

EXHIBIT 27

**UNITED STATES DISTRICT COURT
DISTRICT OF COLUMBIA**

In re Fannie Mae/Freddie Mac Senior
Preferred Stock Purchase Agreement Class
Action Litigations

Misc. Action No. 13-mc-1288 (RCL)
CLASS ACTION

THIS DOCUMENT RELATES TO:
ALL CASES

EXPERT REPORT OF ANJAN V. THAKOR, Ph.D.

CONFIDENTIAL AND SUBJECT TO PROTECTIVE ORDER

August 12, 2021

PRIVILEGED AND CONFIDENTIAL

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ever set and the GSEs never paid a PCF to Treasury. Several aspects of this language are relevant to my analysis.

29. First, the PSPAs lack the typical language relied upon in the industry in pricing bank loan commitments. As noted above, if it is a fixed rate commitment, the contract stipulates the fixed rate at which the customer can borrow under the commitment and the formula that will be used to compute the various fees. If it is a floating rate commitment, then the contract will specify the market index rate to be used (e.g. LIBOR, prime, etc.) to compute the borrowing rate under the commitment as well as the formula for determining the rate and the formula to be used to compute the various fees. The PSPA is extremely vague on the issue of how the PCF would be computed.

30. Second, the language is not a typical feature of the contracts that I examined that provided for government assistance under the CPP during the financial crisis.

31. Third, the language does not provide for meaningful guidance as to a standard for assessing the fee. It states it shall be determined “with reference to the market value of the commitment as then in effect” without explaining how that “market value” was to be determined. There are a variety of ways in which market benchmarks are used to compute fees in commercial loan commitment contracts. It is unclear what market benchmarks Treasury or FHFA would have used, what factors would have been considered to determine the market value of Treasury’s Commitment, or how any such benchmarks should interact with the other compensation provided. Nor is such a method readily apparent given that loan commitment contracts are often customized to the needs of borrowers and a variety of different types of methodologies are used in the commercial context to compute interest rates and fees included in commitment contracts. This

concern is further reinforced by the fact that, as discussed in the sections that follow, the all-in compensation that Treasury has been provided demonstrates that it has been fully compensated.

32. Fourth, I have not seen any evidence that Treasury or FHFA performed any analysis to quantify what the PCF should have been, to quantify what the market value of Treasury's Commitment was, or to identify any method for doing so. Instead, Treasury officials acknowledged that they had made no effort to consult the literature as to the amount of an appropriate fee.²⁸

**VII. AVAILABLE SOURCES FOR CALCULATING AN APPROPRIATE FEE YIELD
THE CONCLUSION THAT TREASURY HAS BEEN FULLY COMPENSATED
WITHOUT A FEE**

33. For the remainder of my report, I assume that the provision for a PCF is deemed legally enforceable. I further assume that it would be implemented in good faith according to an objective standard designed to compensate and measure a "market value", rather than as a stand-in for the Net Worth Sweep to distribute the maximum possible amount to Treasury. Under these circumstances, there are three potentially appropriate approaches for establishing a PCF. Each yields the conclusion that Treasury has been fully compensated without a fee.

A. Commercial Loan Commitment Fees

34. I first examined commercial loan commitments as a potential source for assessing an appropriate fee. As discussed above, such fees are set on an all-in basis and thus measured with reference to other compensation provided in connection with the commitment.

²⁸ An August 24, 2011 email exchange between Anne Eberhardt of Grant Thornton and Jeff Foster of Treasury states:

Eberhardt: "Is there any literature you can forward to me that expresses Treasury's most recent position on charging quarterly commitment fees for the PSPA?"

Foster: "We don't really have any literature. We've just elected to waive for each of the past three quarters (and it was not set previously)." Eberhardt Deposition Exhibit 10 [UST00406207].

