

Performance Update

As of October 31, 2020

LifeTrust

variable annuity

- **Not a bank or credit union deposit or obligation**
- **Not insured by any federal government agency**
- **Not FDIC or NCUA-insured**
- **Not guaranteed by any bank or credit union**
- **May go down in value**

LifeTrust

A deferred variable annuity is a long-term investment designed to help you accumulate assets for retirement. It also offers a broad array of investment choices and asset classes, fixed accounts, death benefit choices and multiple methods to turn those assets into a stream of guaranteed income at some point in the future. (Guarantees are based on the claims-paying ability of the issuing company and do not apply to the investment performance or the safety of amounts held in the variable investment choices.) Variable annuities are not appropriate for everyone. There are fees and charges associated with owning an annuity. **Variable annuities are subject to market risk, including the potential loss of principal.** Also, withdrawals of earnings will be subject to income tax and may be subject to a 10 percent federal income tax penalty if taken prior to age 59 ½.

LifeTrust first became available (in most states) on November 14, 1994, but many of the underlying funds were established before this date. For these funds, the total returns are computed using hypothetical variable annuity unit values which are based on the underlying fund's performance less separate account expenses for the periods shown, including periods before the product was available. For periods of one year or less, the total return is not annualized and is the percentage change in an Accumulation Unit. For periods greater than one year, the average annual total return for the time periods is shown.

Past performance is no indication of future results. This update contains the most recent month-end performance. Since performance changes daily, the current performance may be lower or higher than the performance reflected in this update. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. For the most recent month-end performance information, visit our website at www.massmutual.com or call the MassMutual Customer Service Center at (800) 272-2216, Monday – Friday, 8 a.m. to 8 p.m. Eastern Time.

Investing involves risk, including the loss of principal. Each investment choice underlying the variable annuity contract has broad risks that apply to all investment choices, such as market risk, as well as specific risks inherent in particular types of investment choices that may subject your variable annuity contract to greater risk and volatility than the general market.

This material must be preceded or accompanied by the [current prospectuses \(or summary prospectuses, if available\) for the LifeTrust underlying investment funds](#). The funds' prospectuses contain more information about the funds' charges, expenses, risks and investment objectives. Please read the prospectuses carefully before investing or sending money. If you wish to receive additional prospectuses, request them from your registered representative or call the MassMutual Customer Service Center at (800) 272-2216, press 2, 8:00 a.m. to 8:00 p.m. (ET). Please note that LifeTrust is closed to new business. Existing contract owners, however, may continue to make purchase payments under existing contracts.

Market Indices as of October 31, 2020

	YTD	1 Year	3 Years	5 Years	10 Years
S&P 500 Index	2.77%	9.71%	10.42%	11.71%	13.01%
Morgan Stanley Capital International World Index	-1.42%	4.36%	5.96%	8.13%	8.64%
Russell 2000 Total Return Index	-6.77%	-0.14%	2.19%	7.27%	9.64%
Bloomberg Barclays U.S. Aggregate Bond Index	6.32%	6.19%	5.06%	4.08%	3.55%

Market indices have been provided for informational purposes only; they are unmanaged and reflect no fees or expenses. Individuals cannot invest directly in an index.

The Standard & Poor's 500 Index is an unmanaged measure of common stock total return performance in the U.S.

The Morgan Stanley Capital International World Index is an unmanaged measure of total return performance in the global securities market.

The Russell 2000 Total Return Index is a broad based, unmanaged index comprised of 2000 of the smallest U.S. domiciled company common stocks (on the basis of capitalization) that are traded in the United States on the New York Stock Exchange, the American Stock Exchange, and NASDAQ.

The Bloomberg Barclays U.S. Aggregate Bond Index is an unmanaged index of U.S. corporate bond issues, U.S. Government Securities and mortgage-backed securities.

Total Returns
For the Period Ending: October 31, 2020

Total Returns reflect total annualized separate account expenses of 1.40% and all fund level expenses. **These returns do not reflect contingent deferred sales charges, the annual maintenance charge, or premium taxes, if any.** Their inclusion would reduce the returns shown.

