

iShares U.S. Real Estate 1-Year ETF Analysis

With a fixed-indexed or registered index-linked annuity from MassMutual Ascend Life Insurance Company, you can allocate funds to 1-year term indexed strategies that earn returns based on the iShares U.S. Real Estate ETF. This ETF seeks to track the performance of the Dow Jones U.S. Real Estate Index, which is comprised primarily of real estate investment trusts. Let's take a closer look.

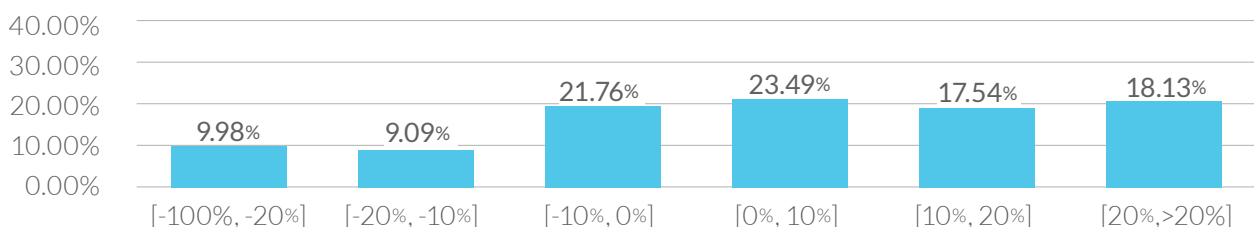
iShares U.S. Real Estate ETF returns using rolling periods

The data below uses 1-year rolling returns¹ of the iShares U.S. Real Estate ETF from December 31, 2005 through December 31, 2025, for a total of 4,959² 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
3.77%	16.35%	-14.44%	116.25%	2,934 (59%)	-64.09%	2,024 (41%)

iShares U.S. Real Estate ETF 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%, >20%]
Average iShares U.S. Real Estate ETF Return by Range	-37.02%	-14.31%	-4.13%	4.35%	14.64%	33.54%

¹ 1-year rolling returns refers to every 1-year period that started on a business day after December 30, 2005 and ended before January 1, 2026.

² One flat year, in which the iShares U.S. Real Estate return was 0%, is included in the number of total observations.

³ Maximum return: 1-year period ending 3/8/2010

⁴ Minimum return: 1-year period ending 3/5/2009

MassMutual Ascend offers several types of annuities, which have varying levels of upside potential and 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 launch date of the iShares U.S. Real Estate ETF was December 31, 2004. Indexed strategies are based on the price change of the ETF during the term. Returns are limited by a cap or participation rate.

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

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, P1074514NW, P1074514OR, P1074514ID, P1110416NW, P1110416OR, P1110416ID, P1112916NW, P1112916OR, P1112916ID, P1129918NW, P1129918OR, P1129918ID, P1129918ID-NoMVA, P1134618NW, P1134618OR, P1134618ID, P1134618ID-NoMVA, P1140119NW, P1140119OR, P1140119ID, P1140219NW, P1140219OR, P1140219ID, P1146620NW, P1146620OR, P1146620ID, ICC25-P1470025NW, ICC24-P1825224NW, and ICC24-P1841724NW.

All guarantees subject to the claims-paying ability of MassMutual Ascend Life Insurance Company.

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∴ MassMutual Ascend