

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 2004-2006 years, returning to baseline levels in 2007.
- ***High Interest Rate Scenario*** – commitment rates on mortgages and yields on Treasury notes are 300 basis points higher than the DRI forecast for the 2004-2006 years, returning to baseline levels in 2007.
- ***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 2004-2006 years, returning to baseline levels in 2007.
- ***High Unemployment, Low Personal Income, Low House Price Appreciation Scenario*** – unemployment rates are 5 percentage points higher, personal income levels are 5 percentage points lower and house price appreciation is 5 percentage points lower than the DRI forecast for the 2004-2006 years, returning to baseline levels in 2007.
- ***Using 2002 Selected Loss Rates*** – this is the only alternative scenario where the economic forecast used in the base case remains unchanged; this isolates the impact of the change in the 2003 selected loss rates as compared to the 2002 selected loss rates.

Exhibits II.2-II.6 display the estimated economic value of the Fund for the period 2003 through 2010 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.

Actuarial Review of MMI Fund as of FY 2003

The high interest rate scenario indicates a higher capital ratio for fiscal year 2003 as compared to the baseline scenario; however, the capital ratio is lower in all subsequent years. The higher capital ratio for the 2003 year is due to fewer prepayments (driven by higher interest rates) without the negative effect of higher claims. For years 2004 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.

Since the low house price appreciation scenario and the high unemployment, low personal income scenario both result in lower capital ratios for all years, the compounded effect of these two scenarios indicates even lower capital ratios for all years.

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2003 through 2010

Exhibit II.1
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	Fiscal Year - (\$000's)							
	2003	2004	2005	2006	2007	2008	2009	2010
Economic Value at Beginning of Fiscal Year	18,559,526	22,735,511	27,699,374	32,455,685	36,840,836	41,611,809	46,678,984	51,716,998
+ Present Value of Current Fiscal Year Endorsements	2,773,259	3,392,317	2,973,719	2,364,986	2,496,725	2,521,364	2,202,094	1,328,441
+ Interest Income	1,402,727	1,571,546	1,782,592	2,020,164	2,274,248	2,545,811	2,835,920	3,143,827
- 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	22,735,511	27,699,374	32,455,685	36,840,836	41,611,809	46,678,984	51,716,998	56,189,266
Unamortized Value of Insurance In-force at Year-end	<u>436,400,723</u>	<u>486,332,341</u>	<u>569,588,268</u>	<u>654,739,648</u>	<u>738,071,168</u>	<u>826,874,658</u>	<u>921,709,304</u>	<u>1,022,396,723</u>
Capital Ratio	<u>5.21%</u>	<u>5.70%</u>	<u>5.70%</u>	<u>5.63%</u>	<u>5.64%</u>	<u>5.65%</u>	<u>5.61%</u>	<u>5.50%</u>
Volume of New Endorsements	146,376,609	143,521,171	145,162,763	140,864,287	145,288,740	151,966,817	156,989,735	162,740,456
Amortized Value of Insurance In-force at Year-end	<u>406,689,705</u>	<u>456,849,941</u>	<u>535,869,808</u>	<u>615,150,933</u>	<u>691,891,000</u>	<u>773,124,042</u>	<u>859,540,407</u>	<u>950,213,726</u>
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>5.59%</u>	<u>6.06%</u>	<u>6.06%</u>	<u>5.99%</u>	<u>6.01%</u>	<u>6.04%</u>	<u>6.02%</u>	<u>5.91%</u>

