

Summary prospectus

John Hancock Alternative Asset Allocation Fund

Before you invest, you may want to review the fund's prospectus, which contains more information about the fund and its risks. You can find the fund's prospectus and other information about the fund, including the Statement of Additional Information and most recent reports, online at www.jhinvestments.com/prospectuses. You can also get this information at no cost by calling 800-225-5291 (Class A and Class C) or 888-972-8696 (Class I and Class R Suite) or by sending an email request to info@jhinvestments.com. The fund's prospectus and Statement of Additional Information, both dated 1/1/23, as may be supplemented, and most recent financial highlights information included in the shareholder report, dated 8/31/22, are incorporated by reference into this summary prospectus.

Tickers

A: JAAAX C: JAACX I: JAAIX R2: JAAPX R4: JAASX R6: JAARX

Investment objective

To seek long-term growth of capital.

Fees and expenses

This table describes the fees and expenses you may pay if you buy, hold, and sell shares of the fund. **You may pay other fees, such as brokerage commissions and other fees to financial intermediaries, which are not reflected in the tables and examples below.** You may qualify for sales charge discounts on Class A shares if you and your family invest, or agree to invest in the future, at least \$50,000 in the John Hancock family of funds. Intermediaries may have different policies and procedures regarding the availability of front-end sales charge waivers or contingent deferred sales charge (CDSC) waivers (See Appendix 1 - Intermediary sales charge waivers, which includes information about specific sales charge waivers applicable to the intermediaries identified therein). More information about these and other discounts is available from your financial professional and on pages 36 to 38 of the prospectus under "Sales charge reductions and waivers" or pages 161 to 166 of the fund's Statement of Additional Information under "Sales Charges on Class A and Class C Shares."

Shareholder fees (%) (fees paid directly from your investment)	A	C	I	R2	R4	R6
Maximum front-end sales charge (load) on purchases, as a % of purchase price	5.00	None	None	None	None	None
Maximum deferred sales charge (load) as a % of purchase or sale price, whichever is less	1.00 (on certain purchases, including those of \$1 million or more)	1.00	None	None	None	None
Small account fee (for fund account balances under \$1,000) (\$)	20	20	None	None	None	None

Annual fund operating expenses (%) (expenses that you pay each year as a percentage of the value of your investment)

	A	C	I	R2	R4	R6
Management fee	0.41	0.41	0.41	0.41	0.41	0.41
Distribution and service (Rule 12b-1) fees	0.30	1.00	0.00	0.25	0.25	0.00
Other expenses						
Service plan fee	0.00	0.00	0.00	0.25	0.10	0.00
Additional other expenses	0.19	0.19	0.19	0.08	0.08	0.08
Total other expenses	0.19	0.19	0.19	0.33	0.18	0.08
Acquired fund fees and expenses ¹	0.94	0.94	0.94	0.94	0.94	0.94
Total annual fund operating expenses²	1.84	2.54	1.54	1.93	1.78	1.43
Contractual expense reimbursement ³	-0.18	-0.18	-0.18	-0.18	-0.28 ⁴	-0.18
Total annual fund operating expenses after expense reimbursements	1.66	2.36	1.36	1.75	1.50	1.25

¹ "Acquired fund fees and expenses" are based on indirect net expenses associated with the fund's investments in underlying investment companies.

² The "Total annual fund operating expenses" shown may not correlate to the fund's ratios of expenses to average daily net assets shown in the "Financial highlights" section of the fund's prospectus, which does not include "Acquired fund fees and expenses."

³ The advisor contractually agrees to reduce its management fee or, if necessary, make payments to the fund, in an amount equal to the amount by which other expenses of the fund exceed 0.04% of average daily net assets of the fund. For purposes of this agreement, "Other expenses of the fund" means all fund expenses,

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excluding (a) taxes; (b) brokerage commissions; (c) interest expense; (d) litigation and indemnification expenses and other extraordinary expenses not incurred in the ordinary course of the fund's business; (e) advisory fees; (f) class-specific expenses; (g) underlying fund expenses (acquired fund fees); and (h) short dividend expense. The advisor also contractually agrees to reduce its management fee by 0.05% of the fund's average daily net assets up to \$5 billion, and by 0.025% on average daily net assets of the fund over \$5 billion. The advisor also contractually agrees to waive its advisory fee for the fund so that the aggregate advisory fee retained by the advisor with respect to both the fund and its underlying investments (after payment of subadvisory fees) does not exceed 0.55% of the fund's first \$5 billion of average net assets and 0.525% of the fund's average net assets in excess of \$5 billion. These agreements expire on December 31, 2023, unless renewed by mutual agreement of the fund and the advisor based upon a determination that this is appropriate under the circumstances at that time.

