



## Historical dividend studies from Massachusetts Mutual Life Insurance Company

As a mutual life insurance company, MassMutual does not have shareholders. Instead, the company operates for the benefit of its participating policy owners. The whole life policies issued by MassMutual are “participating” policies, and are eligible to receive an equitable portion of the company’s divisible surplus as a dividend each year.

Divisible surplus is the amount remaining each year after the company has set aside the funds required to meet all contractual obligations, including reserve requirements, operating expenses, contributions to policy owner surplus and for general business purposes. Although policy dividends are not guaranteed, MassMutual has consistently paid them every year since the 1860s.

Each year, MassMutual’s Board of Directors votes on the amount of divisible surplus and how it will be allocated to policy owners. When determining the dividend for an individual policy, MassMutual follows the “Contribution Principle” which allocates divisible surplus to eligible participating policy owners in the proportion they contributed to divisible surplus.

# Historical examples

The numeric tables on the following page illustrate MassMutual's actual historical dividend information for different whole life insurance policies that were issued in 1980.

Each of the five different historical policy examples uses the best underwriting class that was available at the time of issue (nonsmoker). The issue ages are shown in the examples, which assume that dividends are used to buy paid up additional whole life insurance, or paid-up additions.

The summary for each policy compares what was *illustrated* in 1980, with what would have *actually* happened over the life of the policy. You will also see the *difference* between the two, expressed as a percentage of the illustrated value. Below is a description of the terms used in each summary.

- **Guar Cash Value** – The Guaranteed Cash Surrender Value, or the amount of the cash surrender value which is guaranteed under the policy. For this value, there is no difference between illustrated and actual.
- **Cash Dividends** – The total annual base policy dividend, assuming it was paid in cash.
- **Total Dividends** – The total annual dividend, including dividends payable on paid-up additions.
- **Total Cash Value** – The total cash value including all guaranteed and non-guaranteed values.
- **Total Death Benefit** – The total death benefit, including paid-up additions, that would be payable at the end of the policy year.
- **“IRR”** – The Internal Rate of Return (IRR) is the rate at which outlays up to that year must be compounded at each and every year to generate the Total Cash Value or Total Death Benefit. For example, in Policy 1, the IRR on the Total Cash Value was initially illustrated at 3.16%, however, the IRR based on actual dividends paid was 5.03%.

The results shown in the following tables are based on the actual experience of the company over the period of time in terms of interest rates, mortality and expenses. Dividends paid in future years will be lower or higher than illustrated, depending on MassMutual's actual experience.

For more detail about these historical policy examples, please refer to the appendix at the end of this brochure.

# Actual historical performance summary since 1980

## Hypothetical policies issued in 1980

Each hypothetical policy below is from the MM Block.<sup>1</sup> For information on the Reserve Basis, see the appendix at the end of this brochure.

### Policy 1 - \$250,000 Convertible Life Policy, \$5,910.00 Premium – Male Age 45, Nonsmoker

Year	Guar Cash Value	Cash Dividends			Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust.	Actual	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.
		With Paid-Up Additions Option											
1990	45,540	1,808	2,735	51%	2,098	4,035	92%	58,787	69,967	19%	276,724	299,279	8%
2000	99,755	3,533	5,103	44%	4,894	9,047	85%	160,069	206,943	29%	342,884	416,180	21%
2011	153,993	10,363 <sup>†</sup>	15,308 <sup>†</sup>	48%	14,456 <sup>†</sup>	25,460 <sup>†</sup>	76%	313,268	441,835	41%	457,146	624,442	37%
IRR 31 Years								3.16%	5.03%		5.21%	6.83%	

### Policy 2 - \$250,000 Convertible Life Policy, \$9,712.50 Premium – Male Age 55, Nonsmoker

Year	Guar Cash Value	Cash Dividends			Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust.	Actual	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.
		With Paid-Up Additions Option											
1990	61,550	3,133	4,575	46%	3,816	7,334	92%	90,695	110,512	22%	296,306	327,792	11%
2000	123,863	4,995	7,833	57%	7,542	16,098	113%	225,986	312,794	38%	384,164	498,373	30%
2011	178,348	10,623 <sup>†</sup>	16,583 <sup>†</sup>	56%	16,316 <sup>†</sup>	32,164 <sup>†</sup>	97%	404,770	642,874	59%	512,741	789,285	54%
IRR 31 Years								1.79%	4.38%		3.14%	5.47%	

### Policy 3 - \$250,000 Life Paid-up at 65 Whole Life Policy, \$4,427.50 Premium – Male Age 35, Nonsmoker

Year	Guar Cash Value	Cash Dividends			Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust.	Actual	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.
		With Paid-Up Additions Option											
1990	37,885	1,290	2,173	68%	1,480	3,071	108%	46,865	55,467	18%	274,125	297,236	8%
2000	90,868	2,848	3,435	21%	3,833	6,155	61%	137,519	168,819	23%	339,030	402,328	19%
2011	160,650	9,118 <sup>†</sup>	13,113 <sup>†</sup>	44%	12,301 <sup>†</sup>	19,168 <sup>†</sup>	56%	290,468	370,091	27%	449,238	571,061	27%
IRR 31 Years								4.42%	5.69%		6.68%	7.88%	

