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 2006 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 are presented in this section. Although these scenario analyses do not 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 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 MMI Fund's economic value. These sensitivity analyses consist of:

- Low house price appreciation
- Low house price appreciation combined with higher interest rates
- High claim loss severity rates
- Continued high concentration of loans with gift letters from non-profit organizations

In the base-case scenario of the economic value of the MMI Fund, we used the quarterly economic forecasts from Global Insight, Inc. The forecast series includes the national average sales price of existing single-family homes, FHLMC 30-year fixed-rate mortgage commitment rates, and 10-year and 1-year Treasury rates. In addition, we assumed that the future loss severity rates would be similar to the average rates observed during the FY 2004 and FY 2005 termination years, by loan type and whether downpayment gifts from non-profit organization were received. 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 $22.021 billion and the estimated current capital ratio is 6.82 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 2007 through FY 2013. The economic values and capital ratios of the MMI Fund over FY 2006 through FY 2013 under alternative scenarios are presented in Exhibits V-2 to V-4.

Exhibit V-1

Projected MMI Fund Performance for the Base-Case Scenario ($ Millions)						
Fiscal Year	**Economic Value of the Fund**	**Capital Ratio (%)**	**Volume of New Endorse-ments**	**Insurance in Force**	**Economic Value of Each New Book of Business**	**Investment Earnings on Fund Balances**
2006	22,021	6.82	51,728	323,028	33	
2007	23,127	6.90	53,868	335,398	81	1,025
2008	24,610	7.03	57,115	350,143	344	1,139
2009	26,463	7.09	62,888	373,298	604	1,249
2010	28,646	7.03	74,586	407,269	814	1,369
2011	31,113	6.93	87,049	449,002	964	1,504
2012	33,808	6.82	97,751	495,530	1,044	1,651
2013	36,763	6.73	108,668	546,129	1,146	1,809

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 FYs 2007 through 2009, returning to the baseline level starting in FY 2010. Compared to the baseline scenario, Exhibit V-2 indicates that the economic value of the MMI Fund could decrease by $2.50 billion. The capital ratio of FY 2006 would be reduced to 6.04 percent. The impact lasts through FY 2013 and could reduce the FY 2013 capital ratio by as much as 1.40 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 more 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 Each New Book of Business**	**Investment Earnings on Fund Balances**
2006	19,524	6.04	51,728	323,010	-1,381	
2007	18,922	5.64	53,868	335,632	-1,511	908
2008	19,154	5.46	57,115	350,872	-700	932
2009	20,381	5.44	62,888	374,352	254	972
2010	22,249	5.45	74,586	408,603	814	1,054
2011	24,381	5.41	87,049	450,816	964	1,168
2012	26,718	5.36	97,751	498,062	1,044	1,294
2013	29,295	5.33	108,668	549,277	1,146	1,430

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 2007 through FY 2009 as in the previous scenario. In addition, we assumed an interest rate shock of 300 basis points higher than the Global Insight forecast between FY 2007 and FY 2009, and then returning to baseline levels in FY 2010. This compound effect of more adverse interest rates and house prices was the most severe stress scenario in this Review.

From the previous scenario, it is clear that lower house price growth rate leads to a higher claim rate. The high interest rate scenario interacts with the low house price growth rate in the following way. As interest rates go up, prepayment rates go down. As fewer loans are prepaid, more loans 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 increases, 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 mainly on the higher IIF in future years due to slower prepayment rates. The next three books of business will be originated with higher initial interest rates. When the rate drops suddenly in FY 2010, most good quality loans would be refinanced, leaving borrowers unable to refinance (implies poorer

credit quality) in the remaining pool. This adverse selection effect shows strongly in the negative economic values of the next three new books of business. As a result, the FY 2013 capital ratio of the MMI Fund is pushed to an even lower level. The capital ratio for FY 2013 dropped by 1.97 percentage points from the base-case scenario. However, the capital ratio still remains above the NAHA-mandated 2.00 percent level through FY 2013.

