APPENDIX I

Frank J. Fabozzi Associates

Frank J. Fabozzi, Ph.D., C.F.A.
858 Tower View Circle, New Hope, PA 18938
Direct: (215) 598-8924 FAX: (215) 598-8932 e-mail fabozzi321@aol.com

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Mr. Leland Brendsel
Chairman and Chief Executive Officer
Freddie Mac
8200 Jones Branch Drive
McLean, VA 22102

Dear Mr. Brendsel:

I am writing in response to your request that I comment on the non-derivative and derivative "haircuts" contained in the final risk-based capital regulation made available by the Office of Federal Housing Enterprise Oversight (OFHEO) in July 2001 and published in the Federal Register on September 13, 2001. Having reviewed the rule, I am deeply concerned by the severity of these haircuts and the unintended effects they will have. They will create powerful incentives for Freddie Mac to retain higher levels of risk and will have a chilling effect on financial markets, particularly on the multi-trillion dollar derivatives market. Ultimately, they will raise costs for mortgage consumers. I trust this analysis will be useful in demonstrating why OFHEO's haircuts must be corrected.

As I describe in detail below, the methodology and assumptions used by OFHEO in developing these haircuts are fundamentally flawed. In simplest terms, a haircut can be developed by multiplying the probability of counterparty default by the estimated level of losses that result once the default occurs, known as the severity of the default. Unfortunately, OFHEO rejects this straightforward approach and bases its contrived methodology on two erroneous assumptions:

- *Unrealistically high defaults.* OFHEO bases its entire calculation of haircuts on an extremely high default rate dating back to 1912 that is more reflective of turn-of-the-century economic conditions than of our modern financial era.

- *Unrealistically high severities.* In the case of non-derivative haircuts, OFHEO assumes 100 percent losses upon default, which is not based on any empirical evidence. Failure to adequately account for recoveries is particularly egregious in the case of derivatives, which are collateralized with high-quality liquid instruments.

The haircuts resulting from these compounded errors are excessive and fail to recognize the significant difference in credit risk between non-derivative and derivative instruments. I am surprised that, after many years in which regulators have come to understand how derivatives can be employed to manage a wide range of financial risks, OFHEO has taken a major step backwards.

I have spent my career working with such matters. Over the past 20 years, I have written more than 30 books on the subject of fixed income securities and portfolio and risk management.[1] Currently I am an Adjunct Professor of Finance at Yale University's School of Management. I am also on the board of directors of the BlackRock complex of funds, of which several funds specialize in mortgage-backed securities. Finally, I have served as an expert witness on behalf of the U.S. Securities and Exchange Commission and the U.S. Department of Justice in matters involving mortgage instruments and risk management.

Background

Freddie Mac plays a critical role in the housing finance system by ensuring a stable supply of low-cost mortgage funds. This business entails two primary risks: credit risk and interest-rate risk. Freddie Mac is exposed to the credit risk associated with the mortgages in its total mortgage portfolio. Freddie Mac guarantees its investors the repayment of principal – even when borrowers default on their loans.

Freddie Mac is also exposed to interest-rate risk, which arises primarily from the ability of mortgage borrowers to prepay their mortgages, without penalty, at any time. While this prepayment "option" is a great benefit to homeowners, it exposes Freddie Mac to the risk of a potential mismatch in the duration of its mortgage assets and liabilities for the entire life of a fixed-rate mortgage. Because interest rates are likely to vary substantially over 30 years, Freddie Mac strives to manage any funding gaps in order to minimize its risk exposure.

In mitigating these risks, Freddie Mac employs numerous risk management strategies, including laying off risk to third parties. In the case of mortgage credit risk, Freddie Mac is required in its charter to share risk on low downpayment mortgages with private mortgage insurers or other financial institutions. To reduce its exposure to interest-rate risk, Freddie Mac uses a mix of callable and non-callable debt instruments as well as various types of derivative instruments.