### Policy 4 - \$250,000 Life Paid-up at 65 Whole Life Policy, \$4,077.50 Premium – Female Age 35, Nonsmoker

Year	Guar Cash Value	Cash Dividends			Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust.	Actual	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.
		With Paid-Up Additions Option											
1990	37,885	1,290	2,173	68%	1,480	3,071	108%	46,865	55,467	18%	274,125	297,236	8%
2000	90,868	2,848	3,435	21%	3,833	6,155	61%	137,519	168,819	23%	339,030	402,328	19%
2011	160,650	9,118 <sup>†</sup>	13,113 <sup>†</sup>	44%	12,301 <sup>†</sup>	19,168 <sup>†</sup>	56%	290,468	370,091	27%	449,238	571,061	27%
IRR 31 Years								4.85%	6.11%		7.09%	8.29%	

### Policy 5 - \$250,000 10 Payment Whole Life Policy, \$14,445.00 Premium – Male Age 50, Nonsmoker

Year	Guar Cash Value	Cash Dividends			Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust.	Actual	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.	Illust. <sup>†</sup>	Actual <sup>†</sup>	Diff.
		With Paid-Up Additions Option											
1990	140,593	3,645	5,828	60%	4,292	9,063	111%	169,471	199,423	18%	301,351	354,611	18%
2000	173,375	4,605	8,350	81%	7,121	18,407	158%	275,234	404,143	47%	394,667	579,189	47%
2011	203,900	10,310 <sup>†</sup>	15,475 <sup>†</sup>	50%	16,156 <sup>†</sup>	34,685 <sup>†</sup>	115%	432,433	752,614	78%	529,072	920,795	74%
IRR 31 Years								4.20%	6.36%		4.98%	7.16%	

<sup>1</sup> MM Block refers to policies issued by Massachusetts Mutual Life Insurance Company prior to the merger with the former Connecticut Mutual Life Insurance Company in 1996. Policies in this block of business are no longer sold.

<sup>†</sup> Numbers include termination dividend in 2011 for cash dividends and total dividends. Termination dividend included in Total Cash Surrender Value and Total Death Benefit beginning in year 15.

## Dividend interest rate history

The dividend interest rate (DIR) is used to determine the investment component of dividends. It is not the rate of return on the policy. Therefore, dividend interest rates should not be used as the sole basis for comparing insurers.

The way companies apply dividend interest rates to calculate dividends varies. Some companies quote gross rates. Others, including MassMutual, quote rates that are net of investment expenses only, while yet others quote rates that take additional items into consideration. This can also make it difficult to compare the dividend interest rates of multiple mutual companies.

### Policies issued by Massachusetts Mutual Life Insurance Company prior to March, 1996

Year	Dividend interest rate	Year	Dividend interest rate
1978	7.40%	1995	9.00%
1979	7.80%	1996	8.40%
1980	8.27%	1997	8.40%
1981	8.27%	1998	8.40%
1982	9.22% <sup>2</sup>	1999	8.40%
1983	11.60%	2000	8.30%
1984	11.60%	2001	8.30%
1985	12.20%	2002	8.10%
1986	12.20%	2003	7.90%
1987	12.20%	2004	7.50%
1988	11.35%	2005	7.00%
1989	11.15%	2006	7.55%
1990	10.50%	2007	7.55%
1991	10.50%	2008	7.90%
1992	9.95%	2009	7.45%
1993	9.45%	2010	6.85%
1994	9.30%	2011	6.80%

### Policies issued by Massachusetts Mutual Life Insurance Company since March, 1996

Year	Dividend interest rate	Year	Dividend interest rate
1996	8.40%	2004	7.50%
1997	8.40%	2005	7.00%
1998	8.40%	2006	7.40%
1999	8.40%	2007	7.50%
2000	8.20%	2008	7.90%
2001	8.20%	2009	7.60%
2002	8.05%	2010	7.00%
2003	7.90%	2011	6.85%

### Policies Issued by the former Connecticut Mutual Life Insurance Company prior to March, 1996

Year	Dividend interest rate	Year	Dividend interest rate
1986	11.35%	1999	7.70%
1987	11.35%	2000	7.65%
1988	10.85%	2001	7.75%
1989	9.05%	2002	7.85%
1990	9.05%	2003	8.00%
1991	9.05%	2004	7.45%
1992	9.05%	2005	6.65%
1993	8.80%	2006	7.25%
1994	8.10%	2007	7.45%
1995	8.05%	2008	7.75%
1996	7.70%	2009	7.40%
1997	7.70%	2010	6.70%
1998	7.70%	2011	6.70%

<sup>2</sup> Rate applies to 8100 series. Pre-8100 series rate is 8.27%

Policy blocks issued by Massachusetts Mutual Life Insurance Company and the former Connecticut Mutual Life Insurance Company prior to March, 1996 are no longer sold. All rates shown assume an Adjustable Loan Rate starting in 1983. The merger between Massachusetts Mutual Life Insurance Company and the former Connecticut Mutual Life Insurance Company was completed in March, 1996.

