

MM S&P 500® Index Fund

Northern Trust Investments, Inc.

I:MMIZX R5:MIEZX SVC:MMIEX ADM:MIEYX A:MMFFX R4:MIEAX R3:MBCNX

Fund Objective:

The Fund seeks to approximate as closely as practicable (before fees and expenses) the capitalization-weighted total rate of return of that portion of the U.S. market for publicly-traded common stocks composed of larger-capitalized companies†.

Morningstar Category: Large Cap Blend

Fund Net Assets: \$3.4B

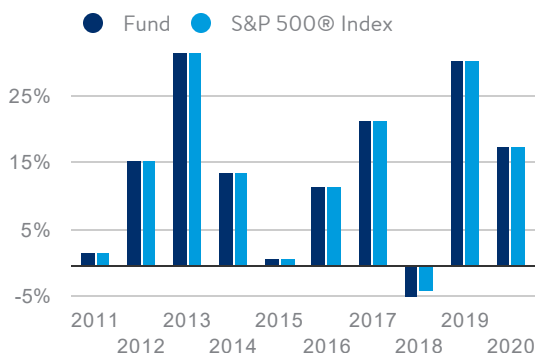
Fund Inception Date: 02/27/1998

Trailing Returns:*

	Average Annual Total Return					
	QTD	YTD	1Yr	3Yr	5Yr	10Yr ¹
MM S&P 500® Index I	6.21	6.21	56.12	16.68	16.18	13.78
S&P 500® Index	6.17	6.17	56.35	16.78	16.29	13.91
Category Average Return	-	-	56.80	14.87	14.80	12.40
Category Rank ²	-	-	55	28	26	17
# Funds in Category ²	-	-	1351	1225	1068	809

Performance shown is for class I shares. Max Sales charge for I is 0%.

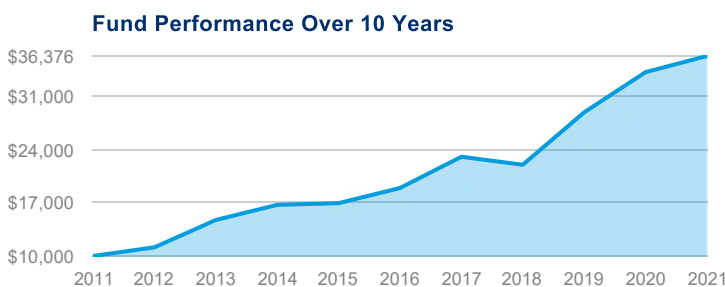
Calendar Year Returns:*



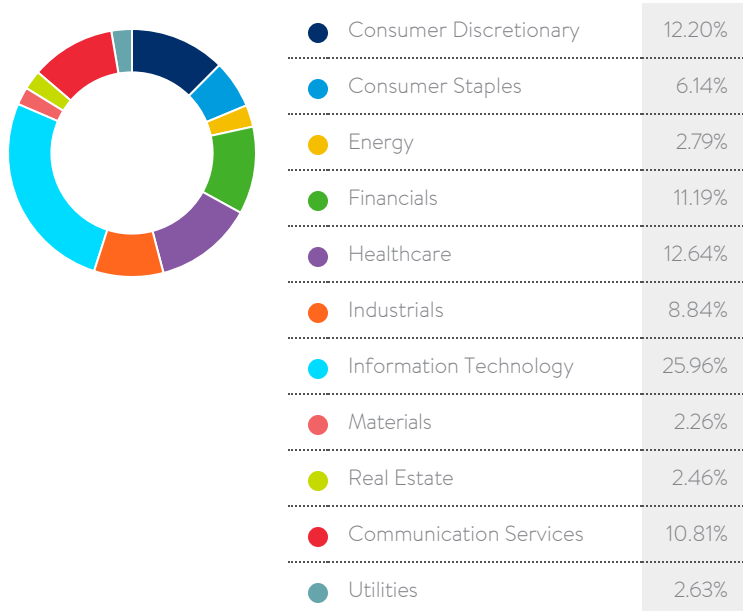
Asset Allocation:

Cash	0.73 %
US Equity	96.46 %
Non-US Equity	1.47 %
Other	1.34 %
# of Stock Holdings	503

Growth of \$10,000:*



Sector Allocation:



*Performance shown is for class I shares. Current performance may be higher or lower. Max Sales charge for I is 0%.