In basic terms, a derivative is a financial contract between two parties that provides for an exchange of cash flows *derived* from the value of the underlying asset or index. In the case of an interest rate contract or "swap" (the type of derivative used almost exclusively by Freddie Mac), Freddie Mac is obliged to

[1] A full listing of my publications is provided at Appendix A.

make or receive a payment to the counterparty based on the interest rate specified in the contract. Derivatives significantly improve Freddie Mac's ability to match the cash flows from debt financing with the expected cash flows from its investments. By using derivatives in this way – as a so-called end-user – Freddie Mac is able to disperse interest-rate risk through its counterparties to global financial markets.[2]

Laying off risk to third parties carries its own incremental risk, of course. In reducing its total exposure to mortgage credit risk and interest-rate risk, Freddie Mac accepts a smaller degree of risk in the form of exposure to institutional counterparties, that is, the risk that its counterparties fail to fulfill their obligations to Freddie Mac under the terms of specific contracts or agreements. To minimize counterparty risk, Freddie Mac requires its non-derivative counterparties to maintain a high credit rating. In addition, Freddie Mac typically requires its derivative counterparties to post a substantial level of high-quality collateral.

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 required OFHEO to develop an innovative stress test that ties capital to risk. By law, Freddie Mac must maintain sufficient capital to withstand a ten-year period of extreme swings in both credit and interest-rate risks. Given Freddie Mac's propensity to share risk with counterparties, this test necessarily needs to incorporate certain assumptions about how these arrangements will fare over the ten-year period of severe economic stress. A common way to assign capital commensurate with this risk is to apply a factor known as a "haircut." The haircut serves to reduce the expected cash payments owed to Freddie Mac, resulting in a greater capital requirement.

No one disputes the use of haircuts – the question is one of degree. Regrettably, OFHEO makes several erroneous assumptions about how these counterparty arrangements will perform in stressful periods. The resulting haircuts are far more severe than warranted by the risks presented and will lead to unintended negative consequences for Freddie Mac, financial markets and consumers.

OFHEO's Development of Non-Derivative Haircuts

As proxies for risk, haircuts are based on explicit assumptions about the likelihood of counterparty default and losses in high-stress periods. In simplest terms, a haircut can be developed by multiplying the probability of counterparty default by the estimated level of losses that result once the default occurs, known as the severity of the default. For the purpose of the risk-based stress test, one might expect OFHEO to pick benchmark default and loss rates representative of the stress period it chose for the credit risk portion of the stress test, *e.g.*, 1983

[2] The use of derivatives to manage interest-rate risk stands in sharp contrast to the use of derivatives for speculative purposes.

and 1984.[3] This would be in keeping with the 1992 law's requirement that characteristics of the stress period not specified in the law be "consistent with the stress period."[4]

Based on my reading of the final rule, OFHEO rejected this straightforward approach and instead developed haircuts that bear no resemblance to the default experience of the stress period they are supposed to reflect. This contrived methodology is described below:

Faulty Default Methodology and Assumptions

- *Selection of "stress" period default rates.* A reasonable proxy for the performance of non-derivative counterparty arrangements over a ten-year stress period is a ten-year cumulative default rate for corporate bonds. Without justification, OFHEO chose a *four-year* default rate experienced between 1912 and 1915. At 7 percent, this appears to be the single highest default rate OFHEO could find in a 1958 academic study of corporate bond performance.[5] OFHEO's decision to use this extremely high four-year rate as the basis for all further calculations, without considering rates available from much more recent and reliable corporate bond data, is unsupportable. Not only are the data terribly old and representative of a completely different financial era, the aberrantly high default rate was primarily driven by the experience in one sector: railroads. To be more precise, OFHEO used as its benchmark the railroad default experience of primarily small bond issues of less than five million dollars.[6] There is no evidence supporting OFHEO's implicit conclusion that the default rate of pre-Federal Reserve era, small railroad-issuer bonds even faintly resembles the likely default rate of the portfolio of financial instruments and obligations held by Freddie Mac.

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[3] For the credit risk part of the stress test, the statute requires OFHEO to choose the worst consecutive two-year default and loss experience for mortgages in adjoining geographic areas with five percent of the U.S. population. OFHEO chose the default experience of Arkansas, Mississippi, Louisiana and Oklahoma during 1983 and 1984.

