

Summary Prospectus

BlackRock Funds V | Class K Shares

- **BlackRock GNMA Portfolio**

Class K: BBGPX

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 (including amendments and supplements), reports to shareholders and other information about the Fund, including the Fund's statement of additional information, online at <http://www.blackrock.com/prospectus>. You can also get this information at no cost by calling (800) 537-4942 or by sending an e-mail request to prospectus.request@blackrock.com, or from your financial professional. The Fund's prospectus and statement of additional information, both dated January 26, 2024, as amended and supplemented from time to time, are incorporated by reference into (legally made a part of) this Summary Prospectus.

This Summary Prospectus contains information you should know before investing, including information about risks. Please read it before you invest and keep it for future reference.

The Securities and Exchange Commission has not approved or disapproved these securities or passed upon the adequacy of this Summary Prospectus. Any representation to the contrary is a criminal offense.

Not FDIC Insured • May Lose Value • No Bank Guarantee

Summary Prospectus

Key Facts About BlackRock GNMA Portfolio

Investment Objective

The investment objective of the BlackRock GNMA Portfolio (the “GNMA Portfolio” or the “Fund”) is to seek to maximize total return, consistent with income generation and prudent investment management.

Fees and Expenses of the Fund

This table describes the fees and expenses that you may pay if you buy, hold and sell Class K Shares of the Fund. **You may pay other fees, such as brokerage commissions and other fees to your financial professional or your selected securities dealer, broker, investment adviser, service provider or industry professional (including BlackRock Advisors, LLC (“BlackRock”) and its affiliates) (each a “Financial Intermediary”), which are not reflected in the table and example below.**

Annual Fund Operating Expenses (expenses that you pay each year as a percentage of the value of your investment)	Class K Shares
Management Fee ¹	0.34%
Distribution and/or Service (12b-1) Fees	None
Other Expenses	0.64%
Miscellaneous Other Expenses	0.18%
Interest Expense	0.46%
Total Annual Fund Operating Expenses	0.98%
Fee Waivers and/or Expense Reimbursements ^{1,2}	(0.15)%
Total Annual Fund Operating Expenses After Fee Waivers and/or Expense Reimbursements ^{1,2}	0.83%

¹ As described in the “Management of the Fund” section of the Fund’s prospectus beginning on page 28, BlackRock has contractually agreed to waive the management fee with respect to any portion of the Fund’s assets estimated to be attributable to investments in other equity and fixed-income mutual funds and exchange-traded funds (“ETFs”) managed by BlackRock or its affiliates that have a contractual management fee, through June 30, 2025. In addition, BlackRock has contractually agreed to waive its management fees by the amount of investment advisory fees the Fund pays to BlackRock indirectly through its investment in money market funds managed by BlackRock or its affiliates, through June 30, 2025. The contractual agreements may be terminated upon 90 days’ notice by a majority of the non-interested trustees of BlackRock Funds V (the “Trust”) or by a vote of a majority of the outstanding voting securities of the Fund.

² As described in the “Management of the Fund” section of the Fund’s prospectus beginning on page 28, BlackRock has contractually agreed to waive and/or reimburse fees or expenses in order to limit Total Annual Fund Operating Expenses After Fee Waivers and/or Expense Reimbursements (excluding Dividend Expense, Interest Expense, Acquired Fund Fees and Expenses and certain other Fund expenses) as a percentage of average daily net assets to 0.37% (for Class K Shares) of average daily net assets through June 30, 2025. The contractual agreement may be terminated upon 90 days’ notice by a majority of the non-interested trustees of the Trust or by a vote of a majority of the outstanding voting securities of the Fund.

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. The Example assumes that you invest \$10,000 in the Fund for the time periods indicated and then redeem all of your shares at the end of those periods. The Example also assumes that your investment has a 5% return each year and that the Fund’s operating expenses remain the same. Although your actual costs may be higher or lower, based on these assumptions your costs would be:

	1 Year	3 Years	5 Years	10 Years
Class K Shares	\$85	\$297	\$527	\$1,188

Portfolio Turnover:

The Fund pays transaction costs, such as commissions, when it buys and sells securities (or “turns over” its portfolio). A higher portfolio turnover rate may indicate higher transaction costs and may result in higher taxes when shares are held in a taxable account. These costs, which are not reflected in annual fund operating expenses or in the Example, affect the Fund’s performance. During the most recent fiscal year, the Fund’s portfolio turnover rate was 983% of the average value of its portfolio.