## MassMutual's dividend interest rates vs. Treasury rates

The stabilizing effect of the portfolio average method over time is among the reasons MassMutual and many other insurers use this approach to determine their dividend interest rates. This method reflects the earnings on all investments within the portfolio, including those purchased in prior years.

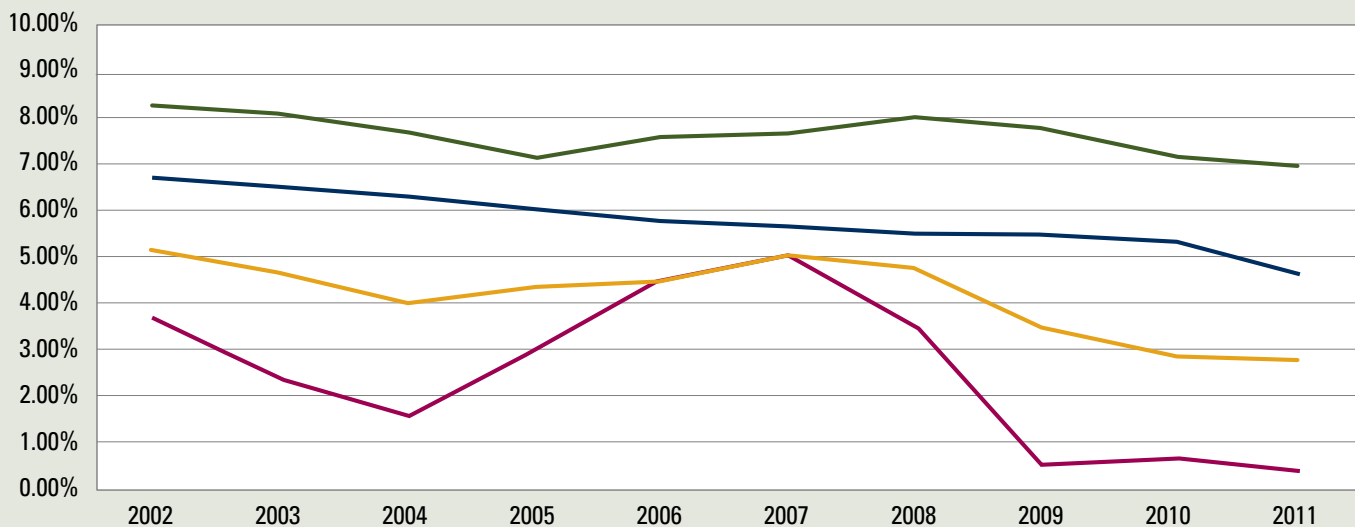
This graph shows the relationship of MassMutual's dividend interest rate to three Treasury "rates":

**MassMutual's dividend interest rate** refers to the MassMutual-The Blue Chip Company (MM-TBCC) block of business, which comprises policies issued after the merger of Massachusetts Mutual Life Insurance Company and the former Connecticut Mutual Life Insurance Company in 1996.

The **10-year rolling weighted average** is a simple representation of a hypothetical portfolio having a similar duration to the MassMutual portfolios supporting the company's traditional products. The rate shown is the 10-year rolling weighted average of medium-term Treasuries and spreads of BBB corporate bonds, with expense and credit adjustments, for the year preceding the dividend interest rate shown.

The **yearly weighted average** of medium-term Treasuries for the year preceding the dividend interest rate shown shows the volatility of new-money rates compared to portfolio average rates, which lag both the upward and downward movements of new-money rates.

The **one-year Treasury** rates also show the volatility of new-money rates compared to portfolio average rates, which lag both the upward and downward movements of new-money rates. The rates shown are for the year preceding the dividend interest rate shown.



Dividend Schedule	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*
■ MassMutual dividend interest rate	8.05%	7.90%	7.50%	7.00%	7.40%	7.50%	7.90%	7.60%	7.00%	6.85%
■ Treasuries (10-year average)	6.54%	6.33%	6.13%	5.84%	5.61%	5.47%	5.35%	5.31%	5.13%	4.82%
■ Treasuries (one-year average)	4.99%	4.51%	3.85%	4.17%	4.29%	4.85%	4.65%	3.32%	2.90%	2.68%
■ One-year Treasury rate	3.50%	2.16%	1.41%	2.85%	4.40%	4.81%	3.21%	0.38%	0.43%	0.21%

\*2011 Treasury rates as of Oct. 8, 2010.

