## Cumberland County Hospital 403(b) Plan (THE "PLAN")
## Plan ID: 752982
As of **07/25/19**

# Important Notice

**Additional Investment-Related Disclosures**
**Including: Objectives, goals, strategies, risks and portfolio turnover rate.**

The following information is being provided to you by, or at the direction of, your Plan Fiduciary to help provide you with important information regarding any Plan account you may maintain.

Please note that nothing in this Notice is intended to serve as a substitute for investment, fee and expense information that may be available to you in a summary plan description, prospectus, or in other disclosure materials. Before making any investment decisions regarding your account, you should review all information available to you and not rely solely upon the information contained in this Notice.

*This Notice provides additional information about your Plan's investment options, including portfolio turnover rate, principal strategies, principal risks, goals and objectives. This Notice should be reviewed in conjunction with the Participant Fee Disclosure Notice, which is also available at www.massmutual.com/serve .*

To request additional information regarding your Plan, or to obtain a free paper copy of these materials or any Plan information provided online please contact your Plan Sponsor.

If you have any question, please call the participant service center at **1-888-945-6559.** Representatives are available, Monday through Friday, 8:00 a.m. - 8:00 p.m. Eastern Time.

# YOUR PLAN'S INVESTMENT OPTIONS
## 07/25/19

### STABLE VALUE/MONEY MARKET

**Fund name:** GENERAL ACCOUNT

**Issuer name:**

**Morningstar category:** *N/A*

**Investment objective or goals:** N/A

**Principal strategies:** N/A

**Principal risks:** N/A

**Portfolio turnover rate(%):** N/A

Money market investments are not insured or guaranteed by the Federal Deposit Insurance Corporation (FDIC) or any other government agency. Although these investments seek to preserve their value at $1.00 per share, it is possible to lose money by investing in them. If a money market investment is pending liquidation under the U.S. Treasury Department's Guarantee Program, there may be a period of time in which assets cannot be invested or redeemed.

### BOND

**Fund name:** PIMCO REAL RETURN

**Issuer name:** PIMCO

**Morningstar category:** *Inflation-Protected Bond*

**Investment objective or goals:** The investment seeks maximum real return, consistent with preservation of capital and prudent investment management.

**Principal strategies:** The fund normally invests at least 80% of its net assets in inflation-indexed bonds of varying maturities issued by the U.S. and non-U.S. governments, their agencies or instrumentalities, and corporations, which may be represented by forwards or derivatives such as options, futures contracts or swap agreements.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 5,6,10,13,14,16,18,19,33,36,37,44,47,51,57,65,66,71,91

**Portfolio turnover rate(%):** 254.00

# YOUR PLAN'S INVESTMENT OPTIONS
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### BOND

**Fund name:** BNY MELLON BOND MARKET INDEX

**Issuer name:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Morningstar category:** *Intermediate Core Bond*

**Investment objective or goals:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal strategies:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal risks:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Portfolio turnover rate(%):** 156.30

Corporate bonds, U.S. Treasury bills and U.S. government bonds will fluctuate in value, and the return of principal is not guaranteed if sold before maturity.

### ASSET ALLOCATION/BALANCED

**Fund name:** JP MORGAN SMARTRETIREMENT 2035

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2035*

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2035 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 28.00

## ASSET ALLOCATION/BALANCED

**Fund name:** JP MORGAN SMARTRETIREMENT 2025

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2025*

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2025 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 26.00

**Fund name:** JP MORGAN SMARTRETIREMENT 2020

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2020*

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2020 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 23.00

**Fund name:** JP MORGAN SMARTRETIREMENT 2040

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2040*

# YOUR PLAN'S INVESTMENT OPTIONS
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## ASSET ALLOCATION/BALANCED

**Fund name:** JP MORGAN SMARTRETIREMENT 2040

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2040 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 29.00

**Fund name:** JP MORGAN SMARTRETIREMENT 2030

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2030*

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2030 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 30.00

**Fund name:** JP MORGAN SMARTRETIREMENT 2045

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2045*

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

# YOUR PLAN'S INVESTMENT OPTIONS
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### ASSET ALLOCATION/BALANCED

**Fund name:** JP MORGAN SMARTRETIREMENT 2045

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2045 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 26.00

**Fund name:** JP MORGAN SMARTRETIREMENT 2050

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date 2050*

**Investment objective or goals:** The investment seeks high total return with a shift to current income and some capital appreciation over time as the fund approaches and passes the target retirement date.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors expecting to retire around the year 2050 (target retirement date). It is designed to provide exposure to a variety of asset classes through investments in underlying funds, and over time the fund's asset allocation strategy will change.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

**Portfolio turnover rate(%):** 25.00

**Fund name:** MFS TOTAL RETURN

**Issuer name:** MFS

**Morningstar category:** *Allocation--50% to 70% Equity*

**Investment objective or goals:** The investment seeks total return.

**Principal strategies:** The fund invests its assets in equity securities and debt instruments. Equity securities include common stocks and other securities that represent an ownership interest (or right to acquire an ownership interest) in a company or other issuer. Debt instruments include corporate bonds, U.S. government securities, securitized instruments, foreign government securities, and other obligations to repay money borrowed. It generally invests approximately 60% of its assets in equity securities and approximately 40% of its assets in debt instruments.

