



Historical Dividend Studies from
Massachusetts Mutual Life
Insurance Company (MassMutual®)



As a mutual life insurance company, MassMutual does not have shareholders. Instead, the company operates for the benefit of its participating policyowners. Participating whole life policies issued by MassMutual are eligible to receive a dividend each year.

Company surplus results when overall actual experience is more favorable than the experience that was originally assumed in setting the premiums and guaranteed elements of policies. A portion is set aside to be paid or applied as policy dividends in the following years. When determining the dividend for an individual policy, the amount paid reflects the portion that each specific policy is considered to have contributed to surplus.

Although dividends are not guaranteed, MassMutual has paid them every year since 1869.

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Dividend Interest Rate

Dividends primarily include an investment component, a mortality component and an expense component.

The Dividend Interest Rate (DIR) is used to calculate the investment component of policy dividends; it is not the rate of return on the policy. The DIR primarily represents the net investment return on the assets supporting the reserves and cash values for a certain block of policies.

The way companies quote and apply Dividend Interest Rates varies. For example, some quote their DIR before investment expenses and some, like MassMutual, quote their DIR net of these expenses. Therefore, Dividend Interest Rates should not be used as the sole basis for comparing one whole life policy to another.

PARTICIPATING WHOLE LIFE POLICIES

Issued by Massachusetts Mutual Life Insurance Company Prior to March 1996

Year	Dividend Interest Rate	Year	Dividend Interest Rate	Year	Dividend Interest Rate
1980	8.27%	1995	9.00%	2010	6.85%
1981	8.27%	1996	8.40%	2011	6.80%
1982	8.27% ¹	1997	8.40%	2012	7.00%
1983	8.27% ¹	1998	8.40%	2013	7.00%
1984	11.60%	1999	8.40%	2014	7.10%
1985	12.20%	2000	8.30%	2015	7.10%
1986	12.20%	2001	8.30%	2016	7.10%
1987	12.20%	2002	8.10%	2017	6.70%
1988	11.35%	2003	7.90%	2018	6.40%
1989	11.15%	2004	7.50%	2019	6.40%
1990	10.50%	2005	7.00%	2020	6.20%
1991	10.50%	2006	7.55%	2021	6.00%
1992	9.95%	2007	7.55%	2022	6.00%
1993	9.45%	2008	7.90%	2023	6.00%
1994	9.30%	2009	7.45%		

¹ Rate applies to Pre-8100 series rate. 8100 series rate was 9.22%.

Eligible participating policies 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 1984. The merger between Massachusetts Mutual Life Insurance Company and the former Connecticut Mutual Life Insurance Company was completed in March, 1996.

The Portfolio Average Method

MassMutual's DIR is determined using a portfolio average method that reflects the portfolio earnings on all assets that support our participating permanent life insurance and participating annuity blocks. Each portfolio is made up of investments purchased over a number

of years, so changes in new money interest rates have a gradual impact on the DIR. 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.

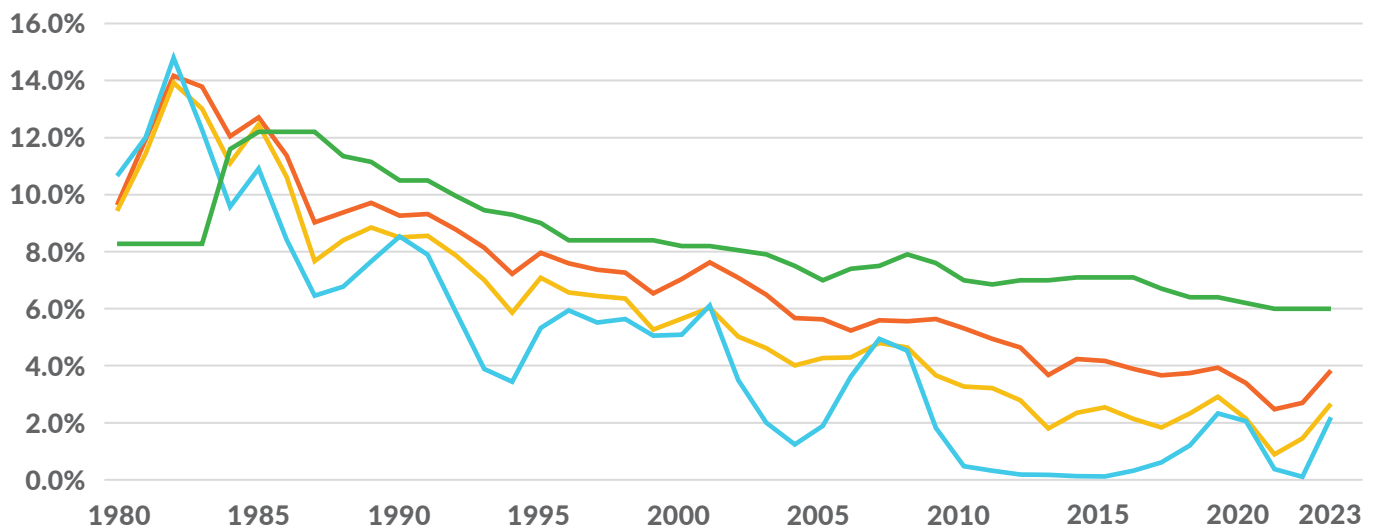
MASSMUTUAL'S DIR COMPARED TO COMMON FIXED INCOME MEASURES

