

II. The Value of the MMIF under Alternative Economic Scenarios

In addition to estimating the economic value of the MMIF under a baseline scenario, Deloitte & Touche also estimated the value of the Fund under several alternative economic scenarios. The results of these alternative Fund estimates are set forth in this section of the report.

Prior to the FY 2001 Actuarial Report, it was common practice to estimate the value of the Fund under a Pessimistic and Recession scenario, where the details of these scenarios were provided by DRI. As noted in that Report, these scenarios typically did not entail economic conditions that represented a truly stressed scenario for the Fund. Therefore, we included judgmental scenarios in the FY 2001 Actuarial Report to address this issue.

We continue this practice in the current report, and no longer consider alternative scenarios from DRI. Rather, we considered the following scenarios:

- ***Low House Price Appreciation Scenario*** – house price appreciation is 5 percentage points lower than the DRI forecast for the 2003-2005 years, returning to baseline levels in 2006.
- ***High Interest Rate Scenario*** – commitment rates on mortgages and yields on Treasury notes are 300 basis points higher than the DRI forecast for the 2003-2005 years, returning to baseline levels in 2006.
- ***High Unemployment, Low Personal Income Scenario*** – unemployment rates are 5 percentage points higher, personal income levels are 5 percentage points lower than the DRI forecast for the 2003-2005 years, returning to baseline levels in 2006.
- ***Using 2001 Selected Loss Rates*** – characterized by loss rates selected in the FY 2001 Actuarial Review. Details of the assumptions used for this scenario can be found in Appendix F.

Exhibits II.1-II.5 display the estimated economic value of the Fund for the period 2002 through 2009 under the baseline and alternative scenarios described above.

The low house price appreciation scenario shows lower capital ratios for the Fund in all years. This result is primarily driven by higher probabilities of negative equity, and higher loan-to-value ratios as the loan pools age.

The high interest rate scenario indicates a higher capital ratio for fiscal year 2002 as compared to the baseline scenario; however, the capital ratio is lower in all subsequent years. The higher capital ratio for the 2002 year is due to fewer prepayments (driven by higher interest rates) without the negative effect of higher claims. For years 2003 and beyond, the impact of higher interest rate levels takes hold and the capital ratio is lower due to higher claim experience.

As expected, the high unemployment, low personal income scenario indicates lower capital ratios for all years. This is driven by higher levels of claim activity.

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2002 through 2009

	Fiscal Year - (\$000's)								
	2002	2003	2004	2005	2006	2007	2008	2009	
Economic Value at Beginning of Fiscal Year	18,344,129	22,636,255	27,269,940	31,897,433	36,473,875	41,001,755	45,883,626	51,261,825	
+ Present Value of Current Fiscal Year Endorsements	2,973,172	3,116,207	2,878,393	2,569,293	2,241,813	2,297,376	2,474,670	2,729,699	
+ Interest Income	1,318,954	1,517,479	1,749,100	2,007,149	2,286,068	2,584,494	2,903,529	3,242,668	
- Administrative Expenses	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Economic Value at End of Fiscal Year	22,636,255	27,269,940	31,897,433	36,473,875	41,001,755	45,883,626	51,261,825	57,234,192	
Unamortized Value of Insurance In-force at Year-end	<u>500,491,578</u>	<u>555,609,215</u>	<u>620,320,294</u>	<u>689,905,691</u>	<u>761,319,275</u>	<u>832,568,707</u>	<u>898,795,927</u>	<u>954,929,741</u>	
Capital Ratio	<u>4.52%</u>	<u>4.91%</u>	<u>5.14%</u>	<u>5.29%</u>	<u>5.39%</u>	<u>5.51%</u>	<u>5.70%</u>	<u>5.99%</u>	
Volume of New Endorsements	136,081,536	133,582,487	131,789,282	132,891,049	134,920,354	141,668,086	149,725,515	157,403,461	
Amortized Value of Insurance In-force at Year-end	<u>467,093,236</u>	<u>521,623,456</u>	<u>581,946,458</u>	<u>646,342,510</u>	<u>711,738,323</u>	<u>776,614,437</u>	<u>836,531,353</u>	<u>886,855,368</u>	
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>4.85%</u>	<u>5.23%</u>	<u>5.48%</u>	<u>5.64%</u>	<u>5.76%</u>	<u>5.91%</u>	<u>6.13%</u>	<u>6.45%</u>	

