March 10, 2000

Mr. Alfred M. Pollard
General Counsel
Office of Federal Housing Enterprise Oversight
1700 G Street, N.W., 4th Floor
Washington, D.C.   20552

Re: Risk-Based Capital Proposed Rule RIN 2550-AA02

Dear Mr. Pollard:

Chase Manhattan Mortgage Corporation ("Chase"), a subsidiary of Chase Manhattan Corporation, is pleased to submit comments in response to the second notice of Proposed Rulemaking (NPR2) on Risk-Based Capital for Fannie Mae and Freddie Mac.

Chase Manhattan Mortgage Corporation originates, services and invests in residential mortgage, manufactured housing and home equity loans. Chase is currently the largest originator and servicer of residential mortgage loans in the United States. Additionally, Chase maintains a $35 billion investment portfolio comprised of fixed and adjustable prime mortgage loans, subprime mortgage loans, manufactured housing loans, and home equity loans. The risks associated with funding and hedging these very complex assets are well known to us. Chase executes its mortgage banking business through multiple legal entities resulting in regulatory oversight from the Federal Reserve, the OCC, and others.

Chase recognizes the importance of Fannie Mae and Freddie Mac ("GSE"s) to the American mortgage finance system. Chase also recognizes the potential risks posed through the highly concentrated aggregation of complex assets among two market participants. The GSEs have experienced dramatic growth in their investment portfolios and off-balance sheet credit risk related to their guarantees of mortgage-backed securities. This growth, coupled with related increase in financial institutions' holdings of GSE-issued mortgage-backed securities, participation certificates, and corporate debt, makes it imperative that the GSEs be required to maintain sufficient capital to ensure their safety and soundness. Additionally, there must be diligent supervisory oversight to ensure the business practices of the GSEs are conducted in a safe and sound manner.

Chase commends OFHEO for its diligence in producing a proposed capital standard consistent with the spirit and the intent of the Federal Housing Enterprise's Financial Safety & Soundness Act of 1992 (the Act). OFHEO's diligence in carrying out its mission bodes well for its effectiveness as the federal regulator of the GSEs.

Chase will focus its comments on the following points:

1. Publication of a final rule
2. Netting of interest rate risk against credit risk
3. The robustness of the stress test scenarios
4. Credit haircuts for third-party transactions
5. Routine updating of the rule to accommodate new initiatives and evolutionary changes
6. Remediation of technical anomalies and deficiencies

Additionally, Chase will provide a technical appendix detailing specific recommendations for model improvement.

1. Chase recommends OFHEO proceed with the publication of the final capital rule.

The prescriptive nature of the Act constrains OFHEO's ability to quantify risk and set capital standards consistent with the risk management practices of the current era. Additionally, the implementation of this rule, as currently proposed, is unlikely to have a material impact on the current capital structure of the GSEs. Nonetheless, the implementation of the rule, after remediation of specific technical deficiencies detailed in the technical appendix, is in the best interests of the American mortgage finance system. The existence of a clear framework to quantify risk and attribute capital to those risks is a fundamental requirement for the operation of a safe and sound business enterprise. Enhancements to the capital standard can be identified and implemented pursuant to OFHEO's supervisory responsibilities.

2. Netting interest rate risk against credit risk.

The Act prescribes the implementation of a stress test model structure that postulates specific relationships between interest rate events and credit risk. As such, it permits offsetting credit risk with interest rate sensitive instruments. Chase does not believe the correlation of interest rate risk with credit risk is robust enough to permit risk netting in a fashion that is consistent with safe and sound practices. We recommend capital be separately attributed to credit risk and interest rate risk for purposes of the risk-based capital standard.

3. The robustness of the stress test scenarios.

The Stress Tests, as currently proposed, compute the required capital for the GSEs only at the end points of the stress scenarios. The model does not require adequate capital to be maintained throughout the stress period. In short, the stress scenarios can be easily

arbitraged, particularly with the ability to net credit risk against rate risk, while more probabilistic risk scenarios are unaddressed. Indeed, the model does not require the GSEs to have capital sufficient to survive a continuation of the current rate and credit conditions. We recommend OFHEO address this shortcoming by conducting more extensive stress tests under its supervisory authority and require adequate capital be maintained to meet safety and soundness standards.