## ASSET ALLOCATION/BALANCED

**Fund name:** MFS TOTAL RETURN

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 6,7,10,16,18,19,28,33,36,37,44,57,66,68,91,98

**Portfolio turnover rate(%):** 33.00

**Fund name:** BLACKROCK GLOBAL ALLOCATN

**Issuer name:** BlackRock

**Morningstar category:** *World Allocation*

**Investment objective or goals:** The investment seeks to provide high total investment return.

**Principal strategies:** The fund invests in a portfolio of equity, debt and money market securities. Generally, the fund's portfolio will include both equity and debt securities. It may invest up to 35% of its total assets in "junk bonds," corporate loans and distressed securities. The fund may also invest in Real Estate Investment Trusts ("REITs") and securities related to real assets (like real estate- or precious metals-related securities) such as stock, bonds or convertible bonds issued by REITs or companies that mine precious metals.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,14,16,18,19,25,30,37,39,40,43,44,47,51,54,58,59,65,66,68,71,91,99,106,107,110

**Portfolio turnover rate(%):** 154.00

**Fund name:** JP MORGAN SMARTRETIREMENT INC

**Issuer name:** JPMorgan

**Morningstar category:** *Target-Date Retirement*

**Investment objective or goals:** The investment seeks current income and some capital appreciation.

**Principal strategies:** The fund is a "fund of funds" that primarily invests in other mutual funds within the same group of investment companies, and is generally intended for investors who are retired or about to retire soon. It is designed to provide exposure to a variety of asset classes through investments in underlying funds, with an emphasis on fixed income funds over equity funds and other funds.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 4,9,14,16,18,19,37,39,44,47,48,58,65,68,75,78,84,91,101,106,109,110

### ASSET ALLOCATION/BALANCED

**Fund name:** JP MORGAN SMARTRETIREMENT INC

**Portfolio turnover rate(%):** 23.00

Asset Allocation doesn't ensure a profit or protect against loss.

### LARGE-CAP

**Fund name:** BNY MELLON S&P 500 INDEX

**Issuer name:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Morningstar category:** *Large Blend*

**Investment objective or goals:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal strategies:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal risks:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Portfolio turnover rate(%):** 3.06

**Fund name:** T. ROWE PRICE GROWTH STOCK

**Issuer name:** T. Rowe Price

**Morningstar category:** *Large Growth*

**Investment objective or goals:** The investment seeks long-term capital growth through investments in stocks.

**Principal strategies:** The fund will normally invest at least 80% of its net assets (including any borrowings for investment purposes) in the common stocks of a diversified group of growth companies. While most assets will typically be invested in U.S. common stocks, the fund may invest in foreign stocks in keeping with the fund's objective.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 14,16,18,19,24,29,44,48,91

# YOUR PLAN'S INVESTMENT OPTIONS
## 07/25/19

### LARGE-CAP

**Fund name:** T. ROWE PRICE GROWTH STOCK

**Portfolio turnover rate(%):** 41.80

Stocks fluctuate in value and are subject to more risk than bonds or money market investments. Shares, when redeemed, may be worth more or less than their original cost.

### MID-CAP

**Fund name:** BNY MELLON MIDCAP INDEX

**Issuer name:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Morningstar category:** *Mid-Cap Blend*

**Investment objective or goals:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal strategies:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal risks:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Portfolio turnover rate(%):** 15.73

Mid-cap stocks generally have higher risk and reward characteristics than large company stocks.

### SMALL-CAP

**Fund name:** BNY MELLON SMLCAP STOCK INDEX

**Issuer name:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Morningstar category:** *Small Blend*

**Investment objective or goals:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Principal strategies:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

## SMALL-CAP

**Fund name:** BNY MELLON SMLCAP STOCK INDEX

**Principal risks:** Please refer to wwwrs.massmutual.com/retire/pdffolder/bny404aprincipalrisks/index.html

**Portfolio turnover rate(%):** 19.60

Small-cap stocks generally have higher risk and reward characteristics than large company stocks.

## INTERNATIONAL/GLOBAL

**Fund name:** INVESCO OPPENHEIMER DEVLP MKTS

**Issuer name:** Invesco

**Morningstar category:** *Diversified Emerging Mkts*

**Investment objective or goals:** The investment seeks capital appreciation.

**Principal strategies:** The fund mainly invests in common stocks of issuers in developing and emerging markets throughout the world and at times it may invest up to 100% of its total assets in foreign securities. Under normal market conditions, it will invest at least 80% of its net assets, plus borrowings for investment purposes, in equity securities of issuers whose principal activities are in a developing market, i.e. are in a developing market or are economically tied to a developing market country, and in derivatives and other instruments that have economic characteristics similar to such securities.

