

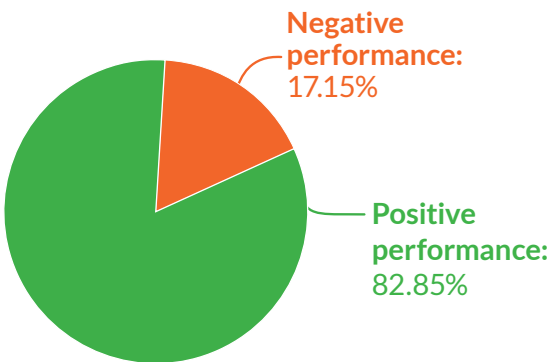
S&P 500 3-Year Index Analysis

With a registered index-linked annuity from MassMutual Ascend Life Insurance Company, you can allocate funds to 3-year term indexed strategies that earn returns based on the S&P 500 Index. This index includes stocks issued by 500 of the top companies in leading industries in the U.S. economy. Let’s take a closer look.

S&P 500 returns using rolling periods

The data below uses 3-year rolling returns¹ of the S&P 500 price return index (SPX) from December 31, 2004 through December 31, 2024, for a total of 4,437² observations.

Positive Performance		Negative Performance		Average Performance		
Maximum Return ³	Num of Gains	Minimum Return ⁴	Num of Losses	Average Return	Average Gain	Average Loss
102.61%	3,676 (82.85%)	-46.97%	761 (17.15%)	27.56%	37.54%	-20.62%



Key insights

- In over 82% of the 3-year periods over the last twenty years, the S&P 500 experienced positive performance.
- When the S&P 500 experienced positive performance, the average gain was over 37%.
- When the S&P 500 experienced negative performance, the average loss was -20.62%.

Applying downside protection factors to a negative return

S&P 500 3-year term indexed strategies offer two types of downside protection factors – a 10% buffer and a 20% buffer. Let’s take a look at how these two types of downside protection work, and how they would have protected against the average 3-year loss of -20.62%:

Downside protection factor	10% buffer	20% buffer
How it works	Protects against the first 10% of index losses	Protects against the first 20% of index losses
How it protects against -20.62% average loss	Because the -20.62% loss exceeded the 10% buffer, the indexed strategy would have decreased by the remaining 10.62%	Because the -20.62% loss exceeded the 20% buffer, the indexed strategy would have decreased by the remaining 0.62%

MassMutual Ascend offers several registered index-linked annuities, which have varying types of upside potential and partial downside protection. These solutions also offer benefits such as tax deferral and guaranteed lifetime income. Talk with your financial professional about how a registered index-linked annuity can fit into your portfolio and help you reach your goals.

MassMutual Ascend first offered annuities with 3-year S&P 500 indexed strategies in May 2024.

¹3-year rolling returns refers to every 3-year period that started on a business day after December 30, 2004 and ended before January 1, 2025.

²Zero flat 3-year periods, in which the S&P 500 return was 0%, are included in the number of total observations.

³Maximum return: 3-year period ending 3/9/2012

⁴Minimum return: 3-year period ending 3/5/2009

The information shown is reflective of point-to-point returns for a full three-year period. A withdrawal during a three-year term would be subject to an alternate valuation formula.

MassMutual Ascend's registered index-linked annuities can only be sold through a Broker/Dealer that is contracted with MassMutual AscendSM. This material must be preceded or accompanied by a prospectus. To obtain a copy of the prospectus, please visit MassMutualAscend.com/RILArates.

Annuities are long-term investments and may not be suitable for all investors. Withdrawals from an annuity contract may have tax consequences.

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