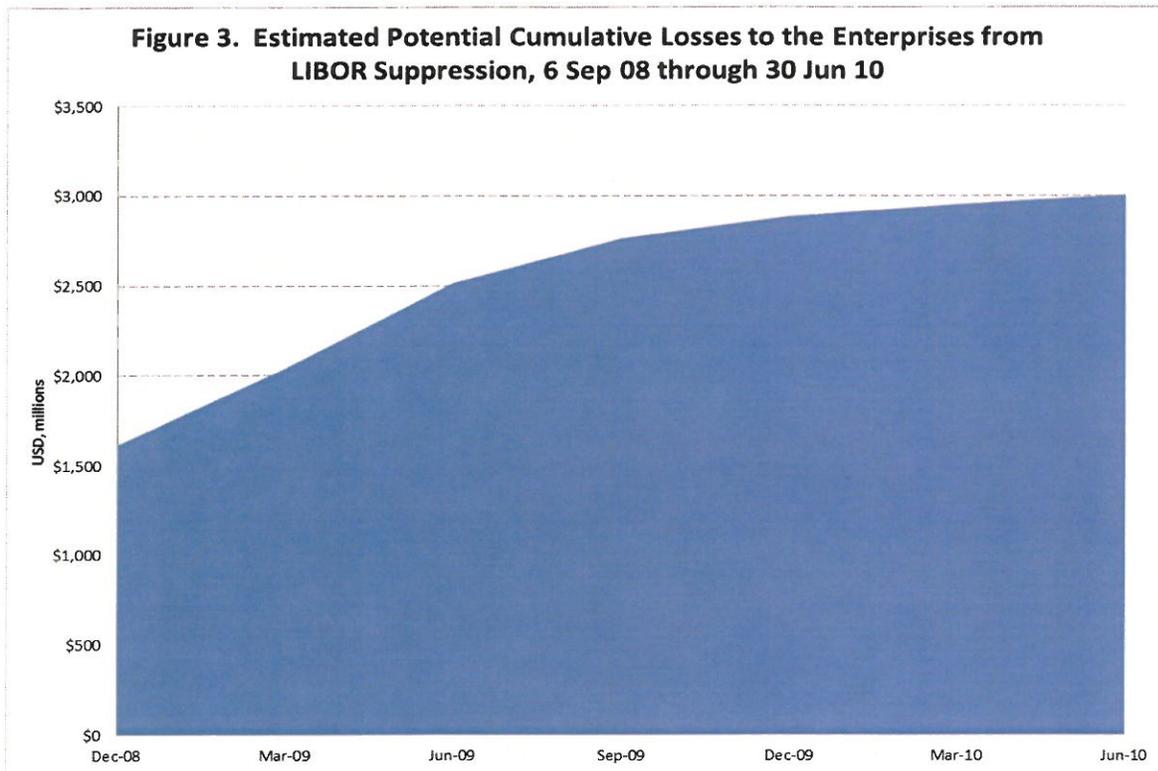
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises’ conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²² However, our review of a small sample of offering documents for the Enterprises’ floating-rate

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

RE: Snapshot update

Item ID: 32264
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, (b) (6)
Subject: RE: Snapshot update
Sent: November 19, 2012 9:08 AM
Received: November 19, 2012 9:08 AM

Go with tomorrow's date, pls.
Sent from my Windows Phone

From:
Lee, Timothy
Sent:
11/19/2012 9:06 AM
To:
Parker, Richard
Subject:
FW: Snapshot update

Hi Old Salt,
I will defer to you for an answer to this question.
Tim

From: (b) (6)
Sent: Monday, November 19, 2012 8:31 AM
To: Lee, Timothy; Wu, Simon
Cc: (b) (6)
Subject: Snapshot update

Good morning Tim and Simon,
Was the LIBOR Action memo published on Friday? If not, do you have an estimated date of publishing I can use on the snapshot? Thank you!

Snapshot in SharePoint

Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error, permanently delete the e-mail and any attachments; and do not save, copy, disclose, or use any part of the information contained therein. Call the sender if you have questions.

Attachment #1
image001.png
Image



(b) (6)

Program Specialist
Office of Inspector General
Federal Housing Finance Agency
400 7th Street, SW, Room 3.265
Washington, DC 20024

Office:

(b) (6)

Mobile:

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32266
From: Wu, Simon (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 19, 2012 9:19 AM
Received: November 19, 2012 9:19 AM

Thanks Tim. Dickstein must be running the class action suit From: Lee, Timothy Sent: Monday, November 19, 2012 9:09 AM To: Wu, Simon Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, We got an answer back on the LIBOR memo at day's end Thursday. Their response is attached. It is very reassuring from our perspective. We should be hearing from DeMarco soon about getting the OK to publish. Tim From: DiSanto, Emilia Sent: Thursday, November 15, 2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32267
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>
Cc: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 19, 2012 9:25 AM
Received: November 19, 2012 9:25 AM

Hi Simon, Actually, not to date . Press reports indicate Pomerantz Haudek and Hausfeld LLP are running two of the class action suits. [REDACTED] (b) (5)

[REDACTED]. Tim From: Wu, Simon Sent: Monday, November 19, 2012 9:19 AM To: Lee, Timothy Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Thanks Tim. Dickstein must be running the class action suit From: Lee, Timothy Sent: Monday, November 19, 2012 9:09 AM To: Wu, Simon Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, We got an answer back on the LIBOR memo at day's end Thursday. Their response is attached. It is very reassuring from our perspective. We should be hearing from DeMarco soon about getting the OK to publish. Tim From: DiSanto, Emilia Sent: Thursday, November 15, 2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32268
From: Wu, Simon (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: Parker, Richard (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 19, 2012 9:29 AM
Received: November 19, 2012 9:29 AM

That means Dickstein is just an outside counsel to both Enterprises on this matter. They are deciding, amongst themselves, whether to join the class run by the two firms below, or just to initiate a suit independently. Issues this big means many law firms are involved with many plaintiffs. I don't know those two firms you referred below well, probably smaller firms who specializes in class action. But big banks and the Enterprises have their own outside counsels.

From: Lee, Timothy Sent: Monday, November 19, 2012 9:26 AM To: Wu, Simon Cc: Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, Actually, not to date . Press reports indicate Pomerantz Haudek and Hausfeld LLP are running two of the class action suits. (b) (5)

Tim From: Wu, Simon Sent: Monday, November 19, 2012 9:19 AM To: Lee, Timothy Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Thanks Tim. Dickstein must be running the class action suit From: Lee, Timothy Sent: Monday, November 19, 2012 9:09 AM To: Wu, Simon Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, We got an answer back on the LIBOR memo at day's end Thursday. Their response is attached. It is very reassuring from our perspective. We should be hearing from DeMarco soon about getting the OK to publish. Tim From: DiSanto, Emilia Sent: Thursday, November 15, 2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32269
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>
Cc: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 19, 2012 9:31 AM
Received: November 19, 2012 9:31 AM

Got it. Please keep us apprised of any HUMINT you pick up from your friends in litigation land. From: Wu, Simon Sent: Monday, November 19, 2012 9:30 AM To: Lee, Timothy Cc: Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation [REDACTED] (b) (5)

[REDACTED]. I don't know those two firms you referred below well, probably smaller firms who specializes in class action. But big banks and the Enterprises have their own outside counsels. From: Lee, Timothy Sent: Monday, November 19, 2012 9:26 AM To: Wu, Simon Cc: Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, Actually, not to date . Press reports indicate Pomerantz Haudek and Hausfeld LLP are running two of the class action suits. (b) (5)

[REDACTED] Tim From: Wu, Simon Sent: Monday, November 19, 2012 9:19 AM To: Lee, Timothy Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Thanks Tim. (b) (4), (b) (5) From: Lee, Timothy Sent: Monday, November 19, 2012 9:09 AM To: Wu, Simon Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, We got an answer back on the LIBOR memo at day's end Thursday. Their response is attached. It is very reassuring from our perspective. We should be hearing from DeMarco soon about getting the OK to publish. Tim From: DiSanto, Emilia Sent: Thursday, November 15, 2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32270
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Wu, Simon (b) (6)
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: November 19, 2012 9:34 AM
Received: November 19, 2012 9:35 AM

Roger all From: Lee, Timothy Sent: Monday, November 19, 2012 9:31 AM To: Wu, Simon Cc: Parker, Richard
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Got it. Please keep us apprised of any HUMINT you pick up from your friends in litigation land. From: Wu, Simon Sent: Monday, November 19, 2012 9:30 AM
To: Lee, Timothy Cc: Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation That means Dickstein is just an outside counsel to both Enterprises on this matter. They are deciding, amongst themselves, whether to join the class run by the two firms below, or just to initiate a suit independently. Issues this big means many law firms are involved with many plaintiffs. I don't know those two firms you referred below well, probably smaller firms who specializes in class action. But big banks and the Enterprises have their own outside counsels. From: Lee, Timothy Sent: Monday, November 19, 2012 9:26 AM To: Wu, Simon Cc: Parker, Richard Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, Actually, not to date . Press reports indicate Pomerantz Haudek and Hausfeld LLP are running two of the class action suits. (b) (5)

Tim From: Wu, Simon Sent: Monday, November 19, 2012 9:19 AM To: Lee, Timothy
Subject: RE: FHFA-OIG Memorandum Regarding LIBOR Manipulation Thanks Tim. Dickstein must be running the class action suit From: Lee, Timothy Sent: Monday, November 19, 2012 9:09 AM To: Wu, Simon Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Hi Simon, We got an answer back on the LIBOR memo at day's end Thursday. Their response is attached. It is very reassuring from our perspective. We should be hearing from DeMarco soon about getting the OK to publish. Tim From: DiSanto, Emilia Sent: Thursday, November 15, 2012 3:07 PM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Take a read on this... let me know your thoughts...on a separate matter—really need you to look at the rez bill

RE: Snapshot update

Item ID: 32273
From: (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaig.gov>
Subject: RE: Snapshot update
Sent: November 19, 2012 9:35 AM
Received: November 19, 2012 9:36 AM

Thank you Tim! Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error, permanently delete the e-mail and any attachments; and do not save, copy, disclose, or use any part of the information contained therein. Call the sender if you have questions. From: Lee, Timothy Sent: Monday, November 19, 2012 9:20 AM To: (b) (6) Subject: RE: Snapshot update Hi (b) (6) Split is as follows (I'm only in two days this week): 75% derivatives white paper 25% fee misapplication From: (b) (6) (b) (6) Sent: Monday, November 19, 2012 8:31 AM To: Lee, Timothy; Wu, Simon Cc: (b) (6) Subject: Snapshot update Good morning Tim and Simon, Was the LIBOR Action memo published on Friday? If not, do you have an estimated date of publishing I can use on the snapshot? Thank you! Snapshot in SharePoint Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error, permanently delete the e-mail and any attachments; and do not save, copy, disclose, or use any part of the information contained therein. Call the sender if you have questions.

Attachment #1
image001.png
Image



(b) (6)

Program Specialist
Office of Inspector General
Federal Housing Finance Agency
400 7th Street, SW, Room 3.265
Washington, DC 20024

Office:

(b) (6)

Mobile:

Administrative items

Item ID: 32275
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: Administrative items
Sent: November 20, 2012 10:46 AM
Received: November 20, 2012 10:46 AM

Hi Old Salt, A couple of other things. First, I got a note about this securitization outlook conference (the afternoon of December 6) and am considering attendance. What do you think? Second, have we received any word on publication of the LIBOR memo? I owe DOJ a call, and in light of NYSAG's suit against Credit Suisse, it might be nice to have a chip to trade when I call them up to chat. More generally, there are several high-impact phone calls we can start making as soon as this goes out. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Emailing: LIBOR Meeting September 11.docx

Item ID: 32276
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: Emailing: LIBOR Meeting September 11.docx
Sent: November 28, 2012 2:38 PM
Received: November 28, 2012 2:38 PM

Hi David,

As discussed. Note the "get the ball rolling" and "start the required analysis" quotes.

Tim

Attachment #1

LIBOR Meeting September 11.docx

Original view

1 page



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Files
From: Timothy Lee
Subject: Coordination Meeting on LIBOR
Date: September 11, 2012

Today at 1030, Richard Parker and I participated in a conference call with senior staff at FHFA and representatives of the Department of Justice's civil division. Specifically, attendees outside FHFA-OIG included:

- Jon Greenlee, Fred Graham, and Nina Nichols from FHFA
- [REDACTED] (b) (6) from DOJ

The purpose of the conversation was to set up a working relationship between FHFA and DOJ.

[REDACTED] (b) (5)
[REDACTED]. Drawing on information contained in their quarterly filings, I developed "back of the envelope" estimates of losses related to the Enterprises' receive-floating swap positions and variable rate MBS. I have also identified other potential avenues of inquiry, including swaption pricing, swap market valuations, and swap termination payments.

After initial introductions, [REDACTED] (b) (5)
[REDACTED]. I briefly reviewed my previously provided analysis, but noted for the group that FHFA has access to greater analytical resources, including professional staff in-house and at the Enterprises themselves. Jon Greenlee indicated that he would reach out to the Enterprises to "get the ball rolling" in this respect.

In response to a question from Fred Graham, [REDACTED] (b) (5)
[REDACTED]. Richard Parker [REDACTED] (b) (5)
[REDACTED].
[REDACTED] (b) (5)
[REDACTED].

I closed the meeting with a request for all participants' contact info to circulate.

LIBOR conversations

Item ID: 32277
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Cc: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>, Grob, George </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Subject: LIBOR conversations
Sent: November 28, 2012 2:46 PM
Received: November 28, 2012 2:46 PM

Hi David, FYI, these records indicate informal conversations with Tim Friedman, Fannie, and Freddie on LIBOR c. 8-9 August. I would, if asked, testify that I discussed my preliminary indications of LIBOR losses to the Enterprises at each of these conversations, and that I got no indication that they had already undertaken any work on the matter before these conversations. Tim

Attachment #1

LIBOR

Attachment #2

LIBOR

Attachment #3

LIBOR/Barclays Call

When: Thursday, August 09, 2012 4:00 PM-4:15 PM (GMT-05:00) Eastern Time (US & Canada).

Where: (b) (6) to host: MML 202-752-6000 Code 113539

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

LIBOR/Barclays Call

Item ID: 32281
Sent: August 8, 2012 3:52 PM
Received: August 8, 2012 3:52 PM
Type: Calendar Entry

When: Thursday, August 09, 2012 4:00 PM-4:15 PM (GMT-05:00) Eastern Time (US & Canada).

Where: (b) (6) to host: MML 202-752-6000 Code 113539

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

LIBOR

Item ID: 32278
Sent: August 9, 2012 7:57 AM
Received: August 9, 2012 7:57 AM
Type: Calendar Entry

RE: LIBOR conversations

Item ID: 32282
From: Bloch, David (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: LIBOR conversations
Sent: November 28, 2012 4:10 PM
Received: November 28, 2012 4:10 PM

Have a question. From: Lee, Timothy Sent: Wednesday, November 28, 2012 2:47 PM To: Bloch, David Cc: Parker, Richard; Grob, George Subject: LIBOR conversations Hi David, FYI, these records indicate informal conversations with Tim Friedman, Fannie, and Freddie on LIBOR c. 8-9 August. I would, if asked, testify that I discussed my preliminary indications of LIBOR losses to the Enterprises at each of these conversations, and that I got no indication that they had already undertaken any work on the matter before these conversations. Tim

RE: LIBOR conversations

Item ID: 32283
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: RE: LIBOR conversations
Sent: November 28, 2012 4:36 PM
Received: November 28, 2012 4:36 PM

You're welcome to call me this evening. (b) (6) From: Bloch, David Sent: Wednesday, November 28, 2012 4:10 PM To: Lee, Timothy Subject: RE: LIBOR conversations Have a question. From: Lee, Timothy Sent: Wednesday, November 28, 2012 2:47 PM To: Bloch, David Cc: Parker, Richard; Grob, George Subject: LIBOR conversations Hi David, FYI, these records indicate informal conversations with Tim Friedman, Fannie, and Freddie on LIBOR c. 8-9 August. I would, if asked, testify that I discussed my preliminary indications of LIBOR losses to the Enterprises at each of these conversations, and that I got no indication that they had already undertaken any work on the matter before these conversations. Tim

LIBOR Memo 11.28.12.docx

Item ID: 32285
From: Bloch, David (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: Grob, George (b) (6) Parker, Richard (b) (6)
Subject: LIBOR Memo 11.28.12.docx
Sent: November 29, 2012 8:23 AM
Received: November 29, 2012 8:23 AM

Tim – I constructed the time line from internal memos, calendar entries, Agency communications as well as FRE & FNM documentation. Please double check for accuracy. We can have this ready for Steve to attach to the back of the larger record. Thanks. David

Attachment #1

LIBOR Memo 11.28.12.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve Linick

From: David P. Bloch
Tim Lee

Through: Richard Parker
George P. Grob

Subject: LIBOR Update

Date: November 29, 2012

(b) (5)

(b) (5)

(b) (5)

FW: LIBOR Memo 11.28.12.docx

Item ID: 32284
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: FW: LIBOR Memo 11.28.12.docx
Sent: November 29, 2012 8:35 AM
Received: November 29, 2012 8:35 AM

Lets chat before you send this to David. Tx

Sent from my Windows Phone

From:

Bloch, David

Sent:

11/29/2012 8:23 AM

To:

Lee, Timothy

Cc:

Grob, George; Parker, Richard

Subject:

LIBOR Memo 11.28.12.docx

Tim – I constructed the time line from internal memos, calendar entries, Agency communications as well as FRE & FNM documentation. Please double check for accuracy. We can have this ready for Steve to attach to the back of the larger

record. Thanks. David

Attachment #1

LIBOR Memo 11.28.12.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve Linick

From: David P. Bloch
Tim Lee

Through: Richard Parker
George P. Grob

Subject: LIBOR Update

Date: November 29, 2012

(b) (5)

(b) (5)

RE: LIBOR Memo 11.28.12.docx

Item ID: 32286
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: LIBOR Memo 11.28.12.docx
Sent: November 29, 2012 9:59 AM
Received: November 29, 2012 9:59 AM

Hi Old Salt, Here are my edits; you are the only one who has them at this point. Tim From: Parker, Richard Sent: Thursday, November 29, 2012 8:35 AM To: Lee, Timothy Subject: FW: LIBOR Memo 11.28.12.docx Lets chat before you send this to David. Tx Sent from my Windows Phone From: Bloch, David Sent: 11/29/2012 8:23 AM To: Lee, Timothy Cc: Grob, George; Parker, Richard Subject: LIBOR Memo 11.28.12.docx Tim – I constructed the time line from internal memos, calendar entries, Agency communications as well as FRE & FNM documentation. Please double check for accuracy. We can have this ready for Steve to attach to the back of the larger record. Thanks. David

Attachment #1

LIBOR Memo 11 28 12 TL Edits.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve Linick

From: David P. Bloch, Director, Division of Mortgages, Investments and Risk Analysis
Timothy Lee, Senior Policy Advisor

Through: Richard Parker, Director, Office of Policy, Oversight and Review
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: LIBOR Update

Date: November 29, 2012

(b) (5)

(b) (5)

LIBOR Memo 11 28 12 TL Edits.docx

Item ID: 32288
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: LIBOR Memo 11 28 12 TL Edits.docx
Sent: November 29, 2012 11:56 AM
Received: November 29, 2012 11:57 AM

Looks good.

Attachment #1

LIBOR Memo 11 28 12 TL Edits.docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve Linick

From: Timothy Lee, Senior Policy Advisor, and David P. Bloch, Director, Division of Mortgages, Investments and Risk Analysis

Through: Richard Parker, Director, Office of Policy, Oversight and Review
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: LIBOR Update

Date: November 29, 2012

Set forth in this memorandum is the sequence of major events, as we understand them, related to FHFA OIG's analysis of potential Enterprise losses related to LIBOR suppression, along with FHFA's and the Enterprise's actions to date as a result of our Office's work.

- **August 8-9, 2012:** FHFA OIG staff (Lee) conducted initial, informal discussions with regulatory liaisons at Fannie Mae and Freddie Mac and with an FHFA Market Risk Examiner. All parties were briefed on the workings of FHFA-OIG's preliminary analyses, all of which indicated potential losses to the Enterprises owing to LIBOR manipulation. The Enterprises confirmed that, as of that date, no analysis had been or was being undertaken to determine whether any such losses had been or were being suffered. FHFA also confirmed that, as of that time, no examination work had been or was being conducted around LIBOR suppression.
- **September 11, 2012:** FHFA OIG staff (Parker and Lee) participated in a conference call with senior FHFA staff including Jon Greenlee, Fred Graham, and Nina Nichols, as well as representatives of the Department of Justice's Civil Division. The purpose of the conversation was to set up a dialogue among FHFA, FHFA-OIG, and the DOJ Civil Division on the issue of the Enterprises' LIBOR-related losses. The common understanding among meeting participants was that FHFA had not begun any work on computing the potential losses stemming from LIBOR suppression. After some informal discussion during which Mr. Graham speculated that Fannie's and Freddie's LIBOR-dependent investment activities may have resulted in "a wash" or even a profit, Mr. Greenlee stated that he would consider how best to start the required analysis, and that he would reach out to the Enterprises to "get the ball rolling."

- **October 12, 2012:** FHFA instructed Fannie Mae and Freddie Mac immediately to undertake cost-benefit analyses designed to indicate whether the Enterprises should take action with respect to losses sustained as a result of LIBOR manipulation.
- **November 2, 2012:** FHFA OIG formally submitted to FHFA a memorandum outlining its concerns about losses imposed on the Enterprises stemming from LIBOR manipulation.
- **November 15, 2012:** FHFA advised FHFA OIG that Freddie Mac had retained outside counsel and an economic consulting firm to conduct a preliminary assessment of their potential damages sustained as a result of alleged LIBOR manipulation, and that Fannie Mae was in the process of undertaking comparable steps.

RE: LIBOR Memo 11 28 12 TL Edits.docx

Item ID: 32290
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: LIBOR Memo 11 28 12 TL Edits.docx
Sent: November 29, 2012 1:58 PM
Received: November 29, 2012 1:58 PM

Any further action needed? From: Parker, Richard Sent: Thursday, November 29, 2012 11:57 AM To: Lee, Timothy
Subject: LIBOR Memo 11 28 12 TL Edits.docx Looks good.

RE: LIBOR Memo 11 28 12 TL Edits.docx

Item ID: 32291
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: LIBOR Memo 11 28 12 TL Edits.docx
Sent: November 29, 2012 2:07 PM
Received: November 29, 2012 2:33 PM

Rearrange the from line order of presentation if you want to. I shouldn't have taken such a hard line with it. On reflection, your reasoning on the matter was superior to mine. Other than that,

fire the tube. -R

Sent from my Windows Phone

From:

Lee, Timothy

Sent:

11/29/2012 2:01 PM

To:

Parker, Richard

Subject:

RE: LIBOR Memo 11 28 12 TL Edits.docx

Any further action needed?

From: Parker, Richard

Sent: Thursday, November 29, 2012 11:57 AM

To: Lee, Timothy

Subject: LIBOR Memo 11 28 12 TL Edits.docx

Looks good.

RE: LIBOR Memo 11 28 12 TL Edits.docx

Item ID: 32292
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: Parker, Richard </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: LIBOR Memo 11 28 12 TL Edits.docx
Sent: November 29, 2012 3:15 PM
Received: November 29, 2012 3:15 PM

Aye aye. Back to Bloch, presumably?

Sent from my Windows Phone

From:

Parker, Richard

Sent:

11/29/2012 14:33

To:

Lee, Timothy

Subject:

RE: LIBOR Memo 11 28 12 TL Edits.docx

Rearrange the from line order of presentation if you want to. I shouldn't have taken such a hard line with it. On reflection, your reasoning on the matter was superior to mine. Other than that, fire the tube. -R

Sent from my Windows Phone

From:

Lee, Timothy

Sent:

11/29/2012 2:01 PM

To:

Parker, Richard

Subject:

RE: LIBOR Memo 11 28 12 TL Edits.docx

Any further action needed?

From: Parker, Richard

Sent: Thursday, November 29, 2012 11:57 AM

To: Lee, Timothy

Subject: LIBOR Memo 11 28 12 TL Edits.docx

Looks good.

LIBOR

Item ID: 32293
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Millman, Phillip <Phillip.Millman@fhfa.gov>
Subject: LIBOR
Sent: November 29, 2012 3:35 PM
Received: November 29, 2012 3:35 PM

(b) (4)

. ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

LIBOR Memo 11 29 12 (DPB PM).docx

Item ID: 32295
From: Bloch, David (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Parker, Richard (b) (6),
Grob, George (b) (6)
Subject: LIBOR Memo 11 29 12 (DPB PM).docx
Sent: November 29, 2012 3:41 PM
Received: November 29, 2012 3:42 PM

With minor corrections. I believe this is what was envisioned by Steve & Em. Thanks. David

Attachment #1

LIBOR Memo 11 29 12 (DPB PM).docx

Original view

2 pages (displayed on pages 3 to 4)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis
Timothy Lee, Senior Policy Advisor

Through: Richard Parker, Director, Office of Policy, Oversight and Review
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: LIBOR Update

Date: November 29, 2012

Set forth in this memorandum is the sequence of major events, as we understand them, related to FHFA-OIG's analysis of potential Enterprise losses related to LIBOR suppression, along with FHFA's and the Enterprise's actions to date as a result of our Office's work.

- **August 8-9, 2012:** FHFA-OIG staff (Lee) conducted initial, informal discussions with regulatory liaisons at Fannie Mae and Freddie Mac and with an FHFA Market Risk Examiner. All parties were briefed on the workings of FHFA-OIG's preliminary analysis, which indicated potential losses to the Enterprises owing to LIBOR manipulation. The Enterprises confirmed that, as of that date, no analysis had been or was being undertaken to determine whether any such losses had been or were being suffered. FHFA also confirmed that, as of that time, no examination work had been or was being conducted around LIBOR suppression.
- **September 11, 2012:** FHFA-OIG staff (Parker and Lee) participated in a conference call with senior FHFA staff including Jon Greenlee, Fred Graham, and Nina Nichols, as well as representatives of the Department of Justice's Civil Division. The purpose of the conversation was to set up a dialogue among FHFA, FHFA-OIG, and the DOJ Civil Division on the issue of the Enterprises' LIBOR-related losses. The common understanding among meeting participants was that FHFA had not begun any work on computing the potential losses stemming from LIBOR suppression. After some informal discussion, during which Mr. Graham speculated that Fannie's and Freddie's LIBOR-dependent investment activities may have resulted in "a wash" or even a

profit, Mr. Greenlee stated that he would consider how best to start the required analysis, and that he would reach out to the Enterprises to “get the ball rolling.”

- **October 12, 2012:** FHFA instructed Fannie Mae and Freddie Mac immediately to undertake cost-benefit analyses designed to indicate whether the Enterprises should take action with respect to losses sustained as a result of LIBOR manipulation.
- **November 2, 2012:** FHFA-OIG formally submitted to FHFA a memorandum outlining its concerns about losses imposed on the Enterprises stemming from LIBOR manipulation.
- **November 15, 2012:** FHFA advised FHFA-OIG that Freddie Mac had retained outside counsel and an economic consulting firm to conduct a preliminary assessment of their potential damages sustained as a result of alleged LIBOR manipulation, and that Fannie Mae was in the process of undertaking comparable steps.

RE: LIBOR Memo 11 29 12 (DPB PM).docx

Item ID: 32296
From: Parker, Richard (b) (6)
To: Bloch, David (b) (6), Lee, Timothy <Timothy.Lee@fhfaig.gov>, Grob, George (b) (6)
Subject: RE: LIBOR Memo 11 29 12 (DPB PM).docx
Sent: November 29, 2012 4:36 PM
Received: November 29, 2012 4:37 PM

Concur. Outstanding work. Out is goes. Tx to all. - R From: Bloch, David Sent: Thursday, November 29, 2012 3:42 PM
To: Lee, Timothy; Parker, Richard; Grob, George Subject: LIBOR Memo 11 29 12 (DPB PM).docx With minor corrections. I believe this is what was envisioned by Steve & Em. Thanks. David

RE: LIBOR Memo 11 29 12 (DPB PM).docx

Item ID: 32298
From: Grob, George (b) (6)
To: Bloch, David (b) (6), Lee, Timothy <Timothy.Lee@fhfaig.gov>, Parker, Richard (b) (6)
Subject: RE: LIBOR Memo 11 29 12 (DPB PM).docx
Sent: November 29, 2012 6:28 PM
Received: November 29, 2012 6:28 PM

Thanks to all—it's now in Steve's hands
From: Bloch, David Sent: Thursday, November 29, 2012 3:42 PM To: Lee, Timothy; Parker, Richard; Grob, George Subject: LIBOR Memo 11 29 12 (DPB PM).docx With minor corrections. I believe this is what was envisioned by Steve & Em. Thanks. David

LIBOR memo

Item ID: 32299
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Belisle, Kristine </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d4528896afdd4b40ab6583adf32d51c6-Kristine Be>
Subject: LIBOR memo
Sent: December 2, 2012 4:47 PM
Received: December 2, 2012 4:47 PM

Hi Kris, Are you in the office on Monday, and if so could we touch on the LIBOR memo for a moment? I want to make sure that we don't distribute the one with the embarrassing typo, which went to the Agency. Thanks, Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

RE: LIBOR memo

Item ID: 32300
From: Belisle, Kristine (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: LIBOR memo
Sent: December 2, 2012 7:43 PM
Received: December 2, 2012 7:43 PM

Hi Tim,

Yes, I'll be in.

Sent from my Windows Phone

From:

Lee, Timothy

Sent:

12/2/2012 4:47 PM

To:

Belisle, Kristine

Subject:

LIBOR memo

Hi Kris,

Are you in the office on Monday, and if so could we touch on the LIBOR memo for a moment? I want to make sure that we don't distribute the one with the embarrassing typo, which went to the Agency.

Thanks,

Tim

Timothy Lee

Senior Policy Advisor, FHFA-OIG

202-730-2821

FW: UBS is settling re Libor

Item ID: 32301
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Phillips, Wesley </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c1881bcb698c45b096269b8112f87787-Wesley Phil>
Cc: DiSanto, Emilia </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94639648c304c1d8447667da03493cb-Emilia DiSa>
Subject: FW: UBS is settling re Libor
Sent: December 3, 2012 9:27 AM
Received: December 3, 2012 9:27 AM

Yes, Emilia also circulated an earlier version of this story. This is a highly opportune moment, and we may want to consider whether we want to continue getting rolled by what, it is becoming clear, is a cynical ploy at the Agency to play a delaying game until we forget the matter altogether. From: Phillips, Wesley Sent: Monday, December 03, 2012 9:25 AM To: Lee, Timothy; Wu, Simon; Parker, Richard Subject: UBS is settling re Libor <http://www.nytimes.com/>

FW: UBS is settling re Libor

Item ID: 32303
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: FW: UBS is settling re Libor
Sent: December 3, 2012 9:28 AM
Received: December 3, 2012 9:28 AM

From: Lee, Timothy Sent: Monday, December 03, 2012 9:28 AM To: Phillips, Wesley Cc: DiSanto, Emilia Subject: FW: UBS is settling re Libor Yes, Emilia also circulated an earlier version of this story. This is a highly opportune moment, and we may want to consider whether we want to continue getting rolled by what, it is becoming clear, is a cynical ploy at the Agency to play a delaying game until we forget the matter altogether. From: Phillips, Wesley Sent: Monday, December 03, 2012 9:25 AM To: Lee, Timothy; Wu, Simon; Parker, Richard Subject: UBS is settling re Libor <http://www.nytimes.com/>

LIBOR memo

Item ID: 32305
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Belisle, Kristine </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d4528896afdd4b40ab6583adf32d51c6-Kristine Be>
Cc: Wilkerson, Tewana </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=73829ffea1e346f3aeb2d6d7424493b1-Tewana Wilk>, Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: LIBOR memo
Sent: December 3, 2012 11:17 AM
Received: December 3, 2012 11:17 AM

https://sharepoint.fhfaog.gov/policy_oversight/LIBOR/08.%20Draft%20Reports/LIBOR%20memo%20final.pdf Hi Kris,
As we discussed, attached please find the LIBOR memo intended to use for publication. Under no circumstances should we use the version sent to the Agency on November 2. I have corrected the embarrassing typo at the top of page 9, so that "effect" is corrected from "affect" and used properly. Thanks, Tim

RE: LIBOR memo

Item ID: 32307
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Belisle, Kristine (b) (6)
Cc: Wilkerson, Tewana (b) (6)
Subject: RE: LIBOR memo
Sent: December 3, 2012 11:21 AM
Received: December 3, 2012 11:21 AM

I don't think this has been cleared for publication. I think Steve is waiting on word from DOJ CRIM. At least that was the word earlier this morning . . . From: Lee, Timothy Sent: Monday, December 03, 2012 11:17 AM To: Belisle, Kristine Cc: Wilkerson, Tewana; Parker, Richard Subject: LIBOR memo
https://sharepoint.fhfaoig.gov/policy_oversight/LIBOR/08.%20Draft%20Reports/LIBOR%20memo%20final.pdf Hi Kris,
As we discussed, attached please find the LIBOR memo intended to use for publication. Under no circumstances should we use the version sent to the Agency on November 2. I have corrected the embarrassing typo at the top of page 9, so that "effect" is corrected from "affect" and used properly. Thanks, Tim

RE: LIBOR memo

Item ID: 32308
From: Belisle, Kristine (b) (6)
To: Parker, Richard (b) (6), Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: Wilkerson, Tewana (b) (6)
Subject: RE: LIBOR memo
Sent: December 3, 2012 11:22 AM
Received: December 3, 2012 11:22 AM

Don't worry – no one is publishing until given the green light from Steve. From: Parker, Richard Sent: Monday, December 03, 2012 11:22 AM To: Lee, Timothy; Belisle, Kristine Cc: Wilkerson, Tewana Subject: RE: LIBOR memo I don't think this has been cleared for publication. (b) (5). At least that was the word earlier this morning . . . From: Lee, Timothy Sent: Monday, December 03, 2012 11:17 AM To: Belisle, Kristine Cc: Wilkerson, Tewana; Parker, Richard Subject: LIBOR memo
https://sharepoint.fhfaoig.gov/policy_oversight/LIBOR/08.%20Draft%20Reports/LIBOR%20memo%20final.pdf Hi Kris, As we discussed, attached please find the LIBOR memo intended to use for publication. Under no circumstances should we use the version sent to the Agency on November 2. I have corrected the embarrassing typo at the top of page 9, so that "effect" is corrected from "affect" and used properly. Thanks, Tim

RE: LIBOR memo

Item ID: 32309
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: LIBOR memo
Sent: December 3, 2012 11:41 AM
Received: December 3, 2012 11:41 AM

Sorry if I alarmed you – Kris and I discussed this before I sent the link. We both know it's not cleared for publication at the moment. I just wanted to make very certain that damn typo didn't go out. DOJ criminal is a new angle to me. Did I miss this? Do they know all this is public info? How many organizations are we clearing this with before it goes out?

From: Parker, Richard Sent: Monday, December 03, 2012 11:22 AM To: Lee, Timothy; Belisle, Kristine Cc: Wilkerson, Tewana Subject: RE: LIBOR memo I don't think this has been cleared for publication. I think Steve is waiting on word from DOJ CRIM. At least that was the word earlier this morning . . . From: Lee, Timothy Sent: Monday, December 03, 2012 11:17 AM To: Belisle, Kristine Cc: Wilkerson, Tewana; Parker, Richard Subject: LIBOR memo

https://sharepoint.fhfaoig.gov/policy_oversight/LIBOR/08.%20Draft%20Reports/LIBOR%20memo%20final.pdf Hi Kris, As we discussed, attached please find the LIBOR memo intended to use for publication. Under no circumstances should we use the version sent to the Agency on November 2. I have corrected the embarrassing typo at the top of page 9, so that "effect" is corrected from "affect" and used properly. Thanks, Tim

LIBOR

Item ID: 32316
From: Linick, Steve (b) (6)
To: Parker, Richard (b) (6), Bloch, David (b) (6)
Lee, Timothy <Timothy.Lee@infaoig.gov>
Cc: Stephens, Michael (b) (6)
Subject: LIBOR
Sent: December 6, 2012 3:29 PM
Received: December 6, 2012 3:29 PM

Folks, (b) (5)

Can you advise me who you gave you clearance. tx

FW: LIBOR

Item ID: 32317
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: Parker, Richard </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: FW: LIBOR
Sent: December 6, 2012 3:31 PM
Received: December 6, 2012 3:31 PM

I was out of this loop. Does this mean I can call (b) (6)

Sent from my Windows Phone

From:

Linick, Steve

Sent:

12/6/2012 15:29

To:

Parker, Richard; Bloch, David; Lee, Timothy

Cc:

Stephens, Michael

Subject:

LIBOR

(b) (5)

Can you advise me who you gave you clearance. tx

LIBOR ASAP

Item ID: 32315
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: LIBOR ASAP
Sent: December 6, 2012 3:49 PM
Received: December 6, 2012 3:49 PM

I thought he was alright with us publishing this? Give me contact info and I will see it thru if not. Pls advise ASAP
From: Lee, Timothy Sent: Thursday, December 06, 2012 3:31 PM To: Parker, Richard Subject: FW: LIBOR I was out of this loop. Does this mean I can call (b) (6) Sent from my Windows Phone From: Linick, Steve Sent: 12/6/2012 15:29 To: Parker, Richard; Bloch, David; Lee, Timothy Cc: Stephens, Michael Subject: LIBOR (b) (5)
(b) (6). Can you advise me who you gave you clearance. tx

LIBOR

Item ID: 32313
From: Parker, Richard (b) (6)
To: (b) (6) >
Cc: (b) (6) Lee, Timothy
<Timothy.Lee@fhfaig.gov>, Bloch, David (b) (6)
Subject: LIBOR
Sent: December 6, 2012 4:23 PM
Received: December 6, 2012 4:23 PM

(b) (6), Enclosed, please find the memorandum that you have been speaking about with Tim for the last few months. (b) (6)

(b) (5)

(b) (6) To this end, I would appreciate it greatly if you would you please give me, Tim, or David Bloch a call or drop us a message to this effect. My contact information is below. Tim can be reached at Timothy.lee@fhfaig.gov ; (b) (6) and David can be reached at (b) (6) . As you can well imagine, we would like to circulate this analysis immediately, so I'd really appreciate it if you would get back to one of us at your earliest possible convenience. Many thanks for your collegiality and good help, (b) (6) . We really appreciate it. Rich Richard Parker Director, Policy, Oversight & Review Office of the Inspector General Federal Housing Finance Agency 400 7 th Street, SW Washington, D.C. 20024 Tel: (b) (6) Cell: (b) (6)

Attachment #1

Memo 11022012.pdf

Original view

14 pages (displayed on pages 3 to 16)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

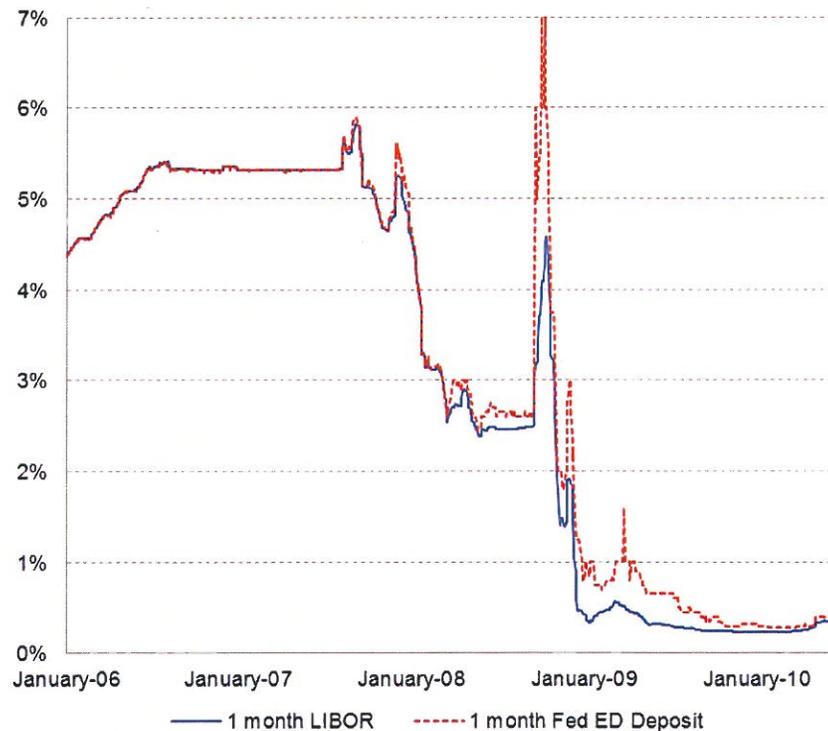
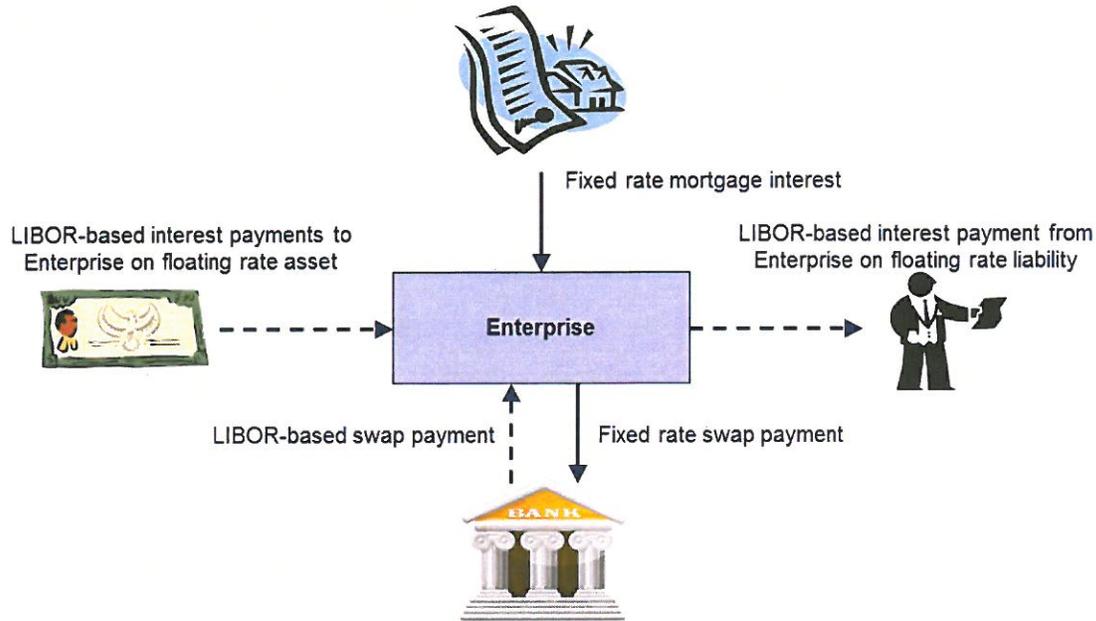


Figure 2. LIBOR-Based Payments to and From the Enterprises



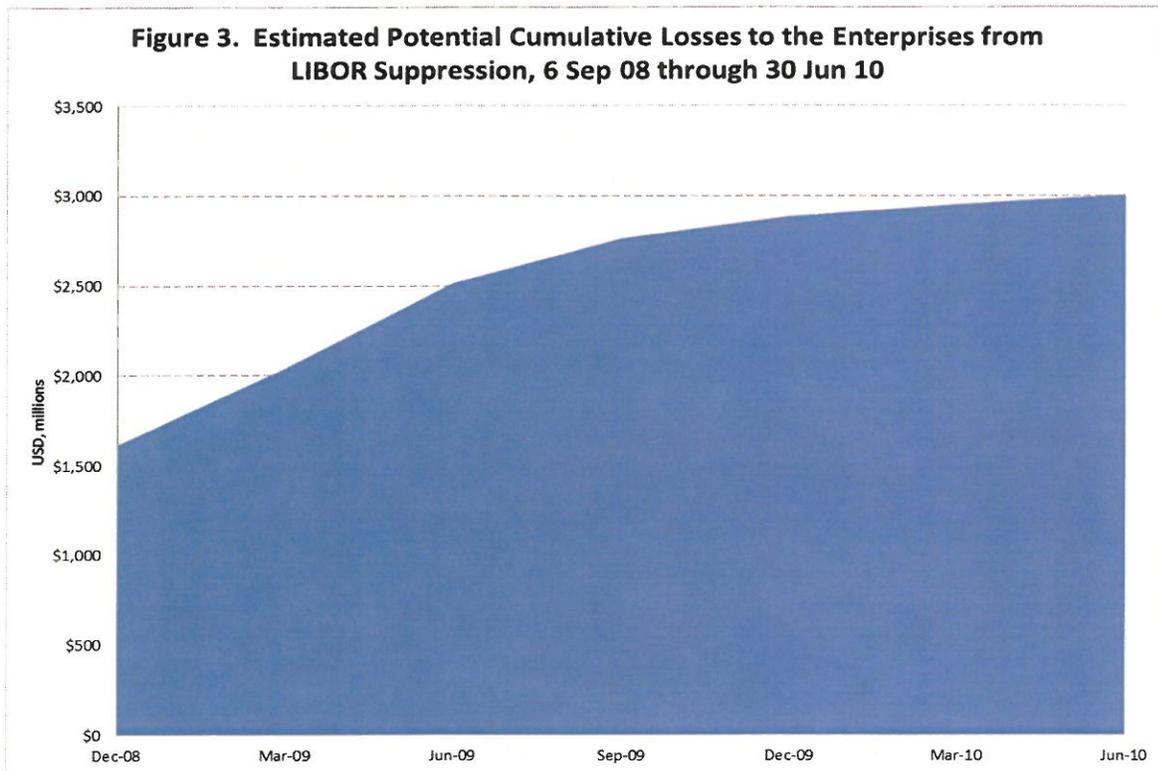
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises’ floating-rate

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

RE: LIBOR

Item ID: 32310
From: Parker, Richard (b) (6)
To: (b) (6)
Cc: (b) (6); Lee, Timothy
<Timothy.Lee@fhfaig.gov>, Bloch, David (b) (6)
Subject: RE: LIBOR
Sent: December 6, 2012 4:51 PM
Received: December 6, 2012 4:51 PM

(b) (6)

(b) (5)

(b) (6). Thanks for taking the time to speak with me about this. Rich Richard Parker Director, Policy, Oversight & Review Office of the Inspector General Federal Housing Finance Agency 400 7 th Street, SW Washington, D.C. 20024 Tel: (b) (6) Cell: (b) (6) 7 From: Parker, Richard Sent: Thursday, December 06, 2012 4:23 PM To: (b) (6); Lee, Timothy; Bloch, David Subject: LIBOR (b) (6), Enclosed, please find the memorandum that you have been speaking about with Tim for the last few months. (b) (5)

(b) (6). To this end, I would appreciate it greatly if you would you please give me, Tim, or David Bloch a call or drop us a message to this effect. My contact information is below. Tim can be reached at Timothy.lee@fhfaig.gov ; (202) 579-8991; and David can be reached at (b) (6)

(b) (6) As you can well imagine, we would like to circulate this analysis immediately, so I'd really appreciate it if you would get back to one of us at your earliest possible convenience. Many thanks for your collegiality and good help, Dan. We really appreciate it. Rich Richard Parker Director, Policy, Oversight & Review Office of the Inspector General Federal Housing Finance Agency 400 7 th Street, SW Washington, D.C. 20024 Tel: (b) (6) Cell: (b) (6)

Files

Item ID: 32319
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: [REDACTED] (b) (6)
Subject: Files
Sent: December 11, 2012 4:45 PM
Received: December 11, 2012 4:45 PM

----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR action memo.pptx

Original view

5 pages (displayed on pages 3 to 7)



Counterparty Risk White Paper Proposal

May 17, 2012

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

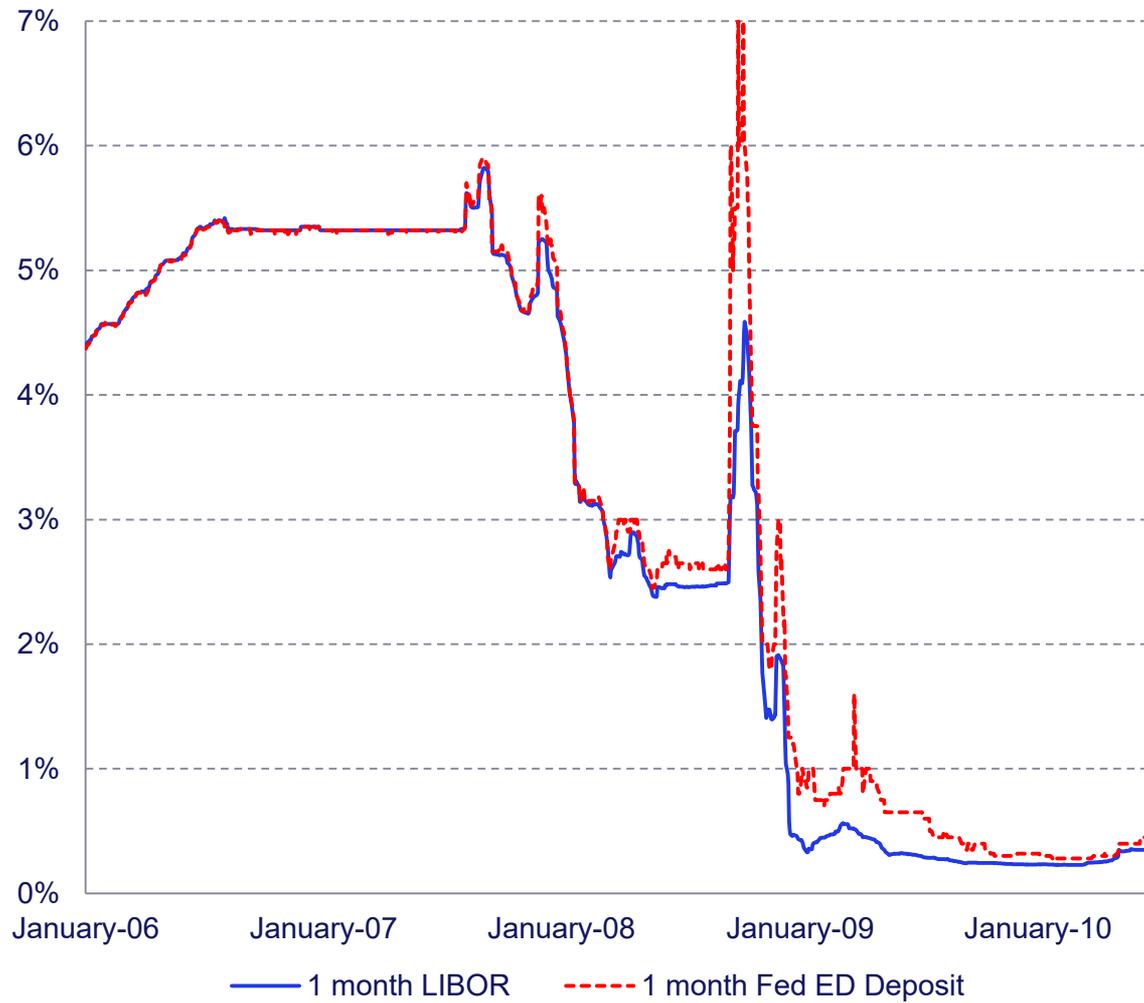
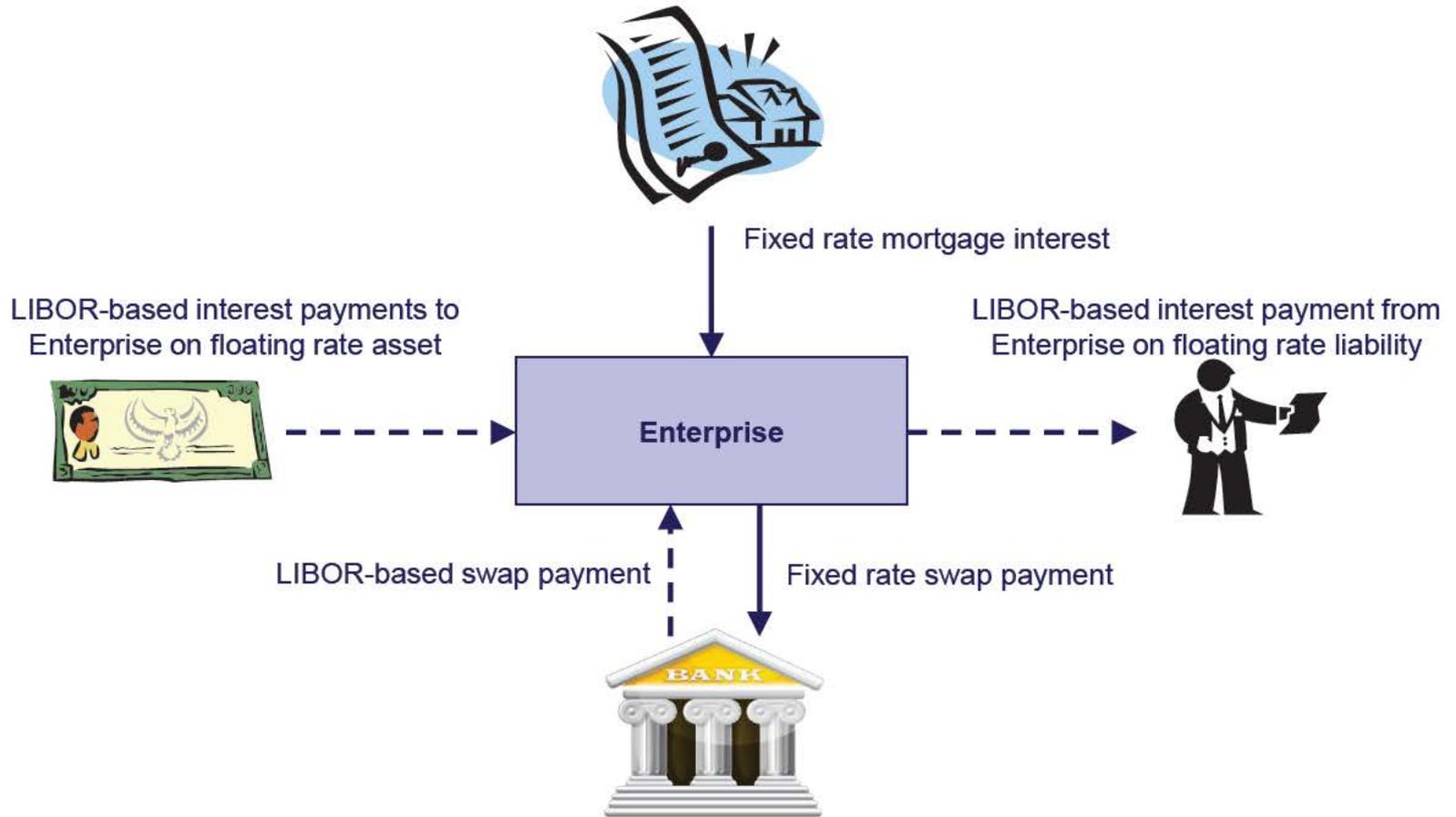