- 4 The distributor contractually agrees to limit its Rule 12b-1 fees for Class R4 shares to 0.15%. This agreement expires on December 31, 2023 unless renewed by mutual agreement of the fund and the distributor based upon a determination that this is appropriate under the circumstances at that time.

Expense example

This example is intended to help you compare the cost of investing in the fund with the cost of investing in other mutual funds. Please see below a hypothetical example showing the expenses of a \$10,000 investment for the time periods indicated and then, except as shown below, assuming you sell all of your shares at the end of those periods. The example assumes a 5% average annual return and that fund expenses will not change over the periods. Although your actual costs may be higher or lower, based on these assumptions, your costs would be:

Expenses (\$)	A	C		I	R2	R4	R6
		Sold	Not Sold				
1 year	660	339	239	138	178	153	127
3 years	1,033	773	773	469	589	533	435
5 years	1,430	1,334	1,334	822	1,025	938	765
10 years	2,537	2,691	2,691	1,819	2,239	2,072	1,698

Portfolio turnover

The fund, which operates as a fund of funds and invests in underlying funds, does not pay transaction costs, such as commissions, when it buys and sells shares of underlying funds (or "turns over" its portfolio). An underlying fund does pay transaction costs when it turns over its portfolio, and a higher portfolio turnover rate may indicate higher transaction costs. A higher portfolio turnover rate may result in higher taxes when fund shares are held in a taxable account. These costs, which are not reflected in annual fund operating expenses or in the example, affect the performance of the underlying funds and of the fund. During its most recent fiscal year, the fund's portfolio turnover rate was 13% of the average value of its portfolio.

Principal investment strategies

The fund seeks to achieve its objective by investing in alternative asset classes. The fund invests in other funds as well as other types of investments as described below.

The fund allocates its assets among other affiliated and unaffiliated underlying funds, including exchange-traded funds (ETFs), that emphasize alternative or nontraditional asset categories or investment strategies such as international small-cap stocks, emerging-market equity, commodities, market neutral (long/short), global real estate, natural resources, TIPS (Treasury Inflation-Protected Securities), global bonds, high yield, bank loans, foreign currency trading strategies, absolute return strategies, managed futures, arbitrage strategies, tactical investment strategies, and emerging-market debt. Direct investments in loans may be illiquid and holding a loan could expose the fund to the risks of being a direct lender. The fund may purchase any underlying funds except other funds of funds. The fund may also invest directly in exchange-traded notes (ETNs). The fund may use a portion of its assets to employ a market neutral (long/short) strategy by simultaneously purchasing a security and entering into a short sale on the security.

The fund may use various investment strategies such as hedging and other related transactions, including derivative instruments such as options, futures, and swaps. Derivatives may be used for hedging purposes, including hedging various market risks and managing the effective maturity or duration of debt instruments held by the fund. These strategies also may be used to gain exposure to a particular security or securities market. The fund also may purchase and sell commodities and may enter into swap contracts and other commodity-linked derivative instruments, including those linked to physical commodities.

Principal risks

An investment in the fund is not a bank deposit and is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Many factors affect performance, and fund shares will fluctuate in price, meaning you could lose money. The fund's investment strategy may not produce the intended results.

During periods of heightened market volatility or reduced liquidity, governments, their agencies, or other regulatory bodies, both within the United States and abroad, may take steps to intervene. These actions, which could include legislative, regulatory, or economic initiatives, might have unforeseeable consequences and could adversely affect the fund's performance or otherwise constrain the fund's ability to achieve its investment objective.

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The fund's main risks are listed below in alphabetical order, not in order of importance. *Before investing, be sure to read the additional descriptions of these risks beginning on page 8 of the prospectus.*

Principal risks of investing in the fund of funds

Asset allocation risk. Although allocation among asset categories generally limits exposure to any one category, the management team may favor a category that performs poorly relative to others. Alternative asset categories may underperform the general stock market.