[4] Section 1361 of the 1992 safety and soundness legislation requires in several places that characteristics of the stress period other than those specified in the legislation are to be "consistent with the stress period."

[5] W. Braddock Hickman, *Corporate Bond Quality and Investor Experience* at 189 (1958).

[6] The table on page 189 of the Hickman study on which OFHEO relies shows that public utilities and industrials each had less than five issues in 1912-1915 time period, with the remaining bond issues comprised entirely of railroad bonds. This period's default rate is further inflated by a 12.6 percent default rate among investment grade small issuances. *Ibid.* Hickman shows that the default rates for all large bond issues in the two highest investment grades were less than half the 7 percent rate, at 3.8 percent for bonds in grade I and 2.7 percent for bonds in grade II. *Ibid.*, table 36, page 190. This impeaches OFHEO's use of the 1912 data for these purposes.

- *Manufacturing of ten-year default rate.* To make its four-year default rate usable in the ten-year test, OFHEO extrapolates the four-year rate to a ten-year equivalent default rate of 23.7 percent. This rate is obtained by multiplying the 1912 rate of 7 percent by the ratio of four-year and ten-year cumulative default rates that OFHEO describes as "normal" (cumulative ten-year default rates from 1920-99, as published by Moody's).[7]

  While this may appear to be an innocuous arithmetic calculation, it exaggerates the already high 1912 four-year default rate. To assume that, over a ten-year period, bonds will experience the same default rate as they experienced during a four-year, historically high default period is not empirically sound. By locking defaults into this arbitrary pattern, OFHEO further skews the default rate upon which both non-derivative and derivative haircuts are based.

- *Crude use of "stress" multiple.* OFHEO then compares its ten-year extrapolated stress default rate of 23.7 percent to an average default rate experienced during "normal" periods. OFHEO's proxy for normal bond performance is Moody's historical average ten-year rate for 1920-99 of 4.85 percent.[8] Since the extrapolations for stressful periods are 4.9 times greater than the historical average, OFHEO applies an approximate 5:1 ratio for default rates in stressful vs. non-stressful time periods *across* all ratings categories.

  Several problems immediately come to mind. First, the "normal" period of 1920-99 is inconsistent with the stress period of the 1980s. A better proxy for normal bond performance would be Moody's historical average ten-year cumulative default rates from 1970 to the present.[9] Using data from the modern financial era has the added benefit of being more reliable as well as representative of the counterparty risk Freddie Mac is likely to face in a stressful period.

  Second, it is misleading to apply a single stress "multiple" to all rating categories. Bonds of different rating categories perform very differently, particularly in periods of stress. Given that AAA-rated bonds experience essentially zero defaults during normal periods, the incremental increase in defaults that AAA bonds experience in stress periods will be disproportionately higher than the increase in defaults on lower-rated instruments. For example, for the most recent stressful period, 1978-1985, Moody's shows that the ratio of AAA to AA ten-year cumulative default rates

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[7] Moody's Investors Service, "Historical Default Rates of Corporate Bond Issuers: 1920-1999" (January 2000).

[8] *Ibid.* at 27, exhibit 30.

[9] Moody's Investors Service, "Default and Recovery Rates of Corporate Bond Issuers: 2000," at 25 (February 2001).

narrowed from 3:1 to approximately 1:1. By using a constant stress multiple, OFHEO distorts the true performance of bonds during stressful periods. (In the discussion in footnote 19, I describe a more realistic set of stress multiples that account for this fact.)

Failure to Account for Recoveries

As shown below, OFHEO multiplies the "normal" default rates by its stress multiple of 5 to arrive at its non-derivative haircuts. Without explanation, it makes no allowance for the recoveries Freddie Mac could expect to obtain following default.