35. In the context of this case, the \$1 billion upfront fee that was charged by Treasury is what would be called an “upfront fee” or a “commitment fee” in a bank loan commitment contract, whereas the PCF would be called a “usage fee” or “commitment fee.” My own research publication examined thousands of loan commitment contracts.²⁹ There were just a handful of fixed rate commitments, so the sample that was analyzed consisted entirely of floating rate commitment contracts (2,513) that were purchased in 1989 and 1990. The research found that larger firms are less likely to pay usage fees (i.e. fees as a percentage of the unused portion of the commitment amount still outstanding). It also found that larger loan commitments tend to have smaller interest rate mark-ups over LIBOR and smaller upfront and usage fees in percentage terms.³⁰ Considering the three largest purpose categories in the study by commitment size (commitment sizes across the three largest categories ranged from \$142.6 million to \$557.5 million)³¹ and computing arithmetic averages across category averages based on the number of commitments in each category, I observe that the average interest rate on the lending under the commitment for contracts in which the interest rate floated with LIBOR was LIBOR + 108.2 basis points, the average upfront fee was 21.4 basis points, and the average ongoing usage fee (similar to the PCF) assessed on the unused portion of the commitment was 26.3 basis points.³² Another research paper examined 32,343 loans and documented that fees on commitments are used to price options embedded in commitment contracts and are meant to compensate lenders for providing

²⁹ See Shockley, Richard and Anjan Thakor, “Bank Loan Commitments: Data, Theory and Tests”, *Journal of Money, Credit and Banking* 29(4), November 1997, 517- 534.

³⁰ See Table 1 in the paper. Excluding commitments for liquidity purposes – which tend to be the smallest and involve relatively short maturity loans that are less risky than most other loan categories – one observes a strong negative relationship between the average size of the commitment in a purpose category, on the one hand, and the interest rate mark-up over LIBOR, the upfront fee, and the usage fee, on the other hand.

³¹ These three categories account for over 57% of the total number of loan commitments in the sample.

³² Averages are derived from Table 1 in the paper. When calculating the average ongoing usage fee, I utilized the data in the “Usage” and “Annual” columns.

subsidized lending under the commitment.³³ This study also documented the magnitudes of fees used in bank loan commitment contracts involving syndicated loans during the 1986-2011 time period. It found that, on average, borrowers were charged LIBOR + 190 basis points on the loan taken down under the commitment, 61 basis points for the upfront fee, and 38 basis points for the ongoing commitment/usage fee.³⁴ This paper also provided a measure of the all-in cost of borrowing under a commitment.

36. In August 2012, the average 12-month LIBOR was 1.013%.³⁵ Thus, based on the research papers mentioned above, on average a borrower purchasing a bank loan commitment would have paid a loan interest rate of between 2.095% and 2.913% in addition to the upfront and periodic commitment fees stated above. Even if one adds the periodic commitment fee of 38 basis points to the higher loan interest rate mentioned in the paragraph above, the rate on the loan that these borrowers would have paid is under 3.3%.³⁶

37. By contrast, and even ignoring the value of the stock warrants, Fannie and Freddie paid a 10% dividend on the drawn down portion and an upfront fee of 100 basis points on the original \$100 billion (or 50 basis points if treated as applying to the overall commitment). This comparison thus yields the conclusion that no additional fee was necessary to provide Treasury with full compensation.

³³ See Berg, Tobias, Anthony Saunders, and Sascha Steffen, "The Total Cost of Corporate Borrowing: Don't Ignore the Fees", *The Journal of Finance* 71-3, June 2016, 1357-1392. The average loan commitment size in the sample was \$350.7 million.

³⁴ See Berg, Tobias, Anthony Saunders, and Sascha Steffen, "The Total Cost of Corporate Borrowing: Don't Ignore the Fees", *The Journal of Finance* 71-3, June 2016, 1357-1392.

³⁵ US Dollar LIBOR interest rates in 2012. The LIBOR yield curve was upward sloping at the time, so picking a shorter-maturity LIBOR will give a lower rate. <https://www.global-rates.com/en/interest-rates/libor/american-dollar/2012.aspx>.

³⁶ Even this calculation most likely overstates the all-in cost since the loan interest rate is charged only on the drawn down portion of the commitment and the usage fee is assessed on the unused portion. That is, just adding the usage fee to the loan interest rate is, strictly speaking, not correct mathematically, but I use it as a rough approximation, and the approximation tends to overstate the all-in cost.

