

# MULTIFACTOR INVESTING

Seeking to build a  
better index

EXCHANGE-TRADED FUNDS

*John Hancock*<sup>®</sup>  
INVESTMENTS

# Three things to know about factor-based investing

**1** It represents an important segment of the evolving strategic beta landscape

Factor-based investing seeks to identify and harness certain investment characteristics—such as size and momentum—that research has shown to drive performance over time. This style of investing has been one of the fastest-growing segments of the market in recent years as investors have increasingly sought to apply the insight of actively managed strategies to the passive investment universe.

**2** Single-factor strategies can go in and out of favor

Single-factor approaches can be a great way of amplifying a specific trait in a portfolio. But like any concentrated strategy, single-factor approaches also introduce a new source of risk into a portfolio that can go in and out of favor and that needs to be managed over time. Low volatility strategies, for example, may be useful in choppy markets, but they can hamper performance in bull markets.

**3** Multifactor strategies seek a more enduring approach to performance

Multifactor strategies combine several factors into a single portfolio, helping to ensure that not all factors fall out of favor at the same time. This diversification can lower the fluctuation of returns over a market cycle while still seeking to outperform the market. It's also why many investors consider multifactor strategies for core portfolio positions and choose to augment those core holdings with smaller tactical or active approaches.

## Consider this:

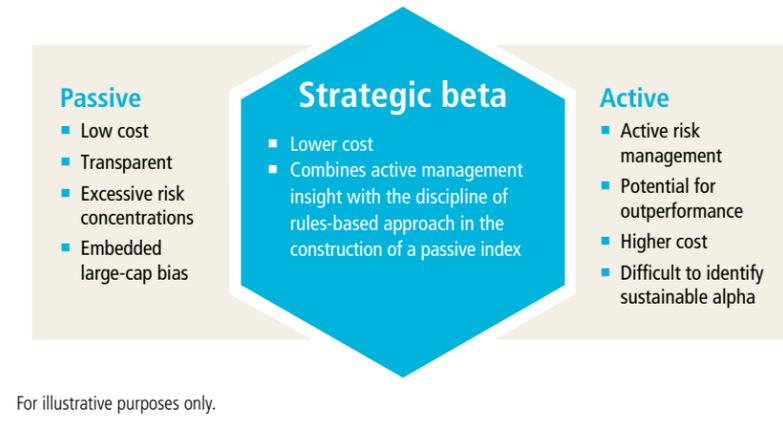
Strategic beta ETFs can be an attractive alternative to active and passive investments

The recent growth of strategic beta is in part a reflection of advisors' desire for investment solutions that offer inexpensive, diversified equity exposure with market-beating potential.



### Leveraging the goals of active and passive management

Strategic beta investment strategies seek to improve on traditional market-capitalization-weighted indexes in order to achieve better returns or mitigate risk



### Individual factors can be volatile: there's no telling which will be the best performing from year to year<sup>2</sup>

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average return	Volatility (Standard deviation)	Risk-adjusted return (Sharpe ratio)
Size	44.39%	<b>Multifactor</b>	<b>Multifactor</b>	Value	Quality	Volatility	Size	Size	Volatility	Size	<b>Multifactor</b>	Volatility	Volatility	Value	Quality	<b>Multifactor</b>	16.35%	<b>0.94</b>
<b>Multifactor</b>	<b>31.40%</b>	Size	Size	Volatility	Momentum	Quality	<b>Multifactor</b>	<b>Multifactor</b>	Quality	Value	Size	<b>Multifactor</b>	Momentum	Size	Momentum	Size	14.57%	0.85
Value	29.99%	Value	Momentum	<b>Multifactor</b>	<b>Multifactor</b>	<b>Multifactor</b>	Russell 1000 Index	Value	<b>Multifactor</b>	<b>Multifactor</b>	Value	Quality	Quality	<b>Multifactor</b>	Russell 1000 Index	Quality	Russell 1000 Index	Size
Russell 1000 Index	29.89%	Volatility	Value	Russell 1000 Index	Russell 1000 Index	Momentum	Quality	Momentum	Momentum	Russell 1000 Index	Momentum	Russell 1000 Index	<b>Multifactor</b>	Russell 1000 Index	<b>Multifactor</b>	Value	<b>Multifactor</b>	Volatility
Momentum	26.92%	Momentum	Quality	Momentum	Value	Value	Value	Russell 1000 Index	Value	Quality	Russell 1000 Index	Value	Russell 1000 Index	Volatility	Volatility	Russell 1000 Index	Momentum	Value
Quality	24.21%	Russell 1000 Index	Russell 1000 Index	Quality	Volatility	Size	Momentum	Quality	Russell 1000 Index	Momentum	Quality	Momentum	Size	Quality	Value	Momentum	Quality	Momentum
Volatility	20.59%	Quality	Volatility	Size	Size	Russell 1000 Index	Volatility	Volatility	Size	Volatility	Volatility	Size	Value	Momentum	Size	Volatility	Volatility	Russell 1000 Index

This chart is for illustrative purposes only and does not represent the performance of any John Hancock fund.