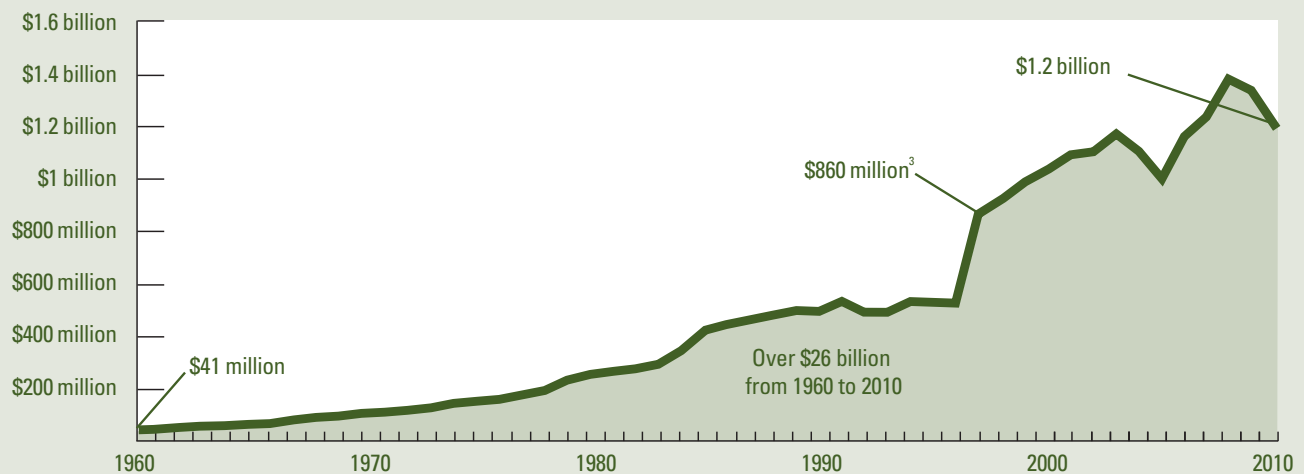
Note: The dividend interest rate is not the rate of return on the policy. Dividends are composed of investment, mortality and expense components. Therefore, dividend interest rates should not be the sole basis for comparing insurers or policy performance.

# A long history of dividends to policy owners

## Strong performance

Dividends can help policy owners build more value in their participating policies, reinforcing our policy base and our overall financial strength. MassMutual has paid dividends consistently since the 1860s, and the estimated 2011 dividend payout of \$1.23 billion continues that historical trend. The information below shows dividends to policy owners back to 1960.

### Dividends to policy owners from 1960 to 2010



### Over \$26 billion from 1960 to 2010

Year	Dividends (000's)	Year	Dividends (000's)	Year	Dividends (000's)	Year	Dividends(000's)
1960	41,478	1973	140,160	1986	458,715	1999	1,030,931
1961	47,893	1974	148,143	1987	475,200	2000	1,086,178
1962	52,443	1975	154,541	1988	492,421	2001	1,097,026
1963	55,535	1976	171,760	1989	488,876	2002	1,163,238
1964	59,834	1977	188,129	1990	527,538	2003	1,098,500
1965	63,664	1978	227,316	1991	485,497	2004	995,647
1966	75,947	1979	249,518	1992	486,608	2005	1,154,540
1967	85,651	1980	259,911	1993	526,928	2006	1,226,454
1968	91,758	1981	271,053	1994	523,496	2007	1,372,522
1969	101,651	1982	286,970	1995	520,539	2008	1,331,650
1970	106,174	1983	340,869	1996	859,897 <sup>3</sup>	2009	1,211,616
1971	112,266	1984	417,763	1997	919,514	2010	1,217,300 <sup>4</sup>
1972	123,140	1985	439,029	1998	982,823		

Source: Dividends to Policyholders, Summary of Operations, Massachusetts Mutual Life Insurance Company Annual Statements.

<sup>3</sup> 1996 increase reflects, in part, a merger with Connecticut Mutual Life Insurance Company.

<sup>4</sup> Estimated Dividends to Policyholders.