**PRESENT VALUE of FUTURE CASH FLOWS FOR IN-FORCE
BUSINESS AS OF FISCAL YEAR-END 2003
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	320	-	-	-	-	-	320
1976	927	-	-	-	-	-	927
1977	2,197	-	-	-	-	-	2,197
1978	4,785	-	-	-	-	-	4,785
1979	9,814	-	-	-	-	-	9,814
1980	10,571	-	-	-	-	-	10,571
1981	8,738	-	-	-	-	-	8,738
1982	6,664	-	-	-	-	-	6,664
1983	20,939	-	-	-	-	-	20,939
1984	(1,766)	-	(0)	-	-	-	(1,766)
1985	(2,750)	-	(7)	-	-	-	(2,756)
1986	(8,792)	-	(138)	-	-	-	(8,930)
1987	(21,363)	-	(265)	-	-	-	(21,629)
1988	(18,110)	-	(969)	(531)	-	-	(19,610)
1989	(16,873)	(8)	(336)	(104)	(0)	-	(17,320)
1990	(26,227)	(21)	(180)	(119)	(0)	-	(26,546)
1991	(26,644)	(59)	(1,090)	(108)	(0)	(1)	(27,903)
1992	(29,139)	(53)	(6,178)	(1,047)	(8)	(218)	(36,642)
1993	38,038	(108)	16,074	(8,657)	(139)	(861)	44,346
1994	72,273	(283)	24,767	(23,751)	(797)	(1,922)	70,286
1995	(3,549)	(680)	3,367	(3,407)	(282)	(634)	(5,185)
1996	(2,795)	(501)	(3,880)	(6,692)	(406)	(855)	(15,128)
1997	(26,786)	(532)	(15,878)	(1,850)	(414)	(1,152)	(46,612)
1998	(37,418)	(1,417)	(25,824)	(9,856)	(1,391)	(2,053)	(77,960)
1999	(177,538)	(3,841)	(15,937)	(23,409)	(4,511)	(2,430)	(227,666)
2000	(671,788)	(3,807)	(53,472)	(8,905)	(1,483)	(1,924)	(741,380)
2001	(466,315)	(3,569)	(16,032)	(14,311)	(526)	(1,795)	(502,547)
2002	(296,608)	(5,381)	(94,893)	25,739	467	(13,804)	(384,480)
Total	(1,659,196)	(20,260)	(190,871)	(77,009)	(9,490)	(27,649)	(1,984,474)

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

Total Capital Resources	\$	20,544,000	Source: 2002 FHA Audited Financial Statements
<u>PV of EY 2002+prior future cash flows</u>		<u>(1,984,474)</u>	
FY 2002 beginning economic value	\$	<u><u>18,559,526</u></u>	

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2003 through 2010
Scenario 1: Low House-Price-Appreciation

Exhibit II.2

	Fiscal Year - (\$000's)								
	2003	2004	2005	2006	2007	2008	2009	2010	
Economic Value at Beginning of Fiscal Year	17,409,828	20,587,672	24,348,053	27,976,938	31,562,990	35,857,247	40,374,677	44,840,539	
+ Present Value of Current Fiscal Year Endorsements	1,775,112	2,193,497	1,870,724	1,633,474	2,150,843	2,172,093	1,897,079	1,144,486	
+ Interest Income	1,402,731	1,566,884	1,758,161	1,952,578	2,143,414	2,345,337	2,568,783	2,814,485	
- 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	20,587,672	24,348,053	27,976,938	31,562,990	35,857,247	40,374,677	44,840,539	48,799,509	
Unamortized Value of Insurance In-force at Year-end	<u>436,400,723</u>	<u>485,950,305</u>	<u>565,032,164</u>	<u>642,589,022</u>	<u>715,895,088</u>	<u>793,015,456</u>	<u>874,137,099</u>	<u>959,554,463</u>	
Capital Ratio	<u>4.72%</u>	<u>5.01%</u>	<u>4.95%</u>	<u>4.91%</u>	<u>5.01%</u>	<u>5.09%</u>	<u>5.13%</u>	<u>5.09%</u>	
Volume of New Endorsements	146,376,609	138,352,957	132,977,447	122,944,492	125,158,514	130,912,353	135,240,569	140,195,381	
Amortized Value of Insurance In-force at Year-end	<u>406,689,705</u>	<u>456,189,206</u>	<u>530,772,792</u>	<u>602,181,909</u>	<u>668,722,138</u>	<u>738,169,192</u>	<u>810,906,921</u>	<u>886,490,619</u>	
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>5.06%</u>	<u>5.34%</u>	<u>5.27%</u>	<u>5.24%</u>	<u>5.36%</u>	<u>5.47%</u>	<u>5.53%</u>	<u>5.50%</u>	