Principal Investment Strategies of the Fund

Under normal circumstances, the Fund invests at least 80% of its assets in Government National Mortgage Association (“GNMA”) securities. The Fund invests primarily in securities issued by GNMA as well as other U.S. Government securities.

Securities purchased by the Fund are rated in the highest rating category (AAA or Aaa) at the time of purchase by at least one major rating agency or are determined by the Fund management team to be of similar quality. Split rated bonds will be considered to have the higher credit rating. Split rated bonds are bonds that receive different ratings from two or more rating agencies.

The Fund measures its performance against the Bloomberg GNMA Total Return Index Value Unhedged USD (the benchmark). Under normal circumstances, the Fund seeks to maintain an average portfolio duration that is within ± 1 year of the duration of the benchmark.

The Fund also makes investments in residential and commercial mortgage-backed securities and other asset-backed securities.

The Fund may buy or sell options or futures on a security or an index of securities, or enter into credit default swaps and interest rate transactions, including swaps (collectively, commonly known as derivatives). The Fund may seek to obtain market exposure to the securities in which it primarily invests by entering into a series of purchase and sale contracts or by using other investment techniques (such as reverse repurchase agreements or dollar rolls).

The Fund may engage in active and frequent trading of portfolio securities to achieve its primary investment strategies.

Principal Risks of Investing in the Fund

Risk is inherent in all investing. The value of your investment in the Fund, as well as the amount of return you receive on your investment, may fluctuate significantly from day to day and over time. You may lose part or all of your investment in the Fund or your investment may not perform as well as other similar investments. The following is a summary description of principal risks of investing in the Fund. The relative significance of each risk factor below may change over time and you should review each risk factor carefully.

■ ***Debt Securities Risk*** — Debt securities, such as bonds, involve risks, such as credit risk, interest rate risk, extension risk, and prepayment risk, each of which are described in further detail below:

Credit Risk — Credit risk refers to the possibility that the issuer of a debt security (i.e., the borrower) will not be able to make payments of interest and principal when due. Changes in an issuer’s credit rating or the market’s perception of an issuer’s creditworthiness may also affect the value of the Fund’s investment in that issuer. The degree of credit risk depends on both the financial condition of the issuer and the terms of the obligation.

Interest Rate Risk — The market value of bonds and other fixed-income securities changes in response to interest rate changes and other factors. Interest rate risk is the risk that prices of bonds and other fixed-income securities will increase as interest rates fall and decrease as interest rates rise.

The Fund may be subject to a greater risk of rising interest rates due to the recent period of historically low interest rates. For example, if interest rates increase by 1%, assuming a current portfolio duration of ten years, and all other factors being equal, the value of the Fund’s investments would be expected to decrease by 10%. (Duration is a measure of the price sensitivity of a debt security or portfolio of debt securities to relative changes in interest rates.) The magnitude of these fluctuations in the market price of bonds and other fixed-income securities is generally greater for those securities with longer maturities. Fluctuations in the market price of the Fund’s investments will not affect interest income derived from instruments already owned by the Fund, but will be reflected in the Fund’s net asset value. The Fund may lose money if short-term or long-term interest rates rise sharply in a manner not anticipated by Fund management.

To the extent the Fund invests in debt securities that may be prepaid at the option of the obligor (such as mortgage-backed securities), the sensitivity of such securities to changes in interest rates may increase (to the detriment of the Fund) when interest rates rise. Moreover, because rates on certain floating rate debt securities typically reset only periodically, changes in prevailing interest rates (and particularly sudden and significant changes) can be expected to cause some fluctuations in the net asset value of the Fund to the extent that it invests in floating rate debt securities.

These basic principles of bond prices also apply to U.S. Government securities. A security backed by the “full faith and credit” of the U.S. Government is guaranteed only as to its stated interest rate and face value at maturity, not its current market price. Just like other fixed-income securities, government-guaranteed securities will fluctuate in value when interest rates change.

A general rise in interest rates has the potential to cause investors to move out of fixed-income securities on a large scale, which may increase redemptions from funds that hold large amounts of fixed-income securities. Heavy redemptions could cause the Fund to sell assets at inopportune times or at a loss or depressed value and could hurt the Fund's performance.

