

RILA indexed strategy options and index analysis

A comprehensive guide to indexed strategies available on MassMutual Ascend Life Insurance Company's registered index-linked annuities, with index analysis using rolling returns



With a registered index-linked annuity (RILA) from MassMutual Ascend, you aren't investing your money directly in the market. Instead, you allocate funds to indexed strategies, which provide market-linked growth potential and partial downside protection.

Indexed strategies are linked to a variety of indexes and ETFs, and offer several types of upside potential and downside protection factors. Here's a breakdown of the different components that make up our indexed strategies.

Each indexed strategy consists of the following four components

INDEX OR ETF	TERM LENGTH	DOWNSIDE PROTECTION FACTOR	UPSIDE POTENTIAL FACTOR
S&P 500 Index	1-Year	0% Floor	Сар
Russell 2000 Index	2-Year	-10% Floor	Upside Participation Rate
iShares MSCI EAFE ETF	3-Year	50% Downside Participation Rate	Performance Trigger
iShares U.S. Real Estate ETF	6-Year	10% Buffer	Dual Performance Trigger
SPDR Gold Shares ETF		20% Buffer	
First Trust Barclays Edge Index			

INDEXES AND ETFS

available on MassMutual Ascend's RILA strategies

S&P 500 Index	One of the most commonly followed equity indices, this index tracks stocks issued by 500 of the top companies in leading industries of the U.S. economy.
Russell 2000 Index	Seeks to provide a comprehensive, unbiased barometer of the small cap segment of the U.S. equity market by measuring the performance of about 2,000 small-cap U.S. equities from various industries.
iShares MSCI EAFE ETF	Seeks to track the investment results of an index composed of developed market equities, including those in Europe, Australia, Asia and the Far East, but excluding the U.S. and Canada.
iShares U.S. Real Estate ETF	Seeks to track the performance of the Dow Jones U.S. Real Estate Index, which is composed primarily of U.S. equities in the real estate sector and real estate investment trusts (REITs).
SPDR Gold Shares ETF	Designed to reflect the market value of gold bullion.
First Trust Barclays Edge Index	Seeks to provide equity and fixed income exposure through a blend of the Capital Strength Index™ and Value Line Dividend Index™ and Barclays' US 2-year Treasury Futures, 5-year Treasury Futures and 10-year Note Futures Indexes while aiming to control risk by maintaining a volatility target at or below 7%. Since the index is on an excess return basis (i.e., it returns the index performance in excess of risk-free rates), the risk free return is deducted from the equity underliers. The risk free rate used in this calculation is the U.S. Fed Funds Rate published by the Federal Reserve of New York (ticker: FEDL01) for each day divided by 360. No such adjustment is needed to the US Treasury futures indexes as these securities returns are naturally on an excess return basis.

TERM LENGTHS

available on MassMutual Ascend's RILA strategies

1-Year	Interest is credited at the end of a 1-year period
2-Year	Interest is credited at the end of a 2-year period
3-Year	Interest is credited at the end of a 3-year period
6-Year	Interest is credited at the end of a 6-year period

Strategies linked to the S&P 500® Index (SPX), the Russell 2000 Index (RTY), the iShares MSCI EAFE ETF (EFA), the iShares U.S. Real Estate ETF (IYR), and the SPDR Gold Shares ETF (GLD) provide returns based, in part, on the change in the price of the index or ETF. The price change does not include dividends that might be paid on the underlying investments of the index or ETF.

Strategies linked to the First Trust Barclays Edge Index (FTEDGE7) provide returns based, in part, on the change in net asset value of the underlying investments of the index. The net asset value change includes dividends that might be paid on the underlying investments of the index. The launch date for this index was 4/14/2023.

Not all strategies available with all indexes and ETFs.

3-year term strategies only available for terms that start in the first four contract years. 6-year term strategies only available for terms that start in the first contract year.

DOWNSIDE PROTECTION FACTORS

available on MassMutual Ascend's RILA strategies

0% Floor	Provides complete protection against index losses at the end of each term. Regardless of negative index change, strategy value will not decrease.
-10% Floor	Provides protection against index losses in excess of -10% each term. If the negative index change is between 0% and -10%, the strategy value will decrease by the negative index change. If the negative index change is greater than -10%, the strategy value decrease is limited to -10%.
50% Downside Participation Rate	Provides protection against half of index losses each term. If the index change is negative at the end of a term, the strategy value decreases, limited by the 50% downside participation rate.
10% Buffer	Provides protection against the first 10% of index losses each term. If the negative index change is between 0 and -10%, the strategy value will not decrease. If the negative index change is greater than -10%, the strategy value will decrease by the remaining loss in excess of -10%.
20% Buffer	Provides protection against the first 20% of index losses each term. If the negative index change is between 0% and -20%, the strategy value will not decrease. If the negative index change is greater than -20%, the strategy value will decrease by the remaining loss in excess of -20%.