Performance data given represents past performance and does not guarantee future results. Current performance may be lower or higher than return data quoted herein. For more current information, including month-end performance, please call 1-866-444-2601. The investment return and the principal value of an investment will fluctuate; so an investor's shares, when redeemed, may be worth more or less than their original cost. Investment portfolio statistics change over time. Returns shown do not reflect the impact of plan fees, which will reduce performance. Investment portfolio statistics change over time. You cannot invest directly in an index.

1Pre-Inception Returns - The inception date listed is that of the oldest share class of the Fund. The inception date for each individual share class can be found on page 2. Performance shown subsequent to the inception date is the actual performance of the share class. Other share classes of the investment itself have existed longer, which accounts for any pre-inception performance shown. The pre-inception performance of Class I for the periods prior to its inception date of (12/07/2011) is based on the performance of an older share class, Class R5, using the expenses and fees of Class R5. If the expenses of the newer share class was used rather than the expenses of the old share class (due to lower expenses of the new share class), it would have resulted in better performance.

Performance Returns - reflect performance of the investment without adjusting for sales charges or the effects of taxation, but is adjusted to reflect all actual ongoing investment expenses and assumes reinvestment of dividends and capital gains (if applicable). If adjusted, sales charges would reduce the performance quoted. In addition, due to market volatility, performance may vary greatly over short periods of time. The investment's performance is generally compared with that of an index. The index is an unmanaged portfolio of specified securities and does not reflect any initial or ongoing expenses nor can it be invested in directly. An investment's portfolio may differ significantly from the securities in the index. The Index may not be the same as the comparative index noted in the investment's prospectus (if applicable).

The Growth of \$10,000 - graph shows an investment's performance based on how \$10,000 invested in the investment would have grown over time. The growth of \$10,000 begins at the investment's inception date or the first year listed on the graph, whichever is appropriate.

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NOT FDIC INSURED • MAY LOSE VALUE • NO BANK GUARANTEE

MM S&P 500® Index Fund

Top 10 Holdings:

Company	Percentage
Apple Inc	5.63%
Microsoft Corp	5.19%
Amazon.com Inc	3.87%
Facebook Inc A	2.07%
Alphabet Inc A	1.81%
Alphabet Inc Class C	1.74%
Tesla Inc	1.50%
Berkshire Hathaway Inc Class B	1.42%
JPMorgan Chase & Co	1.36%
Johnson & Johnson	1.26%

Expense Ratios:

	Inception Date	Gross Expense	Net Expense
I	12/07/2011	0.12%	0.12%
R5	04/30/2001	0.22%	0.22%
Svc	02/27/1998	0.37%	0.37%
Admin	02/27/1998	0.47%	0.47%
A	04/01/2014	0.72%	0.72%
R4	02/27/1998	0.62%	0.62%
R3	12/30/2002	1.33%	1.33%

Risk/Return Statistics**:

	Fund	Benchmark
Standard Deviation	14.85	14.89
Information Ratio	-0.93	-
Alpha	-0.07	-
Beta	1.00	1.00
R2	1.00	1.00
Tracking Error	0.12	-
Sharpe Ratio	1.01	1.01
Upside Capture	99.65	100.00
Downside Capture	99.99	100.00
Batting Average	36.67	-

Fund Rankings:²

	MorningStar Rating	Funds in Category
Overall Rating	★★★★	1,225
3 Year	★★★★	1,225
5 Year	★★★★	1,068
10 Year	☆☆☆☆	809

Portfolio Managers:

	Managed Since
Brent D. Reeder Northern Trust	Apr. 2007

*Performance shown is for class I shares.