Asset Category	Separate Account Sub-account	Fund Inception Date	Endnotes	Cumulative YTD	Average Annual				
					1 Year	3 Years	5 Years	10 Years	Since Inception
Money Market	Invesco Oppenheimer V.I. Government Money <i>7-day yield: -1.60%</i>	4/3/1985	2	-0.94%	-0.99%	-0.28%	-0.67%	-1.02%	1.22%
	MML U.S. Government Money Market <i>7-day yield: -1.61%</i>	12/16/1981	1	-0.93%	-0.97%	-0.28%	-0.65%	-1.02%	2.33%
Fixed Income	Invesco Oppenheimer V.I. Global Strategic Income	4/3/1985		6.64%	6.26%	4.03%	3.19%	3.44%	4.04%
	Invesco Oppenheimer V.I. Total Return Bond	5/3/1993	3	-3.92%	-2.77%	-0.16%	1.23%	1.45%	3.90%
	MML Managed Bond	12/16/1981		3.74%	3.54%	3.38%	2.57%	2.23%	5.70%
Balanced	Invesco Oppenheimer V.I. Conservative Balanced	2/9/1987	3, 4	6.25%	8.19%	5.11%	4.88%	5.55%	5.57%
	MML Blend	2/3/1984		1.24%	5.64%	5.59%	6.67%	7.87%	7.27%
Large Cap Value	MML Equity	12/31/1973	5	-12.98%	-7.89%	-0.18%	3.45%	6.92%	8.06%
Large Cap Blend	Invesco Oppenheimer V.I. Main Street	7/5/1995		-0.40%	5.49%	6.56%	8.07%	9.96%	7.31%
Large Cap Growth	Invesco Oppenheimer V.I. Capital Appreciation	4/3/1985		16.66%	25.70%	14.54%	11.75%	11.71%	9.03%
Small/Mid Cap Blend	Invesco Oppenheimer V.I. Main Street Small Cap	5/1/1998		-5.15%	1.23%	1.74%	6.09%	9.11%	6.36%
Small/Mid Cap Growth	Invesco Oppenheimer V.I. Discovery Mid Cap Growth	8/15/1986		17.24%	24.29%	14.89%	13.64%	13.54%	8.59%
International/Global	Invesco Oppenheimer V.I. Global	11/12/1990		4.88%	12.52%	6.41%	8.62%	8.57%	8.50%

Standardized Total Returns - With Full Surrender
For the Period Ending: September 30, 2020

These standardized returns assume a single \$1,000 purchase payment made at the beginning of the periods shown, and full surrender on the last business day of the most recent calendar quarter. They assume that the contract is redeemed and reflect total separate account expenses of 1.40%, annual maintenance charge (contract level charges) of \$30.00 allocated proportionately for each Sub-account, all fund level expenses, and Contingent Deferred Sales Charges (CDSC) –

Contract Year: 1 2 3 4 5 6 7 8+
7% 6% 5% 4% 3% 2% 1% 0%

These returns do not reflect premium taxes, if any. Their inclusion would reduce the returns shown.

Asset Category	Separate Account Sub-account	Date Added to Separate Account	Endnotes	Cumulative YTD	Average Annual				
					1 Year	3 Years	5 Years	10 Years	Since Date Added to Separate Account
Money Market	Invesco Oppenheimer V.I. <i>7-day yield: -1.60%</i>	11/14/1994	2	-7.04%	-7.09%	-1.84%	-1.30%	-1.25%	0.79%
	MML U.S. Government Money Market <i>7-day yield: -1.61%</i>	11/14/1994	1	-7.03%	-7.07%	-1.85%	-1.29%	-1.25%	0.68%
Fixed Income	Invesco Oppenheimer V.I. Global Strategic Income	11/14/1994		0.98%	0.74%	2.80%	2.79%	3.34%	2.42%
	Invesco Oppenheimer V.I. Total Return Bond	11/14/1994	3	-9.85%	-7.61%	-1.61%	0.92%	1.47%	4.14%
	MML Managed Bond	11/14/1994		-2.29%	-2.25%	1.97%	2.11%	2.06%	4.17%
Balanced	Invesco Oppenheimer V.I. Conservative Balanced	11/14/1994	3, 4	1.54%	4.14%	4.32%	5.22%	5.87%	4.66%
	MML Blend	11/14/1994		-2.84%	3.33%	5.40%	7.79%	8.17%	5.94%
Large Cap Value	MML Equity	11/14/1994	5	-18.22%	-12.02%	-1.07%	4.57%	7.36%	5.31%
Large Cap Blend	Invesco Oppenheimer V.I. Main Street	7/3/1995		-3.96%	3.82%	5.77%	9.89%	10.65%	7.42%
Large Cap Growth	Invesco Oppenheimer V.I. Capital Appreciation	11/14/1994		13.65%	26.36%	15.28%	13.87%	12.35%	8.74%
Small/Mid Cap Blend	Invesco Oppenheimer V.I. Main Street Small Cap	5/1/1998		-13.24%	-5.35%	-0.22%	6.18%	9.18%	6.25%
Small/Mid Cap Growth	Invesco Oppenheimer V.I. Discovery Mid Cap Growth	11/14/1994		10.48%	19.28%	15.29%	14.18%	13.87%	7.54%
International/Global	Invesco Oppenheimer V.I. Global	11/14/1994		1.28%	14.97%	7.19%	10.38%	9.10%	8.14%

