Executive Summary

The 1990 Cranston-Gonzalez National Affordable Housing Act (NAHA) requires an independent actuarial analysis of the economic net worth and financial soundness of the Federal Housing Administration's (FHA's) Mutual Mortgage Insurance (MMI) Fund. This report presents the results of our analysis for fiscal year (FY) 2008.

The primary purpose of our review is to estimate

- the *economic value* of the MMI Fund, defined as the sum of existing capital resources plus the net present value of the current books of business, and

- the current and projected *capital ratio*, defined as the economic value divided by the total insurance-in-force (IIF);

and compare the projected capital ratio with the 2 percent minimum level mandated by NAHA.

Our results indicate that despite the current severe housing market decline, the capital ratio is and will remain above 2 percent in future years under our base-case scenario. We also conclude that the capital ratio could drop below 2 percent in future years under more-pessimistic economic scenarios than those represented by our base-case assumptions.

A. Status of the Fund

NAHA mandated that the MMI Fund achieve a capital ratio of at least 2 percent by FY 2000 and maintain or exceed that level in all future years. The capital ratio of the Fund reached the 2 percent threshold in FY 1995 and has since remained above the mandated level. This year we estimated that the FY 2008 capital ratio decreased to 3 percent from last year's 6.4 percent. We have also projected a FY 2015 capital ratio of 2.9 percent.

Exhibit ES-1 provides our estimates of the Fund's current and future economic values and capital ratios. The economic value of the Fund is expected to increase each year. However, total IIF is projected to increase at an even faster rate. The capital ratio decreases whenever the rate of increase in total IIF exceeds the rate of increase in economic value, which is projected to occur during FY 2008 to FY 2013.

Exhibit ES-1

Projected MMI Fund Performance for FYs 2008 to 2015 ($ Millions)						
Fiscal Year	**Economic Value of the Fund[a]**	**Capital Ratio (%)**	**Volume of New Endorse-ments[b]**	**Insurance in Force[c]**	**Economic Value of Each New Book of Business**	**Investment Earnings on Fund Balances**
2008	12,908	3.00	154,240	429,634	-3,643	
2009	15,823	2.52	280,404	626,968	2,384	532
2010	20,491	2.30	331,092	891,329	3,999	669
2011	26,597	2.28	357,002	1,165,450	5,192	914
2012	33,807	2.39	364,405	1,416,798	5,957	1,254
2013	41,179	2.53	359,606	1,626,564	5,710	1,662
2014	49,030	2.71	364,344	1,809,316	5,810	2,041
2015	57,512	2.90	382,138	1,981,451	6,055	2,427

[a] All values are as of the end of each fiscal year. The economic value for future years (FYs 2009 through 2015) is equal to the economic value of the Fund at the end of the previous year, plus the current year's interest earned on the previous Fund balance, plus the economic value of the new book of business.
[b] Based on the FHA August 2008 projection.
[c] Estimated based on the MMI Fund data extract as of June 30, 2008.

In defining the statutory capital ratio, NAHA stipulates the use of unamortized insurance-in-force as the denominator. However, "unamortized insurance-in-force" is defined in the legislation as "the remaining obligation on outstanding mortgages" – which is generally understood to describe amortized IIF. Following the convention of previous Actuarial Reviews, we continue to use the unamortized IIF in calculating the capital ratio. It is also instructive to consider the capital ratio based on amortized IIF, which the Government Accountability Office has applied in its previous reports on the status of the Fund during the 1990s. The estimated capital ratio using amortized IIF is 3.22 percent for FY 2008 and 3.06 percent for FY 2015. Unless stated otherwise, all capital ratios mentioned elsewhere in this report refer to the ratio computed using unamortized IIF as required by NAHA.

We also projected the performance of the Fund under multiple alternative future economic scenarios. For the first time since we began preparing the Actuarial Reviews in 2004, we found that the alternative adverse economic scenarios consistently produced capital ratios less than 2 percent at some point over the future forecast period. This is due mainly to the near-term house price forecast in the base case, which already pushes the capital ratio close to 2 percent in the base case. We conclude, therefore, that the 2 percent threshold is barely maintained.