# Appendix – Actual historical performance since 1980

## Policy 1 – Hypothetical policy issued in 1980\*

Convertible Life – MM Block  
\$250,000 Policy, Male Age 45, Nonsmoker

Premium **\$5,910.00**

Reserve Basis (CSO and percent) **1958 CSO – 4.50%**

### With Paid-Up Additions Option\*\*

Year	Guar Cash Value	Cash Dividends		Total Dividends		Total Cash Value		Total Death Benefit	
		Illust.	Actual	Illust.	Actual	Illust. <sup>†</sup>	Actual <sup>†</sup>	Illust. <sup>†</sup>	Actual <sup>†</sup>
1981	\$0	\$398	\$398	\$398	\$398	\$398	\$398	\$251,036	\$251,036
1982	4,330	560	560	570	570	5,310	5,310	252,479	252,479
1983	9,223	715	715	741	741	10,973	10,973	254,297	254,297
1984	14,198	875	1,453	921	1,565	16,921	17,565	256,493	258,027
1985	19,253	1,030	1,793	1,102	2,072	23,158	24,790	259,045	262,826
1986	24,380	1,158	2,118	1,260	2,578	29,658	32,656	261,882	268,630
1987	29,578	1,320	2,453	1,459	3,142	36,465	41,231	265,076	275,507
1988	34,838	1,478	2,595	1,660	3,539	43,579	50,357	268,611	283,042
1989	40,160	1,640	2,793	1,873	3,907	51,015	60,014	272,492	291,138
1990	45,540	1,808	2,735	2,098	4,035	58,787	69,967	276,724	299,279
1991	50,885	1,968	3,120	2,322	4,726	66,806	80,687	281,288	308,567
1992	56,270	2,120	2,990	2,546	4,743	75,153	91,593	286,165	317,651
1993	61,685	2,270	3,018	2,776	4,928	83,827	102,840	291,348	326,854
1994	67,123	2,438	3,295	3,032	5,479	92,851	114,788	296,872	336,836
1995	72,578	2,608	3,500	3,301	5,848	103,205	128,227	303,709	348,202
1996	78,035	2,808	3,605	3,611	5,976	114,096	142,081	311,092	359,692
1997	83,490	2,995	3,890	3,921	6,589	125,526	156,994	319,005	372,293
1998	88,935	3,178	4,405	4,238	7,495	137,493	172,696	327,439	385,896
1999	94,360	3,363	4,825	4,567	8,366	148,715	189,408	335,109	400,639
2000	99,755	3,533	5,103	4,894	9,047	160,069	206,943	342,884	416,180
2001	105,105	3,703	5,333	5,233	9,872	171,812	224,849	351,027	432,126
2002	110,398	3,890	5,355	5,604	10,326	183,962	243,330	359,575	448,460
2003	115,610	4,090	5,580	6,008	11,253	196,527	262,825	368,562	465,875
2004	120,728	4,300	5,123	6,442	10,943	209,521	281,501	378,019	481,940
2005	125,738	4,538	4,640	6,929	10,517	222,980	299,787	388,010	497,105
2006	130,640	4,765	5,785	7,427	13,145	236,917	320,716	398,536	515,735
2007	135,445	4,943	6,210	7,881	14,338	251,304	342,905	409,520	535,721
2008	140,165	5,085	7,038	8,302	16,626	266,125	367,475	420,907	558,525
2009	144,825	5,200	7,008	8,704	16,765	281,395	392,345	432,660	581,163
2010	149,435	5,298	6,688	9,096	16,079	297,121	416,700	444,757	602,547
2011	153,993	10,363 <sup>†</sup>	15,308 <sup>†</sup>	14,456 <sup>†</sup>	25,460 <sup>†</sup>	313,268	441,835	457,146	624,442
Termination Dividend		\$5,000	\$8,750	\$5,000	\$8,750				
IRR 31 Years						3.16%	5.03%	5.21%	6.83%

\* Assumes policy originally issued with fixed loan rate updated to adjustable loan rate in 1983.

\*\*Assumes no paid-up additions are surrendered.

<sup>†</sup> Numbers include termination dividend in 2011 for cash dividends and total dividends. Termination dividend included in Total Cash Surrender Value and Total Death Benefit beginning in year 15.

