Model portfolios Investor fact sheet

John Hancock International Equity Model Portfolio

Strategy

Actively managed
The portfolio targets consistent alpha generation through active regional, market capitalization, and sector positioning

Multimanager approach
Underlying strategies are managed by a diverse set of asset managers, each with specialized expertise

Active/passive implementation
Positions consist of ETFs and active mutual funds to mitigate cost and allow for alpha generation

Integrating asset allocation and manager research

For more than 30 years, our multi-asset solutions team has combined asset allocation with manager research and oversight to seek better outcomes for investors.

Multi-asset solutions team

- Portfolio managers/strategists
- Model portfolio construction and delivery

59 **investment professionals**

- 32 CFA charterholders
- 2 Ph.D.s

Manager research team

Investment manager due diligence and oversight

28 **manager research professionals**

- 31 professional designations
- 19 advanced degrees

Managed by

Manulife Investment Management

Established asset manager with global resources and expertise extending across equity, fixed-income, and alternative investments as well as asset allocation strategies

Nathan W. Thooft, CFA
On the portfolio since 2022
Investing since 2000

Bruce G. Picard, CFA
On the portfolio since 2022
Investing since 2000

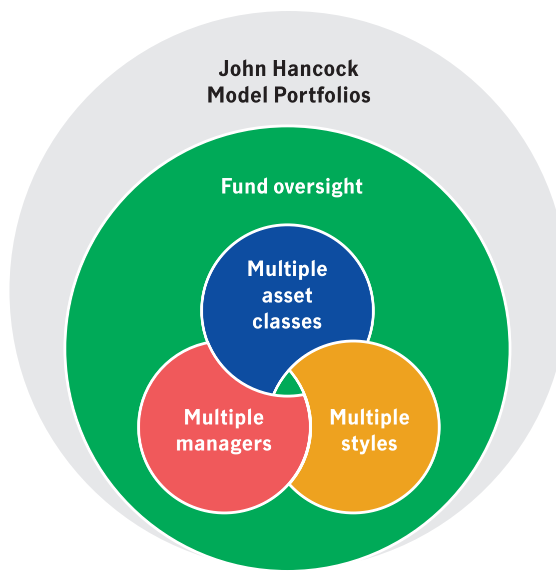
Robert E. Sykes, CFA
On the portfolio since 2022
Investing since 2001

David M. Kobuszewski, CFA
On the portfolio since 2022
Investing since 2000

Blending complementary managers from around the world

Our method delivers layers of diversification for investors in our asset allocation portfolios.

- Oversight
- Multiple asset classes
- Multiple managers
- Multiple styles



A leader in asset allocation

Multimanager approach since 1988 and model portfolios since 2011

1988
Firm introduces multimanager approach to investing

1995
Multimanager asset allocation portfolios for retirement plans

2005
Target-risk portfolios for individuals

2009
Alternative Asset Allocation Fund

2011
Asset allocation model portfolios

2016
U.S. sector rotation portfolios

2019
Over $100 billion in multi-asset portfolios under management

2022
Building block model portfolios

Quarterly commentary

Highlights

- International equities were higher during the first quarter, with significant divergence in returns across sector, region, and cap size.
- The portfolio generated a positive return and led its benchmark, the MSCI EAFE Index.
- Asset allocation decisions detracted from returns while manager selection contributed positively to performance.

Market review and outlook

International equities posted a positive return during the first quarter. The bulk of the gain occurred in January, reflecting the end of tax-loss selling and mounting hopes that global central banks were poised to stop raising interest rates. Stocks subsequently gave back ground as persistent inflation fostered concerns that rates would in fact continue to rise. The failure of several banks in Europe and the United States weighed heavily on sentiment late in the quarter. Still, the MSCI EAFE Index finished in positive territory behind double-digit gains in the core European markets of France and Germany, as well as for smaller nations such as Italy and Spain. The Asia-Pacific markets also advanced as a group, led by New Zealand.