OFHEO's Non-Derivative Haircuts Phased In Over 5 Years

Rating	Moody's Average Rates 1920-99	Stress Multiple	Non-Derivative Haircuts
AAA	1.09	5	5
AA	3.1	5	15
A	3.61	5	20
BBB	7.92	5	40
Below BBB			100

The failure to account for post-default recoveries undermines the credibility of OFHEO's methodology. By excluding an estimate of loss severity, OFHEO implicitly assumes that every counterparty default results in a loss of 100 percent of principal and interest. This assumption is flatly contradicted by all available empirical evidence and is inconsistent with industry practice that typically (and quite correctly) assumes a certain level of recoveries. According to Moody's, from 1981 to 2000, default severities on corporate bonds averaged 56 percent across all credit grades, with lower losses on investment grade securities.[10] In a stress situation, some level of recoveries should be assumed; for example, the 1958 study used by OFHEO shows a healthy level of recoveries.[11]

Imposition of Five-Year Phase-In Period

OFHEO's final error is to reduce the ten-year phase-in period to five years. I could not determine any empirical or other justification for this step. Given that all of OFHEO's calculations – and, indeed, the stress test itself – relate to ten-year periods, I cannot conceive why OFHEO would phase in the haircuts so

[10] *Ibid.*

[11] The 1958 Hickman study indicates that the average price at default of those bonds rated as investment grade one year before default for the periods studied (1912-1939) was 58 percent – meaning that, upon default, investors were able to immediately recover 58 cents on the dollar. This reflects a reasonable net present value recovery rate. Hickman study, tables 37 p. 193.

rapidly. The five-year phase-in makes the haircuts that much more severe and out of proportion to the actual risks experienced in the first five years.

OFHEO's Development of Derivative Haircuts

The final rule provides even fewer insights into OFHEO's methodology for developing derivative haircuts. However, I have attempted to "piece together" key assumptions and calculations.

Unfounded Assumption regarding Relative Default Rates

OFHEO implicitly assumes that derivative transactions will default at the same rate as corporate bonds, since it adopts for derivatives the default probabilities that it used in calculating the non-derivative haircuts. Given that OFHEO's non-derivative haircuts are based on default rates from 1912 – some sixty years before the concept of derivative contracts was even devised – there is no empirical basis for this assumption. In my opinion, the assumption that derivative contracts default at the same rate as corporate bonds is unfounded and unsupportable. I am not aware of any research showing that derivative instruments are subject to default at rates approaching those of the overall corporate bond market. In fact, the evidence of the past twenty years strongly suggests that derivatives default at a significantly lower rate than corporate bonds.[12] Nevertheless, for the purposes of this discussion, I have assumed that the *incidence* of default would be the same for derivative and non-derivative counterparties.

Failure to Adequately Recognize Loss Mitigation of Collateral and Netting

In contrast to its non-derivative haircuts, OFHEO claims to provide some level of reduction in the derivative haircuts in recognition of the loss mitigation benefits of Freddie Mac's collateral requirements for derivative counterparties. A comparison of the haircuts in the proposed and final rule indicates that OFHEO implicitly assumes a 40 percent severity for derivatives.[13]

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[12] Freddie Mac informs me that it has never experienced a default by a derivative counterparty. This does not surprise me or any other knowledgeable observer, since Freddie Mac's counterparties consist exclusively of major broker/dealers and insured depository institutions. There is no material instance of which I am aware in which such an institution defaulted on a derivative contract.

[13] In its proposed rule, OFHEO provided an 80-percent discount from the non-derivative haircut levels for the derivative haircuts, implying a 20 percent loss severity on these instruments. This resulted in a 5:1 ratio between non-derivative and derivative haircut percentages for each rating category. However, in the final rule, OFHEO determined, without any explanation, that it would phase-in both types of haircuts in the first five years of the stress test, while at the same time significantly reducing the level of non-derivative haircuts. As a result, the ratio of non-derivative

I strongly disagree that Freddie Mac would lose 40 percent on each defaulted derivative instrument. OFHEO's unsubstantiated method of recognizing the potential for recoveries is completely at odds with the prudent and widely recognized risk management practices of obtaining collateral and entering master netting agreements. Derivative haircuts premised on such an unfounded recovery assumption would provide a significant disincentive to Freddie Mac's use of derivative instruments as a mechanism for laying off interest-rate risk. What should be apparent is that these are not controversial issues. Anyone familiar with derivative contracts would reach the same conclusion.