4. *Credit Haircuts for third-party transactions.*

Chase recommends consistent credit haircuts, after giving effect to posted collateral and netting agreements, be applied for all third-party transactions. Additionally, Chase believes no credit should be given for any third-party transactions with counterparties having less than a BBB rating.

The proposed rulemaking reduces the haircuts for derivative counterparty risk by 80% from haircuts for other types of third-party credit risks. This creates a credit arbitrage vehicle resulting in lower capital requirements by purchasing derivatives rather than economically equivalent instruments. To the extent derivatives are supported by collateral or netting agreements, these agreements should be taken into consideration when establishing the risk ranking of the derivative contract. The form of the guarantee should not impact the size of the credit haircut. The haircut should be sized to reflect the counterparty risk and the enforceability of the guarantee in all cases.

Chase recommends OFHEO give no credit for transactions with counterparties that have less than a BBB rating. Assigning an arbitrary BBB credit category to unrated counterparties does not adequately reflect the differences in the ability to pay during stress scenarios.

5. *Updating the risk-based capital rules for new initiatives and evolutionary changes.*

Nearly eight years has passed since Congress set forth specific parameters for the risk-based capital standard in the Act. Since that time, the mortgage finance system has witnessed significant developments in both credit risk management and interest rate risk management. Credit scoring, once relegated to the realm of revolving debt, is now fully embraced by the mortgage industry. Many market participants, including both GSEs, now commit capital to the subprime sector of the mortgage market. The robustness of the credit scoring systems and the adequacy of subprime pricing have yet to be tested by a significant economic downturn.

In a similar fashion, the financial services industry has experienced considerable innovation in the art of interest rate risk management since passage of the Act. Significant growth in interest rate derivatives and the development of complex options has enhanced the ability to manage interest rate risk. The publication of the final rule should provide for a process governing the routine updating of the model consistent with developments in the mortgage finance industry. Authority for the regulator to update processes and procedures without prolonged and extensive rule-making activities needs

to be clearly established. Chase recommends expedited implementation (one year to comply) of capital adequacy model updates provided the impact on the GSEs minimum required capital is less than or equal to 10%. If the risk-based capital is the minimum required capital, then the standard for expedited implementation would be set at a 10% level. To the extent the risk-based capital is less than the minimum required capital, then the standard for expedited implementation would exceed 10% by the difference between minimum required capital and risk-based capital. For model, process or procedural changes resulting in an increase in minimum required capital by more than 10%, Chase recommends a minimum 60-day comment period and two years for GSE compliance.

6. *Remediation of technical flaws.*

Chase recommends implementation of a final rule subsequent to the following technical enhancements or remediation of technical flaws:

- Recalibrating the default model
- Enhanced prepayment modeling
- Enhanced rate generation process for non-Treasury rates
- Calculation of house prices
- Enhanced horizon analysis

The details of this recommendation are provided in our Technical Appendix.

Chase Manhattan Mortgage Corporation appreciates the opportunity to comment on the second notice of Proposed Rulemaking on Risk-Based Capital for Fannie Mae and Freddie Mac. We will be pleased to provide additional detail to OFHEO or respond to any questions that might arise as a result of our comments. We look forward to the timely implementation of the proposed rulemaking.

Sincerely,

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Thomas Jacob
CEO

TECHNICAL APPENDIX

A. Re-calibrating the Default Model

The OFHEO loss model does not meet the standard of being reasonably related to the Benchmark Loss Experience. This problem arises in part because OFHEO uses a model that predicts less of a decline in house prices than actually occurred in the West South Central region. Even with addition of a so-called calibration factor (pp. 209-210 of NPR2), the OFHEO model understates losses relative to the Benchmark Loss Experience.

Chase's Recommendation: OFHEO should alter the house price index to reflect a greater sustained decline, to offset the limitations of the house price index in capturing the price effect of defaulted loans. The house price variable could be adjusted by using a house price vector from a different source, such as a Nationally Recognized Security Rating Organization (NRSRO) such as S&P, FitchICBA or Moody's. Alternatively OFHEO could calibrate the loss models to the benchmark experience by lowering the current house price inflation rate vector until the model results equal the Benchmark Loss Experience. Regardless of the adjustment to the house price vector, OFHEO should also perform a calibration to pools of loans that are grouped according to their loan-to-value (LTV) ratios. This would ensure that the model reflects the Benchmark Loss Experience with respect to the most crucial variable.