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 14,16,18,19,20,25,37,44,48,81,106,107

**Portfolio turnover rate(%):** 36.00

**Fund name:** AMERICAN FUNDS CAPWLD G&I

**Issuer name:** American Funds

**Morningstar category:** *World Large Stock*

**Investment objective or goals:** The investment seeks long-term growth of capital while providing current income.

**Principal strategies:** The fund invests primarily in common stocks of well-established companies located around the world, many of which have the potential to pay dividends. It invests, on a global basis, in common stocks that are denominated in U.S. dollars or other currencies. Under normal market circumstances, the fund will invest a significant portion of its assets in securities of issuers domiciled outside the United States, including those based in developing countries.

### INTERNATIONAL/GLOBAL

**Fund name:** AMERICAN FUNDS CAPWLD G&I

**Principal risks:** Please see "Principal Risk Descriptions" for risk explanations 14,16,17,18,19,25,29,33,37,44

**Portfolio turnover rate(%):** 49.00

Investments in international stocks involve risks associated with interest-rate and currency-exchange-rate changes as well as with market, economic, and political conditions of the countries where investments are made. There may be greater returns but also greater risks than with U.S. investments. International stocks fluctuate in value and may be worth more or less than their original cost.

## Principal Risk Descriptions

The principal risk(s) for each investment option are identified numerically in the pages above.
To understand the risk(s) for each, please read the description below to the corresponding number of each investment option.

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| 2 | Arbitrage strategies involve investment in multiple securities with the expectation that their prices will converge at an expected value. These strategies face the risk that the advisor's price predictions will not perform as expected. Investing in event-driven or merger arbitrage strategies may not be successful if the merger, restructuring, tender offer, or other major corporate event proposed or pending at the time of investment is not completed on the terms contemplated. |
| 3 | The advisor's use of hedging strategies to reduce risk may limit the opportunity for gains compared with unhedged investments, and there is no guarantee that hedges will actually reduce risk. |
| 4 | Investing in loans creates risk for the borrower, lender, and any other participants. A borrower may fail to make payments of principal, interest, and other amounts in connection with loans of cash or securities or fail to return a borrowed security in a timely manner, which may lead to impairment of the collateral provided by the borrower. Investments in loan participations may be subject to increased credit, pricing, and liquidity risks, with these risks intensified for below-investment-grade loans. |
| 5 | Selling securities short may be subject to the risk that an advisor does not correctly predict the movement of the security, resulting in a loss if a security must be purchased on the market above its initial borrowing price to return to the lender, in addition to interest paid to the lender for borrowing the security. |

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| 6 | The issuer or guarantor of a fixed-income security, counterparty to an OTC derivatives contract, or other borrower may not be able to make timely principal, interest, or settlement payments on an obligation. In this event, the issuer of a fixed-income security may have its credit rating downgraded or defaulted, which may reduce the potential for income and value of the portfolio. |
| 7 | The issuer of a security may repay principal more slowly than expected because of rising interest rates. In this event, short- and medium-duration securities are effectively converted into longer-duration securities, increasing their sensitivity to interest-rate changes and causing their prices to decline. |
| 8 | A change of asset value may occur because of inflation or deflation, causing the portfolio to underperform. Inflation may cause the present value of future payments to decrease, causing a decline in the future value of assets or income. Deflation causes prices to decline throughout the economy over time, impacting issuers' creditworthiness and increasing their risk for default, which may reduce the value of the portfolio. |
| 9 | Unlike other fixed-income securities, the values of inflation-protected securities are not significantly impacted by inflation expectations because their interest rates are adjusted for inflation. Generally, the value of inflation-protected securities will fall when real interest rates rise and rise when real interest rates fall. |
| 10 | The issuer of a debt security may be able to repay principal prior to the security's maturity because of an improvement in its credit quality or falling interest rates. In this event, this principal may have to be reinvested in securities with lower interest rates than the original securities, reducing the potential for income. |
| 11 | Payments from debt securities may have to be reinvested in securities with lower interest rates than the original securities. |
| 13 | Investments in securities traded in foreign currencies or more directly in foreign currencies are subject to the risk that the foreign currency will decline in value relative to the U.S. dollar, which may reduce the value of the portfolio. Investments in currency hedging positions are subject to the risk that the value of the U.S. dollar will decline relative to the currency being hedged, which may result in a loss of money on the investment as well as the position designed to act as a hedge. Cross-currency hedging strategies and active currency positions may increase currency risk because actual currency exposure may be substantially different from that suggested by the portfolio's holdings. |
| 14 | Investments in emerging- and frontier-markets securities may be subject to greater market, credit, currency, liquidity, legal, political, and other risks compared with assets invested in developed foreign countries. |
| 16 | Investments in foreign securities may be subject to increased volatility as the value of these securities can change more rapidly and extremely than can the value of U.S. securities. Foreign securities are subject to increased issuer risk because foreign issuers may not experience the same degree of regulation as U.S. issuers do and are held to different reporting, accounting, and auditing standards. In addition, foreign securities are subject to increased costs because there are generally higher commission rates on transactions, transfer taxes, higher custodial costs, and the potential for foreign tax charges on dividend and interest payments. Many foreign markets are relatively small, and securities issued in less-developed countries face the risks of nationalization, expropriation or confiscatory taxation, and adverse changes in investment or exchange control regulations, including suspension of the ability to transfer currency from a country. Economic, political, social, or diplomatic developments can also negatively impact performance. |