- *Collateralization.* The terms of derivatives instruments substantially reduce the risk of loss compared with non-derivative counterparty credit risk. In entering a derivative transaction, Freddie Mac obtains contractual terms that permit it to calculate a "mark-to-market" position on a daily basis, meaning that the net exposure on the transaction is calculated every day. When this calculation shows that a counterparty would owe money to Freddie Mac if the derivative were to be realized upon at that time, the contract requires the counterparty to post cash or cash equivalents as collateral in an amount equal to more than 100 percent of the potential exposure.[14] A counterparty's failure to post required collateral within three business days of Freddie Mac's demand gives Freddie Mac the legal right to close out the contract and appropriate any collateral that the counterparty has already posted. As a result, Freddie Mac's actual exposure to the institutional credit risk of the counterparty is limited to an amount equaling the net change in market value of the contract between the time collateral was last posted and the time the contract is closed out.[15]

  For example, assuming a 5-year swap, an extremely large move in market prices would leave Freddie Mac relying on the counterparty for only about 2 percent of the swap's notional value. The 2 percent is derived by computing the change in value of a 5-year swap after an extreme adverse two-week change in five-year interest rates of 50 basis points, assuming no collateral is

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to derivative haircuts now stands at 2.5:1, effectively raising the 20 percent loss severity to 40 percent.

[14] In this respect, the issues that arise in valuing collateral such as corporate bonds or other instruments having meaningful credit risk do not arise in connection with Freddie Mac's practices, because it requires Treasuries, cash or its own securities to be posted as collateral.

[15] Freddie Mac completes a daily mark-to-market analysis of its derivative positions. For typical exposures, Freddie Mac will exercise its contractual right to demand the posting of additional collateral on a weekly basis. However, Freddie Mac's contracts give it the right to demand collateral at any time. Therefore, because collateral posting is done weekly (or more frequently), Freddie Mac theoretically could face a net counterparty exposure of at most eight to nine business days, since Freddie Mac's contracts permit it to "close-out" a counterparty position and liquidate collateral three days following the failure to post required collateral.

posted. A movement of 50 basis points is severe compared to what is assumed in the stress test. The test's 600 basis point interest rate "shock" equates to a weekly movement of 12 basis points, or 24 basis points for two weeks. By assuming a 50 basis point movement, this example shows that a 2 percent loss severity is more than adequate to account for the likelihood of loss.

- *Netting.* Counterparty credit risk exposure is further reduced by master netting agreements, under which all positive and negative positions are netted out in an event of default. Master netting agreements take account of the fact that, at any point in time, Freddie Mac is likely to have numerous contracts with any given counterparty.[16] For example, Freddie Mac may owe a counterparty $X on a swap and be owed $Y by the counterparty on a different swap. OFHEO's specification assumes that Freddie Mac continues to pay the $X it owes to the counterparty on the one contract in the event of default, even as the counterparty makes good on only a fraction of its obligation on the other contract, despite a contractual arrangement permitting Freddie Mac to "net" or offset its total contractual obligations with the counterparty. This treatment fails to recognize the actual contract, and is contrary to both good industry risk management practice, and to common sense.[17]

Financial regulators routinely recognize the full value of these risk-reducing mechanisms in establishing capital requirements. For example, the major U.S. and international financial regulators all recognize collateral and netting on a dollar-for-dollar basis and the Basel Committee on Banking Supervision clearly recognizes these risk mitigation practices in the New Basel Capital Accord. According to William J. McDonough, President and Chief Executive Officer of the Federal Reserve Bank of New York, "Greater recognition of the benefits of risk mitigation techniques – such as collateral, guarantees, credit derivatives and netting – also is at the forefront of the Committee's [Basel Committee on Banking Supervision] work in revising the Accord."[18]

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[16] Indeed, given the prevailing practice in the financial markets, in which derivative counterparties continuously enter into new contracts to mitigate changes in interest-rate risk positions, Freddie Mac is likely to have hundreds of individual contractual arrangements with numerous of its derivative counterparties.