Discussion:

House price appreciation is an important component of the default models. The stress test assumes a particular pattern of house price changes over the stress test. OFHEO itself recognizes that the application of its models to the benchmark loans results in default and severity rates that are lower than the actual rates for the Benchmark Loss Experience. (pp. 207-208 of NPR2). OFHEO attempts to compensate for this understatement by calculating an adjustment in the form of a so-called "calibration factor" that consists of including so-called "calibration constants" in the default model.

There is a reason for the shortcoming of the OFHEO model in this regard. OFHEO uses a house price index that, we believe, excludes the value of defaulted loans, even though those loans may constitute that part of the portfolio that underwent the greatest decline in value. OFHEO's addition of the so-called calibration factor does not fully compensate for this effect.

While the losses of OFHEO's Benchmark Loss Experience are comparable to the losses assumed by the rating agencies (the NRSROs) for their highest rating categories, OFHEO assumes only a 12% price decline in the stress test, while the rating agencies assume home price declines of 30% to 40% in their highest rating category.

The shortcoming of the OFHEO model with respect to declines in house prices has three consequences. First, it understates the amount of capital that the GSEs will need to withstand the stress test. Second, it introduces a bias in favor of low-LTV loans. Only when house prices decline significantly, do low-LTV loans suffer significantly from application of the stress test; by understating the magnitude of this decline, the OFHEO model overstates the viability of low-LTV loans, as compared to higher LTV loans. Third, it creates a bias in favor of seasoned loans, which in normal times may have already experienced some degree of improvement in LTV, and with the modest home price decline of the stress test will then reflect lower than expected losses.

Figure 1 shows a comparison of the default rates of the OFHEO NPR2 model relative to the Benchmark Loss Experience for LTVs of 60, 80 and 95 percent. The Benchmark Loss Experience default rates are based upon a table provided by OFHEO, as NPR2 supplemental information number 16 dated 9/27/99, and are converted to conditional default rates (CDRs) based on estimated balances. The NPR2 default rates are taken from model results for the down rate scenario provided by OFHEO. While the characteristics of the loans used for the NPR2 forecast and in the benchmark are somewhat different, the implications are clear. The NPR2 model drastically understates default rates on moderate and low-LTV loans.
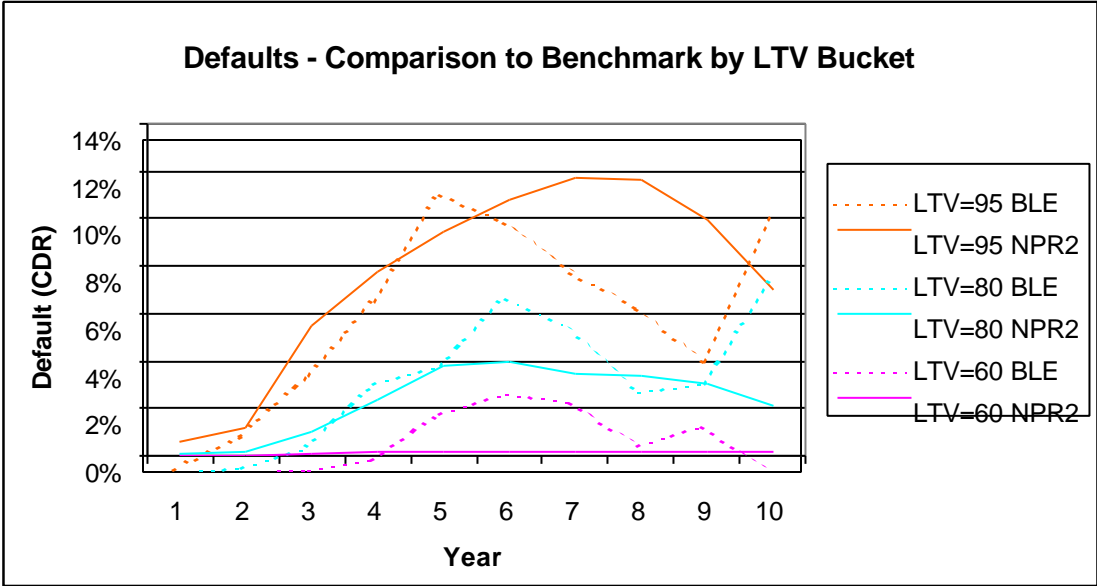
B. Enhanced Prepayment Modelling

The OFHEO model does not fully reflect the relationship between prepayments and defaults. The burnout variable used by OFHEO captures some of this relationship indirectly. The failure to capture fully the interaction between prepayments and defaults contributes to distortions such as *negative* capital requirements for low-LTV loans and low loss forecasts overall.

