

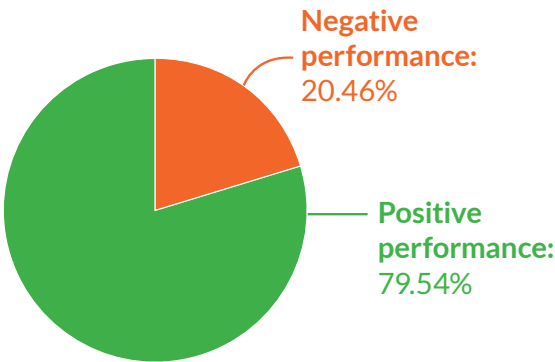
# Russell 2000 3-Year Index Analysis

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 Russell 2000 Index. This index measures the performance of about 2,000 small-cap U.S. equities. Let’s take a closer look.

## Russell 2000 returns using rolling periods

The data below uses 3-year rolling returns<sup>1</sup> of the Russell 2000 Index from December 31, 2004 through December 31, 2024, for a total of 4,437<sup>2</sup> observations.

| Positive Performance        |                   | Negative Performance        |                 | Average Performance |              |              |
|-----------------------------|-------------------|-----------------------------|-----------------|---------------------|--------------|--------------|
| Maximum Return <sup>3</sup> | Num of Gains      | Minimum Return <sup>4</sup> | Num of Losses   | Average Return      | Average Gain | Average Loss |
| 138.02%                     | 3,529<br>(79.54%) | -52.68%                     | 908<br>(20.46%) | 22.30%              | 32.58%       | -17.65%      |



### Key insights

- In over 79% of the 3-year periods over the last twenty years, the Russell 2000 experienced positive performance.
- When the Russell 2000 experienced positive performance, the average gain was over 32%.
- When the Russell 2000 experienced negative performance, the average loss was only -17.65%.

## Applying downside protection factors to a negative return

Russell 2000 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 -17.65%.

| 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 -17.65% average loss | Because the -17.65% loss exceeded the 10% buffer, the indexed strategy would have decreased by the remaining 7.65% | Because the -17.65% loss fell within the 20% buffer, the indexed strategy would have been completely protected |

**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 Russell 2000 indexed strategies in May 2024.

<sup>1</sup>3-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.

<sup>2</sup>Zero flat 3-year periods, in which the Russell 2000 return was 0%, are included in the number of total observations.

<sup>3</sup>Maximum return: 3-year period ending 3/9/2012

<sup>4</sup>Minimum 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 Ascend<sup>SM</sup>. This material must be preceded or accompanied by a prospectus. To obtain a copy of the prospectus, please visit [MassMutualAscend.com/RILArates](https://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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