Extension Risk — When interest rates rise, certain obligations will be paid off by the obligor more slowly than anticipated, causing the value of these obligations to fall.

Prepayment Risk — When interest rates fall, certain obligations will be paid off by the obligor more quickly than originally anticipated, and the Fund may have to invest the proceeds in securities with lower yields.

■ **U.S. Government Issuer Risk** — Treasury obligations may differ in their interest rates, maturities, times of issuance and other characteristics. Obligations of U.S. Government agencies and authorities are supported by varying degrees of credit but generally are not backed by the full faith and credit of the U.S. Government. No assurance can be given that the U.S. Government will provide financial support to its agencies and authorities if it is not obligated by law to do so.

■ **Mortgage- and Asset-Backed Securities Risks** — Mortgage- and asset-backed securities represent interests in “pools” of mortgages or other assets, including consumer loans or receivables held in trust. Mortgage- and asset-backed securities are subject to credit, interest rate, prepayment and extension risks. These securities also are subject to risk of default on the underlying mortgage or asset, particularly during periods of economic downturn. Small movements in interest rates (both increases and decreases) may quickly and significantly reduce the value of certain mortgage-backed securities.

■ **Derivatives Risk** — The Fund's use of derivatives may increase its costs, reduce the Fund's returns and/or increase volatility. Derivatives involve significant risks, including:

Leverage Risk — The Fund's use of derivatives can magnify the Fund's gains and losses. Relatively small market movements may result in large changes in the value of a derivatives position and can result in losses that greatly exceed the amount originally invested.

Market Risk — Some derivatives are more sensitive to interest rate changes and market price fluctuations than other securities. The Fund could also suffer losses related to its derivatives positions as a result of unanticipated market movements, which losses are potentially unlimited. Finally, BlackRock may not be able to predict correctly the direction of securities prices, interest rates and other economic factors, which could cause the Fund's derivatives positions to lose value.

Counterparty Risk — Derivatives are also subject to counterparty risk, which is the risk that the other party in the transaction will be unable or unwilling to fulfill its contractual obligation, and the related risks of having concentrated exposure to such a counterparty.

Illiquidity Risk — The possible lack of a liquid secondary market for derivatives and the resulting inability of the Fund to sell or otherwise close a derivatives position could expose the Fund to losses and could make derivatives more difficult for the Fund to value accurately.

Operational Risk — The use of derivatives includes the risk of potential operational issues, including documentation issues, settlement issues, systems failures, inadequate controls and human error.

Legal Risk — The risk of insufficient documentation, insufficient capacity or authority of counterparty, or legality or enforceability of a contract.

Volatility and Correlation Risk — Volatility is defined as the characteristic of a security, an index or a market to fluctuate significantly in price within a short time period. A risk of the Fund's use of derivatives is that the fluctuations in their values may not correlate with the overall securities markets.

Valuation Risk — Valuation for derivatives may not be readily available in the market. Valuation may be more difficult in times of market turmoil since many investors and market makers may be reluctant to purchase complex instruments or quote prices for them.

Hedging Risk — Hedges are sometimes subject to imperfect matching between the derivative and the underlying security, and there can be no assurance that the Fund's hedging transactions will be effective. The use of hedging may result in certain adverse tax consequences.

Tax Risk — Certain aspects of the tax treatment of derivative instruments, including swap agreements and commodity-linked derivative instruments, are currently unclear and may be affected by changes in legislation, regulations or other legally binding authority. Such treatment may be less favorable than that given to a direct investment in an underlying asset and may adversely affect the timing, character and amount of income the Fund realizes from its investments.