<sup>1</sup> "The Number of Strategic-Beta ETFs Continues to Mushroom," Morningstar, Inc., 9/28/16.

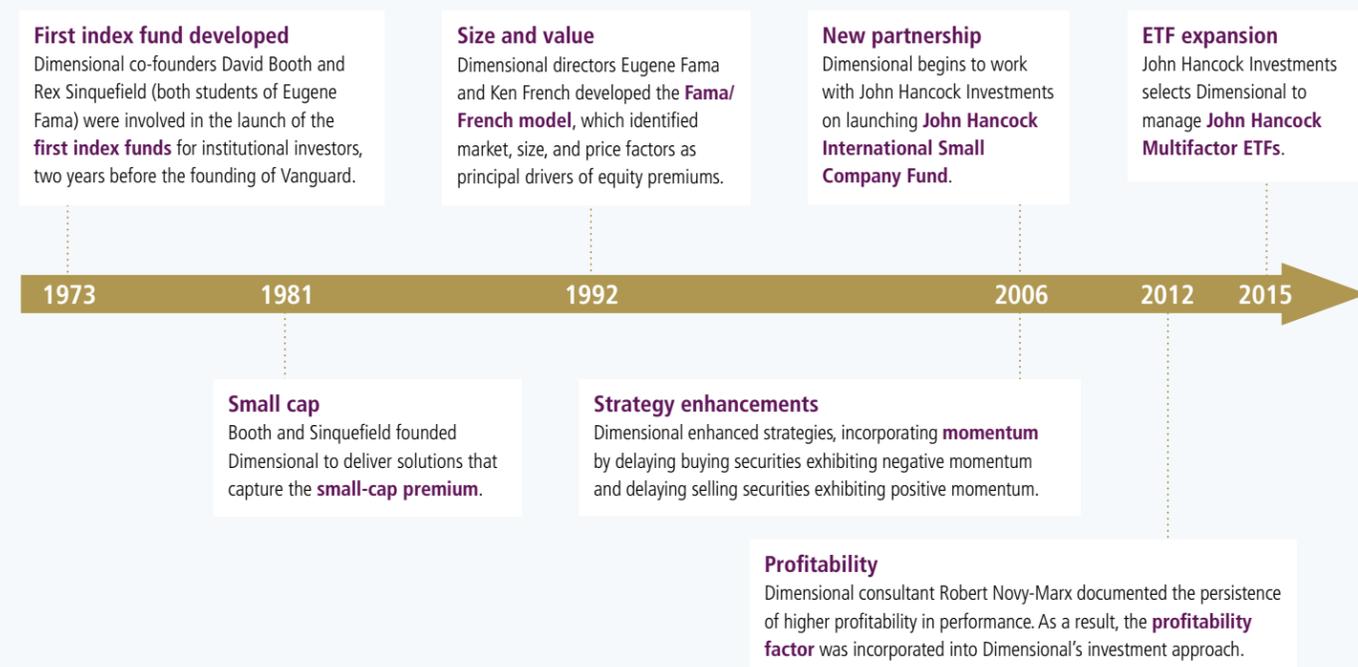
<sup>2</sup> This chart is for illustrative purposes only and does not represent the performance of any John Hancock fund. Morningstar, as of 12/31/17. Callan chart is from 2003 to 2017. Size is represented by the Russell 1000 Size Factor Index, which tracks the performance of stocks displaying smaller-size characteristics. Value is represented by the Russell 1000 Value Factor Index, which tracks the performance of stocks displaying lower valuation characteristics. Volatility is represented by the Russell 1000 Volatility Factor Index, which tracks the performance of stocks displaying lower volatility characteristics. Quality is represented by the Russell 1000 Quality Factor Index, which tracks the performance of stocks displaying higher-quality characteristics. Momentum is represented by the Russell 1000 Momentum Factor Index, which tracks the performance of stocks displaying momentum characteristics. Multifactor is represented by the Russell 1000 Comprehensive Factor Index, which combines the performance of all five Russell 1000 factor indexes: size, value, quality, momentum, and volatility. Annual returns are based on calendar years. Indexes are unmanaged and do not take transaction costs or fees into consideration. It is not possible to invest directly in an index. Performance figures assume reinvestment of dividends and capital gains. Certain returns shown may reflect hypothetical historical performance. All performance presented prior to the index inception date is backtested performance. The backtested calculations are based on the same methodology that was in effect when the index was officially launched. However, backtested data may reflect the application of the index methodology with the benefit of hindsight, and the historical calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index. Past performance does not guarantee future results.

