ΡΙΜΟΟ

SUMMARY PROSPECTUS

April 28, 2023

Share Class: Administrative Class

Before you invest, you may want to review the Portfolio's prospectus, which, as supplemented, contains more information about the Portfolio and its risks. You can find the Portfolio's prospectus, reports to shareholders and other information about the Portfolio online at http://www.pimco.com/pvit. You can also get this information at no cost by calling 1.800.927.4648 or by sending an email request to piprocess@dstsystems.com. The Portfolio's prospectus and Statement of Additional Information, both dated April 28, 2023, as supplemented, are incorporated by reference into this Summary Prospectus.

Investment Objective

The Portfolio seeks maximum total return, consistent with preservation of capital and prudent investment management.

Fees and Expenses of the Portfolio

This table describes the fees and expenses that you may pay if you buy, hold and sell Administrative Class shares of the Portfolio. You may pay other fees, such as brokerage commissions and other fees to financial intermediaries, which are not reflected in the table and example below. Overall fees and expenses of investing in the Portfolio are higher than shown because the table does not reflect variable contract fees and expenses.

Shareholder Fees (fees paid directly from your investment): N/A

Annual Portfolio Operating Expenses (expenses that you pay each year as a percentage of the value of your investment):

| | Administrative Class |
|---|-------------------------|
| Management Fees | 0.50% |
| Distribution and/or Service (12b-1) Fees | 0.15% |
| Other Expenses ⁽¹⁾ | 0.02% |
| Total Annual Portfolio Operating Expenses | 0.67% |

"Other Expenses" include interest expense of 0.02%. Interest expense is borne by the Portfolio separately from the management fees paid to Pacific Investment Management Company LLC ("PIMCO"). Excluding interest expense, Total Annual Portfolio Operating Expenses are 0.65% for Administrative Class shares.

Example. The Example is intended to help you compare the cost of investing in Administrative Class shares of the Portfolio with the costs of investing in other mutual funds. The Example assumes that you invest \$10,000 for the time periods indicated, and then hold or redeem all your shares at the end of those periods. The Example also assumes that your investment has a 5% return each year and that the Portfolio's operating expenses remain the same. Although your actual costs may be higher or lower, the Example shows what your costs would be based on these assumptions. The Example does not reflect fees and expenses of any variable annuity contract or variable life insurance policy, and would be higher if t did.

| | 1 Year | 3 Years | 5 Years | 10 Years |
|----------------------|--------|---------|---------|----------|
| Administrative Class | \$68 | \$214 | \$373 | \$835 |

Portfolio Turnover

The Portfolio pays transaction costs when it buys and sells securities (or "turns over" its portfolio). A higher portfolio turnover rate may indicate higher transaction costs. These costs, which are not reflected in the Annual Portfolio Operating Expenses or in the Example table, affect the Portfolio's performance. During the most recent fiscal year, the Portfolio's portfolio turnover rate was 411% of the average value of its portfolio.

Principal Investment Strategies

The Portfolio seeks to achieve its investment objective by investing under normal circumstances at least 65% of its total assets in a diversified portfolio of Fixed Income Instruments of varying maturities, which may be represented by forwards or derivatives such as options, futures contracts, or swap agreements. "Fixed Income Instruments" include bonds, debt securities and other similar instruments issued by various U.S. and non-U.S. public- or private-sector entities. The average portfolio duration of this Portfolio normally varies within two years (plus or minus) of the portfolio duration of the securities comprising the Bloomberg U.S. Aggregate Index, as calculated by PIMCO, which as of February 28, 2023 was 6.26 years. Duration is a measure used to determine the sensitivity of a security's price to changes in interest rates. The longer a security's duration, the more sensitive it will be to changes in interest rates.