Furthermore, if the future experience is less favorable than in the base-case scenario, the capital ratio could fall below the 2 percent level

B. Sources of Change in the Status of the Fund

Change in Economic Value from FY 2007 to FY 2008

We estimated that the economic value of the MMI Fund was $12.908 billion as of the end of FY 2008, which represents a decrease of $8.369 billion over the economic value of $21.277 billion as of the end of FY 2007 reported in the previous year's Actuarial Review. The 39.34 percent decrease in the estimated economic value of the MMI Fund, together with a 29.29 percent increase in unamortized IIF, resulted in a decrease in the capital ratio of 3.40 percentage points from 6.40 percent to 3.00 percent. That is, the changes in economic value and unamortized IIF contribute about equally to the decrease in the capital ratio.

Current Estimate of FY 2008 Economic Value Compared with the Estimate Presented in the FY 2007 Actuarial Review

Our current estimate of the FY 2008 economic value is $9.840 billion lower than the economic value projected for FY 2008 in the FY 2007 Actuarial Review. Our current estimate of the FY 2014 capital ratio is 4.54 percentage points lower than estimated in the FY 2007 Actuarial Review. These differences are attributed to the following changes:

- updating the actual origination volume of the FY 2007 book of business,
- updating the actual capital resources as of the end of FY 2007,
- updated external economic forecasts,
- modifications to the econometric loan performance models,
- projected composition of new books of business,
- updated FHA demand volume assumptions,
- incorporation of FHA's risk-based pricing schedule, and
- updated loss severity assumptions.

Exhibit ES-2 lists the changes in the Fund's economic value between FY 2007 and FY 2008 and their long-term effects on the capital ratio in FY 2014.

Exhibit ES-2

Summary of Changes in MMI Fund Estimated Economic Value Between FY 2007 and FY 2008 ($ Millions)

	Change in FY 2008 Economic Value	FY 2008 Economic Value	Change in FY 2014 Capital Ratio (%)	Corresponding FY 2014 Capital Ratio[b] (%)
FY 2007 Economic Value Presented in the FY 2007 Review		21,277[a]		
FY 2008 Economic Value Presented in the FY 2007 Review, Excluding the FY 2008 Book of Business:	$1,082	22,359		
Plus: Forecasted Value of FY 2008 Book of Business Presented in the FY 2007 Review	$390			
Equals: FY 2008 Economic Value Presented in the FY 2007 Actuarial Review		**$22,748**		**7.25%**
Plus: a. Update Origination Volume in the FY 2007	-$44	$22,704	-0.01%	7.24%
Plus: b. Update Actual Capital Resources as of the End of FY 2007	-$484	$22,220	-0.12%	7.12%
Plus: c. Update to Global Insights July 2008 Economic Forecasts	-$4,608	$17,162	-0.99%	6.13%
Plus: d. Switch to the FY 2008 Econometric Model	-$582	$16,580	-0.90%	5.23%
Plus: e. Update Forecast of Future Book Compositions	$659	$17,239	0.70%	5.93%
Plus: f. Update Demand Volume Forecasts	-$2,130	$15,109	-2.87%	3.06%
Plus: g. Incorporate FHA's Risk-Base Pricing Schedule	$0	$15,109	0.12%	3.18%
Plus: h. Change in Loss Severity Assumptions	-$2,201	$12,908	-0.28%	2.90%
Equals: Estimate of FY 2008 Economic Value	-$9,840	$12,908	-4.35%	2.90%

[a] Economic value as the end of FY 2007.
[b] The 2014 capital ratios are presented so they can be directly compared with those projected in the FY 2007 Review.

The impacts of each of these changes on the performance of the Fund are summarized as follows:

- The actual origination volume in FY 2007 is slightly higher than the level forecasted in the FY 2007 Review and reduced the FY 2008 economic value by $44 million.

- Capital resources as of the end of FY 2007 were estimated in last year's Review. The actual number is now available from the FY 2007 audited financial statements. The difference decreases the FY 2008 economic value by $484 million.

- The national house price growth rate declined significantly during FY 2007 and into FY 2008, and the updated Global Insight, Inc. economic forecast for FY 2008 is now much more pessimistic than it forecasted a year ago. The forecasted lower house price appreciation rate caused the FY 2008 economic value to drop by $4,608 million. This is the single most significant impact on the FY 2008 economic value.