Alpha measures the difference between an actively managed fund's return and that of its benchmark index. An alpha of 3, for example, indicates the fund's performance was 3% better than that of its benchmark (or expected return) over a specified period of time.

# A time-tested approach from Dimensional Fund Advisors, a leader in multifactor investing

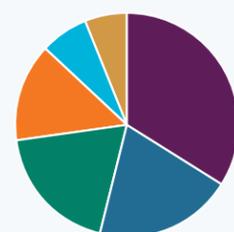
John Hancock Investments has been working with Dimensional Fund Advisors for nearly a decade. Dimensional's systematic approach to investing is backed by insight gained from decades of academic research and experience implementing rules-based strategies in competitive markets. Today, the company is one of the most well-respected managers of factor-based investment portfolios in the industry.

## Dimensional Fund Advisors has been a leader in the development and evolution of systematic, rules-based investing



## Dimensional Fund Advisors at a glance

Dimensional investment strategies



U.S. equities	34%
Fixed income	20%
Non-U.S. developed equities	19%
Emerging-market equities	14%
Global equity	7%
Other	6%



- Founded in 1981
- \$577 billion in global assets under management
- 7<sup>th</sup> largest fund family by AUM<sup>3</sup>
- Clients in more than 45 countries
- 12 offices in 8 countries; portfolio management and trading on 4 continents
- Over 1,000 employees

All data is as of 12/31/17.

3 Data is from Morningstar.

Numbers may not equal 100% due to rounding.

Investing involves risks, including the potential loss of principal. Small-cap securities are subject to greater volatility than those in other asset categories. Profitability is a measure of current profitability, based on information from individual companies' income statements. Relative price is the price of a security as it compares with another.

## Isolating the factors that drive higher expected returns

A landmark 1992 study by University of Chicago Professor Eugene Fama and Dartmouth College Professor Kenneth French argued that, based on history, focusing on smaller stocks and those with lower relative prices<sup>4</sup> may improve a portfolio's expected return.<sup>5</sup> Subsequent research conducted by University of Rochester Professor Robert Novy-Marx identified profitability<sup>6</sup> as another factor that enhances expected returns.<sup>7</sup> Today, Dimensional offers investment solutions built on the idea that combining specific factors, borne out by years of rigorous research, can produce better outcomes for investors over the long term.

## A multifactor approach: stocks characterized by smaller capitalizations, lower relative valuations, and higher profitability have outperformed over time



### To be considered a true factor, a premium must be:

Sensible	Persistent across time periods	Pervasive across markets	Robust in the data	Cost-effective, to capture in a diversified portfolio
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4 Relative price as measured by the price-to-book ratio; value stocks are those with lower price-to-book ratios. 5 "The Cross-Section of Expected Stock Returns," Eugene F. Fama, Kenneth R. French, *Journal of Finance*, June 1992. 6 Profitability is a measure of current profitability, based on information from individual companies' income statements. 7 Robert Novy-Marx provides consulting services to Dimensional Fund Advisors LP.

Source: John Hancock Investments, Morningstar, Ibbotson, Professor Kenneth R. French, [mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html), 2017. Professor French's study on premiums examines the most reliable long-term data available, which dates back to 1927 for market, company size, and relative price and to 1964 for profitability metrics. This data does not portray results of indexes. Past performance does not guarantee future results.

A premium represents the excess return that securities with particular characteristics have historically generated. The chart above shows historical geometric mean performance for different groupings of stocks within the broad equity universe. This universe, or market, includes stocks listed on the NYSE, AMEX, and NASDAQ exchanges. The research does not portray results of indexes. T-bill data is from Morningstar, Ibbotson. In order to assess returns of stocks with different characteristics, researchers Eugene Fama and Kenneth French grouped stocks according to size, relative price, and profitability. For groupings based on company size, stocks were ranked by market capitalization, where small cap represents stocks of companies in the bottom 30% of the universe and large cap represents stocks of companies in the top 30% of the universe. For groupings based on relative price, stocks were ranked by book-to-market equity ratios, where value represents stocks of companies in the top 30% of the universe and growth represents stocks of companies in the bottom 30% of the universe. For groupings based on profitability, stocks were ranked by operating profitability (annual revenues minus the cost of goods sold, interest expense, and selling, general, and administrative expenses, divided by book equity), where high profitability represents stocks of companies in the top 30% of the universe and low profitability represents stocks of companies in the bottom 30% of the universe. Drs. Fama and French are directors of and provide consulting services to Dimensional Fund Advisors LP. Diversification does not guarantee a profit or eliminate the risk of a loss. Selection of other periods may produce different results, including losses. Past performance does not guarantee future results.