# Appendix – Actual historical performance since 1980

## Policy 2 – Hypothetical policy issued in 1980\*

Convertible Life – MM Block  
\$250,000 Policy, Male Age 55, Nonsmoker

Premium **\$9,712.50**

Reserve Basis (CSO and percent) **1958 CSO – 4.50%**

### With Paid-Up Additions Option\*\*

Year	Guar Cash Value	Cash Dividends		Total Dividends		Total Cash Value		Total Death Benefit	
		Illust.	Actual	Illust.	Actual	Illust. <sup>†</sup>	Actual <sup>†</sup>	Illust. <sup>†</sup>	Actual <sup>†</sup>
1981	\$255	\$1,755	\$1,755	\$1,755	\$1,755	\$2,010	\$2,010	\$253,449	\$253,449
1982	7,008	1,870	1,870	1,917	1,917	10,725	10,725	257,120	257,120
1983	13,800	1,983	1,983	2,082	2,082	19,695	19,695	261,008	261,008
1984	20,623	2,093	3,050	2,251	3,434	28,916	30,099	265,109	267,264
1985	27,463	2,208	3,425	2,431	4,226	38,390	41,398	269,432	274,779
1986	34,308	2,395	3,863	2,691	5,044	48,188	53,620	274,105	283,538
1987	41,153	2,585	4,305	2,963	5,945	58,320	66,862	279,133	293,627
1988	47,980	2,775	4,458	3,246	6,591	68,785	80,866	284,518	304,563
1989	54,785	2,955	4,700	3,527	7,132	79,578	95,534	290,242	316,140
1990	61,550	3,133	4,575	3,816	7,334	90,695	110,512	296,306	327,792
1991	68,263	3,315	5,008	4,121	8,372	102,140	126,623	302,719	340,820
1992	74,898	3,505	4,923	4,446	8,589	113,909	143,032	309,500	353,920
1993	81,438	3,713	5,003	4,804	9,014	126,018	159,923	316,686	367,403
1994	87,858	3,933	5,450	5,190	10,082	138,470	177,907	324,306	382,204
1995	94,143	4,173	5,688	5,617	10,736	152,546	197,817	333,660	398,941
1996	100,290	4,423	5,733	6,071	10,878	167,181	218,048	343,685	415,777
1997	106,315	4,605	5,900	6,468	11,708	182,330	239,614	354,278	433,997
1998	112,235	4,760	6,953	6,843	13,528	197,004	262,676	364,411	454,077
1999	118,080	4,890	7,515	7,201	14,987	211,307	287,307	374,134	475,838
2000	123,863	4,995	7,833	7,542	16,098	225,986	312,794	384,164	498,373
2001	129,580	5,070	8,263	7,856	17,486	241,013	338,693	394,458	521,284
2002	135,215	5,130	8,450	8,160	18,258	256,353	365,495	404,997	544,865
2003	140,735	5,193	8,938	8,476	19,790	271,977	393,910	415,793	570,071
2004	146,095	5,265	8,605	8,814	19,495	287,845	422,046	426,870	594,573
2005	151,265	5,338	8,405	9,163	19,168	303,926	449,799	438,241	618,360
2006	156,233	5,403	9,230	9,516	22,273	320,200	480,553	449,909	645,669
2007	160,993	5,463	9,455	9,875	23,663	336,660	512,598	461,880	674,352
2008	165,560	5,510	9,660	10,227	25,819	353,312	546,716	474,143	705,312
2009	169,958	5,553	9,140	10,584	25,069	370,189	580,045	486,704	735,064
2010	174,213	5,590	8,210	10,947	22,947	387,331	611,234	499,569	762,030
2011	178,348	10,623 <sup>†</sup>	16,583 <sup>†</sup>	16,316 <sup>†</sup>	32,164 <sup>†</sup>	404,770	642,874	512,741	789,285
Termination Dividend		\$5,000	\$8,750	\$5,000	\$8,750				
IRR 31 Years						1.79%	4.38%	3.14%	5.47%

\* Assumes policy originally issued with fixed loan rate updated to adjustable loan rate in 1983.

\*\* Assumes no paid-up additions are surrendered.

<sup>†</sup> Numbers include termination dividend in 2011 for cash dividends and total dividends. Termination dividend included in Total Cash Surrender Value and Total Death Benefit beginning in year 15.

# Appendix – Actual historical performance since 1980

## Policy 3 – Hypothetical policy issued in 1980\*

Life Paid-up at 65 Whole Life – MM Block  
\$250,000 Policy, Male Age 35, Nonsmoker

Premium	<b>\$4,427.50</b>								
Reserve Basis (CSO and percent)	<b>1958 CSO – 4.00%</b>								
<b>With Paid-Up Additions Option**</b>									
Year	Guar Cash Value	Cash Dividends		Total Dividends		Total Cash Value		Total Death Benefit	
		Illust.	Actual	Illust.	Actual	Illust. <sup>†</sup>	Actual <sup>†</sup>	Illust. <sup>†</sup>	Actual <sup>†</sup>
1981	\$0	\$270	\$270	\$270	\$270	\$270	\$270	\$250,965	\$250,965
1982	2,823	355	355	362	362	3,463	3,463	252,218	252,218
1983	6,793	448	448	464	464	7,919	7,919	253,773	253,773
1984	10,880	548	955	577	1,026	12,620	13,069	255,643	257,102
1985	15,088	650	1,205	695	1,384	17,579	18,733	257,827	261,450
1986	19,408	770	1,475	835	1,774	22,814	24,944	260,366	266,847
1987	23,848	893	1,753	981	2,207	28,345	31,769	263,259	273,353
1988	28,405	1,028	1,985	1,145	2,615	34,190	39,192	266,530	280,826
1989	33,083	1,155	2,188	1,306	2,945	40,355	47,154	270,148	288,985
1990	37,885	1,290	2,173	1,480	3,071	46,865	55,467	274,125	297,236
1991	42,660	1,425	2,425	1,660	3,550	53,577	64,334	278,452	306,487
1992	47,553	1,568	2,230	1,854	3,461	60,657	73,349	283,141	315,241
1993	52,560	1,718	2,213	2,063	3,553	68,122	82,688	288,205	323,964
1994	57,685	1,865	2,360	2,275	3,890	75,985	92,599	293,629	333,239
1995	62,923	2,015	2,498	2,497	4,138	84,962	103,705	300,118	343,528
1996	68,278	2,153	2,513	2,713	4,157	94,467	115,196	307,045	353,706
1997	73,745	2,330	2,735	2,982	4,614	104,555	127,469	314,508	364,706
1998	79,330	2,500	2,988	3,253	5,139	115,244	140,437	322,491	376,454
1999	85,038	2,673	3,260	3,536	5,713	126,560	154,261	330,998	389,103
2000	90,868	2,848	3,435	3,833	6,155	137,519	168,819	339,030	402,328
2001	96,825	3,008	3,738	4,123	6,804	148,707	183,929	347,131	416,103
2002	102,915	3,165	3,830	4,421	7,113	160,441	199,670	355,598	430,128
2003	109,138	3,320	4,070	4,726	7,751	172,734	216,380	364,424	445,008
2004	115,503	3,485	3,705	5,059	7,354	185,626	233,039	373,640	458,809
2005	122,018	3,653	3,250	5,407	6,748	199,144	249,427	383,255	471,212
2006	128,693	3,833	4,115	5,786	8,586	213,331	267,978	393,302	486,528
2007	135,545	4,010	4,390	6,180	9,324	228,225	287,645	403,789	502,754
2008	142,588	4,188	5,118	6,590	11,024	243,856	309,405	414,724	521,447
2009	149,848	4,353	4,815	6,999	10,696	260,253	331,290	426,084	539,213
2010	157,350	4,515	4,203	7,422	9,677	277,452	352,465	437,876	554,849
2011	160,650	9,118 <sup>†</sup>	13,113 <sup>†</sup>	12,301 <sup>†</sup>	19,168 <sup>†</sup>	290,468	370,091	449,238	571,061
Termination Dividend		\$5,000	\$8,750	\$5,000	\$8,750				
IRR 31 Years						4.42%	5.69%	6.68%	7.88%