- Enhancements to the econometric models reduced the FY 2008 economic value by $582 million. The primary enhancement was improved accuracy in estimating the impact of borrower credit scores on conditional claim and prepayment rates. Additional model enhancements included: (1) utilizing data on relative house prices in lieu of relative loan sizes to better capture the position of FHA loans in the market and to account for the effects of policy changes that allowed the movement of FHA into the jumbo loan market during FY 2008; and (2) improved modeling of the performance of fully-underwritten purchase and refinance loans.

- Revised projections of the composition of the FY 2008 book of business and later books increased the FY 2008 economic value by $659 million. This reflects the impact of policy changes in minimum downpayment requirements, minimum credit scores for loans with high loan-to-value ratios, and elimination of loans receiving seller-funded downpayment assistance.

- The origination volumes of the FY 2008 and future books of business forecasts by HUD are substantially higher this year. Due to the severely negative economic value of the FY 2008 book, the updated estimate of the higher origination volume decreased the FY 2008 economic value by $2,130 million. This change has the largest impact on future capital ratios, reducing the FY 2014 capital ratio by 2.87 percentage points.

- FHA announced that it will set mortgage insurance premiums based on the risk of individual insurance contracts. The FHA Modernization Act of 2008, included in the Housing and Economic Recovery Act (HERA) of 2008, placed a one-year moratorium on the implementation of risk-based pricing beginning October 1, 2008. As a result, we assume that the risk-based premium will start on October 1, 2009. Since this policy change does not affect loans endorsed prior to FY 2010, it has no impact on the FY 2008 economic value.

- The refinement of the loss severity rate assumptions decreased the FY 2008 economic value by $2,201 million. FHA loss severity rates have risen over the past three years and are likely to remain high as the house price growth rates are expected to decline in the future. The updated loss rates are higher than those applied in the FY 2007 Review. Generally, loans with longer claim-to-disposition lags tend to have larger loss rates. This is due to the higher cost of carrying the real estate owned (REO) and greater physical deterioration. Furthermore, during the past year, with the weak housing market, REO properties experienced a further decline in market value, thus contributing to a higher loss severity rate.

In sum, the housing market forecast has the most severe impact to the FY 2008 economic value and the large projected endorsement volume of future books is the most significant factor in the reduction in the capital ratio for FY 2014.

Additional Comments

The estimates presented in this Review reflect projections of events more than 30 years into the future. These projections are dependent upon a number of assumptions, including economic forecasts by Global Insight, Inc., future demand forecasts by HUD, and the assumption that FHA does not change its policies regarding refunds, premiums, distributive shares, underwriting rules, and the exclusion of administrative expenses from actuarial calculations. To the extent that these or other assumptions are subject to change, the actual results will vary, perhaps significantly, from our current projections.

Estimation of the equations used for predicting prepayments and claims requires large amounts of loan-level data, requiring extensive data processing prior to estimation. In order to complete the Review within the timeframe required by HUD, we continued to adopt the convention of using partial-year data for FY 2008. For this year's Review, we received a data extract from HUD that represented activities entered into the database by March 31, 2008. This data extract contained loan-level information on both the new endorsement characteristics and terminations due to prepayments, claims or other reasons. The endorsement information was further updated by two additional data extracts as of July 31, 2008. Although we have not audited the data for accuracy, we have reviewed the data provided by HUD for integrity and consistency and believe it to be reasonable. Additionally, the information contained in this report may not correspond exactly with other published analyses that rely on HUD data compiled at different times or obtained from other systems.

C. Impact of Economic Forecasts

The economic value of the Fund and its pattern of capital accumulation to FY 2015 depend on many factors. One of the most important factors is the nation's future economic condition during the remaining lifetime of FHA's books of business. We captured the most significant factors in the U.S. economy affecting the performance of the loans insured by the MMI Fund through the use of the following variables in our models:

- 30-year home mortgage commitment rates
- Ten-year Treasury rate
- One-year Treasury rate
- Average growth rate of national house prices
- Dispersion of individual house price appreciation rates from the national average rate

The projected performance of FHA's books of business, measured by their economic value, is affected by changes in these economic variables. The base-case results in this report are based on Global Insight, Inc. forecasts for interest rates and the national average house price appreciation rates as of July 2008. In addition, we applied house price growth rate dispersion estimates published by OFHEO, and additional dispersion parameters estimated to account for the variation of individual house price appreciation rates around the average national-level house price growth rate. The actuarial estimates are based on the Global Insight, Inc. projection that FY 2009 will suffer over a 9 percent decline in national house prices. This creates significant losses for the FY 2008 and FY 2009 books.