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2003 through 2010
Scenario 2: High Interest Rates

Exhibit II.3

	Fiscal Year - (\$000's)							
	2003	2004	2005	2006	2007	2008	2009	2010
Economic Value at Beginning of Fiscal Year	19,217,762	23,712,999	26,508,966	28,703,895	30,614,667	35,363,943	40,314,669	45,155,412
+ Present Value of Current Fiscal Year Endorsements	3,084,288	1,191,379	358,258	(152,459)	2,496,725	2,521,364	2,202,094	1,328,441
+ Interest Income	1,410,950	1,604,588	1,836,671	2,063,231	2,252,551	2,429,362	2,638,649	2,882,272
- 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	23,712,999	26,508,966	28,703,895	30,614,667	35,363,943	40,314,669	45,155,412	49,366,125
Unamortized Value of Insurance In-force at Year-end	<u>436,400,723</u>	<u>551,989,381</u>	<u>669,226,605</u>	<u>760,776,138</u>	<u>782,825,817</u>	<u>827,343,381</u>	<u>898,862,724</u>	<u>987,998,639</u>
Capital Ratio	<u>5.43%</u>	<u>4.80%</u>	<u>4.29%</u>	<u>4.02%</u>	<u>4.52%</u>	<u>4.87%</u>	<u>5.02%</u>	<u>5.00%</u>
Volume of New Endorsements	146,376,609	143,521,171	145,162,763	140,864,287	145,288,740	151,966,817	156,989,735	162,740,456
Amortized Value of Insurance In-force at Year-end	<u>406,689,705</u>	<u>518,116,360</u>	<u>628,471,424</u>	<u>713,127,973</u>	<u>730,829,217</u>	<u>770,044,858</u>	<u>835,246,667</u>	<u>916,126,924</u>
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>5.83%</u>	<u>5.12%</u>	<u>4.57%</u>	<u>4.29%</u>	<u>4.84%</u>	<u>5.24%</u>	<u>5.41%</u>	<u>5.39%</u>

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2003 through 2010
 Scenario 3: High Unemployment/Low Personal Income

Exhibit II.4

	Fiscal Year - (\$000's)							
	2003	2004	2005	2006	2007	2008	2009	2010
Economic Value at Beginning of Fiscal Year	18,038,503	22,075,512	26,969,828	31,694,285	36,053,726	40,790,209	45,819,167	50,815,595
+ Present Value of Current Fiscal Year Endorsements	2,634,064	3,325,494	2,954,249	2,364,986	2,496,725	2,521,364	2,202,094	1,328,441
+ Interest Income	1,402,945	1,568,823	1,770,207	1,994,455	2,239,758	2,507,594	2,794,334	3,099,220
- 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	22,075,512	26,969,828	31,694,285	36,053,726	40,790,209	45,819,167	50,815,595	55,243,256
Unamortized Value of Insurance In-force at Year-end	<u>436,400,723</u>	<u>511,586,238</u>	<u>607,984,124</u>	<u>699,297,999</u>	<u>776,533,310</u>	<u>860,819,855</u>	<u>952,402,409</u>	<u>1,050,691,679</u>
Capital Ratio	<u>5.06%</u>	<u>5.27%</u>	<u>5.21%</u>	<u>5.16%</u>	<u>5.25%</u>	<u>5.32%</u>	<u>5.34%</u>	<u>5.26%</u>
Volume of New Endorsements	146,376,609	143,521,171	145,162,763	140,864,287	145,288,740	151,966,817	156,989,735	162,740,456
Amortized Value of Insurance In-force at Year-end	<u>406,689,705</u>	<u>480,131,952</u>	<u>570,793,621</u>	<u>655,100,809</u>	<u>725,617,324</u>	<u>802,213,754</u>	<u>885,239,741</u>	<u>973,272,932</u>
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>5.43%</u>	<u>5.62%</u>	<u>5.55%</u>	<u>5.50%</u>	<u>5.62%</u>	<u>5.71%</u>	<u>5.74%</u>	<u>5.68%</u>

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2003 through 2010
 Scenario 4: High Unemployment/Low Personal Income and Low HPA