UPSIDE POTENTIAL FACTORS

available on MassMutual Ascend's RILA strategies

Сар	Offers earning potential up to a cap that is set for each term. If the index change is positive at the end of a term, the strategy value grows, up to the cap.
Upside Participation Rate	Offers earning potential limited by an upside participation rate that is set for each term. If the index change is positive at the end of a term, the index change is multiplied by the upside participation rate to determine the strategy value increase.
Performance Trigger	Offers earning potential up to the trigger rate that is set for each term. The trigger rate is credited when index performance is positive or level.
Dual Performance Trigger	Offers earning potential up to the trigger rate that is set for each term. The trigger rate is credited when index performance is positive, level, or when the index loss does not exceed the buffer, which is 10% on all dual performance trigger strategies.

Not all combinations of indexes/ETFs, term lengths, downside protection factors and upside potential factors are available. Strategy availability varies by registered index-linked annuity product, by state and by distribution.

Some registered index-linked annuities have a fee that is deducted from each indexed strategy on a daily basis. The fee for any given day is calculated as a percentage of and is subtracted from the then remaining investment base of an indexed strategy. The above Downside Protection Factors section only describes how strategy performance is affected by the downside limits, without taking fees into account.

To learn more about the specific RILAs available to you and their various features, including fees, talk with your financial professional.

INDEX ANALYSIS USING ROLLING RETURNS

The data in the following tables uses 1-year rolling returns¹ of the applicable index or ETF to highlight average performance, positive performance, negative performance and return distribution.

	1-Year Term	1-Year Term	1-Year Term
	S&P 500 Index (SPX) 12/31/2004 - 12/31/2024	Russell 2000 12/31/2004 - 12/31/2024	iShares MSCI EAFE ETF 12/31/2004 - 12/31/2024
	4,958 observations ²	4,958 observations ⁵	4,958 observations ⁸
Average Performanc	e		
Average Return	9.59%	8.54%	3.70%
Average Gain	15.80%	19.21%	15.58%
Average Loss	-14.33%	-13.55%	-13.33%
Positive Performance	e	_	
Maximum Return	74.77%³	128.78%6	73.02%9
Number of Gains	3,937 (79%)	3,344 (67%)	2,920 (59%)
Negative Performan	ce		
Minimum Return	-48.82% ⁴	-48.89% ⁷	-55.85% ¹⁰
Number of Losses	1,020 (21%)	1,613 (33%)	2,034 (41%)
Return Distribution			
-100% to -20%	5.10%	7.52%	7.24%
-20% to -10%	4.90%	9.72%	12.87%
-10% to 0%	10.57%	15.29%	20.92%
0% to 10%	22.69%	19.73%	19.22%
10% to 20%	35.03%	22.99%	23.52%
20% to ∞	21.70%	24.75%	16.24%
	² One flat year, in which the return was 0%, included in observations	⁵ Zero flat years, in which the return was 0% included in observations	⁸ Four flat years, in which the return was 0%, included in observations
	³ Max return: 1-yr period ending 3/23/2021	⁶ Max return: 1-yr period ending 3/18/2021	⁹ Max return: 1-yr period ending 3/9/2010
	⁴ Min return: 1-yr period ending 3/5/2009	⁷ Min return: 1-yr period ending 3/5/2009	¹⁰ Min return: 1-yr period ending 11/20/2008

	1-Year Term	1-Year Term
	iShares U.S. Real Estate ETF 12/31/2004 – 12/31/2024 4,958 observations ¹¹	SPDR Gold Shares ETF 12/31/2004 - 12/31/2024 4,958 observations ¹⁴
Average Performan	ice	
Average Return	4.65%	10.11%
Average Gain	17.15%	19.10%
Average Loss	-14.98%	-8.05%
Positive Performanc	ce	
Maximum Return	116.25% ¹²	68.69%15
Number of Gains	3,029 (61%)	3,317 (67%)
Negative Performan	nce	
Minimum Return	-64.09% ¹³	-29.28% ¹⁶
Number of Losses	1,928 (39%)	1,638 (33%)
Return Distribution		
-100% to -20%	9.98%	2.60%
-20% to -10%	9.10%	6.58%
-10% to 0%	19.81%	23.86%
0% to 10%	21.64%	21.02%
10% to 20%	18.90%	14.48%
20% to ∞	20.57%	31.46%
	¹¹ One flat year, in which the return was 0%, included in observations	¹⁴ Three flat years, in which the return was 0%, included in observations
	¹² Max return: 1-yr period ending 3/8/2010	¹⁵ Max return: 1-yr period ending 5/12/2006
	¹³ Min return: 1-yr period ending 3/5/2009	¹⁶ Min return: 1-yr period ending 11/26/2013