Figure 2. LIBOR-Based Payments to and From the Enterprises



**Estimated Potential Cumulative Losses to the Enterprises from LIBOR
Suppression, 6 Sep 08 through 30 Jun 10**

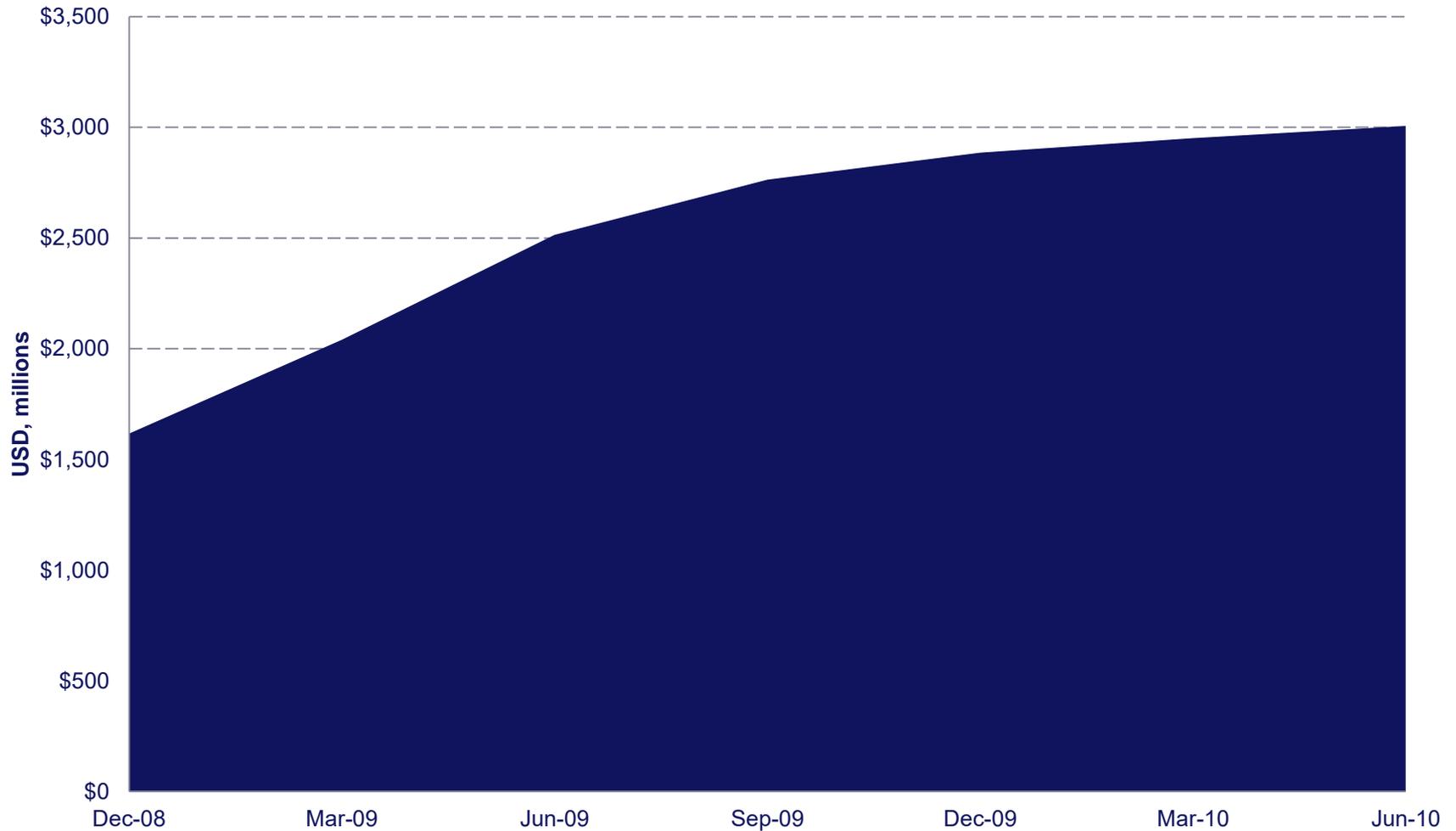


Figure 3.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Attachment #2

LIBOR memo Dec 12.docx

Original view

15 pages (displayed on pages 9 to 23)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

(b) (5)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis, Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered substantial losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

To estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

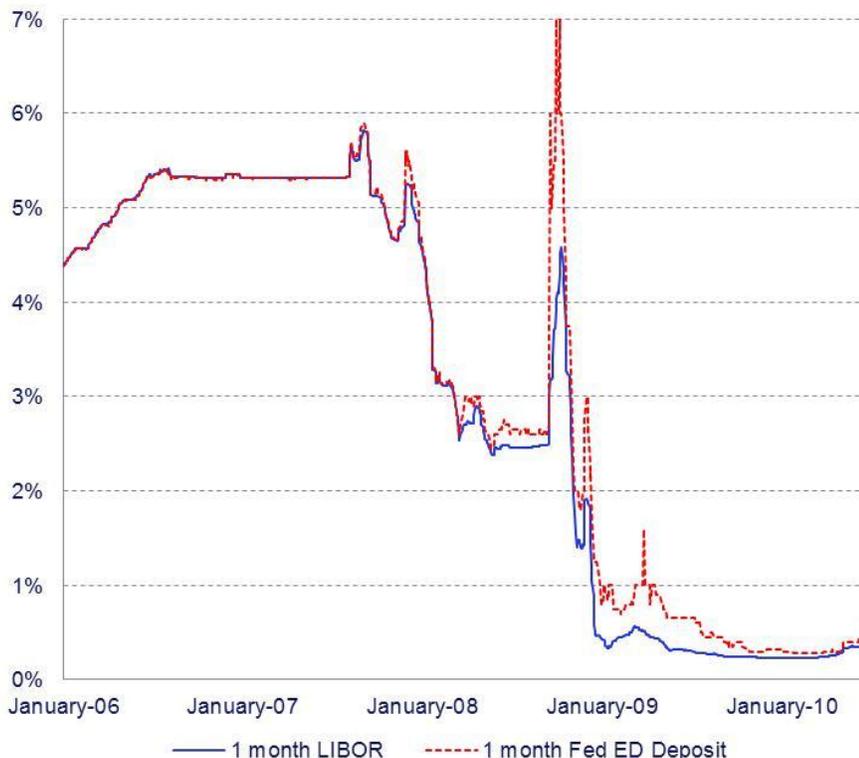
investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

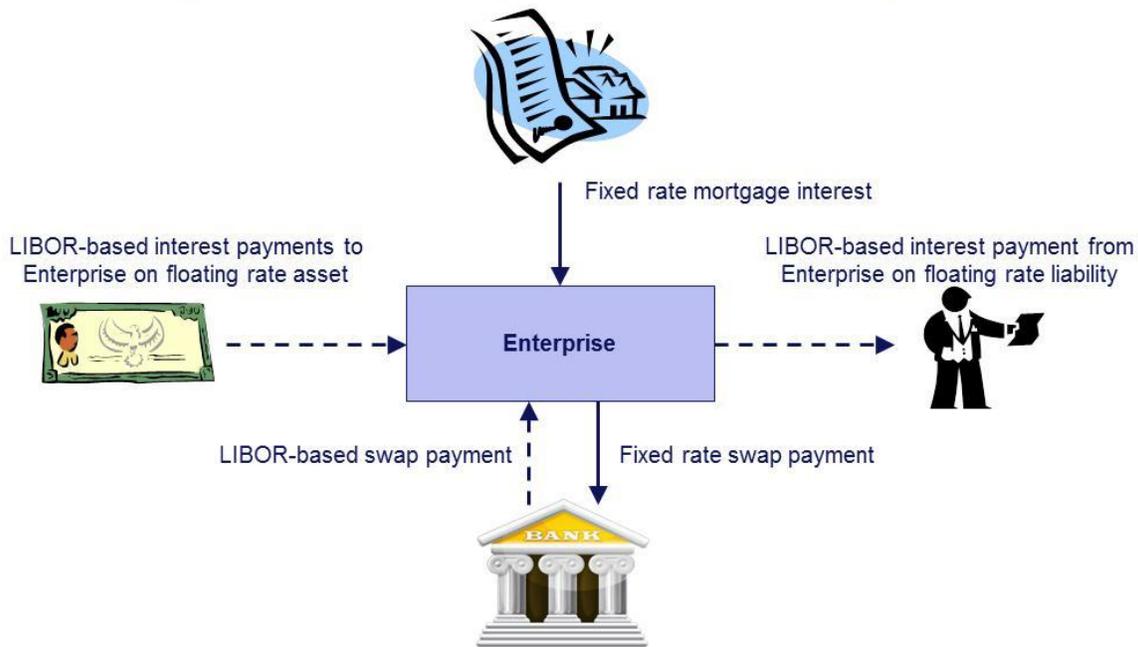
Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 3 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.¹⁹ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²⁰ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²¹ However, our review of a small sample of offering documents for the

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

Enterprises' floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor

among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²²

Figure 3.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
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Barclays	✓	Bear Stearns	
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Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these

records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.

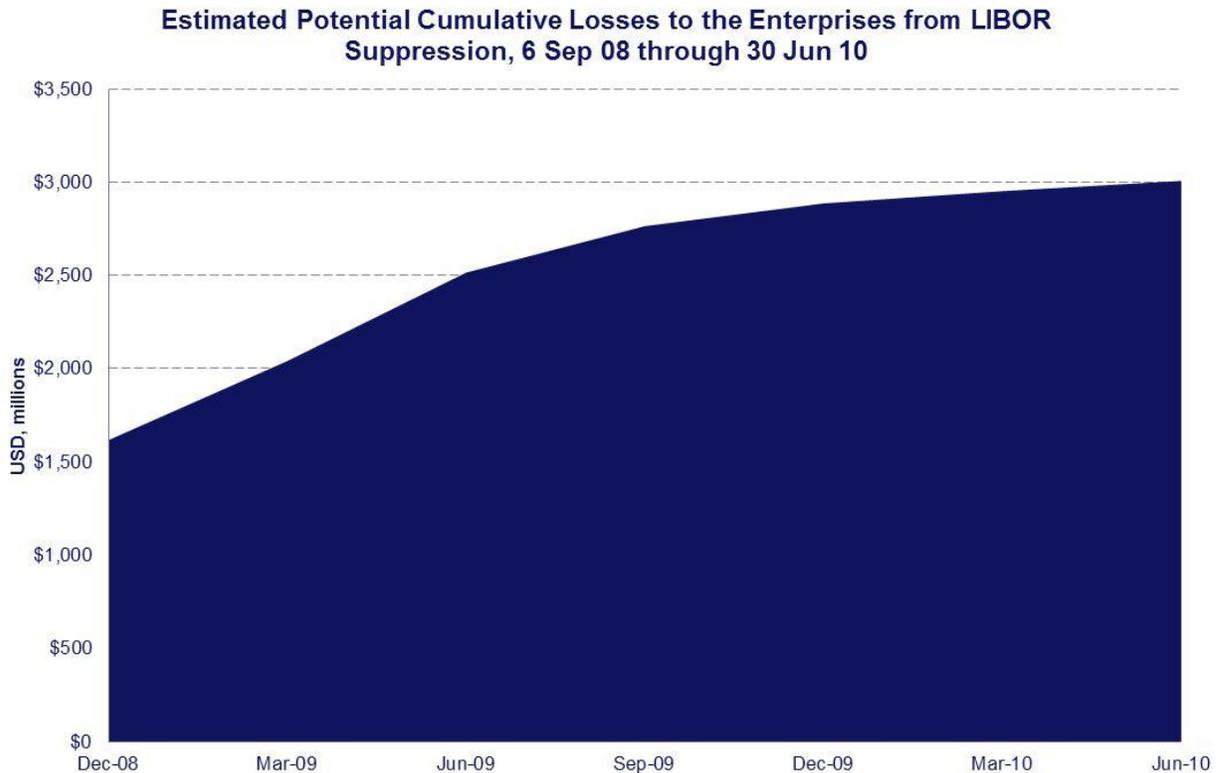
- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d
- Second, we reviewed the Enterprises' publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^e



^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^e Further details on our methodology are available in the Appendix.

Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,²³ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^f

To perform our calculations, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the

^f We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not

brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. ~~We~~FHFA-OIG acknowledges the limitations inherent in any corporate financial analysis developed exclusively from public reports, and FHFA-OIG understands that in order to further substantiate and quantify the damages, more detailed analyses may be needed. FHFA-OIG's intention is to initiate the discussions with FHFA and the Enterprises on this subject based on this preliminary analysis.

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records

and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfaoig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained.](#)"
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts.](#)"
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities.](#)"
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²⁰ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²¹ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²² At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²³ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.

Attachment #3

LIBOR proposal Verified Oct 29.xlsx

Original view

209 pages (displayed on pages 25 to 233)

Cash Flow Shortfall from LIBOR Suppression

Enterprises Variable Rate Mortgage Assets and Interest Rate Swaps

dollars in millions

	30-Jun-07	30-Sep-07	31-Dec-07	31-Mar-08	30-Jun-08	30-Sep-08	31-Dec-08
Swap Notional Amounts							
Fannie Mae	Table 25	Table 28	Table 30	Table 43	Table 43	Table 48	Table 29
Pay Fixed S	303,243	329,657	377,738	443,845	526,028	515,853	546,916
Less: Recei	248,916	256,902	285,885	408,658	409,181	372,555	451,081
Plus: Basis	7,601	8,401	7,001	18,026	25,626	24,761	24,560
Net Receiv	61,928	81,156	98,854	53,213	142,473	168,059	120,395
Freddie Ma	Table 7	Table 7	Table 15	Table 17	Table 26	Table 28	Table 38
Less: Rece	214,657	282,070	301,649	326,247	245,054	329,828	279,609
Plus: Pay F	284,927	380,370	409,682	425,450	411,074	452,633	404,359
Plus: Basis	473	1,093	498	17,988	32,205	82,205	82,190
Net Receiv	70,743	99,393	108,531	117,191	198,225	205,010	206,940
Enterprises							
Net Receiv	132,671	180,549	207,385	170,404	340,698	373,069	327,335
Mortgage Related Securities on Balance Sheet							
Fannie Mae	Table 11	Table 11	Table 23	Table 22	Table 22	Table 22	Table 20
Capital Ma	333,959	329,158	324,326	314,867	333,124	359,495	362,703
Freddie Ma	43%	42%	42%	43%	39%	41%	37%
Estimated I	143,728	139,816	136,268	134,230	130,345	146,025	132,796
Freddie Ma	Table 10	Table 10	Table 22	Table 15	Table 15	Table 17	Table 24
Fixed Rate	405,650	410,235	417,959	408,735	481,983	437,560	510,116
Variable Ra	306,486	302,929	302,854	303,727	309,815	299,316	294,646
Variable Ra	43%	42%	42%	43%	39%	41%	37%
Floating Rate Liabilities on Balance Sheet							
Fannie Mae	Table 13	Table 13	Table 28	Note 8	Note 8	Note 9	Note 10
Floating Rate Short Term Debt			-	4,501	4,501	4,495	7,585
Senior Floa	12,201	15,651	13,700	25,652	33,064	47,087	46,611
Freddie Ma	Table 7.1	Table 7.1	Table 7.3	Table 7.1	Table 7.1	Table 7.1	Table 8.3
Long-Term	24,176	25,487	25,566	25,230	27,093	24,708	13,664
Total Other	483,522	509,744	479,087	504,592	541,851	494,168	433,954
Ratio: Vari	5%	5%	5%	5%	5%	5%	3%

Enterprises

Estimated \	413,837	401,606	399,856	382,574	375,502	369,051	359,582
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Fed ED-LIBI	#NAME?						
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Estimated Damages

LIBOR Cash	#NAME?						
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LIBOR Cash	#NAME?						
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Prorated LIBOR Cash Flow Shortfall - 9/6/08 thru 9/30/08						#NAME?	
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31-Mar-09 30-Jun-09 30-Sep-09 31-Dec-09 31-Mar-10 30-Jun-10

Table 50	Table 45	Table 47	Table 53	Table 45	Table 48
620,850	650,447	435,693	382,600	315,857	317,259
549,823	571,802	340,384	275,417	229,293	234,901
19,815	22,200	11,000	3,225	3,220	3,020
90,842	100,845	106,309	110,408	89,784	85,378

Table 25	Table 26	Table 26	Table 38	Table 29	Table 29
336,207	284,244	320,458	271,403	255,940	349,545
342,747	401,901	414,776	382,259	382,145	386,194
82,090	51,065	51,615	52,045	54,070	53,910
88,630	168,722	145,933	162,901	180,275	90,559

179,472 269,567 252,242 273,309 270,059 175,937

Table 20	Table 18	Table 19	Table 22	Table 18	Table 22
353,172	369,546	368,389	352,709	434,532	391,615
33%	34%	34%	40%	52%	52%
116,457	124,378	125,616	139,775	224,780	204,120

Table 19	Table 19	Table 19	Table 28	Table 19	Table 20
581,180	550,539	516,778	372,160	159,278	148,851
285,924	279,298	267,393	244,296	170,690	162,049
33%	34%	34%	40%	52%	52%

Note 10	Note 10	Note 10	Note 9	Note 9	Note 9
3,132	3,102	3,069	50	-	-
58,770	68,766	51,142	42,952	46,170	45,144

Table 7.1	Table 7.1	Table 7.1	Table 9.3	Table 8.3	Table 8.3
118,160	126,647	113,775	65,855	126,036	144,833
478,379	512,742	460,626	461,051	593,174	585,630
25%	25%	25%	14%	21%	25%

222,319 205,161 225,024 275,214 223,264 176,192

#NAME? #NAME? #NAME? #NAME? #NAME? #NAME?

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Federal
Reserve
ED
Deposits
Less
LIBOR, 1
month
tenor

4-Jan-00 through 14-Jun-07

Average Spread #NAME?
Incidence of Zero or Negative Spre #DIV/0!
Highest Spread #NAME?

15-jun-07 through 7-Sep-08

Average Spread #NAME?
Incidence of Zero or Negative Spre #DIV/0!
Highest Spread #NAME?

6-sep-08 through 27-jun-12

Average Spread #NAME?
Incidence of Zero or Negative Spre #DIV/0!
Highest Spread #NAME?

Date	1 month			Date	3 month	
	1 month LIBOR	Fed ED Deposit	1 month Spread		3 month LIBOR	Fed ED Deposit
4-Jan-00	#NAME?	#NAME?	#NAME?	4-Jan-00	#NAME?	#NAME?
5-Jan-00	#NAME?	#NAME?	#NAME?	5-Jan-00	#NAME?	#NAME?
6-Jan-00	#NAME?	#NAME?	#NAME?	6-Jan-00	#NAME?	#NAME?
7-Jan-00	#NAME?	#NAME?	#NAME?	7-Jan-00	#NAME?	#NAME?
10-Jan-00	#NAME?	#NAME?	#NAME?	10-Jan-00	#NAME?	#NAME?
11-Jan-00	#NAME?	#NAME?	#NAME?	11-Jan-00	#NAME?	#NAME?
12-Jan-00	#NAME?	#NAME?	#NAME?	12-Jan-00	#NAME?	#NAME?
13-Jan-00	#NAME?	#NAME?	#NAME?	13-Jan-00	#NAME?	#NAME?
14-Jan-00	#NAME?	#NAME?	#NAME?	14-Jan-00	#NAME?	#NAME?
18-Jan-00	#NAME?	#NAME?	#NAME?	18-Jan-00	#NAME?	#NAME?
19-Jan-00	#NAME?	#NAME?	#NAME?	19-Jan-00	#NAME?	#NAME?
20-Jan-00	#NAME?	#NAME?	#NAME?	20-Jan-00	#NAME?	#NAME?
21-Jan-00	#NAME?	#NAME?	#NAME?	21-Jan-00	#NAME?	#NAME?
24-Jan-00	#NAME?	#NAME?	#NAME?	24-Jan-00	#NAME?	#NAME?
25-Jan-00	#NAME?	#NAME?	#NAME?	25-Jan-00	#NAME?	#NAME?
26-Jan-00	#NAME?	#NAME?	#NAME?	26-Jan-00	#NAME?	#NAME?
27-Jan-00	#NAME?	#NAME?	#NAME?	27-Jan-00	#NAME?	#NAME?
28-Jan-00	#NAME?	#NAME?	#NAME?	28-Jan-00	#NAME?	#NAME?

16-Jun-00	#NAME?	#NAME?	#NAME?	16-Jun-00	#NAME?	#NAME?
19-Jun-00	#NAME?	#NAME?	#NAME?	19-Jun-00	#NAME?	#NAME?
20-Jun-00	#NAME?	#NAME?	#NAME?	20-Jun-00	#NAME?	#NAME?
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27-Jun-00	#NAME?	#NAME?	#NAME?	27-Jun-00	#NAME?	#NAME?
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30-Jun-00	#NAME?	#NAME?	#NAME?	30-Jun-00	#NAME?	#NAME?
3-Jul-00	#NAME?	#NAME?	#NAME?	3-Jul-00	#NAME?	#NAME?
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31-Jul-00	#NAME?	#NAME?	#NAME?	31-Jul-00	#NAME?	#NAME?
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4-Aug-00	#NAME?	#NAME?	#NAME?	4-Aug-00	#NAME?	#NAME?
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16-Aug-00	#NAME?	#NAME?	#NAME?	16-Aug-00	#NAME?	#NAME?
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22-Aug-00	#NAME?	#NAME?	#NAME?	22-Aug-00	#NAME?	#NAME?

1-Nov-00	#NAME?	#NAME?	#NAME?	1-Nov-00	#NAME?	#NAME?
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3-Nov-00	#NAME?	#NAME?	#NAME?	3-Nov-00	#NAME?	#NAME?
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7-Nov-00	#NAME?	#NAME?	#NAME?	7-Nov-00	#NAME?	#NAME?
8-Nov-00	#NAME?	#NAME?	#NAME?	8-Nov-00	#NAME?	#NAME?
9-Nov-00	#NAME?	#NAME?	#NAME?	9-Nov-00	#NAME?	#NAME?
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13-Nov-00	#NAME?	#NAME?	#NAME?	13-Nov-00	#NAME?	#NAME?
14-Nov-00	#NAME?	#NAME?	#NAME?	14-Nov-00	#NAME?	#NAME?
15-Nov-00	#NAME?	#NAME?	#NAME?	15-Nov-00	#NAME?	#NAME?
16-Nov-00	#NAME?	#NAME?	#NAME?	16-Nov-00	#NAME?	#NAME?
17-Nov-00	#NAME?	#NAME?	#NAME?	17-Nov-00	#NAME?	#NAME?
20-Nov-00	#NAME?	#NAME?	#NAME?	20-Nov-00	#NAME?	#NAME?
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22-Nov-00	#NAME?	#NAME?	#NAME?	22-Nov-00	#NAME?	#NAME?
24-Nov-00	#NAME?	#NAME?	#NAME?	24-Nov-00	#NAME?	#NAME?
27-Nov-00	#NAME?	#NAME?	#NAME?	27-Nov-00	#NAME?	#NAME?
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19-Dec-00	#NAME?	#NAME?	#NAME?	19-Dec-00	#NAME?	#NAME?
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#####	#NAME?	#NAME?	#NAME?	#####	#NAME?	#NAME?
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30-Jan-02	#NAME?	#NAME?	#NAME?	30-Jan-02	#NAME?	#NAME?
31-Jan-02	#NAME?	#NAME?	#NAME?	31-Jan-02	#NAME?	#NAME?
1-Feb-02	#NAME?	#NAME?	#NAME?	1-Feb-02	#NAME?	#NAME?
4-Feb-02	#NAME?	#NAME?	#NAME?	4-Feb-02	#NAME?	#NAME?
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7-Feb-02	#NAME?	#NAME?	#NAME?	7-Feb-02	#NAME?	#NAME?
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11-Feb-02	#NAME?	#NAME?	#NAME?	11-Feb-02	#NAME?	#NAME?
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11-Mar-02	#NAME?	#NAME?	#NAME?	11-Mar-02	#NAME?	#NAME?

31-Jul-02	#NAME?	#NAME?	#NAME?	31-Jul-02	#NAME?	#NAME?
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1-Dec-03	#NAME?	#NAME?	#NAME?	1-Dec-03	#NAME?	#NAME?

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4-Feb-05	#NAME?	#NAME?	#NAME?	4-Feb-05	#NAME?	#NAME?
7-Feb-05	#NAME?	#NAME?	#NAME?	7-Feb-05	#NAME?	#NAME?
8-Feb-05	#NAME?	#NAME?	#NAME?	8-Feb-05	#NAME?	#NAME?
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10-Feb-05	#NAME?	#NAME?	#NAME?	10-Feb-05	#NAME?	#NAME?
11-Feb-05	#NAME?	#NAME?	#NAME?	11-Feb-05	#NAME?	#NAME?
14-Feb-05	#NAME?	#NAME?	#NAME?	14-Feb-05	#NAME?	#NAME?
15-Feb-05	#NAME?	#NAME?	#NAME?	15-Feb-05	#NAME?	#NAME?
16-Feb-05	#NAME?	#NAME?	#NAME?	16-Feb-05	#NAME?	#NAME?
17-Feb-05	#NAME?	#NAME?	#NAME?	17-Feb-05	#NAME?	#NAME?
18-Feb-05	#NAME?	#NAME?	#NAME?	18-Feb-05	#NAME?	#NAME?
22-Feb-05	#NAME?	#NAME?	#NAME?	22-Feb-05	#NAME?	#NAME?
23-Feb-05	#NAME?	#NAME?	#NAME?	23-Feb-05	#NAME?	#NAME?
24-Feb-05	#NAME?	#NAME?	#NAME?	24-Feb-05	#NAME?	#NAME?
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31-Oct-05	#NAME?	#NAME?	#NAME?	31-Oct-05	#NAME?	#NAME?
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30-Nov-05	#NAME?	#NAME?	#NAME?	30-Nov-05	#NAME?	#NAME?
1-Dec-05	#NAME?	#NAME?	#NAME?	1-Dec-05	#NAME?	#NAME?
2-Dec-05	#NAME?	#NAME?	#NAME?	2-Dec-05	#NAME?	#NAME?
5-Dec-05	#NAME?	#NAME?	#NAME?	5-Dec-05	#NAME?	#NAME?
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9-Dec-05	#NAME?	#NAME?	#NAME?	9-Dec-05	#NAME?	#NAME?
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1-Mar-06	#NAME?	#NAME?	#NAME?	1-Mar-06	#NAME?	#NAME?
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21-Mar-06	#NAME?	#NAME?	#NAME?	21-Mar-06	#NAME?	#NAME?

1-Jun-06	#NAME?	#NAME?	#NAME?	1-Jun-06	#NAME?	#NAME?
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16-Aug-10	#NAME?	#NAME?	#NAME?	16-Aug-10	#NAME?	#NAME?
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17-Jan-12	#NAME?	#NAME?	#NAME?	17-Jan-12	#NAME?	#NAME?
18-Jan-12	#NAME?	#NAME?	#NAME?	18-Jan-12	#NAME?	#NAME?
19-Jan-12	#NAME?	#NAME?	#NAME?	19-Jan-12	#NAME?	#NAME?
20-Jan-12	#NAME?	#NAME?	#NAME?	20-Jan-12	#NAME?	#NAME?
23-Jan-12	#NAME?	#NAME?	#NAME?	23-Jan-12	#NAME?	#NAME?
24-Jan-12	#NAME?	#NAME?	#NAME?	24-Jan-12	#NAME?	#NAME?
25-Jan-12	#NAME?	#NAME?	#NAME?	25-Jan-12	#NAME?	#NAME?
26-Jan-12	#NAME?	#NAME?	#NAME?	26-Jan-12	#NAME?	#NAME?
27-Jan-12	#NAME?	#NAME?	#NAME?	27-Jan-12	#NAME?	#NAME?
30-Jan-12	#NAME?	#NAME?	#NAME?	30-Jan-12	#NAME?	#NAME?
31-Jan-12	#NAME?	#NAME?	#NAME?	31-Jan-12	#NAME?	#NAME?
1-Feb-12	#NAME?	#NAME?	#NAME?	1-Feb-12	#NAME?	#NAME?
2-Feb-12	#NAME?	#NAME?	#NAME?	2-Feb-12	#NAME?	#NAME?
3-Feb-12	#NAME?	#NAME?	#NAME?	3-Feb-12	#NAME?	#NAME?
6-Feb-12	#NAME?	#NAME?	#NAME?	6-Feb-12	#NAME?	#NAME?
7-Feb-12	#NAME?	#NAME?	#NAME?	7-Feb-12	#NAME?	#NAME?
8-Feb-12	#NAME?	#NAME?	#NAME?	8-Feb-12	#NAME?	#NAME?
9-Feb-12	#NAME?	#NAME?	#NAME?	9-Feb-12	#NAME?	#NAME?
10-Feb-12	#NAME?	#NAME?	#NAME?	10-Feb-12	#NAME?	#NAME?
13-Feb-12	#NAME?	#NAME?	#NAME?	13-Feb-12	#NAME?	#NAME?
14-Feb-12	#NAME?	#NAME?	#NAME?	14-Feb-12	#NAME?	#NAME?
15-Feb-12	#NAME?	#NAME?	#NAME?	15-Feb-12	#NAME?	#NAME?
16-Feb-12	#NAME?	#NAME?	#NAME?	16-Feb-12	#NAME?	#NAME?
17-Feb-12	#NAME?	#NAME?	#NAME?	17-Feb-12	#NAME?	#NAME?
20-Feb-12	#NAME?	#NAME?	#NAME?	20-Feb-12	#NAME?	#NAME?
21-Feb-12	#NAME?	#NAME?	#NAME?	21-Feb-12	#NAME?	#NAME?
22-Feb-12	#NAME?	#NAME?	#NAME?	22-Feb-12	#NAME?	#NAME?
23-Feb-12	#NAME?	#NAME?	#NAME?	23-Feb-12	#NAME?	#NAME?
24-Feb-12	#NAME?	#NAME?	#NAME?	24-Feb-12	#NAME?	#NAME?
27-Feb-12	#NAME?	#NAME?	#NAME?	27-Feb-12	#NAME?	#NAME?
28-Feb-12	#NAME?	#NAME?	#NAME?	28-Feb-12	#NAME?	#NAME?
29-Feb-12	#NAME?	#NAME?	#NAME?	29-Feb-12	#NAME?	#NAME?
1-Mar-12	#NAME?	#NAME?	#NAME?	1-Mar-12	#NAME?	#NAME?
2-Mar-12	#NAME?	#NAME?	#NAME?	2-Mar-12	#NAME?	#NAME?
5-Mar-12	#NAME?	#NAME?	#NAME?	5-Mar-12	#NAME?	#NAME?

6-Mar-12	#NAME?	#NAME?	#NAME?	6-Mar-12	#NAME?	#NAME?
7-Mar-12	#NAME?	#NAME?	#NAME?	7-Mar-12	#NAME?	#NAME?
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9-Mar-12	#NAME?	#NAME?	#NAME?	9-Mar-12	#NAME?	#NAME?
12-Mar-12	#NAME?	#NAME?	#NAME?	12-Mar-12	#NAME?	#NAME?
13-Mar-12	#NAME?	#NAME?	#NAME?	13-Mar-12	#NAME?	#NAME?
14-Mar-12	#NAME?	#NAME?	#NAME?	14-Mar-12	#NAME?	#NAME?
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27-Mar-12	#NAME?	#NAME?	#NAME?	27-Mar-12	#NAME?	#NAME?
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2-Apr-12	#NAME?	#NAME?	#NAME?	2-Apr-12	#NAME?	#NAME?
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4-Apr-12	#NAME?	#NAME?	#NAME?	4-Apr-12	#NAME?	#NAME?
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10-Apr-12	#NAME?	#NAME?	#NAME?	10-Apr-12	#NAME?	#NAME?
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17-Apr-12	#NAME?	#NAME?	#NAME?	17-Apr-12	#NAME?	#NAME?
18-Apr-12	#NAME?	#NAME?	#NAME?	18-Apr-12	#NAME?	#NAME?
19-Apr-12	#NAME?	#NAME?	#NAME?	19-Apr-12	#NAME?	#NAME?
20-Apr-12	#NAME?	#NAME?	#NAME?	20-Apr-12	#NAME?	#NAME?
23-Apr-12	#NAME?	#NAME?	#NAME?	23-Apr-12	#NAME?	#NAME?
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25-Apr-12	#NAME?	#NAME?	#NAME?	25-Apr-12	#NAME?	#NAME?
26-Apr-12	#NAME?	#NAME?	#NAME?	26-Apr-12	#NAME?	#NAME?
27-Apr-12	#NAME?	#NAME?	#NAME?	27-Apr-12	#NAME?	#NAME?
30-Apr-12	#NAME?	#NAME?	#NAME?	30-Apr-12	#NAME?	#NAME?
1-May-12	#NAME?	#NAME?	#NAME?	1-May-12	#NAME?	#NAME?
2-May-12	#NAME?	#NAME?	#NAME?	2-May-12	#NAME?	#NAME?
3-May-12	#NAME?	#NAME?	#NAME?	3-May-12	#NAME?	#NAME?
4-May-12	#NAME?	#NAME?	#NAME?	4-May-12	#NAME?	#NAME?
8-May-12	#NAME?	#NAME?	#NAME?	8-May-12	#NAME?	#NAME?
9-May-12	#NAME?	#NAME?	#NAME?	9-May-12	#NAME?	#NAME?
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#####	#NAME?	#NAME?	#NAME?	#####	#NAME?	#NAME?

#NAME?

USD3MTD156N		USD1MTD156N		DED1		DED3	
lin	Percent	lin	Percent	lin	Percent	lin	Percent
D	Daily	D	Daily	D	Daily	D	Daily
1/1/2000	1986-01-02	1/1/2000	1986-01-02	1/1/2000	1971-01-04	1/1/2000	1971-01-04 to 2012-09
3-Month London Inter		1-Month London Inter		1-Month Eurodollar De		3-Month Eurodollar Deposit Rate	
British Bankers' Associ		British Bankers' Associ		Board of Governors of		Board of Governors of the Federal	
date	value	date	value	date	value	date	value
1/4/2000	6.0	1/4/2000	5.8	1/3/2000	5.7	1/3/2000	5.9
1/5/2000	6.0	1/5/2000	5.8	1/4/2000	5.7	1/4/2000	5.9
1/6/2000	6.0	1/6/2000	5.8	1/5/2000	5.7	1/5/2000	5.9
1/7/2000	6.0	1/7/2000	5.8	1/6/2000	5.7	1/6/2000	5.9
#####	6.0	#####	5.8	1/7/2000	5.7	1/7/2000	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	#N/A	#####	#N/A
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.8	#####	5.9
#####	6.0	#####	5.8	#####	5.8	#####	5.9
#####	6.0	#####	5.8	#####	5.8	#####	5.9
#####	6.0	#####	5.9	#####	5.7	#####	5.9
#####	6.1	#####	5.9	#####	5.8	#####	6.0
2/1/2000	6.1	2/1/2000	5.9	#####	5.8	#####	6.0
2/2/2000	6.1	2/2/2000	5.9	2/1/2000	5.8	2/1/2000	6.0
2/3/2000	6.1	2/3/2000	5.9	2/2/2000	5.9	2/2/2000	6.1
2/4/2000	6.1	2/4/2000	5.9	2/3/2000	5.8	2/3/2000	6.0
2/7/2000	6.1	2/7/2000	5.9	2/4/2000	5.8	2/4/2000	6.0
2/8/2000	6.1	2/8/2000	5.9	2/7/2000	5.8	2/7/2000	6.0
2/9/2000	6.1	2/9/2000	5.9	2/8/2000	5.8	2/8/2000	6.0
#####	6.1	#####	5.9	2/9/2000	5.8	2/9/2000	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	#N/A	#####	#N/A
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0

#####	6.7	#####	6.6	#####	6.5	#####	6.6
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#####	6.7	#####	6.8	#####	6.5	#####	6.6
#####	6.7	#####	6.8	#####	6.5	#####	6.6
#####	6.7	#####	6.8	#####	#N/A	#####	#N/A
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#####	6.7	#####	6.8	#####	6.5	#####	6.7
#####	6.6	#####	6.7	#####	6.5	#####	6.7
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.6	#####	6.6	#####	6.5
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1/2/2001	6.4	1/2/2001	6.5	#####	6.5	#####	6.4
1/3/2001	6.3	1/3/2001	6.5	#####	6.6	#####	6.4
1/4/2001	5.9	1/4/2001	6.1	#####	6.6	#####	6.3
1/5/2001	5.7	1/5/2001	5.9	#####	6.6	#####	6.3
1/8/2001	5.6	1/8/2001	5.9	#####	6.6	#####	6.3
1/9/2001	5.6	1/9/2001	5.9	#####	6.5	#####	6.3
#####	5.7	#####	5.9	#####	6.5	#####	6.3
#####	5.7	#####	5.9	#####	6.5	#####	6.3
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#####	5.7	#####	5.9	1/4/2001	6.0	1/4/2001	5.8
#####	5.6	#####	5.8	1/5/2001	5.9	1/5/2001	5.6
#####	5.6	#####	5.8	1/8/2001	5.8	1/8/2001	5.5
#####	5.6	#####	5.7	1/9/2001	5.8	1/9/2001	5.5
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	#N/A	#####	#N/A
#####	5.5	#####	5.6	#####	5.8	#####	5.7
#####	5.5	#####	5.6	#####	5.8	#####	5.7
#####	5.4	#####	5.6	#####	5.8	#####	5.6
2/1/2001	5.4	2/1/2001	5.6	#####	5.8	#####	5.6

2/2/2001	5.4	2/2/2001	5.6	#####	5.7	#####	5.5
2/5/2001	5.4	2/5/2001	5.6	#####	5.6	#####	5.5
2/6/2001	5.4	2/6/2001	5.6	#####	5.7	#####	5.5
2/7/2001	5.4	2/7/2001	5.6	#####	5.7	#####	5.5
2/8/2001	5.4	2/8/2001	5.6	#####	5.7	#####	5.5
2/9/2001	5.4	2/9/2001	5.6	#####	5.5	#####	5.4
#####	5.4	#####	5.6	#####	5.5	#####	5.4
#####	5.4	#####	5.6	#####	5.5	#####	5.3
#####	5.4	#####	5.6	2/1/2001	5.5	2/1/2001	5.3
#####	5.4	#####	5.6	2/2/2001	5.5	2/2/2001	5.3
#####	5.4	#####	5.6	2/5/2001	5.5	2/5/2001	5.3
#####	5.4	#####	5.6	2/6/2001	5.5	2/6/2001	5.3
#####	5.4	#####	5.6	2/7/2001	5.5	2/7/2001	5.3
#####	5.4	#####	5.6	2/8/2001	5.5	2/8/2001	5.3
#####	5.3	#####	5.5	2/9/2001	5.5	2/9/2001	5.3
#####	5.3	#####	5.5	#####	5.5	#####	5.3
#####	5.2	#####	5.4	#####	5.5	#####	5.3
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#####	5.1	#####	5.2	#####	5.5	#####	5.3
3/1/2001	5.1	3/1/2001	5.3	#####	5.5	#####	5.3
3/2/2001	5.1	3/2/2001	5.3	#####	#N/A	#####	#N/A
3/5/2001	5.1	3/5/2001	5.3	#####	5.5	#####	5.3
3/6/2001	5.1	3/6/2001	5.3	#####	5.5	#####	5.3
3/7/2001	5.1	3/7/2001	5.3	#####	5.5	#####	5.3
3/8/2001	5.1	3/8/2001	5.2	#####	5.4	#####	5.2
3/9/2001	5.0	3/9/2001	5.2	#####	5.3	#####	5.1
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#####	4.9	#####	5.0	3/7/2001	5.2	3/7/2001	5.0
#####	4.9	#####	5.1	3/8/2001	5.2	3/8/2001	5.0
#####	4.9	#####	5.1	3/9/2001	5.2	3/9/2001	5.0
#####	4.9	#####	5.1	#####	5.1	#####	5.0
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#####	4.9	#####	5.1	#####	4.9	#####	4.8
4/2/2001	4.8	4/2/2001	5.1	#####	4.9	#####	4.8
4/3/2001	4.8	4/3/2001	5.1	#####	5.0	#####	4.8
4/4/2001	4.8	4/4/2001	5.1	#####	5.0	#####	4.7
4/5/2001	4.8	4/5/2001	5.1	#####	5.0	#####	4.8
4/6/2001	4.8	4/6/2001	5.1	#####	5.0	#####	4.8
4/9/2001	4.7	4/9/2001	5.0	#####	5.0	#####	4.8

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#####	4.8 #####	5.0 #####	5.0 #####	4.8
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#####	4.8 #####	5.0 4/2/2001	5.0 4/2/2001	4.8
#####	4.8 #####	5.1 4/3/2001	5.0 4/3/2001	4.8
#####	4.4 #####	4.5 4/4/2001	5.0 4/4/2001	4.7
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#####	4.4 #####	4.5 4/6/2001	5.0 4/6/2001	4.7
#####	4.4 #####	4.5 4/9/2001	5.0 4/9/2001	4.7
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5/1/2001	4.3 5/1/2001	4.4 #####	5.0 #####	4.7
5/2/2001	4.3 5/2/2001	4.4 #####	5.0 #####	4.7
5/3/2001	4.3 5/3/2001	4.4 #####	5.0 #####	4.8
5/4/2001	4.3 5/4/2001	4.4 #####	4.4 #####	4.3
5/8/2001	4.1 5/8/2001	4.2 #####	4.5 #####	4.3
5/9/2001	4.1 5/9/2001	4.2 #####	4.5 #####	4.3
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#####	4.1 #####	4.2 #####	4.4 #####	4.3
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#####	4.1 #####	4.1 5/2/2001	4.3 5/2/2001	4.2
#####	4.1 #####	4.1 5/3/2001	4.3 5/3/2001	4.2
#####	4.1 #####	4.1 5/4/2001	4.1 5/4/2001	4.0
#####	4.1 #####	4.1 5/7/2001	4.1 5/7/2001	4.0
#####	4.1 #####	4.1 5/8/2001	4.1 5/8/2001	4.0
#####	4.0 #####	4.1 5/9/2001	4.1 5/9/2001	4.0
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#####	4.0 #####	4.1 #####	4.1 #####	4.0
#####	4.0 #####	4.1 #####	4.1 #####	4.1
6/1/2001	3.9 6/1/2001	4.0 #####	4.0 #####	4.0
6/4/2001	3.9 6/4/2001	4.0 #####	4.0 #####	3.9
6/5/2001	3.9 6/5/2001	4.0 #####	4.0 #####	3.9
6/6/2001	3.9 6/6/2001	4.0 #####	4.0 #####	4.0
6/7/2001	3.9 6/7/2001	4.0 #####	4.0 #####	4.0
6/8/2001	3.9 6/8/2001	4.0 #####	4.0 #####	4.0
#####	3.9 #####	4.0 #####	4.0 #####	4.0
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1/7/2002	1.9	1/7/2002	1.9	#####	1.9	#####	1.8
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5/1/2002	1.9	5/1/2002	1.8	4/4/2002	1.8	4/4/2002	1.9
5/2/2002	1.9	5/2/2002	1.8	4/5/2002	1.8	4/5/2002	1.9
5/3/2002	1.9	5/3/2002	1.8	4/8/2002	1.8	4/8/2002	1.9
5/7/2002	1.9	5/7/2002	1.8	4/9/2002	1.8	4/9/2002	1.9
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1/7/2003	1.4	1/7/2003	1.4	#####	1.4	#####	1.4
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4/9/2003	1.3	4/9/2003	1.3	3/4/2003	1.3	3/4/2003	1.3
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8/6/2003	1.1	8/6/2003	1.1	#####	0.9	#####	0.9
8/7/2003	1.1	8/7/2003	1.1	#####	1.1	#####	1.0
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9/1/2003	1.1	9/1/2003	1.1	#####	1.0	#####	1.0
9/2/2003	1.1	9/2/2003	1.1	#####	1.0	#####	1.1
9/3/2003	1.1	9/3/2003	1.1	#####	1.0	#####	1.0
9/4/2003	1.1	9/4/2003	1.1	#####	1.0	#####	1.0
9/5/2003	1.1	9/5/2003	1.1	#####	1.0	#####	1.0
9/8/2003	1.1	9/8/2003	1.1	#####	1.0	#####	1.0
9/9/2003	1.1	9/9/2003	1.1	#####	1.0	#####	1.0
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#####	1.1	#####	1.1	#####	1.1	#####	1.1

4/1/2004	1.1	4/1/2004	1.1	#####	1.0	#####	1.1
4/2/2004	1.1	4/2/2004	1.1	#####	#N/A	#####	#N/A
4/5/2004	1.1	4/5/2004	1.1	#####	1.0	#####	1.0
4/6/2004	1.1	4/6/2004	1.1	#####	1.0	#####	1.0
4/7/2004	1.1	4/7/2004	1.1	#####	1.0	#####	1.1
4/8/2004	1.1	4/8/2004	1.1	#####	1.0	#####	1.0
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#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
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#####	1.1	#####	1.1	#####	1.0	#####	1.1
#####	1.2	#####	1.1	3/1/2004	1.0	3/1/2004	1.0
#####	1.2	#####	1.1	3/2/2004	1.0	3/2/2004	1.0
#####	1.2	#####	1.1	3/3/2004	1.0	3/3/2004	1.1
#####	1.2	#####	1.1	3/4/2004	1.0	3/4/2004	1.1
#####	1.2	#####	1.1	3/5/2004	1.0	3/5/2004	1.0
#####	1.2	#####	1.1	3/8/2004	1.0	3/8/2004	1.0
#####	1.2	#####	1.1	3/9/2004	1.0	3/9/2004	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
5/4/2004	1.2	5/4/2004	1.1	#####	1.0	#####	1.0
5/5/2004	1.2	5/5/2004	1.1	#####	1.0	#####	1.0
5/6/2004	1.2	5/6/2004	1.1	#####	1.0	#####	1.0
5/7/2004	1.2	5/7/2004	1.1	#####	1.0	#####	1.0
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#####	1.3	#####	1.1	4/1/2004	1.0	4/1/2004	1.0
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#####	1.3	#####	1.1	4/5/2004	1.0	4/5/2004	1.1
#####	1.3	#####	1.1	4/6/2004	1.0	4/6/2004	1.1
#####	1.3	#####	1.1	4/7/2004	1.0	4/7/2004	1.1
6/1/2004	1.3	6/1/2004	1.1	4/8/2004	1.0	4/8/2004	1.1
6/2/2004	1.3	6/2/2004	1.1	4/9/2004	#N/A	4/9/2004	#N/A
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6/7/2004	1.4	6/7/2004	1.2	#####	1.0	#####	1.1
6/8/2004	1.4	6/8/2004	1.2	#####	1.0	#####	1.1
6/9/2004	1.4	6/9/2004	1.2	#####	1.0	#####	1.1
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1/5/2005	2.6	1/5/2005	2.4	#####	2.0	#####	2.2
1/6/2005	2.6	1/6/2005	2.4	#####	2.0	#####	2.2
1/7/2005	2.6	1/7/2005	2.4	#####	2.0	#####	2.2
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#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
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#####	2.7	#####	2.6	#####	2.2	#####	2.3
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2/2/2005	2.8	2/2/2005	2.6	#####	2.3	#####	2.4
2/3/2005	2.8	2/3/2005	2.6	#####	2.3	#####	2.4
2/4/2005	2.8	2/4/2005	2.6	#####	2.3	#####	2.4
2/7/2005	2.8	2/7/2005	2.6	#####	2.3	#####	2.4
2/8/2005	2.8	2/8/2005	2.6	#####	2.3	#####	2.4
2/9/2005	2.8	2/9/2005	2.6	#####	2.3	#####	2.4
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#####	2.8	#####	2.6	#####	2.3	#####	2.4
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3/1/2005	2.9	3/1/2005	2.7	#####	2.3	#####	2.5
3/2/2005	2.9	3/2/2005	2.7	1/3/2005	2.3	1/3/2005	2.5
3/3/2005	3.0	3/3/2005	2.7	1/4/2005	2.3	1/4/2005	2.5
3/4/2005	3.0	3/4/2005	2.8	1/5/2005	2.3	1/5/2005	2.5
3/7/2005	3.0	3/7/2005	2.8	1/6/2005	2.4	1/6/2005	2.6