\* Assumes policy originally issued with fixed loan rate updated to adjustable loan rate in 1983.

\*\* Assumes no paid-up additions are surrendered.

<sup>†</sup> Numbers include termination dividend in 2011 for cash dividends and total dividends. Termination dividend included in Total Cash Surrender Value and Total Death Benefit beginning in year 15.

# Appendix – Actual historical performance since 1980

## Policy 4 – Hypothetical policy issued in 1980\*

Life Paid-up at 65 Whole Life – MM Block  
\$250,000 Policy, Female Age 35, Nonsmoker

Premium		<b>\$4,077.50</b>							
Reserve Basis (CSO and percent)		<b>1958 CSO – 4.00%</b>							
<b>With Paid-Up Additions Option**</b>									
Year	Guar Cash Value	Cash Dividends		Total Dividends		Total Cash Value		Total Death Benefit	
		Illust.	Actual	Illust.	Actual	Illust. <sup>†</sup>	Actual <sup>†</sup>	Illust. <sup>†</sup>	Actual <sup>†</sup>
1981	\$0	\$270	\$270	\$270	\$270	\$270	\$270	\$250,965	\$250,965
1982	2,823	355	355	362	362	3,463	3,463	252,218	252,218
1983	6,793	448	448	464	464	7,919	7,919	253,773	253,773
1984	10,880	548	955	577	1,026	12,620	13,069	255,643	257,102
1985	15,088	650	1,205	695	1,384	17,579	18,733	257,827	261,450
1986	19,408	770	1,475	835	1,774	22,814	24,944	260,366	266,847
1987	23,848	893	1,753	981	2,207	28,345	31,769	263,259	273,353
1988	28,405	1,028	1,985	1,145	2,615	34,190	39,192	266,530	280,826
1989	33,083	1,155	2,188	1,306	2,945	40,355	47,154	270,148	288,985
1990	37,885	1,290	2,173	1,480	3,071	46,865	55,467	274,125	297,236
1991	42,660	1,425	2,425	1,660	3,550	53,577	64,334	278,452	306,487
1992	47,553	1,568	2,230	1,854	3,461	60,657	73,349	283,141	315,241
1993	52,560	1,718	2,213	2,063	3,553	68,122	82,688	288,205	323,964
1994	57,685	1,865	2,360	2,275	3,890	75,985	92,599	293,629	333,239
1995	62,923	2,015	2,498	2,497	4,138	84,962	103,705	300,118	343,528
1996	68,278	2,153	2,513	2,713	4,157	94,467	115,196	307,045	353,706
1997	73,745	2,330	2,735	2,982	4,614	104,555	127,469	314,508	364,706
1998	79,330	2,500	2,988	3,253	5,139	115,244	140,437	322,491	376,454
1999	85,038	2,673	3,260	3,536	5,713	126,560	154,261	330,998	389,103
2000	90,868	2,848	3,435	3,833	6,155	137,519	168,819	339,030	402,328
2001	96,825	3,008	3,738	4,123	6,804	148,707	183,929	347,131	416,103
2002	102,915	3,165	3,830	4,421	7,113	160,441	199,670	355,598	430,128
2003	109,138	3,320	4,070	4,726	7,751	172,734	216,380	364,424	445,008
2004	115,503	3,485	3,705	5,059	7,354	185,626	233,039	373,640	458,809
2005	122,018	3,653	3,250	5,407	6,748	199,144	249,427	383,255	471,212
2006	128,693	3,833	4,115	5,786	8,586	213,331	267,978	393,302	486,528
2007	135,545	4,010	4,390	6,180	9,324	228,225	287,645	403,789	502,754
2008	142,588	4,188	5,118	6,590	11,024	243,856	309,405	414,724	521,447
2009	149,848	4,353	4,815	6,999	10,696	260,253	331,290	426,084	539,213
2010	157,350	4,515	4,203	7,422	9,677	277,452	352,465	437,876	554,849
2011	160,650	9,118 <sup>†</sup>	13,113 <sup>†</sup>	12,301 <sup>†</sup>	19,168 <sup>†</sup>	290,468	370,091	449,238	571,061
Termination Dividend		\$5,000	\$8,750	\$5,000	\$8,750				
IRR 31 Years						4.85%	6.11%	7.09%	8.29%

\* Assumes policy originally issued with fixed loan rate updated to adjustable loan rate in 1983.