[17] It is also worth noting that the 1992 safety and soundness legislation created a 30-percent capital "add-on" for management and operations risk. An assumption that Freddie Mac would continue paying a counterparty on one contract despite the counterparty's default on another contract certainly qualifies as an operational risk.

[18] Remarks by William J. McDonough, President and Chief Executive Officer, Federal Reserve Bank of New York, before The 4th Annual Supervision Conference of The British Bankers Association, London, United Kingdom, June 19, 2000.

Recommended Haircuts

In my professional opinion, the errors made with respect to non-derivative and derivative haircuts are so significant that they impeach the credibility of OFHEO's stated intention to tie capital to risk. No one would choose this convoluted method used for creating non-derivative haircuts unless one sought to create exceedingly high haircuts. Moreover, no one would fail to recognize basic, prudent risk mitigation practices such as collateralization and master netting unless they sought unreasonably high derivative haircuts.

As I mentioned earlier, there are simpler and more accurate ways to calculate haircuts. With respect to non-derivative haircuts, OFHEO easily could have compared the highest average ten-year default rate for all investment-grade bonds to a normal default rate consistent with the stress period. According to Moody's, the highest recent average cumulative ten-year default rate for investment grade bonds was 5.08 percent in 1982. By comparison, the average ten-year default rate for investment grade bonds from 1970 to 2000 was 2.21 percent. Thus, whereas OFHEO's contrived methodology produced a stress multiple of five, the Moody's assessment based on more recent data shows that stress period defaults are less than 2.5 times the "normal" level.

An even better way to determine haircuts would be to assign default and severity percentages by individual rating categories. As shown below, using default probabilities commensurate with the stress period chosen by OFHEO and assuming a highly conservative level of recoveries upon default would produce haircuts that are much more reflective of the actual risks. I also recommend a ten-year phase-in period, since the five-year period adopted in the OFHEO rule creates haircuts in the first five years that are much too severe.

Recommended Non-Derivative Haircuts

Rating Classification	10-Year Cumulative Default Rates[19] Consistent with Stress Period	Loss Severity	Haircut (Ten-Year Phase-In)
AAA	2%	60%	1.2%
AA	2%	75%	1.5%
A	4%	75%	3.0%
BBB	8%	100%	8.0%

With respect to derivative haircuts, I recommend a loss severity of 2 percent, in accordance with the reasoning and methodology described above. This change brings the relationship between derivative and non-derivative haircuts far more in line with the actual risks. Whereas OFHEO proposes a ratio of non-derivative to derivative haircuts of 2.5:1, a ratio on the order of 30:1 would be far more reflective of the actual loss severity probabilities. As shown in the table below, the recommended derivative haircuts assume a ten-year phase-in period, correcting the five-year phase-in period that OFHEO imposed without explanation in the final rule (similarly to non-derivative haircuts).[20] It should be noted that these recommended haircuts assume the same underlying default rates as assumed for corporate bonds. In fact, derivative default rates are likely much lower than non-derivative default rates, and, thus, the derivative haircuts set forth below are more conservative than warranted. For this reason, a 30:1 ratio should be regarded as a minimum ratio and a much higher ratio may better align capital requirements with the actual underlying risks.

[19] These cumulative default rates were determined as follows: I begin by averaging 10-year cumulative default rates experienced during the period of severe economic stress from 1978-85, as reported by Moody's. (See relevant cohort years in Exhibit 43, Moody's Investors Service, "Default and Recovery Rates of Corporate Bond Issuers: 2000," February 2001.) I then compare these average cumulative 10-year default rates for stress periods to those experienced in a "normal" period (Moody's cumulative 10-year default rates from 1970 to 2000, as shown in Exhibit 41.) In contrast to OFHEO's assumption that cumulative default rates are 5 times greater in stressful periods across all credit ratings, this comparison yields a ratio of about 3:1 for AAA and about 2:1 for AA and A.