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| 17 | The investment is intended to be held for a substantial period of time, and investors should tolerate fluctuations in their investment's value. |
| 18 | Because the investment's market value may fluctuate up and down, an investor may lose money, including part of the principal, when he or she buys or sells the investment. |
| 19 | The investment is not a deposit or obligation of, or guaranteed or endorsed by, any bank and is not insured by the Federal Deposit Insurance Corporation, the Federal Reserve Board, or any other U.S. governmental agency. |
| 20 | Investments in securities from a particular country or region may be subject to the risk of adverse social, political, regulatory, or economic events occurring in that country or region. Country- or region-specific risks also include the risk that adverse securities markets or exchange rates may impact the value of securities from those areas. |
| 21 | Investments in municipal bonds that finance similar types of projects, including those related to education, health care, housing, transportation, utilities, and industry, may be subject to a greater extent than general obligation municipal bonds to the risks of adverse economic, business, or political developments. |
| 23 | Investments in the municipal securities of a particular state or territory may be subject to the risk that changes in the economic conditions of that state or territory will negatively impact performance. |
| 24 | Concentrating assets in stocks of one or more capitalizations (small, mid, or large) may be subject to both the specific risks of those capitalizations as well as increased volatility because stocks of specific capitalizations tend to go through cycles of beating or lagging the market as a whole. |
| 25 | Growth securities may be subject to increased volatility as the value of these securities is highly sensitive to market fluctuations and future earnings expectations. These securities typically trade at higher multiples of current earnings than do other securities and may lose value if it appears their earnings expectations may not be met. |
| 26 | A nondiversified investment, as defined under the Investment Act of 1940, may have an increased potential for loss because its portfolio includes a relatively small number of investments. Movements in the prices of the individual assets may have a magnified effect on a nondiversified portfolio. Any sale of the investment's large positions could adversely affect stock prices if those positions represent a significant part of a company's outstanding stock. |
| 27 | Holdings selected by quantitative analysis may perform differently from the market as a whole based on the factors used in the analysis, the weighting of each factor, and how the factors have changed over time. |
| 28 | Value securities may be subject to the risk that these securities cannot overcome the adverse factors the advisor believes are responsible for their low price or that the market may not recognize their fundamental value as the advisor predicted. Value securities are not expected to experience significant earnings growth and may underperform growth stocks in certain markets. |
| 29 | The investment is actively managed and subject to the risk that the advisor's usage of investment techniques and risk analyses to make investment decisions fails to perform as expected, which may cause the portfolio to lose value or underperform investments with similar objectives and strategies or the market in general. |

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| 30 | Active trading may create high portfolio turnover, or a turnover of 100% or more, resulting in increased transaction costs. These higher costs may have an adverse impact on performance and generate short-term capital gains, creating potential tax liability even if an investor does not sell any shares during the year. |
| 31 | The investment's income payments may decline depending on fluctuations in interest rates and the dividend payments of its underlying securities. In this event, some investments may attempt to pay the same dividend amount by returning capital. |
| 32 | A portfolio that tracks an index is subject to the risk that certain factors may cause the portfolio to track its target index less closely, including if the advisor selects securities that are not fully representative of the index. The portfolio will generally reflect the performance of its target index even if the index does not perform well, and it may underperform the index after factoring in fees, expenses, transaction costs, and the size and timing of shareholder purchases and redemptions. |
| 33 | A stake in any individual security is subject to the risk that the issuer of that security performs poorly, resulting in a decline in the security's value. Issuer-related declines may be caused by poor management decisions, competitive pressures, technological breakthroughs, reliance on suppliers, labor problems or shortages, corporate restructurings, fraudulent disclosures, or other factors. Additionally, certain issuers may be more sensitive to adverse issuer, political, regulatory, market, or economic developments. |
| 35 | Temporary defensive positions may be used during adverse economic, market, or other conditions. In this event, up to 100% of assets may be allocated to securities, including cash and cash equivalents that are normally not consistent with the investment objective. |
| 36 | Most securities are subject to the risk that changes in interest rates will reduce their market value. |
| 37 | The market value of the portfolio's securities may fall rapidly or unpredictably because of changing economic, political, or market conditions, which may reduce the value of the portfolio. |
| 38 | Investments in bank loans, also known as senior loans or floating-rate loans, are rated below-investment grade and may be subject to a greater risk of default than are investment-grade loans, reducing the potential for income and potentially leading to impairment of the collateral provided by the borrower. Bank loans pay interest at rates that are periodically reset based on changes in interest rates and may be subject to increased prepayment and liquidity risks. |
| 39 | Investments in commodity-related instruments are subject to the risk that the performance of the overall commodities market declines and that weather, disease, political, tax, and other regulatory developments adversely impact the value of commodities, which may result in a loss of principal and interest. Commodity-linked investments face increased price volatility and liquidity, credit, and issuer risks compared with their underlying measures. |
| 40 | Investments in convertible securities may be subject to increased interest-rate risks, rising in value as interest rates decline and falling in value when interest rates rise, in addition to their market value depending on the performance of the common stock of the issuer. Convertible securities, which are typically unrated or rated lower than other debt obligations, are secondary to debt obligations in order of priority during a liquidation in the event the issuer defaults. |
| 41 | Investments in depositary receipts generally reflect the risks of the securities they represent, although they may be subject to increased liquidity risk and higher expenses and may not pass through voting and other shareholder rights. Depositary receipts cannot be directly exchanged for the securities they represent and may trade at either a discount or premium to those securities. |