Credited Fixed Account Interest Rates Effective November 1, 2020

Current interest rates and guaranteed minimum interest rates vary by issue state and issue date. Credited rates will not be less than the minimum guaranteed interest rate as of a contract's issue date. Guarantees are based on the claims-paying ability of the issuing company.

<u>MVA Fixed Accounts</u>	<u>Rate</u>	<u>New Rate</u>	<u>Change</u>
1 Year MVA Account ¹	3.00%	3.00%	0.00%
3 Year MVA Account ¹	3.00%	3.00%	0.00%
5 Year MVA Account	3.00%	3.00%	0.00%
7 Year MVA Account	3.00%	3.00%	0.00%

Rates listed are applicable for new sales and subsequent payments. If a contract offered a guaranteed minimum interest rate different than the current applicable base interest rate listed, the contract holder will receive the higher of the two rates. The product, certain features and/or investment choices may not be available in all states or with all firms contracted with MassMutual.

¹ For LifeTrust contracts, the 1 and 3 year MVA Fixed Accounts are currently not available.

Endnotes

- 1 **An investment in the Fund is neither insured nor guaranteed by the Federal Deposit Insurance Corporation or by any other government agency. Although the Fund seeks to maintain a stable net asset value per share, it is possible to lose money by investing in the Fund.**

The yield quotation more closely reflects the current earnings of the Fund than the total return quotation. It is an annualized rate based on results over the last seven days of the period, and is net of all recurring contract fees and charges.

- 2 **An investment in the Fund is neither insured nor guaranteed by the Federal Deposit Insurance Corporation or by any other government agency. Although the Fund seeks to preserve the value of your investment at \$1.00 per share, it is possible to lose money by investing in the Fund.**

The yield quotation more closely reflects the current earnings of the Fund than the total return quotation. It is an annualized rate based on results over the last seven days of the period, and is net of all recurring contract fees and charges.

Although the Oppenheimer Government Money Fund/VA commenced operations on April 3, 1985, the information necessary to calculate the returns is available only for the year 1987 and subsequent periods. Oppenheimer Government Money is not available as an investment choice for contracts issued after January 18, 2008.

- 3 Unavailable in contracts issued on or after May 1, 2009. For contracts issued prior to May 1, 2009, you may not allocate any new money to this fund via purchase payments or transfers.
- 4 The historical performance shown reflects a combination of the current underlying fund's performance, as well as the performance of a prior fund. The current fund's performance is reflected beginning on 5/1/06. The prior fund's performance covers the period between the date listed in the performance table and 4/30/06.
- 5 The fund established a new class of shares, which is available with this policy, after it began its initial investment operations. The performance for the period

LifeTrust [Contract Form #: B980-9400; B980-NC-9400 (NC)] [w/fixed account & market value adjustment:
Contract Form #: B990-9400; B990-NC- 9400 (NC)] variable annuity contract was issued by Massachusetts Mutual Life Insurance Company in CA, CT, MA, ME, NY, TX, and VA, and by MML Bay State Life Insurance Company in all other states. MML Bay State Life Insurance Company is a subsidiary of Massachusetts Mutual Life Insurance Company. MML Bay State Life Insurance Company, 1295 State Street, Springfield, MA 01111 (Principal Administrative Office).

We no longer offer this contract for sale to the public. Contract owners may continue, however, to make purchase payments to their contracts.

Principal Underwriters:

MML Investors Services, LLC
MML Strategic Distributors, LLC

Subsidiaries of Massachusetts Mutual Life Insurance Company, 1295 State Street, Springfield, MA 01111-0001
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