

Performance Update

As of October 31, 2024

MassMutual EnvisionSM

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

MassMutual EnvisionSM

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, a DCA fixed account, a death benefit, and multiple annuity options to turn those assets into a stream of guaranteed income at some point in the future. For an additional charge, MassMutual can also be used to provide guaranteed lifetime income if issued with MassMutual RetirePaySM, a Guaranteed Lifetime Withdrawal Benefit Rider (GLWB). The product, certain features and/or investment choices may not be available in all states or with all firms contracted with MassMutual. 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.**

MassMutual Envision first became available (in most states) on February 28, 2022 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.

Before purchasing MassMutual Envision, investors should carefully consider the investment objectives, risks, charges and expenses of the variable annuity contract. For this and other information, obtain the [MassMutual Envision prospectus and summary prospectuses from your registered representative](#). **The prospectus should be read carefully before investing or sending money. You may also obtain the [prospectuses \(or summary prospectuses, if available\)](#) for its underlying investment choices from your registered representative.**

Market Indices as of October 31, 2024

| | YTD | 1 Year | 3 Years | 5 Years | 10 Years |
|-------------------------------------|--------|--------|---------|---------|----------|
| S&P 500 Index | 20.97% | 38.02% | 9.08% | 15.27% | 13.00% |
| MSCI ACWI ex USA NR USD | 8.61% | 24.33% | 1.60% | 5.78% | 4.79% |
| Russell 2000 Total Return Index | 9.56% | 34.07% | -0.05% | 8.50% | 7.94% |
| Bloomberg U.S. Aggregate Bond Index | 1.86% | 10.55% | -2.20% | -0.23% | 1.49% |

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 MSCI ACWI ex USA NR USD is an unmanaged measure that captures large and mid-cap representation across both Developed Markets (excluding US) and Emerging Markets countries.

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

Non-Standard Total Returns

For the Period Ending: October 31, 2024

Non-Standard Total Returns reflect, a one-time purchase payment of \$1,000 and would have generated the below returns taking into consideration annualized separate account expenses of 1.30% and all fund level expenses including 12b-1 fees, but not any other charges associated with the contract. These returns are measured from the inception date of the fund and predate the offering of the fund as an investment choice in the deferred variable annuity. Therefore, this is hypothetical performance. This hypothetical representation depicts how the variable annuity might have reacted had the fund been available in the variable annuity during the time period. These returns assume the contract was not surrendered. These returns do not reflect the charges for any optional contract features 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 |
| Asset Allocation | MML Conservative Allocation | 8/15/2008 | 1, 2 | 5.25% | 16.70% | -0.85% | 2.81% | 2.99% | * |
| | MML Balanced Allocation | 8/15/2008 | 1, 2 | 6.20% | 18.19% | -0.23% | 3.71% | 3.64% | * |
| | MML Moderate Allocation | 8/15/2008 | 1, 2 | 7.40% | 20.13% | 0.53% | 4.57% | 4.27% | * |
| | MML American Funds Core Allocation | 8/15/2008 | 1, * | 10.15% | 22.86% | 2.33% | 6.22% | 5.40% | * |
| | MML Growth Allocation | 8/15/2008 | 1, 2 | 9.02% | 22.74% | 1.59% | 6.24% | 5.42% | * |
| | MML Aggressive Allocation | 8/31/2007 | 1, 2 | 10.82% | 25.59% | 2.58% | 7.56% | 6.41% | * |
| | MML iShares® 60/40 Allocation | 2/11/2022 | 1, 2 | 8.74% | 21.68% | - | - | - | 3.16% |
| | MML iShares® 80/20 Allocation | 2/11/2022 | 1, 2 | 11.78% | 26.39% | - | - | - | 5.10% |
| Money Market | MML U.S. Government Money Market <i>7-day yield: 2.98%</i> | 12/16/1981 | 3 | 2.94% | 3.58% | 1.96% | 0.73% | 0.05% | * |
| Fixed Income | Fidelity® VIP Strategic Income | 12/23/2003 | | 9.71% | 13.31% | -1.61% | 0.51% | 1.12% | * |
| | Invesco V.I. Global Strategic Income | 5/3/1993 | 2 | 0.52% | 7.88% | -1.79% | -1.63% | -0.27 | * |
| | MML Dynamic Bond | 5/15/2015 | | -0.94% | 10.21% | -3.81% | -2.14% | - | -0.06% |
| | MML High Yield | 5/3/2010 | * | 7.20% | 16.29% | 1.46% | 3.18% | 3.32% | * |
| | MML Inflation-Protected and Income | 8/15/2008 | 2 | 2.44% | 7.85% | -2.92% | 0.79% | 0.82% | * |
| | MML Managed Bond | 8/15/2008 | 2 | 2.74% | 11.98% | -3.45% | -1.04% | 0.31% | * |
| | MML Short-Duration Bond | 5/3/2010 | * | 4.15% | 6.94% | -0.30% | 0.05% | 0.40% | * |
| | MML Total Return Bond | 5/1/2021 | 2 | 0.09% | 9.73% | -4.50% | -1.95% | -0.23% | * |
| | PIMCO Income | 4/29/2016 | | 3.77% | 9.26% | -2.26% | -1.34% | - | 0.10% |
| Balanced | MML Blend | 8/15/2008 | | 11.11% | 24.56% | 2.38% | 6.77% | 6.23% | * |
| Large Cap Value | American Funds IS® Washington Mutual Investors | 12/14/2012 | | 16.38% | 30.64% | 8.13% | 11.82% | 8.47% | * |
| | MML Equity | 8/15/2008 | 2, 4 | 18.74% | 33.00% | 6.82% | 10.57% | 7.79% | * |
| | MML Equity Income | 8/15/2008 | 2, 5 | 12.31% | 26.86% | 5.63% | 8.52% | 7.02% | * |
| | MML Fundamental Value | 8/9/2010 | * | 15.23% | 29.79% | 7.95% | 10.64% | 7.54% | * |
| | MML Income & Growth | 8/15/2008 | 2, 5 | 15.55% | 28.65% | 7.42% | 9.98% | 8.08% | * |
| Large Cap Blend | Columbia VP Contrarian Core | 4/30/2012 | | 26.08% | 44.27% | 10.48% | 15.67% | 11.73% | * |
| | Fidelity® VIP Contrafund® | 1/3/1995 | 2 | 27.33% | 43.47% | 7.40% | 15.91% | 11.64% | * |
| | MML Focused Equity | 12/8/2011 | * | 9.20% | 18.56% | 5.26% | 9.33% | 9.47% | * |
| | MML Fundamental Equity | 5/1/2012 | | 19.77% | 36.15% | 5.32% | 12.57% | 11.76% | * |
| | MML Sustainable Equity | 8/15/2008 | 2, 5 | 15.12% | 30.80% | 5.38% | 11.68% | 10.21% | * |
| Large Cap Growth | Macquarie VIP Growth Series | 7/13/1987 | *** | 18.45% | 35.11% | 6.08% | 15.30% | 13.49% | * |
| | MML American Funds Growth | 2/8/1984 | 6, * | 21.34% | 43.49% | 3.87% | 17.14% | 14.00% | * |
| | MML Blue Chip Growth | 8/15/2008 | | 26.83% | 45.01% | 2.75% | 12.51% | 12.24% | |
| | MML Large Cap Growth | 8/15/2008 | 2, 5 | 21.17% | 41.91% | 9.03% | 16.02% | 12.66% | * |
| Small / Mid Cap Value | MML Mid Cap Value | 8/15/2008 | 2, 5 | 7.94% | 21.57% | 4.05% | 7.09% | 6.85% | * |
| | MML Small Company Value | 2/27/2009 | * | 4.39% | 27.07% | 0.75% | 6.93% | 6.71% | * |
| | MML Small/Mid Cap Value | 8/15/2008 | 2, 5 | 7.13% | 30.00% | 2.00% | 8.36% | 6.49% | * |