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| 43 | Investments in distressed or defaulted investments, which may include loans, loan participations, bonds, notes, and issuers undergoing bankruptcy organization, are often not publicly traded and face increased price volatility and liquidity risk. These securities are subject to the risk that the advisor does not correctly estimate their future value, which may result in a loss of part or all of the investment. |
| 44 | The value of equity securities, which include common, preferred, and convertible preferred stocks, will fluctuate based on changes in their issuers' financial conditions, as well as overall market and economic conditions, and can decline in the event of deteriorating issuer, market, or economic conditions. |
| 45 | Investments in exchange-traded funds generally reflect the risks of owning the underlying securities they are designed to track, although they may be subject to greater liquidity risk and higher costs than owning the underlying securities directly because of their management fees. Shares of ETFs are subject to market trading risk, potentially trading at a premium or discount to net asset value. |
| 46 | Investments in futures contracts and options on futures contracts may increase volatility and be subject to additional market, active management, interest, currency, and other risks if the contract cannot be closed when desired. |
| 47 | Investments in below-investment-grade debt securities and unrated securities of similar credit quality, commonly known as "junk bonds" or "high-yield securities," may be subject to increased interest, credit, and liquidity risks. |
| 48 | Concentrating assets in a particular industry, sector of the economy, or markets may increase volatility because the investment will be more susceptible to the impact of market, economic, regulatory, and other factors affecting that industry or sector compared with a more broadly diversified asset allocation. |
| 49 | Investing in initial public offerings may increase volatility and have a magnified impact on performance. IPO shares may be sold shortly after purchase, which can increase portfolio turnover and expenses, including commissions and transaction costs. Additionally, IPO shares are subject to increased market, liquidity, and issuer risks. |
| 50 | Investments in inverse floaters may be subject to increased price volatility compared with fixed-rate bonds that have similar credit quality, redemption provisions, and maturity. The performance of inverse floaters tends to lag fixed-rate bonds in rising long-term interest-rate environments and exceed them in falling or stable long-term interest-rate environments. |
| 51 | Investments in mortgage-backed and asset-backed securities may be subject to increased price volatility because of changes in interest rates, issuer information availability, credit quality of the underlying assets, market perception of the issuer, availability of credit enhancement, and prepayment of principal. The value of ABS and MBS may be adversely affected if the underlying borrower fails to pay the loan included in the security. |
| 52 | Investments in municipal obligations, leases, and private activity bonds subject to the alternative minimum tax have varying levels of public and private support. The principal and interest payments of general-obligation municipal bonds are secured by the issuer's full faith and credit and supported by limited or unlimited taxing power. The principal and interest payments of revenue bonds are tied to the revenues of specific projects or other entities. Federal income tax laws may limit the types and volume of bonds qualifying for tax exemption of interest and make any further purchases of tax-exempt securities taxable. |

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| 53 | Investments in options may be subject to the risk that the advisor does not correctly predict the movement of an option's underlying stock. Option purchases may result in the loss of part or all of the amount paid for the option plus commission costs. Option sales may result in a forced sale or purchase of a security at a price higher or lower than its current market price. |
| 54 | The investment's performance may be impacted by its concentration in a certain type of security, adherence to a particular investing strategy, or a unique aspect of its structure and costs. |
| 55 | Investments in preferred stocks may be subject to the risks of deferred distribution payments, involuntary redemptions, subordination to debt instruments, a lack of liquidity compared with common stocks, limited voting rights, and sensitivity to interest-rate changes. |
| 56 | Repurchase agreements may be subject to the risk that the seller of a security defaults and the collateral securing the repurchase agreement has declined and does not equal the value of the repurchase price. In this event, impairment of the collateral may result in additional costs. |
| 57 | Restricted and illiquid securities may fall in price because of an inability to sell the securities when desired. Investing in restricted securities may subject the portfolio to higher costs and liquidity risk. |
| 58 | A portfolio's risks are closely associated with the risks of the securities and other investments held by the underlying or subsidiary funds, and the ability of the portfolio to meet its investment objective likewise depends on the ability of the underlying funds to meet their objectives. Investment in other funds may subject the portfolio to higher costs than owning the underlying securities directly because of their management fees. |
| 59 | Investments in warrants may be subject to the risk that the price of the underlying stock does not rise above the exercise price. In this event, the warrant may expire without being exercised and lose all value. |
| 61 | A tax-sensitive investment strategy that uses hedging or other techniques may fail to limit distributions of taxable income and net realized gains and therefore create some tax liability for shareholders. |
| 62 | Tax-exempt securities could be reclassified as taxable by the IRS or a state tax authority, or their income could be reclassified as taxable by a future legislative, administrative, or court action. This may result in increased tax liability as interest from a security becomes taxable, and such reclassifications could be applied retroactively. |
| 63 | Changes in the tax treatment of dividends, derivatives, foreign transactions, and other securities may have an impact on performance and potentially increase shareholder liability. Additionally, this includes the risk that the fund fails to qualify as a regulated investment company, potentially resulting in a significantly higher level of taxation. |
| 64 | Investments in U.S. government obligations are subject to varying levels of government support. In the event of default, some U.S. government securities, including U.S. Treasury obligations and Ginnie Mae securities, are issued and guaranteed as to principal and interest by the full faith and credit of the U.S. government. Other securities are obligations of U.S. government-sponsored entities but are neither issued nor guaranteed by the U.S. government. |