- **Dollar Rolls Risk** — Dollar rolls involve the risk that the market value of the securities that the Fund is committed to buy may decline below the price of the securities the Fund has sold. These transactions may involve leverage.
- **High Portfolio Turnover Risk** — The Fund may engage in active and frequent trading of its portfolio securities. High portfolio turnover (more than 100%) may result in increased transaction costs to the Fund, including brokerage commissions, dealer mark-ups and other transaction costs on the sale of the securities and on reinvestment in other securities. The sale of Fund portfolio securities may result in the realization and/or distribution to shareholders of higher capital gains or losses as compared to a fund with less active trading policies. These effects of higher than normal portfolio turnover may adversely affect Fund performance. In addition, investment in mortgage dollar rolls and participation in to-be-announced (“TBA”) transactions may significantly increase the Fund’s portfolio turnover rate. A TBA transaction is a method of trading mortgage-backed securities where the buyer and seller agree upon general trade parameters such as agency, settlement date, par amount, and price at the time the contract is entered into but the mortgage-backed securities are delivered in the future, generally 30 days later.
- **Illiquid Investments Risk** — The Fund may not acquire any illiquid investment if, immediately after the acquisition, the Fund would have invested more than 15% of its net assets in illiquid investments. An illiquid investment is any investment that the Fund reasonably expects cannot be sold or disposed of in current market conditions in seven calendar days or less without the sale or disposition significantly changing the market value of the investment. Liquid investments may become illiquid after purchase by the Fund, particularly during periods of market turmoil. There can be no assurance that a security or instrument that is deemed to be liquid when purchased will continue to be liquid for as long as it is held by the Fund, and any security or instrument held by the Fund may be deemed an illiquid investment pursuant to the Fund’s liquidity risk management program. The Fund’s illiquid investments may reduce the returns of the Fund because it may be difficult to sell the illiquid investments at an advantageous time or price. In addition, if the Fund is limited in its ability to sell illiquid investments during periods when shareholders are redeeming their shares, the Fund will need to sell liquid securities to meet redemption requests and illiquid securities will become a larger portion of the Fund’s holdings. An investment may be illiquid due to, among other things, the reduced number and capacity of traditional market participants to make a market in fixed-income securities or the lack of an active trading market. To the extent that the Fund’s principal investment strategies involve derivatives or securities with substantial market and/or credit risk, the Fund will tend to have the greatest exposure to the risks associated with illiquid investments. Illiquid investments may be harder to value, especially in changing markets, and if the Fund is forced to sell these investments to meet redemption requests or for other cash needs, the Fund may suffer a loss. This may be magnified in a rising interest rate environment or other circumstances where investor redemptions from fixed-income mutual funds may be higher than normal. In addition, when there is illiquidity in the market for certain securities, the Fund, due to limitations on illiquid investments, may be subject to purchase and sale restrictions.
- **Leverage Risk** — Some transactions may give rise to a form of economic leverage. These transactions may include, among others, derivatives, and may expose the Fund to greater risk and increase its costs. The use of leverage may cause the Fund to liquidate portfolio positions when it may not be advantageous to do so to satisfy its obligations or to meet the applicable requirements of the Investment Company Act of 1940, as amended (the “Investment Company Act”), and the rules thereunder. Increases and decreases in the value of the Fund’s portfolio will be magnified when the Fund uses leverage.
- **Market Risk and Selection Risk** — Market risk is the risk that one or more markets in which the Fund invests will go down in value, including the possibility that the markets will go down sharply and unpredictably. The value of a security or other asset may decline due to changes in general market conditions, economic trends or events that are not specifically related to the issuer of the security or other asset, or factors that affect a particular issuer or issuers, exchange, country, group of countries, region, market, industry, group of industries, sector or asset class. Local, regional or global events such as war, acts of terrorism, the spread of infectious illness or other public health issues like pandemics or epidemics, recessions, or other events could have a significant impact on the Fund and its investments. Selection risk is the risk that the securities selected by Fund management will underperform the markets, the relevant indices or the securities selected by other funds with similar investment objectives and investment strategies. This means you may lose money.

An outbreak of an infectious coronavirus (COVID-19) that was first detected in December 2019 developed into a global pandemic that has resulted in numerous disruptions in the market and has had significant economic impact leaving general concern and uncertainty. Although vaccines have been developed and approved for use by various governments, the duration of the pandemic and its effects cannot be predicted with certainty. The impact of this coronavirus, and other epidemics and pandemics that may arise in the future, could affect the economies of many nations, individual companies and the market in general ways that cannot necessarily be foreseen at the present time.