Exhibit II.5

	Fiscal Year - (\$000's)							
	2003	2004	2005	2006	2007	2008	2009	2010
Economic Value at Beginning of Fiscal Year	16,619,383	19,516,216	23,133,151	26,708,661	30,253,463	34,491,072	38,945,191	43,341,632
+ Present Value of Current Fiscal Year Endorsements	1,494,136	2,054,440	1,836,370	1,633,474	2,150,843	2,172,093	1,897,079	1,144,486
+ Interest Income	1,402,697	1,562,495	1,739,140	1,911,327	2,086,766	2,282,027	2,499,362	2,739,441
- 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	19,516,216	23,133,151	26,708,661	30,253,463	34,491,072	38,945,191	43,341,632	47,225,560
Unamortized Value of Insurance In-force at Year-end	<u>436,400,723</u>	<u>509,724,049</u>	<u>599,601,796</u>	<u>681,145,481</u>	<u>749,438,888</u>	<u>822,844,703</u>	<u>901,283,447</u>	<u>984,712,561</u>
Capital Ratio	<u>4.47%</u>	<u>4.54%</u>	<u>4.45%</u>	<u>4.44%</u>	<u>4.60%</u>	<u>4.73%</u>	<u>4.81%</u>	<u>4.80%</u>
Volume of New Endorsements	146,376,609	138,352,957	132,977,447	122,944,492	125,158,514	130,912,353	135,240,569	140,195,381
Amortized Value of Insurance In-force at Year-end	<u>406,689,705</u>	<u>478,083,054</u>	<u>562,078,195</u>	<u>636,480,361</u>	<u>697,891,140</u>	<u>763,511,611</u>	<u>833,438,083</u>	<u>906,807,053</u>
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>4.80%</u>	<u>4.84%</u>	<u>4.75%</u>	<u>4.75%</u>	<u>4.94%</u>	<u>5.10%</u>	<u>5.20%</u>	<u>5.21%</u>

Estimates of the Economic Value and Capital Ratios of the MMIF as of Fiscal Year End 2003 through 2010
 Scenario 5: Using 2002 Loss Rates

Exhibit II.6

	Fiscal Year - (\$000's)							
	2003	2004	2005	2006	2007	2008	2009	2010
Economic Value at Beginning of Fiscal Year	18,141,322	22,037,117	26,716,057	31,121,914	35,109,302	39,454,929	44,040,418	48,527,492
+ Present Value of Current Fiscal Year Endorsements	2,497,008	3,117,730	2,639,568	1,991,762	2,106,824	2,088,978	1,717,430	736,720
+ Interest Income	1,398,786	1,561,210	1,766,288	1,995,626	2,238,802	2,496,512	2,769,645	3,057,112
- 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	22,037,117	26,716,057	31,121,914	35,109,302	39,454,929	44,040,418	48,527,492	52,321,324
Unamortized Value of Insurance In-force at Year-end	<u>436,400,723</u>	<u>486,467,198</u>	<u>569,784,329</u>	<u>654,969,614</u>	<u>738,317,265</u>	<u>827,130,657</u>	<u>921,973,481</u>	<u>1,022,667,000</u>
Capital Ratio	<u>5.05%</u>	<u>5.49%</u>	<u>5.46%</u>	<u>5.36%</u>	<u>5.34%</u>	<u>5.32%</u>	<u>5.26%</u>	<u>5.12%</u>
Volume of New Endorsements	146,376,609	143,521,171	145,162,763	140,864,287	145,288,740	151,966,817	156,989,735	162,740,456
Amortized Value of Insurance In-force at Year-end	<u>406,689,705</u>	<u>456,979,120</u>	<u>536,055,352</u>	<u>615,365,678</u>	<u>692,117,448</u>	<u>773,355,801</u>	<u>859,775,307</u>	<u>950,449,314</u>
Capital Ratio Based on Amortized Value of Insurance In-force at Year-end	<u>5.42%</u>	<u>5.85%</u>	<u>5.81%</u>	<u>5.71%</u>	<u>5.70%</u>	<u>5.69%</u>	<u>5.64%</u>	<u>5.50%</u>