| Asset Category | Separate Account Sub-account | Fund Inception Date | Endnotes | Cumulative YTD | Average Annual | | | | |
|----------------------|--|---------------------|----------|----------------|----------------|---------|---------|----------|-----------------|
| | | | | | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
| Small/Mid Cap Blend | MML Small Cap Equity | 8/15/2008 | 2 | 9.20% | 33.46% | 1.18% | 9.96% | 7.68% | * |
| Small/Mid Cap Growth | Invesco V.I. Discovery Mid Cap Growth | 8/15/1986 | 2 | 18.38% | 38.56% | -4.47% | 9.05% | 9.75% | * |
| | Janus Henderson VIT Enterprise | 12/31/1999 | | 12.93% | 43.51% | -1.11% | 3.57% | 4.06% | * |
| | MML Mid Cap Growth | 8/31/1998 | 2, 5 | 6.88% | 27.25% | -2.18% | 6.86% | 8.64% | * |
| | MML Small Cap Growth Equity | 8/15/2008 | 2 | 7.91% | 30.85% | -2.52% | 7.28% | 7.64% | * |
| International/Global | American Funds IS® Global Small Cap | 12/14/2012 | | 1.58% | 21.22% | 3.22% | 4.28% | 5.90% | * |
| | American Funds IS® New World | 12/14/2012 | | 8.30% | 21.16% | -2.51% | 4.80% | 4.16% | * |
| | Fidelity® VIP Overseas | 1/12/2000 | | 22.54% | 41.28% | 0.91% | 6.93% | 4.52% | * |
| | Invesco V.I. Global | 11/12/1990 | 2 | 12.51% | 32.51% | -0.41% | 8.98% | 7.92% | * |
| | Invesco Oppenheimer V.I. International Growth | 5/13/1992 | 2 | 0.59% | 20.68% | -5.34% | 3.72% | 3.12% | * |
| | Janus Henderson Overseas | 12/31/1999 | | 9.27% | 25.92% | 3.57% | 11.63% | 5.69% | * |
| | MML Foreign | 8/31/1999 | 2, 5 | 4.26% | 18.70% | 0.36% | 3.86% | 1.69% | * |
| | MML Global | 8/31/1999 | 2, 5 | 6.43% | 21.72% | -0.56% | 5.85% | 6.30% | * |
| | MML International Equity | 1/7/2014 | | 2.73% | 17.97% | 0.03% | 3.76% | 3.04% | * |
| | MML Strategic Emerging Markets | 8/27/2008 | * | 2.52% | 11.78% | -9.36% | -2.06% | -0.41% | * |
| Specialty | Fidelity® VIP Health Care | 4/11/2019 | 7 | 21.12% | 37.83% | 4.04% | 9.80% | 7.29% | * |
| | Fidelity® VIP Real Estate | 11/6/2002 | 7 | 1.79% | 21.09% | -5.06% | -0.12% | 0.42% | * |
| | Janus Henderson Global Technology and Innovation | 1/18/2000 | 7 | 25.43% | 48.58% | 5.09% | 17.35% | 17.32% | * |
| | Macquarie Asset Strategy Series | 5/1/1995 | *, ** | 11.38% | 23.34% | 1.97% | 6.05% | 3.77% | * |
| | MML Equity Rotation | 5/15/2015 | 7 | 1.70% | 19.20% | 1.86% | 10.65% | - | 9.42% |
| | MML Managed Volatility | 5/1/2000 | 2, 7, 8 | 11.13% | 17.36% | 2.61% | 4.71% | 3.60% | * |
| | Vest US Large Cap 10% Buffer Strategies VI | 8/25/2022 | ** | 13.13% | 24.77% | - | - | - | 23.05% |