3/8/2005	3.0	3/8/2005	2.8	1/7/2005	2.4	1/7/2005	2.6
3/9/2005	3.0	3/9/2005	2.8	#####	2.4	#####	2.6
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#####	3.1	#####	2.9	#####	2.4	#####	2.6
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4/1/2005	3.1	4/1/2005	2.9	#####	2.5	#####	2.7
4/4/2005	3.1	4/4/2005	2.9	2/1/2005	2.5	2/1/2005	2.7
4/5/2005	3.1	4/5/2005	2.9	2/2/2005	2.5	2/2/2005	2.7
4/6/2005	3.1	4/6/2005	2.9	2/3/2005	2.5	2/3/2005	2.7
4/7/2005	3.1	4/7/2005	2.9	2/4/2005	2.5	2/4/2005	2.7
4/8/2005	3.1	4/8/2005	2.9	2/7/2005	2.5	2/7/2005	2.7
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#####	3.1	#####	3.0	#####	2.5	#####	2.7
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#####	3.2	#####	3.0	#####	2.5	#####	2.8
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5/3/2005	3.2	5/3/2005	3.1	3/1/2005	2.7	3/1/2005	2.9
5/4/2005	3.2	5/4/2005	3.1	3/2/2005	2.7	3/2/2005	2.9
5/5/2005	3.2	5/5/2005	3.1	3/3/2005	2.7	3/3/2005	2.9
5/6/2005	3.2	5/6/2005	3.1	3/4/2005	2.7	3/4/2005	2.9
5/9/2005	3.3	5/9/2005	3.1	3/7/2005	2.7	3/7/2005	2.9
#####	3.3	#####	3.1	3/8/2005	2.7	3/8/2005	2.9
#####	3.3	#####	3.1	3/9/2005	2.7	3/9/2005	2.9
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8/2/2005	3.7	8/2/2005	3.5	#####	#N/A	#####	#N/A
8/3/2005	3.7	8/3/2005	3.6	#####	3.1	#####	3.3
8/4/2005	3.7	8/4/2005	3.6	6/1/2005	3.1	6/1/2005	3.3
8/5/2005	3.8	8/5/2005	3.6	6/2/2005	3.1	6/2/2005	3.3
8/8/2005	3.8	8/8/2005	3.6	6/3/2005	3.1	6/3/2005	3.3
8/9/2005	3.8	8/9/2005	3.6	6/6/2005	3.1	6/6/2005	3.3
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9/2/2005	3.8	9/2/2005	3.7	#####	3.3	#####	3.4
9/5/2005	3.8	9/5/2005	3.7	#####	3.3	#####	3.5
9/6/2005	3.8	9/6/2005	3.7	7/1/2005	3.3	7/1/2005	3.5
9/7/2005	3.8	9/7/2005	3.7	7/4/2005	#N/A	7/4/2005	#N/A
9/8/2005	3.8	9/8/2005	3.7	7/5/2005	3.3	7/5/2005	3.5
9/9/2005	3.9	9/9/2005	3.7	7/6/2005	3.3	7/6/2005	3.5
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1/4/2006	4.5	1/4/2006	4.4	#####	4.1	#####	4.2
1/5/2006	4.6	1/5/2006	4.4	#####	4.1	#####	4.2
1/6/2006	4.6	1/6/2006	4.4	#####	4.1	#####	4.2
1/9/2006	4.6	1/9/2006	4.4	#####	4.1	#####	4.3
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#####	2.8	#####	2.8	#####	4.1	#####	4.1
#####	2.9	#####	2.9	#####	4.1	#####	4.1
#####	2.9	#####	2.9	#####	4.0	#####	3.9
#####	2.9	#####	2.9	#####	4.0	#####	4.0
#####	2.9	#####	2.9	#####	4.0	#####	3.9
#####	2.9	#####	2.9	#####	#N/A	#####	#N/A
#####	2.9	#####	2.9	#####	3.8	#####	3.7
#####	2.9	#####	2.9	#####	3.3	#####	3.3
#####	2.9	#####	2.8	#####	3.3	#####	3.3
#####	2.9	#####	2.8	#####	3.3	#####	3.3
5/1/2008	2.8	5/1/2008	2.7	#####	3.3	#####	3.3
5/2/2008	2.8	5/2/2008	2.7	#####	3.3	#####	3.3
5/6/2008	2.8	5/6/2008	2.7	#####	3.3	#####	3.3

5/7/2008	2.7	5/7/2008	2.6	#####	3.2	#####	3.2
5/8/2008	2.7	5/8/2008	2.6	2/1/2008	3.2	2/1/2008	3.2
5/9/2008	2.7	5/9/2008	2.6	2/4/2008	3.3	2/4/2008	3.2
#####	2.7	#####	2.5	2/5/2008	3.3	2/5/2008	3.3
#####	2.7	#####	2.5	2/6/2008	3.3	2/6/2008	3.2
#####	2.7	#####	2.5	2/7/2008	3.2	2/7/2008	3.1
#####	2.7	#####	2.5	2/8/2008	3.2	2/8/2008	3.1
#####	2.7	#####	2.5	#####	3.1	#####	3.1
#####	2.7	#####	2.5	#####	3.1	#####	3.1
#####	2.7	#####	2.4	#####	3.1	#####	3.1
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.6	#####	2.4	#####	#N/A	#####	#N/A
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.7	#####	2.5	#####	3.2	#####	3.2
#####	2.7	#####	2.5	#####	3.2	#####	3.1
6/2/2008	2.7	6/2/2008	2.5	#####	3.2	#####	3.1
6/3/2008	2.7	6/3/2008	2.5	#####	3.2	#####	3.1
6/4/2008	2.7	6/4/2008	2.5	#####	3.2	#####	3.1
6/5/2008	2.7	6/5/2008	2.4	#####	3.2	#####	3.1
6/6/2008	2.7	6/6/2008	2.4	#####	3.2	#####	3.1
6/9/2008	2.7	6/9/2008	2.4	3/3/2008	3.1	3/3/2008	3.1
#####	2.8	#####	2.5	3/4/2008	3.1	3/4/2008	3.1
#####	2.8	#####	2.5	3/5/2008	3.1	3/5/2008	3.1
#####	2.8	#####	2.5	3/6/2008	3.1	3/6/2008	3.0
#####	2.8	#####	2.5	3/7/2008	3.0	3/7/2008	3.0
#####	2.8	#####	2.5	#####	3.0	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.8	#####	2.9
#####	2.8	#####	2.5	#####	2.7	#####	2.8
#####	2.8	#####	2.5	#####	2.6	#####	2.6
#####	2.8	#####	2.5	#####	2.6	#####	2.7
#####	2.8	#####	2.5	#####	2.7	#####	2.7
#####	2.8	#####	2.5	#####	2.7	#####	2.7
#####	2.8	#####	2.5	#####	#N/A	#####	#N/A
#####	2.8	#####	2.5	#####	2.7	#####	2.7
7/1/2008	2.8	7/1/2008	2.5	#####	2.8	#####	2.8
7/2/2008	2.8	7/2/2008	2.5	#####	2.8	#####	2.8
7/3/2008	2.8	7/3/2008	2.5	#####	2.9	#####	2.9
7/4/2008	2.8	7/4/2008	2.5	#####	2.9	#####	3.0
7/7/2008	2.8	7/7/2008	2.5	#####	3.0	#####	3.0
7/8/2008	2.8	7/8/2008	2.5	4/1/2008	3.0	4/1/2008	3.0
7/9/2008	2.8	7/9/2008	2.5	4/2/2008	3.0	4/2/2008	3.0
#####	2.8	#####	2.5	4/3/2008	3.0	4/3/2008	3.0
#####	2.8	#####	2.5	4/4/2008	3.0	4/4/2008	3.0

#####	2.8	#####	2.5	4/7/2008	3.0	4/7/2008	3.0
#####	2.8	#####	2.5	4/8/2008	3.0	4/8/2008	3.0
#####	2.8	#####	2.5	4/9/2008	3.0	4/9/2008	3.0
#####	2.8	#####	2.5	#####	3.0	#####	3.0
#####	2.8	#####	2.5	#####	3.0	#####	3.0
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	3.0
#####	2.8	#####	2.5	#####	2.9	#####	3.0
#####	2.8	#####	2.5	#####	3.0	#####	3.1
#####	2.8	#####	2.5	#####	3.0	#####	3.1
#####	2.8	#####	2.5	#####	3.0	#####	3.1
#####	2.8	#####	2.5	#####	3.0	#####	3.1
8/1/2008	2.8	8/1/2008	2.5	#####	3.0	#####	3.1
8/4/2008	2.8	8/4/2008	2.5	#####	3.0	#####	3.2
8/5/2008	2.8	8/5/2008	2.5	#####	2.9	#####	3.2
8/6/2008	2.8	8/6/2008	2.5	#####	2.9	#####	3.2
8/7/2008	2.8	8/7/2008	2.5	5/1/2008	2.9	5/1/2008	3.0
8/8/2008	2.8	8/8/2008	2.5	5/2/2008	2.9	5/2/2008	2.9
#####	2.8	#####	2.5	5/5/2008	2.9	5/5/2008	2.9
#####	2.8	#####	2.5	5/6/2008	2.9	5/6/2008	2.9
#####	2.8	#####	2.5	5/7/2008	2.8	5/7/2008	2.9
#####	2.8	#####	2.5	5/8/2008	2.8	5/8/2008	2.9
#####	2.8	#####	2.5	5/9/2008	2.7	5/9/2008	2.8
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.8
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.8
#####	2.8	#####	2.5	#####	2.5	#####	2.8
#####	2.8	#####	2.5	#####	2.5	#####	2.8
9/1/2008	2.8	9/1/2008	2.5	#####	2.5	#####	2.8
9/2/2008	2.8	9/2/2008	2.5	#####	#N/A	#####	#N/A
9/3/2008	2.8	9/3/2008	2.5	#####	2.5	#####	2.8
9/4/2008	2.8	9/4/2008	2.5	#####	2.5	#####	2.8
9/5/2008	2.8	9/5/2008	2.5	#####	2.6	#####	2.9
9/8/2008	2.8	9/8/2008	2.5	#####	2.6	#####	2.9
9/9/2008	2.8	9/9/2008	2.5	6/2/2008	2.6	6/2/2008	2.9
#####	2.8	#####	2.5	6/3/2008	2.6	6/3/2008	2.9
#####	2.8	#####	2.5	6/4/2008	2.6	6/4/2008	2.9
#####	2.8	#####	2.5	6/5/2008	2.6	6/5/2008	2.9
#####	2.8	#####	2.5	6/6/2008	2.7	6/6/2008	2.9
#####	2.9	#####	2.7	6/9/2008	2.7	6/9/2008	2.9
#####	3.1	#####	3.0	#####	2.7	#####	2.9

#####	3.2	#####	3.2	#####	2.7	#####	2.9
#####	3.2	#####	3.2	#####	2.7	#####	3.0
#####	3.2	#####	3.2	#####	2.7	#####	3.0
#####	3.2	#####	3.2	#####	2.8	#####	3.1
#####	3.5	#####	3.4	#####	2.7	#####	3.1
#####	3.8	#####	3.7	#####	2.7	#####	3.0
#####	3.8	#####	3.7	#####	2.7	#####	3.0
#####	3.9	#####	3.7	#####	2.7	#####	3.0
#####	4.1	#####	3.9	#####	2.7	#####	3.0
#####	4.2	#####	4.0	#####	2.7	#####	3.0
#####	4.2	#####	4.0	#####	2.7	#####	3.0
#####	4.3	#####	4.1	#####	2.7	#####	3.0
#####	4.3	#####	4.1	#####	2.7	#####	3.0
#####	4.3	#####	4.1	#####	2.6	#####	3.0
#####	4.5	#####	4.3	7/1/2008	2.7	7/1/2008	3.0
#####	4.8	#####	4.5	7/2/2008	2.7	7/2/2008	3.0
#####	4.8	#####	4.6	7/3/2008	2.7	7/3/2008	3.0
#####	4.8	#####	4.6	7/4/2008	#N/A	7/4/2008	#N/A
#####	4.6	#####	4.5	7/7/2008	2.7	7/7/2008	3.0
#####	4.6	#####	4.4	7/8/2008	2.7	7/8/2008	3.0
#####	4.5	#####	4.3	7/9/2008	2.7	7/9/2008	3.0
#####	4.4	#####	4.2	#####	2.7	#####	3.0
#####	4.1	#####	3.8	#####	2.7	#####	3.0
#####	3.8	#####	3.5	#####	2.7	#####	3.0
#####	3.5	#####	3.3	#####	2.7	#####	3.0
#####	3.5	#####	3.3	#####	2.7	#####	3.0
#####	3.5	#####	3.2	#####	2.7	#####	3.0
#####	3.5	#####	3.2	#####	2.6	#####	3.0
#####	3.5	#####	3.2	#####	2.7	#####	3.0
#####	3.4	#####	3.1	#####	2.7	#####	3.0
#####	3.2	#####	2.9	#####	2.7	#####	3.0
#####	3.0	#####	2.6	#####	2.7	#####	3.0
#####	2.9	#####	2.4	#####	2.7	#####	3.0
#####	2.7	#####	2.2	#####	2.7	#####	3.0
#####	2.5	#####	2.0	#####	2.7	#####	3.0
#####	2.4	#####	1.8	#####	2.7	#####	3.0
#####	2.3	#####	1.6	#####	2.7	#####	3.0
#####	2.2	#####	1.5	8/1/2008	2.6	8/1/2008	3.0
#####	2.2	#####	1.5	8/4/2008	2.6	8/4/2008	3.0
#####	2.1	#####	1.4	8/5/2008	2.6	8/5/2008	3.0
#####	2.1	#####	1.4	8/6/2008	2.7	8/6/2008	3.0
#####	2.2	#####	1.5	8/7/2008	2.6	8/7/2008	3.0
#####	2.2	#####	1.5	8/8/2008	2.6	8/8/2008	3.0
#####	2.2	#####	1.5	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0

#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.7	#####	3.0
#####	2.2	#####	1.8	#####	2.7	#####	3.0
#####	2.2	#####	1.6	9/1/2008	#N/A	9/1/2008	#N/A
#####	2.1	#####	1.4	9/2/2008	2.6	9/2/2008	3.0
#####	2.0	#####	1.2	9/3/2008	2.6	9/3/2008	3.0
#####	1.9	#####	1.0	9/4/2008	2.6	9/4/2008	3.0
#####	1.9	#####	1.0	9/5/2008	2.6	9/5/2008	3.0
#####	1.8	#####	0.9	9/8/2008	2.7	9/8/2008	3.0
#####	1.6	#####	0.6	9/9/2008	2.7	9/9/2008	3.0
#####	1.5	#####	0.5	#####	2.7	#####	3.0
#####	1.5	#####	0.5	#####	2.6	#####	3.0
#####	1.5	#####	0.5	#####	2.6	#####	3.0
#####	1.5	#####	0.5	#####	2.7	#####	3.0
#####	1.5	#####	0.5	#####	3.2	#####	3.2
#####	1.5	#####	0.5	#####	3.8	#####	3.8
#####	1.4	#####	0.4	#####	6.0	#####	5.0
#####	1.4	#####	0.4	#####	6.0	#####	5.0
1/2/2009	1.4	1/2/2009	0.4	#####	5.0	#####	5.0
1/5/2009	1.4	1/5/2009	0.4	#####	5.3	#####	5.0
1/6/2009	1.4	1/6/2009	0.4	#####	5.3	#####	5.0
1/7/2009	1.4	1/7/2009	0.4	#####	5.5	#####	5.0
1/8/2009	1.4	1/8/2009	0.4	#####	5.5	#####	5.0
1/9/2009	1.3	1/9/2009	0.4	#####	5.5	#####	5.0
#####	1.2	#####	0.3	#####	7.0	#####	6.0
#####	1.1	#####	0.3	#####	6.0	#####	6.0
#####	1.1	#####	0.3	#####	6.0	#####	6.0
#####	1.1	#####	0.3	#####	6.0	#####	6.0
#####	1.1	#####	0.4	#####	6.0	#####	6.0
#####	1.1	#####	0.4	#####	6.5	#####	6.0
#####	1.1	#####	0.4	#####	7.0	#####	6.0
#####	1.1	#####	0.4	#####	6.0	#####	6.0
#####	1.2	#####	0.4	#####	6.0	#####	6.0
#####	1.2	#####	0.4	#####	#N/A	#####	#N/A
#####	1.2	#####	0.4	#####	5.8	#####	6.0
#####	1.2	#####	0.4	#####	5.5	#####	5.8
#####	1.2	#####	0.4	#####	5.5	#####	5.8
#####	1.2	#####	0.4	#####	5.0	#####	5.8
#####	1.2	#####	0.4	#####	4.3	#####	5.0

2/2/2009	1.2	2/2/2009	0.4	#####	4.0	#####	4.5
2/3/2009	1.2	2/3/2009	0.4	#####	3.8	#####	4.5
2/4/2009	1.2	2/4/2009	0.4	#####	3.8	#####	4.5
2/5/2009	1.2	2/5/2009	0.4	#####	3.8	#####	4.5
2/6/2009	1.2	2/6/2009	0.4	#####	3.8	#####	4.5
2/9/2009	1.2	2/9/2009	0.4	#####	3.8	#####	4.5
#####	1.2	#####	0.4	#####	3.8	#####	4.5
#####	1.2	#####	0.5	#####	3.3	#####	4.5
#####	1.2	#####	0.5	#####	3.3	#####	4.5
#####	1.2	#####	0.5	#####	2.8	#####	4.3
#####	1.2	#####	0.5	#####	2.5	#####	4.0
#####	1.2	#####	0.5	#####	2.3	#####	3.3
#####	1.3	#####	0.5	#####	2.0	#####	3.0
#####	1.3	#####	0.5	#####	2.0	#####	3.0
#####	1.2	#####	0.5	#####	2.0	#####	3.0
#####	1.2	#####	0.5	#####	#N/A	#####	#N/A
#####	1.3	#####	0.5	#####	2.0	#####	2.8
#####	1.3	#####	0.5	#####	2.0	#####	2.8
#####	1.3	#####	0.5	#####	2.0	#####	3.0
#####	1.3	#####	0.5	#####	1.8	#####	3.0
3/2/2009	1.3	3/2/2009	0.5	#####	1.8	#####	3.0
3/3/2009	1.3	3/3/2009	0.5	#####	1.8	#####	3.0
3/4/2009	1.3	3/4/2009	0.5	#####	1.8	#####	3.0
3/5/2009	1.3	3/5/2009	0.5	#####	1.9	#####	3.0
3/6/2009	1.3	3/6/2009	0.5	#####	2.0	#####	3.0
3/9/2009	1.3	3/9/2009	0.6	#####	2.0	#####	3.0
#####	1.3	#####	0.6	#####	2.0	#####	3.0
#####	1.3	#####	0.6	#####	#N/A	#####	#N/A
#####	1.3	#####	0.6	#####	2.8	#####	3.0
#####	1.3	#####	0.6	#####	3.0	#####	3.0
#####	1.3	#####	0.6	#####	3.0	#####	3.0
#####	1.3	#####	0.6	#####	3.0	#####	3.0
#####	1.3	#####	0.5	#####	2.6	#####	3.0
#####	1.2	#####	0.5	#####	2.7	#####	3.0
#####	1.2	#####	0.5	#####	2.3	#####	3.0
#####	1.2	#####	0.5	#####	2.2	#####	3.0
#####	1.2	#####	0.5	#####	2.2	#####	3.0
#####	1.2	#####	0.5	#####	1.8	#####	3.0
#####	1.2	#####	0.5	#####	1.8	#####	2.9
#####	1.2	#####	0.5	#####	1.5	#####	2.6
#####	1.2	#####	0.5	#####	1.3	#####	2.2
#####	1.2	#####	0.5	#####	1.3	#####	2.0
4/1/2009	1.2	4/1/2009	0.5	#####	1.3	#####	2.0
4/2/2009	1.2	4/2/2009	0.5	#####	1.3	#####	2.0
4/3/2009	1.2	4/3/2009	0.5	#####	1.3	#####	2.0
4/6/2009	1.2	4/6/2009	0.5	#####	1.2	#####	2.0
4/7/2009	1.1	4/7/2009	0.5	#####	1.2	#####	2.0

#####	0.6	#####	0.3	3/2/2009	0.8	3/2/2009	1.7
#####	0.6	#####	0.3	3/3/2009	0.9	3/3/2009	1.7
#####	0.6	#####	0.3	3/4/2009	0.8	3/4/2009	1.7
#####	0.6	#####	0.3	3/5/2009	0.8	3/5/2009	1.7
#####	0.6	#####	0.3	3/6/2009	0.8	3/6/2009	1.7
#####	0.6	#####	0.3	3/9/2009	0.9	3/9/2009	1.7
#####	0.6	#####	0.3	#####	1.0	#####	1.7
#####	0.6	#####	0.3	#####	1.0	#####	1.7
#####	0.6	#####	0.3	#####	1.0	#####	1.7
7/1/2009	0.6	7/1/2009	0.3	#####	1.0	#####	1.7
7/2/2009	0.6	7/2/2009	0.3	#####	1.0	#####	1.7
7/3/2009	0.6	7/3/2009	0.3	#####	1.0	#####	1.7
7/6/2009	0.5	7/6/2009	0.3	#####	1.0	#####	1.7
7/7/2009	0.5	7/7/2009	0.3	#####	1.0	#####	1.6
7/8/2009	0.5	7/8/2009	0.3	#####	1.0	#####	1.6
7/9/2009	0.5	7/9/2009	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.6	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	4/1/2009	1.0	4/1/2009	1.6
#####	0.5	#####	0.3	4/2/2009	1.0	4/2/2009	1.6
#####	0.5	#####	0.3	4/3/2009	1.0	4/3/2009	1.6
#####	0.5	#####	0.3	4/6/2009	1.0	4/6/2009	1.6
#####	0.5	#####	0.3	4/7/2009	1.0	4/7/2009	1.6
#####	0.5	#####	0.3	4/8/2009	1.0	4/8/2009	1.6
#####	0.5	#####	0.3	4/9/2009	0.8	4/9/2009	1.5
#####	0.5	#####	0.3	#####	#N/A	#####	#N/A
#####	0.5	#####	0.3	#####	0.8	#####	1.5
#####	0.5	#####	0.3	#####	1.0	#####	1.5
8/3/2009	0.5	8/3/2009	0.3	#####	1.0	#####	1.5
8/4/2009	0.5	8/4/2009	0.3	#####	1.0	#####	1.5
8/5/2009	0.5	8/5/2009	0.3	#####	1.0	#####	1.5
8/6/2009	0.5	8/6/2009	0.3	#####	1.0	#####	1.5
8/7/2009	0.5	8/7/2009	0.3	#####	0.9	#####	1.5
#####	0.5	#####	0.3	#####	0.9	#####	1.5
#####	0.5	#####	0.3	#####	0.9	#####	1.5
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	5/1/2009	0.9	5/1/2009	1.4
#####	0.4	#####	0.3	5/4/2009	0.9	5/4/2009	1.4
#####	0.4	#####	0.3	5/5/2009	0.8	5/5/2009	1.4

7/6/2011	0.2	7/6/2011	0.2	#####	0.3	#####	0.4
7/7/2011	0.2	7/7/2011	0.2	#####	0.3	#####	0.4
7/8/2011	0.2	7/8/2011	0.2	#####	0.3	#####	0.4
#####	0.2	#####	0.2	#####	0.3	#####	0.4
#####	0.2	#####	0.2	3/1/2011	0.3	3/1/2011	0.4
#####	0.2	#####	0.2	3/2/2011	0.3	3/2/2011	0.4
#####	0.2	#####	0.2	3/3/2011	0.3	3/3/2011	0.4
#####	0.2	#####	0.2	3/4/2011	0.3	3/4/2011	0.4
#####	0.3	#####	0.2	3/7/2011	0.3	3/7/2011	0.4
#####	0.3	#####	0.2	3/8/2011	0.3	3/8/2011	0.4
#####	0.3	#####	0.2	3/9/2011	0.3	3/9/2011	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
8/1/2011	0.3	8/1/2011	0.2	#####	0.3	#####	0.4
8/2/2011	0.3	8/2/2011	0.2	#####	0.3	#####	0.4
8/3/2011	0.3	8/3/2011	0.2	#####	0.3	#####	0.4
8/4/2011	0.3	8/4/2011	0.2	#####	0.3	#####	0.4
8/5/2011	0.3	8/5/2011	0.2	#####	0.3	#####	0.4
8/8/2011	0.3	8/8/2011	0.2	#####	0.3	#####	0.4
8/9/2011	0.3	8/9/2011	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	4/1/2011	0.3	4/1/2011	0.4
#####	0.3	#####	0.2	4/4/2011	0.3	4/4/2011	0.4
#####	0.3	#####	0.2	4/5/2011	0.3	4/5/2011	0.4
#####	0.3	#####	0.2	4/6/2011	0.3	4/6/2011	0.4
#####	0.3	#####	0.2	4/7/2011	0.3	4/7/2011	0.4
#####	0.3	#####	0.2	4/8/2011	0.3	4/8/2011	0.4
#####	0.3	#####	0.2	#####	0.2	#####	0.4
#####	0.3	#####	0.2	#####	0.2	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
9/1/2011	0.3	9/1/2011	0.2	#####	0.3	#####	0.4
9/2/2011	0.3	9/2/2011	0.2	#####	0.3	#####	0.4
9/5/2011	0.3	9/5/2011	0.2	#####	0.3	#####	0.4
9/6/2011	0.3	9/6/2011	0.2	#####	0.3	#####	0.4
9/7/2011	0.3	9/7/2011	0.2	#####	0.3	#####	0.4
9/8/2011	0.3	9/8/2011	0.2	#####	0.3	#####	0.4
9/9/2011	0.3	9/9/2011	0.2	#####	0.3	#####	0.4

I-26

[London](#)

Reserve System

Underwriter	Security purchased by the Enterprise	LIBOR-Based Interest Rate	CUSIP	Risk Factors language: Underwriters may rip you off by manipulating your reference index	Reviewer
Bank of America	BAFC 2007	1mL + 16	05952DAA1	FALSE	Timothy Lee
Barclays Capital	FHLT 2005	1mL + 26	35729PMA	FALSE	Timothy Lee
		Tied to mortgage rates, which are keyed inter alia to 6m and 12m			
Citibank	CMLTI 200	LIBOR	17312YAB8	FALSE	Timothy Lee
Deutsche Bank	DBALT 200	1mL + 19	25151XAE1	FALSE	Timothy Lee
JPMorgan	JPMAC 200	1mL + 13	46630BAA4	FALSE	Timothy Lee
RBS	OOMLT 200	1mL + 14	68402YAA4	FALSE	Timothy Lee
UBS	MABS 200	1mL + 25	57643LJR8	FALSE	Timothy Lee
HSBC	FFML 2006	1mL + 13	32028PAA3	FALSE	Timothy Lee

Re: Files

Item ID: 32323
From: Timothy Lee <timoth31@gmail.com>
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: Re: Files
Sent: December 11, 2012 8:56 PM
Received: December 11, 2012 8:56 PM

On Tue, Dec 11, 2012 at 4:45 PM, Lee, Timothy <Timothy.Lee@fhfaoig.gov > wrote:

Timothy Lee
Senior Policy Advisor, FHFA-OIG
202-730-2821

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-- ----- Timothy Lee 646-359-3710 timoth31@gmail.com

Attachment #1

LIBOR memo Dec 12.docx

Original view

14 pages (displayed on pages 3 to 16)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis, Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams

in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate instruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

To estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

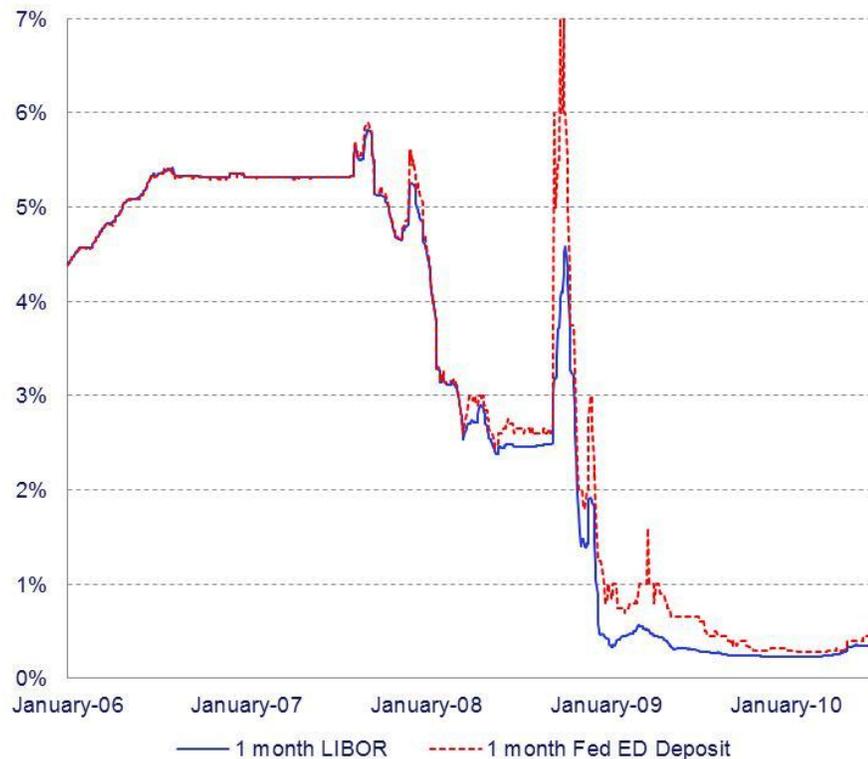
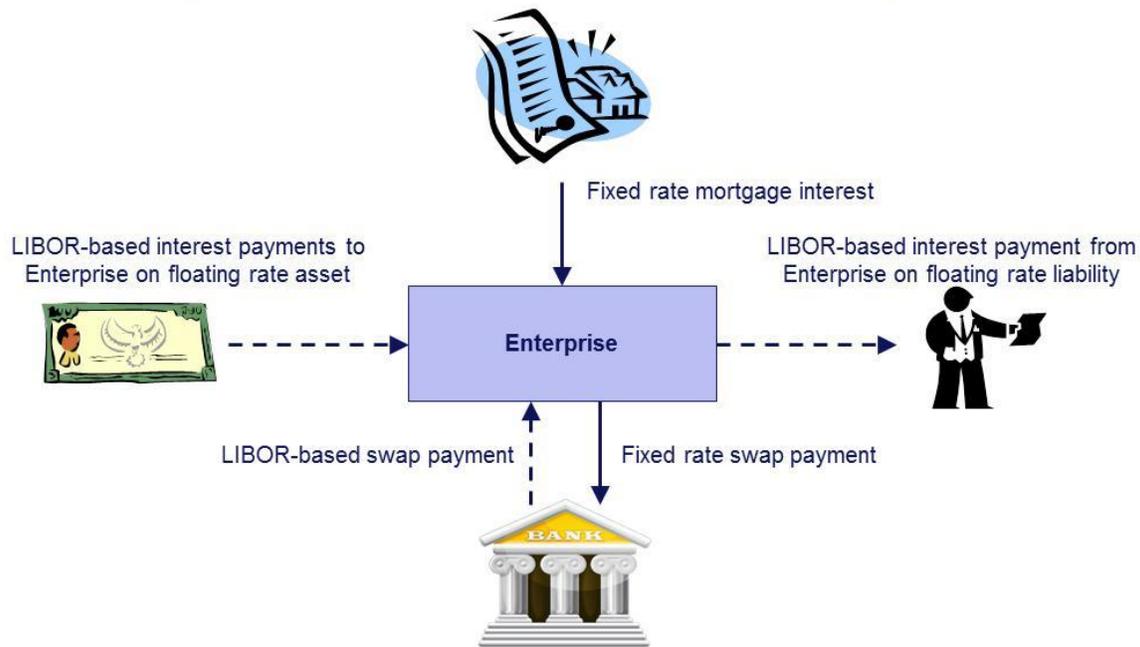


Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 3 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.¹⁹ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²⁰ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²¹ However, our review of a small sample of offering documents for the

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

Enterprises' floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor

among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²²

Figure 3.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these

records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To gauge the effect of possible LIBOR manipulation on the Enterprises, FHFA-OIG undertook a three-step analytical process.

Step 1. LIBOR Benchmarks

First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d Specifically, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as “the most widely used ‘benchmark’ or reference rate for short term interest rates.”
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indexes revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not

brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

Finally, using these figures, we estimated the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship. We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

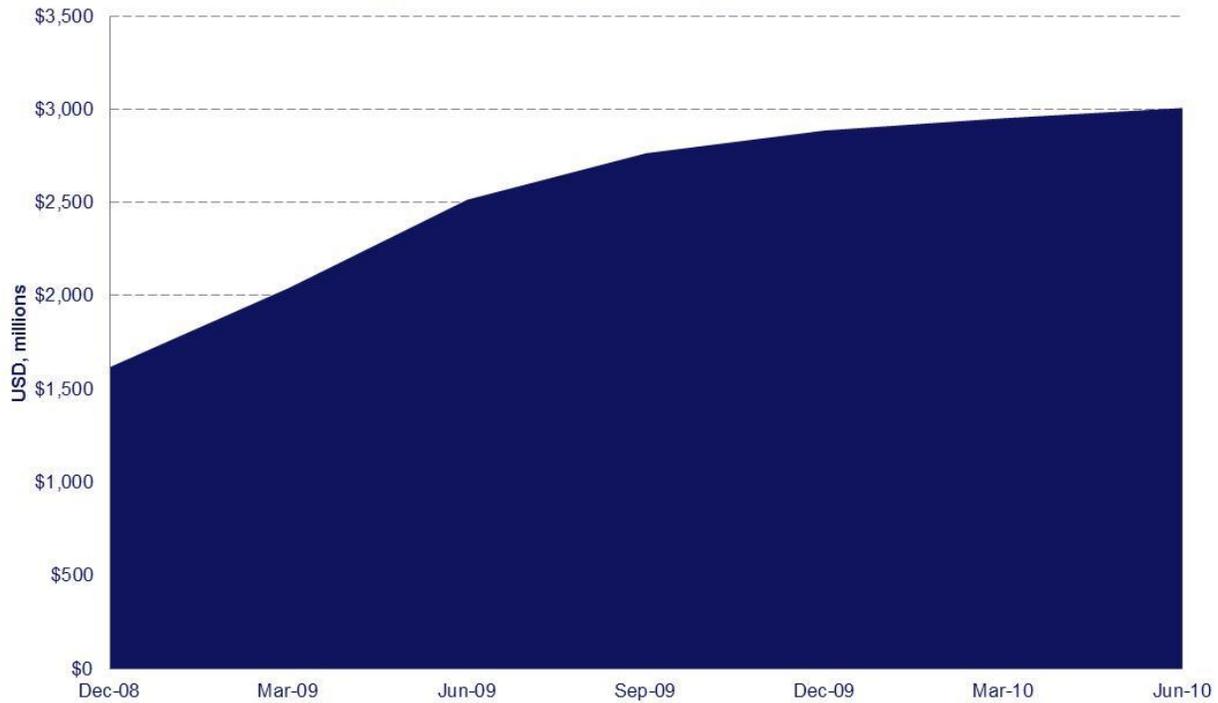
- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,²³ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfaoig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ¹⁹ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²⁰ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²¹ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²² At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²³ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.

FW: Files

Item ID: 32325
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: (b) (6) </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=05bcf3c9dd0c4179b9e2003881c64117-(b) (6)>
Subject: FW: Files
Sent: December 12, 2012 7:29 AM
Received: December 12, 2012 7:29 AM

Hi (b) (6)

Could you run a compare documents against "Libor memo final.doc" in the Libor directory on opors SharePoint space and send me the result?

Thanks,

Tim

Sent from my Windows Phone

From:

Timothy Lee

Sent:

12/11/2012 20:56

To:

Lee, Timothy

Subject:

Re: Files

On Tue, Dec 11, 2012 at 4:45 PM, Lee, Timothy
< Timothy.Lee@fhfaig.gov > wrote:

Timothy Lee

Senior Policy Advisor, FHFA-OIG

202-730-2821

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--

Timothy Lee

646-359-3710

timoth31@gmail.com

Attachment #1

LIBOR memo Dec 12.docx

Original view

14 pages (displayed on pages 3 to 16)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis, Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams

in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate instruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

To estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

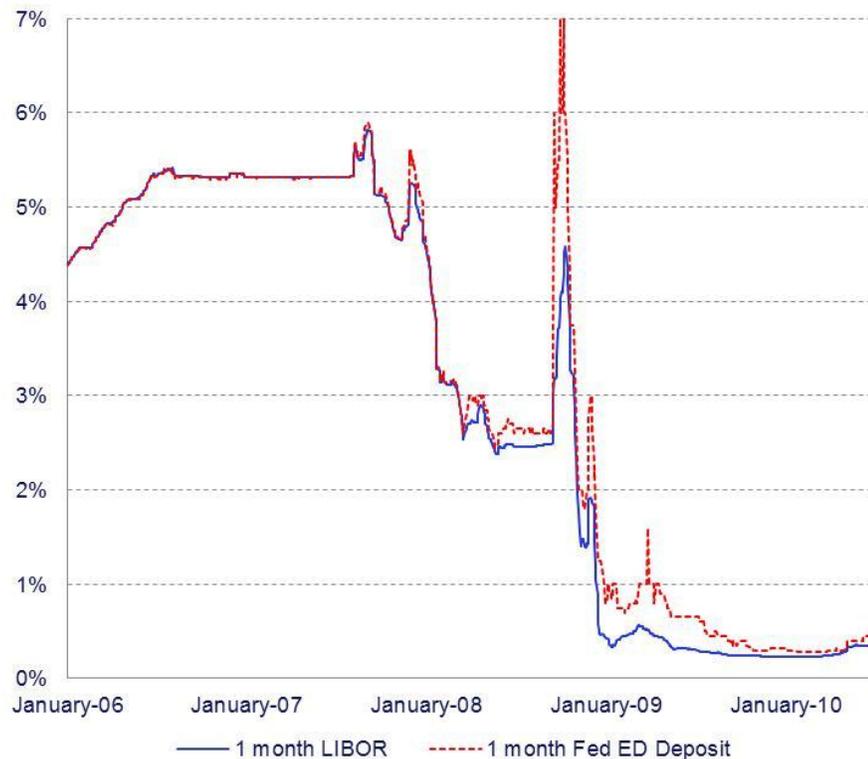
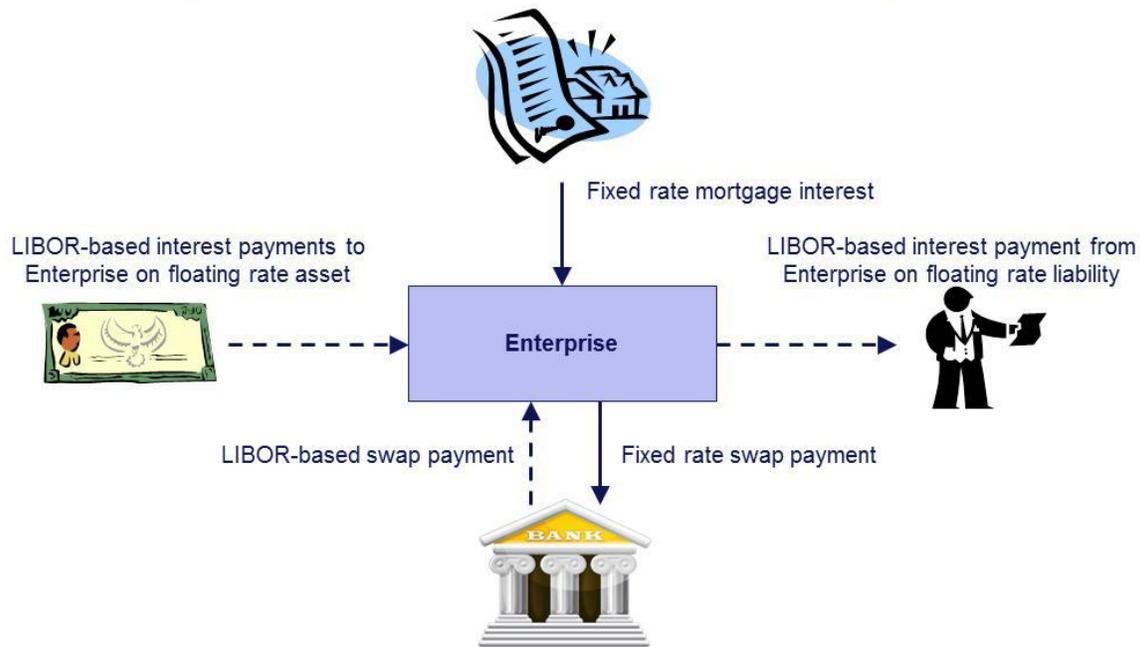


Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 3 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.¹⁹ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²⁰ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²¹ However, our review of a small sample of offering documents for the

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

Enterprises' floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor

among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²²

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these

Figure 3.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To gauge the effect of possible LIBOR manipulation on the Enterprises, FHFA-OIG undertook a three-step analytical process.

Step 1. LIBOR Benchmarks

First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d Specifically, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as “the most widely used ‘benchmark’ or reference rate for short term interest rates.”
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indexes revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not

brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

Finally, using these figures, we estimated the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship. We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

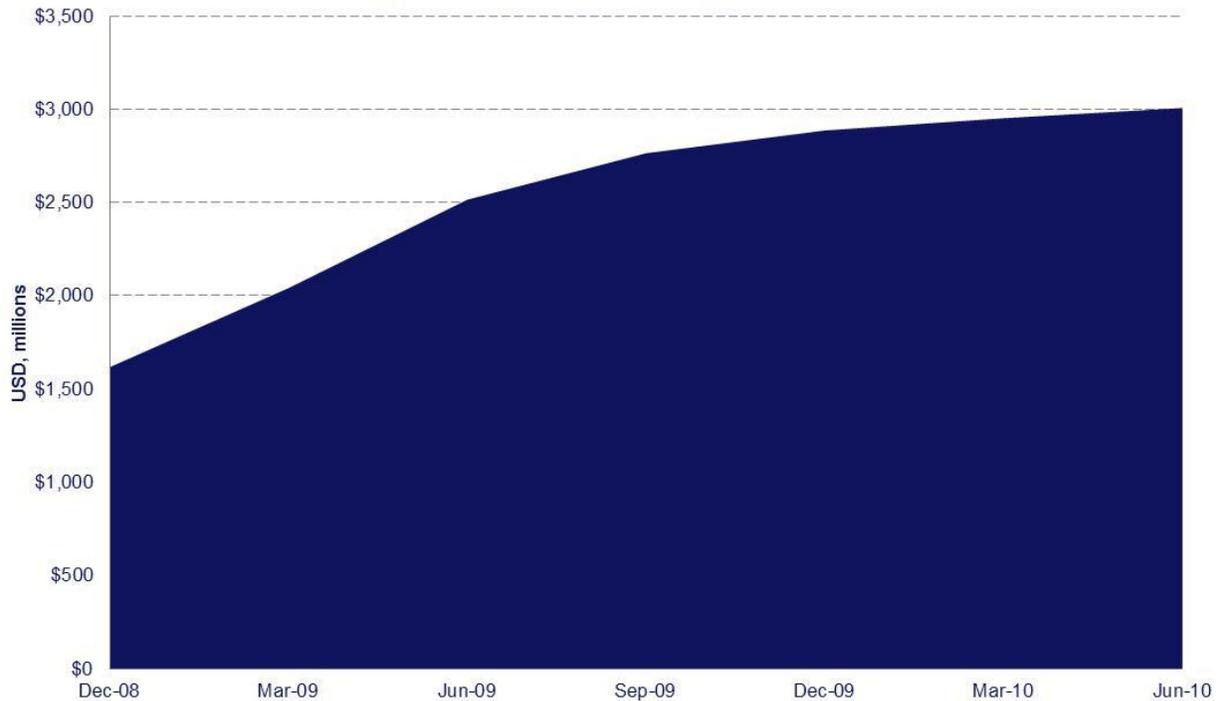
- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,²³ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfaoig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
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- ¹⁹ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²⁰ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²¹ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²² At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²³ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.

RE: Files

Item ID: 32324
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: (b) (6) </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=05bcf3c9dd0c4179b9e2003881c64117-(b) (6)>
Subject: RE: Files
Sent: December 12, 2012 7:45 AM
Received: December 12, 2012 7:45 AM

That is fine, I am not in until 9
Sent from my Windows Phone
From:

(b) (6)
Sent:
12/12/2012 7:31

To:
Lee, Timothy
Subject:
RE: Files

Good morning Tim,

I will be able to do this in approximately 20 minutes. Is that alright?

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From: Lee, Timothy

Sent: Wednesday, December 12, 2012 7:29 AM

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Hi (b) (6)

Could you run a compare documents against "Libor memo final.doc" in the Libor directory on opors SharePoint space and send me the result?

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Subject:

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Timothy Lee
Senior Policy Advisor, FHFA-OIG
202-730-2821

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--

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Attachment #1
image001.png
Image



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Program Specialist
Office of Inspector General
Federal Housing Finance Agency
400 7th Street, SW, Room 3.265
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Office:

(b) (6)

Mobile:

RE: Files

Item ID: 32320
From: (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: Files
Sent: December 12, 2012 8:27 AM
Received: December 12, 2012 8:27 AM

Attached is the comparison document. Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error, permanently delete the e-mail and any attachments; and do not save, copy, disclose, or use any part of the information contained therein. Call the sender if you have questions. From: Lee, Timothy Sent: Wednesday, December 12, 2012 7:29 AM To: (b) (6) Subject: FW: Files Hi (b) (6) Could you run a compare documents against "Libor memo final.doc" in the Libor directory on opors SharePoint space and send me the result? Thanks, Tim Sent from my Windows Phone From: Timothy Lee Sent: 12/11/2012 20:56 To: Lee, Timothy Subject: Re: Files On Tue, Dec 11, 2012 at 4:45 PM, Lee, Timothy <Timothy.Lee@fhfaoig.gov > wrote: ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821 Confidentiality Notice: The information in this email and any attachments may be confidential or privileged under applicable law, or otherwise protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this email, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you received this email in error, please permanently delete it and any attachments, and do not save, copy, disclose, or rely on any part of the information. Please call the OIG at 202-730-4949 if you have any questions or to let us know you received this email in error. -- ----- Timothy Lee 646-359-3710 timoth31@gmail.com

Attachment #1

LIBOR Final and Dec 12 comparison.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

| The interest due for such floating rate obligationsinstruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

| As a first step in our analysis To estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

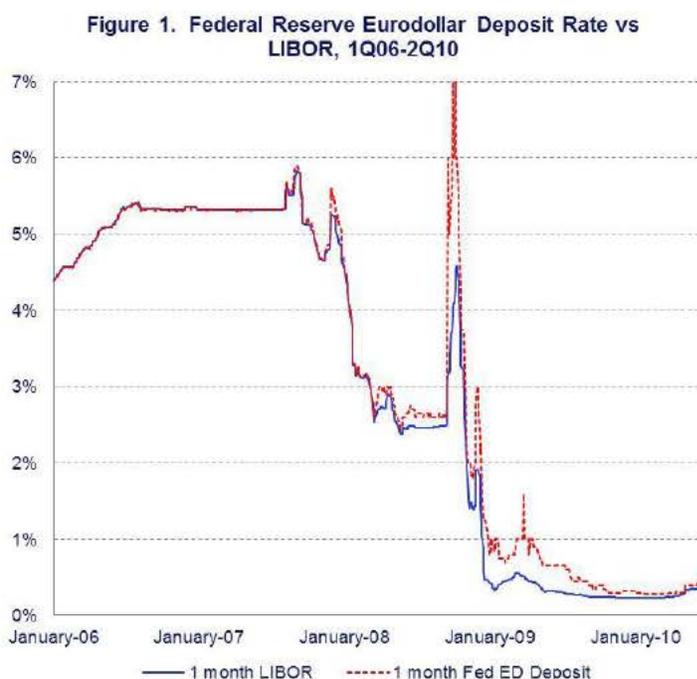
However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

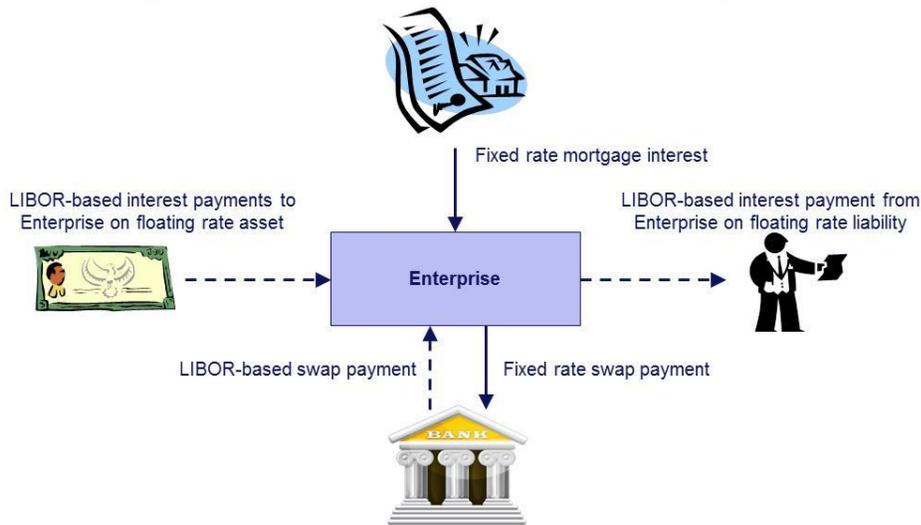
This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

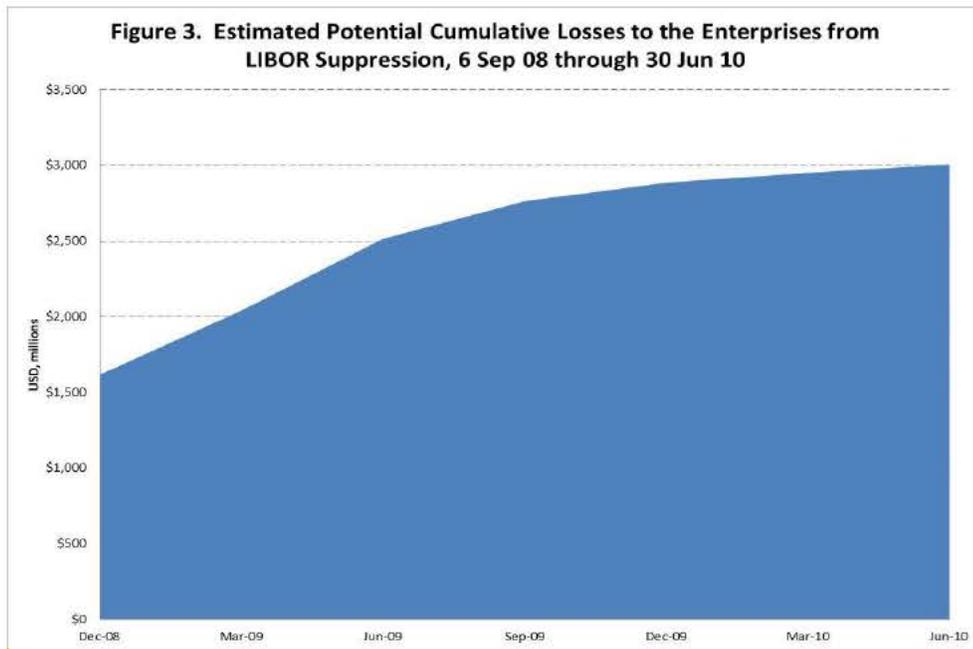
To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- ~~First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.~~^d
- ~~Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.~~

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^e



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Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,⁴⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^f

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 43 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of

^e Further details on our methodology are available in the Appendix.

^f We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007's ten leading underwriters of "private label" mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises'

floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Figure 5.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.
- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To ~~estimate gauge~~ the ~~Enterprises' potential losses due to effect of possible~~ LIBOR manipulation; ~~we drew on two principal sources of information~~ the Enterprises, FHFA-OIG undertook a ~~three-step analytical process~~.

Step 1. LIBOR Benchmarks

~~First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.~~⁸ ~~First, Specifically,~~ we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month ~~indices indexes~~ revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. ~~The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument."~~ Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

⁸ ~~To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.~~

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.

- Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
- Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

Finally, using these figures, we estimated the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship. We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

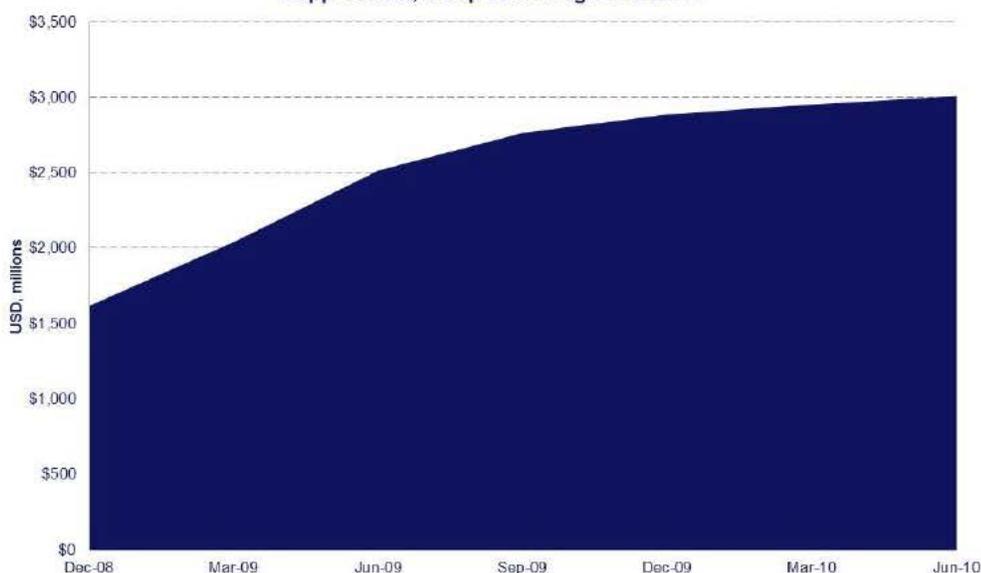
We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,²⁴ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^h

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer

^h We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more ~~accurate and precise~~exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)," July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)," September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)," January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

²⁰ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²¹ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²² See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²⁴ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

Attachment #2

image001.png

Image



(b) (6)

Program Specialist
Office of Inspector General
Federal Housing Finance Agency
400 7th Street, SW, Room 3.265
Washington, DC, 20024

Office:

Mobile:

(b) (6)

Revised LIBOR Memo

Item ID: 32326
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Cc: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>, Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: Revised LIBOR Memo
Sent: December 12, 2012 9:04 AM
Received: December 12, 2012 9:04 AM

Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Final and Dec 12 comparison.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

| The interest due for such floating rate obligations/instruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

| As a first step in our analysis To estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

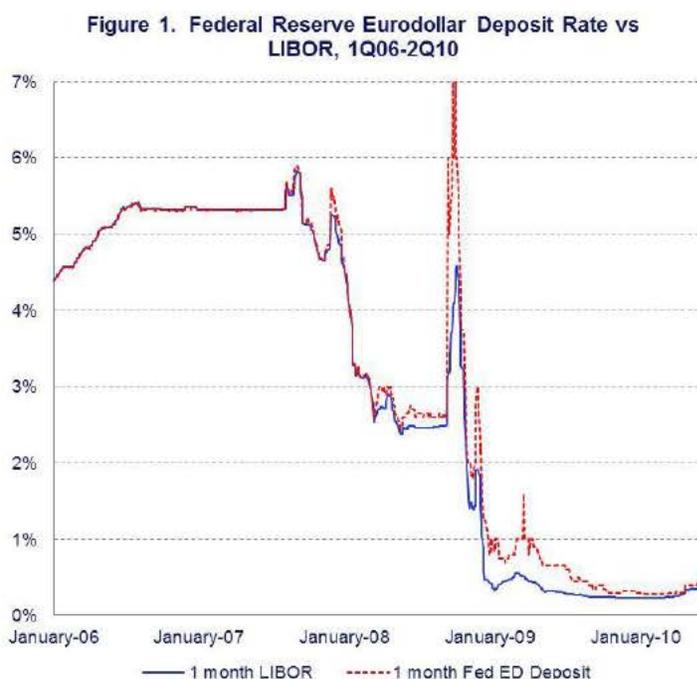
However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

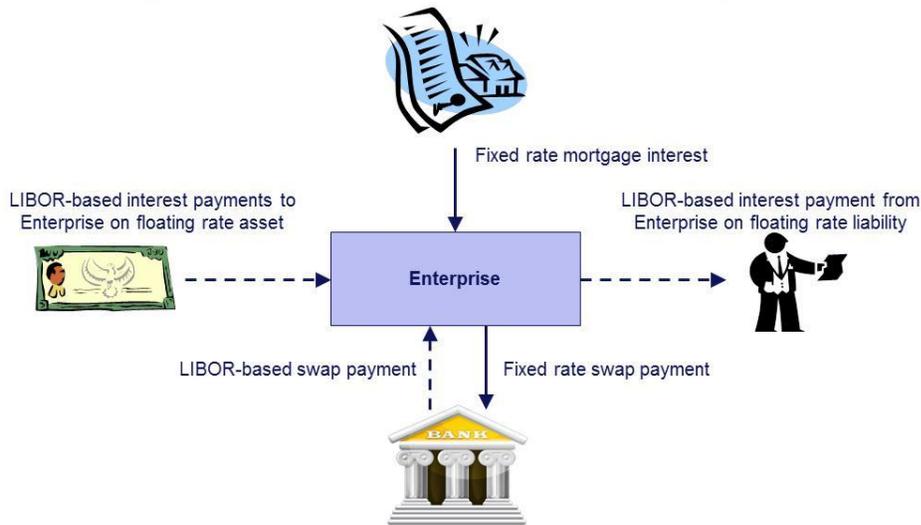
This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

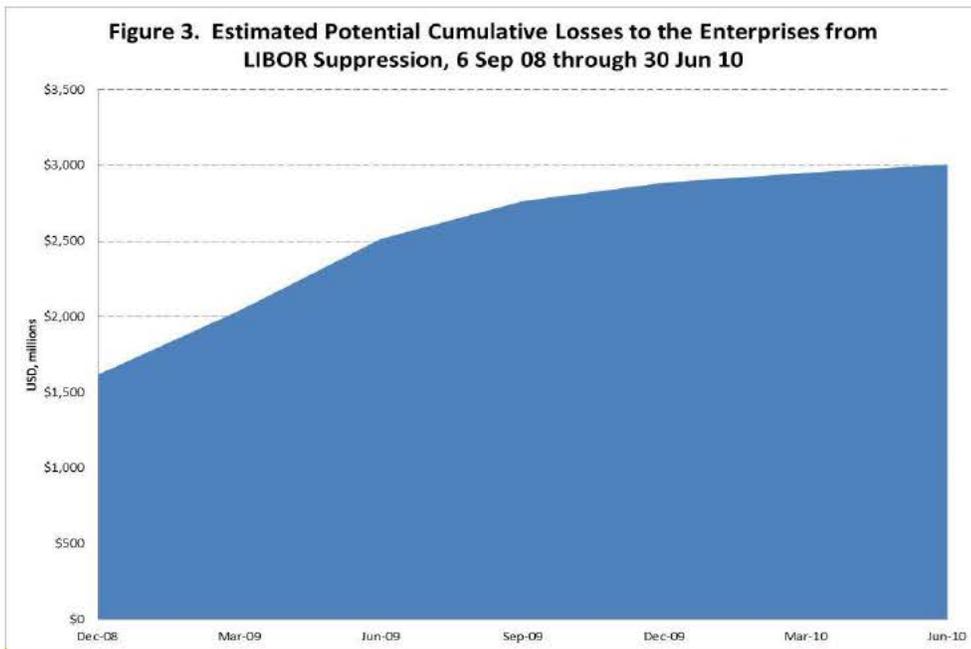
To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^e



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Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,⁴⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^f

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 43 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of

^e Further details on our methodology are available in the Appendix.

^f We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007's ten leading underwriters of "private label" mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises'

floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Figure 5.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.
- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To ~~estimate/gauge~~ the ~~Enterprises' potential losses due to effect of possible~~ LIBOR manipulation; ~~we drew on two principal sources of information~~ the Enterprises, FHFA-OIG undertook a ~~three-step analytical process~~.

Step 1. LIBOR Benchmarks

~~First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.~~⁸ ~~First, Specifically,~~ we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month ~~indices/indexes~~ revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. ~~The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument."~~ Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

⁸ ~~To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.~~

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.

- Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
- Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

Finally, using these figures, we estimated the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship. We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

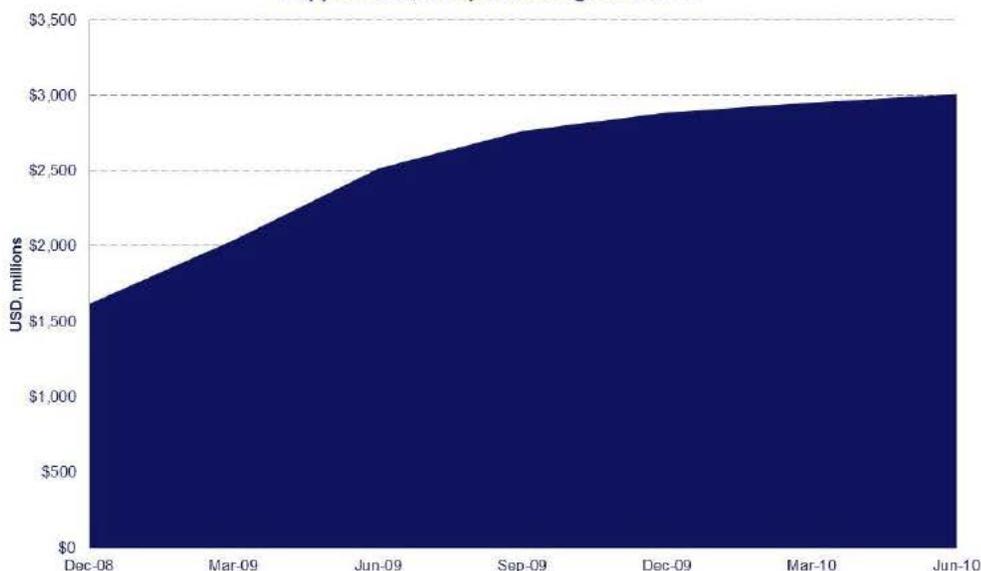
We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,²⁴ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^h

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer

^h We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more ~~accurate and precise~~exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)," July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)," September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)," January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

²⁰ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²¹ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²² See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²⁴ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

Attachment #2

LIBOR memo Dec 12.docx

Original view

14 pages (displayed on pages 20 to 33)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

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FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

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Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams

in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate instruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

To estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

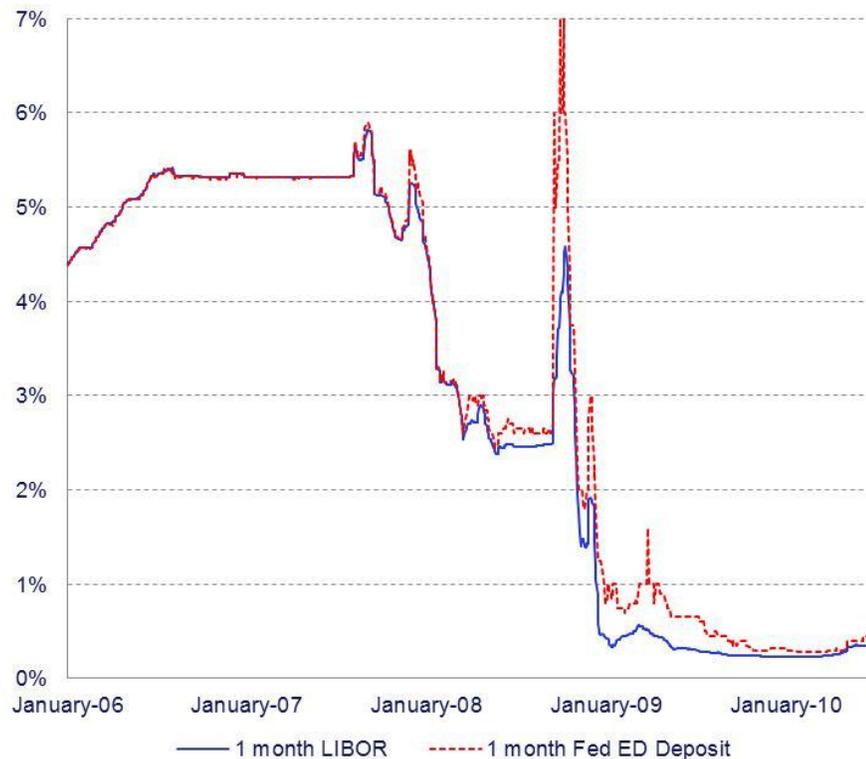
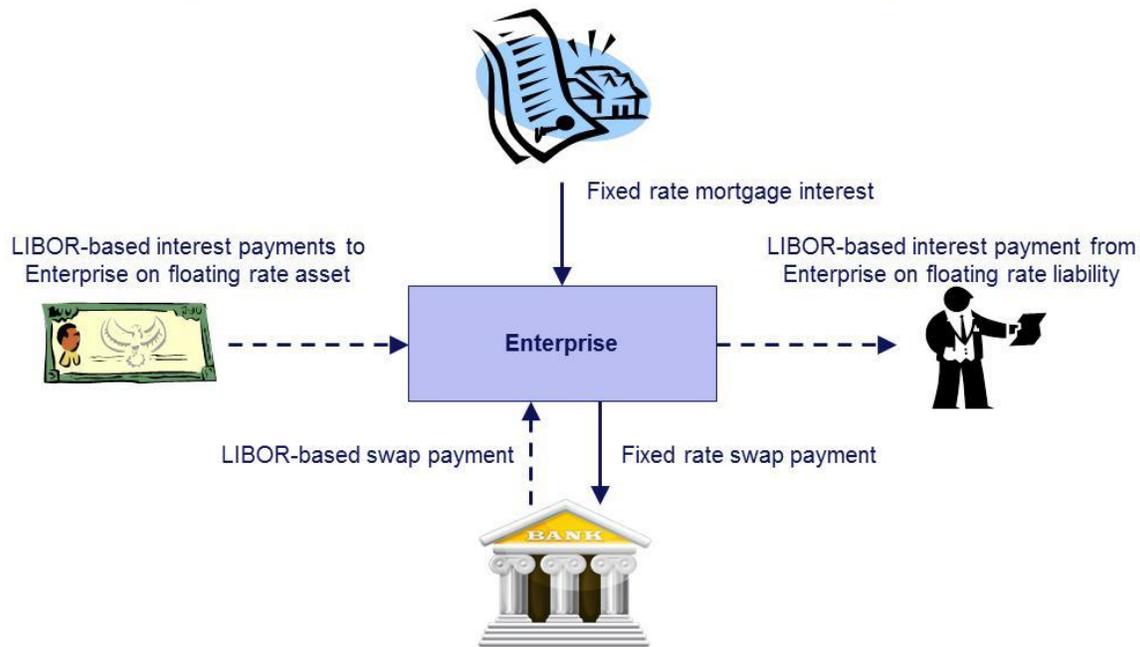


Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 3 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.¹⁹ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²⁰ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²¹ However, our review of a small sample of offering documents for the

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

Enterprises' floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor

among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²²

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these

Figure 3.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To gauge the effect of possible LIBOR manipulation on the Enterprises, FHFA-OIG undertook a three-step analytical process.

Step 1. LIBOR Benchmarks

First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d Specifically, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as “the most widely used ‘benchmark’ or reference rate for short term interest rates.”
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indexes revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not

brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

Finally, using these figures, we estimated the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship. We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

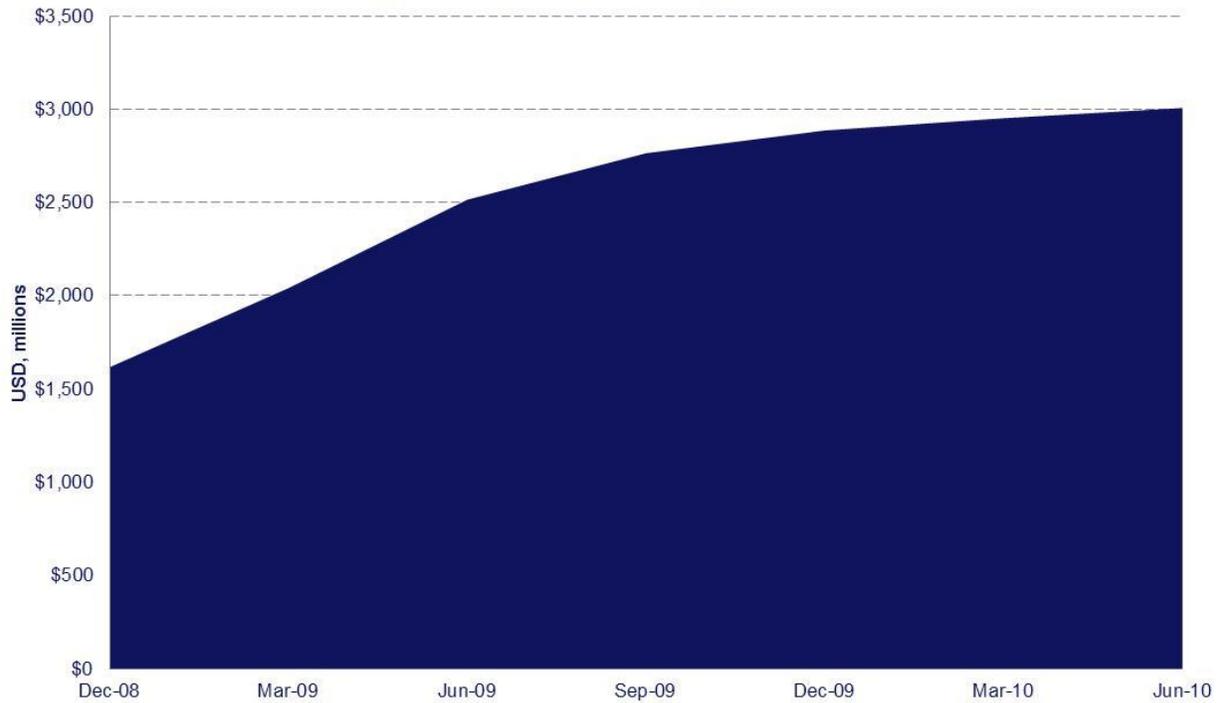
- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

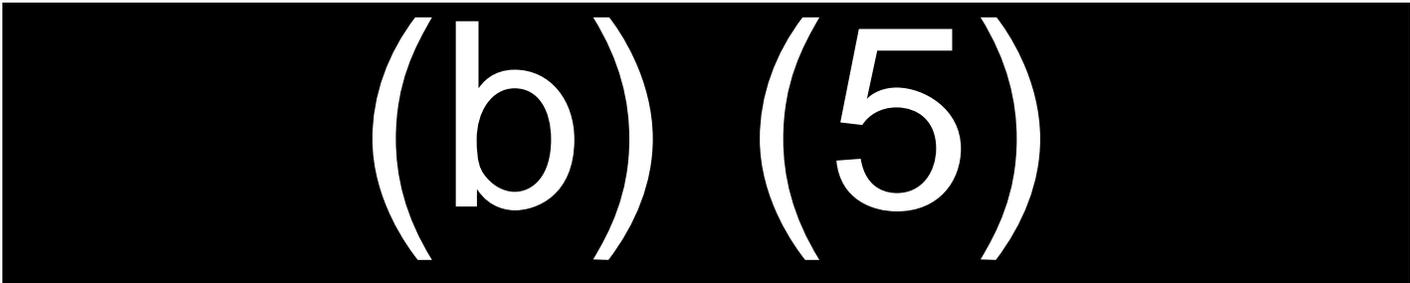
Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,²³ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis



However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfaoig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ¹⁹ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²⁰ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²¹ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²² At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²³ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.

RE: Files

Item ID: 32328
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: (b) (6) </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=05bcf3c9dd0c4179b9e2003881c64117-(b) (6)>
Subject: RE: Files
Sent: December 12, 2012 9:38 AM
Received: December 12, 2012 9:38 AM

Many thanks

Sent from my Windows Phone

From:

(b) (6)

Sent:

12/12/2012 8:27

To:

Lee, Timothy

Subject:

RE: Files

Attached is the comparison document.

Confidentiality Notice: The information contained

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From: Lee, Timothy

Sent: Wednesday, December 12, 2012 7:29 AM

To: (b) (6)

Subject: FW: Files

Hi (b) (6),

Could you run a compare documents against "Libor memo final.doc" in the Libor directory on opors SharePoint space and send me the result?

Thanks,

Tim

Sent from my Windows Phone

From:

Timothy Lee

Sent:

12/11/2012 20:56

To: Lee, Timothy

Subject:

Re: Files

On Tue, Dec 11, 2012 at 4:45 PM, Lee, Timothy <Timothy.Lee@fhfaoig.gov> wrote:

Timothy Lee

Senior Policy Advisor, FHFA-OIG

202-730-2821

Confidentiality Notice: The information in this email and any attachments may be confidential or privileged under applicable law, or otherwise protected from disclosure to anyone other than the intended recipient(s). Any use, distribution,

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delete it and any attachments, and do not save, copy, disclose, or rely on any part of the information. Please call the OIG at

202-730-4949 if you have any questions or to let us know you received this email in error.

--

Timothy Lee

646-359-3710

timoth31@gmail.com

Attachment #1
image001.png
Image



(b) (6)

Program Specialist
Office of Inspector General
Federal Housing Finance Agency
400 7th Street, SW, Room 3.265
Washington, DC 20024

Office:

Mobile:

(b) (6)

RE: Revised LIBOR Memo

Item ID: 32330
From: Wu, Simon (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Parker, Richard (b) (6)
Cc: Bloch, David (b) (6)
Subject: RE: Revised LIBOR Memo
Sent: December 12, 2012 10:35 AM
Received: December 12, 2012 10:35 AM

Thanks I will take a look... From: Lee, Timothy Sent: Wednesday, December 12, 2012 9:04 AM To: Parker, Richard
Cc: Wu, Simon; Bloch, David Subject: Revised LIBOR Memo Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

RE: Revised LIBOR Memo

Item ID: 32331
From: Wu, Simon (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Parker, Richard (b) (6)
Cc: Bloch, David (b) (6)
Subject: RE: Revised LIBOR Memo
Sent: December 12, 2012 11:14 AM
Received: December 12, 2012 11:14 AM

See edits by Rich and Simon...very minor. All looks good. From: Lee, Timothy Sent: Wednesday, December 12, 2012 9:04 AM To: Parker, Richard Cc: Wu, Simon; Bloch, David Subject: Revised LIBOR Memo Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Final and Dec 12 comparison (rprev)_Edits by Rich and Simon.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligationsinstruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis To gauge the effect of alleged LIBOR manipulation-estimate the Enterprises' losses, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

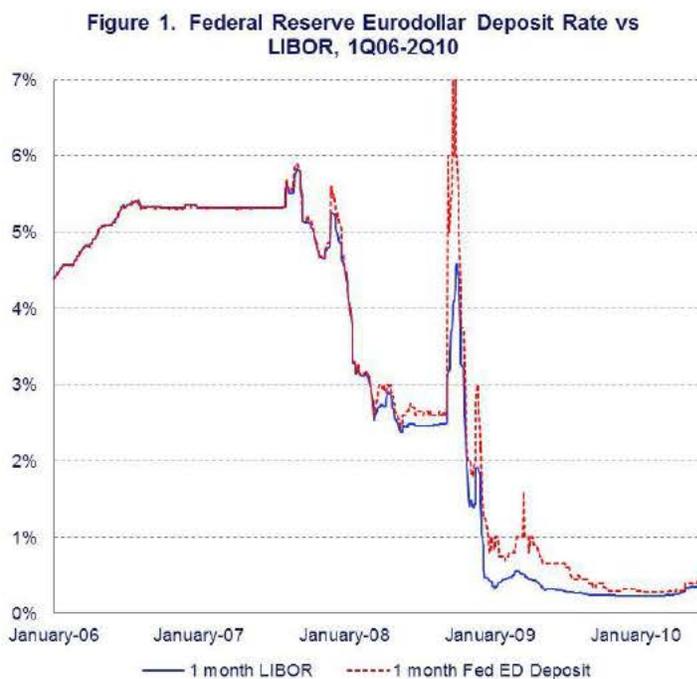
However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

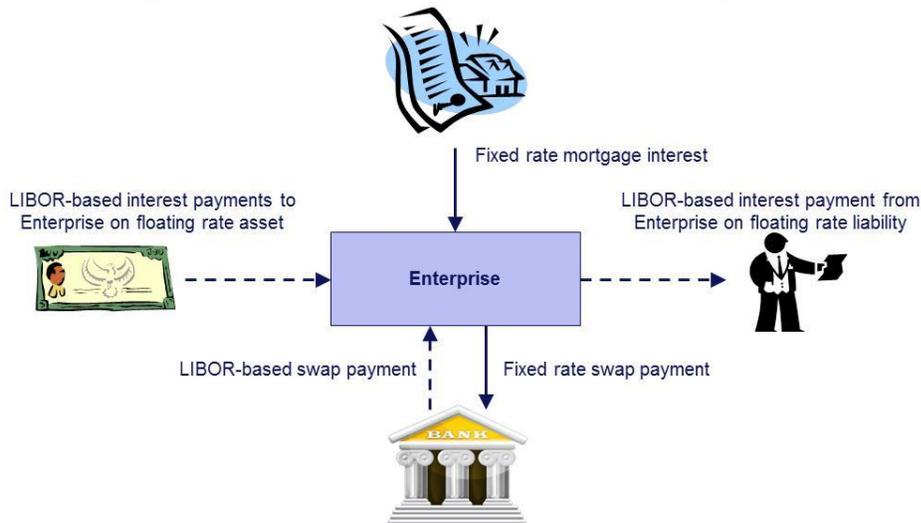
This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

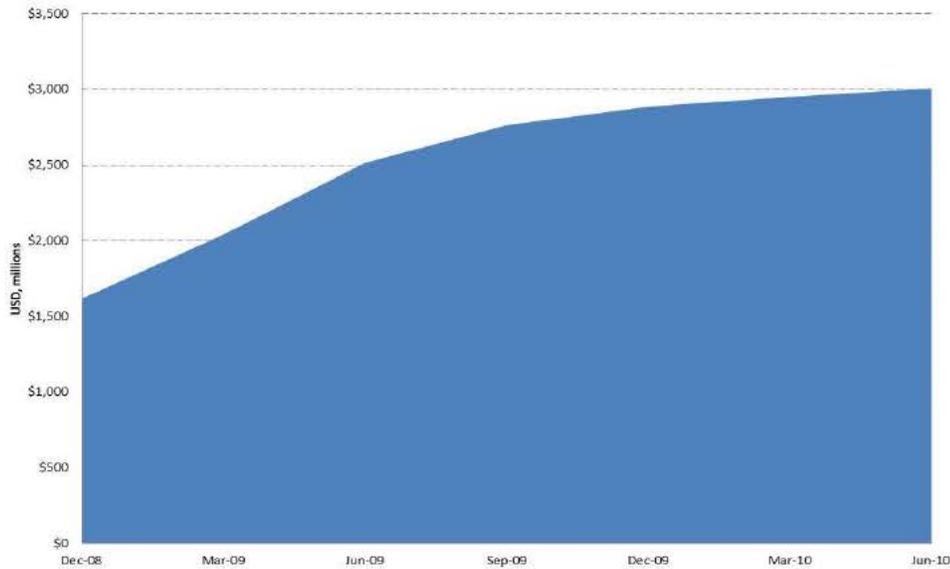
- ~~First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d~~
- ~~Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.~~

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^e

Figure 3. Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



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Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,⁴⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^f

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 43 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of

^e Further details on our methodology are available in the Appendix.

^f We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007's ten leading underwriters of "private label" mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises'

floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Figure 5.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.
- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix
Notes on Analytical Methodology

(b) (5)

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London ~~NY~~DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP [PLC](#)⁸, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month ~~indices~~ indexes revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. ~~The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument."~~ Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, ~~Chairman~~head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in

⁸ ~~To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.~~

derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.

- We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
- Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
- Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

(b) (5)

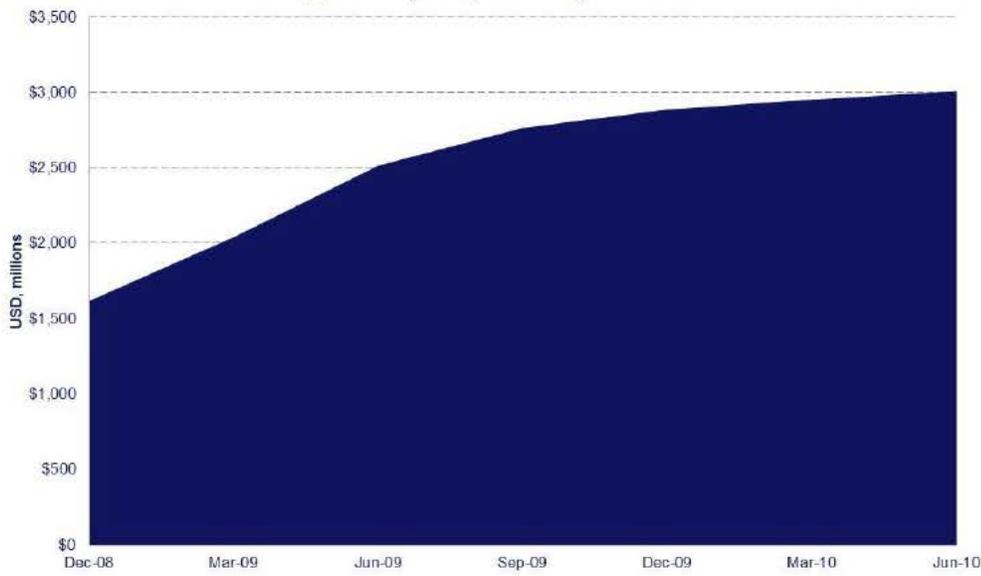
We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

(b) (5)

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

^h We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more ~~accurate and precise~~ exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)," July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)," September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)," January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

²⁰ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²¹ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²² See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²⁴ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

RE: Revised LIBOR Memo

Item ID: 32333
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>, Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Cc: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: RE: Revised LIBOR Memo
Sent: December 12, 2012 11:36 AM
Received: December 12, 2012 11:36 AM

Hi all, My only further comment is that "deviation" strikes me as superfluous, given that "divergence" is an appropriate precedent to "it" in the sentence. Otherwise, I am signed off. Should I get this cleaned up to circulate around the office? Tim
From: Wu, Simon Sent: Wednesday, December 12, 2012 11:14 AM To: Lee, Timothy; Parker, Richard Cc: Bloch, David Subject: RE: Revised LIBOR Memo See edits by Rich and Simon...very minor. All looks good.
From: Lee, Timothy Sent: Wednesday, December 12, 2012 9:04 AM To: Parker, Richard Cc: Wu, Simon; Bloch, David Subject: Revised LIBOR Memo
Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

RE: Revised LIBOR Memo

Item ID: 32334
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Wu, Simon (b) (6)
Cc: Bloch, David (b) (6)
Subject: RE: Revised LIBOR Memo
Sent: December 12, 2012 12:04 PM
Received: December 12, 2012 12:04 PM

No. Hang fire, pls. - R From: Lee, Timothy Sent: Wednesday, December 12, 2012 11:36 AM To: Wu, Simon; Parker, Richard Cc: Bloch, David Subject: RE: Revised LIBOR Memo Hi all, My only further comment is that "deviation" strikes me as superfluous, given that "divergence" is an appropriate precedent to "it" in the sentence. Otherwise, I am signed off. Should I get this cleaned up to circulate around the office? Tim From: Wu, Simon Sent: Wednesday, December 12, 2012 11:14 AM To: Lee, Timothy; Parker, Richard Cc: Bloch, David Subject: RE: Revised LIBOR Memo See edits by Rich and Simon...very minor. All looks good. From: Lee, Timothy Sent: Wednesday, December 12, 2012 9:04 AM To: Parker, Richard Cc: Wu, Simon; Bloch, David Subject: Revised LIBOR Memo Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

FW: Revised LIBOR Memo

Item ID: 32335
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Linick, Steve </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=28c2cf7b529749f09f7ceff9f71a1cd9-Steve Linic>
Cc: Seide, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=cfa4f6b9e6d0471b9611c0ed682b53eb-David Seide>
Subject: FW: Revised LIBOR Memo
Sent: December 12, 2012 1:51 PM
Received: December 12, 2012 1:51 PM

From: Wu, Simon Sent: Wednesday, December 12, 2012 11:14 AM To: Lee, Timothy; Parker, Richard Cc: Bloch, David Subject: RE: Revised LIBOR Memo See edits by Rich and Simon...very minor. All looks good. From: Lee, Timothy Sent: Wednesday, December 12, 2012 9:04 AM To: Parker, Richard Cc: Wu, Simon; Bloch, David Subject: Revised LIBOR Memo Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Final and Dec 12 comparison (rprev)_Edits by Rich and Simon.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

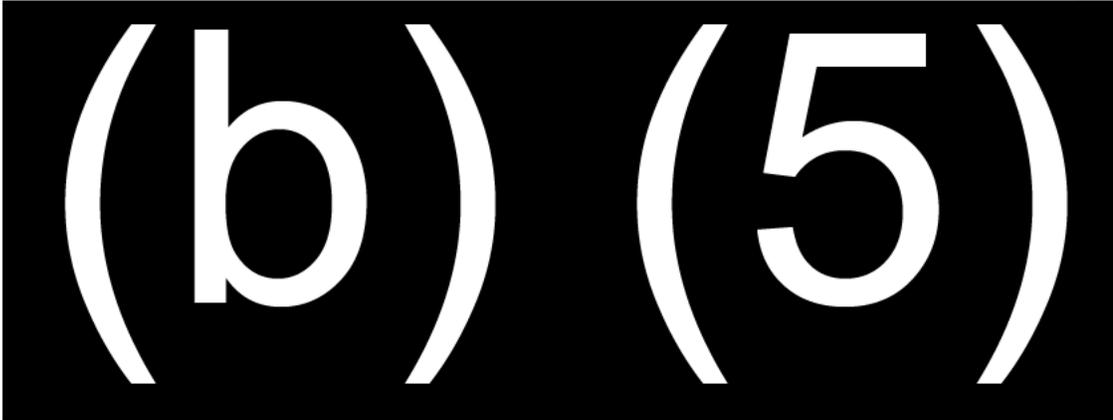
Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.



Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate ~~obligations~~~~instruments~~ is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

~~As a first step in our analysis~~To gauge the effect of alleged LIBOR manipulation ~~estimate the Enterprises' losses~~, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

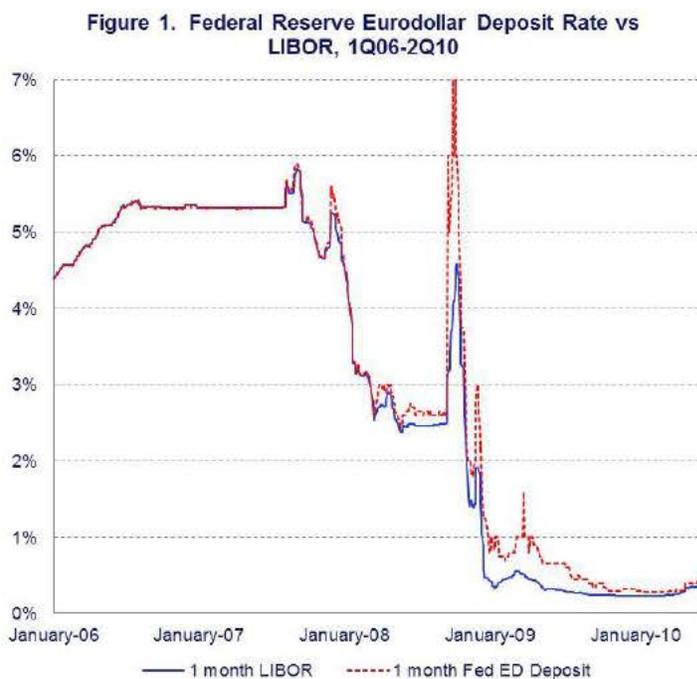
However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

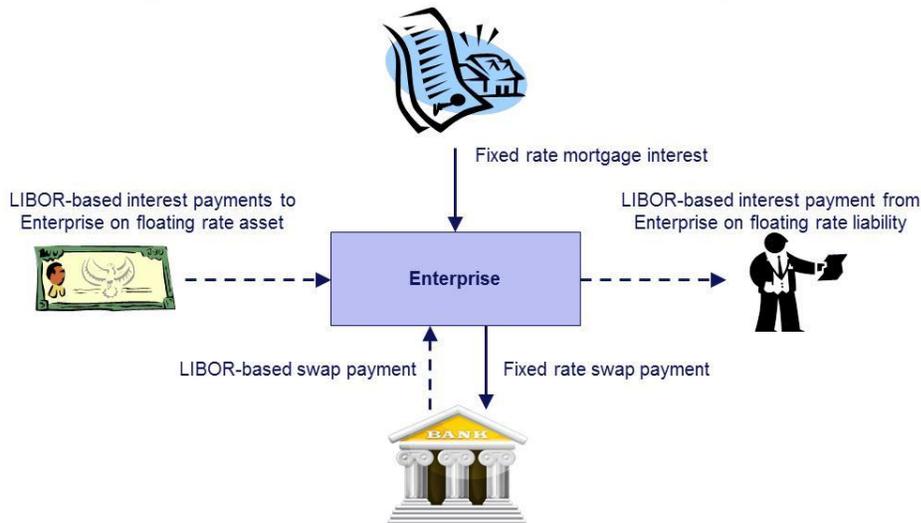
This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

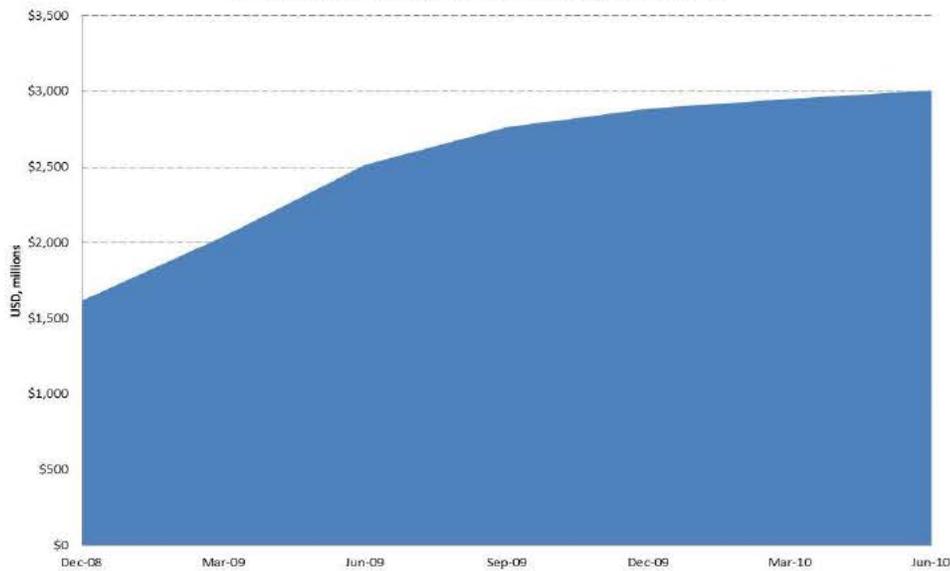
- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^e

Figure 3. Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



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Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,⁴⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^f

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 43 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of

^e Further details on our methodology are available in the Appendix.

^f We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007's ten leading underwriters of "private label" mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises'

floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Figure 5.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.
- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix Notes on Analytical Methodology

(b) (5)

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London ~~NY~~DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP [PLC](#)⁴, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month ~~indices~~ indexes revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. ~~The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument."~~ Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, ~~Chairman~~head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in

⁴ ~~To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.~~

derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.

- We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
- Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
- Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

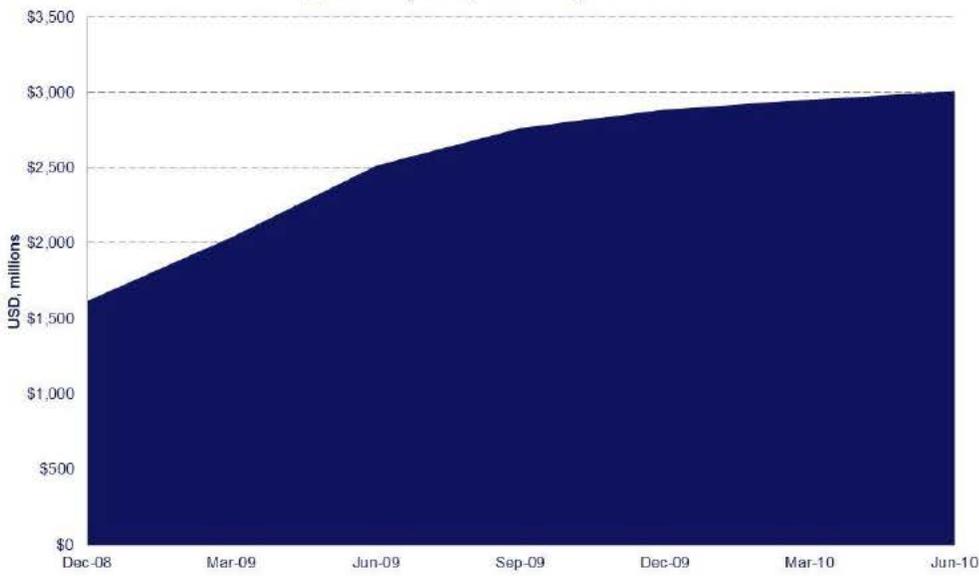
We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

(b) (5)

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

^h We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more ~~accurate and precise~~ exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)," July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)," September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)," January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

²⁰ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²¹ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²² See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

²⁴ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

FW: Revised LIBOR Memo

Item ID: 32337
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: FW: Revised LIBOR Memo
Sent: December 12, 2012 1:52 PM
Received: December 12, 2012 1:52 PM

FYI – forwarded just now at Steve’s request From: Lee, Timothy Sent: Wednesday, December 12, 2012 1:52 PM To: Linick, Steve Cc: Seide, David Subject: FW: Revised LIBOR Memo From: Wu, Simon Sent: Wednesday, December 12, 2012 11:14 AM To: Lee, Timothy; Parker, Richard Cc: Bloch, David Subject: RE: Revised LIBOR Memo See edits by Rich and Simon...very minor. All looks good. From: Lee, Timothy Sent: Wednesday, December 12, 2012 9:04 AM To: Parker, Richard Cc: Wu, Simon; Bloch, David Subject: Revised LIBOR Memo Hi Old Salt, Attached please find the revisions you requested, both clean and blacklined against the previous one. The changes should be self-explanatory; the narrative about rate movements stayed in the body, but all the technical discussion is now in the appendix. I kept the dates unchanged and have not updated the memo for recent events, which would have required additional research and time. Additionally, I stayed with the format of footnoting the body but putting hyperlinked references directly in the appendix. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Final and Dec 12 comparison (rprev)_Edits by Rich and Simon.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

Please find attached a staff memorandum that details my concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to alleged manipulation of the London Interbank Offered Rate (LIBOR) by a number of major financial institutions. As you know, on June 27, the Department of Justice announced an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation at other institutions are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11 they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises. To date, however, FHFA-OIG remains unaware of any steps taken by the Agency or the Enterprises to investigate the matter further.

(b) (5)



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate ~~obligations~~~~instruments~~ is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

~~As a first step in our analysis~~~~To gauge the effect of alleged LIBOR manipulation~~~~estimate the Enterprises' losses~~, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

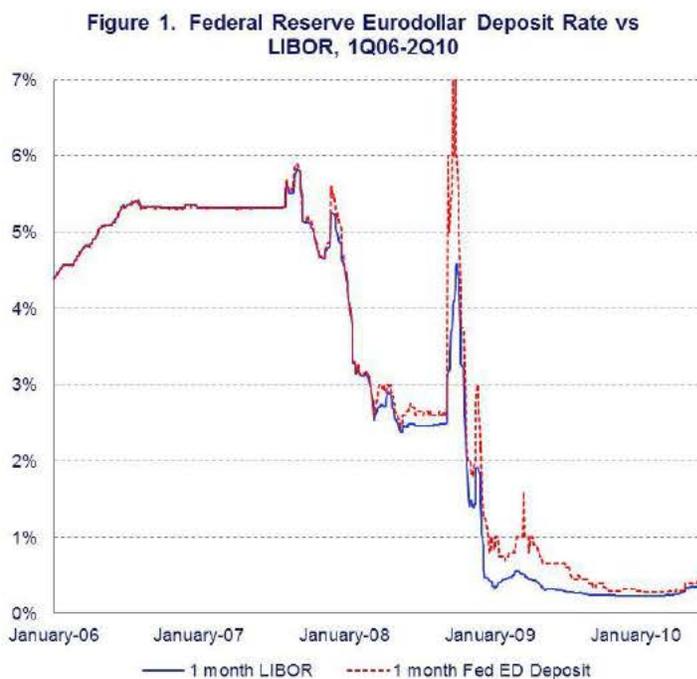
However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

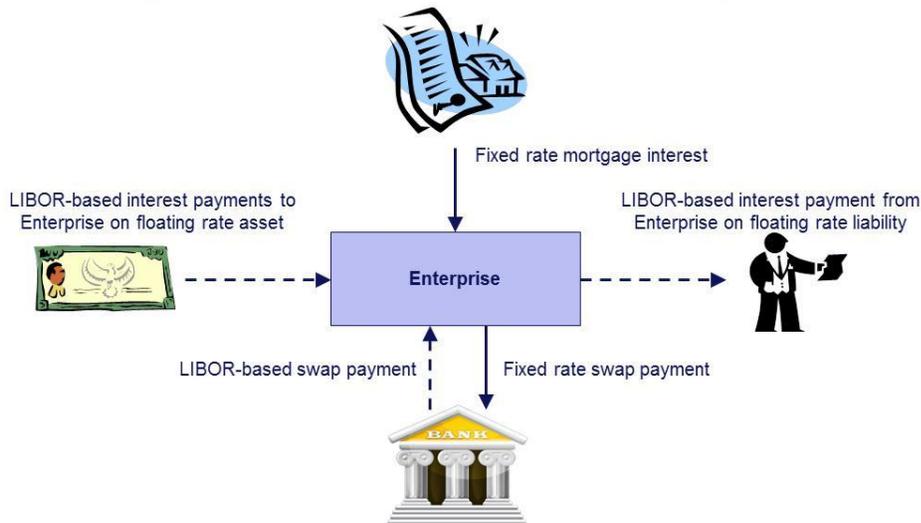
This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:



... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

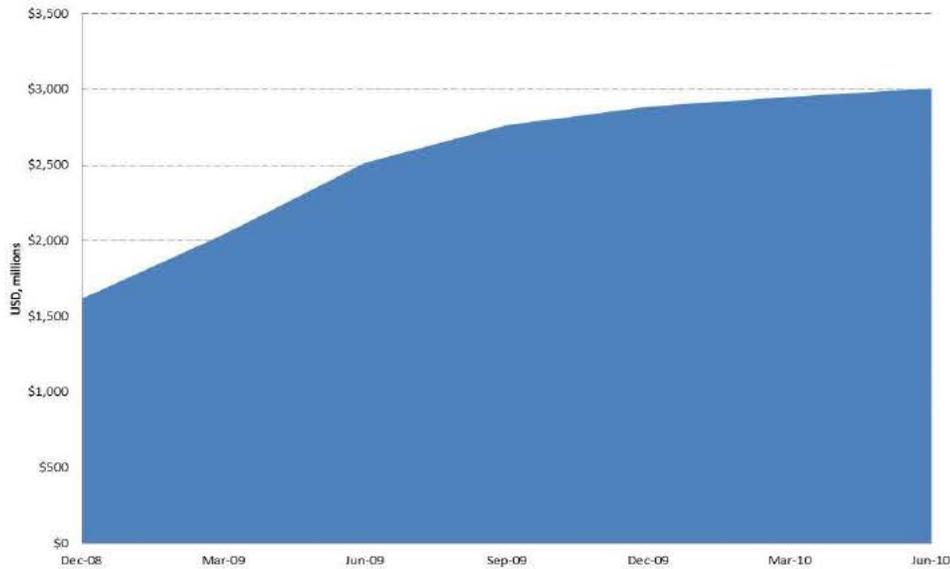
- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^d
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

^d To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^e

Figure 3. Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



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Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,⁴⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^f

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 43 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of

^e Further details on our methodology are available in the Appendix.

^f We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007's ten leading underwriters of "private label" mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises'

floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Figure 5.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises' public 10-K and 10-Q filings.
- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix
Notes on Analytical Methodology

(b) (5)

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\) \(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP [PLC](#), a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month ~~indices~~ [indexes](#) revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. ~~The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument."~~ Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, ~~Chairman~~ [head](#) of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in

⁸ [To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.](#)

derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.

- We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
- Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
- Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

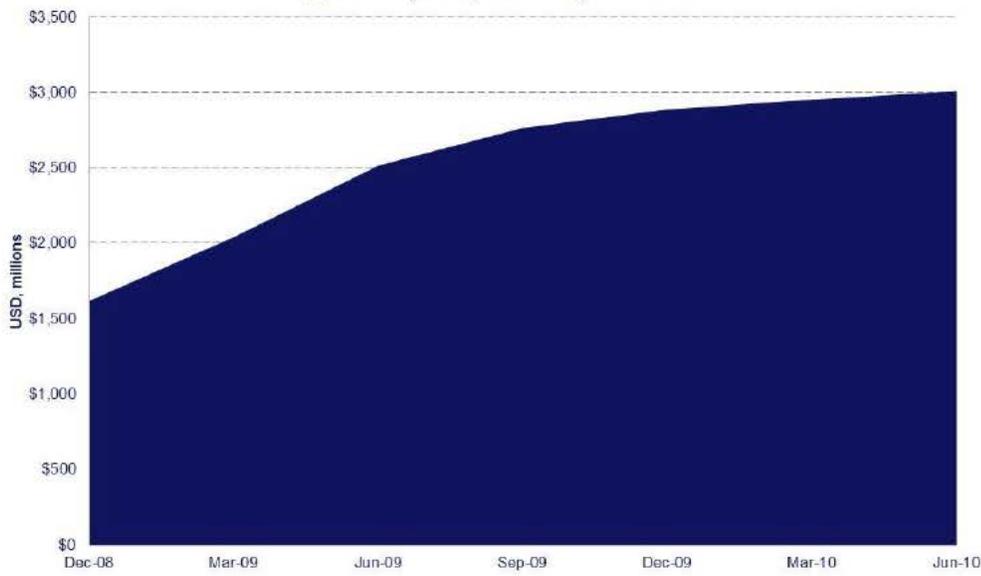
We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

(b) (5)

Estimated Potential Cumulative Losses to the Enterprises from LIBOR Suppression, 6 Sep 08 through 30 Jun 10



Limitations of Our Analysis

(b) (5)

^h We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more ~~accurate and precise~~ exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)," July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)," September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)," January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ ~~Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, “Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge”, July 30, 2012.~~

²⁰ Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

²¹ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²² See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

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A little more water for your Scotch

Item ID: 32340
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: A little more water for your Scotch
Sent: December 12, 2012 4:04 PM
Received: December 12, 2012 4:04 PM

Hi Rich, All the changes are in the appendix. I can always clean up once we get buyoff on direction. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Dec 13 Blackline.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

(b) (5)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis, Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

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Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

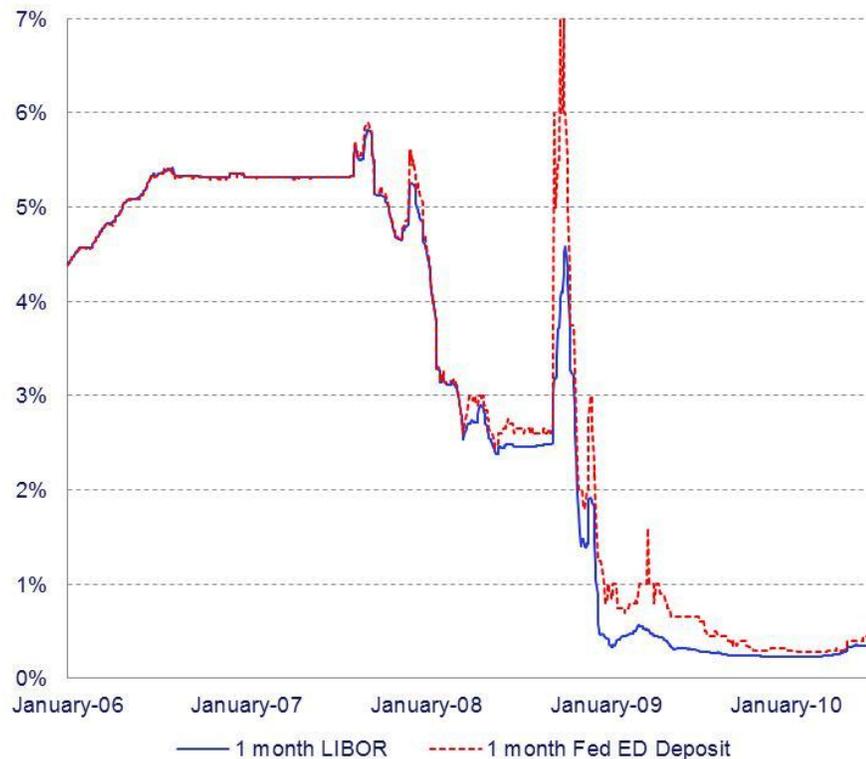
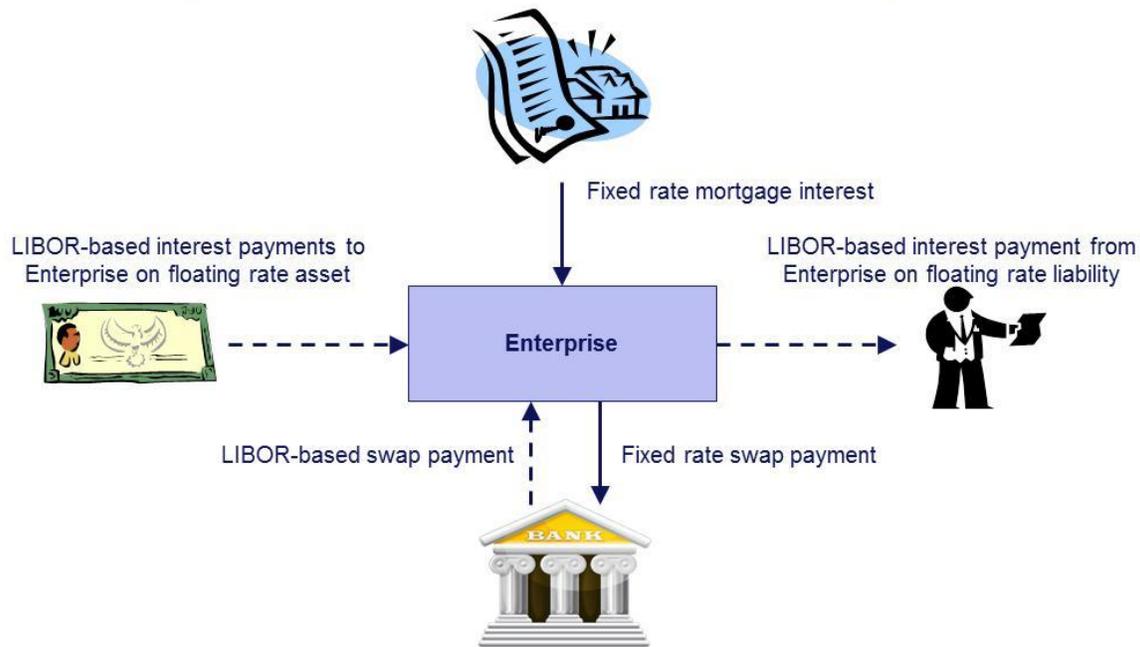


Figure 2. LIBOR-Based Payments to and From the Enterprises



To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.^c

With respect to the Enterprises’ interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 3 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.¹⁹ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²⁰ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²¹ However, our review of a small sample of offering documents for the

^c The attached appendix, *Notes on Analytical Methodology*, contains further details on FHFA-OIG’s approach to calculating LIBOR-related Enterprise losses.