B. Government Assistance Provided to Large Institutions During the Financial Crisis

38. Another potential source for determining the market value of the Commitment was government assistance provided to other large institutions during the financial crisis. As with the GSEs, the US government was in a unique position as the “capital provider of last resort” during a systemic crisis that had essentially frozen a large part of the global capital market. The crisis was brought about by a multitude of factors, including global economic factors, central bank monetary policy, and political forces, and the government exercised its responsibility to help stabilize the financial system through extraordinary infusions of capital while securing compensation for its assistance from the private companies to which it provided assistance.³⁷ The provision of capital to Fannie and Freddie as well as many other firms was part of the execution of this stabilization responsibility, and so it is appropriate to look to the assistance provided to other companies during this period to determine the appropriate levels of compensation.

1. The CPP under TARP

39. One source of financial assistance provided during the financial crisis was the TARP. The capital infusion programs to assist banks under TARP included the Capital Purchase Program (“CPP”) and the Community Development Capital Initiative (“CDCI”).³⁸ The CPP was started in October 2008 and the CDCI in 2010. The CPP was by far the largest program and its objective was to promote the recapitalization of banks.

³⁷ See, for example, the discussion in Thakor, Anjan, “The Financial Crisis of 2007–09: Why Did It Happen and What Did We Learn?”, *Review of Corporate Finance Studies* 4(2), September 2015, pp. 155–205. See also Chapter 14 in Greenbaum, Stuart, Anjan Thakor, and Arnoud Boot, *Contemporary Financial Intermediation*, Elsevier, 4th edition, 2019.

³⁸ See Mucke, Christian, Lorian Pelizzon, Vincenze Pezone and Anjan Thakor, “The Carrot and the Stick: Bank Bailouts and The Disciplining Role of Board Appointments”, ECGI Working Paper, March 2021, pp. 8-9 and 61. https://ecgi.global/sites/default/files/working_papers/documents/muckepelizzonperonethakorfinal.pdf.

40. A recent paper examines a total of 707 banks that participated in this program and got recapitalized between October 2008 and December 2009, for a total of \$205 billion invested by Treasury.³⁹ Under the CPP, Treasury offered to buy three different types of securities from participating institutions: cumulative preferred stock, non-cumulative preferred stock, and subordinated debt.⁴⁰ Cumulative preferred stock represented the largest fraction of securities used to provide participating institutions with capital (81%).⁴¹

41. While numerous research papers have examined different aspects of the CPP,⁴² the working paper mentioned above empirically examines the specific contract terms used in the CPP and their effects,⁴³ and documents the following:

- a. The amount of capital to be provided to each institution was limited to 3% of risk-weighted assets and not to exceed \$25 billion;
- b. The dividend rate was set at 5% for the first 5 years, increasing to 9% after that;
- c. No upfront fee or PCF;

³⁹ See Mucke, Christian, Lorian Pelizzon, Vincenze Pezone and Anjan Thakor, "The Carrot and the Stick: Bank Bailouts and The Disciplining Role of Board Appointments", ECGI Working Paper, March 2021, pp. 8-9 and 61. https://ecgi.global/sites/default/files/working_papers/documents/muckepelizzonperonethakorfinal.pdf.

⁴⁰ See Mucke, Christian, Lorian Pelizzon, Vincenze Pezone and Anjan Thakor, "The Carrot and the Stick: Bank Bailouts and The Disciplining Role of Board Appointments", ECGI Working Paper, March 2021, pp. 8-9 and 61. https://ecgi.global/sites/default/files/working_papers/documents/muckepelizzonperonethakorfinal.pdf.

⁴¹ See Mucke, Christian, Lorian Pelizzon, Vincenze Pezone and Anjan Thakor, "The Carrot and the Stick: Bank Bailouts and The Disciplining Role of Board Appointments", ECGI Working Paper, March 2021, pp. 8-9 and 61. https://ecgi.global/sites/default/files/working_papers/documents/muckepelizzonperonethakorfinal.pdf.

⁴² For detailed descriptions of the institutional details of these programs, see Berger, Allen and Raluca Roman, *TARP and other Bank Bailouts and Bail-ins Around the World: Connecting Wall Street, Main Street, and the Financial System*, London, United Kingdom and San Diego, CA, Academic Press; and Calomiris, Charles W., and Urooj Khan. 2015, "An Assessment of TARP Assistance to Financial Institutions." *Journal of Economic Perspectives*, 29(2): 53-80. Also see Flanagan, Thomas and Amiyatosh Purnanandam, "Did Banks Pay 'Fair' Returns to Taxpayers on TARP?", University of Michigan Working Paper, March 2021.