- **Repurchase Agreements and Purchase and Sale Contracts Risk** — If the other party to a repurchase agreement or purchase and sale contract defaults on its obligation under the agreement, the Fund may suffer delays and incur

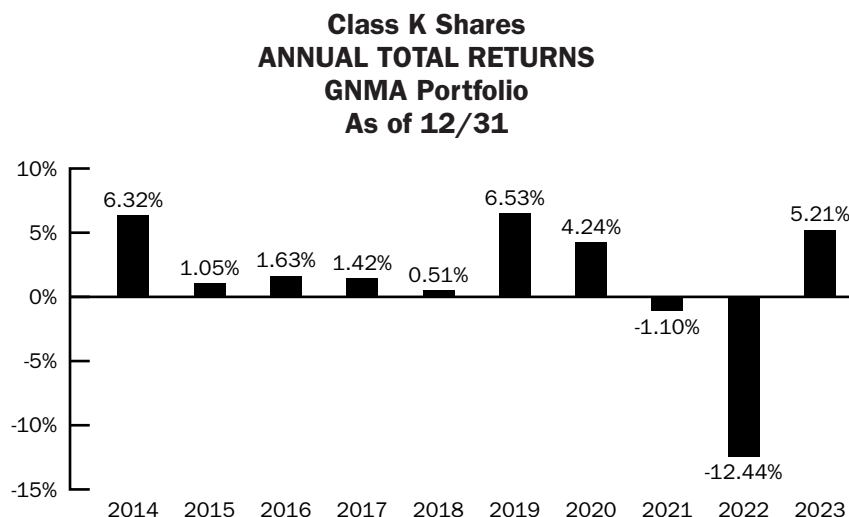
costs or lose money in exercising its rights under the agreement. If the seller fails to repurchase the security in either situation and the market value of the security declines, the Fund may lose money.

■ **Reverse Repurchase Agreements Risk** — Reverse repurchase agreements involve the sale of securities held by the Fund with an agreement to repurchase the securities at an agreed-upon price, date and interest payment. Reverse repurchase agreements involve the risk that the other party may fail to return the securities in a timely manner or at all. The Fund could lose money if it is unable to recover the securities and the value of the collateral held by the Fund, including the value of the investments made with cash collateral, is less than the value of the securities. These events could also trigger adverse tax consequences for the Fund. In addition, reverse repurchase agreements involve the risk that the interest income earned in the investment of the proceeds will be less than the interest expense.

■ **Risk of Investing in the United States** — Certain changes in the U.S. economy, such as when the U.S. economy weakens or when its financial markets decline, may have an adverse effect on the securities to which the Fund has exposure.

Performance Information

The information shows you how the Fund’s performance has varied year by year and provides some indication of the risks of investing in the Fund. The table compares the Fund’s performance to that of the Bloomberg GNMA Total Return Index Value Unhedged USD. The Fund acquired all of the assets, subject to the liabilities, of BlackRock GNMA Portfolio, a series of BlackRock Funds II (the “Predecessor Fund”), in a reorganization on September 17, 2018 (the “Reorganization”). The Fund adopted the performance of the Predecessor Fund as a result of the Reorganization. The performance information below is based on the performance of the Predecessor Fund for periods prior to the date of the Reorganization. The Predecessor Fund had the same investment objective, strategies and policies, portfolio management team and contractual arrangements, including the same contractual fees and expenses, as the Fund as of the date of the Reorganization. The returns for Class K Shares of the Predecessor Fund prior to September 1, 2015 reflects the performance of the share class when it was classified as BlackRock Shares of the Predecessor Fund. To the extent that dividends and distributions have been paid by the Fund, the performance information for the Fund in the chart and table assumes reinvestment of the dividends and distributions. As with all such investments, past performance (before and after taxes) is not an indication of future results. The table includes all applicable fees. If the Fund’s investment manager and its affiliates had not waived or reimbursed certain Fund expenses during these periods, the Fund’s returns would have been lower. Updated information on the Fund’s performance, including its current net asset value, can be obtained by visiting <http://www.blackrock.com> or can be obtained by phone at 800-882-0052.



During the ten-year period shown in the bar chart, the highest return for a quarter was 7.40% (quarter ended December 31, 2023) and the lowest return for a quarter was -5.46% (quarter ended September 30, 2022).