Chase's Recommendation: OFHEO should calculate credit losses by applying the model first with an interest rate stress comparable to the Benchmark Loss Experience. These losses should be applied in the stress test based upon beginning balances rather than balances adjusted for prepayments. The prepayments in the stress test should be calculated based upon house prices growing at normal historical levels.

Discussion:

OFHEO 's prepayment model uses a "burnout" variable to try to identify those borrowers who have passed up earlier opportunities to prepay their mortgages, and who therefore are more likely to default and less likely to prepay their mortgages and refinance. Borrowers who are unable to refinance to more favorable rates may be either credit constrained, may not have enough equity in the house or there could be other factors at play.

The OFHEO burnout function does not apply during the first eight periods of the stress test, regardless of the prior rate history of the loans. Also, the OFHEO stress test and the burnout function are structured such that in the down rate scenario, a borrower who is classified as burnt out will not be able to come out of the burnt out stage. Historical experience shows, most recently in speeds of prepayments in late 1998 and early 1999, that borrowers who are burnt out at a certain point in time could take advantage of refinancing opportunities if they occur at some later time. Due to the complexity of modeling burnout and the limitations of the OFHEO model, the OFHEO burnout variable cannot correctly capture the complex interaction of prepayments and losses.

Burnout is important because of the way the OFHEO model computes losses and prepayments jointly: losses are calculated as a percent of remaining balances. Distortions in the prepayment function can lead to distortions in losses. In particular, the burnout variable acts to increase losses predicted by the OFHEO model during periods of falling rates. Presumably this effect is intended to capture the fact that cumulative losses on mortgages do not decrease as rapidly as loan balances during periods of fast prepayment rates.

7

Nevertheless, the OFHEO model still produces substantially lower cumulative losses than are implied by the Benchmark Loss Experience.

NPR2 produces losses for all LTV buckets that are below the Benchmark Loss Experience. Furthermore, due to faster prepayments on low-LTV loans, the model serves to exacerbate further the bias in favor of low-LTV loans and against high LTV loans. This is one of a number of factors that add together to create a *negative* capital requirement for lower LTV loans. In other words, the OFHEO stress test gives credit to the GSEs for adding low-LTV mortgages (below a level of 60-70 percent LTV) to their portfolios despite the reality that these mortgages too would experience significant losses if the stress test were not distorted to understate the extent of loss that would occur in the stress period.