**PRESENT VALUE of FUTURE CASH FLOWS FOR IN-FORCE
BUSINESS AS OF FISCAL YEAR-END 2002
Baseline Economic Scenario
Dollars in Thousands**

**Exhibit II.1
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Endorsement Year				Streamline			Total
	Fixed 30	Fixed 15	ARM	Fixed 30	Fixed 15	ARM	
1975	811	-	-	-	-	-	811
1976	1,843	-	-	-	-	-	1,843
1977	3,829	-	-	-	-	-	3,829
1978	7,778	-	-	-	-	-	7,778
1979	14,495	-	-	-	-	-	14,495
1980	14,048	-	-	-	-	-	14,048
1981	10,536	-	-	-	-	-	10,536
1982	7,399	-	-	-	-	-	7,399
1983	24,139	-	-	-	-	-	24,139
1984	(3,134)	-	(0)	-	-	-	(3,134)
1985	(4,817)	-	(7)	-	-	-	(4,824)
1986	(15,829)	-	(154)	-	-	-	(15,983)
1987	(36,636)	-	(441)	-	-	-	(37,077)
1988	(29,700)	(8)	(1,348)	(1,167)	(0)	-	(32,222)
1989	(27,660)	(35)	(592)	(180)	(0)	-	(28,467)
1990	(45,036)	(61)	(310)	(246)	(1)	-	(45,655)
1991	(45,281)	(159)	(1,855)	(187)	(1)	(2)	(47,486)
1992	(54,676)	(156)	(10,101)	(2,312)	(24)	(441)	(67,710)
1993	55,244	(227)	22,786	(21,557)	(247)	(1,702)	54,298
1994	106,947	(524)	30,900	(55,832)	(1,090)	(4,946)	75,456
1995	31,264	(427)	12,857	(4,814)	(353)	(780)	37,746
1996	69,159	(283)	4,676	(5,629)	(529)	(1,064)	66,330
1997	40,389	(660)	(13,486)	(1,387)	(517)	(1,234)	23,104
1998	119,889	(1,200)	(39,713)	(3,532)	(2,064)	(3,862)	69,518
1999	125,446	(4,404)	(25,511)	24,158	(5,219)	(3,293)	111,178
2000	(405,213)	(4,346)	(83,703)	(6,725)	(1,791)	(3,653)	(505,430)
2001	(30,761)	(2,755)	(16,159)	92,287	1,021	(995)	42,638
Total	(65,526)	(15,245)	(122,160)	12,877	(10,814)	(21,972)	(222,841)

CALCULATION OF BEGINNING FY 2002 ECONOMIC VALUE
Baseline Economic Scenario
Dollars in Thousands

Total Capital Resources	\$	18,566,970	Source: 2001 FHA Audited Financial Statements
<u>PV of EY 2001+prior future cash flows</u>		<u>(222,841)</u>	
FY 2002 beginning economic value	\$	<u><u>18,344,129</u></u>	

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2002 through 2009
 Low HPA Scenario