**For the periods ended 12/31/23
Average Annual Total Returns**

	1 Year	5 Years	10 Years
BlackRock GNMA Portfolio — Class K Shares Return Before Taxes	5.21%	0.23%	1.20%

For the periods ended 12/31/23
Average Annual Total Returns

	1 Year	5 Years	10 Years
Return After Taxes on Distributions	3.75%	(0.95)%	(0.04)%
Return After Taxes on Distributions and Sale of Fund Shares	3.05%	(0.30)%	0.39%
Bloomberg GNMA Total Return Index Value Unhedged USD (Reflects no deduction for fees, expenses or taxes)	5.40%	0.34%	1.34%

After-tax returns are calculated using the historical highest individual federal marginal income tax rates and do not reflect the impact of state and local taxes. Actual after-tax returns depend on the investor's tax situation and may differ from those shown, and the after-tax returns shown are not relevant to investors who hold their shares through tax-deferred arrangements, such as 401(k) plans or individual retirement accounts.

Investment Manager

The Fund's investment manager is BlackRock Advisors, LLC (previously defined as "BlackRock").

Portfolio Managers

Portfolio Manager	Portfolio Manager of the Fund Since*	Title
Matthew Kraeger	2009	Managing Director of BlackRock, Inc.
Siddharth Mehta	2017	Director of BlackRock, Inc.

* Includes management of the Predecessor Fund.

Purchase and Sale of Fund Shares

Class K Shares of the Fund are available only to (i) certain employee benefit plans, such as health savings accounts, and certain employer-sponsored retirement plans (not including SEP IRAs, SIMPLE IRAs and SARSEPs) (collectively, "Employer-Sponsored Retirement Plans"), (ii) collective trust funds, investment companies and other pooled investment vehicles, each of which may purchase shares of the Fund through a Financial Intermediary that has entered into an agreement with the Fund's distributor to purchase such shares, (iii) "Institutional Investors," which include, but are not limited to, endowments, foundations, family offices, banks and bank trusts, local, city, and state governmental institutions, corporations and insurance company separate accounts, each of which may purchase shares of the Fund through a Financial Intermediary that has entered into an agreement with the Fund's distributor to purchase such shares, (iv) clients of private banks that purchase shares of the Fund through a Financial Intermediary that has entered into an agreement with the Fund's distributor to sell such shares, (v) fee-based advisory platforms of a Financial Intermediary that (a) has specifically acknowledged in a written agreement with the Fund's distributor and/or its affiliate(s) that the Financial Intermediary shall offer such shares to fee-based advisory clients through an omnibus account held at the Fund or (b) transacts in the Fund's shares through another intermediary that has executed such an agreement and (vi) any other investors who met the eligibility criteria for BlackRock Shares or Class K Shares prior to August 15, 2016 and have continually held Class K Shares of the Fund or the Predecessor Fund in the same account since August 15, 2016.

You may purchase or redeem shares of the Fund each day the New York Stock Exchange is open. Purchase orders may also be placed by calling (800) 537-4942, by mail (c/o BlackRock, P.O. Box 534429, Pittsburgh, Pennsylvania 15253-4429), or online at www.blackrock.com. Institutional Investors are subject to a \$5 million minimum initial investment requirement. Other investors, including Employer-Sponsored Retirement Plans, have no minimum initial investment requirement. There is no minimum investment amount for additional purchases.

Tax Information

Different income tax rules apply depending on whether you are invested through a qualified tax-exempt plan described in section 401(a) of the Internal Revenue Code of 1986, as amended. If you are invested through such a plan (and Fund shares are not "debt-financed property" to the plan), then the dividends paid by the Fund and the gain realized from a redemption or exchange of Fund shares will generally not be subject to U.S. federal income taxes until you withdraw or receive distributions from the plan. If you are not invested through such a plan, then the Fund's dividends and gain from a redemption or exchange may be subject to U.S. federal income taxes and may be taxed as ordinary income or capital gains, unless you are a tax-exempt investor.

Payments to Broker/Dealers and Other Financial Intermediaries

If you purchase shares of the Fund through a Financial Intermediary, the Fund and BlackRock Investments, LLC, the Fund's distributor, or its affiliates may pay the Financial Intermediary for the sale of Fund shares and related services. These payments may create a conflict of interest by influencing the Financial Intermediary and your individual financial professional to recommend the Fund over another investment.

Class K Shares are only available through a Financial Intermediary if the Financial Intermediary will not receive from Fund assets, or the Fund's distributor's or an affiliate's resources, any commission payments, shareholder servicing fees (including sub-transfer agent and networking fees), or distribution fees (including Rule 12b-1 fees) with respect to assets invested in Class K Shares.

Ask your individual financial professional or visit your Financial Intermediary's website for more information.

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