Enterprises' floating-rate investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor

among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²²

Figure 3.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

Recommendations

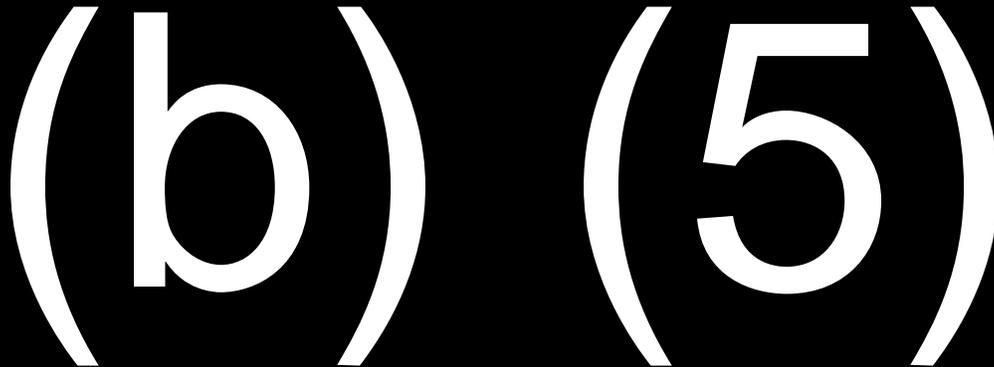
In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these

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- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
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Appendix Notes on Analytical Methodology



- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as “the most widely used ‘benchmark’ or reference rate for short term interest rates.”
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We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indexes revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, Chairman of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and

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the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Step 2: Review of Enterprises' Financial Statements

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

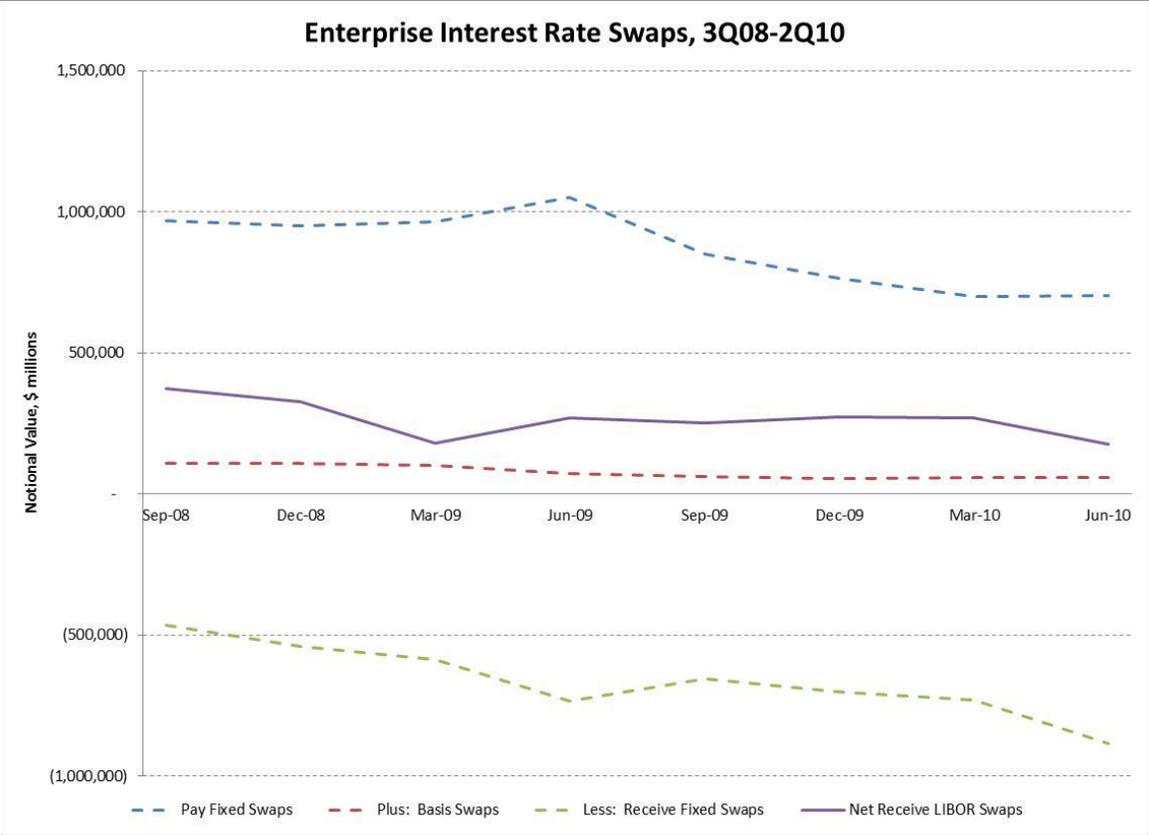
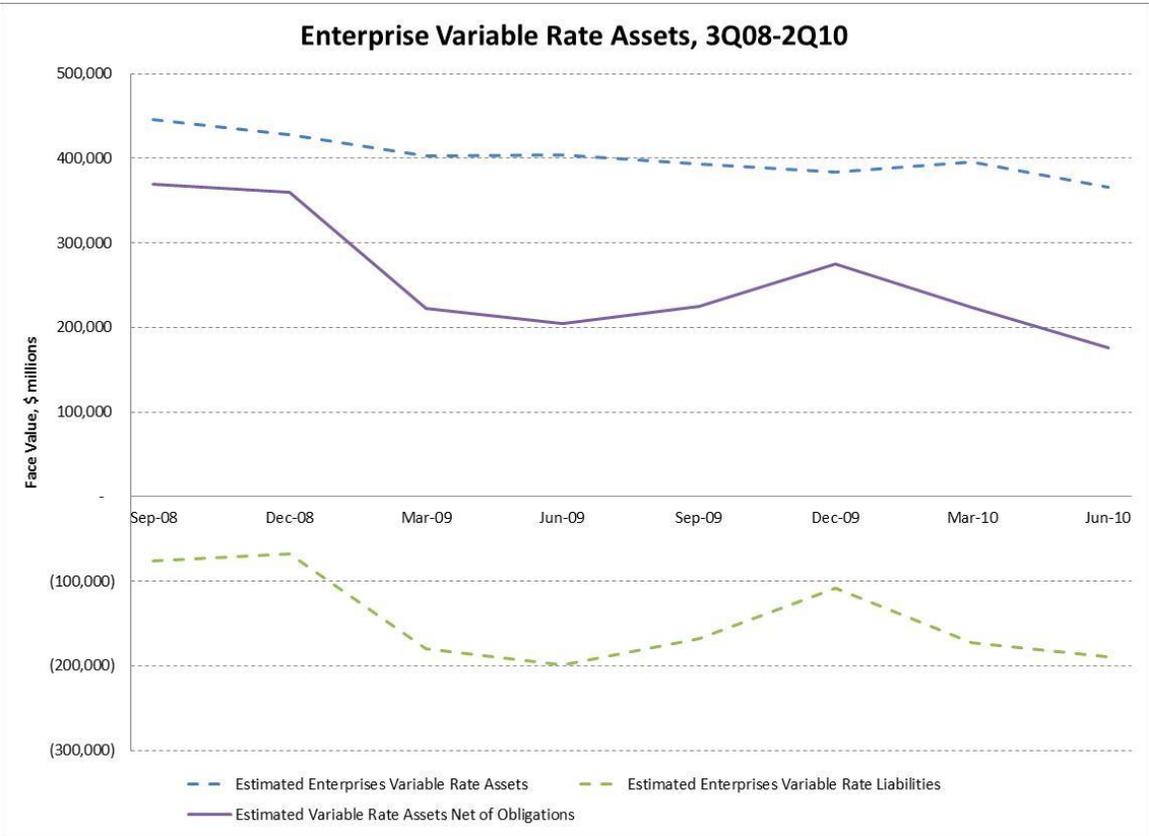
- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not

brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

(b) (5)



~~Moreover~~~~However~~, additional secondary effects of LIBOR manipulation may also ~~influence~~~~affect~~ the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

(b) (5)

Limitations of Our Analysis

(b) (5)

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

^e -We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfaoig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ¹⁹ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²⁰ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²¹ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²² At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

~~²³ Media reports cite allegations that LIBOR manipulation continued through at least mid 2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.~~

FW: A little more water for your Scotch

Item ID: 32341
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: A little more water for your Scotch
Sent: December 12, 2012 4:55 PM
Received: December 12, 2012 4:55 PM

From: Lee, Timothy Sent: Wednesday, December 12, 2012 4:04 PM To: Parker, Richard Subject: A little more water for your Scotch Hi Rich, All the changes are in the appendix. I can always clean up once we get buyoff on direction. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR Dec 13 Blackline.docx

Original view

16 pages (displayed on pages 3 to 18)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 1, 2012

(b) (5)



OFFICE OF INSPECTOR GENERAL

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To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis, Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, “[The LIBOR Mess: How Did It Happen – And What Lies Ahead?](#)” July 18, 2012.

(b) (5)

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises' ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders' market risk that their investments' value may decline due to adverse interest rate movements. The Enterprises' two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises' mortgage portfolios generally contain more fixed-rate loans than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams

in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate instruments is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

To gauge the effect of alleged LIBOR manipulation, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S. investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

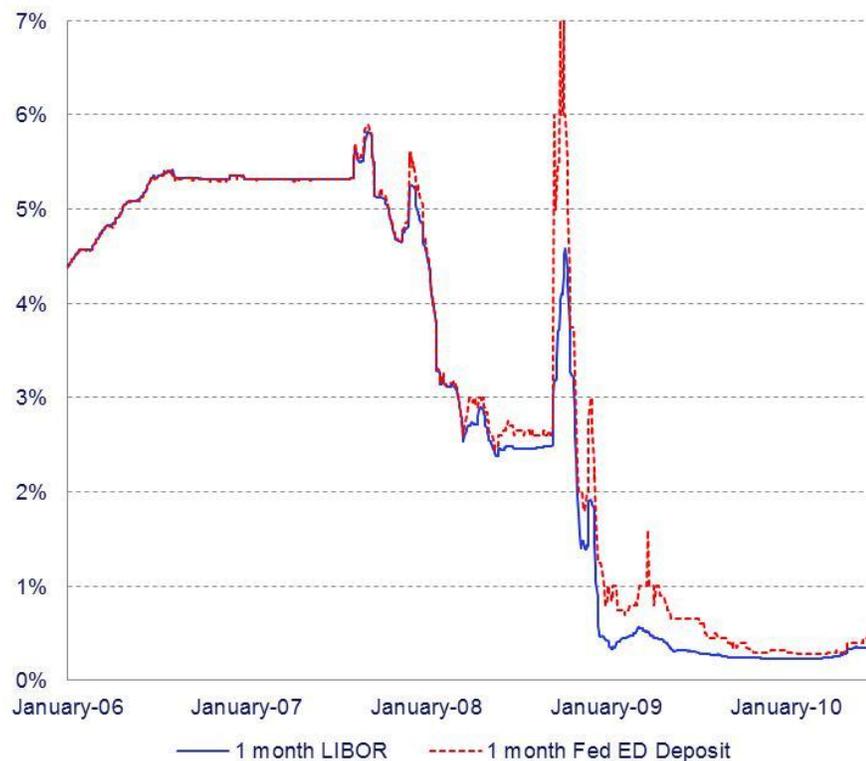
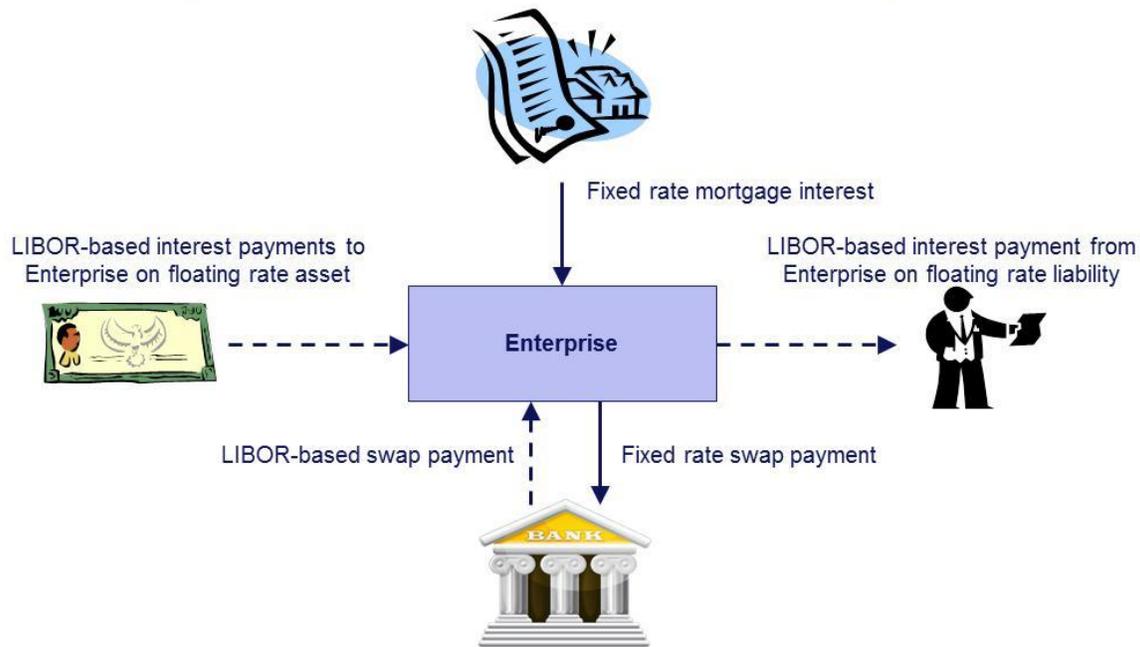


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Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

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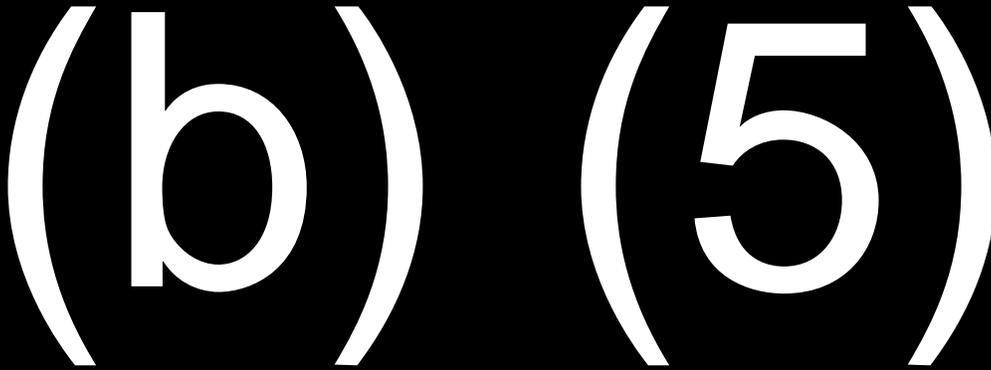
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- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded, in light of FHFA's obligations as the Enterprises' conservator, the Agency should have in place a plan by which to effect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
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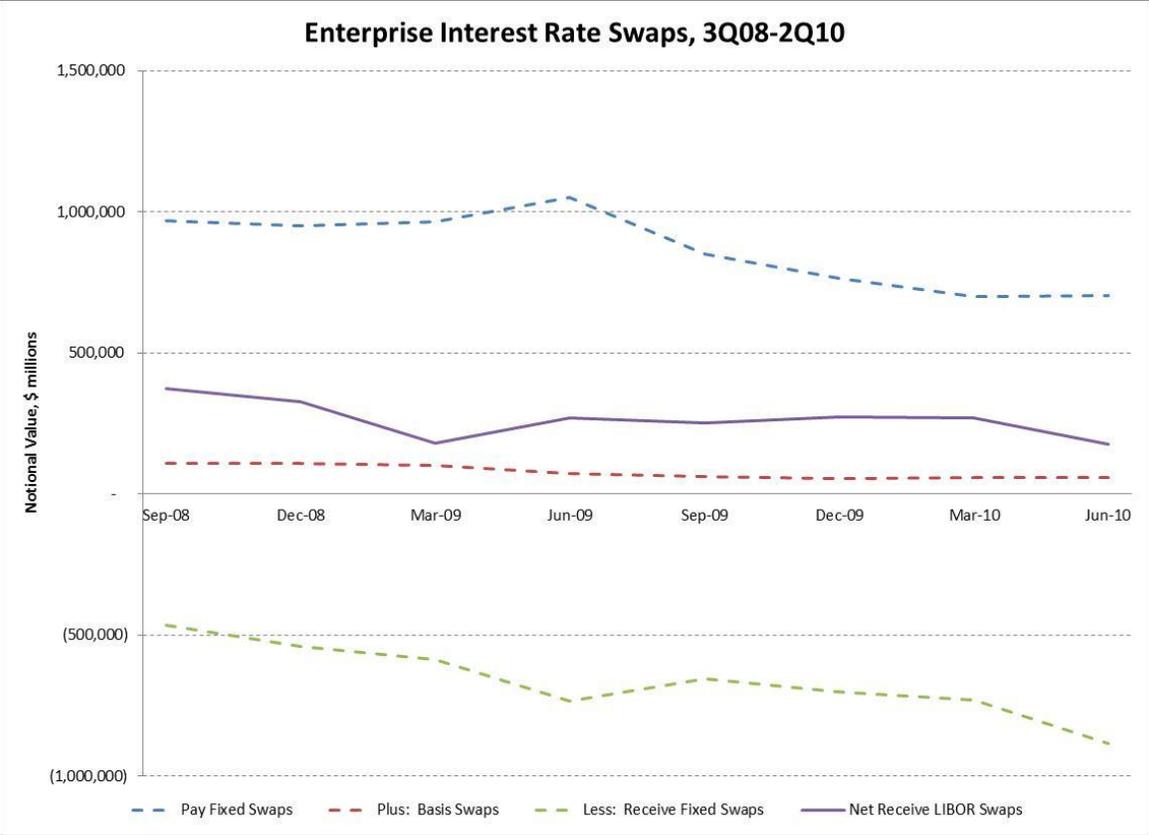
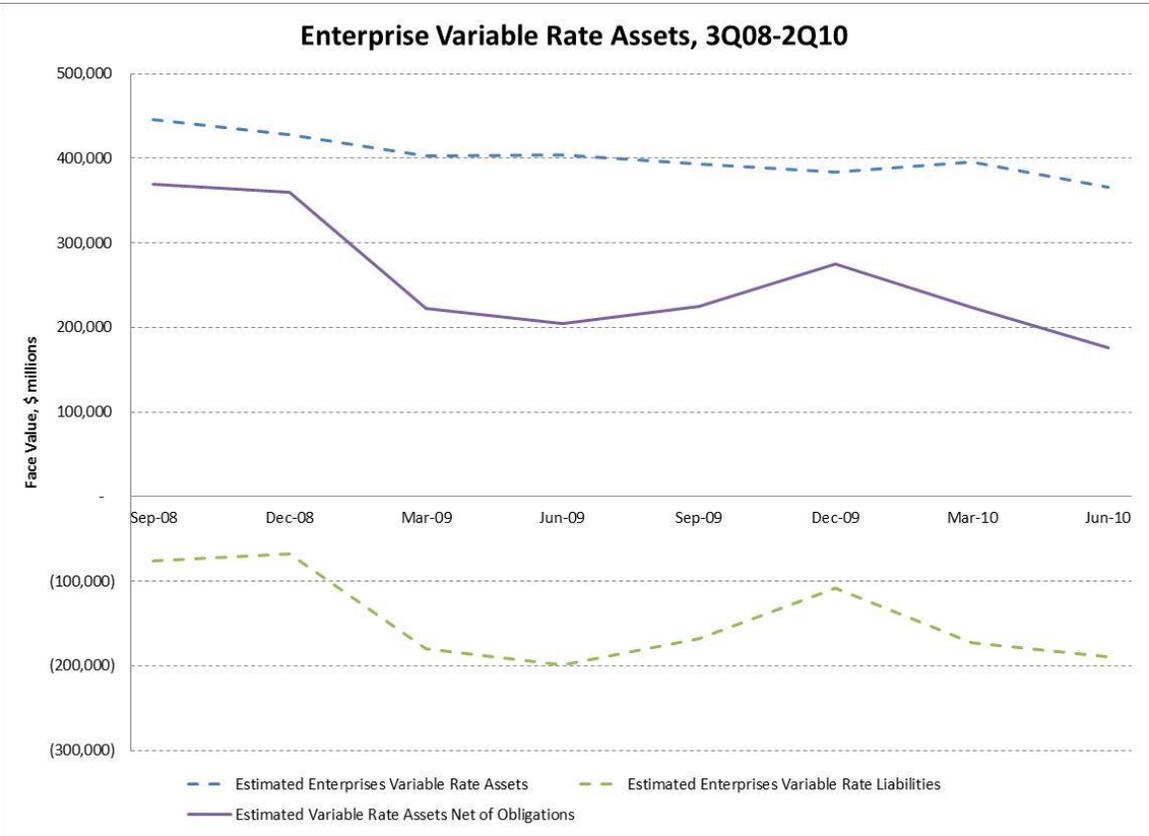
- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not

brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

Step 3: Estimation of Enterprise Losses

(b) (5)



Moreover~~However~~, additional secondary effects of LIBOR manipulation may also influence~~affect~~ the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

(b) (5)

Limitations of Our Analysis

(b) (5)

However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more exact figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

^e -We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfaoig.gov.

Endnotes

-
- ¹ British Bankers' Association, "[BBA LIBOR Explained.](#)"
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech,](#)" September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts.](#)"
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty,](#)" June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation,](#)" August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews,](#)" September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal,](#)" August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart,](#)" September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities.](#)"
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation,](#)" April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty,](#)" June 27, 2012.
- ¹⁹ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting,](#)" March 2012, p.2

²⁰ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

²¹ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

²² At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, “[New York Lender Files LIBOR Lawsuit](#)”, July 30, 2012, and Thomson Reuters, “[In re LIBOR-Based Financial Instruments Antitrust Litigation](#),” April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, “[State Regulators Widen LIBOR Investigation](#),” August 15, 2012, and BusinessWeek, “[US LIBOR Probers Said to Seek London Trader Interviews](#),” September 27, 2012.

~~²³ Media reports cite allegations that LIBOR manipulation continued through at least mid 2010. See, e.g., Washington Post, “[Trickle of LIBOR Lawsuits From Rate Fixing Scandal Likely to Become Deluge](#)”, July 30, 2012.~~

Interesting article

Item ID: 32344
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=35b52473fd4b4574add82079a96054be-Richard Par>
Cc: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: Interesting article
Sent: December 14, 2012 8:59 AM
Received: December 14, 2012 8:59 AM

From Bloomberg . Note the last few paragraphs: In London, lawyers at Collyer Bristow LLP, a 252-year-old firm, are working on a plan that would force banks to reimburse customers for any payments they made under derivatives contracts pegged to Libor. Three of the five partners on the financial- litigation team are working full time on Libor-related cases. Stephen Rosen, who runs the practice, said clients who entered into interest-rate swaps with banks are entitled to cancel those contracts because manipulation was so entrenched. Swaps are contracts that allow borrowers to exchange a variable interest cost for a fixed one, protecting them against fluctuations in interest rates. "It's possible on legal grounds to set aside the swap contract entirely, which could mean you can recover all the payments you've made under the swap," Rosen, who wears thick-rimmed glasses and speaks in clipped, precise tones, said in an interview at his office in a Georgian townhouse in the legal district of Gray's Inn. "The bank, when they entered into the swap, made an implied representation that Libor would not be unfairly manipulated." Rosen said his clients include a publicly traded real estate company, three nursing homes and at least 12 more firms that bought Libor-linked interest-rate swaps from banks. He declined to identify them by name, citing confidentiality rules. "The client will argue, 'Had you told me the truth -- that you were fraudulently manipulating this rate -- I would never have entered the contract with you,'" he said. "We are calling this the nuclear option." ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

FW: Interesting article

Item ID: 32345
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: (b) (6) </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=51139b51f8894abaa27345ff7295a3ca-(b) (6)>
Subject: FW: Interesting article
Sent: December 14, 2012 8:59 AM
Received: December 14, 2012 8:59 AM

Hi (b) (6), If you have any thoughts to offer on this, I'd love to hear them. Tim From: Lee, Timothy Sent: Friday, December 14, 2012 8:59 AM To: Parker, Richard Cc: Bloch, David Subject: Interesting article From Bloomberg . Note the last few paragraphs: In London, lawyers at Collyer Bristow LLP, a 252-year-old firm, are working on a plan that would force banks to reimburse customers for any payments they made under derivatives contracts pegged to Libor. Three of the five partners on the financial- litigation team are working full time on Libor-related cases. Stephen Rosen, who runs the practice, said clients who entered into interest-rate swaps with banks are entitled to cancel those contracts because manipulation was so entrenched. Swaps are contracts that allow borrowers to exchange a variable interest cost for a fixed one, protecting them against fluctuations in interest rates. "It's possible on legal grounds to set aside the swap contract entirely, which could mean you can recover all the payments you've made under the swap," Rosen, who wears thick-rimmed glasses and speaks in clipped, precise tones, said in an interview at his office in a Georgian townhouse in the legal district of Gray's Inn. "The bank, when they entered into the swap, made an implied representation that Libor would not be unfairly manipulated." Rosen said his clients include a publicly traded real estate company, three nursing homes and at least 12 more firms that bought Libor-linked interest-rate swaps from banks. He declined to identify them by name, citing confidentiality rules. "The client will argue, 'Had you told me the truth -- that you were fraudulently manipulating this rate -- I would never have entered the contract with you,'" he said. "We are calling this the nuclear option." ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

RE: Interesting article

Item ID: 32346
From: Bloch, David [REDACTED] (b) (6) >
To: Lee, Timothy <Timothy.Lee@fhfaig.gov>
Subject: RE: Interesting article
Sent: December 14, 2012 1:00 PM
Received: December 14, 2012 1:00 PM

Interesting.

From:
Lee, Timothy
Sent:
12/14/2012 8:59 AM

To:
Parker, Richard
Cc:
Bloch, David
Subject:

Interesting article

From Bloomberg . Note the last few paragraphs:

In London, lawyers at Collyer Bristow LLP, a 252-year-old firm, are working on a plan that would force banks to reimburse customers for any payments they made under derivatives contracts pegged to Libor. Three of the five partners on the financial- litigation team are working full time on Libor-related cases.

Stephen Rosen, who runs the practice, said clients who entered into interest-rate swaps with banks are entitled to cancel those contracts because manipulation was so entrenched. Swaps are contracts that allow borrowers to exchange a variable interest cost for a fixed one, protecting them against fluctuations in interest rates.

It's possible on legal grounds to set aside the swap contract entirely, which could mean you can recover all the payments you've made under the swap," Rosen, who wears thick- rimmed glasses and speaks in clipped, precise tones, said in an interview at his office in a Georgian townhouse in the legal district of Gray's Inn. "The bank, when they entered into the swap, made an implied representation that Libor would not be unfairly manipulated."

Rosen said his clients include a publicly traded real estate company, three nursing homes and at least 12 more firms that bought Libor-linked interest-rate swaps from banks. He declined to identify them by name, citing confidentiality rules.

"The client will argue, "Had you told me the truth -- that you were fraudulently manipulating this rate -- I would never have entered the contract with you," he said. "We are calling this the nuclear option."

Timothy Lee
Senior Policy Advisor, FHFA-OIG
202-730-2821

FW: LIBOR

Item ID: 32347
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: FW: LIBOR
Sent: December 14, 2012 5:32 PM
Received: December 14, 2012 5:32 PM

Skipper, Pls be prepared to deliver rounds on target by mid-afternoon on Monday. I'm counting on you. COL Parker
From: DiSanto, Emilia Sent: Friday, December 14, 2012 5:17 PM To: Wilkerson, Tewana; Parker, Richard; Linick, Steve; Stephens, Michael Subject: FW: LIBOR Please note the request below.... From: (b) (6)
(b) (6) Sent: Friday, December 14, 2012 5:12 PM To: DiSanto, Emilia Cc: (b) (6)
(b) (6) Subject: LIBOR Emilia, I've attached a letter from Senator Grassley and Senator Kirk (b) (6) from Senator Kirk's staff is cc'd) on LIBOR. Senator Grassley and Senator Kirk are very interested in the LIBOR manipulation issue and wanted to know if the FHFA OIG had looked into this matter? Thanks, (b) (6)

Attachment #1

2012-10-02 CEG & MK to Treasury (LIBOR).pdf

Original view

3 pages (displayed on pages 3 to 5)

see me please on libor..thanks

Item ID: 32348
From: DiSanto, Emilia [REDACTED] (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: see me please on libor..thanks
Sent: December 17, 2012 9:19 AM
Received: December 17, 2012 9:19 AM

RE: see me please on labor..thanks

Item ID: 32349
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: DiSanto, Emilia </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94639648c304c1d8447667da03493cb-Emilia DiSa>
Subject: RE: see me please on labor..thanks
Sent: December 17, 2012 9:43 AM
Received: December 17, 2012 9:43 AM

Back in my office but see your door is closed; let me know when you are free From: DiSanto, Emilia Sent: Monday, December 17, 2012 9:19 AM To: Lee, Timothy Subject: see me please on labor..thanks

RE: see me please on labor..thanks

Item ID: 32350
From: DiSanto, Emilia (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: see me please on labor..thanks
Sent: December 17, 2012 9:45 AM
Received: December 17, 2012 9:45 AM

Come on over From: Lee, Timothy Sent: Monday, December 17, 2012 9:43 AM To: DiSanto, Emilia Subject: RE: see me please on labor..thanks Back in my office but see your door is closed; let me know when you are free From: DiSanto, Emilia Sent: Monday, December 17, 2012 9:19 AM To: Lee, Timothy Subject: see me please on labor..thanks

LIBOR draft letter to Grassley/Kirk

Item ID: 32351
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: DiSanto, Emilia </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94639648c304c1d8447667da03493cb-Emilia DiSa>
Cc: Parker, Richard </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: LIBOR draft letter to Grassley/Kirk
Sent: December 17, 2012 11:26 AM
Received: December 17, 2012 11:26 AM

Hi Em, Per our conversation. This is basically the memo condensed down to four pages. I took out a lot of the background that I'm certain the two of them have given their correspondence to Geithner and de-emphasized the LIBOR-Fed ED gap that produced our numbers. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

Letter to Grassley and Kirk.docx

Original view

5 pages (displayed on pages 3 to 7)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December 17, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington DC 20510-6275

Dear Senators Grassley and Kirk,

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

³ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

⁴ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

RE: LIBOR draft letter to Grassley/Kirk

Item ID: 32353
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, DiSanto, Emilia (b) (6)
Subject: RE: LIBOR draft letter to Grassley/Kirk
Sent: December 17, 2012 12:33 PM
Received: December 17, 2012 12:35 PM

Nice work Tim. Well and confidently said. If the boss needs/wants more, e.g., a chronology of our involvement in the Agency's response, we stand ready to help-out. Thanks for the good work. -R

Sent from my Windows Phone

From:

Lee, Timothy

Sent:

12/17/2012 11:26 AM

To:

DiSanto, Emilia

Cc:

Parker, Richard

Subject:

LIBOR draft letter to Grassley/Kirk

Hi Em,

Per our conversation. This is basically the memo condensed down to four pages. I took out a lot of the background that I'm certain the two of them have given their correspondence to Geithner and de-emphasized the LIBOR-Fed ED gap that produced our numbers.

Tim

Timothy Lee

Senior Policy Advisor, FHFA-OIG

202-730-2821

Letter to Grassley and Kirk.docx

Item ID: 32354
From: DiSanto, Emilia [REDACTED] (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: Letter to Grassley and Kirk.docx
Sent: December 17, 2012 2:37 PM
Received: December 17, 2012 2:37 PM

See me asap

Attachment #1

Letter to Grassley and Kirk.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December 17, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Senators Grassley and Kirk,

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick

Inspector General

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddie.mac.com/investors/sec_filings/?intemp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

³ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

⁴ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

RE: Letter to Grassley and Kirk.docx

Item ID: 32356
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: DiSanto, Emilia </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94639648c304c1d8447667da03493cb-Emilia DiSa>
Cc: Parker, Richard </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: RE: Letter to Grassley and Kirk.docx
Sent: December 17, 2012 3:51 PM
Received: December 17, 2012 3:51 PM

Hi Em, This should address your points. I insert two paragraphs' chronology in the front, and accompany simplified graphs on the Enterprises' investments with references to their published financial statements. The footnote linking to their 10Ks and 10Qs remains, of course. Tim
From: DiSanto, Emilia Sent: Monday, December 17, 2012 2:38 PM To: Lee, Timothy Subject: Letter to Grassley and Kirk.docx See me asap

Attachment #1

Letter to Grassley and Kirk v2.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December 17, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Senators Grassley and Kirk,

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

³ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

⁴ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

FW: Letter to Grassley and Kirk.docx

Item ID: 32359
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: Letter to Grassley and Kirk.docx
Sent: December 17, 2012 3:59 PM
Received: December 17, 2012 3:59 PM

From: Lee, Timothy Sent: Monday, December 17, 2012 3:52 PM To: DiSanto, Emilia Cc: Parker, Richard Subject: RE: Letter to Grassley and Kirk.docx Hi Em, This should address your points. I insert two paragraphs' chronology in the front, and accompany simplified graphs on the Enterprises' investments with references to their published financial statements. The footnote linking to their 10Ks and 10Qs remains, of course. Tim
From: DiSanto, Emilia Sent: Monday, December 17, 2012 2:38 PM To: Lee, Timothy Subject: Letter to Grassley and Kirk.docx See me asap

Attachment #1

Letter to Grassley and Kirk v2.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December 17, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Senators Grassley and Kirk,

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

³ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

⁴ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

Letter to Grassley and Kirk v2.docx

Item ID: 32360
From: DiSanto, Emilia (b) (6)
To: Seide, David (b) (6)
Cc: Linick, Steve (b) (6); Lee, Timothy <Timothy.Lee@fhfaig.gov>, Wilkerson, Tewana (b) (6)
Subject: Letter to Grassley and Kirk v2.docx
Sent: December 17, 2012 4:33 PM
Received: December 17, 2012 4:33 PM

Would you take a look at this please

Attachment #1

Letter to Grassley and Kirk v2.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December 17, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk,

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

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² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

³ “Private label” MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, “[Mortgage-Backed Securities](#).” League table data provided by Inside Mortgage Finance, “Mortgage Market Statistical Annual.”

⁴ See, for example, Federal Housing Finance Agency, “[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#).”

RE: News

Item ID: 32362
From: (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaig.gov>
Subject: RE: News
Sent: December 18, 2012 8:17 AM
Received: December 18, 2012 8:17 AM

Tim, (b) (5)

(b) (6) From: Lee, Timothy
[mailto:Timothy.Lee@fhfaig.gov] Sent: Tuesday, December 11, 2012 9:09 AM To: (b) (6) Subject: News
H(b) (6) Saw this . Got time to get on the phone today? Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-
730-2821 Confidentiality Notice: The information in this email and any attachments may be confidential or privileged
under applicable law, or otherwise protected from disclosure to anyone other than the intended recipient(s). Any use,
distribution, or copying of this email, including any of its contents or attachments by any person other than the intended
recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you received this email in
error, please permanently delete it and any attachments, and do not save, copy, disclose, or rely on any part of the
information. Please call the OIG at 202-730-4949 if you have any questions or to let us know you received this email in
error.

Letter to Grassley and Kirk v2 (2).docx

Item ID: 32363
From: DiSanto, Emilia [REDACTED] (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: Letter to Grassley and Kirk v2 (2).docx
Sent: December 18, 2012 9:23 AM
Received: December 18, 2012 9:23 AM

Just tell me if anything is inaccurate or misleading ..need to ensure it is all factual

Attachment #1

Letter to Grassley and Kirk v2 (2).docx

Original view

7 pages (displayed on pages 3 to 9)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December ~~17~~xxxx, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk:

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

³ ~~"Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage Backed Securities](#)." League table data provided by Inside Mortgage Finance, "[Mortgage Market Statistical Annual](#)."~~

⁴ ~~See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mae](#)."~~

RE: News

Item ID: 32365
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: [REDACTED] (b) (6)
Subject: RE: News
Sent: December 18, 2012 9:36 AM
Received: December 18, 2012 9:36 AM

Hi (b) (6), Call if you want to discuss. Busy with UBS this morning? Tim From: [REDACTED] (b) (6)
[REDACTED] Sent: Tuesday, December 18, 2012 8:18 AM To: Lee, Timothy Subject: RE: News
Tim, [REDACTED] (b) (5)
[REDACTED] From: Lee, Timothy [mailto:Timothy.Lee@fhfaoig.gov] Sent: Tuesday, December 11, 2012 9:09 AM To: [REDACTED] (b) (6) Subject: News
Hi (b) (6), Saw this . Got time to get on the phone today? Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821 Confidentiality Notice: The information in this email and any attachments may be confidential or privileged under applicable law, or otherwise protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this email, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you received this email in error, please permanently delete it and any attachments, and do not save, copy, disclose, or rely on any part of the information. Please call the OIG at 202-730-4949 if you have any questions or to let us know you received this email in error.

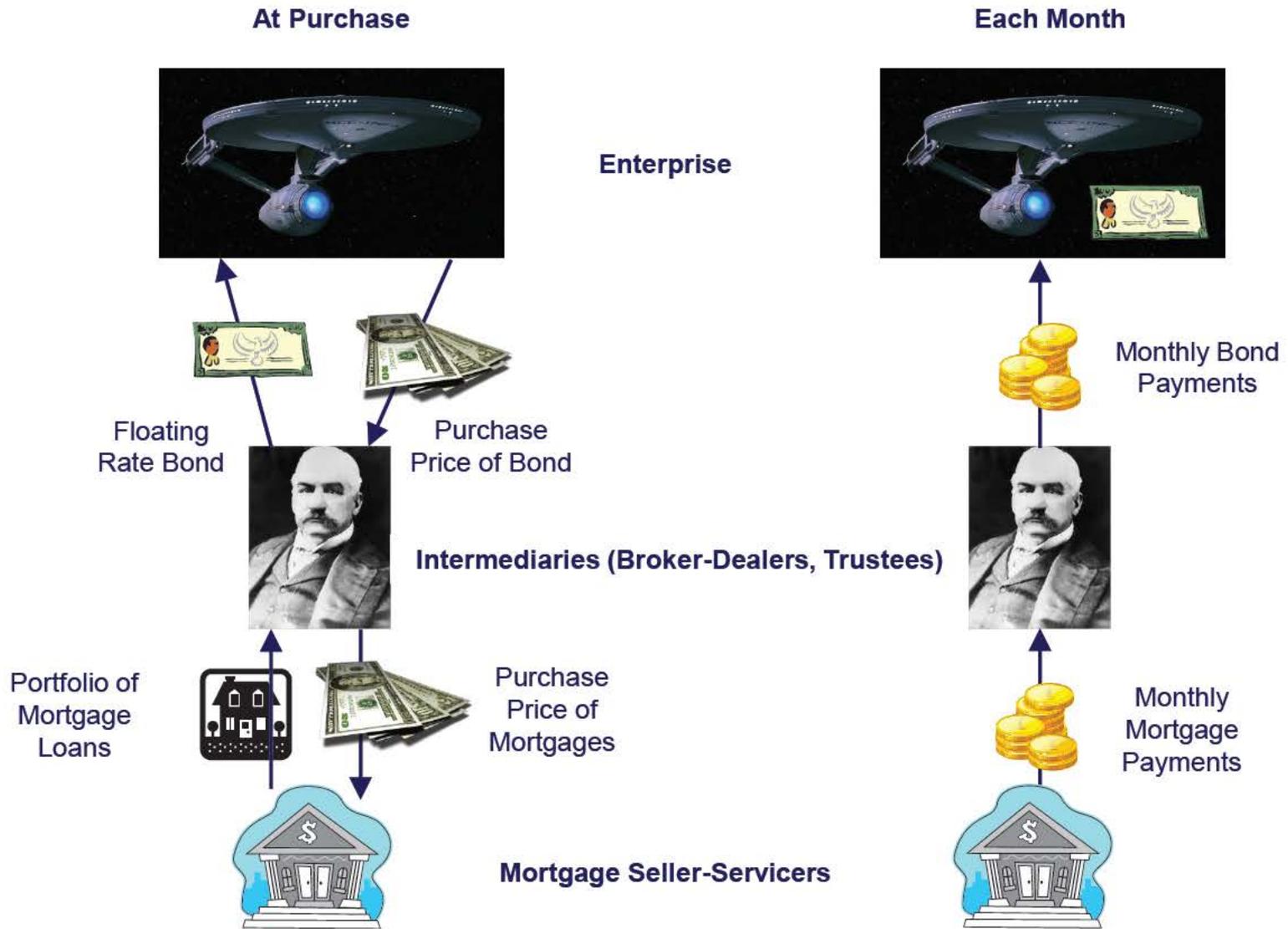
Attachment #1

Bond Versus Swap.pptx

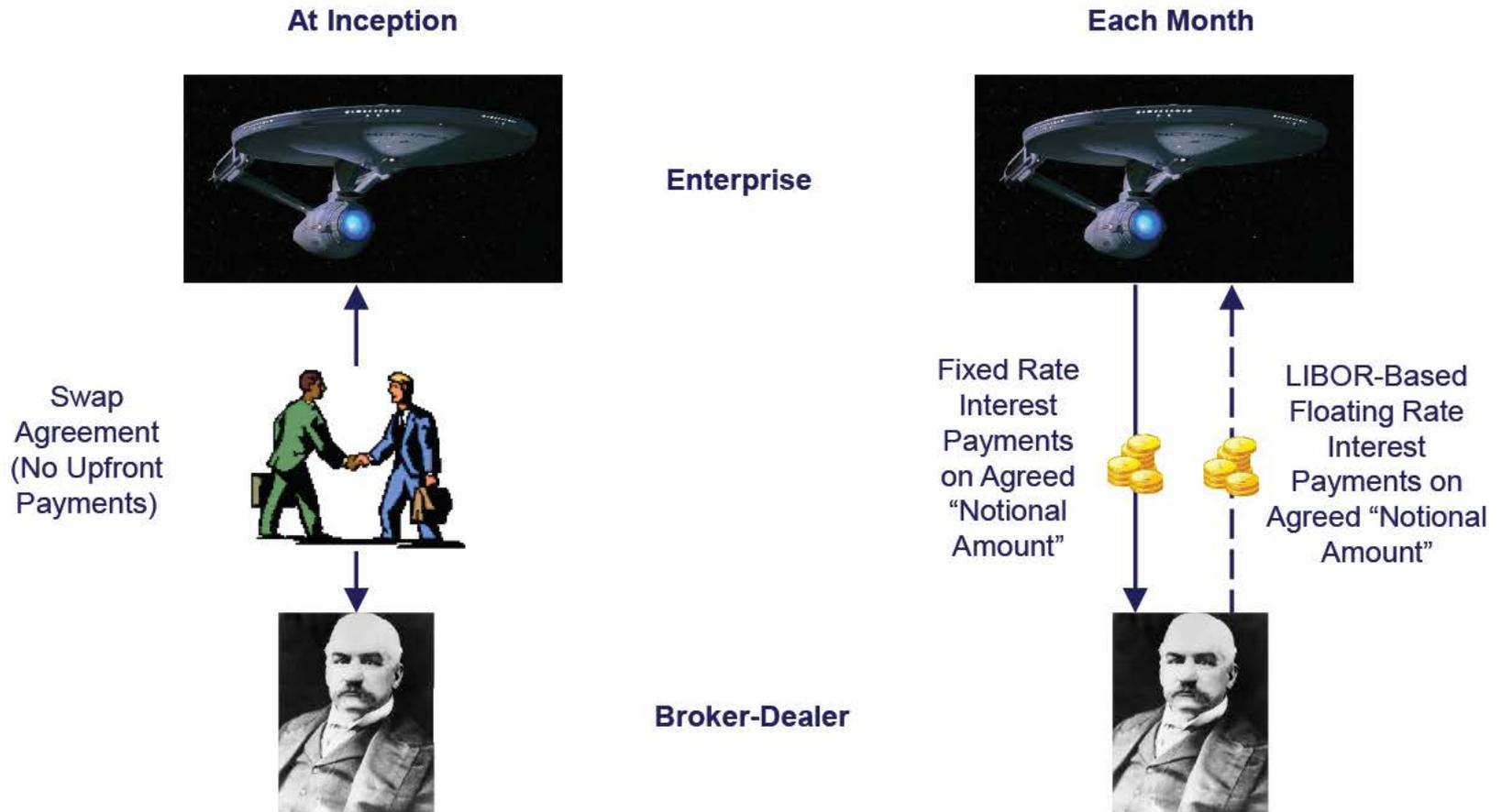
Original view

2 pages (displayed on pages 3 to 4)

Variable Rate Bond



Interest Rate Swap



RE: Letter to Grassley and Kirk v2 (2).docx

Item ID: 32367
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: DiSanto, Emilia </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94639648c304c1d8447667da03493cb-Emilia DiSa>
Subject: RE: Letter to Grassley and Kirk v2 (2).docx
Sent: December 18, 2012 10:27 AM
Received: December 18, 2012 10:27 AM

Hi Em, Here are my edits. Most revolve around syntax, but I did note the conflict of interest potential toward the back – David's edit was a non sequitur without it. Tim From: DiSanto, Emilia Sent: Tuesday, December 18, 2012 9:23 AM To: Lee, Timothy Subject: Letter to Grassley and Kirk v2 (2).docx Importance: High Just tell me if anything is inaccurate or misleading ..need to ensure it is all factual

Attachment #1

Letter to Grassley and Kirk TL Edits Blacklined.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

~~December xxx~~ December xx, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk:

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

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Formatted: Body Text

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

Attachment #2

Letter to Grassley and Kirk TL Edits.docx

Original view

6 pages (displayed on pages 10 to 15)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December xx, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk:

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

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² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

Letter to Grassley and Kirk TL Edits Blacklined.docx

Item ID: 32370
From: DiSanto, Emilia (b) (6)
To: Linick, Steve (b) (6), Stephens, Michael
(b) (6), Seide, David (b) (6)
Cc: DiSanto, Emilia (b) (6), Lee, Timothy <Timothy.Lee@fhfaig.gov>, Parker, Richard (b) (6)
Subject: Letter to Grassley and Kirk TL Edits Blacklined.docx
Sent: December 18, 2012 10:41 AM
Received: December 18, 2012 10:41 AM

Here is the latest version of the proposed response to ceg and kirk....tim has reviewed the letter to ensure its factual accuracy.....thanks

Attachment #1

Letter to Grassley and Kirk TL Edits Blacklined.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December xx, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk:

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

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² Federal Reserve Bank of New York, “[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#),” March 2012, p.2

Letter to Grassley and Kirk TL Edits Blacklined.docx

Item ID: 32372
From: DiSanto, Emilia (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Cc: DiSanto, Emilia (b) (6), Parker, Richard
(b) (6)
Subject: Letter to Grassley and Kirk TL Edits Blacklined.docx
Sent: December 18, 2012 10:59 AM
Received: December 18, 2012 10:59 AM

You cool—david added a few minor things

Attachment #1

Letter to Grassley and Kirk TL Edits Blacklined.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December xx, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk:

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

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² Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

FW: Letter to Grassley and Kirk TL Edits Blacklined.docx

Item ID: 32374
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Cc: Grob, George </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Subject: FW: Letter to Grassley and Kirk TL Edits Blacklined.docx
Sent: December 18, 2012 1:20 PM
Received: December 18, 2012 1:20 PM

From: DiSanto, Emilia Sent: Tuesday, December 18, 2012 10:59 AM To: Lee, Timothy Cc: Parker, Richard; DiSanto, Emilia Subject: Letter to Grassley and Kirk TL Edits Blacklined.docx You cool—david added a few minor things

Attachment #1

Letter to Grassley and Kirk TL Edits Blacklined.docx

Original view

6 pages (displayed on pages 3 to 8)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

December xx, 2012

The Honorable Charles Grassley, Ranking Member
The Honorable Mark Kirk
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Ranking Member Grassley and Senator Kirk:

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Sincerely,

Steve A. Linick
Inspector General

Endnotes

¹ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intemp=AFIRSE. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.

² Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

FW: can one of you please provide me with a copy of the responses that we got from FHFA on LIBOR....this is HIGH priority please

Item ID: 32376
From: Parker, Richard (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: FW: can one of you please provide me with a copy of the responses that we got from FHFA on LIBOR....this is HIGH priority please
Sent: December 18, 2012 3:09 PM
Received: December 18, 2012 3:09 PM

Most urgent. Pls forward From: DiSanto, Emilia Sent: Tuesday, December 18, 2012 3:08 PM To: Parker, Richard; Grob, George Cc: DiSanto, Emilia Subject: can one of you please provide me with a copy of the responses that we got from FHFA on LIBOR....this is HIGH priority please Importance: High

FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32380
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: December 18, 2012 3:28 PM
Received: December 18, 2012 3:28 PM

From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee
Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

Attachment #1

Final Memo FHFA-OIG Memo re LIBOR Manipulation dtd Nov 15 2012.pdf

Original view

2 pages (displayed on pages 3 to 4)



Federal Housing Finance Agency

MEMORANDUM

TO: George P. Grob, Deputy Inspector General, Office of Evaluations and
Richard Parker, Director, Office of Policy, Oversight and Review

FROM: Jon D. Greenlee, Deputy Director for Enterprise Regulation 

SUBJECT: FHFA-OIG Memorandum Regarding LIBOR Manipulation

DATE: November 15, 2012

This is a response to the memorandum from Inspector General Linick to Acting Director DeMarco dated November 2, 2012, which describes FHFA-OIG concerns about potential financial losses to the Enterprises resulting from alleged manipulation of the London Interbank Offered Rate. The memorandum included three recommendations and requested the FHFA's response to those recommendations by November 16, 2012. Below are the FHFA-OIG recommendations and FHFA's responses. Please do not hesitate to call if you have any questions.

(1) Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.

In recent months, DER staff had several conversations with Enterprise staff about the press coverage of allegations of LIBOR manipulation and whether there might be any impact on the Enterprises. In early October 2012, DER staff held conference calls with compliance staff at Fannie Mae and Freddie Mac to discuss the issue in more detail, to learn of steps currently underway at each Enterprise, and to alert the Enterprises to a forthcoming supervisory request for Enterprise action.