Commodity risk. Commodity prices may be volatile due to fluctuating demand, supply disruption, speculation, and other factors. Certain commodity investments may have no active trading market at times.

Credit and counterparty risk. The counterparty to an over-the-counter derivatives contract or a borrower of fund securities may not make timely payments or otherwise honor its obligations.

Economic and market events risk. Events in the U.S. and global financial markets, including actions taken by the U.S. Federal Reserve or foreign central banks to stimulate or stabilize economic growth, may at times result in unusually high market volatility, which could negatively impact performance. Reduced liquidity in credit and fixed-income markets could adversely affect issuers worldwide. Banks and financial services companies could suffer losses if interest rates rise or economic conditions deteriorate.

Exchange-traded funds (ETFs) risk. The risks of owning shares of an ETF include the risks of owning the underlying securities the ETF holds. Lack of liquidity in an ETF could result in the ETF being more volatile than its underlying securities. An ETF's shares could trade at a significant premium or discount to its net asset value (NAV). A fund bears ETF fees and expenses indirectly.

Exchange-traded notes (ETNs) risk. An ETN generally reflects the risks associated with the assets composing the underlying market benchmark or strategy it is designed to track. ETNs also are subject to issuer and fixed-income risks.

Fund of funds risk. The fund's ability to achieve its investment objective will depend largely, in part, on: (i) the underlying funds' performance, expenses and ability to meet their investment objectives; and (ii) properly rebalancing assets among underlying funds and different asset classes. The fund is also subject to risks related to: (i) layering of fees of the underlying funds; and (ii) conflicts of interest associated with the subadvisor's ability to allocate fund assets without limit to other funds it advises and/or other funds advised by affiliated subadvisors. There is no assurance that either the fund or the underlying funds will achieve their investment objectives. A fund bears underlying fund fees and expenses indirectly.

Hedging, derivatives, and other strategic transactions risk. Hedging, derivatives, and other strategic transactions may increase a fund's volatility and could produce disproportionate losses, potentially more than the fund's principal investment. Risks of these transactions are different from and possibly greater than risks of investing directly in securities and other traditional instruments. Under certain market conditions, derivatives could become harder to value or sell and may become subject to liquidity risk (i.e., the inability to enter into closing transactions). Derivatives and other strategic transactions that the fund intends to utilize include: foreign currency forward contracts, futures contracts, swaps, and options. Foreign currency forward contracts, futures contracts, options, and swaps generally are subject to counterparty risk. In addition, swaps may be subject to interest-rate and settlement risk, and the risk of default of the underlying reference obligation. Derivatives associated with foreign currency transactions are subject to currency risk.

Investment company securities risk. The fund may invest in securities of other investment companies. Fund shareholders indirectly bear their proportionate share of the expenses of each such investment company. The total return on such investments will be reduced by the operating expenses and fees of such other investment companies, including advisory fees.

Operational and cybersecurity risk. Cybersecurity breaches may allow an unauthorized party to gain access to fund assets, customer data, or proprietary information, or cause a fund or its service providers to suffer data corruption or lose operational functionality. Similar incidents affecting issuers of a fund's securities may negatively impact performance. Operational risk may arise from human error, error by third parties, communication errors, or technology failures, among other causes.

Short sales risk. Short sales involve costs and risk. A fund must pay the lender interest on a security it borrows, and the fund will lose money if the price of the borrowed security increases between the time of the short sale and the date when the fund replaces the borrowed security.

Principal risks of investing in the underlying funds

Absolute return risk. Although a manager may aim to maximize absolute return, there is no guarantee that a fund will generate positive returns.

Arbitrage strategies risk. Arbitrage strategies involve engaging in transactions that attempt to exploit the price differences of identical, related, or similar securities within a market or different markets or in different forms. The fund may realize losses or a reduced rate of return if underlying relationships among securities in which it takes investment positions change in an adverse manner or if a transaction is unexpectedly terminated or delayed.

Commodity risk. Commodity prices may be volatile due to fluctuating demand, supply disruption, speculation, and other factors. Certain commodity investments may have no active trading market at times.