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| 65 | Investments in derivatives may be subject to the risk that the advisor does not correctly predict the movement of the underlying security, interest rate, market index, or other financial asset, or that the value of the derivative does not correlate perfectly with either the overall market or the underlying asset from which the derivative's value is derived. Because derivatives usually involve a small investment relative to the magnitude of liquidity and other risks assumed, the resulting gain or loss from the transaction will be disproportionately magnified. These investments may result in a loss if the counterparty to the transaction does not perform as promised. |
| 66 | Leverage transactions may increase volatility and result in a significant loss of value if a transaction fails. Because leverage usually involves investment exposure that exceeds the initial investment, the resulting gain or loss from a relatively small change in an underlying indicator will be disproportionately magnified. |
| 67 | Some investments may not have a market observed price; therefore, values for these assets may be determined through a subjective valuation methodology. Fair values determined by a subjective methodology may differ from the actual value realized upon sale. Valuation methodologies may also be used to calculate a daily net asset value. |
| 68 | The value of fixed-income or debt securities may be susceptible to general movements in the bond market and are subject to interest-rate and credit risk. |
| 69 | Dollar rolls transactions may be subject to the risk that the market value of securities sold to the counterparty declines below the repurchase price, the counterparty defaults on its obligations, or the portfolio turnover rate increases because of these transactions. In addition, any investments purchased with the proceeds of a security sold in a dollar rolls transaction may lose value. |
| 70 | Securities with longer maturities or durations typically have higher yields but may be subject to increased interest-rate risk and price volatility compared with securities with shorter maturities, which have lower yields but greater price stability. |
| 71 | Investments in debt securities issued or guaranteed by governments or governmental entities are subject to the risk that an entity may delay or refuse to pay interest or principal on its sovereign debt because of cash flow problems, insufficient foreign reserves, or political or other considerations. In this event, there may be no legal process for collecting sovereign debts that a governmental entity has not repaid. |
| 72 | The business of the issuer of an underlying security may be adversely impacted by new regulation or government intervention, impacting the price of the security. Direct government ownership of distressed assets in times of economic instability may subject the portfolio's holdings to increased price volatility and liquidity risk. |
| 73 | Adhering to social, moral, or environmental criteria may preclude potentially profitable opportunities in sectors or firms that would otherwise be consistent with the investment objective and strategy. |
| 74 | The portfolio may fail to meet its investment objective because of positions in cash and equivalents. |
| 75 | Investors are expected to select investments whose investment strategies are consistent with their financial goals and risk tolerance. |

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| 76 | The actual cost of investing may be higher than the expenses listed in the expense table for a variety of reasons, including termination of a voluntary fee waiver or losing portfolio fee breakpoints if average net assets decrease. The risk of expenses increasing because of a decrease in average net assets is heightened when markets are volatile. |
| 77 | Managers' individual investing styles may not complement each other. This can result in both higher portfolio turnover and enhanced or reduced concentration in a particular region, country, industry, or investing style compared with an investment with a single manager. |
| 78 | Frequent purchases or redemptions by one or multiple investors may harm other shareholders by interfering with the efficient management of the portfolio, increasing brokerage and administrative costs and potentially diluting the value of shares. Additionally, shareholder purchase and redemption activity may have an impact on the per-share net income and realized capital gains distribution amounts, if any, potentially increasing or reducing the tax burden on the shareholders who receive those distributions. |
| 79 | If the deviation between the portfolio's amortized value per share and its market-based net asset value per share results in material dilution or other unfair results to shareholders, the portfolio's board will take action to counteract these results, including potentially suspending redemption of shares or liquidating the portfolio. |
| 80 | The portfolio is subject to unique risks because of its use in connection with certain guaranteed benefit programs, frequently associated with insurance contracts. To fulfill these guarantees, the advisor may make large transfers of assets between the portfolio and other affiliated portfolios. These transfers may subject the shareholder to increased costs if the asset base is substantially reduced and may cause the portfolio to have to purchase or sell securities at inopportune times. |
| 81 | Investing in the China region, including Hong Kong, the People's Republic of China, and Taiwan, may be subject to greater volatility because of the social, regulatory, and political risks of that region, as well as the Chinese government's significant level of control over China's economy and currency. A disruption of relations between China and its neighbors or trading partners could severely impact China's export-based economy. |
| 82 | Investments in closed-end funds generally reflect the risks of owning the underlying securities, although they may be subject to greater liquidity risk and higher costs than owning the underlying securities directly because of their management fees. Shares of CEFs are subject to market trading risk, potentially trading at a premium or discount to net asset value. |
| 83 | Because the investment is managed to replicate a multiple or inverse multiple of an index over a single day (or similar short-term period), returns for periods longer than one day will generally reflect performance that is greater or less than the target in the objective because of compounding. The effect of compounding increases during times of higher index volatility, causing long-term results to further deviate from the target objective. |
| 84 | A conflict of interest may arise if the advisor makes an investment in certain underlying funds based on the fact that those funds are also managed by the advisor or an affiliate or because certain underlying funds may pay higher fees to the advisor do than others. In addition, an advisor's participation in the primary or secondary market for loans may be deemed a conflict of interest and limit the ability of the investment to acquire those assets. |