# An index approach designed to pursue higher expected returns while minimizing unnecessary costs

## Market exposure: capturing broad exposure to avoid trying to outguess the market

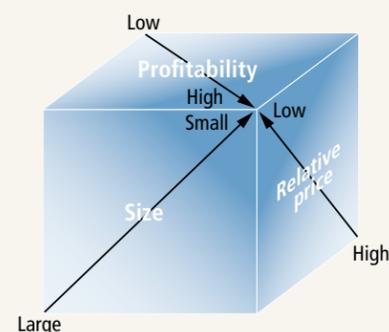
The first step in constructing each index is to identify the securities eligible for inclusion. For all indexes, the universe of the 1,000 largest U.S. stocks is ranked, from biggest to smallest. Certain illiquid securities or securities with multiple share classes may be excluded from consideration; after this initial screen, the indexes each define their target segment of the universe, resulting in a broad range of stocks per index—750 for the large-cap index, 600 for the mid-cap index, and between 40 and 175 for each of the sector indexes.



Example shown is for John Hancock Dimensional Large Cap Index. Hold range could include up to 800 securities.<sup>8</sup>

## Portfolio structure: emphasizing premiums associated with higher expected returns

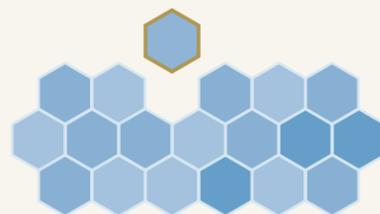
Once the target portfolio is identified, weightings are assigned to each security to be included. While the large-cap index, for example, will hold roughly 750 stocks, the weights of those securities may vary from market-cap-weighted indexes. That's because academic research suggests that certain factors—smaller capitalization, lower relative price, and higher profitability<sup>6</sup>—are linked to higher expected returns, so the securities in the index are weighted to place greater emphasis on stocks that exhibit those characteristics.<sup>9</sup>



## Implementation: maintaining focus on an asset class while minimizing unnecessary trading costs

Each of the indexes is reconstituted—or rebalanced—twice a year. The indexes use a feature called Index Memory<sup>®</sup> to help mitigate trading costs. If a security was included in an index before reconstitution and if keeping it in the index does not meaningfully change the overall characteristics of the index, that security will continue to be held and any change in weighting is minimized. The goal is to avoid making trades that do not meaningfully improve the expected return and risk profile of the overall portfolio.

Index Memory helps minimize unwarranted trading costs



Index Memory is a registered trademark of Dimensional Fund Advisors LP.

<sup>8</sup> The John Hancock Dimensional Large Cap Index is a rules-based index of large-cap U.S. stocks that have been selected based on sources of expected returns. Securities eligible for inclusion in the index are classified according to their market capitalization, as defined by free-float market cap; relative price, as defined by price/book; and profitability, as defined by operating income over book, and are weighted accordingly in favor of smaller, less expensive, more profitable companies. The index is reconstituted and rebalanced on a semiannual basis. Index performance assumes reinvestment of dividends and, unless otherwise indicated, does not reflect the management fees, operating expenses, transaction costs, and other expenses that apply to an ETF. It is not possible to invest directly in an index. Past performance does not guarantee future results.

<sup>9</sup> The portfolio structure of John Hancock Multifactor Small Cap ETF is determined by a process that differs from that described here. See the fact sheet or visit [jhinvestments.com/etf](http://jhinvestments.com/etf) for details.

# John Hancock Multifactor ETFs

We offer a range of John Hancock Multifactor ETFs with indexes designed by Dimensional Fund Advisors, a company regarded as one of the pioneers in strategic beta investing. Combining multiple factors may better enable a portfolio to smooth out the variability of returns and improve the likelihood of outperformance across different types of markets.