Exhibit II.2

	Fiscal Year - (\$000's)								
	2002	2003	2004	2005	2006	2007	2008	2009	
Economic Value at Beginning of Fiscal Year	17,373,780	20,901,378	24,627,285	28,470,683	32,422,413	36,583,944	41,028,798	45,886,466	
+ Present Value of Current Fiscal Year Endorsements	2,208,599	2,211,806	2,113,362	1,999,672	1,985,647	2,033,087	2,187,711	2,411,514	
+ Interest Income	1,318,999	1,514,101	1,730,036	1,952,057	2,175,885	2,411,767	2,669,957	2,951,710	
- Administrative Expenses	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Economic Value at End of Fiscal Year	20,901,378	24,627,285	28,470,683	32,422,413	36,583,944	41,028,798	45,886,466	51,249,690	
Unamortized Value of Insurance In-force at Year-end	<u>500,491,578</u>	<u>556,848,140</u>	<u>622,279,636</u>	<u>689,776,808</u>	<u>754,882,704</u>	<u>818,407,653</u>	<u>876,174,307</u>	<u>923,852,169</u>	
Capital Ratio	<u>4.18%</u>	<u>4.42%</u>	<u>4.58%</u>	<u>4.70%</u>	<u>4.85%</u>	<u>5.01%</u>	<u>5.24%</u>	<u>5.55%</u>	
Volume of New Endorsements	136,081,536	129,816,000	122,596,134	118,129,740	118,481,237	124,329,020	131,321,514	137,975,074	
Amortized Value of Insurance In-force at Year-end	<u>467,093,236</u>	<u>522,640,310</u>	<u>583,305,170</u>	<u>645,085,433</u>	<u>703,733,851</u>	<u>760,463,997</u>	<u>811,523,876</u>	<u>853,023,321</u>	
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>4.47%</u>	<u>4.71%</u>	<u>4.88%</u>	<u>5.03%</u>	<u>5.20%</u>	<u>5.40%</u>	<u>5.65%</u>	<u>6.01%</u>	

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2002 through 2009
 High Interest Rate Scenario

Exhibit II.3

	Fiscal Year - (\$000's)								
	2002	2003	2004	2005	2006	2007	2008	2009	
Economic Value at Beginning of Fiscal Year	19,260,557	23,816,135	26,563,180	29,185,794	31,780,841	36,288,935	41,071,107	46,275,625	
+ Present Value of Current Fiscal Year Endorsements	3,231,365	1,206,045	833,075	555,938	2,241,813	2,297,376	2,474,670	2,729,699	
+ Interest Income	1,324,213	1,541,001	1,789,539	2,039,110	2,266,281	2,484,795	2,729,848	3,009,494	
- Administrative Expenses	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Economic Value at End of Fiscal Year	23,816,135	26,563,180	29,185,794	31,780,841	36,288,935	41,071,107	46,275,625	52,014,817	
Unamortized Value of Insurance In-force at Year-end	<u>500,491,578</u>	<u>603,722,962</u>	<u>704,084,475</u>	<u>788,443,476</u>	<u>819,739,104</u>	<u>853,455,470</u>	<u>890,443,887</u>	<u>927,808,166</u>	
Capital Ratio	<u>4.76%</u>	<u>4.40%</u>	<u>4.15%</u>	<u>4.03%</u>	<u>4.43%</u>	<u>4.81%</u>	<u>5.20%</u>	<u>5.61%</u>	
Volume of New Endorsements	136,081,536	133,582,487	131,789,282	132,891,049	134,920,354	141,668,086	149,725,515	157,403,461	
Amortized Value of Insurance In-force at Year-end	<u>467,093,236</u>	<u>566,523,884</u>	<u>659,739,527</u>	<u>737,236,307</u>	<u>763,448,161</u>	<u>791,969,679</u>	<u>824,108,059</u>	<u>857,195,771</u>	
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>5.10%</u>	<u>4.69%</u>	<u>4.42%</u>	<u>4.31%</u>	<u>4.75%</u>	<u>5.19%</u>	<u>5.62%</u>	<u>6.07%</u>	

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2002 through 2009
 High Unemployment/Low Personal Income Scenario