INDEX ANALYSIS USING 2-YEAR ROLLING RETURNS

The data in the following tables uses 2-year rolling returns¹ of the applicable index or ETF to highlight average performance, positive performance, negative performance and return distribution.

	2-Year Term	
	S&P 500 Index (SPX)	
	12/31/2004 - 12/31/2024 4,698 observations²	
Average Performan	се	
Average Return	18.65%	
Average Gain	25.81%	
Average Loss	-21.36%	
Positive Performance		
Maximum Return	99.15%³	
Number of Gains	3,985 (84%)	
Negative Performar	nce	
Minimum Return	-51.77% ⁴	
Number of Losses	713 (15%)	
Return Distribution		
-100% to -20%	7.56%	
-20% to -10%	3.32%	
-10% to 0%	4.30%	
0% to 10%	13.09%	
10% to 20%	23.33%	
20% to ∞	48.40%	
	² Zero flat years, in which the return was 0%, included in observations	

³Max return: 2-yr period ending 3/23/2022

⁴Min return: 2-yr period ending 3/9/2009

INDEX ANALYSIS USING 3-YEAR ROLLING RETURNS

The data in the following tables uses 3-year rolling returns⁵ of the applicable index or ETF to highlight average performance, positive performance, negative performance and return distribution.

	3-Year Term	3-Year Term	
	S&P 500 Index (SPX) 12/31/2004 – 12/31/2024 4,437 observations ⁶	Russell 2000 12/31/2004 – 12/31/2024 4,437 observations ⁹	
Average Performance	2		
Average Return	27.56%	22.30%	
Average Gain	37.54%	32.58%	
Average Loss	-20.62%	-17.65%	
Positive Performance	:		
Maximum Return	102.61% ⁷	138.02%10	
Number of Gains	3,676 (83%)	3,529 (80%)	
Negative Performance			
Minimum Return	-46.97% ⁸	-52.68% ¹¹	
Number of Losses	761 (17%)	908 (20%)	
Return Distribution			
-100% to -20%	10.68%	8.02%	
-20% to -10%	2.77%	6.33%	
-10% to 0%	3.70%	6.11%	
0% to 10%	2.75%	8.23%	
10% to 20%	3.67%	15.91%	
20% to ∞	76.43%	55.40%	
	⁶ Zero flat years, in which the return was 0%, included in observations	⁹ Zero flat years, in which the return was 0%, included in observations	
	⁷ Max return: 3-yr period ending 3/9/2012	¹⁰ Max return: 3-yr period ending 3/9/2012	
	⁸ Min return: 3-yr period ending 3/5/2009	¹¹ Min return: 3-yr period ending 3/5/2009	

⁵Rolling returns refers to every 3-year period that started on a business day within the listed date range

INDEX ANALYSIS USING 6-YEAR ROLLING RETURNS

The data in the following tables uses 6-year rolling returns¹ of the applicable index or ETF to highlight average performance, positive performance, negative performance and return distribution.

	6-Year Term	6-Year Term
	S&P 500 Index (SPX)	Russell 2000
	12/31/2004 – 12/31/2024 3,653 observations²	12/31/2004 – 12/31/2024 3,653 observations ⁵
Average Performance		
Average Return	64.80%	59.41%
Average Gain	68.74%	60.01%
Average Loss	-3.39%	-4.84%
Positive Performance		
Maximum Return	207.76%³	256.44%6
Number of Gains	3,559 (97%)	3,619 (99%)
Negative Performanc	e	
Minimum Return	-10.39%4	-17.75% ⁷
Number of Losses	94 (3%)	34 (1%)
Return Distribution		
-100% to -20%	0.00%	0.00%
-20% to -10%	0.03%	0.16%
-10% to 0%	5.42%	0.77%
0% to 10%	17.19%	5.91%
10% to 20%	5.04%	9.75%
20% to ∞	72.32%	83.41%
	² Zero flat years, in which the return was 0%, included in observations	⁵ Zero flat years, in which the return was 0%, included in observations
	³ Max return: 6-yr period ending 3/5/2015	⁶ Max return: 6-yr period ending 3/9/2015
	⁴ Min return: 6-yr period ending 10/3/2011	⁷ Min return: 6-yr period ending 3/18/2020

For advice tailored to your specific circumstances, contact your financial professional.

