Section V: MMI Fund Sensitivities - Performance of the Fund under Various Scenarios

This section reports the results of the sensitivity analyses we performed as part of FY 2005 Actuarial Review of the MMI Fund. To understand the possible deviation of the economic values and capital ratios of the MMI Fund with respect to the economic forecasts and some key assumptions in the base scenario, several sensitivity analyses were conducted and presented in this section. Although these scenario analyses cannot describe all possible outcomes, they provide insights into the relative importance and magnitude of the impact of each selected factor on the performance of the MMI Fund. Among those parameters and economic factors, one of the most critical factors is the future economic condition that may prevail during the remaining life of the FHA's currently existing portfolio. Essentially, the purpose of this analysis is to test the sensitivity of the economic value of the MMI fund in response to possible negative economic developments. The selected scenarios are those we believe may have the most significant impacts on the MMIF Fund's economic value. These sensitivity analyses include:

- Low house price appreciation
- Low house price appreciation combined with higher interest rates
- High claim loss severity rates

In the base-case scenario of the economic value of the MMI Fund, we used quarterly economic forecast from Global Insight, Inc. The forecast series include the national average sales price of existing single-family homes, FHLMC 30-year fixed-rate mortgage commitment rates, and 10-year and 3-month Treasury rates. Based on the 10-year and 3-month rate forecasts, we then imputed the 1-year Treasury rate forecast. In addition, we assumed that the future loss severity rates would be similar to the average rates observed between the FY 2000 through FY 2004 termination years, by loan type. Details of the methodology and support for the selection of the assumed values of these economic variables are described in Appendix D.

Exhibit V-1 displays the projected MMI Fund performance under the base-case scenario. The current forecasted economic value of the MMI Fund is $21.621 billion and the estimated current capital ratio is 6.02 percent, which exceeds the NAHA mandated capital ratio of 2 percent. It also shows the predicted economic values and capital ratios for the MMI Fund from FY 2006 through FY 2012. The economic values and capital ratios of the MMI Fund over FY 2005 through FY 2012 under alternative scenarios are presented in Exhibits V-2 to V-4.

Exhibit V-1

Projected MMI Fund Performance with Base Case Scenario ($ Millions)						
Fiscal Year	**Economic Value of the Fund**	**Capital Ratio (%)**	**Volume of New Endorse-ments**	**Insurance in Force**	**Economic Value of New Book of Business**	**Investment Return on Fund Balances**
2005	21,621	6.02	58,264	358,871	570	
2006	22,702	6.16	54,664	368,763	318	764
2007	24,130	6.40	54,965	377,235	499	929
2008	25,729	6.58	57,065	390,895	534	1,065
2009	27,434	6.70	60,973	409,701	486	1,219
2010	29,286	6.70	69,231	436,918	476	1,377
2011	31,361	6.66	79,308	470,685	523	1,552
2012	33,680	6.62	88,898	508,753	578	1,741

A. Low House Price Appreciation Scenario

The house price appreciation rate is the most important factor that influences mortgage claim rates. Under the low house price appreciation scenario, we investigated the impact of the MMI Fund performance by assuming the house price appreciation rate is five percentage points lower than the Global Insight, Inc. forecast for FY 2006 through FY 2008, returning to the baseline level starting at FY 2009. Compared to the baseline scenario, Exhibit V-2 indicates that the economic value of the MMI Fund could decrease by $2.919 billion. The capital ratio of FY 2005 would be reduced to 5.21 percent. The impact lasts through FY 2012 and could reduce the FY 2012 capital ratio by as much as 1.62 percentage points. This can be explained by the change in the level of claims due to higher probabilities of negative equity as mortgage loans are faced with a stressed housing economy.

Exhibit V-2

Projected MMI Fund Performance with Low House Price Appreciation Scenario ($ Millions)

Fiscal Year	Economic Value of the Fund	Capital Ratio (%)	Volume of New Endorse-ments	Insurance in Force	Economic Value of New Book of Business	Investment Return on Fund Balances
2005	18,702	5.21	58,264	358,871	-884	
2006	17,985	4.87	54,664	369,430	-1,377	661
2007	18,205	4.80	54,965	379,340	-516	736
2008	19,222	4.88	57,065	393,820	213	803
2009	20,619	4.99	60,973	413,563	486	911
2010	22,129	5.01	69,231	441,687	476	1,035
2011	23,824	5.00	79,308	476,041	523	1,173
2012	25,725	5.00	88,898	514,336	578	1,323

B. Low House Price Appreciation Combined with Higher Interest Rates Scenario

In this scenario, the house price appreciation rates were assumed to be five percentage points below that of the Global Insight forecast for FY 2006 through FY 2008. In addition, we assumed an interest rate shock of 300 basis points higher than the Global Insight forecast between FY 2006 and FY 2008, and then returned to the baseline levels in FY 2009. The compound effect of both interest rates and house prices are imposed on the MMI Fund made this one of the most severe stress scenario in this Review.