Credit and counterparty risk. The issuer or guarantor of a fixed-income security, the counterparty to an over-the-counter derivatives contract, or a borrower of fund securities may not make timely payments or otherwise honor its obligations. U.S. government securities are subject to varying degrees of credit risk depending upon the nature of their support. A downgrade or default affecting any of the fund's securities could affect the fund's performance.

Currency risk. Fluctuations in exchange rates may adversely affect the U.S. dollar value of a fund's investments. Foreign currencies may decline in value, which could negatively impact performance.

Economic and market events risk. Events in the U.S. and global financial markets, including actions taken by the U.S. Federal Reserve or foreign central banks to stimulate or stabilize economic growth, may at times result in unusually high market volatility, which could negatively impact performance. Reduced liquidity in credit and fixed-income markets could adversely affect issuers worldwide. Banks and financial services companies could suffer losses if interest rates rise or economic conditions deteriorate.

Emerging-market risk. The risks of investing in foreign securities are magnified in emerging markets. Emerging-market countries may experience higher inflation, interest rates, and unemployment and greater social, economic, and political uncertainties than more developed countries.

Equity securities risk. The price of equity securities may decline due to changes in a company's financial condition or overall market conditions. Growth company securities may fluctuate more in price than other securities because of the greater emphasis on earnings expectations. Securities the manager believes are undervalued may never realize their full potential value, and in certain markets value stocks may underperform the market as a whole.

Fixed-income securities risk. A rise in interest rates typically causes bond prices to fall. The longer the average maturity or duration of the bonds held by a fund, the more sensitive it will likely be to interest-rate fluctuations. An issuer may not make all interest payments or repay all or any of the principal borrowed. Changes in a security's credit quality may adversely affect fund performance. Additionally, the value of inflation-indexed securities is subject to the effects of changes in market interest rates caused by factors other than inflation ("real interest rates"). Generally, when real interest rates rise, the value of inflation-indexed securities will fall and the fund's value may decline as a result of this exposure to these securities.

Foreign securities risk. Less information may be publicly available regarding foreign issuers, including foreign government issuers. Foreign securities may be subject to foreign taxes and may be more volatile than U.S. securities. Currency fluctuations and political and economic developments may adversely impact the value of foreign securities. The risks of investing in foreign securities are magnified in emerging markets. If applicable, depositary receipts are subject to most of the risks associated with investing in foreign securities directly because the value of a depositary receipt is dependent upon the market price of the underlying foreign equity security. Depositary receipts are also subject to liquidity risk.

Hedging, derivatives, and other strategic transactions risk. Hedging, derivatives, and other strategic transactions may increase a fund's volatility and could produce disproportionate losses, potentially more than the fund's principal investment. Risks of these transactions are different from and possibly greater than risks of investing directly in securities and other traditional instruments. Under certain market conditions, derivatives could become harder to value or sell and may become subject to liquidity risk (i.e., the inability to enter into closing transactions). Derivatives and other strategic transactions that a fund may utilize include: credit default swaps, foreign currency forward contracts, futures contracts, interest-rate swaps, and options. Foreign currency forward contracts, futures contracts, options, and swaps generally are subject to counterparty risk. In addition, swaps may be subject to interest-rate and settlement risk, and the risk of default of the underlying reference obligation. Derivatives associated with foreign currency transactions are subject to currency risk.

High portfolio turnover risk. Trading securities actively and frequently can increase transaction costs (thus lowering performance) and taxable distributions.

Illiquid and restricted securities risk. Illiquid and restricted securities may be difficult to value and may involve greater risks than liquid securities. Illiquidity may have an adverse impact on a particular security's market price and the fund's ability to sell the security.

Inflation-protected securities risk. Increases in real interest rates generally cause the price of inflation-protected debt securities to decrease.

Initial public offerings (IPOs) risk. IPO share prices are frequently volatile and may significantly impact fund performance.

Liquidity risk. The extent (if at all) to which a security may be sold or a derivative position closed without negatively impacting its market value may be impaired by reduced market activity or participation, legal restrictions, or other economic and market impediments. Liquidity risk may be magnified in rising interest rate environments due to higher than normal redemption rates. Widespread selling of fixed-income securities to satisfy redemptions during periods of reduced demand may adversely impact the price or salability of such securities. Periods of heavy redemption could cause the fund to sell assets at a loss or depressed value, which could negatively affect performance. Redemption risk is heightened during periods of declining or illiquid markets.