**Risk statistics are calculated over a five year period, computed monthly.

2Morningstar Rating™ - Category-Large Cap Blend. For each investment with at least a three-year history, Morningstar calculates a Morningstar Rating™ based on how an investment ranks on a Morningstar Risk-Adjusted Return measure against other investments in the category. This measure takes into account variations in an investment's monthly performance after adjusting for sales loads (except for load-waived A shares), redemption fees, and the risk-free rate, placing more emphasis on downward variations and rewarding consistent performance. The top 10% of investments in each category receive 5 stars, the next 22.5% receive 4 stars, the next 35% receive 3 stars, the next 22.5% receive 2 stars and the bottom 10% receive 1 star. The Overall Morningstar Rating for an investment is derived from a weighted average of the ratings for the three-, five- and ten-year (if applicable) time periods. The Morningstar percentile ranking is based on the fund's total-return percentile rank relative to all funds that have the same category for the same time period. The highest (or most favorable) percentile rank is 1%, and the lowest (or least favorable) percentile rank is 100%. Morningstar total return includes both income and capital gains or losses and is not adjusted for sales charges. ©2021 Morningstar, Inc. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.

The Fund's **Principal Risks** include - Equity Securities Risk, Indexing Risk, Industry Concentration Risk, Large Company Risk, Cash Position Risk, Derivatives Risk, Management Risk, Market Risk, Valuation Risk.

Risk Statistics- Standard Deviation is a statistical measurement, which for a mutual fund depicts how widely the returns varied over a certain period of time. When a fund has a high standard deviation, performance is wide, implying greater volatility. **Information Ratio** measures the performance of an investment compared to a benchmark index, after adjusting for its additional risk. **Alpha** is a measure of the difference between a fund's actual returns and its expected performance, given its level of risk as measured by beta. A positive alpha figure indicates the fund has performed better than its beta would predict. In contrast, a negative alpha indicates the fund's underperformance, given the expectations established by the fund's beta. **Beta** is a measure of sensitivity to market movements. The beta of the market is 1.00. A beta of 1.10 shows that the fund's excess return is expected to be 10% better than the market's excess return in an up market or 10% worse in a down market. A beta of .85 indicates that the fund's excess return is expected to perform 15% less than the market's excess return during up markets and 15% greater during down markets. **R-squared (R2)** measures the degree of relationship between the performance of the fund and that of the index. The higher the R-squared, the more related the fund's performance is to its index. **Tracking Error** is also known as active risk and is the degree to which the strategy differed from its index or benchmark. The higher the Tracking Error, the more the fund deviated from its index. **Sharpe Ratio** measures risk adjusted performance; it is calculated as the real total return of the fund (total return-risk free rate) divided by the risk of the fund (standard deviation). **Upside/downside capture** shows whether a given fund has outperformed--gained more or lost less than--a broad market benchmark during periods of market strength and weakness, and if so, by how much. An upside capture ratio over 100 indicates a fund has generally outperformed the benchmark during periods of positive returns for the benchmark. A downside capture ratio of less than 100 indicates that a fund has lost less than its benchmark in periods when the benchmark has been in the red. **Batting Average** is a measure of a manager's ability to consistently beat its benchmark over the trailing five-year period.

S&P 500® Index measures the performance of 500 widely held stocks in the U.S. equity market. Standard and Poor's chooses member companies for the index based on market size, liquidity, and industry group representation. Included are the stocks of industrial, financial, utility, and transportation companies. Since mid-1989, this composition has been more flexible and the number of issues in each sector has varied. It is market capitalization-weighted. The Index does not reflect any deduction for fees, expenses, or taxes and cannot be purchased directly by investors.

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Investors should consider an investment option's objectives, risks, fees, and expenses carefully before investing. This and other information can be found in the applicable prospectuses or summary prospectuses, which are available from MassMutual by calling 1-866-444-2601. Please read them carefully before investing.