From the previous scenario, it is clear that lower house price growth would lead to a higher claim rate. The high interest rate scenario interacts with the low house price growth rate in the following way. As the interest rate goes up, prepayment rates go down. As fewer loans are prepaid, more loans would remain in the Fund and are therefore subject to the risk of claim. Even if the conditional claim rate does not increase, the cumulative claim rate would increase, causing the lifetime claim loss to increase.

Exhibit V-3 displays the results from this scenario. Holding the low growth rate on house price constant (by referring to the results above), the impact of higher interest rates is primarily driven by higher lifetime claim experiences and higher IIF in future years due to slower prepayments. This scenario forces the FY 2005 capital ratio of the MMI Fund to an even lower level. The capital ratio for FY 2005 dropped by 0.20 percentage points from the base case scenario and for FY 2012 dropped by 1.96 percentage points. However, the capital ratio still remains above NAHA's mandated 2.00 percent level through FY 2012.

Exhibit V –3

Projected MMI Fund Performance under Low House Price Appreciation Combined with High Interest Rates Scenario ($ Millions)						
Fiscal Year	**Economic Value of the Fund**	**Capital Ratio (%)**	**Volume of New Endorse-ments**	**Insurance in Force**	**Economic Value of New Book of Business**	**Investment Return on Fund Balances**
2005	20,886	5.82	58,264	358,871	-281	
2006	19,761	5.22	54,664	378,543	-2,490	1,364
2007	17,880	4.41	54,965	405,428	-3,282	1,402
2008	16,824	3.89	57,065	432,986	-2,382	1,325
2009	18,107	4.13	60,973	438,675	486	797
2010	19,492	4.42	69,231	441,261	476	909
2011	21,048	4.57	79,308	460,208	523	1,033
2012	22,796	4.66	88,898	489,166	579	1,169

C. High Claim Loss Severity Rates Scenario

The loss severity rate is defined as the portion of the unpaid principal of a claimed loan that is not recovered through the disposition of the foreclosed property. This scenario test is of critical importance because losses on claims comprise the largest expense to the MMI Fund. Although in recent years, the loss rate on FHA claim cases has shown a general trend of decreasing from its historical level, the loans terminated in FY 2004 experienced loss severity rate higher than those of the previous three years. In the base-case scenario, we assumed that the loss severity rate will be similar to the average level of the FY 2000-FY 2004 period. However, there exists the possibility that the loss severity rate could rise substantially above recent year's experiences. This potential high loss severity scenario is designed to investigate the impact if loss rates start rising again. In particular, the loss rate is assumed to be five percentage points higher than those of the base case for each of the product types for all future years.

The high level of loss severity produces lower economic values and capital ratios for FY 2005 through FY 2012 as shown in Exhibit V-4. An increase in the loss severity rate by 5 percentage points would decrease the FY 2012 capital ratio by 0.80 percentage points, but still remaining above the 2.00 percent level required by the NAHA.

Exhibit V-4

Projected MMI Fund Performance with High Claim Loss Severity Rates ($ Millions)						
Fiscal Year	**Economic Value of the Fund**	**Capital Ratio (%)**	**Volume of New Endorse-ments**	**Insurance in Force**	**Economic Value of New Book of Business**	**Investment Return on Fund Balances**
2005	20,351	5.67	58,264	358,871	318	
2006	21,129	5.73	54,664	368,763	59	719
2007	22,254	5.90	54,965	377,235	260	865
2008	23,525	6.02	57,065	390,895	289	982
2009	24,860	6.07	60,973	409,701	221	1,115
2010	26,284	6.02	69,231	436,918	176	1,248
2011	27,860	5.92	79,308	470,685	184	1,393
2012	29,605	5.82	88,898	508,753	197	1,547

D. Summary

Exhibit V-5 reports the projected MMI Fund's capital ratio correspond to the selected alterative scenarios: base-case, low house price appreciation, low house price appreciation and high interest rates, and high loss severity. In all five scenarios, the estimated capital ratios exceed the NAHA mandated capital ratio of 2.0 percent for all future fiscal years.

Exhibit V-5

Projected MMI Fund's Capital Ratio between Scenarios (%)				
Fiscal Year	**Base-case**	**Low House Price Appreciation**	**Low House Price Appreciation Combined with High Interest Rates**	**High Loss Claim Severity Rate**
2005	6.02	5.21	5.82	5.67
2006	6.16	4.87	5.22	5.73
2007	6.40	4.80	4.41	5.90
2008	6.58	4.88	3.89	6.02
2009	6.70	4.99	4.13	6.07
2010	6.70	5.01	4.42	6.02
2011	6.66	5.00	4.57	5.92
2012	6.62	5.00	4.66	5.82

However, potential risks faced by future books of business are revealed by these sensitivity analyses. The initial economic value and the initial capital ratio of several future books of business could become negative if any one of these three alternative economic scenarios becomes reality. This is mainly a result of the rising concentration of the new books of business in the loans with downpayment assistance from non-relative sourced gift, which experienced claim rates significantly higher than the traditional FHA business. HUD should consider conducting thorough research regarding its current premium structure and the ongoing trend of its business concentration to avoid further deterioration of the quality of its future books of business.