Loan participations risk. Participations and assignments involve special types of risks, including credit risk, interest-rate risk, counterparty risk, liquidity risk, risks associated with extended settlement, and the risks of being a lender.

Lower-rated and high-yield fixed-income securities risk. Lower-rated and high-yield fixed-income securities (junk bonds) are subject to greater credit quality risk, risk of default, and price volatility than higher-rated fixed-income securities, may be considered speculative, and can be difficult to resell.

Mortgage-backed and asset-backed securities risk. Mortgage-backed and asset-backed securities are subject to different combinations of prepayment, extension, interest-rate, and other market risks. Factors that impact the value of these securities include interest rate changes, the reliability of available information, credit quality or enhancement, and market perception.

Natural resources industry risk. The natural resources industry can be significantly affected by international political and economic developments, energy conservation and exploration efforts, natural disasters or other extreme weather conditions, commodity prices, and taxes and other governmental regulations, among other factors.

Non-diversified risk. Adverse events affecting a particular issuer or group of issuers may magnify losses for non-diversified funds, which may invest a large portion of assets in any one issuer or a small number of issuers.

Operational and cybersecurity risk. Cybersecurity breaches may allow an unauthorized party to gain access to fund assets, customer data, or proprietary information, or cause a fund or its service providers to suffer data corruption or lose operational functionality. Similar incidents affecting issuers of a fund's securities may negatively impact performance. Operational risk may arise from human error, error by third parties, communication errors, or technology failures, among other causes.

Preferred and convertible securities risk. Preferred stock dividends are payable only if declared by the issuer's board. Preferred stock may be subject to redemption provisions. The market values of convertible securities tend to fall as interest rates rise and rise as interest rates fall. Convertible preferred stock's value can depend heavily upon the underlying common stock's value.

Real estate securities risk. Securities of companies in the real estate industry carry risks associated with owning real estate, including the potential for a decline in value due to economic or market conditions.

Small and mid-sized company risk. Small and mid-sized companies are generally less established and may be more volatile than larger companies. Small and/or mid-capitalization securities may underperform the market as a whole.

Past performance

The following information illustrates the variability of the fund's returns and provides some indication of the risks of investing in the fund by showing changes in the fund's performance from year to year and by showing how the fund's average annual returns compared with a broad-based market index. Past performance (before and after taxes) does not indicate future results. All figures assume dividend reinvestment. Performance information is updated daily, monthly, and quarterly and may be obtained at our website, jhinvestments.com, or by calling 800-225-5291 (Class A and Class C), Monday to Thursday, 8:00 A.M.—7:00 P.M., and Friday, 8:00 A.M.—6:00 P.M., Eastern time, or 888-972-8696 (Class I, Class R2, Class R4, and Class R6) between 8:30 A.M. and 5:00 P.M., Eastern time, on most business days.

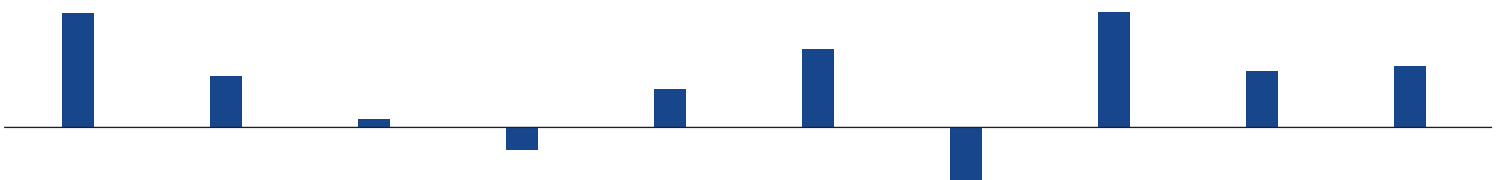
A note on performance

Class A, Class R2 and Class R4 shares commenced operations on January 2, 2009, March 1, 2012 and June 27, 2013, respectively. Returns shown prior to a class's commencement date are those of Class A shares, except that they do not include sales charges and would be lower if they did. Returns for Class R2 and Class R4 shares would have been substantially similar to returns of Class A shares because each share class is invested in the same portfolio of securities and returns would differ only to the extent that expenses of the classes are different. To the extent expenses of a class would have been higher than expenses of Class A shares for the periods shown, performance would have been lower.