Non-Standard Total Returns - With Full Surrender

For the Period Ending: October 31, 2024

Non-Standard Total Returns with Full Surrender reflect a one-time purchase payment of \$1,000 and would have generated the below returns taking into consideration separate account expenses of 1.30% and all fund level expenses including 12b-1 fees, but not any other charges associated with the contract. These returns are measured from the inception date of the fund and predate the offering of the fund as an investment choice in the deferred variable annuity. Therefore, this is hypothetical performance. This hypothetical representation depicts how the variable annuity might have reacted had the fund been available in the variable annuity during the time period. These returns also assumes the contract is surrendered in the year noted and the assessment of any applicable CDSC. These returns do not reflect the charges for any optional contract features or premium taxes, if any. Their inclusion would reduce the returns shown.

Number of Full Years from Application of Purchase Payment: 0, 1, 2, 3, 4, 5, 6, 7+

CDSC Percentage: 7%, 7%, 7%, 6%, 5%, 4%, 3%, 0%

| Asset Category | Separate Account Sub-account | Fund Inception Date | Endnotes | Cumulative YTD | Average Annual | | | | |
|-----------------------|---|---------------------|----------|----------------|----------------|---------|---------|----------|-----------------|
| | | | | | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
| Asset Allocation | MML Conservative Allocation | 8/15/2008 | 1, 2 | -1.82% | 9.63% | -3.01% | 2.02% | 2.92% | * |
| | MML Balanced Allocation | 8/15/2008 | 1, 2 | -0.87% | 11.12% | -2.37% | 2.94% | 3.58% | * |
| | MML Moderate Allocation | 8/15/2008 | 1, 2 | 0.33% | 13.06% | -1.57% | 3.82% | 4.21% | * |
| | MML American Funds Core Allocation | 8/15/2008 | 1, * | 3.08% | 15.80% | 0.30% | 5.52% | 5.34% | * |
| | MML Growth Allocation | 8/15/2008 | 1, 2 | 1.96% | 15.67% | -0.47% | 5.54% | 5.36% | * |
| | MML Aggressive Allocation | 8/31/2007 | 1, 2 | 3.75% | 18.53% | 0.56% | 6.89% | 6.35% | * |
| | MML iShares® 60/40 Allocation | 2/11/2022 | 1, 2 | 1.67% | 14.61% | - | - | - | 0.28% |
| | MML iShares® 80/20 Allocation | 2/11/2022 | 1, 2 | 4.71% | 19.32% | - | - | - | 1.99% |
| Money Market | MML U.S. Government Money Market <i>7-day yield: 2.98%</i> | 12/16/1981 | 3 | -4.12% | -3.49% | -0.07% | -0.13% | -0.03% | * |
| Fixed Income | Fidelity® VIP Strategic Income | 12/23/2003 | | 2.64% | 6.24% | -3.80% | -0.35% | 1.05% | * |
| | Invesco V.I. Global Strategic Income | 5/3/1993 | 2 | -6.54% | 0.81% | -3.99% | -2.58% | -0.34% | * |
| | MML Dynamic Bond | 5/15/2015 | | -8.01% | 3.14% | -6.10% | -3.11% | - | -0.22% |
| | MML High Yield | 5/3/2010 | * | 0.13% | 9.22% | -0.60% | 2.39% | 3.26% | * |
| | MML Inflation-Protected and Income | 8/15/2008 | 2 | -4.63% | 0.78% | -5.17% | -0.07% | 0.75% | * |
| | MML Managed Bond | 8/15/2008 | 2 | -4.33% | 4.91% | -5.73% | -1.97% | 0.24% | * |
| | MML Short-Duration Bond | 5/3/2010 | * | -2.92% | -0.13% | -2.43% | -0.83% | 0.34% | * |
| | MML Total Return Bond | 5/1/2021 | 2 | -6.98% | 2.67% | -6.82% | -2.91% | -0.30% | * |
| | PIMCO Income | 4/29/2016 | | -3.30% | 2.19% | -4.48% | -2.28% | - | 0.04% |
| Balanced | MML Blend | 8/15/2008 | | 4.04% | 17.49% | 0.35% | 6.08% | 6.17% | * |
| Large Cap Value | American Funds IS® Washington Mutual | 12/14/2012 | | 9.38% | 23.64% | 1.13% | 4.82% | 1.47% | * |
| | MML Equity | 8/15/2008 | 2, 4 | 11.67% | 25.93% | 4.96% | 9.96% | 7.73% | * |
| | MML Equity Income | 8/15/2008 | 2, 5 | 5.25% | 19.79% | 3.73% | 7.87% | 6.96% | * |
| | MML Fundamental Value | 8/9/2010 | * | 8.16% | 22.73% | 6.13% | 10.04% | 7.48% | * |
| | MML Income & Growth | 8/15/2008 | 2, 5 | 8.49% | 21.58% | 5.58% | 9.37% | 8.02% | * |
| Large Cap Blend | Columbia VP Contrarian Core | 4/30/2012 | | 19.01% | 37.20% | 8.74% | 15.16% | 11.68% | * |
| | Fidelity® VIP Contrafund® | 1/3/1995 | 2 | 20.26% | 36.40% | 5.55% | 15.41% | 11.59% | * |
| | MML Focused Equity | 12/8/2011 | * | 2.13% | 11.49% | 3.35% | 8.70% | 9.42% | * |
| | MML Fundamental Equity | 5/1/2012 | | 12.70% | 29.08% | 3.41% | 12.01% | 11.71% | * |
| | MML Sustainable Equity | 8/15/2008 | 2, 5 | 8.05% | 23.73% | 3.47% | 11.10% | 10.16% | * |
| Large Cap Growth | Macquarie VIP Growth Series | 7/13/1987 | *** | 11.45% | 28.11% | -0.92 | 8.30% | 6.49% | * |
| | MML American Funds Growth | 2/8/1984 | 6, * | 14.27% | 36.42% | 1.89% | 16.66% | 13.95% | * |
| | MML Blue Chip Growth | 8/15/2008 | | 19.76% | 37.94% | 0.73% | 11.95% | 12.19% | * |
| | MML Large Cap Growth | 8/15/2008 | 2, 5 | 14.10% | 34.84% | 7.23% | 15.52% | 12.61% | * |
| Small / Mid Cap Value | MML Mid Cap Value | 8/15/2008 | 2, 5 | 0.87% | 14.50% | 2.10% | 6.41% | 6.80% | * |
| | MML Small Company Value | 2/27/2009 | * | -2.68% | 20.00% | -1.35% | 6.24% | 6.65% | * |
| | MML Small/Mid Cap Value | 8/15/2008 | 2, 5 | 0.06% | 22.93% | -0.04% | 7.71% | 6.43% | * |