⁴³ See Mucke, Christian, Lorian Pelizzon, Vincenze Pezone and Anjan Thakor, "The Carrot and the Stick: Bank Bailouts and The Disciplining Role of Board Appointments", ECGI Working Paper, March 2021, pp. 8-9 and 61. https://ecgi.global/sites/default/files/working_papers/documents/muckepelizzonperonethakorfinal.pdf.

- d. No restrictions on the institution's ability to repurchase Treasury's stake and redeem all the government PS; and
- e. If six (quarterly) dividend payments on the government PS were missed, Treasury could appoint two directors on the institution's board. The directors were tasked with the responsibility of looking after the interests of the overall bank.

42. Accordingly, the capital provided to Fannie and Freddie was far more expensive than that provided under the CPP, even if Treasury did not charge Fannie and Freddie any PCF. The government's aggregate capital assistance to banks under the CPP program was \$205 billion, which is comparable to Treasury's commitment to the GSEs.

2. AIG

43. Another institution that was financially distressed during the 2007-2009 crisis was AIG, the world's largest insurance company. The Federal Reserve Bank of New York ("New York Fed") and Treasury assisted AIG in various capacities to help it recover. Although the New York Fed and Treasury acted jointly at times to provide support to AIG, for purposes of my report, I describe each of them discretely below.

New York Fed Support

44. In September 2008, the New York Fed extended a secured revolving credit facility of \$85 billion with an initial interest rate of LIBOR + 8.5% in exchange for a controlling stake of 79.9% of AIG's equity (the "Credit Agreement").⁴⁴ A commitment fee equal to 8.5% per annum

⁴⁴ <https://www.newyorkfed.org/aboutthefed/aig>.

on the daily amount of the available commitment was part of the Credit Agreement.⁴⁵ The Credit Agreement was amended four times between September 22, 2008 and December 1, 2009.⁴⁶

45. On November 10, 2008, a significant modification to the Credit Agreement was announced which dramatically reduced AIG's interest rate on the revolving credit facility as well as the commitment fee that AIG was subject to:

The Board of Governors and the U.S. Treasury Department announced the restructuring of financial support to AIG in order to provide the company more time and greater flexibility to sell assets and repay that support. Measures included certain modifications to the New York Fed's credit facility, including a reduction of the interest rate to three-month LIBOR plus 300 basis points, and a reduction of the fee charged on undrawn funds to 75 basis points (from the then-existing rate of 850 basis points). The length of the facility was also extended from two years to five years.

In addition, the U.S. Treasury Department announced its plan to purchase \$40 billion of newly issued AIG preferred shares under the Troubled Asset Relief Program (TARP), the proceeds of which were used to reduce the balance of the Fed's credit facility. The total amount available to AIG under the credit facility was also reduced from \$85 billion to \$60 billion.⁴⁷ (Emphasis added)

46. The average 3-month LIBOR in 2008 was 2.929%,⁴⁸ so AIG's borrowing rate under this arrangement was 5.929% in November 2008. Although AIG had paid off the New York Fed facility in early 2011, if AIG was still in the program in August 2012, it would have faced an average 3-month LIBOR of 0.43%, so its interest rate would have been 3.43%, and the analog of the PCF for it would have been 75 basis points.

⁴⁵ Credit Agreement dated as of September 22, 2008 between AIG and Federal Reserve Bank of New York. A link to this agreement is located at <https://www.newyorkfed.org/aboutthefed/aig>.

⁴⁶ <https://www.newyorkfed.org/aboutthefed/aig>.

⁴⁷ <https://www.newyorkfed.org/aboutthefed/aig>.

⁴⁸ US Dollar LIBOR interest rates in 2008. <https://www.global-rates.com/en/interest-rates/libor/american-dollar/2008.aspx>.

47. Adding the 75 basis point fee to the interest rate yields an all-in borrowing cost of 4.18%.⁴⁹ The implication of this is that, compared to AIG, Fannie and Freddie faced much higher costs of financing in their arrangements with Treasury even without an additional PCF.