Please note that after-tax returns (shown for Class A shares only) reflect the highest individual federal marginal income-tax rate in effect as of the date provided and do not reflect any state or local taxes. Your actual after-tax returns may be different. After-tax returns are not relevant to shares held in an IRA, 401(k), or other tax-advantaged investment plan. After-tax returns for other share classes would vary.

Calendar year total returns (%)—Class A (sales charges are not reflected in the bar chart and returns would have been lower if they were)

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
8.91	3.98	0.68	-1.71	2.99	6.10	-4.09	8.95	4.36	4.77



Year-to-date total return. The fund's total return for the nine months ended September 30, 2022, was -5.77%.

Best quarter: 2012, Q1, 5.26%

Worst quarter: 2020, Q1, -7.26%

Average annual total returns (%)—as of 12/31/21	1 year	5 year	10 year
Class A (before tax)	-0.48	2.87	2.89
after tax on distributions	-1.10	2.18	2.13
after tax on distributions, with sale	-0.22	1.93	1.94
Class C	3.10	3.20	2.70
Class I	5.08	4.24	3.74
Class R2	4.68	3.82	3.29
Class R4	4.94	4.09	3.54
Class R6	5.19	4.34	3.82
HFRX Global Hedge Fund Index (reflects no deduction for fees, expenses, or taxes)	3.65	3.52	2.58

Investment management

Investment advisor John Hancock Investment Management LLC

Subadvisor Manulife Investment Management (US) LLC

Portfolio management

The following individuals are jointly and primarily responsible for the day-to-day management of the fund's portfolio.

Nathan W. Thooft, CFA

Chief Investment Officer and Senior Portfolio Manager, Multi-Asset Solutions Team

Managed the fund since 2013

Christopher Walsh, CFA

Managing Director and Senior Portfolio Manager, Multi-Asset Solutions Team

Managed the fund since 2018

Purchase and sale of fund shares

The minimum initial investment requirement for Class A and Class C shares is \$1,000 (\$250 for group investments), except that there is no minimum for certain group retirement plans, certain fee-based or wrap accounts, or certain other eligible investment product platforms. The minimum initial investment requirement for Class I shares is \$250,000, except that the fund may waive the minimum for any category of investors at the fund's sole discretion. There are no minimum initial investment requirements for Class R2 or Class R4 shares. The minimum initial investment requirement for Class R6 shares is \$1 million, except that there is no minimum for: qualified and nonqualified plan investors; certain eligible qualifying investment product platforms; Trustees, employees of the advisor or its affiliates, employees of the subadvisor, members of the fund's portfolio management team and the spouses and children (under age 21) of the aforementioned. There are no subsequent minimum investment requirements.

Class A, Class C, Class I, and Class R6 shares may be redeemed on any business day by mail: John Hancock Signature Services, Inc., P.O. Box 219909, Kansas City, MO 64121-9909; or for most account types through our website: jhinvestments.com; or by telephone: 800-225-5291 (Class A and Class C); 888-972-8696 (Class I and Class R6). Class R2 and Class R4 shares may be redeemed on any business day by contacting your retirement plan administrator or recordkeeper.

Taxes

The fund's distributions are taxable, and will be taxed as ordinary income and/or capital gains, unless you are investing through a tax-deferred arrangement, such as a 401(k) plan or individual retirement account. Withdrawals from such tax-deferred arrangements may be subject to tax at a later date.

Payments to broker-dealers and other financial intermediaries

If you purchase the fund through a broker-dealer or other financial intermediary (such as a bank, registered investment advisor, financial planner, or retirement plan administrator), the fund and its related companies may pay the broker-dealer or other intermediary for the sale of fund shares and related services. These payments may create a conflict of interest by influencing the broker-dealer or other intermediary and your salesperson to recommend the fund over another investment. These payments are not applicable to Class R6 shares. Ask your salesperson or visit your financial intermediary's website for more information.



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