DER, with input from FHFA's General Counsel, prepared a letter to each Enterprise, requesting that the Enterprise take appropriate steps to determine whether it should take any legal action relating to LIBOR manipulation. The letter was sent to each Enterprise on October 12, 2012 (see copies attached). Each letter stated, in part, that

...it would be prudent for [the Enterprise] to undertake an appropriate process that would result in a basic cost-benefit analysis of whether there may be any action that [the Enterprise] could reasonably pursue. Initial analysis could include a description of what review or monitoring of this issue has been done by [the Enterprise] to date, rough estimates of financial impact, general assessment of

potential legal claims, or other factors that serve as the basis for a conclusion as to advisability of action by [the Enterprise] at this time.

Each Enterprise was requested to submit an initial analysis describing its approach by October 29, 2012.

A written response was received from each Enterprise on November 1, 2012 (see copies attached). The responses indicate that each Enterprise has efforts in process and has dedicated resources to review this issue. Each Enterprise has engaged the law firm of Dickstein Shapiro and additional resources with economic expertise to assist in conducting the assessment requested. Such an assessment is essential to avoid actions that either are misdirected or would not be productive.

(2) Promptly consider options for appropriate legal action, if warranted.

The October 12 letters to the Enterprises noted the questions “whether [the Enterprise] sustained any losses attributable to alleged manipulation of LIBOR and, if so, how such losses could be quantified and whether there would be a viable basis for [the Enterprise] and possibly FHFA in pursuing legal action to recoup such losses.” The Enterprises’ November 1 submissions indicate that once there is an analysis of damages, options for legal actions will be considered. The Freddie Mac response identifies existing class actions that could be joined. The Enterprise is alert to potential timing considerations, but notes that none of the possible classes has yet been certified.

FHFA has not yet made any determination regarding legal action by the Agency. The General Counsel is involved in the ongoing dialogue on this issue and would take into account the Agency’s supervisory responsibilities and its role as conservator in making any recommendation to the Acting Director about Agency legal action.

(3) Coordinate efforts and share information with other federal and state regulatory agencies.

As the Enterprises’ efforts proceed and FHFA learns more about the analysis of potential losses and the costs and benefits of legal options, DER will reach out to its counterparts at other supervisory agencies to share information as appropriate. The General Counsel has already, and will continue, to consult with the Department of Justice, as appropriate.

Attachments

Attachment #2

Memo 11022012.pdf

Original view

14 pages (displayed on pages 6 to 19)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

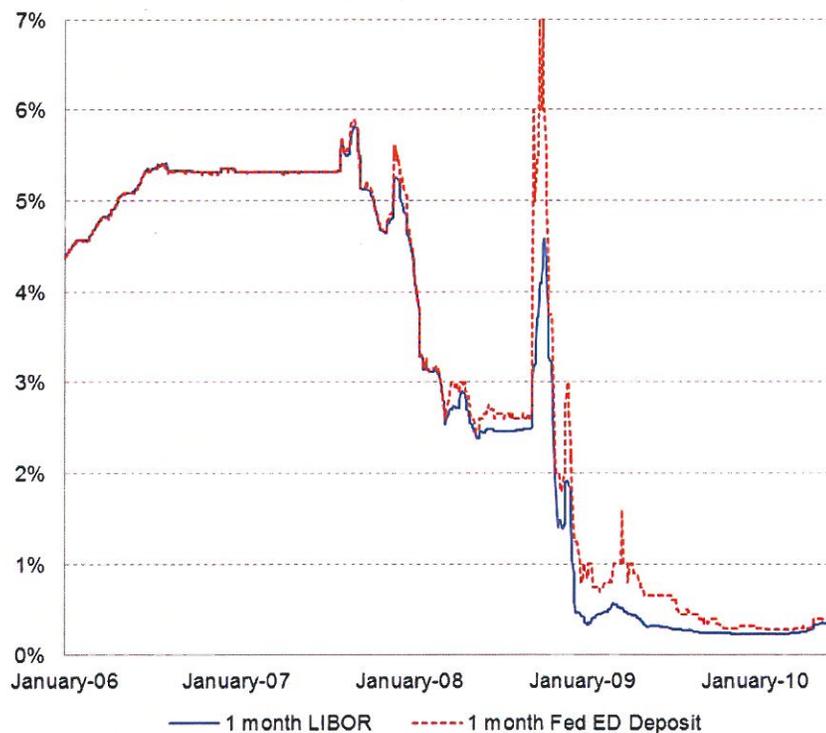
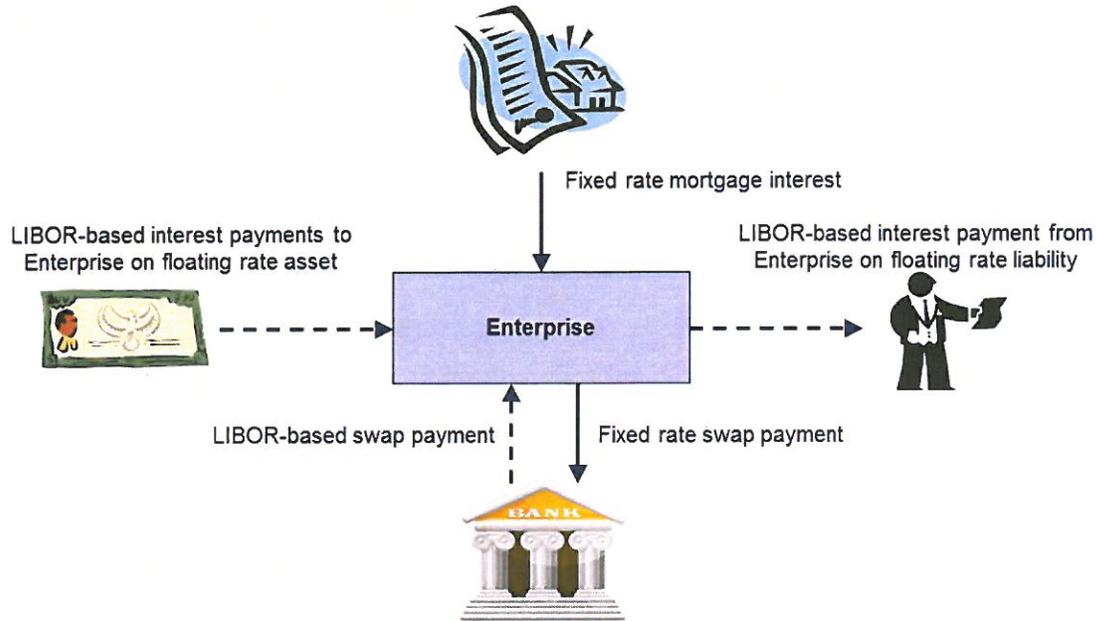


Figure 2. LIBOR-Based Payments to and From the Enterprises



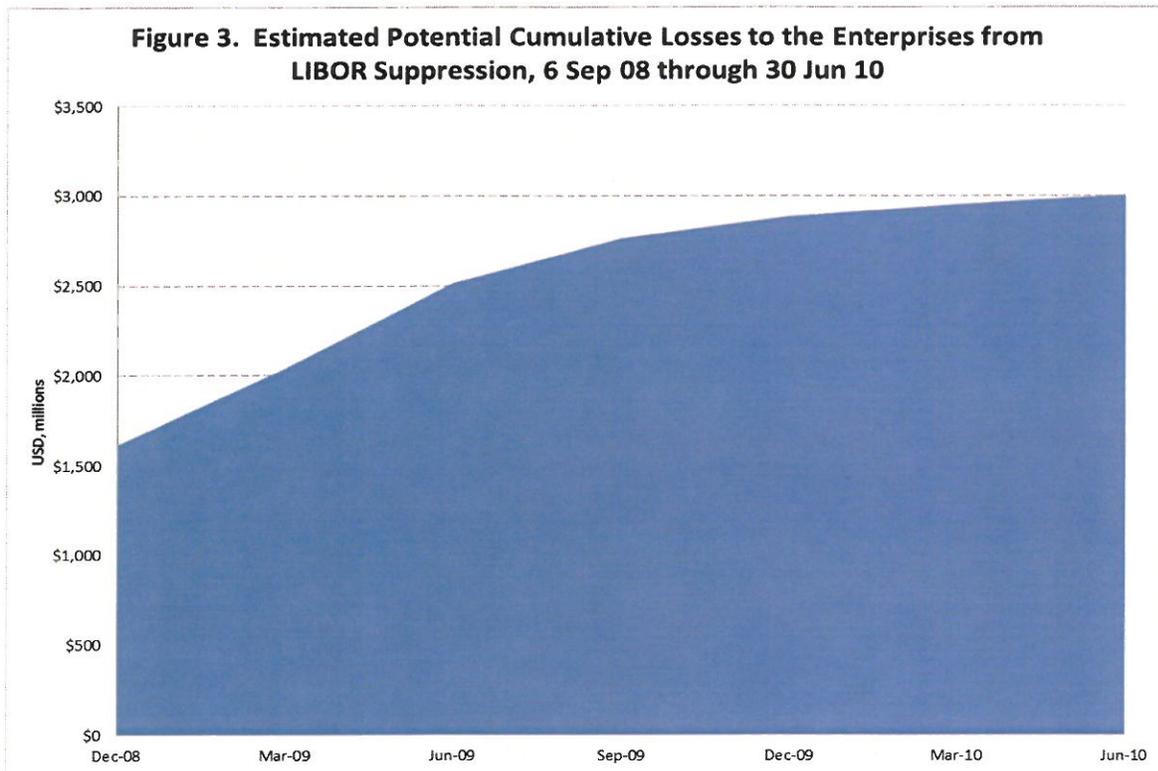
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²² However, our review of a small sample of offering documents for the Enterprises’ floating-rate

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation

Item ID: 32396
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation
Sent: December 18, 2012 3:42 PM
Received: December 18, 2012 3:42 PM

Just forwarded to Rich at his urgent request. [REDACTED] (b) (5) [REDACTED]. Just a thought.
From: Lee, Timothy Sent: Tuesday, December 18, 2012 3:29 PM To: Parker, Richard Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation From: Grob, George Sent: Thursday, November 15, 2012 12:23 PM To: Parker, Richard Cc: Lee, Timothy; Bloch, David; Linick, Steve Subject: FW: FHFA-OIG Memorandum Regarding LIBOR Manipulation Richard, I do not see a Freddie Mac action plan here. George From: Williams, Diane [mailto:Diane.Williams@fhfa.gov] Sent: Thursday, November 15, 2012 12:06 PM To: Grob, George; Parker, Richard Cc: Greenlee, Jon; Nichols, Nina Subject: FHFA-OIG Memorandum Regarding LIBOR Manipulation Dear Messrs. Grob and Parker Attached is the response to the IG recommendations on LIBOR manipulation. Also attached is the IG memo, the DER letters to the Enterprises, and the Enterprises' written responses. Please let me know if you have any questions. Thank you. Jon Greenlee Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

Attachment #1

Final Memo FHFA-OIG Memo re LIBOR Manipulation dtd Nov 15 2012.pdf

Original view

2 pages (displayed on pages 3 to 4)



Federal Housing Finance Agency

MEMORANDUM

TO: George P. Grob, Deputy Inspector General, Office of Evaluations and
Richard Parker, Director, Office of Policy, Oversight and Review

FROM: Jon D. Greenlee, Deputy Director for Enterprise Regulation 

SUBJECT: FHFA-OIG Memorandum Regarding LIBOR Manipulation

DATE: November 15, 2012

This is a response to the memorandum from Inspector General Linick to Acting Director DeMarco dated November 2, 2012, which describes FHFA-OIG concerns about potential financial losses to the Enterprises resulting from alleged manipulation of the London Interbank Offered Rate. The memorandum included three recommendations and requested the FHFA's response to those recommendations by November 16, 2012. Below are the FHFA-OIG recommendations and FHFA's responses. Please do not hesitate to call if you have any questions.

(1) Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.

In recent months, DER staff had several conversations with Enterprise staff about the press coverage of allegations of LIBOR manipulation and whether there might be any impact on the Enterprises. In early October 2012, DER staff held conference calls with compliance staff at Fannie Mae and Freddie Mac to discuss the issue in more detail, to learn of steps currently underway at each Enterprise, and to alert the Enterprises to a forthcoming supervisory request for Enterprise action.

DER, with input from FHFA's General Counsel, prepared a letter to each Enterprise, requesting that the Enterprise take appropriate steps to determine whether it should take any legal action relating to LIBOR manipulation. The letter was sent to each Enterprise on October 12, 2012 (see copies attached). Each letter stated, in part, that

...it would be prudent for [the Enterprise] to undertake an appropriate process that would result in a basic cost-benefit analysis of whether there may be any action that [the Enterprise] could reasonably pursue. Initial analysis could include a description of what review or monitoring of this issue has been done by [the Enterprise] to date, rough estimates of financial impact, general assessment of

potential legal claims, or other factors that serve as the basis for a conclusion as to advisability of action by [the Enterprise] at this time.

Each Enterprise was requested to submit an initial analysis describing its approach by October 29, 2012.

A written response was received from each Enterprise on November 1, 2012 (see copies attached). The responses indicate that each Enterprise has efforts in process and has dedicated resources to review this issue. Each Enterprise has engaged the law firm of Dickstein Shapiro and additional resources with economic expertise to assist in conducting the assessment requested. Such an assessment is essential to avoid actions that either are misdirected or would not be productive.

(2) Promptly consider options for appropriate legal action, if warranted.

The October 12 letters to the Enterprises noted the questions “whether [the Enterprise] sustained any losses attributable to alleged manipulation of LIBOR and, if so, how such losses could be quantified and whether there would be a viable basis for [the Enterprise] and possibly FHFA in pursuing legal action to recoup such losses.” The Enterprises’ November 1 submissions indicate that once there is an analysis of damages, options for legal actions will be considered. The Freddie Mac response identifies existing class actions that could be joined. The Enterprise is alert to potential timing considerations, but notes that none of the possible classes has yet been certified.

FHFA has not yet made any determination regarding legal action by the Agency. The General Counsel is involved in the ongoing dialogue on this issue and would take into account the Agency’s supervisory responsibilities and its role as conservator in making any recommendation to the Acting Director about Agency legal action.

(3) Coordinate efforts and share information with other federal and state regulatory agencies.

As the Enterprises’ efforts proceed and FHFA learns more about the analysis of potential losses and the costs and benefits of legal options, DER will reach out to its counterparts at other supervisory agencies to share information as appropriate. The General Counsel has already, and will continue, to consult with the Department of Justice, as appropriate.

Attachments

Attachment #2

Memo 11022012.pdf

Original view

14 pages (displayed on pages 6 to 19)



OFFICE OF INSPECTOR GENERAL
Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Edward J. DeMarco, Acting Director
From: Steve A. Linick, Inspector General 
Subject: Potential losses to Fannie Mae and Freddie Mac from LIBOR manipulation
Date: November 2, 2012

Please find attached a staff memorandum report detailing concerns about financial losses that Fannie Mae and Freddie Mac (the Enterprises) may have sustained due to manipulation of the London Interbank Offered Rate (LIBOR). As you know, the Department of Justice announced on June 27, 2012, an agreement with Barclays Bank Plc (Barclays) in which the bank admitted to manipulating LIBOR for its own advantage over a period of years. Federal, state, and foreign government investigations into possible LIBOR manipulation are ongoing, as are a number of high-profile civil suits predicated upon such manipulation.

FHFA-OIG's interest in the consequences of possible LIBOR manipulation upon the Enterprises stems directly from its core mission to prevent and detect fraud and abuse in FHFA's programs and operations. Members of my staff began their work on this topic within days of the Department of Justice's announcement of its agreement with Barclays. On September 6 and 11, they shared their preliminary analysis with members of your senior staff and, at about the same time, with both Enterprises.

The enclosed memorandum report outlines my staff's LIBOR loss estimates and offers recommendations for Agency action to recover any such losses on behalf of the Enterprises. In light of the fact that my staff has preliminarily estimated that the Enterprises may have suffered more than \$3 billion in such losses, I believe this matter warrants the Agency's attention. I would appreciate if the Agency could provide written comments to OIG's recommendations by November 16, 2012. Please do not hesitate to contact me if you have any questions about this matter.



OFFICE OF INSPECTOR GENERAL

Federal Housing Finance Agency

400 7th Street, S.W., Washington DC 20024

To: Steve A. Linick, Inspector General

From: Timothy Lee, Senior Policy Advisor, Office of Policy, Oversight and Review
David P. Bloch, Director, Division of Mortgage, Investments and Risk Analysis,
Office of Evaluations
Simon Z. Wu, Chief Economist, Office of Policy, Oversight and Review

Through: Richard Parker, Director, Office of Policy, Oversight and Review, and
George P. Grob, Deputy Inspector General, Office of Evaluations

Subject: Potential losses to Fannie Mae and Freddie Mac due to LIBOR manipulation

Date: October 26, 2012

The London Interbank Offered Rate (LIBOR) is a market-standard interest rate index used extensively by participants in the global financial markets.¹ It is used to calculate payments on over \$300 trillion of financial instruments and has been described as “the most important figure in finance.”² LIBOR is determined by daily polls of 18 leading financial institutions (16 firms through 2010), which are asked to estimate their own short-term borrowing costs. The highest four and lowest four submissions are eliminated, and LIBOR is calculated by averaging the remaining ones.³

In a June 2012 settlement with British and U.S. authorities, including the Department of Justice (DOJ), Barclays Bank Plc (Barclays) admitted to submitting falsified borrowing cost data in an effort to manipulate LIBOR to its own advantage.⁴ According to subsequent media reports, further LIBOR-related state and federal government investigations remain ongoing.⁵ Additionally, several parties have filed civil damage claims seeking compensation for financial losses related to LIBOR manipulation.⁶ These civil suits incorporate allegations that banks contributing to the determination of LIBOR strove to depress the published rates.^a

^a Market participants deem lower borrowing costs to reflect better creditworthiness. Thus, publicly disclosed borrowing costs became a closely watched indicator of the industry’s stability during the financial crisis. As one academic observer noted, “Especially in 2008, the biggest problem was that all the banks wanted to claim they were able to borrow more cheaply than was in fact the case, so as not to heighten concerns about their creditworthiness.” University of Pennsylvania, [“The LIBOR Mess: How Did It Happen – And What Lies Ahead?”](#) July 18, 2012.

Fannie Mae and Freddie Mac (collectively, the Enterprises) rely upon LIBOR in the determination of interest payments on their sizable investments in floating-rate financial instruments, such as mortgage-backed securities and interest rate swaps. Many of the banks that contribute to the LIBOR calculation also have existing commitments to pay the Enterprises hundreds of millions of dollars in such LIBOR-based interest payments. As detailed under the “Analysis” portion of this document, our preliminary review of the Enterprises’ published financial statements and publicly available historical interest rate data indicates that, during conservatorship, the Enterprises may have suffered \$3 billion in cumulative losses from any such manipulation. Those losses would ultimately have been borne by the Department of the Treasury (Treasury), through its Senior Preferred Stock Purchase Agreements (PSPAs) with the Enterprises.

Because of the seriousness of these allegations and the possibility that Treasury and the Enterprises may have suffered significant losses due to LIBOR manipulation, we recommend that FHFA take three steps, outlined in further detail below:

- Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation;
- Promptly consider options for appropriate legal action, if warranted; and
- Coordinate efforts and share information with other federal and state regulatory agencies.

Background

Since September 6, 2008, the Enterprises have operated under FHFA conservatorship.⁷ Under the terms of the conservatorship, Treasury has ensured the Enterprises’ ability to remain viable entities through PSPAs with each. Under the terms of the PSPAs, Treasury provides capital funding directly to the Enterprises in amounts necessary to ensure their continued solvency.⁸ To date, the federal government has provided the Enterprises over \$187 billion.⁹

As part of their business, the Enterprises have always held substantial quantities of floating-rate assets on which interest is recalculated and paid each month or quarter based on currently prevailing short-term rates. Such investments are popular because, as compared to assets that pay a fixed interest rate throughout their terms, floating-rate assets greatly reduce bondholders’ market risk that their investments’ value may decline due to adverse interest rate movements. The Enterprises’ two primary categories of floating-rate investments include:

- Floating rate bonds. Many securities are structured in this fashion. For example, according to its public financial statements, Freddie Mac alone held approximately \$299 billion of floating rate securities upon entering conservatorship.¹⁰
- Interest rate swaps. Because American homeowners tend to prefer predictable mortgage payments, the Enterprises’ mortgage portfolios generally contain more fixed-rate loans

than floating-rate loans. As a result, the value of those portfolios may vary as interest rates fluctuate. However, the Enterprises also invest in interest-rate swaps, contracting with large financial institutions for the obligation to pay them fixed-rate interest streams in exchange for the right to receive corresponding floating-rate ones.^b These swaps effectively offset the mortgage loans' fluctuations in value, resulting in stable combined portfolio valuations even if interest rates rise or fall. We estimate that the Enterprises received floating-rate interest payments on a net total of \$373 billion in face, or "notional" amount of interest rate swaps upon entering conservatorship.

The interest due for such floating rate obligations is recalculated for each payment period by reference to the current value of LIBOR.

Analysis

As a first step in our analysis, we compared the historical data on two floating rate indices:

- 1-month¹¹ LIBOR rates; and
- The Federal Reserve's published Eurodollar deposit rates (Fed ED) for 1-month¹² obligations. Like LIBOR, this data series is designed to measure short-term bank borrowing costs via polling of financial institutions. However, the Federal Reserve measure polls a broader range of institutions and is rarely referenced in floating rate financial obligations.

Our examination of daily records for 1-month Fed ED and 1-month LIBOR indicates that the two rates remained very close from the earliest point we reviewed, the beginning of 2000, until mid-2007. During that period, the largest divergence between the two indexes appeared shortly after September 11, 2001, when LIBOR *exceeded* Fed ED by as much as 0.41%. Indeed, on average the two measures remained within 0.06% of each other during that period, with LIBOR falling below Fed ED on less than one business day of each nine. The close correspondence of these two measures conformed to the expectations of market observers. As a former Federal Reserve economist said, "Effectively, these two rates should be the same as they are the same instrument."¹³

However, beginning in early 2007 emerging declines in home prices had begun to place strains on the financial system. New Century Financial, a leading home loan originator, filed for bankruptcy in April.¹⁴ Adding to the stress were media reports of precipitous decay in two high-profile mortgage-backed securities hedge funds sponsored by Bear Stearns, a leading U.S.

^b While the Enterprises may enter into both pay-floating rate and receive-floating rate swaps, in order to offset the risk of their (principally fixed-rate) mortgage assets, historically their overall net investment in interest rate swaps has been to receive floating-rate payments.

investment bank. These began to emerge in mid-June,¹⁵ followed promptly by the funds' bankruptcy filings at the end of July.¹⁶

As the financial crisis began to metastasize, LIBOR and Fed ED began to diverge substantially, eventually by as much as three percentage points at the end of September 2008. Moreover, in a marked contrast with

previous behavior, LIBOR began to fall below Fed ED consistently. Figure 1 illustrates the recent divergence of these two measures, beginning in mid-2007.

This anomaly has been cited in civil complaints as evidence of financial institutions' LIBOR manipulation.¹⁷ Moreover, it is consistent with DOJ's statement of facts regarding Barclays' admitted LIBOR manipulation, which reads in part:

... between approximately August 2007 and January 2009, in response to initial and ongoing press speculation that Barclays's high U.S. Dollar LIBOR submissions at the time might reflect liquidity problems at Barclays, members of Barclays management directed that Barclays's Dollar LIBOR submissions be lowered. This management instruction often resulted in Barclays's submission of false rates that did not reflect its perceived cost of obtaining interbank funds.¹⁸

Because the Enterprises receive LIBOR-based floating rate payments on their floating rate bonds and interest rate swaps, the principal effect on them of any downward manipulation of LIBOR would be reduced interest payments with respect to their holdings of floating rate securities and interest rate swaps. (This is partially offset by lower borrowing costs on the Enterprises' own floating-rate liabilities, a factor we have considered in our estimation of Enterprise losses.)

Figure 1. Federal Reserve Eurodollar Deposit Rate vs LIBOR, 1Q06-2Q10

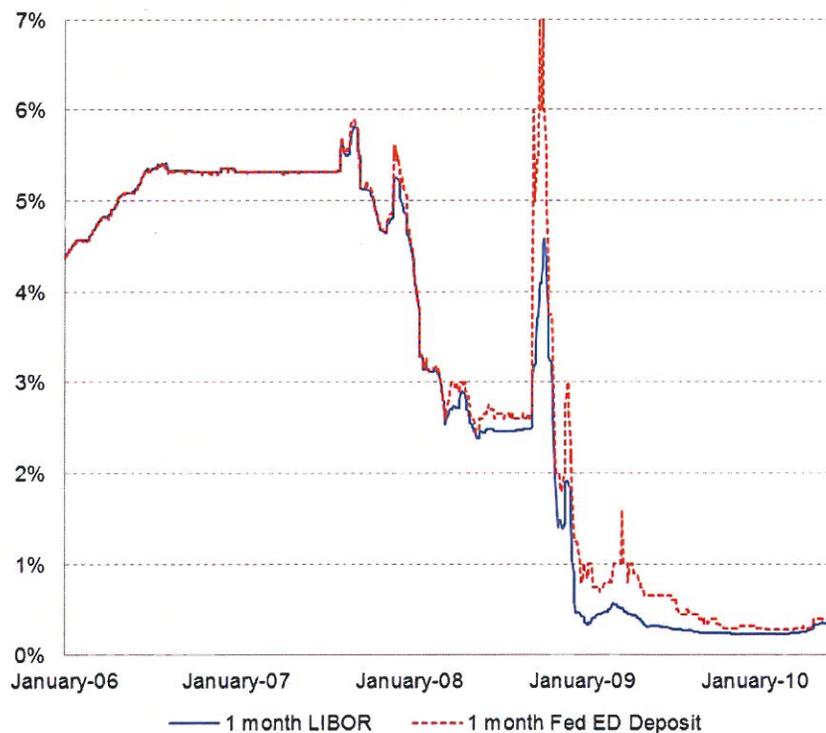
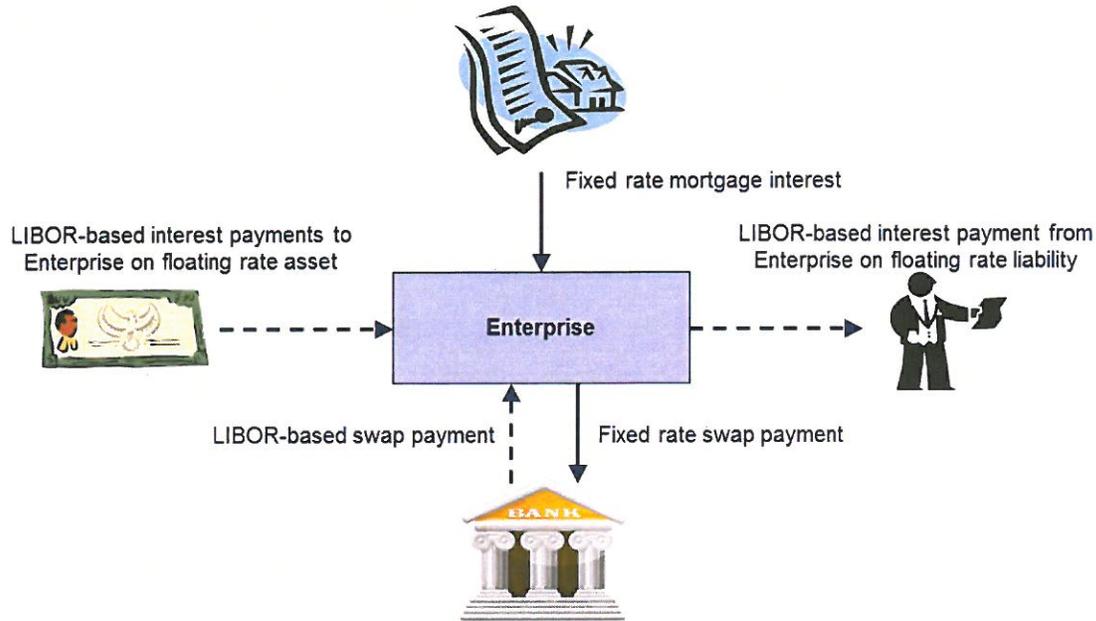


Figure 2. LIBOR-Based Payments to and From the Enterprises



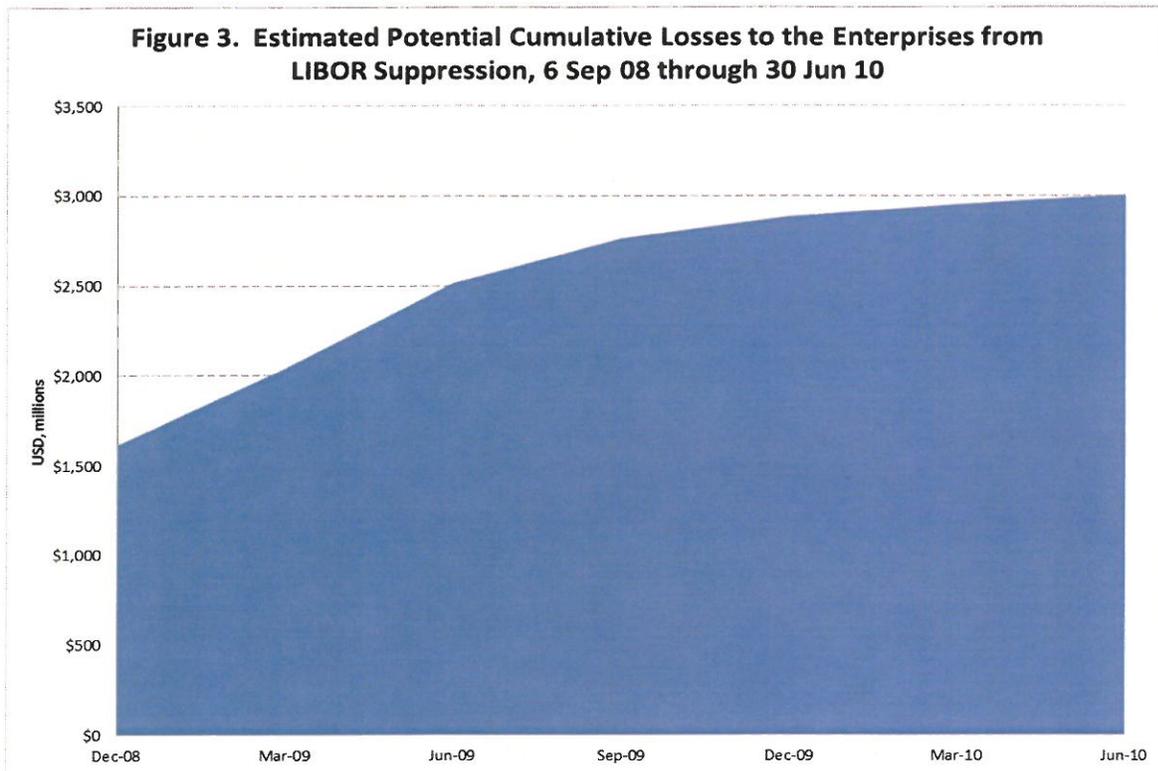
To the extent that the Enterprises suffered such “short-changing” of LIBOR-related interest payments after September 6, 2008, these practices contributed to the operating losses made whole by Treasury’s investments under the PSPAs. Therefore, it stands to reason that any manipulation of LIBOR may have inflicted meaningful losses on Treasury and the taxpayers.

To gauge the effect of possible LIBOR manipulation on the Enterprises, we undertook a three-step analytical process:

- First, we measured the daily divergence between 1-month LIBOR and the corresponding Fed ED rate (essentially treating the latter as the correct benchmark rate), and calculated its average value for each calendar quarter since the Enterprises entered conservatorship.^c
- Second, we reviewed the Enterprises’ publicly available financial statements to develop rough estimates of their holdings of variable rate securities, interest rate swaps, and variable rate liabilities for each quarter.
- Finally, using these figures, we calculated an estimate for the additional quarterly net interest payments that the Enterprises would have received if LIBOR had matched the corresponding Fed ED rate since conservatorship.^d

^c To simplify our calculations, we assumed that all Enterprise floating rate assets referenced 1-month LIBOR. In practice, mortgage-related bonds and interest rate swaps typically reference either 1-month or 3-month LIBOR.

^d Further details on our methodology are available in the Appendix.



Using this methodology, we estimate that, from the beginning of the Enterprises' conservatorship in 2008 through the second quarter of 2010,¹⁹ net Enterprise losses on their holdings of floating rate bonds and interest rate swaps may have exceeded \$3 billion. Over half of those potential losses appear to have taken place in the fourth quarter of 2008 alone.^e

With respect to the Enterprises' interest rate swaps, it is notable that the leading providers of these instruments are many of the same institutions that contribute to the determination of U.S. dollar LIBOR. Figure 4 presents a table of banks recently identified by the Federal Reserve Bank of New York as major derivatives dealers.²⁰ Ten of these fourteen major derivatives dealers also contribute to the poll used to determine LIBOR. Collectively, these dealers both participate in setting LIBOR and make LIBOR-based payments to their transaction partners, or counterparties, under the terms of their interest rate swaps. If the Enterprises conduct most of their derivatives business with these institutions, the potential for conflicts of interest is readily apparent.

^e We also estimate that the Enterprises may have suffered approximately \$750 million of net LIBOR-related losses after market turmoil began in mid-2007, but prior to entering conservatorship.

A comparable situation exists in the market for floating-rate securities. For example, of 2007’s ten leading underwriters of “private label” mortgage-backed securities,²¹ four contributed to the determination of LIBOR. The Enterprises purchased significant quantities of such securities from these underwriters.²²

However, our review of a small sample of offering documents for the Enterprises’ floating-rate

investments in this category failed to uncover any disclosure of risks that the underwriters could manipulate LIBOR for their own advantage, to the detriment of bondholders.

In addition to the Barclays settlement, each LIBOR poll contributor among these dealers has been contacted by federal or state authorities with respect to ongoing investigations and/or is a named defendant in existing civil actions.²³

Recommendations

In the context of active federal and state investigations into possible LIBOR manipulation, as well as the results of our own preliminary analysis of publicly available information, we believe that further investigation of the potential harm to Fannie Mae and Freddie Mac – and therefore to Treasury and, ultimately, the American taxpayer – of any LIBOR manipulation is firmly warranted. While FHFA-OIG should remain ready to offer advice and assistance, FHFA and the Enterprises themselves possess the detailed information needed to develop precise loss calculations and take any legal action that may prove appropriate. Therefore, we recommend that FHFA:

- **Require the Enterprises to conduct or commission detailed analyses of the potential financial losses due to LIBOR manipulation.** The Enterprises should possess detailed records of individual LIBOR-based assets and liabilities. An itemized analysis of these records would produce a better-founded estimate of their losses than is possible from reviewing only the Enterprises’ public 10-K and 10-Q filings.

Figure 4.

Major Derivatives Dealers		Top Private Label MBS Underwriters 2007	
	LIBOR Contributor		LIBOR Contributor
Bank of America	✓	Lehman Brothers	
Barclays	✓	Bear Stearns	
BNP Paribas		Deutsche Bank	✓
Citibank	✓	Countrywide	
Credit Suisse	✓	RBS	✓
Deutsche Bank	✓	Credit Suisse	✓
Goldman Sachs		JPMorganChase	✓
HSBC Group	✓	Morgan Stanley	
JPMorganChase	✓	Washington Mutual	
Morgan Stanley		Merrill Lynch	
RBS	✓		
Societe Generale	✓		
UBS	✓		
Wachovia			

- **Promptly consider options for appropriate legal action, if warranted.** If the existing accusations of LIBOR manipulation prove well founded then, in light of its obligations as their conservator, FHFA should have in place a plan by which to affect full recovery of any Enterprise funds lost and deter further malfeasance of this type. Due to the possibility that the Enterprises' legal options may soon be narrowed by statute of limitations considerations, FHFA should develop this plan promptly.
- **Coordinate efforts and share information with other federal and state regulatory agencies.** FHFA and FHFA-OIG can be valuable and effective partners with other federal and state agencies in their efforts on behalf of the public to recover losses and obtain justice for any wrongdoing that may ultimately be proven.

Appendix

Notes on Analytical Methodology

To estimate the Enterprises' potential losses due to LIBOR manipulation, we drew on two principal sources of information.

LIBOR Benchmarks

First, we referenced Federal Reserve Bank of St. Louis repositories of daily historical data for the following data series:

- [1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#). According to the Federal Reserve, this information is provided by the British Bankers' Association. The Federal Reserve describes LIBOR as "the most widely used 'benchmark' or reference rate for short term interest rates."
- [1-Month Eurodollar Deposit Rate \(London\)\(DED1\)](#). This information is compiled by the Federal Reserve itself, working with Bloomberg and ICAP Plc, a bond brokerage firm.

We also compiled similar samples for 3-month rates in each case. Comparisons of both the 1-month and 3-month indices revealed significant rate discrepancies between LIBOR and the Federal Reserve index, beginning in 2007. The Bloomberg story cited in the body of the report includes the former Federal Reserve economist's quote that "effectively, these two rates should be the same as they are the same instrument." Several civil lawsuits, including those brought by [Charles Schwab](#) and the [City of Baltimore](#), cite the emergence of these discrepancies as evidence of malfeasance.

Notably, other commentators have also cited additional market indicators as evidence of potential LIBOR manipulation. For example, in a recent speech to the [European Parliament's Economic and Monetary Affairs Committee](#), Gary Gensler, head of the U.S. Commodity Futures Trading Commission, cited persistent anomalies compared to other short-term interest rate indexes, such as Euribor and non-dollar indexes, along with pricing in derivatives such as interest rate options and credit default swaps in questioning the recent behavior of LIBOR.

However, because of differences in currency or maturity of the other indicators compared to the Federal Reserve Eurodollar deposit rate, we chose the Federal Reserve index as the simplest and best benchmark for comparison. For the purposes of this analysis, it served as a proxy for the appropriate LIBOR setting. Thus, we assumed that observed differences between LIBOR and the Federal Reserve Eurodollar deposit rate could indicate the timing and extent of potential manipulation by LIBOR poll participants.

Calculation of Enterprise Losses

Second, we assembled Fannie Mae and Freddie Mac balance sheet data for the relevant period from the Enterprises' published financial statements. For example, Freddie Mac data for 4Q08 are drawn from the [2008 10-K](#), including:

- Data on derivatives investments from Table 38, page 109. We calculated Freddie Mac's net receive-LIBOR interest rate swap investment as:
 - Pay-fixed (i.e. Freddie Mac receives LIBOR), *plus*
 - Basis (i.e. Freddie Mac and its counterparty exchange different sets of floating rate interest payments. Generally, these involve the Enterprise's payments of frequently used ARM indices, such as the Cost of Funds Index or the 12-month Constant Maturity Treasury rate, in exchange for LIBOR-based payments); *less*
 - Receive-fixed (i.e. Freddie Mac pays LIBOR).
- Data on Freddie Mac's variable-rate mortgage-related securities from information on the Enterprise's Mortgage-Related Investments Portfolio, Table 24, page 93.
 - We assumed that essentially all variable-rate MBS holdings calculated interest payments by reference to LIBOR.
 - Fannie Mae did not publish explicit information on its variable rate MBS, but did provide figures for all MBS held by its Capital Markets Group. To estimate Fannie Mae's variable-rate MBS investment holdings, we assumed that Fannie Mae's Capital Markets Group held the same proportion of variable rate securities held by Freddie Mac in its Mortgage-Related Investments Portfolio.
- Data on Freddie Mac's long-term debt liabilities, including variable-rate liabilities, in Table 8.3, page 224.
 - We assumed that essentially all long-term floating-rate debt obligations of the Enterprises calculated interest payments by reference to LIBOR.
 - Fannie Mae explicitly discloses floating-rate obligations in its financial statements.
 - Freddie Mac's reporting of floating-rate obligations for the time period under review is intermittent. Long-term variable-rate debt obligations are totaled as of December 31, 2009, and subsequently, but not for the 10Qs as of 1Q09, 2Q09, and 3Q09. Within the time period examined, the highest proportion of long-term variable-rate obligations to other long-term debt (i.e., direct obligations not brought onto the balance sheet by the requirements of SFAS 167) was 24.7%, reported as of 2Q10. We used that proportion to estimate Freddie Mac's variable-rate debt obligations when no other information was available.

- Except where explicitly disclosed, short-term variable rate obligations of the Enterprises were excluded from the analysis as a relatively minor component.

We calculated cash flow shortfalls to the Enterprises as equivalent to (a) the difference between 1-month LIBOR and the 1-month Federal Reserve Eurodollar deposit rate, multiplied by (b) (i) the notional amount of net receive-LIBOR swaps investments held by the Enterprises, plus (ii) the face value of Enterprise variable-rate mortgage-related securities net of their variable-rate liabilities. Cash flow shortfalls were calculated on a quarterly basis. We assumed reported figures remained constant within each quarter. We included a portion of the indicated cash flow shortfalls for 3Q08, prorated for the final 24 days of September.

We believe that direct cash flow shortfalls, due to reduced interest and swap payments on LIBOR-based investments held by the Enterprises, are likely to constitute the great majority of Enterprise financial losses resulting from any LIBOR manipulation. However, additional secondary effects of LIBOR manipulation may also affect the amount of such losses. These include, but are not limited to:

- Distortions in the volatility measures used to benchmark pricing of the Enterprises' interest rate options
- Effects on the interest rate futures market used to value interest rate swaps
- Effects on prepayment valuation models used to value MBS, which rely on short-term interest rate data as an input

However, we did not incorporate such factors into this analysis.

Limitations of Our Analysis

The goal of this report is not to provide a definitive accounting of the Enterprises' losses, nor to demonstrate conclusively the culpability of specific organizations or individuals. We acknowledge the limitations inherent in any corporate financial analysis developed exclusively from public reports. However, this analysis does indicate that the numerous accusations of LIBOR manipulation raise legitimate concerns about their impact on the Enterprises. Accordingly, they warrant closer examination by FHFA and the Enterprises, which have access to the detailed asset-level records and information needed to generate a more accurate and precise figure for potential losses and provide guidance for any future action that may be required to protect the taxpayers.

For more details about this analysis, please contact Timothy Lee, Senior Policy Advisor, at (202) 730-2821 or timothy.lee@fhfa.ig.gov.

Endnotes

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- ¹ British Bankers' Association, "[BBA LIBOR Explained](#)."
- ² The Telegraph, "[LIBOR Scandal: Martin Wheatley's Speech](#)," September 28, 2012.
- ³ Thomson Reuters, "[Thomson Reuters Role in the Calculation and Distribution of BBA LIBOR™](#)", July 4, 2012. The number of poll contributors is cited in the Department of Justice's settlement documentation, "[Appendix A: Statement of Facts](#)."
- ⁴ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.
- ⁵ See, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.
- ⁶ The Wall Street Journal, "[Suits Mount in Rate Scandal](#)," August 26, 2012.
- ⁷ Federal Housing Finance Agency, "[Statement of Director James A. Lockhart](#)", September 7, 2008, p.6.
- ⁸ Federal Housing Finance Agency, "[Mortgage Market Note 10-1](#)", January 20, 2010
- ⁹ Federal Housing Finance Agency, "[Data as of August 8, 2012 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities](#)."
- ¹⁰ Current and historical financial statement data for Freddie Mac can be found at http://www.freddiemac.com/investors/sec_filings/?intcmp=AFIRSF. Data for Fannie Mae can be found at <http://www.fanniemae.com/portal/about-us/investor-relations/sec-filings.html>.
- ¹¹ Federal Reserve Bank of St. Louis, "[1-Month London Interbank Offered Rate \(LIBOR\), based on U.S. Dollar \(USD1MTD156N\)](#)". Data obtained October 1, 2012.
- ¹² Federal Reserve Bank of St. Louis, "[1-Month Eurodollar Deposit Rate \(London\) \(DED\)](#)". Data obtained October 1, 2012.
- ¹³ Bloomberg News, "[Fed's Eurodollar Rates Suggest Dollar LIBOR May Stabilize](#)", April 28, 2008.
- ¹⁴ See, for example, the *Report of the Financial Crisis Inquiry Commission*. Facts noted here are taken from [Chapter 12](#) of that document, page 233.
- ¹⁵ BusinessWeek, "[Bear Stearns' Subprime Bath](#)", June 12, 2007.
- ¹⁶ *Report of the Financial Crisis Inquiry Commission*, [Chapter 12](#), page 240.
- ¹⁷ See, for example, Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012, pp. 23-31.
- ¹⁸ U.S. Department of Justice, "[Barclays Bank PLC Admits Misconduct Related to Submissions for the London Interbank Offered Rate and the Euro Interbank Offered Rate and Agrees to Pay \\$160 Million Penalty](#)," June 27, 2012.

¹⁹ Media reports cite allegations that LIBOR manipulation continued through at least mid-2010. See, e.g., Washington Post, "[Trickle of LIBOR Lawsuits From Rate-Fixing Scandal Likely to Become Deluge](#)", July 30, 2012.

²⁰ Federal Reserve Bank of New York, "[An Analysis of OTC Interest Rate Derivatives Transactions: Implications for Public Reporting](#)," March 2012, p.2

²¹ "Private label" MBS are those not brought to market and guaranteed through the Enterprises. See U.S. Securities and Exchange Commission, "[Mortgage-Backed Securities](#)." League table data provided by Inside Mortgage Finance, "Mortgage Market Statistical Annual."

²² See, for example, Federal Housing Finance Agency, "[FHFA Sues 17 Firms to Recover Losses to Fannie Mae and Freddie Mac](#)."

²³ At least two complaints, those of Berkshire Bank and the City of Baltimore, name all 16 contributors to U.S. dollar LIBOR. Wall Street Journal, "[New York Lender Files LIBOR Lawsuit](#)", July 30, 2012, and Thomson Reuters, "[In re LIBOR-Based Financial Instruments Antitrust Litigation](#)," April 30, 2012. Also see with respect to federal and state investigations, inter alia, The New York Times, "[State Regulators Widen LIBOR Investigation](#)," August 15, 2012, and BusinessWeek, "[US LIBOR Probers Said to Seek London Trader Interviews](#)," September 27, 2012.

FW: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion

Item ID: 32401
From: DiSanto, Emilia (b) (6)
To: Parker, Richard (b) (6), Lee, Timothy <Timothy.Lee@fhfa.ig.gov>, Wu, Simon (b) (6), Rhinesmith, Alan <(b) (6)>, Phillips, Wesley (b) (6)
Subject: FW: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion
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Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion - WSJ.com Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion - WSJ.com fyi From: Seide, David Sent: Wednesday, December 19, 2012 3:53 PM To: Linick, Steve; Linick, Steve; DiSanto, Emilia Cc: Hinkley, Robert; Seide, David Subject: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion · WSJ Updated December 19, 2012, 3:29 p.m. ET Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion JEANNETTE NEUMANN And NICK TIMIRAOS Fannie Mae and Freddie Mac may have lost more than \$3 billion as a result of banks' alleged manipulation of a key interest rate, according to an internal report by a federal watchdog sent to the mortgage companies' regulator and reviewed by The Wall Street Journal. The unpublished report urges Fannie and Freddie to consider suing the banks involved in setting the London interbank offered rate, which would add to the mounting legal headaches financial firms such as UBS AG and Barclays PLC face from cities, insurers, investors and lenders over claims tied to the benchmark rate. The report was written by the inspector general for Freddie and Fannie's regulator, the Federal Housing Finance Agency. In response to the report, the FHFA said the companies had begun exploring potential legal options, according to a letter sent from the FHFA to the inspector general last month. Analysts from the inspector general's office said in the internal report, dated Oct. 26, that Fannie and Freddie likely lost more than \$3 billion on their holdings of more than \$1 trillion in mortgage-linked securities, interest-rate swaps, floating-rate bonds and other assets tied to Libor from September 2008 through the second quarter of 2010, which the report says was the height of banks' alleged false reporting of the interest rate. That figure is among the largest potential losses reported amid the unfolding Libor scandal and comes as federal officials remain mum on how the alleged manipulation cost the government. An FHFA spokeswoman said the regulator "has not substantiated any particular Libor related losses for Fannie Mae and Freddie Mac. We continue to evaluate issues associated with Libor." Fannie Mae and Freddie Mac were seized by the U.S. government and placed into conservatorship in September 2008 as rising mortgage losses threatened to wipe out thin capital reserves. The firms have cost taxpayers \$137 billion. The vast majority of their losses have come from guaranteeing mortgages that defaulted as the housing bust deepened. Any potential Libor losses by Fannie or Freddie would also be a cost to taxpayers. The 14-page draft report, written on the FHFA's Office of Inspector General letterhead, is addressed to Inspector General Steve A. Linick from Timothy Lee, a senior policy adviser; David P. Bloch, director of the Division of Mortgages, and chief economist Simon Z. Wu. The analysts said their loss estimate was based on an analysis of Fannie and Freddie's public financial statements. The memo called on the FHFA to require the mortgage companies to conduct or commission their own analysis. Work on the report began this summer, and the inspector general's office shared its preliminary findings with officials at Fannie, Freddie, and the FHFA in September, according to documents reviewed by the Journal. Mr. Linick forwarded the draft report to Edward DeMarco, the FHFA's acting director, on Nov. 2, documents show. Meanwhile, Fannie and Freddie were asked by the FHFA in October to provide initial estimates of the financial impact of alleged Libor manipulation and to provide a cost-benefit analysis about any potential responses, documents show. Both companies have hired the law firm of Dickstein Shapiro to help with such an analysis, according to a letter sent from the FHFA to the inspector general on Nov. 15. Freddie Mac identified potential class-action lawsuits that could be joined, the letter said, and the FHFA's general counsel has consulted with the Department of Justice. A spokeswoman for the inspector general's office said: "We conducted a preliminary analysis of potential Libor-related losses at Fannie and Freddie and shared that with FHFA, recommending that they conduct a thorough review." Republican Sens. Chuck Grassley of Iowa and Mark Kirk of

Illinois sent an email on Friday to the FHFA's inspector general, requesting that the watchdog report to lawmakers whether it has explored Fannie and Freddie's potential Libor losses, a spokeswoman for Mr. Grassley said. The inspector general responded Tuesday afternoon about its "preliminary review of issues concerning manipulation" of Libor, documents show. The senators' inquiry builds on their earlier questioning of federal agencies' handling of alleged manipulation of the benchmark rate. Messrs. Grassley and Kirk held up the nomination of a Treasury Department official for several weeks in November and early December amid frustration the department hadn't responded in full to the lawmakers' questions about Libor, including whether Treasury officials considered the risks to U.S. local governments when it raised concerns about the interest rate with British central bankers several years ago. The FHFA hasn't been shy in filing suits against banks since the financial crisis. In 2011, it sued 18 of the world's largest lenders over \$200 billion in mortgage investments bought by Fannie and Freddie between 2005 and 2008 that the regulator said had contained misleading disclosures. Those lawsuits are still wending their way through courts. To estimate how much Fannie and Freddie could have lost, inspector general analysts wrote in the report that they took the difference between Libor and the Eurodollar deposit rate compiled by the Federal Reserve and applied that to the companies' investments tied to Libor. Before the financial crisis, Libor and the Eurodollar deposit rate were essentially the same, the report said. Fannie and Freddie would have lost money if Libor were manipulated lower due to mortgage assets they own that are pegged to the rate. So as Libor fell, their portfolios of securities tied to variable-rate mortgages paid less interest. They also would have been shortchanged on certain interest-rate derivatives used to hedge risks in their mortgage portfolios. As the benchmark fell, the costs associated with these swaps went up. On the other hand, they would have saved money on other derivatives if Libor had been manipulated lower, and they would have had lower debt-funding costs. Still, analysts say the companies stood to lose more money than they would save if Libor had been manipulated lower. That's because their mortgage bonds, swaps and other assets tied to Libor exceeded what they owed in Libor-linked debt. The inspector general analysts said their rough estimates of those losses accounted for the lower borrowing costs on Fannie and Freddie's liabilities tied to Libor. Copyright 2012 Dow Jones & Company, Inc. All Rights Reserved David Z. Seide Director of Special Projects Federal Housing Finance Agency-Office of Inspector General [REDACTED] (b) (6) .