[20] In addition, the recommended haircuts also should be applied to *net* positions on a counterparty-by-counterparty basis (rather than a contract-by-contract basis).

Recommended Derivative Haircuts (Assuming Equivalent Default Rates)

Rating Classification	Worst Case 10-Year Cumulative Default Rate	Loss Severity	Haircut (Ten-Year Phase-In)
AAA	2%	2%	0.04%
AA	2%	2%	0.04%
A	4%	2%	0.08%
BBB	8%	2%	0.16%

Conclusion

By imposing haircuts far more severe than warranted, OFHEO significantly raises the cost of Freddie Mac's risk management strategy to lay off risk to third parties. Paradoxically, this sets up a perverse capital regime that rewards Freddie Mac for retaining *more* risk than it currently does.

Overly severe haircuts will also have a negative impact on consumers. For example, Freddie Mac has advised me that it would have to charge AA-rated mortgage insurers approximately 10 basis points more than AAA-rated mortgage insurers to account for the artificial distinction in risk that OFHEO's rule imposes via the haircuts.[21] These costs likely would be passed on to low-downpayment borrowers in the form of higher monthly mortgage insurance payments.[22]

Likewise, overly severe derivative haircuts could create an incentive to transfer interest rate risks back to the consumer (*e.g.*, by a shift toward adjustable rate mortgages or by the increased use of prepayment penalties on 30-year, fixed-rate mortgages). Seeking a substitute for interest-rate swaps by issuing more callable debt, for example, may raise Freddie Mac's funding costs to the extent that consumers experience higher mortgage rates for fixed-rate mortgages. In June 2000, then-Treasury Secretary Larry Summers, testifying before Congress on the Commodity Futures Modernization Act, noted that the use of derivatives "can help lower mortgage payments, insurance premiums and other financing costs for American consumers and businesses."[23] The OFHEO

[21] Similar to the approach recognized by bank regulators, Freddie Mac currently does not differentiate in price between mortgages insured by and AA and AAA rated institutions.

[22] Research shows that even small increases in mortgage costs affect homeownership. For example, a 0.5 percent increase in mortgage costs would decrease the U.S. homeownership rate for low- and moderate-income and minority families by as much as 3 percent. See R. Quecia, G. McCarthy and S. Wachter, "The Impacts of Affordable Lending Efforts on Homeownership Rates," (June 2000).

[23] Testimony of Treasury Secretary Larry Summers, Joint Senate on the Commodity Futures Modernization Act, June 21, 2001.

rule will damage Freddie Mac's ability to use derivatives to lower mortgage payments.

Finally, as an anomaly among financial safety and soundness regulation, OFHEO's overly severe haircuts represent a setback for the dispersion of risk through the world's capital markets. In February 2000, in testimony before the Committee on Agriculture, Nutrition and Forestry, United States Senate, Chairman Greenspan stated: "Over-the-counter (OTC) derivatives have come to play an exceptionally important role in our financial system and in our economy. These instruments allow users to unbundle risks and allocate them to the investors most willing and able to assume them."[24] My views are completely in line with these statements.[25]

Given the large body of opinion recognizing the important role derivatives play in our financial system, and, in particular, in the delivery of low-cost mortgages, it would seem reasonable that OFHEO would set haircuts that align capital to risk – without penalizing the use of these instruments intended to manage risk. Unfortunately, the haircuts mandated by OFHEO far exceed the actual risk of these risk-sharing arrangements, as I have demonstrated. Overly severe haircuts will have the paradoxical effect of creating powerful incentives for Freddie Mac to retain higher levels of risk. OFHEO's haircuts will also raise costs for mortgage consumers and will have a chilling effect on markets. Haircuts at the levels recommended here would be more than sufficient to account for the level of counterparty credit risk associated with a ten-year period of severe economic stress – without impeding the smooth functioning of markets.

Yours very truly,

Frank J. Fabozzi, Ph.D.,CFA

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[24] Testimony of Chairman Alan Greenspan, "Over-the-Counter Derivatives," before the Committee on Agriculture, Nutrition and Forestry, United States Senate, February 10, 2000.