These products can only be sold through a Broker/Dealer that is contracted with MassMutual Ascend Life Insurance CompanySM. Any sales solicitation must be accompanied or preceded by a prospectus. To obtain a copy of the prospectus, please visit MassMutualAscend.com/RILArates.

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

MassMutual Ascend is not an investment adviser and the information provided in this document is not investment advice. You should consult with your investment professional for advice based on your personal circumstances and financial situation.

The "S&P 500® 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. S&P®, S&P 500®, US 500, The 500, iBoxx®, iTraxx® and CDX® are trademarks of S&P Global, Inc. or its affiliates ("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 Life Insurance Company's products are not sponsored, endorsed, sold or promoted by SPDJI, Dow Jones, S&P, their respective affiliates, and none of such parties make 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® Index.

MassMutual Ascend Life Insurance Company ("MassMutual Ascend") products are not in any way connected to or sponsored, endorsed, sold or promoted by the London Stock Exchange Group plc and its group undertakings (collectively, the "LSE Group"). FTSE Russell is a trading name of certain of the LSE Group companies.

All rights in the FTSE Russell Index ("the Index") vest in the relevant LSE Group company which owns the Index. Russell® is a trade mark of the relevant LSE Group company and is used by any other LSE Group company under license.

The Index is calculated by or on behalf of Frank Russell Company or its affiliate, agent or partner. The LSE Group does not accept any liability whatsoever to any person arising out of (a) the use of, reliance on or any error in the Index or (b) investment in or operation of the MassMutual Ascend product(s). The LSE Group makes no claim, prediction, warranty or representation either as to the results to be obtained from the MassMutual Ascend product(s) or the suitability of the Index for the purpose to which it is being put by MassMutual Ascend Life Insurance Company.

The First Trust Barclays Edge Index ("FTIS Index") is a product of FT Indexing Solutions LLC ("FTIS") and is administered and calculated by Bloomberg Index Service Limited and its affiliates (collectively, "BISL"). FIRST TRUST® and First Trust Barclays Edge Index are trademarks of First Trust Portfolios L.P. (collectively, with FTIS and their respective affiliates, "First Trust"). The foregoing index and trademarks have been licensed for use for certain purposes by Barclays, Bloomberg, and MassMutual Ascend Life Insurance Company (collectively, the "Licensees") in connection with the FTIS Index and certain products utilizing the FTIS Index (collectively, the "Products").

The Capital Strength Index ("Nasdaq Index") is a product of Nasdaq, Inc. (collectively, with its affiliates, "Nasdaq"). NASDAQ®, CAPITAL STRENGTH INDEX™, NQCAPST™, and NQCAPST™ are trademarks of Nasdaq. The foregoing index and trademarks have been licensed for use for certain purposes by FTIS and Licensees in connection with the FTIS Index and the Products.

The Value Line Dividend Index ("Value Line Index") is a product of Value Line, Inc. ("Value Line"). VALUE LINE® and VALUE LINE DIVIDEND INDEX™ are trademarks or registered trademarks of Value Line. The foregoing index and trademarks have been licensed for use for certain purposes by FTIS and Licensees in connection with the FTIS Index and the Products. The FTIS Index is not sponsored, endorsed, recommended, sold or promoted by Value Line and Value Line makes no representation regarding the advisability of investing in any product utilizing the FTIS Index.

BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. Bloomberg Finance L.P., BISL, and their affiliates ("Bloomberg") are not affiliated with First Trust or Barclays. Bloomberg's relationship to First Trust and Barclays is only (1) in the licensing of the FIRST TRUST®, BARCLAYS®, and FIRST TRUST BARCLAYS EDGE INDEX™ trademarks and (2) to act as the administrator and calculation agent of the FTIS Index, which is the property of FTIS. Bloomberg does not guarantee the timeliness, accurateness, or completeness of the FTIS Index or any data or information relating thereto and shall have no liability in connection with the FTIS Index or any data or information relating thereto.

The Products are not issued, sponsored, endorsed, sold, recommended, or promoted by First Trust, Bloomberg, Nasdaq, Value Line, or their respective affiliates (collectively, the "Companies"). The Companies do not make any representation regarding the advisability of investing in the Products or products based on the FTIS Index, Barclays Indices, Nasdaq Index, or Value Line Index, do not make any warranties or bear any liability with respect to such products, and do not make any warranties or bear any liability with respect to the Products, the FTIS Index, or another party's index.