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From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion
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Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion - WSJ.com Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion - WSJ.com From: DiSanto, Emilia Sent: Wednesday, December 19, 2012 3:57 PM To: Parker, Richard; Lee, Timothy; Wu, Simon; Rhinesmith, Alan; Phillips, Wesley Subject: FW: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion fyi From: Seide, David Sent: Wednesday, December 19, 2012 3:53 PM To: Linick, Steve; Linick, Steve; DiSanto, Emilia Cc: Hinkley, Robert; Seide, David Subject: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion · WSJ Updated December 19, 2012, 3:29 p.m. ET Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion JEANNETTE NEUMANN And NICK TIMIRAOS Fannie Mae and Freddie Mac may have lost more than \$3 billion as a result of banks' alleged manipulation of a key interest rate, according to an internal report by a federal watchdog sent to the mortgage companies' regulator and reviewed by The Wall Street Journal. The unpublished report urges Fannie and Freddie to consider suing the banks involved in setting the London interbank offered rate, which would add to the mounting legal headaches financial firms such as UBS AG and Barclays PLC face from cities, insurers, investors and lenders over claims tied to the benchmark rate. The report was written by the inspector general for Freddie and Fannie's regulator, the Federal Housing Finance Agency. In response to the report, the FHFA said the companies had begun exploring potential legal options, according to a letter sent from the FHFA to the inspector general last month. Analysts from the inspector general's office said in the internal report, dated Oct. 26, that Fannie and Freddie likely lost more than \$3 billion on their holdings of more than \$1 trillion in mortgage-linked securities, interest-rate swaps, floating-rate bonds and other assets tied to Libor from September 2008 through the second quarter of 2010, which the report says was the height of banks' alleged false reporting of the interest rate. That figure is among the largest potential losses reported amid the unfolding Libor scandal and comes as federal officials remain mum on how the alleged manipulation cost the government. An FHFA spokeswoman said the regulator "has not substantiated any particular Libor related losses for Fannie Mae and Freddie Mac. We continue to evaluate issues associated with Libor." Fannie Mae and Freddie Mac were seized by the U.S. government and placed into conservatorship in September 2008 as rising mortgage losses threatened to wipe out thin capital reserves. The firms have cost taxpayers \$137 billion. The vast majority of their losses have come from guaranteeing mortgages that defaulted as the housing bust deepened. Any potential Libor losses by Fannie or Freddie would also be a cost to taxpayers. The 14-page draft report, written on the FHFA's Office of Inspector General letterhead, is addressed to Inspector General Steve A. Linick from Timothy Lee, a senior policy adviser; David P. Bloch, director of the Division of Mortgages, and chief economist Simon Z. Wu. The analysts said their loss estimate was based on an analysis of Fannie and Freddie's public financial statements. The memo called on the FHFA to require the mortgage companies to conduct or commission their own analysis. Work on the report began this summer, and the inspector general's office shared its preliminary findings with officials at Fannie, Freddie, and the FHFA in September, according to documents reviewed by the Journal. Mr. Linick forwarded the draft report to Edward DeMarco, the FHFA's acting director, on Nov. 2, documents show. Meanwhile, Fannie and Freddie were asked by the FHFA in October to provide initial estimates of the financial impact of alleged Libor manipulation and to provide a cost-benefit analysis about any potential responses, documents show. Both companies have hired the law firm of Dickstein Shapiro to help with such an analysis, according to a letter sent from the FHFA to the inspector general on Nov. 15. Freddie Mac identified potential class-

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(b) (6)

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Item ID: 32405
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Grob, George </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Subject: FW: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion
Sent: December 19, 2012 4:15 PM
Received: December 19, 2012 4:15 PM

Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion - WSJ.com Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion - WSJ.com From: DiSanto, Emilia Sent: Wednesday, December 19, 2012 3:57 PM To: Parker, Richard; Lee, Timothy; Wu, Simon; Rhinesmith, Alan; Phillips, Wesley Subject: FW: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion fyi From: Seide, David Sent: Wednesday, December 19, 2012 3:53 PM To: Linick, Steve; Linick, Steve; DiSanto, Emilia Cc: Hinkley, Robert; Seide, David Subject: FYI, Updated WSJ - with more detail: Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion · WSJ Updated December 19, 2012, 3:29 p.m. ET Report Says Libor-Tied Losses at Fannie, Freddie May Top \$3 Billion JEANNETTE NEUMANN And NICK TIMIRAOS Fannie Mae and Freddie Mac may have lost more than \$3 billion as a result of banks' alleged manipulation of a key interest rate, according to an internal report by a federal watchdog sent to the mortgage companies' regulator and reviewed by The Wall Street Journal. The unpublished report urges Fannie and Freddie to consider suing the banks involved in setting the London interbank offered rate, which would add to the mounting legal headaches financial firms such as UBS AG and Barclays PLC face from cities, insurers, investors and lenders over claims tied to the benchmark rate. The report was written by the inspector general for Freddie and Fannie's regulator, the Federal Housing Finance Agency. In response to the report, the FHFA said the companies had begun exploring potential legal options, according to a letter sent from the FHFA to the inspector general last month. Analysts from the inspector general's office said in the internal report, dated Oct. 26, that Fannie and Freddie likely lost more than \$3 billion on their holdings of more than \$1 trillion in mortgage-linked securities, interest-rate swaps, floating-rate bonds and other assets tied to Libor from September 2008 through the second quarter of 2010, which the report says was the height of banks' alleged false reporting of the interest rate. That figure is among the largest potential losses reported amid the unfolding Libor scandal and comes as federal officials remain mum on how the alleged manipulation cost the government. An FHFA spokeswoman said the regulator "has not substantiated any particular Libor related losses for Fannie Mae and Freddie Mac. We continue to evaluate issues associated with Libor." Fannie Mae and Freddie Mac were seized by the U.S. government and placed into conservatorship in September 2008 as rising mortgage losses threatened to wipe out thin capital reserves. The firms have cost taxpayers \$137 billion. The vast majority of their losses have come from guaranteeing mortgages that defaulted as the housing bust deepened. Any potential Libor losses by Fannie or Freddie would also be a cost to taxpayers. The 14-page draft report, written on the FHFA's Office of Inspector General letterhead, is addressed to Inspector General Steve A. Linick from Timothy Lee, a senior policy adviser; David P. Bloch, director of the Division of Mortgages, and chief economist Simon Z. Wu. The analysts said their loss estimate was based on an analysis of Fannie and Freddie's public financial statements. The memo called on the FHFA to require the mortgage companies to conduct or commission their own analysis. Work on the report began this summer, and the inspector general's office shared its preliminary findings with officials at Fannie, Freddie, and the FHFA in September, according to documents reviewed by the Journal. Mr. Linick forwarded the draft report to Edward DeMarco, the FHFA's acting director, on Nov. 2, documents show. Meanwhile, Fannie and Freddie were asked by the FHFA in October to provide initial estimates of the financial impact of alleged Libor manipulation and to provide a cost-benefit analysis about any potential responses, documents show. Both companies have hired the law firm of Dickstein Shapiro to help with such an analysis,

according to a letter sent from the FHFA to the inspector general on Nov. 15. Freddie Mac identified potential class-action lawsuits that could be joined, the letter said, and the FHFA's general counsel has consulted with the Department of Justice. A spokeswoman for the inspector general's office said: "We conducted a preliminary analysis of potential Libor-related losses at Fannie and Freddie and shared that with FHFA, recommending that they conduct a thorough review." Republican Sens. Chuck Grassley of Iowa and Mark Kirk of Illinois sent an email on Friday to the FHFA's inspector general, requesting that the watchdog report to lawmakers whether it has explored Fannie and Freddie's potential Libor losses, a spokeswoman for Mr. Grassley said. The inspector general responded Tuesday afternoon about its "preliminary review of issues concerning manipulation" of Libor, documents show. The senators' inquiry builds on their earlier questioning of federal agencies' handling of alleged manipulation of the benchmark rate. Messrs. Grassley and Kirk held up the nomination of a Treasury Department official for several weeks in November and early December amid frustration the department hadn't responded in full to the lawmakers' questions about Libor, including whether Treasury officials considered the risks to U.S. local governments when it raised concerns about the interest rate with British central bankers several years ago. The FHFA hasn't been shy in filing suits against banks since the financial crisis. In 2011, it sued 18 of the world's largest lenders over \$200 billion in mortgage investments bought by Fannie and Freddie between 2005 and 2008 that the regulator said had contained misleading disclosures. Those lawsuits are still wending their way through courts. To estimate how much Fannie and Freddie could have lost, inspector general analysts wrote in the report that they took the difference between Libor and the Eurodollar deposit rate compiled by the Federal Reserve and applied that to the companies' investments tied to Libor. Before the financial crisis, Libor and the Eurodollar deposit rate were essentially the same, the report said. Fannie and Freddie would have lost money if Libor were manipulated lower due to mortgage assets they own that are pegged to the rate. So as Libor fell, their portfolios of securities tied to variable-rate mortgages paid less interest. They also would have been shortchanged on certain interest-rate derivatives used to hedge risks in their mortgage portfolios. As the benchmark fell, the costs associated with these swaps went up. On the other hand, they would have saved money on other derivatives if Libor had been manipulated lower, and they would have had lower debt-funding costs. Still, analysts say the companies stood to lose more money than they would save if Libor had been manipulated lower. That's because their mortgage bonds, swaps and other assets tied to Libor exceeded what they owed in Libor-linked debt. The inspector general analysts said their rough estimates of those losses accounted for the lower borrowing costs on Fannie and Freddie's liabilities tied to Libor. Copyright 2012 Dow Jones & Company, Inc. All Rights Reserved David Z. Seide Director of Special Projects Federal Housing Finance Agency-Office of Inspector General

(b) (6)

FW: Interesting article

Item ID: 32406
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>
Cc: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: Interesting article
Sent: December 20, 2012 9:04 AM
Received: December 20, 2012 9:04 AM

BTW, with respect to LIBOR I saw this interesting angle. [REDACTED]

(b) (5)

[REDACTED] From: [REDACTED] Sent: Monday, December 17, 2012 5:45 PM To: Lee, Timothy Subject: RE: Interesting article [REDACTED]

(b) (5)

[REDACTED]
From: Lee, Timothy Sent: Friday, December 14, 2012 9:00 AM To: [REDACTED] Subject: FW: Interesting article Hi Charlie, If you have any thoughts to offer on this, I'd love to hear them. Tim From: Lee, Timothy Sent: Friday, December 14, 2012 8:59 AM To: Parker, Richard Cc: Bloch, David Subject: Interesting article From Bloomberg . Note the last few paragraphs: In London, lawyers at Collyer Bristow LLP, a 252-year-old firm, are working on a plan that would force banks to reimburse customers for any payments they made under derivatives contracts pegged to Libor. Three of the five partners on the financial- litigation team are working full time on Libor-related cases. Stephen Rosen, who runs the practice, said clients who entered into interest-rate swaps with banks are entitled to cancel those contracts because manipulation was so entrenched. Swaps are contracts that allow borrowers to exchange a variable interest cost for a fixed one, protecting them against fluctuations in interest rates. "It's possible on legal grounds to set aside the swap contract entirely, which could mean you can recover all the payments you've made under the swap," Rosen, who wears thick- rimmed glasses and speaks in clipped, precise tones, said in an interview at his office in a Georgian townhouse in the legal district of Gray's Inn. "The bank, when they entered into the swap, made an implied representation that Libor would not be unfairly manipulated." Rosen said his clients include a publicly traded real estate company, three nursing homes and at least 12 more firms that bought Libor-linked interest-rate swaps from banks. He declined to identify them by name, citing confidentiality rules. "The client will argue, 'Had you told me the truth -- that you were fraudulently manipulating this rate -- I would never have entered the contract with you,'" he said. "We are calling this the nuclear option." ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Emailing: LIBOR proposal Dec 13.xlsx

Item ID: 32408
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: [REDACTED] (b) (6)
Subject: Emailing: LIBOR proposal Dec 13.xlsx
Sent: December 20, 2012 9:18 AM
Received: December 20, 2012 9:18 AM

Your message is ready to be sent with the following file or link attachments:

LIBOR proposal Dec 13.xlsx

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Attachment #1

LIBOR proposal Dec 13.xlsx

Original view

209 pages (displayed on pages 3 to 211)

Cash Flow Shortfall from LIBOR Suppression

Enterprises Variable Rate Mortgage Assets and Interest Rate Swaps

dollars in millions

	30-Jun-07	30-Sep-07	31-Dec-07	31-Mar-08	30-Jun-08	30-Sep-08	31-Dec-08
Swap Notional Amounts							
Fannie Mae	Table 25	Table 28	Table 30	Table 43	Table 43	Table 48	Table 29
Pay Fixed S	303,243	329,657	377,738	443,845	526,028	515,853	546,916
Less: Recei	248,916	256,902	285,885	408,658	409,181	372,555	451,081
Plus: Basis	7,601	8,401	7,001	18,026	25,626	24,761	24,560
Net Receiv	61,928	81,156	98,854	53,213	142,473	168,059	120,395
Freddie Ma	Table 7	Table 7	Table 15	Table 17	Table 26	Table 28	Table 38
Less: Rece	214,657	282,070	301,649	326,247	245,054	329,828	279,609
Plus: Pay F	284,927	380,370	409,682	425,450	411,074	452,633	404,359
Plus: Basis	473	1,093	498	17,988	32,205	82,205	82,190
Net Receiv	70,743	99,393	108,531	117,191	198,225	205,010	206,940
Enterprises							
Pay Fixed S	588,170	710,027	787,420	869,295	937,102	968,486	951,275
Plus: Basis	8,074	9,494	7,499	36,014	57,831	106,966	106,750
Less: Rece	(463,573)	(538,972)	(587,534)	(734,905)	(654,235)	(702,383)	(730,690)
Net Receiv	132,671	180,549	207,385	170,404	340,698	373,069	327,335
Mortgage Related Securities on Balance Sheet							
Fannie Ma	Table 11	Table 11	Table 23	Table 22	Table 22	Table 22	Table 20
Capital Ma	333,959	329,158	324,326	314,867	333,124	359,495	362,703
Freddie Ma	43%	42%	42%	43%	39%	41%	37%
Estimated I	143,728	139,816	136,268	134,230	130,345	146,025	132,796
Freddie Ma	Table 10	Table 10	Table 22	Table 15	Table 15	Table 17	Table 24
Fixed Rate	405,650	410,235	417,959	408,735	481,983	437,560	510,116
Variable Ra	306,486	302,929	302,854	303,727	309,815	299,316	294,646
Variable Ra	43%	42%	42%	43%	39%	41%	37%
Floating Rate Liabilities on Balance Sheet							
Fannie Ma	Table 13	Table 13	Table 28	Note 8	Note 8	Note 9	Note 10
Floating Rate Short Term Debt			-	4,501	4,501	4,495	7,585
Senior Floa	12,201	15,651	13,700	25,652	33,064	47,087	46,611
Freddie Ma	Table 7.1	Table 7.1	Table 7.3	Table 7.1	Table 7.1	Table 7.1	Table 8.3

Long-Term	24,176	25,487	25,566	25,230	27,093	24,708	13,664
Total Other	483,522	509,744	479,087	504,592	541,851	494,168	433,954
Ratio: Vari	5%	5%	5%	5%	5%	5%	3%

Enterprises

Estimated I	450,214	442,745	439,122	437,957	440,160	445,341	427,442
Estimated I	(36,377)	(41,138)	(39,266)	(55,383)	(64,658)	(76,290)	(67,860)
Estimated \	413,837	401,606	399,856	382,574	375,502	369,051	359,582

Fed ED-LIBO #NAME? #NAME? #NAME? #NAME? #NAME? #NAME? #NAME?

Estimated Damages

LIBOR Cash #NAME? #NAME? #NAME? #NAME? #NAME? #NAME? #NAME?
LIBOR Cash #NAME? #NAME? #NAME? #NAME? #NAME? #NAME? #NAME?

Prorated LIBOR Cash Flow Shortfall - 9/6/08 thru 9/30/08 #NAME?

31-Mar-09 30-Jun-09 30-Sep-09 31-Dec-09 31-Mar-10 30-Jun-10

Table 50	Table 45	Table 47	Table 53	Table 45	Table 48
620,850	650,447	435,693	382,600	315,857	317,259
549,823	571,802	340,384	275,417	229,293	234,901
19,815	22,200	11,000	3,225	3,220	3,020
90,842	100,845	106,309	110,408	89,784	85,378

Table 25	Table 26	Table 26	Table 38	Table 29	Table 29
336,207	284,244	320,458	271,403	255,940	349,545
342,747	401,901	414,776	382,259	382,145	386,194
82,090	51,065	51,615	52,045	54,070	53,910
88,630	168,722	145,933	162,901	180,275	90,559

963,597	#####	850,469	764,859	698,002	703,453
101,905	73,265	62,615	55,270	57,290	56,930
(886,030)	(856,046)	(660,842)	(546,820)	(485,233)	(584,446)
179,472	269,567	252,242	273,309	270,059	175,937

Table 20	Table 18	Table 19	Table 22	Table 18	Table 22
353,172	369,546	368,389	352,709	434,532	391,615
33%	34%	34%	40%	52%	52%
116,457	124,378	125,616	139,775	224,780	204,120

Table 19	Table 19	Table 19	Table 28	Table 19	Table 20
581,180	550,539	516,778	372,160	159,278	148,851
285,924	279,298	267,393	244,296	170,690	162,049
33%	34%	34%	40%	52%	52%

Note 10	Note 10	Note 10	Note 9	Note 9	Note 9
3,132	3,102	3,069	50	-	-
58,770	68,766	51,142	42,952	46,170	45,144

[Table 7.1](#) [Table 7.1](#) [Table 7.1](#) [Table 9.3](#) [Table 8.3](#) [Table 8.3](#)

118,160	126,647	113,775	65,855	126,036	144,833
478,379	512,742	460,626	461,051	593,174	585,630
25%	25%	25%	14%	21%	25%

402,381	403,676	393,009	384,071	395,470	366,169
(180,062)	(198,515)	(167,986)	(108,857)	(172,206)	(189,977)
222,319	205,161	225,024	275,214	223,264	176,192

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Federal
Reserve
ED
Deposits
Less
LIBOR, 1
month
tenor

4-Jan-00 through 14-Jun-07

Average Spread #NAME?
Incidence of Zero or Negative Spre #DIV/0!
Highest Spread #NAME?

15-jun-07 through 7-Sep-08

Average Spread #NAME?
Incidence of Zero or Negative Spre #DIV/0!
Highest Spread #NAME?

6-sep-08 through 27-jun-12

Average Spread #NAME?
Incidence of Zero or Negative Spre #DIV/0!
Highest Spread #NAME?

Date	1 month			Date	3 month	
	1 month LIBOR	Fed ED Deposit	1 month Spread		3 month LIBOR	Fed ED Deposit
4-Jan-00	#NAME?	#NAME?	#NAME?	4-Jan-00	#NAME?	#NAME?
5-Jan-00	#NAME?	#NAME?	#NAME?	5-Jan-00	#NAME?	#NAME?
6-Jan-00	#NAME?	#NAME?	#NAME?	6-Jan-00	#NAME?	#NAME?
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10-Jan-00	#NAME?	#NAME?	#NAME?	10-Jan-00	#NAME?	#NAME?
11-Jan-00	#NAME?	#NAME?	#NAME?	11-Jan-00	#NAME?	#NAME?
12-Jan-00	#NAME?	#NAME?	#NAME?	12-Jan-00	#NAME?	#NAME?
13-Jan-00	#NAME?	#NAME?	#NAME?	13-Jan-00	#NAME?	#NAME?
14-Jan-00	#NAME?	#NAME?	#NAME?	14-Jan-00	#NAME?	#NAME?
18-Jan-00	#NAME?	#NAME?	#NAME?	18-Jan-00	#NAME?	#NAME?
19-Jan-00	#NAME?	#NAME?	#NAME?	19-Jan-00	#NAME?	#NAME?
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16-Jun-00	#NAME?	#NAME?	#NAME?	16-Jun-00	#NAME?	#NAME?
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31-Jul-00	#NAME?	#NAME?	#NAME?	31-Jul-00	#NAME?	#NAME?
1-Aug-00	#NAME?	#NAME?	#NAME?	1-Aug-00	#NAME?	#NAME?
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1-Nov-00	#NAME?	#NAME?	#NAME?	1-Nov-00	#NAME?	#NAME?
2-Nov-00	#NAME?	#NAME?	#NAME?	2-Nov-00	#NAME?	#NAME?
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8-Dec-00	#NAME?	#NAME?	#NAME?	8-Dec-00	#NAME?	#NAME?
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#####	#NAME?	#NAME?	#NAME?	#####	#NAME?	#NAME?
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31-Jan-02	#NAME?	#NAME?	#NAME?	31-Jan-02	#NAME?	#NAME?
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11-Mar-02	#NAME?	#NAME?	#NAME?	11-Mar-02	#NAME?	#NAME?

31-Jul-02	#NAME?	#NAME?	#NAME?	31-Jul-02	#NAME?	#NAME?
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2-Aug-02	#NAME?	#NAME?	#NAME?	2-Aug-02	#NAME?	#NAME?
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17-Feb-05	#NAME?	#NAME?	#NAME?	17-Feb-05	#NAME?	#NAME?
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1-Jun-06	#NAME?	#NAME?	#NAME?	1-Jun-06	#NAME?	#NAME?
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30-Jan-12	#NAME?	#NAME?	#NAME?	30-Jan-12	#NAME?	#NAME?
31-Jan-12	#NAME?	#NAME?	#NAME?	31-Jan-12	#NAME?	#NAME?
1-Feb-12	#NAME?	#NAME?	#NAME?	1-Feb-12	#NAME?	#NAME?
2-Feb-12	#NAME?	#NAME?	#NAME?	2-Feb-12	#NAME?	#NAME?
3-Feb-12	#NAME?	#NAME?	#NAME?	3-Feb-12	#NAME?	#NAME?
6-Feb-12	#NAME?	#NAME?	#NAME?	6-Feb-12	#NAME?	#NAME?
7-Feb-12	#NAME?	#NAME?	#NAME?	7-Feb-12	#NAME?	#NAME?
8-Feb-12	#NAME?	#NAME?	#NAME?	8-Feb-12	#NAME?	#NAME?
9-Feb-12	#NAME?	#NAME?	#NAME?	9-Feb-12	#NAME?	#NAME?
10-Feb-12	#NAME?	#NAME?	#NAME?	10-Feb-12	#NAME?	#NAME?
13-Feb-12	#NAME?	#NAME?	#NAME?	13-Feb-12	#NAME?	#NAME?
14-Feb-12	#NAME?	#NAME?	#NAME?	14-Feb-12	#NAME?	#NAME?
15-Feb-12	#NAME?	#NAME?	#NAME?	15-Feb-12	#NAME?	#NAME?
16-Feb-12	#NAME?	#NAME?	#NAME?	16-Feb-12	#NAME?	#NAME?
17-Feb-12	#NAME?	#NAME?	#NAME?	17-Feb-12	#NAME?	#NAME?
20-Feb-12	#NAME?	#NAME?	#NAME?	20-Feb-12	#NAME?	#NAME?
21-Feb-12	#NAME?	#NAME?	#NAME?	21-Feb-12	#NAME?	#NAME?
22-Feb-12	#NAME?	#NAME?	#NAME?	22-Feb-12	#NAME?	#NAME?
23-Feb-12	#NAME?	#NAME?	#NAME?	23-Feb-12	#NAME?	#NAME?
24-Feb-12	#NAME?	#NAME?	#NAME?	24-Feb-12	#NAME?	#NAME?
27-Feb-12	#NAME?	#NAME?	#NAME?	27-Feb-12	#NAME?	#NAME?
28-Feb-12	#NAME?	#NAME?	#NAME?	28-Feb-12	#NAME?	#NAME?
29-Feb-12	#NAME?	#NAME?	#NAME?	29-Feb-12	#NAME?	#NAME?
1-Mar-12	#NAME?	#NAME?	#NAME?	1-Mar-12	#NAME?	#NAME?
2-Mar-12	#NAME?	#NAME?	#NAME?	2-Mar-12	#NAME?	#NAME?
5-Mar-12	#NAME?	#NAME?	#NAME?	5-Mar-12	#NAME?	#NAME?

6-Mar-12	#NAME?	#NAME?	#NAME?	6-Mar-12	#NAME?	#NAME?
7-Mar-12	#NAME?	#NAME?	#NAME?	7-Mar-12	#NAME?	#NAME?
8-Mar-12	#NAME?	#NAME?	#NAME?	8-Mar-12	#NAME?	#NAME?
9-Mar-12	#NAME?	#NAME?	#NAME?	9-Mar-12	#NAME?	#NAME?
12-Mar-12	#NAME?	#NAME?	#NAME?	12-Mar-12	#NAME?	#NAME?
13-Mar-12	#NAME?	#NAME?	#NAME?	13-Mar-12	#NAME?	#NAME?
14-Mar-12	#NAME?	#NAME?	#NAME?	14-Mar-12	#NAME?	#NAME?
15-Mar-12	#NAME?	#NAME?	#NAME?	15-Mar-12	#NAME?	#NAME?
16-Mar-12	#NAME?	#NAME?	#NAME?	16-Mar-12	#NAME?	#NAME?
19-Mar-12	#NAME?	#NAME?	#NAME?	19-Mar-12	#NAME?	#NAME?
20-Mar-12	#NAME?	#NAME?	#NAME?	20-Mar-12	#NAME?	#NAME?
21-Mar-12	#NAME?	#NAME?	#NAME?	21-Mar-12	#NAME?	#NAME?
22-Mar-12	#NAME?	#NAME?	#NAME?	22-Mar-12	#NAME?	#NAME?
23-Mar-12	#NAME?	#NAME?	#NAME?	23-Mar-12	#NAME?	#NAME?
26-Mar-12	#NAME?	#NAME?	#NAME?	26-Mar-12	#NAME?	#NAME?
27-Mar-12	#NAME?	#NAME?	#NAME?	27-Mar-12	#NAME?	#NAME?
28-Mar-12	#NAME?	#NAME?	#NAME?	28-Mar-12	#NAME?	#NAME?
29-Mar-12	#NAME?	#NAME?	#NAME?	29-Mar-12	#NAME?	#NAME?
30-Mar-12	#NAME?	#NAME?	#NAME?	30-Mar-12	#NAME?	#NAME?
2-Apr-12	#NAME?	#NAME?	#NAME?	2-Apr-12	#NAME?	#NAME?
3-Apr-12	#NAME?	#NAME?	#NAME?	3-Apr-12	#NAME?	#NAME?
4-Apr-12	#NAME?	#NAME?	#NAME?	4-Apr-12	#NAME?	#NAME?
5-Apr-12	#NAME?	#NAME?	#NAME?	5-Apr-12	#NAME?	#NAME?
10-Apr-12	#NAME?	#NAME?	#NAME?	10-Apr-12	#NAME?	#NAME?
11-Apr-12	#NAME?	#NAME?	#NAME?	11-Apr-12	#NAME?	#NAME?
12-Apr-12	#NAME?	#NAME?	#NAME?	12-Apr-12	#NAME?	#NAME?
13-Apr-12	#NAME?	#NAME?	#NAME?	13-Apr-12	#NAME?	#NAME?
16-Apr-12	#NAME?	#NAME?	#NAME?	16-Apr-12	#NAME?	#NAME?
17-Apr-12	#NAME?	#NAME?	#NAME?	17-Apr-12	#NAME?	#NAME?
18-Apr-12	#NAME?	#NAME?	#NAME?	18-Apr-12	#NAME?	#NAME?
19-Apr-12	#NAME?	#NAME?	#NAME?	19-Apr-12	#NAME?	#NAME?
20-Apr-12	#NAME?	#NAME?	#NAME?	20-Apr-12	#NAME?	#NAME?
23-Apr-12	#NAME?	#NAME?	#NAME?	23-Apr-12	#NAME?	#NAME?
24-Apr-12	#NAME?	#NAME?	#NAME?	24-Apr-12	#NAME?	#NAME?
25-Apr-12	#NAME?	#NAME?	#NAME?	25-Apr-12	#NAME?	#NAME?
26-Apr-12	#NAME?	#NAME?	#NAME?	26-Apr-12	#NAME?	#NAME?
27-Apr-12	#NAME?	#NAME?	#NAME?	27-Apr-12	#NAME?	#NAME?
30-Apr-12	#NAME?	#NAME?	#NAME?	30-Apr-12	#NAME?	#NAME?
1-May-12	#NAME?	#NAME?	#NAME?	1-May-12	#NAME?	#NAME?
2-May-12	#NAME?	#NAME?	#NAME?	2-May-12	#NAME?	#NAME?
3-May-12	#NAME?	#NAME?	#NAME?	3-May-12	#NAME?	#NAME?
4-May-12	#NAME?	#NAME?	#NAME?	4-May-12	#NAME?	#NAME?
8-May-12	#NAME?	#NAME?	#NAME?	8-May-12	#NAME?	#NAME?
9-May-12	#NAME?	#NAME?	#NAME?	9-May-12	#NAME?	#NAME?
#####	#NAME?	#NAME?	#NAME?	#####	#NAME?	#NAME?
#####	#NAME?	#NAME?	#NAME?	#####	#NAME?	#NAME?
#####	#NAME?	#NAME?	#NAME?	#####	#NAME?	#NAME?

#NAME?

USD3MTD156N		USD1MTD156N		DED1		DED3	
lin	Percent	lin	Percent	lin	Percent	lin	Percent
D	Daily	D	Daily	D	Daily	D	Daily
1/1/2000	1986-01-02	1/1/2000	1986-01-02	1/1/2000	1971-01-04	1/1/2000	1971-01-04 to 2012-09
3-Month London Inter		1-Month London Inter		1-Month Eurodollar De		3-Month Eurodollar Deposit Rate	
British Bankers' Associ		British Bankers' Associ		Board of Governors of		Board of Governors of the Federal	
date	value	date	value	date	value	date	value
1/4/2000	6.0	1/4/2000	5.8	1/3/2000	5.7	1/3/2000	5.9
1/5/2000	6.0	1/5/2000	5.8	1/4/2000	5.7	1/4/2000	5.9
1/6/2000	6.0	1/6/2000	5.8	1/5/2000	5.7	1/5/2000	5.9
1/7/2000	6.0	1/7/2000	5.8	1/6/2000	5.7	1/6/2000	5.9
#####	6.0	#####	5.8	1/7/2000	5.7	1/7/2000	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	#N/A	#####	#N/A
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.7	#####	5.9
#####	6.0	#####	5.8	#####	5.8	#####	5.9
#####	6.0	#####	5.8	#####	5.8	#####	5.9
#####	6.0	#####	5.8	#####	5.8	#####	5.9
#####	6.0	#####	5.9	#####	5.7	#####	5.9
#####	6.1	#####	5.9	#####	5.8	#####	6.0
2/1/2000	6.1	2/1/2000	5.9	#####	5.8	#####	6.0
2/2/2000	6.1	2/2/2000	5.9	2/1/2000	5.8	2/1/2000	6.0
2/3/2000	6.1	2/3/2000	5.9	2/2/2000	5.9	2/2/2000	6.1
2/4/2000	6.1	2/4/2000	5.9	2/3/2000	5.8	2/3/2000	6.0
2/7/2000	6.1	2/7/2000	5.9	2/4/2000	5.8	2/4/2000	6.0
2/8/2000	6.1	2/8/2000	5.9	2/7/2000	5.8	2/7/2000	6.0
2/9/2000	6.1	2/9/2000	5.9	2/8/2000	5.8	2/8/2000	6.0
#####	6.1	#####	5.9	2/9/2000	5.8	2/9/2000	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
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#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0
#####	6.1	#####	5.9	#####	5.8	#####	6.0

#####	6.7 #####	6.6 7/7/2000	6.5 7/7/2000	6.7
#####	6.7 #####	6.6 #####	6.6 #####	6.7
#####	6.7 #####	6.6 #####	6.6 #####	6.7
#####	6.7 #####	6.6 #####	6.6 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
#####	6.7 #####	6.6 #####	6.5 #####	6.7
8/1/2000	6.7 8/1/2000	6.6 #####	6.5 #####	6.7
8/2/2000	6.7 8/2/2000	6.6 #####	6.5 #####	6.7
8/3/2000	6.7 8/3/2000	6.6 #####	6.5 #####	6.7
8/4/2000	6.7 8/4/2000	6.6 #####	6.5 #####	6.7
8/7/2000	6.7 8/7/2000	6.6 #####	6.5 #####	6.7
8/8/2000	6.7 8/8/2000	6.6 8/1/2000	6.5 8/1/2000	6.7
8/9/2000	6.7 8/9/2000	6.6 8/2/2000	6.5 8/2/2000	6.7
#####	6.7 #####	6.6 8/3/2000	6.5 8/3/2000	6.7
#####	6.7 #####	6.6 8/4/2000	6.5 8/4/2000	6.6
#####	6.7 #####	6.6 8/7/2000	6.5 8/7/2000	6.6
#####	6.7 #####	6.6 8/8/2000	6.5 8/8/2000	6.6
#####	6.7 #####	6.6 8/9/2000	6.5 8/9/2000	6.6
#####	6.7 #####	6.6 #####	6.5 #####	6.6
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#####	6.7 #####	6.6 #####	6.5 #####	6.6
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9/1/2000	6.7 9/1/2000	6.6 #####	6.5 #####	6.6
9/4/2000	6.7 9/4/2000	6.6 #####	6.5 #####	6.6
9/5/2000	6.7 9/5/2000	6.6 #####	6.5 #####	6.6
9/6/2000	6.7 9/6/2000	6.6 #####	6.5 #####	6.6
9/7/2000	6.7 9/7/2000	6.6 #####	6.5 #####	6.6
9/8/2000	6.7 9/8/2000	6.6 #####	6.5 #####	6.6
#####	6.7 #####	6.6 9/1/2000	6.5 9/1/2000	6.6
#####	6.7 #####	6.6 9/4/2000	#N/A 9/4/2000	#N/A
#####	6.7 #####	6.6 9/5/2000	6.5 9/5/2000	6.6
#####	6.7 #####	6.6 9/6/2000	6.5 9/6/2000	6.6
#####	6.7 #####	6.6 9/7/2000	6.5 9/7/2000	6.6
#####	6.7 #####	6.6 9/8/2000	6.5 9/8/2000	6.6
#####	6.7 #####	6.6 #####	6.5 #####	6.6

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#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
#####	6.6	#####	6.7	#####	6.7	#####	6.6
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#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.7	#####	6.6	#####	6.5
#####	6.5	#####	6.6	#####	6.6	#####	6.5
#####	6.5	#####	6.6	#####	6.6	#####	6.5
#####	6.5	#####	6.6	#####	6.6	#####	6.5
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1/2/2001	6.4	1/2/2001	6.5	#####	6.5	#####	6.4
1/3/2001	6.3	1/3/2001	6.5	#####	6.6	#####	6.4
1/4/2001	5.9	1/4/2001	6.1	#####	6.6	#####	6.3
1/5/2001	5.7	1/5/2001	5.9	#####	6.6	#####	6.3
1/8/2001	5.6	1/8/2001	5.9	#####	6.6	#####	6.3
1/9/2001	5.6	1/9/2001	5.9	#####	6.5	#####	6.3
#####	5.7	#####	5.9	#####	6.5	#####	6.3
#####	5.7	#####	5.9	#####	6.5	#####	6.3
#####	5.7	#####	5.9	1/1/2001	#N/A	1/1/2001	#N/A
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#####	5.7	#####	5.9	1/4/2001	6.0	1/4/2001	5.8
#####	5.6	#####	5.8	1/5/2001	5.9	1/5/2001	5.6
#####	5.6	#####	5.8	1/8/2001	5.8	1/8/2001	5.5
#####	5.6	#####	5.7	1/9/2001	5.8	1/9/2001	5.5
#####	5.6	#####	5.7	#####	5.8	#####	5.6
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#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	5.8	#####	5.6
#####	5.6	#####	5.7	#####	#N/A	#####	#N/A
#####	5.5	#####	5.6	#####	5.8	#####	5.7
#####	5.5	#####	5.6	#####	5.8	#####	5.7
#####	5.4	#####	5.6	#####	5.8	#####	5.6
2/1/2001	5.4	2/1/2001	5.6	#####	5.8	#####	5.6

2/2/2001	5.4	2/2/2001	5.6	#####	5.7	#####	5.5
2/5/2001	5.4	2/5/2001	5.6	#####	5.6	#####	5.5
2/6/2001	5.4	2/6/2001	5.6	#####	5.7	#####	5.5
2/7/2001	5.4	2/7/2001	5.6	#####	5.7	#####	5.5
2/8/2001	5.4	2/8/2001	5.6	#####	5.7	#####	5.5
2/9/2001	5.4	2/9/2001	5.6	#####	5.5	#####	5.4
#####	5.4	#####	5.6	#####	5.5	#####	5.4
#####	5.4	#####	5.6	#####	5.5	#####	5.3
#####	5.4	#####	5.6	2/1/2001	5.5	2/1/2001	5.3
#####	5.4	#####	5.6	2/2/2001	5.5	2/2/2001	5.3
#####	5.4	#####	5.6	2/5/2001	5.5	2/5/2001	5.3
#####	5.4	#####	5.6	2/6/2001	5.5	2/6/2001	5.3
#####	5.4	#####	5.6	2/7/2001	5.5	2/7/2001	5.3
#####	5.4	#####	5.6	2/8/2001	5.5	2/8/2001	5.3
#####	5.3	#####	5.5	2/9/2001	5.5	2/9/2001	5.3
#####	5.3	#####	5.5	#####	5.5	#####	5.3
#####	5.2	#####	5.4	#####	5.5	#####	5.3
#####	5.1	#####	5.3	#####	5.5	#####	5.3
#####	5.1	#####	5.2	#####	5.5	#####	5.3
3/1/2001	5.1	3/1/2001	5.3	#####	5.5	#####	5.3
3/2/2001	5.1	3/2/2001	5.3	#####	#N/A	#####	#N/A
3/5/2001	5.1	3/5/2001	5.3	#####	5.5	#####	5.3
3/6/2001	5.1	3/6/2001	5.3	#####	5.5	#####	5.3
3/7/2001	5.1	3/7/2001	5.3	#####	5.5	#####	5.3
3/8/2001	5.1	3/8/2001	5.2	#####	5.4	#####	5.2
3/9/2001	5.0	3/9/2001	5.2	#####	5.3	#####	5.1
#####	5.1	#####	5.2	#####	5.2	#####	5.0
#####	5.0	#####	5.2	#####	5.1	#####	5.0
#####	5.0	#####	5.2	3/1/2001	5.3	3/1/2001	5.0
#####	4.9	#####	5.1	3/2/2001	5.3	3/2/2001	5.0
#####	4.9	#####	5.0	3/5/2001	5.2	3/5/2001	5.0
#####	4.9	#####	5.0	3/6/2001	5.2	3/6/2001	5.0
#####	4.9	#####	5.0	3/7/2001	5.2	3/7/2001	5.0
#####	4.9	#####	5.1	3/8/2001	5.2	3/8/2001	5.0
#####	4.9	#####	5.1	3/9/2001	5.2	3/9/2001	5.0
#####	4.9	#####	5.1	#####	5.1	#####	5.0
#####	4.9	#####	5.1	#####	5.1	#####	5.0
#####	4.9	#####	5.1	#####	5.1	#####	4.9
#####	4.9	#####	5.1	#####	5.0	#####	4.9
#####	4.9	#####	5.1	#####	4.9	#####	4.8
#####	4.9	#####	5.1	#####	4.9	#####	4.8
4/2/2001	4.8	4/2/2001	5.1	#####	4.9	#####	4.8
4/3/2001	4.8	4/3/2001	5.1	#####	5.0	#####	4.8
4/4/2001	4.8	4/4/2001	5.1	#####	5.0	#####	4.7
4/5/2001	4.8	4/5/2001	5.1	#####	5.0	#####	4.8
4/6/2001	4.8	4/6/2001	5.1	#####	5.0	#####	4.8
4/9/2001	4.7	4/9/2001	5.0	#####	5.0	#####	4.8

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4/4/2002	2.0	4/4/2002	1.9	3/8/2002	1.8	3/8/2002	1.9
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5/3/2002	1.9	5/3/2002	1.8	4/8/2002	1.8	4/8/2002	1.9
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4/7/2003	1.3	4/7/2003	1.3	#####	1.3	#####	1.3
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7/8/2003	1.1	7/8/2003	1.1	#####	1.3	#####	1.2
7/9/2003	1.1	7/9/2003	1.1	#####	1.3	#####	1.2
#####	1.1	#####	1.1	#####	1.3	#####	1.2
#####	1.1	#####	1.1	#####	1.3	#####	1.2
#####	1.1	#####	1.1	6/2/2003	1.3	6/2/2003	1.2
#####	1.1	#####	1.1	6/3/2003	1.3	6/3/2003	1.2
#####	1.1	#####	1.1	6/4/2003	1.3	6/4/2003	1.2
#####	1.1	#####	1.1	6/5/2003	1.2	6/5/2003	1.1
#####	1.1	#####	1.1	6/6/2003	1.2	6/6/2003	1.1
#####	1.1	#####	1.1	6/9/2003	1.2	6/9/2003	1.1
#####	1.1	#####	1.1	#####	1.2	#####	1.1
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#####	1.1	#####	1.1	#####	1.1	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	0.9
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	0.9
8/1/2003	1.1	8/1/2003	1.1	#####	1.0	#####	0.9
8/4/2003	1.1	8/4/2003	1.1	#####	1.0	#####	0.9
8/5/2003	1.1	8/5/2003	1.1	#####	0.9	#####	0.9
8/6/2003	1.1	8/6/2003	1.1	#####	0.9	#####	0.9
8/7/2003	1.1	8/7/2003	1.1	#####	1.1	#####	1.0
8/8/2003	1.1	8/8/2003	1.1	#####	1.1	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
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#####	1.1	#####	1.1	7/2/2003	1.1	7/2/2003	1.1
#####	1.1	#####	1.1	7/3/2003	1.1	7/3/2003	1.1
#####	1.1	#####	1.1	7/4/2003	#N/A	7/4/2003	#N/A
#####	1.1	#####	1.1	7/7/2003	1.1	7/7/2003	1.0
#####	1.1	#####	1.1	7/8/2003	1.1	7/8/2003	1.1
#####	1.1	#####	1.1	7/9/2003	1.1	7/9/2003	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
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#####	1.1	#####	1.1	#####	1.1	#####	1.1
9/1/2003	1.1	9/1/2003	1.1	#####	1.0	#####	1.0
9/2/2003	1.1	9/2/2003	1.1	#####	1.0	#####	1.1
9/3/2003	1.1	9/3/2003	1.1	#####	1.0	#####	1.0
9/4/2003	1.1	9/4/2003	1.1	#####	1.0	#####	1.0
9/5/2003	1.1	9/5/2003	1.1	#####	1.0	#####	1.0
9/8/2003	1.1	9/8/2003	1.1	#####	1.0	#####	1.0
9/9/2003	1.1	9/9/2003	1.1	#####	1.0	#####	1.0
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#####	1.1	#####	1.1	#####	1.1	#####	1.1

4/1/2004	1.1	4/1/2004	1.1	#####	1.0	#####	1.1
4/2/2004	1.1	4/2/2004	1.1	#####	#N/A	#####	#N/A
4/5/2004	1.1	4/5/2004	1.1	#####	1.0	#####	1.0
4/6/2004	1.1	4/6/2004	1.1	#####	1.0	#####	1.0
4/7/2004	1.1	4/7/2004	1.1	#####	1.0	#####	1.1
4/8/2004	1.1	4/8/2004	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
#####	1.1	#####	1.1	#####	1.0	#####	1.1
#####	1.2	#####	1.1	3/1/2004	1.0	3/1/2004	1.0
#####	1.2	#####	1.1	3/2/2004	1.0	3/2/2004	1.0
#####	1.2	#####	1.1	3/3/2004	1.0	3/3/2004	1.1
#####	1.2	#####	1.1	3/4/2004	1.0	3/4/2004	1.1
#####	1.2	#####	1.1	3/5/2004	1.0	3/5/2004	1.0
#####	1.2	#####	1.1	3/8/2004	1.0	3/8/2004	1.0
#####	1.2	#####	1.1	3/9/2004	1.0	3/9/2004	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
5/4/2004	1.2	5/4/2004	1.1	#####	1.0	#####	1.0
5/5/2004	1.2	5/5/2004	1.1	#####	1.0	#####	1.0
5/6/2004	1.2	5/6/2004	1.1	#####	1.0	#####	1.0
5/7/2004	1.2	5/7/2004	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
#####	1.2	#####	1.1	#####	1.0	#####	1.0
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#####	1.3	#####	1.1	#####	1.0	#####	1.0
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#####	1.3	#####	1.1	#####	1.0	#####	1.1
#####	1.3	#####	1.1	4/1/2004	1.0	4/1/2004	1.0
#####	1.3	#####	1.1	4/2/2004	1.0	4/2/2004	1.0
#####	1.3	#####	1.1	4/5/2004	1.0	4/5/2004	1.1
#####	1.3	#####	1.1	4/6/2004	1.0	4/6/2004	1.1
#####	1.3	#####	1.1	4/7/2004	1.0	4/7/2004	1.1
6/1/2004	1.3	6/1/2004	1.1	4/8/2004	1.0	4/8/2004	1.1
6/2/2004	1.3	6/2/2004	1.1	4/9/2004	#N/A	4/9/2004	#N/A
6/3/2004	1.4	6/3/2004	1.2	#####	1.0	#####	1.1
6/4/2004	1.4	6/4/2004	1.2	#####	1.0	#####	1.1
6/7/2004	1.4	6/7/2004	1.2	#####	1.0	#####	1.1
6/8/2004	1.4	6/8/2004	1.2	#####	1.0	#####	1.1
6/9/2004	1.4	6/9/2004	1.2	#####	1.0	#####	1.1
#####	1.5	#####	1.2	#####	1.0	#####	1.1

#####	2.6	#####	2.4	#####	2.0	#####	2.1
#####	2.6	#####	2.4	#####	2.0	#####	2.1
1/4/2005	2.6	1/4/2005	2.4	#####	2.0	#####	2.1
1/5/2005	2.6	1/5/2005	2.4	#####	2.0	#####	2.2
1/6/2005	2.6	1/6/2005	2.4	#####	2.0	#####	2.2
1/7/2005	2.6	1/7/2005	2.4	#####	2.0	#####	2.2
#####	2.6	#####	2.4	#####	#N/A	#####	#N/A
#####	2.6	#####	2.4	#####	2.0	#####	2.2
#####	2.6	#####	2.5	#####	2.0	#####	2.2
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	2.1	#####	2.3
#####	2.7	#####	2.5	#####	#N/A	#####	#N/A
#####	2.7	#####	2.6	#####	2.1	#####	2.3
#####	2.7	#####	2.6	#####	2.2	#####	2.3
#####	2.7	#####	2.6	#####	2.2	#####	2.3
#####	2.7	#####	2.6	#####	2.2	#####	2.3
#####	2.8	#####	2.6	#####	2.3	#####	2.4
2/1/2005	2.8	2/1/2005	2.6	#####	2.3	#####	2.4
2/2/2005	2.8	2/2/2005	2.6	#####	2.3	#####	2.4
2/3/2005	2.8	2/3/2005	2.6	#####	2.3	#####	2.4
2/4/2005	2.8	2/4/2005	2.6	#####	2.3	#####	2.4
2/7/2005	2.8	2/7/2005	2.6	#####	2.3	#####	2.4
2/8/2005	2.8	2/8/2005	2.6	#####	2.3	#####	2.4
2/9/2005	2.8	2/9/2005	2.6	#####	2.3	#####	2.4
#####	2.8	#####	2.6	#####	2.3	#####	2.4
#####	2.8	#####	2.6	#####	2.4	#####	2.4
#####	2.8	#####	2.6	#####	2.3	#####	2.4
#####	2.8	#####	2.6	#####	2.4	#####	2.5
#####	2.8	#####	2.6	#####	2.3	#####	2.5
#####	2.8	#####	2.6	#####	2.3	#####	2.5
#####	2.8	#####	2.6	#####	2.3	#####	2.5
#####	2.9	#####	2.6	#####	2.3	#####	2.5
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#####	2.9	#####	2.6	#####	2.3	#####	2.5
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#####	2.9	#####	2.7	#####	2.4	#####	2.5
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3/1/2005	2.9	3/1/2005	2.7	#####	2.3	#####	2.5
3/2/2005	2.9	3/2/2005	2.7	1/3/2005	2.3	1/3/2005	2.5
3/3/2005	3.0	3/3/2005	2.7	1/4/2005	2.3	1/4/2005	2.5
3/4/2005	3.0	3/4/2005	2.8	1/5/2005	2.3	1/5/2005	2.5
3/7/2005	3.0	3/7/2005	2.8	1/6/2005	2.4	1/6/2005	2.6

3/8/2005	3.0	3/8/2005	2.8	1/7/2005	2.4	1/7/2005	2.6
3/9/2005	3.0	3/9/2005	2.8	#####	2.4	#####	2.6
#####	3.0	#####	2.8	#####	2.4	#####	2.6
#####	3.0	#####	2.8	#####	2.4	#####	2.6
#####	3.0	#####	2.8	#####	2.4	#####	2.6
#####	3.0	#####	2.8	#####	2.4	#####	2.6
#####	3.0	#####	2.8	#####	#N/A	#####	#N/A
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#####	3.1	#####	2.9	#####	2.4	#####	2.6
#####	3.1	#####	2.9	#####	2.5	#####	2.6
#####	3.1	#####	2.9	#####	2.5	#####	2.6
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#####	3.1	#####	2.9	#####	2.5	#####	2.6
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4/1/2005	3.1	4/1/2005	2.9	#####	2.5	#####	2.7
4/4/2005	3.1	4/4/2005	2.9	2/1/2005	2.5	2/1/2005	2.7
4/5/2005	3.1	4/5/2005	2.9	2/2/2005	2.5	2/2/2005	2.7
4/6/2005	3.1	4/6/2005	2.9	2/3/2005	2.5	2/3/2005	2.7
4/7/2005	3.1	4/7/2005	2.9	2/4/2005	2.5	2/4/2005	2.7
4/8/2005	3.1	4/8/2005	2.9	2/7/2005	2.5	2/7/2005	2.7
#####	3.1	#####	2.9	2/8/2005	2.5	2/8/2005	2.7
#####	3.1	#####	3.0	2/9/2005	2.5	2/9/2005	2.7
#####	3.1	#####	3.0	#####	2.5	#####	2.7
#####	3.2	#####	3.0	#####	2.5	#####	2.7
#####	3.2	#####	3.0	#####	2.5	#####	2.7
#####	3.1	#####	3.0	#####	2.5	#####	2.7
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#####	3.2	#####	3.0	#####	2.5	#####	2.8
#####	3.2	#####	3.0	#####	#N/A	#####	#N/A
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#####	3.2	#####	3.1	#####	2.6	#####	2.8
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#####	3.2	#####	3.1	#####	2.6	#####	2.9
#####	3.2	#####	3.1	#####	2.6	#####	2.8
5/3/2005	3.2	5/3/2005	3.1	3/1/2005	2.7	3/1/2005	2.9
5/4/2005	3.2	5/4/2005	3.1	3/2/2005	2.7	3/2/2005	2.9
5/5/2005	3.2	5/5/2005	3.1	3/3/2005	2.7	3/3/2005	2.9
5/6/2005	3.2	5/6/2005	3.1	3/4/2005	2.7	3/4/2005	2.9
5/9/2005	3.3	5/9/2005	3.1	3/7/2005	2.7	3/7/2005	2.9
#####	3.3	#####	3.1	3/8/2005	2.7	3/8/2005	2.9
#####	3.3	#####	3.1	3/9/2005	2.7	3/9/2005	2.9
#####	3.3	#####	3.1	#####	2.7	#####	2.9
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#####	3.7	#####	3.5	#####	3.0	#####	3.2
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8/2/2005	3.7	8/2/2005	3.5	#####	#N/A	#####	#N/A
8/3/2005	3.7	8/3/2005	3.6	#####	3.1	#####	3.3
8/4/2005	3.7	8/4/2005	3.6	6/1/2005	3.1	6/1/2005	3.3
8/5/2005	3.8	8/5/2005	3.6	6/2/2005	3.1	6/2/2005	3.3
8/8/2005	3.8	8/8/2005	3.6	6/3/2005	3.1	6/3/2005	3.3
8/9/2005	3.8	8/9/2005	3.6	6/6/2005	3.1	6/6/2005	3.3
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9/1/2005	3.9	9/1/2005	3.7	#####	3.3	#####	3.4
9/2/2005	3.8	9/2/2005	3.7	#####	3.3	#####	3.4
9/5/2005	3.8	9/5/2005	3.7	#####	3.3	#####	3.5
9/6/2005	3.8	9/6/2005	3.7	7/1/2005	3.3	7/1/2005	3.5
9/7/2005	3.8	9/7/2005	3.7	7/4/2005	#N/A	7/4/2005	#N/A
9/8/2005	3.8	9/8/2005	3.7	7/5/2005	3.3	7/5/2005	3.5
9/9/2005	3.9	9/9/2005	3.7	7/6/2005	3.3	7/6/2005	3.5
#####	3.9	#####	3.8	7/7/2005	3.3	7/7/2005	3.5
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#####	4.0 #####	3.8 #####	3.4 #####	3.6
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#####	4.3 #####	4.1 9/2/2005	3.6 9/2/2005	3.7
#####	4.3 #####	4.1 9/5/2005	#N/A 9/5/2005	#N/A
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#####	4.3 #####	4.1 9/7/2005	3.6 9/7/2005	3.7
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#####	3.1	#####	3.1	#####	4.7	#####	4.9
#####	3.1	#####	3.1	#####	4.8	#####	5.0
#####	3.1	#####	3.1	#####	4.8	#####	5.1
#####	3.1	#####	3.1	#####	4.8	#####	5.1
#####	3.1	#####	3.1	#####	4.9	#####	5.1
#####	3.1	#####	3.1	#####	4.9	#####	5.1
#####	3.1	#####	3.1	#####	#N/A	#####	#N/A
#####	3.1	#####	3.1	#####	4.9	#####	5.2
#####	3.1	#####	3.1	#####	4.9	#####	5.2