| Asset Category | Separate Account Sub-account | Fund Inception Date | Endnotes | Cumulative YTD | Average Annual | | | | |
|--------------------------------|--|---------------------|----------|----------------|----------------|---------|---------|----------|-----------------|
| | | | | | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
| Small/Mid Cap Blend | MML Small Cap Equity | 8/15/2008 | 2 | 2.13% | 26.39% | -0.90% | 9.35% | 7.63% | * |
| Small/Mid Cap Growth | Invesco V.I. Discovery Mid Cap Growth | 8/15/1986 | 2 | 11.31% | 31.49% | -6.81% | 8.42% | 9.70% | * |
| | Janus Henderson VIT Enterprise | 12/31/1999 | | 5.86% | 36.44% | -3.29% | 2.80% | 4.00% | * |
| | MML Mid Cap Growth | 8/31/1998 | 2, 5 | -0.19% | 20.18% | -4.41% | 6.18% | 8.59% | * |
| | MML Small Cap Growth Equity | 8/15/2008 | 2 | 0.84% | 23.78% | -4.76% | 6.61% | 7.59% | * |
| International/Global | American Funds IS® Global Small Cap | 12/14/2012 | | -5.42% | 14.22% | -3.78% | -2.72% | -1.10% | * |
| | American Funds IS® New World | 12/14/2012 | | 1.30% | 14.16% | -9.51% | -2.20% | 2.84% | * |
| | Fidelity® VIP Overseas | 1/12/2000 | | 15.47% | 34.21% | -1.19% | 6.24% | 4.45% | * |
| | Invesco V.I. Global | 11/12/1990 | 2 | 5.44% | 25.44% | -2.56% | 8.35% | 7.87% | * |
| | Invesco Oppenheimer V.I. International Growth | 5/13/1992 | 2 | -6.48% | 13.61% | -7.72% | 2.95% | 3.06% | * |
| | Janus Henderson Overseas | 12/31/1999 | | 2.20% | 18.86% | 1.59% | 11.05% | 5.62% | * |
| | MML Foreign | 8/31/1999 | 2, 5 | -2.81% | 11.63% | -1.75% | 3.09% | 1.62% | * |
| | MML Global | 8/31/1999 | 2, 5 | -0.64% | 14.65% | -2.71% | 5.14% | 6.25% | * |
| | MML International Equity | 1/7/2014 | | -4.34% | 10.90% | -2.10% | 2.99% | 2.98% | * |
| MML Strategic Emerging Markets | 8/27/2008 | * | -4.55% | 4.71% | -11.97% | -3.02% | -0.48% | * | |
| Specialty | Fidelity® VIP Health Care | 4/11/2019 | 7 | 14.05% | 30.76% | 2.07% | 9.19% | 7.24% | * |
| | Fidelity® VIP Real Estate | 11/6/2002 | 7 | -5.27% | 14.03% | -7.43% | -1.01% | 0.35% | * |
| | Janus Henderson Global Technology and Innovation | 1/18/2000 | 7 | 18.43% | 41.58% | -1.91% | 10.35% | 10.32% | * |
| | Macquarie Asset Strategy Series | 5/1/1995 | *, **** | 4.31% | 16.27% | -0.08% | 5.34% | 3.70% | * |
| | MML Equity Rotation | 5/15/2015 | 7 | -5.36% | 12.13% | -0.19% | 10.06% | - | 9.15% |
| | MML Managed Volatility | 5/1/2000 | 2, 7, 8 | 4.06% | 10.29% | 0.59% | 3.96% | 3.54% | * |
| | Vest US Large Cap 10% Buffer Strategies VI | 8/25/2022 | ** | 6.06% | 17.70% | - | - | - | 17.70% |

