

S&P 500 Risk Control 10% 1-Year Index Analysis

With a fixed-indexed annuity from MassMutual Ascend Life Insurance Company, you can allocate funds to 1-year term indexed strategies that credit interest based on the S&P 500 Risk Control 10% Index. This index provides access to the S&P 500 Index while limiting its risk exposure. Let's take a closer look.

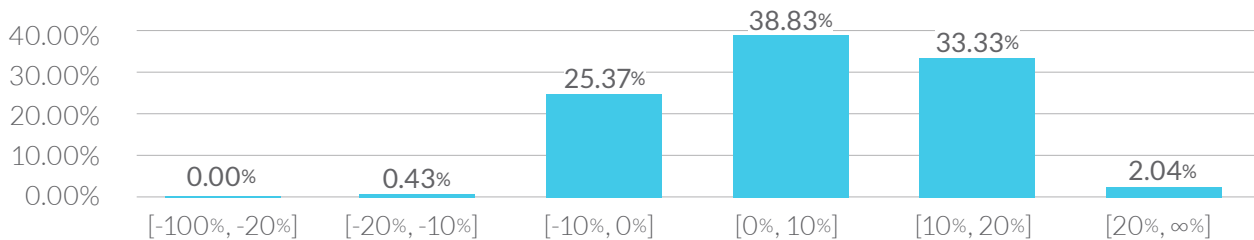
S&P 500 Risk Control 10% returns using rolling periods

The data below uses 1-year rolling returns¹ of the S&P 500 Risk Control 10% Index from December 31, 2013 through December 31, 2023, for a total of 2,349² observations.

Average Performance			Positive Performance		Negative Performance	
Average Return	Average Gain	Average Loss	Maximum Return ³	Num of Gains	Minimum Return ⁴	Num of Losses
5.91%	9.64%	-4.69%	25.32%	1,737 (74%)	-10.59%	606 (26%)

S&P 500 Risk Control 10% return distribution

Using the same data set and assumptions, the return distribution graph below illustrates how frequently the annualized returns fell into specific ranges. The table below the graph shows the average return by range.



Return Range	[-100%, -20%]	[-20%, -10%]	[-10%, 0%]	[0%, 10%]	[10%, 20%]	[20%, ∞%]
Average S&P 500 Risk Control 10% Return by Range	N/A	-10.32%	-4.60%	4.67%	14.60%	21.97%

¹ 1-year rolling returns refers to every 1-year period that started on a business day after December 30, 2013 and ended before January 1, 2024.

² Six flat years, in which the S&P 500 Risk Control 10% return was 0%, is included in the number of total observations.

³ Maximum return: 1-year period ending 1/23/2018

⁴ Minimum return: 1-year period ending 11/9/2022

MassMutual Ascend offers several fixed-indexed annuities, which offer upside potential and complete downside protection. Annuities also offer benefits such as tax deferral and guaranteed lifetime income. Talk with your financial professional about how an annuity can fit into your portfolio and help you reach your goals.

The S&P 500 Risk Control 10% Index refers to the S&P 500 Average Daily Risk Control 10% USD Price Return Index. The launch date of this index was April 4, 2013. Indexed strategies are based on the price change of the index during the term. Returns are limited by a cap or participation rate.

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

The S&P 500 Average Daily Risk Control 10% Price Return Index is a product of S&P Dow Jones Indices LLC or its affiliates ("SPDJI") and has been licensed for use by MassMutual Ascend Life Insurance Company. Standard & Poor's®, S&P® and S&P 500 Average Daily Risk Control 10%™ are trademarks of Standard & Poor's Financial Services LLC ("S&P"); Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"); and these trademarks have been licensed for use by SPDJI and sublicensed for certain purposes by MassMutual Ascend. MassMutual Ascend's products are not sponsored, endorsed, sold or promoted by SPDJI, Dow Jones, S&P, or their respective affiliates, and none of such parties makes any representation regarding the advisability of investing in such products nor do they have any liability for any errors, omissions, or interruptions of the S&P 500 Average Daily Risk Control 10% Price Return Index.

Annuities issued by MassMutual Ascend Life Insurance CompanySM(Cincinnati, Ohio), a wholly owned subsidiary of Massachusetts Mutual Life Insurance Company (MassMutual) under contract forms ICC20-P1144420NW, ICC20-P1144420NW-NoMVA, ICC20-P1144520NW, ICC20-P1144520NW-NoMVA, ICC20-P1474420NW, ICC20-P1474420NW-NoMVA, ICC21-P1152021NW, ICC21-P1152121NW, ICC21-P1476721NW, P1074514ID, P1080010ID, P1110416ID, P1112916ID, P1113516ID, P1126818ID, P1129918ID, P1129918ID-NoMVA, P1134618ID, P1134618ID-NoMVA, P1135619ID, P1140119ID, P1140219ID, P1146620ID, P1470017ID, P1470218ID and P1471718ID. All guarantees subject to the claims-paying ability of MassMutual AscendSM.

This content does not apply in the state of New York.

NOT A BANK OR CREDIT UNION DEPOSIT OR OBLIGATION • NOT FDIC OR NCUA-INSURED • NOT INSURED BY ANY FEDERAL GOVERNMENT AGENCY • MAY LOSE VALUE • NOT GUARANTEED BY ANY BANK OR CREDIT UNION

∴ MassMutual Ascend