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| 85 | Credit default swaps insure the buyer in the event of a default of a fixed-income security. The seller of a credit default swap receives premiums and is obligated to repay the buyer in the event of a default of the underlying creditor. Investments in credit default swaps may be subject to increased counterparty, credit, and liquidity risks. |
| 86 | Foreign custodial and other foreign financial services are generally more expensive than they are in the United States and may have limited regulatory oversight. The investment may have trouble clearing and settling trades in less-developed markets, and the laws of some countries may limit the investment's ability to recover its assets in the event the bank, depository, or agent holding those assets goes into bankruptcy. |
| 87 | The investment may be unable to rebalance its portfolio or accurately price its holdings if an exchange or market closes early, closes late, or issues trading halts on specific securities or restricts the ability to buy or sell certain securities or financial instruments. Any of these scenarios may cause the investment to incur substantial trading losses. |
| 88 | Investments in exchange-traded notes may be subject to the risk that their value is reduced because of poor performance of the underlying index or a downgrade in the issuer's credit rating, potentially resulting in default. The value of these securities may also be impacted by time to maturity, level of supply and demand, and volatility and lack of liquidity in underlying markets, among other factors. The portfolio bears its proportionate share of fees and expenses associated with investment in ETNs, and its decision to sell these holdings may be limited by the availability of a secondary market. |
| 89 | Investments in forwards may increase volatility and be subject to additional market, active management, currency, and counterparty risks as well as liquidity risk if the contract cannot be closed when desired. Forwards purchased on a when-issued or delayed-delivery basis may be subject to risk of loss if they decline in value prior to delivery, or if the counterparty defaults on its obligation. |
| 90 | Investments in investment-grade debt securities that are not rated in the highest rating categories may lack the capacity to pay principal and interest compared with higher-rated securities and may be subject to increased credit risk. |
| 91 | Performance is subject to the risk that the advisor's asset allocation and investment strategies do not perform as expected, which may cause the portfolio to underperform its benchmark, other investments with similar objectives, or the market in general. The investment is subject to the risk of loss of income and capital invested, and the advisor does not guarantee its value, performance, or any particular rate of return. |
| 92 | The portfolio is subject to unique risks related to the master/feeder structure. Feeder funds bear their proportionate share of fees and expenses associated with investment in the master fund. The performance of a feeder fund can be impacted by the actions of other feeder funds, including if a larger feeder fund maintains voting control over the operations of the master fund or if large-scale redemptions by another feeder fund increase the proportionate share of costs of the master fund for the remaining feeder funds. |
| 93 | Investments in master limited partnerships may be subject to the risk that their value is reduced because of poor performance of the underlying assets or if they are not treated as partnerships for federal income tax purposes. Investors in MLPs have more-limited control and voting rights on matters affecting the partnership compared with shareholders of common stock. |

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| 94 | Money market funds are subject to the risk that they may not be able to maintain a stable net asset value of $1.00 per share. Investments in money market funds are not a deposit in a bank and are not guaranteed by the FDIC, any other governmental agency, or the advisor itself. |
| 95 | Investments with a limited history of operations may be subject to the risk that they do not grow to an economically viable size in order to continue operations. |
| 96 | Investments traded and privately negotiated in the over-the-counter market, including securities and derivatives, may be subject to greater price volatility and liquidity risk than transactions made on organized exchanges. Because the OTC market is less regulated, OTC transactions may be subject to increased credit and counterparty risk. |
| 97 | The investment is not actively managed, and the advisor does not attempt to manage volatility or take defensive positions in declining markets. This passive management strategy may subject the investment to greater losses during general market declines than actively managed investments. |
| 98 | Investments that concentrate their assets in a relatively small number of issuers, or in the securities of issuers in a particular market, industry, sector, country, or asset class, may be subject to greater risk of loss than is a more widely diversified investment. |
| 99 | Investments in structured products may be more volatile, less liquid, and more difficult to price than other assets. These securities bear the risk of the underlying investment as well as counterparty risk. Securitized structured products including CMOs, CDOs, and other securitized products may increase volatility and be subject to increased liquidity and pricing risks compared with investing directly in the assets securitized within the product. Assets invested in structured products may be subject to full loss of value if the counterparty defaults on its obligation. |
| 100 | Investments in swaps, such as interest-rate swaps, currency swaps and total return swaps, may increase volatility and be subject to increased liquidity, credit, and counterparty risks. Depending on their structure, swaps may increase or decrease the portfolio's exposure to long- or short-term interest rates, foreign currency values, corporate borrowing rates, security prices, index values, inflation rates, credit, or other factors. |
| 101 | Target-date funds, also known as lifecycle funds, shift their asset allocation to become increasingly conservative as the target retirement year approaches. Still, investment in target-date funds may lose value near, at, or after the target retirement date, and there is no guarantee they will provide adequate income at retirement. |
| 102 | Investors may be liable to pay state and federal taxes on income and capital gains distributions paid out by the investment. |
| 103 | Investments in unrated securities may be subject to increased interest, credit, and liquidity risks if the advisor does not accurately assess the quality of those securities. |
| 104 | Investments in variable-rate securities, which periodically adjust the interest-rate paid on the securities, may be subject to greater liquidity risk than are other fixed-income securities. Because variable-rate securities are subject to less interest-rate risk than other fixed-income securities, their opportunity to provide capital appreciation is comparatively reduced. |