Standardized Total Returns

For the Period Ending: September 30, 2024

Standardized Total Returns assume a one-time purchase payment of \$1,000 at the beginning of the period shown. These returns are measured from the date the fund was available in the separate account and assume the surrender of the contract occurred in the year noted and the assessment of any applicable CDSC. These returns reflect 1.30% separate account expenses, all fund level expenses including 12b-1 fees, and all contract charges except the charges for any optional contract features or premium taxes, if any. Their inclusion would reduce the returns shown.

Number of Full Years from Application of Purchase Payment: 0, 1, 2, 3, 4, 5, 6, 7+

CDSC Percentage: 7%, 7%, 7%, 6%, 5%, 4%, 3%, 0%

| 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 |
| Asset Allocation | MML Conservative Allocation | 1/22/2008 | 1, 2 | 1.00% | 10.14% | -1.47% | 2.71% | 3.30% | 3.73% |
| | MML Balanced Allocation | 1/22/2008 | 1, 2 | 1.86% | 11.42% | -0.72% | 3.64% | 3.97% | 4.16% |
| | MML Moderate Allocation | 1/22/2008 | 1, 2 | 2.99% | 13.14% | 0.23% | 4.56% | 4.61% | 4.70% |
| | MML American Funds Core Allocation | 9/8/2008 | 1, * | 5.24% | 15.74% | 2.19% | 6.25% | 5.73% | 5.63% |
| | MML Growth Allocation | 1/22/2008 | 1, 2 | 4.61% | 15.61% | 1.59% | 6.32% | 5.77% | 5.53% |
| | MML Aggressive Allocation | 1/22/2008 | 1, 2 | 6.51% | 18.34% | 2.89% | 7.73% | 6.79% | 6.28% |
| | MML iShares® 60/40 Allocation | 2/11/2022 | 1, 2 | 4.13% | 14.20% | - | - | - | 2.27% |
| | MML iShares® 80/20 Allocation | 2/11/2022 | 1, 2 | 6.92% | 18.16% | - | - | - | 4.32% |
| Money Market | MML U.S. Government Money Market <i>7-day yield: 3.40%</i> | 5/1/2006 | 3 | -4.39% | -3.44% | -0.20% | -0.18% | -0.06% | -0.12% |
| Fixed Income | Fidelity® VIP Strategic Income | 2/22/2022 | | 3.97% | 6.01% | - | - | - | -0.77% |
| | Invesco V.I. Global Strategic Income | 8/31/1999 | 2 | -2.44% | 4.27% | -3.15% | -1.53% | 0.10% | 3.09% |
| | MML Dynamic Bond | 8/24/2015 | | -4.85% | 3.77% | -5.14% | -2.45% | - | 0.16% |
| | MML High Yield | 5/3/2010 | * | 0.75% | 7.84% | -0.50% | 2.48% | 3.29% | 4.86% |
| | MML Inflation-Protected and Income | 4/30/2003 | 2 | -2.60% | 2.12% | -4.20% | 0.35% | 1.01% | 1.43% |
| | MML Managed Bond | 9/30/1999 | 2 | -1.84% | 5.49% | -4.92% | -1.43% | 0.56% | 2.74% |
| | MML Short-Duration Bond | 5/3/2010 | * | -2.34% | 0.47% | -2.35% | -0.68% | 0.42% | 0.60% |
| | MML Total Return Bond | 5/1/2012 | 2 | -3.64% | 3.74% | -5.79% | -2.20% | 0.10% | 0.27% |
| | PIMCO Income | 2/22/2022 | | -1.37% | 2.24% | - | - | - | -3.13% |
| Balanced | MML Blend | 4/30/1999 | | 5.81% | 16.50% | 2.29% | 6.76% | 6.52% | 4.48% |
| Large Cap Value | American Funds IS® Washington Mutual Investors | 4/29/2024 | | - | - | - | - | - | 3.49% |
| | MML Equity | 4/30/1999 | 2, 4 | 11.63% | 21.25% | 6.98% | 10.20% | 7.85% | 4.22% |
| | MML Equity Income | 5/31/2002 | 2, 5 | 6.71% | 18.08% | 5.72% | 8.24% | 7.19% | 5.99% |
| | MML Fundamental Value | 5/1/2012 | * | 8.29% | 18.00% | 7.87% | 10.38% | 7.67% | 8.95% |
| | MML Income & Growth | 8/31/1998 | 2, 5 | 9.68% | 20.45% | 7.85% | 9.81% | 8.35% | 5.89% |
| Large Cap Blend | Columbia VP Contrarian Core | 4/29/2024 | | - | - | - | - | - | 11.32% |
| | Fidelity® VIP Contrafund® | 8/31/1998 | 2 | 21.06% | 35.07% | 8.59% | 16.25% | 11.89% | 9.08% |
| | MML Focused Equity | 5/1/2012 | * | 6.56% | 17.15% | 6.73% | 9.42% | 9.95% | 11.34% |
| | MML Fundamental Equity | 5/1/2012 | | 13.62% | 26.20% | 6.09% | 12.59% | 12.04% | 12.03% |
| | MML Sustainable Equity | 4/30/2003 | 2, 5 | 10.64% | 24.15% | 6.46% | 11.69% | 10.58% | 6.99% |
| Large Cap Growth | Macquarie VIP Growth Series | 4/29/2024 | *** | - | - | - | - | - | 3.09% |
| | MML American Funds Growth | 9/8/2008 | 6, * | 14.40% | 31.59% | 5.03% | 17.69% | 14.15% | 11.55% |
| | MML Blue Chip Growth | 5/31/2002 | | 19.76% | 36.88% | 2.59% | 12.34% | 12.54% | 9.98% |
| | MML Large Cap Growth | 8/31/1999 | 2, 5 | 14.24% | 30.86% | 9.37% | 15.93% | 12.92% | 9.01% |
| Small / Mid Cap Value | MML Mid Cap Value | 8/31/1999 | 2, 5 | 3.31% | 14.25% | 4.20% | 7.01% | 7.35% | 7.46% |
| | MML Small Company Value | 5/1/2009 | * | -1.02% | 13.90% | 0.95% | 6.88% | 7.47% | 9.63% |
| | MML Small/Mid Cap Value | 4/30/2003 | 2, 5 | 1.99% | 17.70% | 1.91% | 8.19% | 6.91% | 5.16% |