Figure 2 shows a comparison of the prepayment rates of the Benchmark Loss Experience to the prepayment rates in the NPR2 model applied to the stress test. During the time period of the Benchmark Loss Experience interest rates fell and then increased somewhat. The stress test (a down rate scenario is shown) rates fall more dramatically and remain at low levels throughout the stress test. The result is prepayments that exceed those of the Benchmark Loss Experience. Due to the form of the NPR2 model, these higher prepayments serve to decrease the amount of losses relative to the benchmark.
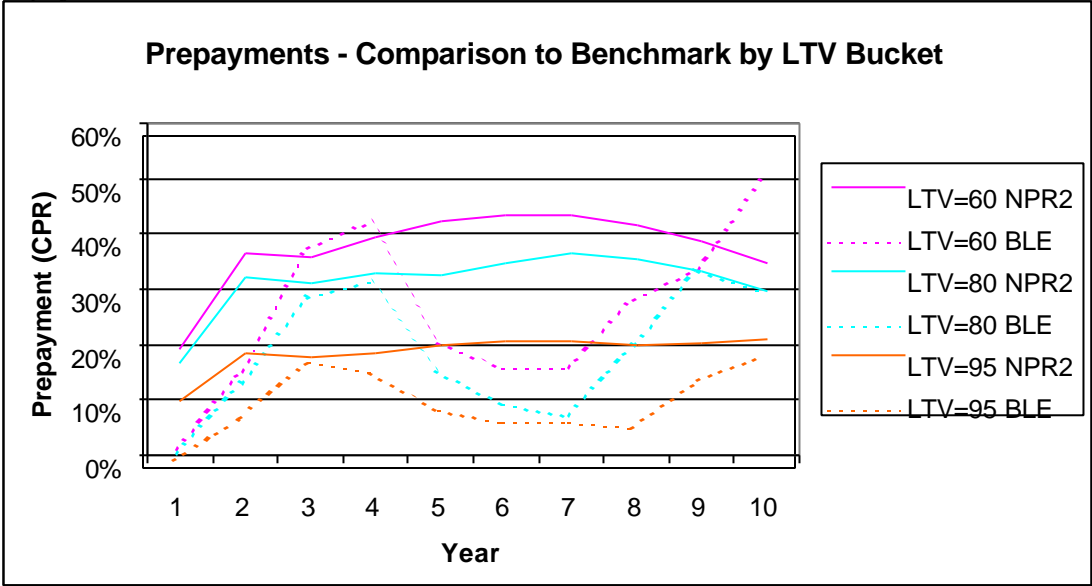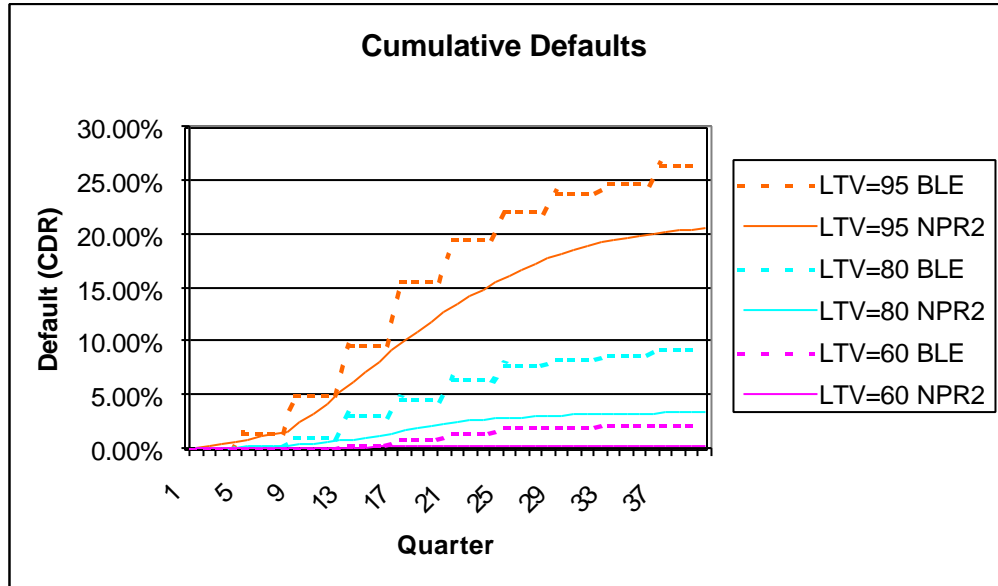

Figure 3 shows the cumulative defaults of the Benchmark Loss Experience versus the OFHEO NPR2 model applied to a down rate scenario. Despite the introduction of a calibration factor, NPR2 understates defaults across the LTV spectrum. In the low-LTV category losses are a small fraction of the Benchmark Loss Experience.

Cumulative Defaults

C. **Enhanced Rate Generation Process For Non-Treasury Interest Rates**

The proposed rule suggests a process of generating non-Treasury interest rates that adds an unnecessary degree of complexity and uncertainty to the stress test.

Chase's Recommendation: To preserve simplicity and portability, the non-Treasury rates should be calculated as a ratio or spread to various Treasury rates. This would maintain consistency across users and different time periods and also would maintain some of the structural dynamics observed between the various Treasury and non-Treasury rates. It may be appropriate to use a more complex methodology, such as moving averages of historical rates for COFI and perhaps PRIME.

Discussion:

The proposed rule projects all non-Treasury interest rates using Autoregressive Integrated Moving Average (ARIMA) models. These models predict a value in a given time series using a linear combination of its own past values, shocks (past errors) and values of other time series.