Treasury Support

48. In connection with the November 2008 modification to AIG's Credit Agreement described in the preceding section, Treasury purchased AIG's Series D fixed rate cumulative perpetual preferred stock which accrued cumulative dividends at a rate of 10% per annum.⁵⁰ No additional fee was charged.

49. Further, within four months, AIG agreed on March 2, 2009 to exchange the Series D fixed rate *cumulative* perpetual preferred stock for Series E fixed rate *non-cumulative* preferred stock.⁵¹ AIG and Treasury concurrently agreed that "up to \$30 billion aggregate liquidation preference" of Series F preferred stock could be issued from time to time at the request of AIG, which had very similar terms to the Series E preferred stock.⁵² Treasury also received a warrant to purchase 1% of the issued and outstanding shares of common stock on the commencement date of the facility.⁵³

⁴⁹ As mentioned earlier, the 75 basis point fee on the unused portion of the commitment is not simply additive to the interest rate on the portion of the commitment actually drawn down. My approach is a simple approximation that tends to overstate the actual cost to AIG.

⁵⁰ AIG also issued a nominal amount of Series C perpetual, convertible, participating preferred stock (100,000 shares at \$5.00 per share). https://home.treasury.gov/sites/default/files/initiatives/financial-stability/TARP-Programs/aig/Documents/AIG_Agreement_11252008.pdf.

⁵¹ https://home.treasury.gov/sites/default/files/initiatives/financial-stability/TARP-Programs/aig/Documents/030209_AIG_Term_Sheet.pdf. The Securities Exchange Agreement was dated April 17, 2009. <https://home.treasury.gov/sites/default/files/initiatives/financial-stability/TARP-Programs/aig/Documents/Series.E.Securities.Exchange.Agreement.pdf>.

⁵² The Series F Preferred Stock had the same terms as the Series E Preferred Stock except that the Series F Preferred Stock "will not be subject to the Replacement Capital Covenant or the Replacement Capital Intention." https://home.treasury.gov/sites/default/files/initiatives/financial-stability/TARP-Programs/aig/Documents/030209_AIG_Term_Sheet.pdf.

⁵³ https://home.treasury.gov/sites/default/files/initiatives/financial-stability/TARP-Programs/aig/Documents/030209_AIG_Term_Sheet.pdf.

50. In January 2011, AIG issued common stock in exchange for its Series C, Series E, and Series F preferred stock.⁵⁴ Additionally, any remaining outstanding shares of Series F preferred stock were exchanged for newly issued Series G preferred stock.⁵⁵ Dividends on each share of Series G preferred stock accrued at a rate of 5% per annum and the Series G Preferred Stock automatically converted into AIG common stock on March 31, 2012.⁵⁶ From this point onwards, Treasury's involvement with AIG was primarily focused on selling shares of AIG's common stock.⁵⁷ On March 1, 2013, AIG repurchased the warrants issued to Treasury in 2008 and 2009 for approximately \$25 million, at which time Treasury no longer had any residual interest in AIG.⁵⁸

51. Upon examining the terms of the support that AIG received from the New York Fed and Treasury, I find that such terms were more beneficial than those received by the GSEs from Treasury in a number of ways. First, like the participants in the CPP, AIG was permitted to exit from government support and return to private ownership by being able to recapitalize, redeem its preferred interests, and repurchase its warrants. Second, AIG's Series D *cumulative* preferred stock was quickly exchanged for its Series E *non-cumulative* preferred stock. Third, AIG's initial 10% dividend to Treasury was replaced with a 5% dividend as part of the recapitalization. Finally, AIG was permitted to issue common stock and return to private ownership, whereas the GSEs were prohibited from carrying out any of these functions under the Third Amendment.

⁵⁴ https://www.newyorkfed.org/medialibrary/media/aboutthefed/aig/pdf/Recapitalization_Summary_Terms.pdf.

⁵⁵ https://www.newyorkfed.org/medialibrary/media/aboutthefed/aig/pdf/Recapitalization_Summary_Terms.pdf.

⁵⁶ https://www.newyorkfed.org/medialibrary/media/aboutthefed/aig/pdf/Recapitalization_Summary_Terms.pdf.

⁵⁷ <https://home.treasury.gov/data/troubled-assets-relief-program/aig/status>.

⁵⁸ <https://home.treasury.gov/data/troubled-assets-relief-program/aig/status>.