| 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 |
| Small/Mid Cap Blend | MML Small Cap Equity | 8/31/1998 | 2 | 4.51% | 18.73% | 1.85% | 10.19% | 8.68% | 7.11% |
| Small/Mid Cap Growth | Invesco V.I. Discovery Mid Cap Growth | 8/31/1999 | 2 | 10.97% | 23.31% | -4.15% | 8.67% | 9.93% | 4.82% |
| | Janus Henderson VIT Enterprise | 4/29/2024 | | - | - | - | - | - | 3.55% |
| | MML Mid Cap Growth | 8/31/1998 | 2, 5 | 1.79% | 14.42% | -2.18% | 6.58% | 9.26% | 8.44% |
| | MML Small Cap Growth Equity | 5/3/1999 | 2 | 3.35% | 17.14% | -2.48% | 7.59% | 8.51% | 0.92% |
| International/Global | American Funds IS® Global Small Cap | 4/29/2024 | | - | - | - | - | - | -0.92% |
| | American Funds IS® New World | 4/29/2024 | | - | - | - | - | - | -2.46% |
| | Fidelity® VIP Overseas | 1/1/2012 | | 23.73% | 38.74% | 2.74% | 8.28% | 5.08% | 6.39% |
| | Invesco V.I. Global | 8/31/1999 | 2 | 8.97% | 25.55% | 0.01% | 10.15% | 8.21% | 7.21% |
| | Invesco Oppenheimer V.I. International Growth | 8/31/1998 | 2 | 1.21% | 16.87% | -4.05% | 5.44% | 3.72% | 5.13% |
| | Janus Henderson Overseas | 4/29/2024 | | - | - | - | - | - | -0.68% |
| | MML Foreign | 8/31/1999 | 2, 5 | 3.54% | 14.47% | 1.39% | 5.16% | 1.97% | 1.65% |
| | MML Global | 8/31/1999 | 2, 5 | 3.18% | 14.69% | -0.04% | 6.19% | 6.76% | 4.82% |
| | MML International Equity | 5/1/2014 | | 1.90% | 13.42% | 1.16% | 5.38% | 3.53% | 2.55% |
| | MML Strategic Emerging Markets | 9/8/2008 | * | -0.69% | 6.68% | -9.88% | -1.31% | 0.07% | 0.85% |
| | Fidelity® VIP Health Care | 2/22/2022 | 7 | 18.86% | 28.65% | - | - | - | 12.10% |
| | Fidelity® VIP Real Estate | 2/22/2022 | 7 | -1.58% | 14.50% | - | - | - | -3.63% |
| | Janus Henderson Global Technology and Innovation | 2/22/2022 | 7 | 20.64% | 44.36% | - | - | - | 26.01% |
| | Macquarie Asset Strategy Series | 10/31/2012 | *, * * * * | 6.36% | 16.40% | 1.77% | 6.21% | 4.01% | 5.08% |
| | MML Equity Rotation | 5/15/2015 | 7 | -4.35% | 7.95% | 2.08% | 10.65% | - | 10.22% |
| | MML Managed Volatility | 5/1/2000 | 0 | 4.72% | 10.00% | 1.87% | 4.32% | 3.57% | 2.57% |
| | Vest US Large Cap 10% Buffer Strategies VI | 1/0/1900 | 0 | 5.05% | 14.47% | - | - | - | 17.95% |