We considered five alternative scenarios to assess the strength of the MMI Fund in withstanding difficult market conditions. The first four scenarios assume the following additional adverse impacts over the base-case economic projections: (1) extend the housing recession for one more year, (2) higher interest rates for three consecutive years, (3) higher loss severity rates on insurance claims, (4) the continued endorsement of loans receiving downpayment assistance from non-profit organizations. A fifth, less pessimistic, economic scenario applies a house price decline during FY 2009 that is about half that assumed under the base-case scenario. These five scenarios do not represent the full range of possible experience, but they each represent a significant variant from the base case. They demonstrate the sensitivity of the analysis results to reasonably stressful variations in economic conditions, and hence provide insight into the capability of the MMI Fund to withstand even more difficult economic environments. The results of these sensitivity analyses on the Fund's performance are presented in Exhibit ES-3.

Exhibit ES-3

Projected MMI Fund's Capital Ratio Under Alternative Economic Scenarios						
Fiscal Year	**Base Case**	**Lower House Price Growth**	**Higher Interest Rates**	**Higher Loss Rate**	**Continued Endorsement of Down Payment Assistance Loans**	**Less Pessimistic Economic Scenario**
FY 2008 Economic Value ($million)	$12,908	$9,775	$17,596	$8,448	$12,908	$15,588
FY 2008 Capital Ratio	3.00%	2.28%	4.10%	1.97%	3.00%	3.64%
FY 2015 Capital Ratio	2.90%	2.45%	1.89%	1.83%	2.11%	3.10%

Compared to the base case, the estimated FY 2008 economic values under the most severe alternative scenarios could drop by over $4 billion, and the estimated FY 2008 capital ratio could decrease by as much as 1.03 percentage points to 1.97 percent. In addition, the FY 2015 capital ratio could fall to 1.83 percent. Under the two most pessimistic alternative scenarios, the MMI Fund fails to meet the NAHA-mandated 2 percent capital ratio in FY 2015. Exhibit V-7 in Section V of this report gives the projected capital ratios for FY 2008 and for each of the next seven years. Under the four adverse scenarios, there are 23 instances out of a total of 32 annual results where the capital ratio falls below 2 percent. In other words, if the future experience turns out to be worse than the base-case assumptions, it is possible that the capital ratio may fall below 2 percent.

D. Implications of Recent Problems in the Subprime Mortgage Market

The recent developments in the U.S. subprime and Alt-A mortgage markets have had serious consequences for financial markets in the U.S. and across the world. Many of the problems in the subprime market are attributable to the special characteristics of subprime mortgage contracts, differences in underwriting standards for subprime mortgages, a prevalence of higher-risk borrowers with impaired credit, and borrowers less willing or able to verify their income and employment. Many of the subprime mortgages were securitized and these securities sold to investors in the U.S. and across the world. As long as house prices continued to increase, this system worked. But when house prices began to decline and defaults on these mortgages started to increase, this translated into a very negative impact on the prices of these mortgage-backed securities. The fall in the prices of these securities had a strong negative impact on other financial markets and on credit conditions in general. The deterioration of the housing price market triggered a severe downturn in other financial markets whose full implications are yet to be seen.

Although the financing of subprime loans has been substantially discontinued, the consequences of this activity continue to have far-reaching and profound consequences for credit markets, mortgage markets and housing finance. Many lenders and mortgage providers have experienced financial difficulties and have scaled down their lending activities. Private mortgage insurers have experienced severe losses on their subprime and Alt-A businesses and have had their credit ratings reduced. Fannie Mae and Freddie Mac have both realized substantial financial losses and are presently subject to management and reorganization by the Federal government to help stabilize the housing market. The market for conventional mortgages has tightened considerably. Under these conditions, the volume of FHA business has and is projected to increase, and this Review reflects an FY 2008 volume about three times higher than applied in last year's Review. House prices have declined and are projected to continue to decline over the next two years, having significant negative impacts for the FY 2006 to FY 2008 books.

Although FHA did not participate directly in the subprime or the Alt-A markets, the consequences of the collapse of these markets has had a profound impact on the important determinants of FHA's risk exposure. These impacts are incorporated in the assumptions used in this Review, especially in the assumptions concerning the volume and composition of new business and the projection of future house price changes.