	ETF ticker	Net expense ratio (what you pay) <sup>10</sup> (%)	Turnover ratio (%)	Tracking index	Total return index ticker
<b>John Hancock Multifactor Large Cap ETF</b>	JHML	0.35	12	John Hancock Dimensional Large Cap Index	JHDMLT
<b>John Hancock Multifactor Mid Cap ETF</b>	JHMM	0.45	14	John Hancock Dimensional Mid Cap Index	JHDMMT
<b>John Hancock Multifactor Small Cap ETF</b>	JHSC	0.50	—	John Hancock Dimensional Small Cap Index	JHDMSC
<b>John Hancock Multifactor Developed International ETF</b>	JHMD	0.45	8	John Hancock Dimensional Developed International Index	JHDMDT
<b>John Hancock Multifactor Consumer Discretionary ETF</b>	JHMC	0.50	16	John Hancock Dimensional Consumer Discretionary Index	JHDMCT
<b>John Hancock Multifactor Consumer Staples ETF</b>	JHMS	0.50	11	John Hancock Dimensional Consumer Staples Index	JHDMST
<b>John Hancock Multifactor Energy ETF</b>	JHME	0.50	30	John Hancock Dimensional Energy Index	JHDMET
<b>John Hancock Multifactor Financials ETF</b>	JHMF	0.50	7	John Hancock Dimensional Financials Index	JHDMFT
<b>John Hancock Multifactor Healthcare ETF</b>	JHMH	0.50	14	John Hancock Dimensional Healthcare Index	JHDMHT
<b>John Hancock Multifactor Industrials ETF</b>	JHMI	0.50	8	John Hancock Dimensional Industrials Index	JHDMIT
<b>John Hancock Multifactor Materials ETF</b>	JHMA	0.50	17	John Hancock Dimensional Materials Index	JHDMAT
<b>John Hancock Multifactor Technology ETF</b>	JHMT	0.50	18	John Hancock Dimensional Technology Index	JHDMTT
<b>John Hancock Multifactor Utilities ETF</b>	JHMU	0.50	16	John Hancock Dimensional Utilities Index	JHDMUT

Ask your advisor

Ask your financial advisor how strategic beta ETFs can help you better position your portfolio for the long term.

Data is as of 12/31/17.

<sup>10</sup> "Net expense ratio (what you pay)" represents the effect of a fee waiver and/or expense reimbursement, contractual through 8/31/18 (JHSC through 8/31/19), and is subject to change. Gross expense ratios for the John Hancock Multifactor ETFs are as follows: 0.45% (JHML); 0.61% (JHMM); 0.68% (JHSC); 0.68% (JHMD); 1.07% (JHMC); 1.18% (JHMS); 1.15% (JHME); 0.99% (JHMF); 1.06% (JHMH); 1.12% (JHMI); 1.15% (JHMA); 1.00% (JHMT); 1.18% (JHMU).

*Investing involves risks, including the potential loss of principal. There is no guarantee that a fund's investment strategies will be successful. Large company stocks could fall out of favor. The stock prices of midsize and small companies can change more frequently and dramatically than those of large companies, and value stocks may decline in price. A portfolio concentrated in one industry or sector or that holds a limited number of securities may fluctuate more than a diversified portfolio. Shares may trade at a premium or discount to their NAV in the secondary market, and a fund's holdings and returns may deviate from those of its index. These variations may be greater when markets are volatile or subject to unusual conditions. Errors in the construction or calculation of a fund's index may occur from time to time. Please see the funds' prospectuses for additional risks. This material is not intended to be, nor shall it be interpreted or construed as, a recommendation or providing advice, impartial or otherwise. John Hancock Investments and its representatives and affiliates may receive compensation derived from the sale of and/or from any investment made in its products and services.*

*John Hancock Multifactor ETF shares are bought and sold at market price (not NAV), and are not individually redeemed from the fund. Brokerage commissions will reduce returns.*

# John Hancock Investments

## A trusted brand

John Hancock Investments is a premier asset manager representing one of America's most trusted brands, with a heritage of financial stewardship dating back to 1862. Helping our shareholders pursue their financial goals is at the core of everything we do. It's why we support the role of professional financial advice and operate with the highest standards of conduct and integrity.

## A better way to invest

We serve investors globally through a unique multimanager approach: We search the world to find proven portfolio teams with specialized expertise for every strategy we offer, then we apply robust investment oversight to ensure they continue to meet our uncompromising standards and serve the best interests of our shareholders.

## Results for investors

Our unique approach to asset management enables us to provide a diverse set of investments backed by some of the world's best managers, along with strong risk-adjusted returns across asset classes.

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**Request a prospectus or summary prospectus from your financial advisor, by visiting [jhinvestments.com/etf](http://jhinvestments.com/etf), or by calling us at 800-225-5291. The prospectus includes investment objectives, risks, fees, expenses, and other information that you should consider carefully before investing.**

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