This graph shows the relative stability of MassMutual's Dividend Interest Rate compared to three common fixed income measures over an extended period of time. The values plotted in the graph are for each year from 1980-2023.

Dividend Schedule

● MassMutual Dividend Interest Rate²
 ● Moody's Seasoned Aaa Corporate Bond Yield³

● 10-year Treasury, annual rate⁴
 ● One-year Treasury, annual rate⁵



² Refers to the MM-block of business, which comprises policies issued prior to the merger of Massachusetts Mutual Life Insurance Company and the former Connecticut Mutual Life Insurance Company in 1996. Starting with the 2012 dividend schedule, there is a single Dividend Interest Rate for all blocks.

³ Moody's yield on seasoned Aaa corporate bonds for all industries, quoted for the year preceding the Dividend Interest Rate shown; for 2023, the rate is the average monthly rate from January to September for the preceding year. Moody's Aaa rates through December 6, 2001, are averages of Aaa utility and Aaa industrial bond rates. As of December 7, 2001, these rates are averages of Aaa industrial bonds only.

⁴ Market yield on U.S. Treasury securities at 10-year constant maturity, quoted for the year preceding the Dividend Interest Rate shown; for 2023, the rate is the average monthly rate from January to September for the preceding year.

⁵ Market yield on U.S. Treasury securities at 1-year constant maturity, quoted for the year preceding the Dividend Interest Rate shown; for 2023, the rate is the average monthly rate from January to September for the preceding year.

Historical Examples

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

The summary for each policy compares what was **illustrated** in 1980 with what **actually** happened over 42 years. Dividends were used to buy paid-up additional whole life insurance, or paid-up additions.

Below is a description of the terms used in each summary.

- **Guaranteed Cash Value** — The amount of the cash value that is guaranteed under the policy.
 - **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 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 3.10%, however, the IRR based on actual dividends paid was 4.70%.

The results shown in the following tables are based on the actual experience of the company over the period of time primarily 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. The examples used are a sample of the types of whole life policies MassMutual sold at that time.

Actual Historical Performance Summary Since 1980

Each of the three historical policy examples uses the best underwriting class (nonsmoker) that was available at the time of issue in

1980⁶ and is from the MM Block.⁷ The policy types and the issue ages are shown in the following examples.

HYPOTHETICAL POLICY 1 – \$250,000 CONVERTIBLE LIFE POLICY, \$5,910.00 PREMIUM – MALE AGE 45, NONSMOKER

With Paid-up Additions Option⁸

Year	Guaranteed Cash Value	Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust. ⁹	Actual ⁹	Diff.	Illust. ⁹	Actual ⁹	Diff.
1981	\$0	\$398	\$398	0%	\$398	\$398	0%	\$251,036	\$251,036	0%
1985	19,253	1,102	2,072	88%	23,158	24,790	7%	259,045	262,826	1%
1990	45,540	2,098	4,035	92%	58,787	69,967	19%	276,724	299,279	8%
1995	72,578	3,301	5,848	77%	103,205	128,227	24%	303,709	348,202	15%
2000	99,755	4,894	9,047	85%	160,069	206,943	29%	342,884	416,180	21%
2005	125,738	6,929	10,517	52%	222,980	299,787	34%	388,010	497,105	28%
2010	149,435	9,096	16,079	77%	297,121	416,700	40%	444,757	602,547	35%
2015	171,283	10,942	21,826	99%	381,439	556,273	46%	509,591	725,648	42%
2020	189,578	12,997	23,340	80%	473,286	712,580	51%	582,523	863,070	48%
2023	\$199,275	\$19,370 ⁹	\$31,422 ⁹	62%	\$532,890	\$805,887	51%	\$630,612	\$942,115	49%
Termination Dividend		\$5,000	\$8,750							
IRR 43 Years					3.09%	4.65%		3.74%	5.22%	

⁶ Assumes policy originally issued with fixed loan rate updated to adjustable loan rate in 1983.