Emerging-market stocks delivered a solid gain in the first quarter as well. Similar drivers pushed markets higher. China's reopening from its zero-COVID policy provided less of a boost to economic growth than initially hoped. At the country level, Mexico and the technology-heavy markets of Taiwan and South Korea were notable outperformers. Conversely, oil-sensitive markets—which performed very well for most of 2022—generally lagged.

Contributors and detractors

The portfolio posted positive absolute returns and led its benchmark. From an asset allocation perspective, an overweight in Europe boosted returns along with the subsequent underweight in emerging-market equities. Detractors from performance included an overweight in healthcare and international small-cap equities, both of which trailed broader markets as large cap and growth sectors led the way.

Overall, manager selection helped relative returns. The top contributors to returns were John Hancock International Dynamic Growth Fund, John Hancock Multifactor Developed International ETF, and John Hancock Disciplined Value International Fund. The top detractor from performance was John Hancock Infrastructure Fund.

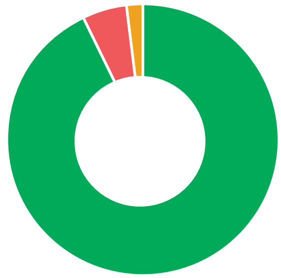
Portfolio changes

We eliminated the position in healthcare after a strong period of underperformance. The proceeds were divided across international developed and emerging-market equities. Overall, the portfolio maintains an overweight in Europe, international small-cap equities, and a position in infrastructure.

Distinguishing features

- Diversified international equity exposure
- A mix of market capitalizations, sectors, and factors with exposure to international developed and emerging-market equity

Strategy allocation (%)



Underlying fund	Ticker	Manager	Current quarter
Equity			
John Hancock Multifactor Developed International ETF	JHMD	Dimensional Fund Advisors	24.33
John Hancock Disciplined Value International Fund	JDVIX	Boston Partners	14.64
John Hancock Emerging Markets Equity Fund	JEMMX	Manulife Investment Management	14.40
John Hancock Int'l Dynamic Growth Fund	JIJIX	Axiom International Investors	15.14
John Hancock Multifactor Emerging Markets ETF	JHEM	Dimensional Fund Advisors	12.12
iShares MSCI Eurozone ETF	EZU	BlackRock Fund Advisors	6.38
John Hancock Int'l Small Company Fund	JSCIX	Dimensional Fund Advisors	5.86
iShares Global Healthcare ETF	IXJ	BlackRock Fund Advisors	—
Total equity			**92.88**
Alternatives			
John Hancock Infrastructure Fund	JEEIX	Wellington Management	5.25
Total alternatives			**5.25**
Cash			1.87
Total underlying expenses			0.72

See the conflicts disclosure on the last page for further information.

1 Morningstar, as of the date of the material. Weighted average annual net expense ratio is provided based on aggregation of the underlying fund fees. Share classes used for calculation may not be available to all investors, and expense ratios charged may vary.

Average annual total returns	QTD	YTD	1 year	3 year	5 year	10 year	Inception 1/1/23
International Equity Model Portfolio Composite, gross of fees	7.09	7.09	—	—	—	—	7.09
International Equity Model Portfolio Composite, net of fees	6.29	6.29	—	—	—	—	6.29
Blended benchmark[2]	6.87	6.87	—	—	—	—	6.87

Source: Manulife Investment Management (a Manulife company).

Important performance information

Performance figures shown are of the International Equity Model Portfolio Composite, managed by Manulife Investment Management, gross of fees, and represents a single, non-fee-paying affiliated seed capital account, which is representative of the investment strategy. Net performance results reflect the deduction of, from the respective gross-of-fee returns, the highest industry-applied bundled fees (3.00% annually). Actual fees may vary depending on, among other things, the applicable fee schedule and portfolio size. Performance may not be reflective of a full market cycle. The short-term results of a relatively new model portfolio are not necessarily indicative of its long-term prospects. Manulife Investment Management claims compliance with the Global Investment Performance Standards (GIPS). To receive a complete list and description of Manulife Investment Management's composites and/or a presentation that adheres to the GIPS, contact our institutional sales team at 888-332-7132.