THE COMPANIES DO NOT GUARANTEE THE ADEQUACY, ACCURACY, TIMELINESS, COMPLETENESS, AND/OR UNINTERRUPTED CALCULATION OF THE PRODUCTS, FTIS INDEX, BARCLAYS INDICES, NASDAQ INDEX, VALUE LINE INDEX, OR ANY DATA INCLUDED THEREIN OR ANY COMMUNICATION WITH RESPECT THERETO, INCLUDING, ORAL, WRITTEN, OR ELECTRONIC COMMUNICATIONS. THE COMPANIES SHALL HAVE NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INTERRUPTIONS IN THE PRODUCTS, FTIS INDEX, BARCLAYS INDICES, NASDAQ INDEX, OR VALUE LINE INDEX. THE COMPANIES MAKE NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE RESULTS TO BE OBTAINED BY LICENSEES, OWNERS OF THE PRODUCTS OR OF PRODUCTS BASED ON THE FTIS INDEX, BARCLAYS INDICES, NASDAQ INDEX, OR VALUE LINE INDEX, OR BY ANY OTHER PERSON OR ENTITY FROM THE USE OF THE FTIS INDEX, BARCLAYS INDICES, NASDAQ INDEX, OR VALUE LINE INDEX, OR ANY DATA INCLUDED THEREIN.

Neither Barclays Bank PLC ('BB PLC'') nor any of its affiliates (collectively 'Barclays') is the issuer or producer of MassMutual Ascend's products and Barclays has no responsibilities, obligations or duties to investors in MassMutual Ascend's products. The Barclays US 2Y Treasury Futures Index, Barclays US 5Y Treasury Futures Index, Barclays US 10Y Treasury Note Index, and Barclays Switch USD Signal Index (collectively, the "Indices"), together with any Barclays indices that are components of the Indices, are trademarks owned by Barclays and, together with any component indices and index data, are licensed for use by FTIS in connection with the First Trust Barclays Edge Index.

Barclays' only relationship with the MassMutual Ascend in respect of the Indices is the licensing of the Indices to FTIS, which are administered, compiled and published by BB PLC in its role as the index sponsor (the 'Index Sponsor') without regard to MassMutual Ascend's products or investors in MassMutual Ascend's products. Additionally, MassMutual Ascend as issuer or producer of MassMutual Ascend's products may for itself execute transaction(s) with Barclays in or relating to the Indices in connection with MassMutual Ascend's products. Investors acquire MassMutual Ascend's products from MassMutual Ascend and investors neither acquire any interest in the Indices nor enter into any relationship of any kind whatsoever with Barclays upon making an investment in MassMutual Ascend's products. MassMutual Ascend's products are not sponsored, endorsed, sold or promoted by Barclays and Barclays makes no representation regarding the advisability of MassMutual Ascend's products or use of the Indices or any data included therein. Barclays shall not be liable in any way to MassMutual Ascend, investors or to other third parties in respect of the use or accuracy of the Indices or any data included therein.

The iShares MSCI EAFE ETF and the iShares U.S. Real Estate ETF are distributed by BlackRock Investments, LLC. iShares®, BLACKROCK®, and the corresponding logos are registered and unregistered trademarks of BlackRock, Inc. and its affiliates ("BlackRock"), and these trademarks have been licensed for certain purposes by MassMutual Ascend. MassMutual Ascend annuity products are not sponsored, endorsed, sold or promoted by BlackRock, and purchasers of an annuity from MassMutual Ascend do not acquire any interest in the iShares MSCI EAFE ETF or the iShares U.S. Real Estate ETF nor enter into any relationship of any kind with BlackRock. BlackRock makes no representation or warranty, express or implied, to the owners of any MassMutual Ascend annuity product or any member of the public regarding the advisability of purchasing an annuity, nor does it have any liability for any errors, omissions, interruptions or use of the iShares MSCI EAFE ETF or the iShares U.S. Real Estate ETF or any data related thereto.

Principal Underwriter/Distributor: MM Ascend Life Investor Services, LLC, member FINRA and an affiliate of MassMutual AscendSM.

Products issued by MassMutual Ascend Life Insurance CompanySM (Cincinnati, Ohio), a wholly owned subsidiary of Massachusetts Mutual Life Insurance Company (MassMutual), under contract forms ICC24-P1825224NW, ICC24-P1833624NW and ICC24-P1841624NW. Form numbers, features and availability may vary by state. Products may not be available in all states.

All guarantees based on the claims-paying ability of MassMutual Ascend Life Insurance Company.

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