⁷ MM Block refers to eligible participating 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.

⁸ Assumes no paid-up additions are surrendered.

⁹ Numbers include termination dividend in 2023 for total dividends. Termination dividend payable in Total Cash Value and Total Death Benefit beginning in year 15. Termination dividends are only available upon full policy surrender or death.

**HYPOTHETICAL POLICY 2 – \$250,000 LIFE PAID-UP AT 65
WHOLE LIFE POLICY, \$4,077.50 PREMIUM –
FEMALE AGE 35, NONSMOKER**

With Paid-up Additions Option⁸

Year	Guaranteed Cash Value	Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust. ⁹	Actual ⁹	Diff.	Illust. ⁹	Actual ⁹	Diff.
1981	\$0	\$270	\$270	0%	\$270	\$270	0%	\$250,965	\$250,965	0%
1985	15,088	695	1,384	99%	17,579	18,733	7%	257,827	261,450	1%
1990	37,885	1,480	3,071	108%	46,865	55,467	18%	274,125	297,236	8%
1995	62,923	2,497	4,138	66%	84,962	103,705	22%	300,118	343,528	14%
2000	90,868	3,833	6,155	61%	137,519	168,819	23%	339,030	402,328	19%
2005	122,018	5,407	6,748	25%	199,144	249,427	25%	383,255	471,212	23%
2010	157,350	7,422	9,677	30%	277,452	352,465	27%	437,876	554,849	27%
2015	173,375	9,090	16,834	85%	347,458	457,723	32%	498,811	656,152	32%
2020	187,985	11,503	18,253	59%	430,821	587,630	36%	571,297	778,599	36%
2023	\$196,280	\$17,798 ⁹	\$27,654 ⁹	55%	\$487,221	\$669,713	37%	\$619,200	\$850,613	37%
Termination Dividend		\$5,000	\$8,750							
IRR 43 Years					4.68%	5.73%		5.47%	6.50%	

**HYPOTHETICAL POLICY 3 – \$250,000 10 PAYMENT
WHOLE LIFE POLICY, \$14,445.00 PREMIUM –
MALE AGE 50, NONSMOKER**

With Paid-up Additions Option⁸

Year	Guaranteed Cash Value	Total Dividends			Total Cash Value			Total Death Benefit		
		Illust.	Actual	Diff.	Illust. ⁹	Actual ⁹	Diff.	Illust. ⁹	Actual ⁹	Diff.
1981	\$5,510	\$1,365	\$1,365	0%	\$6,875	\$6,875	0%	\$253,073	\$253,073	0%
1985	59,870	2,286	5,104	123%	69,399	74,177	7%	269,255	278,863	4%
1990	140,593	4,292	9,063	111%	169,471	199,423	18%	301,351	354,611	18%
1995	157,350	5,430	12,566	131%	216,330	290,641	34%	343,053	461,120	34%
2000	173,375	7,121	18,407	158%	275,234	404,143	47%	394,667	579,189	47%
2005	187,985	9,011	19,963	122%	340,707	544,266	60%	451,454	720,930	60%
2010	201,458	10,766	25,729	139%	416,291	718,079	72%	515,394	888,997	72%
2015	212,740	12,796	33,523	162%	500,379	910,609	82%	587,141	1,068,563	82%
2020	222,625	15,015	30,257	102%	595,228	1,116,949	88%	667,805	1,253,218	88%
2023	\$228,700	\$21,334 ⁹	\$35,797 ⁹	68%	\$659,463	\$1,203,097	82%	\$720,416	\$1,314,333	82%
Termination Dividend		\$5,000	\$8,750							
IRR 43 Years					4.01%	5.63%		4.24%	5.87%	

MassMutual...

Helping you secure what matters most.

Since 1851, our business decisions have been guided by our customers' needs. Today, we offer a wide range of financial products and services to help people secure their future and protect the ones they love.

Participating whole life insurance policies issued by Massachusetts Mutual Life Insurance Company (MassMutual), Springfield, MA 01111-0001 and its subsidiary, C.M. Life Insurance Company, Enfield, CT 06082.



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