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| 105 | Investments in zero-coupon bonds, which do not pay interest prior to maturity, may be subject to greater price volatility and liquidity risks than are fixed-income securities that pay interest periodically. Still, interest accrued on these securities prior to maturity is reported as income and distributed to shareholders. |
| 106 | Concentrating assets in small-capitalization stocks may subject the portfolio to the risk that those stocks underperform other capitalizations or the market as a whole. Smaller, less-seasoned companies may be subject to increased liquidity risk compared with mid- and large-cap companies and may experience greater price volatility than do those securities because of limited product lines, management experience, market share, or financial resources, among other factors. |
| 107 | Concentrating assets in mid-capitalization stocks may subject the portfolio to the risk that those stocks underperform other capitalizations or the market as a whole. Mid-cap companies may be subject to increased liquidity risk compared with large-cap companies and may experience greater price volatility than do those securities because of more-limited product lines or financial resources, among other factors. |
| 108 | Concentrating assets in large-capitalization stocks may subject the portfolio to the risk that those stocks underperform other capitalizations or the market as a whole. Large-cap companies may be unable to respond as quickly as small- and mid-cap companies can to new competitive pressures and may lack the growth potential of those securities. Historically, large-cap companies do not recover as quickly as smaller companies do from market declines. |
| 109 | Concentrating assets in the financials sector may disproportionately subject the portfolio to the risks of that industry, including loss of value because of economic recession, availability of credit, volatile interest rates, government regulation, and other factors. |
| 110 | Concentrating assets in the real estate sector or REITs may disproportionately subject the portfolio to the risks of that industry, including loss of value because of changes in real estate values, interest rates, and taxes, as well as changes in zoning, building, environmental, and other laws, among other factors. Investments in REITs may be subject to increased price volatility and liquidity risk, and shareholders indirectly bear their proportionate share of expenses because of their management fees. |
| 111 | Concentrating assets in the technology sector may disproportionately subject the portfolio to the risks of that industry, including loss of value because of intense competitive pressures, short product cycles, dependence on intellectual property rights, legislative or regulatory changes, and other factors. |
| 112 | Redemptions of ETF shares for cash, rather than in-kind securities, may require the portfolio to sell securities. This may increase shareholder tax liability, potentially through capital gain distributions. |
| 113 | The investment is rebalanced according to the investment objective at the end of the trading day, and its reported performance will reflect the closing net asset value. A purchase at the intraday price may generate performance that is greater or less than reported performance. |
| 114 | Because shares of the investment are traded on the secondary market, investors are subject to the risks that shares may trade at a premium or discount to net asset value. There is no guarantee that an active trading market for these shares will be maintained. |
| 115 | Investments in economies that depend heavily on trading with key partners may be subject to the risk that any reduction in this trading may adversely impact these economies. |

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| 116 | The investment does not seek investment returns in excess of the underlying index. Therefore, it will not generally sell a security unless it was removed from the index, even if the security's issuer is in financial trouble. |
| 117 | Although the portfolio tracks an index, it maintains a smaller number of holdings than does the index. Use of this representative sampling approach may lead the portfolio to track the index less closely. |
| 118 | Net asset value is not calculated on days and times when the U.S. exchange is closed, though foreign security holdings may still be traded. In this event, the net asset value may be significantly impacted when shareholders are not able to buy or sell shares. Conversely, performance may vary from the index if the NAV is calculated on days and times when foreign exchanges are closed. |

**Please consider an investment option's objectives, risks, charges and expenses carefully before investing. This and other information about the investment option can be found in the applicable prospectuses (and/or summary prospectuses, if available), if any, or fact sheets for the investment options listed, which are available from your plan sponsor, on the participant website at www.massmutual.com/serve or by contacting our participant service center at 1-888-945-6559 between 8:00 a.m. and 8:00 p.m. ET, Monday through Friday. Please read them carefully before investing.**

The performance data shown represents past performance and is no guarantee of future results. The investment return and principal value of an investment may fluctuate so that when shares/units are redeemed they may be worth more or less than their original cost. Current performance may vary from the performance data quoted. Please visit www.massmutual.com/serve for more current performance information to the most recent month ended.