OFHEO has determined the ARIMA equations used to forecast the non-Treasury rates in the stress scenarios. The parameters were obtained using data up to June 1997. OFHEO recommends updating the parameters as more data become available. If users try to refit the ARIMA models using post June 1997 data they could end up with different models and model parameters. This could potentially make the forecasts different across users. To eliminate this problem OFHEO recommends that the functional form be kept the same,

9

that is, use the same equations but with different parameters. This creates a problem because the relationships may change over time and the selected parameters may not be the most appropriate ones.

Users might also find it difficult to derive the non-Treasury rates (using available information) in a manner consistent with OFHEO depending on the software used to incorporate the OFHEO model. This will result in a loss of consistency in the predictions obtained by the various users.

To test an alternative methodology, the we obtained data from the spreadsheet 97q2.xls provided by OFHEO. We calculated the spread between the non-Treasury rates and the appropriate Treasury rate in the initial month, as summarized in Table 3-12 on pages 480-482 of the Notice of Proposed Rulemaking. We then applied the same spreads to the respective Treasury rates to obtain future values of the non-Treasury rates. We found that, for most of the non-Treasury rates, there was little difference between the rates obtained using this methodology and those obtained by OFHEO using the ARIMA equations.

As shown in Figure 4, most of the non-Treasury rates, with the exception of PRIME, COF11 and FA024, lie within 50 basis points of the rates obtained by OFHEO using the ARIMA equations. This suggests that, for the sake of simplicity and robustness, using simpler spread methodology (instead of the more complex ARIMA equations) might make the task of forecasting non-Treasury rates easier.

Two of the non-Treasury rates, COF11 and PRIME, show the most deviation between the simple spread technique and the ARIMA equations. Given the short-term and long-term liability structure of COF11, it would be better if this index were modeled using a combination of lags and moving averages. PRIME could also be forecasted better using a model slightly more complex than the simple spread approach recommended for the other rates.

Non-Treasury Rates (ARIMA Method - Constant Spread Method)
Down Scenario
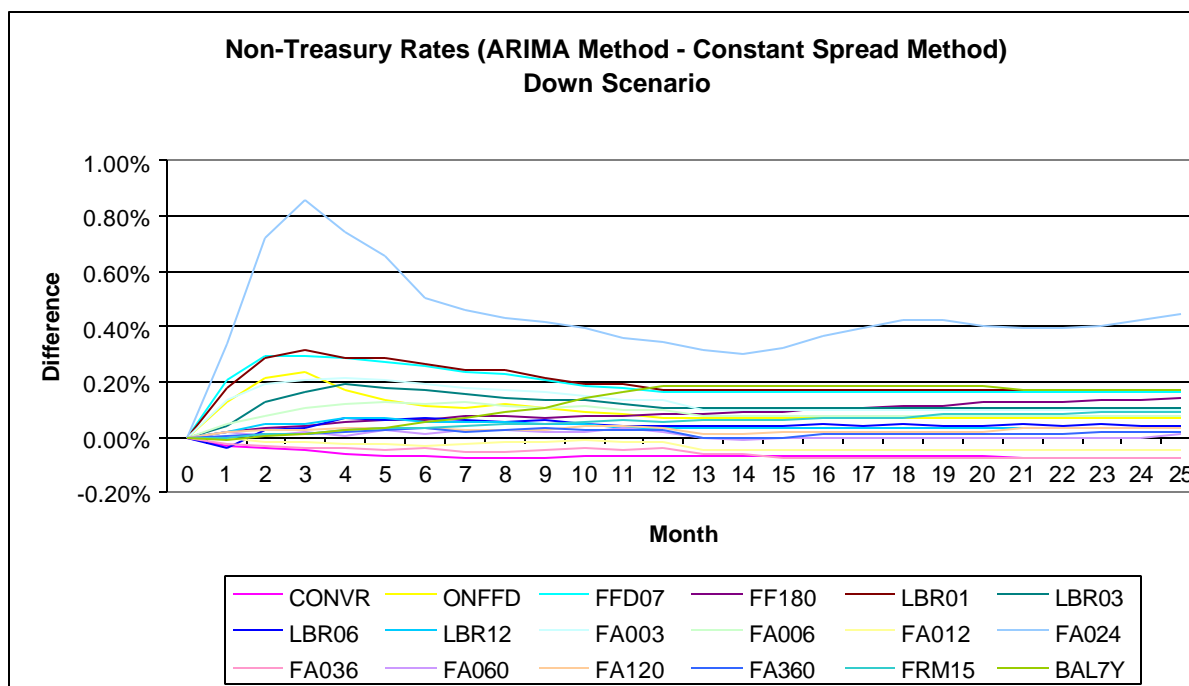
Therefore, Chase recommends that OFHEO calculate non-Treasury rates, other than COF11 and PRIME, as a ratio or spread to a particular Treasury rate. If OFHEO rejects this change and retains the ARIMA framework, then OFHEO should at least publish and update parameters for the ARIMA models on a regular basis. It is these rates that the loan performance models of NPR2 use as inputs, and differences in the inputs could change the outputs of the models. Also, to enable a user to apply the ARIMA equations in any systems framework or environment, OFHEO should add examples to demonstrate exactly how the ARIMA equations are being used to generate rates in the stress scenarios.