Exhibit V –3

Projected MMI Fund Performance under Low House Price Appreciation Combined with High

Fiscal Year	Economic Value of the Fund	Capital Ratio (%)	Volume of New Endorse-ments	Insurance in Force	Economic Value of Each New Book of Business	Investment Earnings on Fund Balances
2006	21,620	6.69	51,728	323,028	-627	
2007	19,982	5.74	53,868	348,192	-3,293	1,655
2008	17,916	4.74	57,115	377,994	-3,649	1,584
2009	16,630	4.03	62,888	412,312	-2,733	1,447
2010	18,305	4.32	74,586	424,062	814	860
2011	20,229	4.58	87,049	441,376	964	961
2012	22,346	4.71	97,751	474,313	1,044	1,073
2013	24,688	4.76	108,668	518,302	1,146	1,196

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 is of critical importance because losses on claims comprise the largest expense to the MMI Fund. Although the loss rate on FHA claim cases has shown a general trend of decreasing from FY 2000 to FY 2003, the loans terminated in FY 2004 and FY 2005 experienced loss severity rates 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 2004 - FY 2005 period. However, due to the forecasted weakening of the housing market, there exists the possibility that the loss severity rate could rise even above recent year's experiences. This potentially high loss severity scenario is designed to investigate the impact if loss rates rise further. In particular, the loss rates are 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 2006 through FY 2013 as shown in Exhibit V-4. An increase in the loss severity rate by 5 percentage points would decrease the FY 2013 capital ratio by 0.71 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 Each New Book of Business**	**Investment Earnings on Fund Balances**
2006	20,962	6.49	51,728	323,028	-231	
2007	21,761	6.49	53,868	335,398	-176	975
2008	22,933	6.55	57,115	350,143	100	1,072
2009	24,463	6.55	62,888	373,298	366	1,164
2010	26,278	6.45	74,586	407,269	549	1,265
2011	28,315	6.31	87,049	449,002	658	1,380
2012	30,512	6.16	97,751	495,530	695	1,503
2013	32,902	6.02	108,668	546,129	756	1,633

D. Continued High Concentration of Loans with Downpayment Assistance

The high concentration of the new books of business in the loans with downpayment gift assistance from non-profit organizations experienced claim rates significantly higher than the traditional FHA business. IRS has issued a ruling against non-profit organizations to receive contributions from home sellers and subsequently provide downpayment gifts to buyers. This scenario shows the situation of the Fund if the recent high concentration in these loans is to remain over the future years. The FY 2013 capital ratio is lowered by 0.85 percentage points.

Exhibit V-5

Projected MMI Fund Performance with High Concentration in Loans with Downpayment Gift Letters ($ Millions)						
Fiscal Year	**Economic Value of the Fund**	**Capital Ratio (%)**	**Volume of New Endorse-ments**	**Insurance in Force**	**Economic Value of Each New Book of Business**	**Investment Earnings on Fund Balances**
2006	22,021	6.82	51,728	323,028	33	
2007	23,030	6.87	53,868	335,413	-16	1,025
2008	24,241	6.92	57,115	350,164	77	1,135
2009	25,549	6.85	62,888	373,166	77	1,231
2010	26,958	6.63	74,586	406,687	87	1,322
2011	28,498	6.37	87,049	447,572	125	1,415
2012	30,126	6.11	97,751	492,822	116	1,512
2013	31,840	5.88	108,668	541,812	102	1,612

E. Summary

Exhibit V-6 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, high loss severity and continued concentration in gift loans. 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-6

Projected MMI Fund's Capital Ratio by Scenario (%)					
Fiscal Year	**Base Case**	**Low House Price Appreciation**	**Low House Price Appreciation Combined with High Interest Rate**	**High Claim Loss Severity Rate**	**High Concentra-tion in Gift Loans**
2006	6.82	6.04	6.69	6.49	6.82
2007	6.90	5.64	5.74	6.49	6.87
2008	7.03	5.46	4.74	6.55	6.92
2009	7.09	5.44	4.03	6.55	6.85
2010	7.03	5.45	4.32	6.45	6.63
2011	6.93	5.41	4.58	6.31	6.37
2012	6.82	5.36	4.71	6.16	6.11
2013	6.73	5.33	4.76	6.02	5.88