[25] *See.* F. Fabozzi, F. Modigliani, and M. Ferri, *Foundations of Financial Markets and Institutions: Second Edition* at 13 (1998); F. Fabozzi and F. Modigliani, *Capital Markets: Institutions and Instruments: Second Edition* at 15 (1996): "The existence of derivative instruments is the key reason why investors can more effectively implement investment decisions to achieve their financial goals and issuers can more effectively raise funds on more satisfactory terms. Several of the financial innovations and strategies discussed throughout this book rely on the market for derivative instruments."

ATTACHMENT A:
SELECTED BOOKS AUTHORED AND EDITED BY FRANK J. FABOZZI

Books Authored

1. Frank J. Fabozzi, Franco Modigliani, Frank J. Jones, and Michael Ferri, *Foundations of Financial Markets and Institutions* (Prentice-Hall, Englewood Cliffs, N.J. 2001: Third edition).

2. Leland Crabbe and Frank J. Fabozzi, *Managing a Corporate Bond Portfolio* to be published by John Wiley & Sons in October 2001.

3. Frank J. Fabozzi, *Bond Portfolio Management* (Frank J. Fabozzi Associates, Second Edition, 2001).

4. Frank J. Fabozzi and John Dunlevy, *Real Estate Backed Securities* (Frank J. Fabozzi Associates, 2001).

5. Frank J. Fabozzi and Steven V. Mann, *Introduction to Fixed Income Analytics* (Frank J. Fabozzi Associates, 2001).

6. Geoffrey Buetow, Jr. and Frank J. Fabozzi, *Valuation of Interest Rate Swaps and Swaptions* (Frank J. Fabozzi Associates, 2001).

7. Frank J. Fabozzi and Steven V. Mann, *Floating Rate Securities* (Frank J. Fabozzi Associates, 2000).

8. Frank J. Fabozzi, *Fixed Income Analysis for the Chartered Financial Analyst Program* (Frank J. Fabozzi Associates, 2000).

9. Frank J. Fabozzi and James Grant, *Equity Portfolio Management* (Frank J. Fabozzi Associates, 1999).

10. Frank J. Fabozzi and David Yuen, *Managing MBS Portfolios* (Frank J. Fabozzi Associates, 1998).

11. Frank J. Fabozzi, *Investment Management* (Prentice Hall, New Jersey, Second Edition, 1999).

12. Frank J. Fabozzi and Franco Modigliani, *Capital Markets: Institutions and Instruments* (Prentice Hall, New Jersey, 1996, Second Edition).

13. Pamela P. Peterson and Frank J. Fabozzi, *Analysis of Financial Statements* (Frank J. Fabozzi Associates, 1999).

14. Frank J. Fabozzi, *Duration, Convexity, and Other Bond Risk Measures* (Frank J. Fabozzi Associates, 1999).

15. Bruce Collins and Frank J. Fabozzi, *Derivatives and Equity Portfolio Management* (Frank J. Fabozzi Associates, 1999)

16. Frank J. Fabozzi, *Measuring and Controlling Interest Rate Risk* (Frank J. Fabozzi Associates, 1996).

17. Frank J. Fabozzi and Gifford Fong, *Advanced Fixed Income Portfolio Management: State of the Art* (Probus Publishing, 1994).

18. Frank J. Fabozzi, *Fixed Income Securities* (Frank J. Fabozzi Associates, 1997).

19. Frank J. Fabozzi and Franco Modigliani, *Mortgage and Mortgage-Backed Securities Markets* (Harvard Business School Press, Boston, 1992)

20. Frank J. Fabozzi, *Bond Markets, Analysis and Strategies* (Prentice-Hall, 1999, Fourth Edition).

21. Frank J. Fabozzi, *Valuation of Fixed Income Securities and Derivatives* (Frank J. Fabozzi Associates, 1998, Third).

22. Frank J. Fabozzi and Chuck Ramsey, *Collateralized Mortgage Obligations: Third Edition* (Frank J. Fabozzi Associates, 1999).

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