The MassMutual Envision variable annuity contract contains eight MML Asset Allocation Funds ("funds of funds") that are designed to help investors meet their financial goals. These funds consist of certain, but not all, underlying funds available within the MassMutual Envision variable annuity contract. The percentages may vary from the target allocation, which can be found in the corresponding fund prospectus. The percentages below are rounded so they may not total 100%.

| Asset Class Underlying Funds | MML Conservative Allocation Fund | MML Balanced Allocation Fund | MML Moderate Allocation Fund | MML American Funds Core Allocation Fund | MML Growth Allocation Fund | MML Aggressive Allocation Fund |
|---|--|------------------------------------|------------------------------------|---|----------------------------------|--------------------------------------|
| Fixed Income | | | | | | |
| Invesco V.I. Global Strategic Income Fund | 2% | 2% | 1% | | 1% | 0% |
| MML Dynamic Bond Fund (Western Asset Mgmt) | 12% | 10% | 8% | | 5% | 2% |
| MML High Yield Fund (Barings) | 0% | 0% | 0% | | 0% | 0% |
| MML Inflation-Protected and Income Fund (Barings) | 2% | 2% | 2% | | 1% | 0% |
| MML Managed Bond Fund (Barings) | 19% | 16% | 13% | | 8% | 3% |
| MML Short-Duration Bond Fund (Barings) | 5% | 4% | 4% | | 2% | 1% |
| MML Total Return Bond Fund (MetWest) | 17% | 14% | 11% | | 7% | 3% |
| American Funds Insurance Series® – Bond | | | | 35% | | |
| PIMCO Long-Term U.S. Government | 1% | 1% | 1% | | 1% | 1% |
| Total Fixed Income | 60% | 50% | 40% | 35% | 25% | 10% |
| Large Cap Equity | | | | | | |
| Invesco V.I. Main Street Fund | | | | | | |
| MML Blue Chip Growth Fund (T. Rowe Price) | 4% | 5% | 6% | | 8% | 9% |
| MML Equity Income Fund (T. Rowe Price) | 3% | 4% | 5% | | 6% | 7% |
| MML Focused Equity Fund (Wellington) | 6% | 7% | 9% | | 11% | 13% |
| MML Fundamental Growth Fund (Invesco) | 3% | 3% | 4% | | 5% | 6% |
| MML Fundamental Value Fund (Boston Partners) | 3% | 4% | 5% | | 6% | 8% |
| MML Income & Growth Fund (Barrow Hanley) | 1% | 2% | 2% | | 3% | 3% |
| MML Large Cap Growth Fund (Loomis Sayles) | 3% | 4% | 5% | | 6% | 7% |
| American Funds Insurance Series® – Blue Chip Income | | | | 27% | | |
| American Funds Insurance Series® – Growth-Income | | | | 27% | | |
| | 24% | 30% | 36% | 55% | 45% | 54% |
| Mid Cap Equity | | | | | | |
| Invesco V.I. Discovery Mid Cap Growth Fund | | | | | | |
| MML Mid Cap Growth Fund (T. Rowe Price/Wellington) | 3% | 3% | 4% | | 5% | 5% |
| MML Mid Cap Value Fund (American Century) | 2% | 2% | 3% | | 3% | 4% |
| | 4% | 5% | 6% | | 8% | 10% |
| Small Cap Equity | | | | | | |
| MML Small Cap Growth Equity Fund (Wellington) | 1% | 1% | 1% | | 1% | 1% |
| MML Small Company Value Fund (American Century) | 1% | 1% | 2% | | 2% | 2% |
| MML Small/Mid Cap Value Fund (AllianceBernstein) | 1% | 1% | 1% | | 1% | 1% |
| | 2% | 3% | 3% | | 4% | 5% |
| International/Global | | | | | | |
| Invesco V.I. Global Fund | | | | | | |
| Invesco Oppenheimer V.I. International Growth Fund | | | | | | |
| MML Foreign Fund (Thompson, Siegel & Walmsley) | 2% | 2% | 3% | | 3% | 4% |
| MML Global Fund (MFS®) | 2% | 3% | 3% | | 4% | 4% |
| MML International Equity Fund (Harris/MFS) | 5% | 6% | 8% | | 10% | 12% |
| MML Strategic Emerging Markets Fund (Invesco) | 1% | 1% | 1% | | 2% | 2% |
| American Funds Insurance Series® – International | | | | 10% | | |
| | 10% | 12% | 14% | 10% | 18% | 22% |
| Total Equity | 40% | 50% | 60% | 65% | 75% | 90% |
| Total Allocation | 100% | 100% | 100% | 100% | 100% | 100% |