Exhibit II.4

	Fiscal Year - (\$000's)								
	2002	2003	2004	2005	2006	2007	2008	2009	
Economic Value at Beginning of Fiscal Year	17,864,042	22,000,153	26,558,757	31,148,456	35,685,678	40,164,296	44,993,263	50,315,642	
+ Present Value of Current Fiscal Year Endorsements	2,818,197	3,049,345	2,863,370	2,569,293	2,241,813	2,297,376	2,474,670	2,729,699	
+ Interest Income	1,317,914	1,509,258	1,726,329	1,967,928	2,236,805	2,531,591	2,847,709	3,184,506	
- Administrative Expenses	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Economic Value at End of Fiscal Year	22,000,153	26,558,757	31,148,456	35,685,678	40,164,296	44,993,263	50,315,642	56,229,847	
Unamortized Value of Insurance In-force at Year-end	<u>500,491,578</u>	<u>577,356,551</u>	<u>659,236,233</u>	<u>738,841,892</u>	<u>804,561,947</u>	<u>870,909,653</u>	<u>932,690,195</u>	<u>984,836,860</u>	
Capital Ratio	<u>4.40%</u>	<u>4.60%</u>	<u>4.72%</u>	<u>4.83%</u>	<u>4.99%</u>	<u>5.17%</u>	<u>5.39%</u>	<u>5.71%</u>	
Volume of New Endorsements	136,081,536	133,582,487	131,789,282	132,891,049	134,920,354	141,668,086	149,725,515	157,403,461	
Amortized Value of Insurance In-force at Year-end	<u>467,093,236</u>	<u>541,532,458</u>	<u>617,147,262</u>	<u>690,049,036</u>	<u>749,551,347</u>	<u>809,387,966</u>	<u>864,807,261</u>	<u>911,167,966</u>	
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>4.71%</u>	<u>4.90%</u>	<u>5.05%</u>	<u>5.17%</u>	<u>5.36%</u>	<u>5.56%</u>	<u>5.82%</u>	<u>6.17%</u>	

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2002 through 2009
Using 2001 Selected Loss Rates

Exhibit II.5

	Fiscal Year - (\$000's)								
	2002	2003	2004	2005	2006	2007	2008	2009	
Economic Value at Beginning of Fiscal Year	17,972,642	22,122,769	26,611,838	31,072,104	35,452,514	39,771,192	44,430,650	49,568,995	
+ Present Value of Current Fiscal Year Endorsements	2,833,797	2,979,557	2,724,951	2,393,816	2,061,290	2,113,434	2,284,886	2,509,103	
+ Interest Income	1,316,330	1,509,512	1,735,314	1,986,595	2,257,388	2,546,024	2,853,459	3,179,163	
- Administrative Expenses	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Economic Value at End of Fiscal Year	22,122,769	26,611,838	31,072,104	35,452,514	39,771,192	44,430,650	49,568,995	55,257,261	
Unamortized Value of Insurance In-force at Year-end	<u>500,491,578</u>	<u>555,609,215</u>	<u>620,320,294</u>	<u>689,905,691</u>	<u>761,319,275</u>	<u>832,568,707</u>	<u>898,795,927</u>	<u>954,929,741</u>	
Capital Ratio	<u>4.42%</u>	<u>4.79%</u>	<u>5.01%</u>	<u>5.14%</u>	<u>5.22%</u>	<u>5.34%</u>	<u>5.52%</u>	<u>5.79%</u>	
Volume of New Endorsements	136,081,536	133,582,487	131,789,282	132,891,049	134,920,354	141,668,086	149,725,515	157,403,461	
Amortized Value of Insurance In-force at Year-end	<u>467,093,236</u>	<u>521,623,456</u>	<u>581,946,458</u>	<u>646,342,510</u>	<u>711,738,323</u>	<u>776,614,437</u>	<u>836,531,353</u>	<u>886,855,368</u>	
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>4.74%</u>	<u>5.10%</u>	<u>5.34%</u>	<u>5.49%</u>	<u>5.59%</u>	<u>5.72%</u>	<u>5.93%</u>	<u>6.23%</u>	