\*\* Assumes no paid-up additions are surrendered.

<sup>†</sup> Numbers include termination dividend in 2011 for cash dividends and total dividends. Termination dividend included in Total Cash Surrender Value and Total Death Benefit beginning in year 15.

# Appendix – Actual historical performance since 1980

## Policy 5 – Hypothetical policy issued in 1980\*

10 Payment Whole Life – MM Block  
\$250,000 Policy, Male Age 50, Nonsmoker

Premium **\$14,445.00**

Reserve Basis (CSO and percent) **1958 CSO – 4.00%**

### With Paid-Up Additions Option\*\*

Year	Guar Cash Value	Cash Dividends		Total Dividends		Total Cash Value		Total Death Benefit	
		Illust.	Actual	Illust.	Actual	Illust. <sup>†</sup>	Actual <sup>†</sup>	Illust. <sup>†</sup>	Actual <sup>†</sup>
1981	\$5,510	\$1,365	\$1,365	\$1,365	\$1,365	\$6,875	\$6,875	\$253,073	\$253,073
1982	18,408	1,548	1,548	1,584	1,584	21,395	21,395	256,539	256,539
1983	31,748	1,728	1,728	1,807	1,807	36,625	36,625	260,386	260,386
1984	45,558	1,910	3,633	2,040	3,948	52,610	54,518	264,613	268,566
1985	59,870	2,098	4,353	2,286	5,104	69,399	74,177	269,225	278,863
1986	74,728	2,405	5,195	2,660	6,397	87,170	95,812	274,452	291,434
1987	90,170	2,708	6,055	3,041	7,829	105,978	119,633	280,276	306,428
1988	106,253	3,013	6,055	3,436	8,471	125,901	144,940	286,692	322,246
1989	123,035	3,330	6,100	3,858	8,920	147,034	171,612	293,720	338,496
1990	140,593	3,645	5,828	4,292	9,063	169,471	199,423	301,351	354,611
1991	143,958	3,598	9,043	4,380	12,974	177,907	217,170	308,957	377,142
1992	147,323	3,708	8,283	4,633	12,678	186,698	234,924	316,818	398,656
1993	150,680	3,815	7,770	4,894	12,609	195,847	252,887	324,938	419,575
1994	154,025	3,918	7,058	5,159	12,609	205,354	271,110	333,312	440,042
1995	157,350	4,015	6,650	5,430	12,566	216,330	290,641	343,053	461,120
1996	160,650	4,118	5,988	5,718	11,987	227,831	309,970	353,221	481,044
1997	163,913	4,223	6,248	6,022	13,062	239,860	330,934	363,834	502,621
1998	167,128	4,340	6,923	6,358	14,735	252,038	353,426	374,535	526,008
1999	170,285	4,465	7,338	6,719	16,311	263,424	377,660	384,399	551,303
2000	173,375	4,605	8,350	7,121	18,407	275,234	404,143	394,667	579,189
2001	176,398	4,743	8,565	7,537	19,804	287,482	431,524	405,349	607,929
2002	179,360	4,853	8,370	7,930	20,319	300,157	458,946	416,403	636,253
2003	182,270	4,935	8,543	8,295	21,721	313,241	487,971	427,780	666,046
2004	185,143	5,008	7,865	8,657	20,984	326,755	516,508	439,470	694,381
2005	187,985	5,068	7,160	9,011	19,963	340,707	544,266	451,454	720,930
2006	190,798	5,113	8,318	9,350	24,078	355,079	576,356	463,705	752,479
2007	193,568	5,148	8,430	9,683	25,488	369,844	610,085	476,211	785,398
2008	196,280	5,183	9,100	10,025	28,712	384,982	647,224	488,979	821,968
2009	198,915	5,223	8,440	10,386	27,927	400,469	683,723	502,033	857,068
2010	201,458	5,268	7,433	10,766	25,729	416,291	718,079	515,394	888,997
2011	203,900	10,310 <sup>†</sup>	15,475 <sup>†</sup>	16,156 <sup>†</sup>	34,685 <sup>†</sup>	432,433	752,614	529,072	920,795
Termination Dividend		\$5,000	\$8,750	\$5,000	\$8,750				
IRR 31 Years						4.20%	6.36%	4.98%	7.16%

\* Assumes policy originally issued with fixed loan rate updated to adjustable loan rate in 1983.

\*\* Assumes no paid-up additions are surrendered.

<sup>†</sup> Numbers include termination dividend in 2011 for cash dividends and total dividends. Termination dividend included in Total Cash Surrender Value and Total Death Benefit beginning in year 15.

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