| Asset Class | MML iShares® 60/40 | MML iShares® 80/20 |
|--|--------------------------|--------------------------|
| Underlying Funds | | |
| Fixed Income | | |
| iShares® 1-5 Year Investment Grade Corporate Bond | 5% | 5% |
| iShares® 20+ Year Treasury Bond ETF | 2% | 1% |
| iShares® Broad USD High Yield Corporate Bond ETF | 1% | 1% |
| iShares® Core International Aggregate Bond ETF | 1% | 1% |
| iShares® Core U.S. Aggregate Bond ETF | 31% | 12% |
| Total Fixed Income | 40% | 20% |
| Large Cap Equity | | |
| iShares® Core Dividend Growth ETF | 3% | 3% |
| iShares® Core S&P 500 ETF | 9% | 8% |
| iShares® Core S&P Total US Stock Market ETF | 31% | 46% |
| | 44% | 57% |
| Mid Cap Equity | | |
| iShares® Core S&P Mid-Cap ETF | 2% | 4% |
| | 2% | 4% |
| International/Global | | |
| iShares® Core MSCI Emerging Markets ETF | 2% | 5% |
| iShares® Core MSCI International Developed Markets | 13% | 14% |
| | 15% | 19% |
| Total Equity | 60% | 80% |
| Total Allocation | 100% | 100% |

Credited Fixed Account Interest Rates Effective October 31, 2024

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.

| DCA Fixed Account | Previous Rate | New Rate | Change |
|--|---------------|--------------|--------|
| <i>Rates for all states, where available¹</i> | | | |
| 6 Month DCA | 3.00% | 3.00% | 0.00% |
| 6 Month DCA Effective Yield | 0.62% | 0.62% | 0.00% |
| 12 Month DCA | 3.00% | 3.00% | 0.00% |
| 12 Month DCA Effective Yield | 1.36% | 1.36% | 0.00% |

Current 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.

¹ Current rates on DCA Fixed Accounts are subject to change monthly. The 6-Month DCA Fixed Account rate is guaranteed for 6 months. The 12-Month DCA Fixed Account rate is guaranteed for 12 months. These rates are credited to the respective DCA Fixed Accounts and do not reflect the performance of any investment choices. Certain restrictions apply. The stated interest rate is not earned on the entire purchase payment amount due to regular transfers to the variable investment choices that will affect the daily accrual, lowering the effective yield. Additionally, any subsequent purchase payments applied to an existing DCA Fixed Account term will participate in only the remaining portion of that DCA term at the current DCA Fixed Account Rate, lowering the effective yield further on the subsequent purchase payments. The effective yield is based on your initial deposit after the completion of your DCA Fixed Account transfers. Dollar Cost Averaging does not assure a profit or protect against loss in a declining market, and involves continuous investment in securities regardless of fluctuating prices. An investor should consider their ability to continue investing through periods of low price levels. See the appropriate product prospectus for complete details.

Endnotes

- 1 Funds offered in a fund-of-funds structure may have higher expenses than a direct investment in the underlying funds because a fund-of-funds bears its own expenses and indirectly bears its proportionate share of expenses of the underlying funds in which it invests.
 - 2 The fund established a new class of shares, which is available with this contract, after it began its initial investment operations. The performance for the period prior to offering the new class shows the historical returns for the original class of shares, which were not subject to a 12b-1 fee. The performance shown from the inception date of the class available with this contract includes the fees and expenses of that share class, including a 12b-1 fee. A 12b-1 fee reduces a fund's performance.
 - 3 **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.

The MML U.S. Government Money Market Fund does not have a 12b-1 fee.
 - 4 Although the MML Equity Fund commenced operations on 9/15/1971, the information necessary to calculate returns is available only for 1974 and later years.
 - 5 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.
 - 6 The underlying MML Fund does not buy investment securities directly, but instead invests in shares of a corresponding American Funds® "master" fund, which in turn purchases investment securities. The performance of the MML Fund will be lower than the American Funds® master fund because it represents an investment in the American Funds® master fund reduced by the MML Fund's fees. The performance for the period prior to inception of the MML Fund on August 15, 2008, shows the historical returns for the American Funds® master fund adjusted to reflect the MML Fund's fees at its inception (0.70%).
 - 7 Specialty funds are an all-encompassing category that consists of funds that forgo broad diversification to concentrate on a certain segment of the economy or a specific targeted strategy. For example, sector funds are targeted strategy funds aimed at specific sectors of the economy, such as financial, technology, healthcare, and so on. Sector funds can, therefore, be more volatile than a more diversified equity fund since the stocks in a given sector tend to be highly correlated with each other.
 - 8 Formerly known as MML Large Cap Value Fund. The Fund's name, investment objective, and investment strategy changed on April 29, 2013. The performance results prior to April 29, 2013 would not necessarily have been achieved had the Fund's current strategy been in effect during that period.
- * Performance reflects share classes with 12(b)-1 fees from inception which reduces the fund's performance. Please see the fund prospectus for more information about this fee.
- ** Formerly known as Cboe Vest US Large Cap 10% Buffer Strategies VI.
- *** Formerly known as Delaware IVY VIP Growth.
- **** Formerly known as Delaware IVY VIP Asset Strategy..

This product and/or certain features may not be available in all states.

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Variable annuities offered through registered representatives of MML Investors Services, LLC, Springfield, MA 01111-0001 or a broker-dealer that has a selling agreement with MML Strategic Distributors, LLC, Springfield, MA 01111-0001.

Principal Underwriters: MML Investors Services, LLC, and MML Strategic Distributors, LLC, subsidiaries of Massachusetts Mutual Life Insurance Company, Springfield, MA 01111-0001.

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