#####	3.1	#####	3.1	#####	4.9	#####	5.2
#####	3.1	#####	3.1	#####	4.9	#####	5.3
#####	3.1	#####	3.1	#####	5.6	#####	5.3
3/3/2008	3.0	3/3/2008	3.1	#####	5.5	#####	5.3
3/4/2008	3.0	3/4/2008	3.1	#####	5.6	#####	5.3
3/5/2008	3.0	3/5/2008	3.1	#####	5.5	#####	5.3
3/6/2008	3.0	3/6/2008	3.1	#####	5.5	#####	5.3
3/7/2008	2.9	3/7/2008	3.0	#####	5.5	#####	5.3
#####	2.9	#####	2.9	#####	5.5	#####	5.3
#####	2.9	#####	2.9	#####	5.4	#####	5.3
#####	2.9	#####	2.9	#####	5.4	#####	5.3
#####	2.8	#####	2.8	#####	5.3	#####	5.2
#####	2.8	#####	2.8	#####	5.2	#####	5.2
#####	2.6	#####	2.6	#####	5.2	#####	5.2
#####	2.5	#####	2.5	#####	5.3	#####	5.3
#####	2.6	#####	2.6	#####	5.2	#####	5.2
#####	2.6	#####	2.6	#####	5.2	#####	5.2
#####	2.7	#####	2.7	#####	5.2	#####	5.2
#####	2.7	#####	2.7	#####	5.1	#####	5.1
#####	2.7	#####	2.7	#####	#N/A	#####	#N/A
#####	2.7	#####	2.7	#####	#N/A	#####	#N/A
#####	2.7	#####	2.7	#####	5.1	#####	5.1
4/1/2008	2.7	4/1/2008	2.7	#####	5.1	#####	5.1
4/2/2008	2.7	4/2/2008	2.7	#####	4.7	#####	4.9
4/3/2008	2.7	4/3/2008	2.7	#####	4.7	#####	4.9
4/4/2008	2.7	4/4/2008	2.7	1/1/2008	#N/A	1/1/2008	#N/A
4/7/2008	2.7	4/7/2008	2.7	1/2/2008	4.7	1/2/2008	4.7
4/8/2008	2.7	4/8/2008	2.7	1/3/2008	4.6	1/3/2008	4.8
4/9/2008	2.7	4/9/2008	2.7	1/4/2008	4.6	1/4/2008	4.8
#####	2.7	#####	2.7	1/7/2008	4.5	1/7/2008	4.6
#####	2.7	#####	2.7	1/8/2008	4.5	1/8/2008	4.6
#####	2.7	#####	2.7	1/9/2008	4.4	1/9/2008	4.4
#####	2.7	#####	2.7	#####	4.4	#####	4.4
#####	2.7	#####	2.7	#####	4.3	#####	4.3
#####	2.8	#####	2.8	#####	4.1	#####	4.1
#####	2.9	#####	2.9	#####	4.1	#####	4.1
#####	2.9	#####	2.9	#####	4.0	#####	3.9
#####	2.9	#####	2.9	#####	4.0	#####	4.0
#####	2.9	#####	2.9	#####	4.0	#####	3.9
#####	2.9	#####	2.9	#####	#N/A	#####	#N/A
#####	2.9	#####	2.9	#####	3.8	#####	3.7
#####	2.9	#####	2.9	#####	3.3	#####	3.3
#####	2.9	#####	2.8	#####	3.3	#####	3.3
#####	2.9	#####	2.8	#####	3.3	#####	3.3
5/1/2008	2.8	5/1/2008	2.7	#####	3.3	#####	3.3
5/2/2008	2.8	5/2/2008	2.7	#####	3.3	#####	3.3
5/6/2008	2.8	5/6/2008	2.7	#####	3.3	#####	3.3

5/7/2008	2.7	5/7/2008	2.6	#####	3.2	#####	3.2
5/8/2008	2.7	5/8/2008	2.6	2/1/2008	3.2	2/1/2008	3.2
5/9/2008	2.7	5/9/2008	2.6	2/4/2008	3.3	2/4/2008	3.2
#####	2.7	#####	2.5	2/5/2008	3.3	2/5/2008	3.3
#####	2.7	#####	2.5	2/6/2008	3.3	2/6/2008	3.2
#####	2.7	#####	2.5	2/7/2008	3.2	2/7/2008	3.1
#####	2.7	#####	2.5	2/8/2008	3.2	2/8/2008	3.1
#####	2.7	#####	2.5	#####	3.1	#####	3.1
#####	2.7	#####	2.5	#####	3.1	#####	3.1
#####	2.7	#####	2.4	#####	3.1	#####	3.1
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.6	#####	2.4	#####	#N/A	#####	#N/A
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.6	#####	2.4	#####	3.2	#####	3.1
#####	2.7	#####	2.5	#####	3.2	#####	3.2
#####	2.7	#####	2.5	#####	3.2	#####	3.1
6/2/2008	2.7	6/2/2008	2.5	#####	3.2	#####	3.1
6/3/2008	2.7	6/3/2008	2.5	#####	3.2	#####	3.1
6/4/2008	2.7	6/4/2008	2.5	#####	3.2	#####	3.1
6/5/2008	2.7	6/5/2008	2.4	#####	3.2	#####	3.1
6/6/2008	2.7	6/6/2008	2.4	#####	3.2	#####	3.1
6/9/2008	2.7	6/9/2008	2.4	3/3/2008	3.1	3/3/2008	3.1
#####	2.8	#####	2.5	3/4/2008	3.1	3/4/2008	3.1
#####	2.8	#####	2.5	3/5/2008	3.1	3/5/2008	3.1
#####	2.8	#####	2.5	3/6/2008	3.1	3/6/2008	3.0
#####	2.8	#####	2.5	3/7/2008	3.0	3/7/2008	3.0
#####	2.8	#####	2.5	#####	3.0	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.8	#####	2.9
#####	2.8	#####	2.5	#####	2.7	#####	2.8
#####	2.8	#####	2.5	#####	2.6	#####	2.6
#####	2.8	#####	2.5	#####	2.6	#####	2.7
#####	2.8	#####	2.5	#####	2.7	#####	2.7
#####	2.8	#####	2.5	#####	2.7	#####	2.7
#####	2.8	#####	2.5	#####	#N/A	#####	#N/A
#####	2.8	#####	2.5	#####	2.7	#####	2.7
7/1/2008	2.8	7/1/2008	2.5	#####	2.8	#####	2.8
7/2/2008	2.8	7/2/2008	2.5	#####	2.8	#####	2.8
7/3/2008	2.8	7/3/2008	2.5	#####	2.9	#####	2.9
7/4/2008	2.8	7/4/2008	2.5	#####	2.9	#####	3.0
7/7/2008	2.8	7/7/2008	2.5	#####	3.0	#####	3.0
7/8/2008	2.8	7/8/2008	2.5	4/1/2008	3.0	4/1/2008	3.0
7/9/2008	2.8	7/9/2008	2.5	4/2/2008	3.0	4/2/2008	3.0
#####	2.8	#####	2.5	4/3/2008	3.0	4/3/2008	3.0
#####	2.8	#####	2.5	4/4/2008	3.0	4/4/2008	3.0

#####	2.8	#####	2.5	4/7/2008	3.0	4/7/2008	3.0
#####	2.8	#####	2.5	4/8/2008	3.0	4/8/2008	3.0
#####	2.8	#####	2.5	4/9/2008	3.0	4/9/2008	3.0
#####	2.8	#####	2.5	#####	3.0	#####	3.0
#####	2.8	#####	2.5	#####	3.0	#####	3.0
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	2.9
#####	2.8	#####	2.5	#####	2.9	#####	3.0
#####	2.8	#####	2.5	#####	2.9	#####	3.0
#####	2.8	#####	2.5	#####	3.0	#####	3.1
#####	2.8	#####	2.5	#####	3.0	#####	3.1
#####	2.8	#####	2.5	#####	3.0	#####	3.1
#####	2.8	#####	2.5	#####	3.0	#####	3.1
8/1/2008	2.8	8/1/2008	2.5	#####	3.0	#####	3.1
8/4/2008	2.8	8/4/2008	2.5	#####	3.0	#####	3.2
8/5/2008	2.8	8/5/2008	2.5	#####	2.9	#####	3.2
8/6/2008	2.8	8/6/2008	2.5	#####	2.9	#####	3.2
8/7/2008	2.8	8/7/2008	2.5	5/1/2008	2.9	5/1/2008	3.0
8/8/2008	2.8	8/8/2008	2.5	5/2/2008	2.9	5/2/2008	2.9
#####	2.8	#####	2.5	5/5/2008	2.9	5/5/2008	2.9
#####	2.8	#####	2.5	5/6/2008	2.9	5/6/2008	2.9
#####	2.8	#####	2.5	5/7/2008	2.8	5/7/2008	2.9
#####	2.8	#####	2.5	5/8/2008	2.8	5/8/2008	2.9
#####	2.8	#####	2.5	5/9/2008	2.7	5/9/2008	2.8
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.8
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.9
#####	2.8	#####	2.5	#####	2.6	#####	2.8
#####	2.8	#####	2.5	#####	2.5	#####	2.8
#####	2.8	#####	2.5	#####	2.5	#####	2.8
9/1/2008	2.8	9/1/2008	2.5	#####	2.5	#####	2.8
9/2/2008	2.8	9/2/2008	2.5	#####	#N/A	#####	#N/A
9/3/2008	2.8	9/3/2008	2.5	#####	2.5	#####	2.8
9/4/2008	2.8	9/4/2008	2.5	#####	2.5	#####	2.8
9/5/2008	2.8	9/5/2008	2.5	#####	2.6	#####	2.9
9/8/2008	2.8	9/8/2008	2.5	#####	2.6	#####	2.9
9/9/2008	2.8	9/9/2008	2.5	6/2/2008	2.6	6/2/2008	2.9
#####	2.8	#####	2.5	6/3/2008	2.6	6/3/2008	2.9
#####	2.8	#####	2.5	6/4/2008	2.6	6/4/2008	2.9
#####	2.8	#####	2.5	6/5/2008	2.6	6/5/2008	2.9
#####	2.8	#####	2.5	6/6/2008	2.7	6/6/2008	2.9
#####	2.9	#####	2.7	6/9/2008	2.7	6/9/2008	2.9
#####	3.1	#####	3.0	#####	2.7	#####	2.9

#####	3.2	#####	3.2	#####	2.7	#####	2.9
#####	3.2	#####	3.2	#####	2.7	#####	3.0
#####	3.2	#####	3.2	#####	2.7	#####	3.0
#####	3.2	#####	3.2	#####	2.8	#####	3.1
#####	3.5	#####	3.4	#####	2.7	#####	3.1
#####	3.8	#####	3.7	#####	2.7	#####	3.0
#####	3.8	#####	3.7	#####	2.7	#####	3.0
#####	3.9	#####	3.7	#####	2.7	#####	3.0
#####	4.1	#####	3.9	#####	2.7	#####	3.0
#####	4.2	#####	4.0	#####	2.7	#####	3.0
#####	4.2	#####	4.0	#####	2.7	#####	3.0
#####	4.3	#####	4.1	#####	2.7	#####	3.0
#####	4.3	#####	4.1	#####	2.7	#####	3.0
#####	4.3	#####	4.1	#####	2.6	#####	3.0
#####	4.5	#####	4.3	7/1/2008	2.7	7/1/2008	3.0
#####	4.8	#####	4.5	7/2/2008	2.7	7/2/2008	3.0
#####	4.8	#####	4.6	7/3/2008	2.7	7/3/2008	3.0
#####	4.8	#####	4.6	7/4/2008	#N/A	7/4/2008	#N/A
#####	4.6	#####	4.5	7/7/2008	2.7	7/7/2008	3.0
#####	4.6	#####	4.4	7/8/2008	2.7	7/8/2008	3.0
#####	4.5	#####	4.3	7/9/2008	2.7	7/9/2008	3.0
#####	4.4	#####	4.2	#####	2.7	#####	3.0
#####	4.1	#####	3.8	#####	2.7	#####	3.0
#####	3.8	#####	3.5	#####	2.7	#####	3.0
#####	3.5	#####	3.3	#####	2.7	#####	3.0
#####	3.5	#####	3.3	#####	2.7	#####	3.0
#####	3.5	#####	3.2	#####	2.7	#####	3.0
#####	3.5	#####	3.2	#####	2.6	#####	3.0
#####	3.5	#####	3.2	#####	2.7	#####	3.0
#####	3.4	#####	3.1	#####	2.7	#####	3.0
#####	3.2	#####	2.9	#####	2.7	#####	3.0
#####	3.0	#####	2.6	#####	2.7	#####	3.0
#####	2.9	#####	2.4	#####	2.7	#####	3.0
#####	2.7	#####	2.2	#####	2.7	#####	3.0
#####	2.5	#####	2.0	#####	2.7	#####	3.0
#####	2.4	#####	1.8	#####	2.7	#####	3.0
#####	2.3	#####	1.6	#####	2.7	#####	3.0
#####	2.2	#####	1.5	8/1/2008	2.6	8/1/2008	3.0
#####	2.2	#####	1.5	8/4/2008	2.6	8/4/2008	3.0
#####	2.1	#####	1.4	8/5/2008	2.6	8/5/2008	3.0
#####	2.1	#####	1.4	8/6/2008	2.7	8/6/2008	3.0
#####	2.2	#####	1.5	8/7/2008	2.6	8/7/2008	3.0
#####	2.2	#####	1.5	8/8/2008	2.6	8/8/2008	3.0
#####	2.2	#####	1.5	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0

#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.4	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.6	#####	3.0
#####	2.2	#####	1.9	#####	2.7	#####	3.0
#####	2.2	#####	1.8	#####	2.7	#####	3.0
#####	2.2	#####	1.6	9/1/2008	#N/A	9/1/2008	#N/A
#####	2.1	#####	1.4	9/2/2008	2.6	9/2/2008	3.0
#####	2.0	#####	1.2	9/3/2008	2.6	9/3/2008	3.0
#####	1.9	#####	1.0	9/4/2008	2.6	9/4/2008	3.0
#####	1.9	#####	1.0	9/5/2008	2.6	9/5/2008	3.0
#####	1.8	#####	0.9	9/8/2008	2.7	9/8/2008	3.0
#####	1.6	#####	0.6	9/9/2008	2.7	9/9/2008	3.0
#####	1.5	#####	0.5	#####	2.7	#####	3.0
#####	1.5	#####	0.5	#####	2.6	#####	3.0
#####	1.5	#####	0.5	#####	2.6	#####	3.0
#####	1.5	#####	0.5	#####	2.7	#####	3.0
#####	1.5	#####	0.5	#####	3.2	#####	3.2
#####	1.5	#####	0.5	#####	3.8	#####	3.8
#####	1.4	#####	0.4	#####	6.0	#####	5.0
#####	1.4	#####	0.4	#####	6.0	#####	5.0
1/2/2009	1.4	1/2/2009	0.4	#####	5.0	#####	5.0
1/5/2009	1.4	1/5/2009	0.4	#####	5.3	#####	5.0
1/6/2009	1.4	1/6/2009	0.4	#####	5.3	#####	5.0
1/7/2009	1.4	1/7/2009	0.4	#####	5.5	#####	5.0
1/8/2009	1.4	1/8/2009	0.4	#####	5.5	#####	5.0
1/9/2009	1.3	1/9/2009	0.4	#####	5.5	#####	5.0
#####	1.2	#####	0.3	#####	7.0	#####	6.0
#####	1.1	#####	0.3	#####	6.0	#####	6.0
#####	1.1	#####	0.3	#####	6.0	#####	6.0
#####	1.1	#####	0.3	#####	6.0	#####	6.0
#####	1.1	#####	0.4	#####	6.0	#####	6.0
#####	1.1	#####	0.4	#####	6.5	#####	6.0
#####	1.1	#####	0.4	#####	7.0	#####	6.0
#####	1.1	#####	0.4	#####	6.0	#####	6.0
#####	1.2	#####	0.4	#####	6.0	#####	6.0
#####	1.2	#####	0.4	#####	#N/A	#####	#N/A
#####	1.2	#####	0.4	#####	5.8	#####	6.0
#####	1.2	#####	0.4	#####	5.5	#####	5.8
#####	1.2	#####	0.4	#####	5.5	#####	5.8
#####	1.2	#####	0.4	#####	5.0	#####	5.8
#####	1.2	#####	0.4	#####	4.3	#####	5.0

2/2/2009	1.2	2/2/2009	0.4	#####	4.0	#####	4.5
2/3/2009	1.2	2/3/2009	0.4	#####	3.8	#####	4.5
2/4/2009	1.2	2/4/2009	0.4	#####	3.8	#####	4.5
2/5/2009	1.2	2/5/2009	0.4	#####	3.8	#####	4.5
2/6/2009	1.2	2/6/2009	0.4	#####	3.8	#####	4.5
2/9/2009	1.2	2/9/2009	0.4	#####	3.8	#####	4.5
#####	1.2	#####	0.4	#####	3.8	#####	4.5
#####	1.2	#####	0.5	#####	3.3	#####	4.5
#####	1.2	#####	0.5	#####	3.3	#####	4.5
#####	1.2	#####	0.5	#####	2.8	#####	4.3
#####	1.2	#####	0.5	#####	2.5	#####	4.0
#####	1.2	#####	0.5	#####	2.3	#####	3.3
#####	1.3	#####	0.5	#####	2.0	#####	3.0
#####	1.3	#####	0.5	#####	2.0	#####	3.0
#####	1.2	#####	0.5	#####	2.0	#####	3.0
#####	1.2	#####	0.5	#####	#N/A	#####	#N/A
#####	1.3	#####	0.5	#####	2.0	#####	2.8
#####	1.3	#####	0.5	#####	2.0	#####	2.8
#####	1.3	#####	0.5	#####	2.0	#####	3.0
#####	1.3	#####	0.5	#####	1.8	#####	3.0
3/2/2009	1.3	3/2/2009	0.5	#####	1.8	#####	3.0
3/3/2009	1.3	3/3/2009	0.5	#####	1.8	#####	3.0
3/4/2009	1.3	3/4/2009	0.5	#####	1.8	#####	3.0
3/5/2009	1.3	3/5/2009	0.5	#####	1.9	#####	3.0
3/6/2009	1.3	3/6/2009	0.5	#####	2.0	#####	3.0
3/9/2009	1.3	3/9/2009	0.6	#####	2.0	#####	3.0
#####	1.3	#####	0.6	#####	2.0	#####	3.0
#####	1.3	#####	0.6	#####	#N/A	#####	#N/A
#####	1.3	#####	0.6	#####	2.8	#####	3.0
#####	1.3	#####	0.6	#####	3.0	#####	3.0
#####	1.3	#####	0.6	#####	3.0	#####	3.0
#####	1.3	#####	0.6	#####	3.0	#####	3.0
#####	1.3	#####	0.5	#####	2.6	#####	3.0
#####	1.2	#####	0.5	#####	2.7	#####	3.0
#####	1.2	#####	0.5	#####	2.3	#####	3.0
#####	1.2	#####	0.5	#####	2.2	#####	3.0
#####	1.2	#####	0.5	#####	2.2	#####	3.0
#####	1.2	#####	0.5	#####	1.8	#####	3.0
#####	1.2	#####	0.5	#####	1.8	#####	2.9
#####	1.2	#####	0.5	#####	1.5	#####	2.6
#####	1.2	#####	0.5	#####	1.3	#####	2.2
#####	1.2	#####	0.5	#####	1.3	#####	2.0
4/1/2009	1.2	4/1/2009	0.5	#####	1.3	#####	2.0
4/2/2009	1.2	4/2/2009	0.5	#####	1.3	#####	2.0
4/3/2009	1.2	4/3/2009	0.5	#####	1.3	#####	2.0
4/6/2009	1.2	4/6/2009	0.5	#####	1.2	#####	2.0
4/7/2009	1.1	4/7/2009	0.5	#####	1.2	#####	2.0

#####	0.6	#####	0.3	3/2/2009	0.8	3/2/2009	1.7
#####	0.6	#####	0.3	3/3/2009	0.9	3/3/2009	1.7
#####	0.6	#####	0.3	3/4/2009	0.8	3/4/2009	1.7
#####	0.6	#####	0.3	3/5/2009	0.8	3/5/2009	1.7
#####	0.6	#####	0.3	3/6/2009	0.8	3/6/2009	1.7
#####	0.6	#####	0.3	3/9/2009	0.9	3/9/2009	1.7
#####	0.6	#####	0.3	#####	1.0	#####	1.7
#####	0.6	#####	0.3	#####	1.0	#####	1.7
#####	0.6	#####	0.3	#####	1.0	#####	1.7
7/1/2009	0.6	7/1/2009	0.3	#####	1.0	#####	1.7
7/2/2009	0.6	7/2/2009	0.3	#####	1.0	#####	1.7
7/3/2009	0.6	7/3/2009	0.3	#####	1.0	#####	1.7
7/6/2009	0.5	7/6/2009	0.3	#####	1.0	#####	1.7
7/7/2009	0.5	7/7/2009	0.3	#####	1.0	#####	1.6
7/8/2009	0.5	7/8/2009	0.3	#####	1.0	#####	1.6
7/9/2009	0.5	7/9/2009	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.6	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	#####	1.0	#####	1.6
#####	0.5	#####	0.3	4/1/2009	1.0	4/1/2009	1.6
#####	0.5	#####	0.3	4/2/2009	1.0	4/2/2009	1.6
#####	0.5	#####	0.3	4/3/2009	1.0	4/3/2009	1.6
#####	0.5	#####	0.3	4/6/2009	1.0	4/6/2009	1.6
#####	0.5	#####	0.3	4/7/2009	1.0	4/7/2009	1.6
#####	0.5	#####	0.3	4/8/2009	1.0	4/8/2009	1.6
#####	0.5	#####	0.3	4/9/2009	0.8	4/9/2009	1.5
#####	0.5	#####	0.3	#####	#N/A	#####	#N/A
#####	0.5	#####	0.3	#####	0.8	#####	1.5
#####	0.5	#####	0.3	#####	1.0	#####	1.5
8/3/2009	0.5	8/3/2009	0.3	#####	1.0	#####	1.5
8/4/2009	0.5	8/4/2009	0.3	#####	1.0	#####	1.5
8/5/2009	0.5	8/5/2009	0.3	#####	1.0	#####	1.5
8/6/2009	0.5	8/6/2009	0.3	#####	1.0	#####	1.5
8/7/2009	0.5	8/7/2009	0.3	#####	0.9	#####	1.5
#####	0.5	#####	0.3	#####	0.9	#####	1.5
#####	0.5	#####	0.3	#####	0.9	#####	1.5
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	#####	0.9	#####	1.4
#####	0.4	#####	0.3	5/1/2009	0.9	5/1/2009	1.4
#####	0.4	#####	0.3	5/4/2009	0.9	5/4/2009	1.4
#####	0.4	#####	0.3	5/5/2009	0.8	5/5/2009	1.4

#####	0.3	#####	0.2	#####	0.6	#####	1.0
#####	0.3	#####	0.2	#####	0.6	#####	1.1
#####	0.3	#####	0.2	#####	0.6	#####	1.0
#####	0.3	#####	0.2	#####	0.6	#####	0.9
#####	0.3	#####	0.2	#####	0.6	#####	0.9
#####	0.3	#####	0.2	#####	0.6	#####	0.9
#####	0.3	#####	0.2	#####	0.6	#####	0.9
#####	0.3	#####	0.2	#####	0.5	#####	0.9
#####	0.3	#####	0.2	#####	0.5	#####	0.9
#####	0.3	#####	0.2	#####	0.5	#####	0.9
#####	0.3	#####	0.2	#####	0.5	#####	0.9
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	8/3/2009	0.5	8/3/2009	0.8
#####	0.3	#####	0.2	8/4/2009	0.5	8/4/2009	0.8
#####	0.3	#####	0.2	8/5/2009	0.5	8/5/2009	0.8
#####	0.3	#####	0.2	8/6/2009	0.5	8/6/2009	0.8
#####	0.3	#####	0.2	8/7/2009	0.5	8/7/2009	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.8
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.7
#####	0.3	#####	0.2	#####	0.5	#####	0.6
#####	0.3	#####	0.2	#####	0.5	#####	0.6
#####	0.3	#####	0.2	#####	0.5	#####	0.6
#####	0.3	#####	0.2	#####	0.5	#####	0.6
#####	0.3	#####	0.2	#####	0.5	#####	0.6
#####	0.3	#####	0.2	#####	0.5	#####	0.6
#####	0.2	#####	0.2	9/1/2009	0.5	9/1/2009	0.6
#####	0.2	#####	0.2	9/2/2009	0.5	9/2/2009	0.5
#####	0.3	#####	0.2	9/3/2009	0.5	9/3/2009	0.6
#####	0.3	#####	0.2	9/4/2009	0.5	9/4/2009	0.6
#####	0.3	#####	0.2	9/7/2009	#N/A	9/7/2009	#N/A
#####	0.3	#####	0.2	9/8/2009	0.4	9/8/2009	0.6
#####	0.3	#####	0.2	9/9/2009	0.4	9/9/2009	0.6
1/4/2010	0.3	1/4/2010	0.2	#####	0.4	#####	0.6
1/5/2010	0.3	1/5/2010	0.2	#####	0.4	#####	0.6
1/6/2010	0.3	1/6/2010	0.2	#####	0.4	#####	0.5

7/6/2011	0.2	7/6/2011	0.2	#####	0.3	#####	0.4
7/7/2011	0.2	7/7/2011	0.2	#####	0.3	#####	0.4
7/8/2011	0.2	7/8/2011	0.2	#####	0.3	#####	0.4
#####	0.2	#####	0.2	#####	0.3	#####	0.4
#####	0.2	#####	0.2	3/1/2011	0.3	3/1/2011	0.4
#####	0.2	#####	0.2	3/2/2011	0.3	3/2/2011	0.4
#####	0.2	#####	0.2	3/3/2011	0.3	3/3/2011	0.4
#####	0.2	#####	0.2	3/4/2011	0.3	3/4/2011	0.4
#####	0.3	#####	0.2	3/7/2011	0.3	3/7/2011	0.4
#####	0.3	#####	0.2	3/8/2011	0.3	3/8/2011	0.4
#####	0.3	#####	0.2	3/9/2011	0.3	3/9/2011	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
8/1/2011	0.3	8/1/2011	0.2	#####	0.3	#####	0.4
8/2/2011	0.3	8/2/2011	0.2	#####	0.3	#####	0.4
8/3/2011	0.3	8/3/2011	0.2	#####	0.3	#####	0.4
8/4/2011	0.3	8/4/2011	0.2	#####	0.3	#####	0.4
8/5/2011	0.3	8/5/2011	0.2	#####	0.3	#####	0.4
8/8/2011	0.3	8/8/2011	0.2	#####	0.3	#####	0.4
8/9/2011	0.3	8/9/2011	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	4/1/2011	0.3	4/1/2011	0.4
#####	0.3	#####	0.2	4/4/2011	0.3	4/4/2011	0.4
#####	0.3	#####	0.2	4/5/2011	0.3	4/5/2011	0.4
#####	0.3	#####	0.2	4/6/2011	0.3	4/6/2011	0.4
#####	0.3	#####	0.2	4/7/2011	0.3	4/7/2011	0.4
#####	0.3	#####	0.2	4/8/2011	0.3	4/8/2011	0.4
#####	0.3	#####	0.2	#####	0.2	#####	0.4
#####	0.3	#####	0.2	#####	0.2	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
#####	0.3	#####	0.2	#####	0.3	#####	0.4
9/1/2011	0.3	9/1/2011	0.2	#####	0.3	#####	0.4
9/2/2011	0.3	9/2/2011	0.2	#####	0.3	#####	0.4
9/5/2011	0.3	9/5/2011	0.2	#####	0.3	#####	0.4
9/6/2011	0.3	9/6/2011	0.2	#####	0.3	#####	0.4
9/7/2011	0.3	9/7/2011	0.2	#####	0.3	#####	0.4
9/8/2011	0.3	9/8/2011	0.2	#####	0.3	#####	0.4
9/9/2011	0.3	9/9/2011	0.2	#####	0.3	#####	0.4

I-26

[London](#)

Reserve System

Underwriter	Security purchased by the Enterprise	LIBOR-Based Interest Rate	CUSIP	Risk Factors language: Underwriters may rip you off by manipulating your reference index	Reviewer
Bank of America	BAFC 2007	1mL + 16	05952DAA1	FALSE	Timothy Lee
Barclays Capital	FHLT 2005	1mL + 26	35729PMA	FALSE	Timothy Lee
		Tied to mortgage rates, which are keyed inter alia to 6m and 12m			
Citibank	CMLTI 200	LIBOR	17312YAB8	FALSE	Timothy Lee
Deutsche Bank	DBALT 200	1mL + 19	25151XAE1	FALSE	Timothy Lee
JPMorgan	JPMAC 200	1mL + 13	46630BAA4	FALSE	Timothy Lee
RBS	OOMLT 200	1mL + 14	68402YAA4	FALSE	Timothy Lee
UBS	MABS 200	1mL + 25	57643LJR8	FALSE	Timothy Lee
HSBC	FFML 2006	1mL + 13	32028PAA3	FALSE	Timothy Lee

RE: Sister agencies

Item ID: 32409
From: [REDACTED] (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>, Bloch, David [REDACTED] (b) (6)
Cc: Parker, Richard [REDACTED] (b) (6)
Subject: RE: Sister agencies
Sent: December 20, 2012 12:48 PM
Received: December 20, 2012 12:48 PM

Given that this report has been leaked, can it be forwarded to FRB-OIG, or are you no longer interested in speaking with them? From: Lee, Timothy Sent: Friday, October 26, 2012 2:47 PM To: Bloch, David; [REDACTED] (b) (6) Cc: Parker, Richard Subject: Sister agencies Hi guys, Old Salt wanted to make clear that, while we can discuss generalities with other agencies, the LIBOR memo itself stays within FHFA-OIG until further notice. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

NYTimes' take

Item ID: 32410
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>, Grob, George </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Cc: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: NYTimes' take
Sent: December 20, 2012 4:10 PM
Received: December 20, 2012 4:10 PM

<http://dealbook.nytimes.com/2012/12/20/making-it-easier-to-estimate-libor-losses/> ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Excerpt

Item ID: 32411
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>, Grob, George </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ff8932c3d3b45e5ba63ba69f8c08f80-George Grob>
Cc: Bloch, David </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: Excerpt
Sent: December 20, 2012 4:12 PM
Received: December 20, 2012 4:12 PM

Clearly, in this exercise, so much depends on whether the Eurodollar deposit rate is a strong proxy for Libor that was not manipulated. The comparison between the rates has been made in Libor-related lawsuits, the inspector general's office notes. "It's a perfectly good place to start out," said John Sprow, chief risk officer at Smith Breeden Associates, an asset management firm. Of course, financial firms may have balance sheets that don't look like those of Fannie and Freddie. An overly low Libor may have meant they were overpaid. Still, the inspector general has done the financial sector a favor. It now has a rough-and-ready template for assessing Libor losses. ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

RE: Sister agencies

Item ID: 32413
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: (b) (6) </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=61e82b6eb7a942799b83386155b2ad80-(b) (6)>
Subject: RE: Sister agencies
Sent: December 20, 2012 4:16 PM
Received: December 20, 2012 4:16 PM

We should discuss. Are you in the office? From: (b) (6) Sent: Thursday, December 20, 2012 12:49 PM To: Lee, Timothy; Bloch, David Cc: Parker, Richard Subject: RE: Sister agencies Given that this report has been leaked, can it be forwarded to FRB-OIG, or are you no longer interested in speaking with them? From: Lee, Timothy Sent: Friday, October 26, 2012 2:47 PM To: Bloch, David; (b) (6) Cc: Parker, Richard Subject: Sister agencies Hi guys, Old Salt wanted to make clear that, while we can discuss generalities with other agencies, the LIBOR memo itself stays within FHFA-OIG until further notice. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

RE: Sister agencies

Item ID: 32414
From: [REDACTED] (b) (6)
To: Lee, Timothy <Timothy.Lee@fhfaoig.gov>
Subject: RE: Sister agencies
Sent: December 20, 2012 5:26 PM
Received: December 20, 2012 5:26 PM

Gone for the year. Just trying to close the loop.

Sent from my Windows Phone

From:

Lee, Timothy

Sent:

12/20/2012 4:17 PM

To:

[REDACTED] (b) (6)

Subject:

RE: Sister agencies

We should discuss. Are you in the office?

From: [REDACTED] (b) (6)

Sent: Thursday, December 20, 2012 12:49 PM

To: Lee, Timothy; Bloch, David

Cc: Parker, Richard

Subject: RE: Sister agencies

Given that this report has been leaked, can it be forwarded to FRB-OIG, or are you no longer interested in speaking with them?

From: Lee, Timothy

Sent: Friday, October 26, 2012 2:47 PM

To: Bloch, David; [REDACTED] (b) (6)

Cc: Parker, Richard

Subject: Sister agencies

Hi guys,

Old Salt wanted to make clear that, while we can discuss generalities with other agencies, the LIBOR memo itself stays within FHFA-OIG until further notice.

Tim

Timothy Lee

Senior Policy Advisor, FHFA-OIG

202-730-2821

LIBOR

Item ID: 32415
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: (b) (6)
Cc: (b) (6)
Subject: LIBOR
Sent: December 21, 2012 8:12 AM
Received: December 21, 2012 8:12 AM

Dear (b) (6), I'm writing at the suggestion of your colleague (b) (6) whom I spoke with briefly yesterday. I'm a Senior Policy Advisor at the Federal Housing Finance Agency's Inspector General. As you may be aware, media reports have emerged of an analysis our office performed estimating potential losses to Fannie Mae and Freddie Mac from manipulation of LIBOR by contributing banks. (We also have the Excel spreadsheet that served as the analytical "engine" for our document, though that has not circulated outside the government.) This may have significant implications for a number of Federal Reserve programs implemented during the time frame we examined, including the Maiden Lane programs, AIG credit line, and TALF. As a result, we felt it appropriate to bring this to your attention and are happy to address any questions that may arise. My contact information is below. Kind regards, Tim -----
Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

LIBOR

Item ID: 32417
From: (b) (6)
To: Timothy.Lee@fhfaig.gov
Cc: (b) (6)
Subject: LIBOR
Sent: December 24, 2012 12:44 PM
Received: December 24, 2012 12:47 PM

Dear Mr. Lee:

(b) (6) forwarded me your email containing the FHFA IG's report. I'll be reviewing it, and evaluating any implications to the Fed's programs and activities.

Please let me know if there's any other material that you think may be helpful. Thank you again.

(b) (6)

(b) (6)
Federal Reserve Bank of New York
Legal Department
33 Liberty Street
New York, NY 10045-0001

Tel: (b) (6)
Fax: (b) (6)

Email: (b) (6)

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RE: LIBOR

Item ID: 32418
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: [REDACTED] (b) (6)
Cc: [REDACTED] (b) (6)
Subject: RE: LIBOR
Sent: December 26, 2012 7:51 AM
Received: December 26, 2012 7:51 AM

Hi (b) (6) Thanks for the note. I'm in all week, so feel free to give me a call. 202-730-2821. Best, Tim From:

[REDACTED] (b) (6) Sent: Monday, December 24, 2012 12:44 PM To: Lee, Timothy Cc: [REDACTED] (b) (6) Subject: LIBOR Dear Mr. Lee: [REDACTED] (b) (6) forwarded me your email containing the FHFA IG's report. I'll be reviewing it, and evaluating any implications to the Fed's programs and activities. Please let me know if there's any other material that you think may be helpful. Thank you again. [REDACTED] (b) (6) Federal Reserve Bank of New York Legal Department 33 Liberty Street New York, NY 10045-0001 Tel: [REDACTED] (b) (5) Fax: [REDACTED] (b) (6) Email: [REDACTED] (b) (6) This e-mail message, including attachments, is for the sole use of the intended recipient(s) and may contain confidential or proprietary information. If you are not the intended recipient, immediately contact the sender by reply e-mail and destroy all copies of the original message.

Another possible issue to keep an eye on

Item ID: 34575

From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>

To: Parker, Richard </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=35b52473fd4b4574add82079a96054be-Richard Par>

Cc: Wu, Simon </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=144fe221a23346a2820093edb75d9ec8-Simon Wu>, Rhinesmith, Alan </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=98d654fcd31f48f7887a69bf4cc5b12d-Alan Rhines>, Phillips, Wesley </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C1881bcb698c45b096269b8112f87787-Wesley Phil>, (b) (5) </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=51139b51f8894abaa27345ff7295a3ca-(b) (6)>, </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E660b93d0cc6429fb7617255a898bac0-(b) (6)> (b) (6), (b) (7)(C) </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=45ad7effd12a4beeb3be31b646cc60d6-(b) (6), (b) (7)(C)>, Emerzian, Peter </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E5f50330ff35406f9fb12c708e959aeb-Peter Emerz>

Subject: Another possible issue to keep an eye on

Sent: June 28, 2012 9:19 AM

Received: June 28, 2012 9:19 AM

Hi Old Salt, This story doesn't appear directly related to FHFA or the GSEs at first, but a moment's reflection will indicate that the GSEs are almost certainly net payers of LIBOR-based debt. As such, they have been directly victimized by any LIBOR manipulation that went on at the megabanks that determine the rate, giving FHFA-OIG a jurisdictional angle. I'm a business guy, so take it with a grain of salt – lawyers please weigh in. But the logic seems pretty straightforward. If we want to build some data on this, let me know. Additionally, I have a contact at the UK's FSA whom I can try to call for color. Tim ----- Timothy Lee Senior Policy Advisor 202-730-2821
timothy.lee@fhfaig.gov

FW: Another possible issue to keep an eye on

Item ID: 34574
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: Bloch, David </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Fad4faf3677f4ce297d7bfaaed3a13ef-David Bloch>
Subject: FW: Another possible issue to keep an eye on
Sent: June 28, 2012 9:20 AM
Received: June 28, 2012 9:20 AM

From: Lee, Timothy Sent: Thursday, June 28, 2012 9:20 AM To: Parker, Richard Cc: Wu, Simon; Rhinesmith, Alan; Phillips, Wesley; (b) (6); (b) (6), (b) (7)(C); Emerzian, Peter Subject: Another possible issue to keep an eye on Hi Old Salt, This story doesn't appear directly related to FHFA or the GSEs at first, but a moment's reflection will indicate that the GSEs are almost certainly net payers of LIBOR-based debt. As such, they have been directly victimized by any LIBOR manipulation that went on at the megabanks that determine the rate, giving FHFA-OIG a jurisdictional angle. I'm a business guy, so take it with a grain of salt – lawyers please weigh in. But the logic seems pretty straightforward. If we want to build some data on this, let me know. Additionally, I have a contact at the UK's FSA whom I can try to call for color. Tim ----- Timothy Lee Senior Policy Advisor 202-730-2821 timothy.lee@fhfaig.gov

LIBOR

Item ID: 34559
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: Millman, Phillip <Phillip.Millman@fhfa.gov>
Subject: LIBOR
Sent: June 29, 2012 8:15 AM
Received: June 29, 2012 8:15 AM

What do you think the odds are that Bob Diamond is filing for unemployment by Labor Day? I'd personally put odds at 2-1 in favor. ----- Timothy Lee Senior Policy Advisor 202-730-2821 timothy.lee@fhfa.ig.gov

RE: Capital Markets Update...Treasuries retreat on EU agreements...Credit spreads...Personal Income/Spending...GSE debt/MBS...EU...Later

Item ID: 34558
From: Lee, Timothy </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D9770D766B6642C4AC0F9F116D0B180D-TIMOTHY LEE>
To: Hynes, Robert <Robert.Hynes@fhfa.gov>
Subject: RE: Capital Markets Update...Treasuries retreat on EU agreements...Credit spreads...Personal Income/Spending...GSE debt/MBS...EU...Later
Sent: June 29, 2012 9:00 AM
Received: June 29, 2012 9:00 AM

Unless LIBOR falls by another ten basis points I'm gonna get killed on my quarter-end marks. Could I get it changed, please? From: Hynes, Robert [mailto:Robert.Hynes@fhfa.gov] Sent: Friday, June 29, 2012 8:58 AM To: !DHMG Office of Systemic Risk and Market Surveillance; !OFA; Ashley, Timothy; Barnes, Kenneth; Beard, Michael; Bell, James; Bravenec, Bill; (b) (6); Burns, Meg; Callahan, Jim; (b) (6); Chu, Sai-Cheong; Cross, Stephen; DeMarco, Edward; Dickerson, Chris; Dickey, Jeremiah; DiVenti, Theresa; Duarte, Ricardo; Dunsky, Robert; Freimuth, David; Galeano, Andre D.; Galloway, Chris; Graham, Fred C.; Greenlee, Jon; Gubich, Denise; Hemphill, James M; (b) (6); Holmes, Ira; Hornsby, Richard; Kane, Michael; Koon, Jon; Kornstein, Randi; Kwartunas, Deirdre; Lawler, Patrick; Lee, Timothy; Levine, Martin; Levinson, Masha; Linick, Steve; McNicholas, John; (b) (6) Millman, Phillip; Newell, Jamie; Pafenberg, Forrest; Patrabansh, Saty; (b) (6); (b) (6) Phelps, Jack; Phillips, Wesley; Prendergast, Joseph; Rhinesmith, Alan; Rizopoulos, Doreen; Roberts, Peter; Sar, Prasant; Seide, David; Sharpley, Christopher; Smith, Stephen; Stewart, Randal; Taylor, Mary Ellen; Tirinnanzi, Martha; Ugoletti, Mario; Walter, Karen; Wisz, Gerald; Wolfe, Heath; Woody, Adam (Brock); Wu, Simon; Youmans, Russell; Zhang, Min
Subject: Capital Markets Update...Treasuries retreat on EU agreements...Credit spreads...Personal Income/Spending...GSE debt/MBS...EU...Later
Quarter-end. Today is the last day of the quarter for traders. If there is one thing to keep in mind today when observing asset prices that is it. Treasuries are backing up following all night meetings in Brussels that produced some consensus for action from Eurozone partners (more in EU section below), although not nearly to the degree being represented by equity commentators this morning. Quarter-end. The 10YR Note has fallen to 1.66% early on and could even test 1.70% this morning but dip buyers may emerge as it approaches that level, repeating the behavior following this week's 5- and 7-YR Note auctions. Credit spreads are generally tighter but 3-month libor is unchanged at 0.46060%. Personal Income in May rose 0.2% month-over-month, half the pace seen earlier in the year. Personal Spending came in flat (0.0%) as expected but last month's number was revised lower to +0.1% from 0.3% previously reported. Agency debt spreads are tighter across the curve vs. Treasury benchmarks but are underperforming swaps. MBS spreads benefitted from the retreat in long Treasuries this AM. Cusp coupons are showing the biggest losses but are still outpacing Treasuries. The top of the stack is unchanged from Thursday's closing levels. EU...Developments overnight: · Press reports this morning that German Chancellor Angela Merkel has caved in to pressure from Spain and Italy may be overstating the case. What was agreed to last evening was essentially to "de-link" bank debt from sovereign debt in terms of bailout assistance. By funneling euros directly to financial institutions Eurozone leaders are hoping to remove the weight from sovereign yields. In theory that sounds like a fine idea. In practice traders may not turn a blind eye to sovereign debt from a country where the banks are drowning in red ink. · Perhaps the most important decision reached last night was that leaders agreed to waive seniority for European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM) loans to regional banks, starting with Spain. Holders of sovereign debt had been nervous about being "subordinated" to the rescue funds, a reasonable concern following what happened last fall when official institutions collected full value on Greek debt at the expense of deeper haircuts on private sector investors. · One important question that remains unanswered is how Europe will stockpile the rescue mechanisms that will need up to a trillion euros or more. The ECB's balance

sheet has already ballooned to 3 trillion euros (almost \$4 trillion). The EFSF and ESM could tap the capital markets but what would the spreads be without joint and several backing? An important question for us at the FHFA is whether these instruments would compete with agency debt, particularly among Asian or South American investors. Will Europe look to fund the rescue mechanisms with IMF funds? All of these questions remain on the table. · Some analysts expect the ECB to keep optimism alive by cutting rates as soon as next week. There might even be a third Long Term Refinancing Operation (LTRO) by year-end. However, larger structural issues with the euro and euro-economies remain unresolved. · It has been a frenetic day for European sovereigns. Below is the intraday chart for Italy's 10-year benchmark. · As of this hour the euro is having its best day of the year, advancing to 1.2592 vs. the dollar, but is off the highs of the session. Later...The last two economic data points of the week will be the Chicago Purchasing Managers Index (9:45 AM) and the final June reading on Consumer Confidence from the University of Michigan (9:55 AM). Treasuries might find some over-the-weekend support after the European close and agency debt and MBS should remain well bid. The credit markets will be subject to any significant window dressing-related flows into equities but most traders know enough to write at least some of that off to quarter-end. Bob Hynes Robert F. Hynes, Jr. Principal Financial Analyst – Capital Markets Office of Systemic Risk and Market Surveillance Federal Housing Finance Agency (b) (6) (office) (b) (6) (mobile) Robert.Hynes@fhfa.gov Confidentiality Notice: The information contained in this e-mail and any attachments may be confidential or privileged under applicable law, or otherwise may be protected from disclosure to anyone other than the intended recipient(s). Any use, distribution, or copying of this e-mail, including any of its contents or attachments by any person other than the intended recipient, or for any purpose other than its intended use, is strictly prohibited. If you believe you have received this e-mail in error: permanently delete the e-mail and any attachments, and do not save, copy, disclose, or rely on any part of the information contained in this e-mail or its attachments. Please call 202-649-3800 if you have questions.

Additional data request: derivatives white paper

Item ID: 42879
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: (b) (6) >
Cc: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>, (b) (6) >, Rhinesmith, Alan </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=98d654fcd31f48f7887a69bf4cc5b12d-Alan Rhines>
Subject: Additional data request: derivatives white paper
Sent: August 10, 2012 8:23 AM
Received: August 10, 2012 8:23 AM

Hi (b) (6), Following up on yesterday's conversation, we would like portfolio valuation data centering on a rapid change in LIBOR, and showing how the derivatives Fannie Mae had in place alongside its mortgage assets contributed a relatively stable overall valuation. The data would help to clarify how derivatives work for the Enterprises as risk management tools. I mentioned the major (30 bp or so) spike in LIBOR on 24 or 25 Sep 2008, but am not wedded to that particular date. Also, here is the referenced Economist article . The paragraph underneath the header "clean in principle" contains the figure I referenced. Happy to hear from you if you need anything else. Best, Tim ----
Timothy Lee Senior Policy Advisor, FHFA-OIG (202) 730-2821

my Windows Phone From: Stephens, Michael Sent: 8/8/2012 8:22 PM To: Linick, Steve; Saddler, Bryan Subject: RE:

Voice Mail from (b) (6) (31 seconds) Yes.have made progress on this issue. Will inform doj Sent from my

Windows Phone From: Linick, Steve Sent: 8/8/2012 7:45 PM To: Saddler, Bryan Cc: Stephens, Michael Subject: RE:

Voice Mail from (b) (6) (31 seconds) Tx for reminding me. I think Mike and Peter should reach out to (b) (6). I know

Mike has been asked about this issue by rmbs task force. Mike, can you run with this Sent from my Windows Phone

From: Saddler, Bryan Sent: 8/8/2012 11:13 AM To: Linick, Steve Cc: Stephens, Michael Subject: FW: Voice Mail from

2023537950 (31 seconds) Steven: It dawned on me that I have not gotten back to (b) (6) about his inquiry. Have

you given any more thought about how you want me to respond to him (b) (5)

(b) (6) Thanks, B From: Saddler, Bryan Sent: Thursday, July 26,

2012 8:49 AM To: Linick, Steve Cc: Stephens, Michael Subject: FW: Voice Mail from (b) (6) (31 seconds) Steve:

Attached is an voicemail from (b) (6) in DOJ Civil; you remember him, yes? (b) (5)

(b) (6) He is looking for a

contact. (b) (5)

(b) (6) Thanks, Bryan From: Microsoft Outlook On Behalf Of (b) (6) Sent: Wednesday,

July 25, 2012 4:29 PM To: Saddler, Bryan Subject: Voice Mail from (b) (6) (31 seconds) Voice Mail Preview:

Bryan go ahead cougher from the department justice I'm calling on and (b) (5)

(b) (6) we have a moment would you give me a call at (b) (6) and perhaps you could put me in touch with the right

people to talk to you thanks bye. Created by Microsoft Speech Technology. Learn More... You received a voice mail

from (b) (6)

Next week's schedule

Item ID: 42882
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: [REDACTED] (b) (6)
Subject: Next week's schedule
Sent: August 10, 2012 9:44 AM
Received: August 10, 2012 9:44 AM

Derivatives white paper 40% Sampling 30% LIBOR 10% SAR 20% Please note that I have shore leave scheduled for the week of the 20 th . ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Derivatives white paper data request

Item ID: 42897
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: Wu, Simon </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=144fe221a23346a2820093edb75d9ec8-Simon Wu>
Subject: Derivatives white paper data request
Sent: August 10, 2012 11:39 AM
Received: August 10, 2012 11:39 AM

Hi Simon, Could you forward this to Freddie? I don't think I have email addresses for anyone we spoke with today. Thanks, Tim Following up on today's conversation, we would like portfolio valuation data centering on a rapid change in LIBOR, and showing how the derivatives Freddie Mac had in place alongside its mortgage assets contributed a relatively stable overall valuation. The data would help to clarify how derivatives work for the Enterprises as risk management tools. I mentioned the major (30 bp or so) spike in LIBOR on 24 or 25 Sep 2008, but am not wedded to that particular date. ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Follow-up on numbers

Item ID: 42945
From: Lee, Timothy </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d9770d766b6642c4ac0f9f116d0b180d-Timothy Lee>
To: [REDACTED] (b) (6)
Cc: Parker, Richard </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=35b52473fd4b4574add82079a96054be-Richard Par>, (b) (6), (b) (7)(C) </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8e7806771e6a4a00bdc45eca75864a81-[REDACTED]>
Subject: Follow-up on numbers
Sent: August 15, 2012 3:23 PM
Received: August 15, 2012 3:23 PM

Gentlemen, By way of addressing one question that arose yesterday, I gave a little further thought to estimating the possible losses to Fannie Mae and Freddie Mac resulting from any suppression of LIBOR that may have taken place. After taking a look at their financial statements since conservatorship, [REDACTED] (b) (5)

[REDACTED]
[REDACTED]. The attached analysis [REDACTED] (b) (5)

[REDACTED]
[REDACTED]
[REDACTED]. Hope this helps. Let me know if questions arise. Tim ----- Timothy Lee Senior Policy Advisor, FHFA-OIG 202-730-2821

Attachment #1

LIBOR proposal.xlsx

Original view

2 pages (displayed on pages 3 to 4)

(b) (5)

(b) (5)