D. Calculation of House Prices

The proposed rule allows changes in house prices prior to the stress test period to have a significant impact on the forecast losses of the GSE's portfolio. If house prices increase prior to a downturn, the GSEs may enter a period of stress with very low capital requirements. The forecast losses may increase dramatically during the downturn and may thereby limit the ability or willingness of the GSEs to provide support to the housing finance system during periods of stress.

Chase's Recommendation: Apply a two-year moving average of the Housing Price Index (HPI) in place of the HPI just prior to the start of the stress test for the calculation of the probability of negative equity in the mortgage performance model as a way to help reduce the disparity in capital that the

rule would require between the up and down parts of the cycle of housing prices.

Discussion:

The proposed rule requires a GSE to hold higher capital for high-LTV loans than for low-LTV loans. The calculation of LTV depends critically on the value of the home and, in the proposed rule, on the housing price index that OFHEO applies. Frequently, the experience of geographical areas that have suffered declines in house prices shows that a runup in housing prices precedes the decline.

Because of the linkage in the rule between LTV and a GSE's capital requirements, the rule will require a GSE to hold less capital if it is applied in a year when housing prices are increasing (and therefore LTVs are declining) than in a year when housing prices decline (and therefore LTVs are increasing). This creates a procyclical bias: the rule would require less capital during boom years and more capital during years when house prices are dropping.

The rule should try to moderate this disparity. Instead of applying the House Price Index (HPI) directly, the rule should apply a two-year average of the HPI when adjusting the initial LTV. Another possible solution would be to limit the impact of house price increases but not decreases. Given the understatement of declines in house prices under the proposed rule (see subsection A of our comments, above) and due to the risk of home price decreases after price run-ups, it would not be appropriate to limit the impact of house price declines.

To the extent that the final capital rule reduces the bias in the proposed rule against lower LTV mortgages (as is discussed in subsections A and B of our comments, above), then the procyclical impact of the capital rule also will be reduced.

E. Tail Risk

The OFHEO model fails to calculate the market value of each GSE at the end of the ten-year stress period. This overstates the equity remaining.

Chase's Recommendation: OFHEO should include a mark-to-market adjustment to earnings and capital at end of the stress test, and should make more realistic assumptions about replacement funding.

Discussion:

At the end of the ten-year stress test, the model assesses the accounting based equity of the GSEs, but does not adjust the carrying value of assets and liabilities. Due to this form of analysis the GSEs could be exposed to significant built in losses when they reach the end of the ten-year horizon of the stress test. This problem of accrued losses is called tail risk. It arises when the potential income on the remaining balance on the mortgages, which have up to twenty years of remaining life, is less than the cost of the liabilities required to hold those assets.

A related issue is that the stress test assumes that all replacement funding will be short term funding. When the yield curve is steep that assumption understates the cost of reissuing liabilities to protect the portfolio from rate increases.

A mark-to-market analysis at the end of the stress period is more accurate than an income-only calculation. The mark-to-market for loans could be computed by forecasting the cashflows using the loan characteristics and the prepayment rate in year ten of the stress test. These cash flows should be discounted at the mortgage rate. The mark-to-market for liabilities would be calculated by discounting the remaining cash flows of the liabilities at the appropriate federal agency discount rate.

OFHEO also must improve the methodology for replacement funding. One simple adjustment would be to assume that the funding mix will include a blend of liabilities, and not only short-term liabilities. Otherwise, OFHEO is constructing a mortgage institution that is financially unviable because it borrows short to fund its long-term mortgage portfolio.