Performance does not reflect the platform or program sponsor, trading costs, administrative management fees, or other expenses that would be incurred by a participant portfolio and would reduce returns. Performance does reflect the deduction of investment expenses for the underlying funds. The results do not represent actual trading, which is conducted by the platform or program sponsor on behalf of the client. It should not be assumed that investors would have obtained the performance shown had they invested in the manner shown and does not represent performance that any third-party investor actually attained. Actual performance may differ substantially from the performance presented. Returns for periods shorter than one year are cumulative. The performance presented is based on an assumption that the trades were executed at the same time as the model. The performance of your account may materially differ from the performance shown due to assumptions that include, but are not limited to, trade execution timing; your investment advisor, not John Hancock Investment Management, determines when to implement trade in the account; differences in market conditions; client-imposed investment restrictions; the timing of client investments and withdrawals; fees payable; foreign exchange rates; and account size.

Performance shown does not reflect the performance of model-based program accounts managed by your investment advisor using model portfolios. Your investment advisor may or may not add model portfolios in your account. John Hancock Investment Management is not responsible for determining the suitability or appropriateness of a strategy based on the model portfolios. John Hancock Investment Management does not have investment discretion of your account and does not place trade orders for your account. All information and data, including allocations, are subject to change.

The portfolio's performance depends on the advisor's skill in determining asset class allocations, the mix of underlying funds, and the performance of those underlying funds. The portfolio is subject to the same risks as the underlying funds and exchange-traded funds in which it invests: Stocks and bonds can decline due to adverse issuer, market, regulatory, or economic developments; foreign investing, especially in emerging markets, has additional risks, such as currency and market volatility and political and social instability; the securities of small companies are subject to higher volatility than those of larger, more established companies; and high-yield bonds are subject to additional risks, such as increased risk of default. Liquidity—the extent to which a security may be sold or a derivative position closed without negatively affecting its market value, if at all—may be impaired by reduced trading volume, heightened volatility, rising interest rates, and other market conditions. Owning an ETF generally reflects the risks of owning the underlying securities it is designed to track, which may cause lack of liquidity, more volatility, and increased management fees. Hedging and other strategic transactions may increase volatility of a portfolio and could result in a significant loss. The principal value of each portfolio is not guaranteed, and you could lose money at any time.

2 A custom blended benchmark reflects the portfolio's asset allocation under normal conditions. This custom blended benchmark comprises 98% Russell 3000 and 2% FTSE 3-Month US Treasury T-Bill Index.

John Hancock Investment Management LLC and Manulife Investment Management (US) LLC are affiliated SEC registered investment advisers using the brand name John Hancock Investment Management.

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Conflicts disclosure

The information in the charts shown reflects the current portfolio allocations across the underlying model portfolios. Allocations are as of the date indicated, are subject to change, and should not be relied on as current thereafter.

Certain model portfolios may include ETFs and mutual funds that are managed by an unaffiliated investment manager (unaffiliated funds) or an affiliate (affiliated funds). Recommendation of the model portfolios that use affiliated funds raises conflicts of interest. To the extent that the advisor does use affiliated funds as the components of the model portfolios, this will generate advisory and other fees for John Hancock Investment Management (a Manulife company) and, in certain cases, its affiliates, when intermediary accounts and other persons use the model portfolios, and the management fees of affiliated funds may be higher than fees charged by other funds. Clients should review any information provided by the managed account program sponsor for further details regarding the extent to which model portfolios provided may include affiliated funds. In addition, affiliates may engage the investment managers that are recommended or included in the model portfolios as subadvisors to the John Hancock funds or have other business relationships with such investment managers. Some sponsors and intermediaries have other business relationships with John Hancock Investment Management or its affiliates.

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