The Portfolio invests primarily in investment-grade debt securities, but may invest up to 20% of its total assets in high yield securities ("junk bonds"), as rated by Moody's Investors Service, Inc. ("Moody's"), Standard & Poor's Ratings Services ("S&P") or Fitch, Inc. ("Fitch"), or, if unrated, as determined by PIMCO. In the event that ratings services assign different ratings to the same security, PIMCO will use the highest rating as the credit rating for that security. The Portfolio may invest up to 30% of its total assets in securities denominated in foreign currencies, and may invest beyond this limit in U.S. dollar-denominated securities of foreign issuers. The Portfolio may invest up to 15% of its total assets in securities and instruments that are economically tied to emerging market countries (this limitation does not apply to investment grade sovereign debt denominated in the local currency with less than 1 year remaining to maturity, which means the Portfolio may invest, together with any other investments denominated in foreign currencies, up to 30% of its total assets in such instruments). The Portfolio will normally limit its foreign currency exposure (from non-U.S. dollar-denominated securities or currencies) to 20% of its total assets.

The Portfolio may invest, without limitation, in derivative instruments, such as options, futures contracts or swap agreements, or in mortgageor asset-backed securities, subject to applicable law and any other restrictions described in the Portfolio's prospectus or Statement of Additional Information. The Portfolio may purchase or sell securities on a when-issued, delayed delivery or forward commitment basis and may engage in short sales. The Portfolio may invest up to 10% of its total assets in preferred securities, convertible securities and other equity-related securities. The Portfolio may, without limitation, 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 buy backs or dollar rolls). The "total return" sought by the Portfolio consists of income earned on the Portfolio's investments, plus capital appreciation, if any, which generally arises from decreases in interest rates, foreign currency appreciation, or improving credit fundamentals for a particular sector or security.

Principal Risks

It is possible to lose money on an investment in the Portfolio. The principal risks of investing in the Portfolio, which could adversely affect its net asset value, yield and total return, are listed below.

Interest Rate Risk: the risk that fixed income securities will fluctuate in value because of a change in interest rates; a portfolio with a longer average portfolio duration will be more sensitive to changes in interest rates than a portfolio with a shorter average portfolio duration

Call Risk: the risk that an issuer may exercise its right to redeem a fixed income security earlier than expected (a call). Issuers may call outstanding securities prior to their maturity for a number of reasons (*e.g.*, declining interest rates, changes in credit spreads and improvements in the issuer's credit quality). If an issuer calls a security that the Portfolio has invested in, the Portfolio may not recoup the full amount of its initial investment and may be forced to reinvest in lower-yielding securities, securities with greater credit risks or securities with other, less favorable features

Credit Risk: the risk that the Portfolio could lose money if the issuer or guarantor of a fixed income security, or the counterparty to a derivative contract, is unable or unwilling, or is perceived (whether by market participants, rating agencies, pricing services or otherwise) as unable or unwilling, to meet its financial obligations

High Yield Risk: the risk that high yield securities and unrated securities of similar credit quality (commonly known as "junk bonds") are subject to greater levels of credit, call and liquidity risks. High yield securities are considered primarily speculative with respect to the issuer's continuing ability to make principal and interest payments, and may be more volatile than higher-rated securities of similar maturity

Market Risk: the risk that the value of securities owned by the Portfolio may go up or down, sometimes rapidly or unpredictably, due to factors affecting securities markets generally or particular industries

Issuer Risk: the risk that the value of a security may decline for a reason directly related to the issuer, such as management performance, changes in financial condition or credit rating, financial leverage or reduced demand for the issuer's goods or services

Liquidity Risk: the risk that a particular investment may be difficult to purchase or sell and that the Portfolio may be unable to sell illiquid investments at an advantageous time or price or achieve its desired level of exposure to a certain sector. Liquidity risk may result from the lack of an active market, reduced number and capacity of traditional market participants to make a market in fixed income securities, and may be magnified in a rising interest rate environment or other circumstances where investor redemptions from fixed income funds may

be higher than normal, causing increased supply in the market due to selling activity

Derivatives Risk: the risk of investing in derivative instruments (such as forwards, futures, swaps and structured securities) and other similar investments, including leverage, liquidity, interest rate, market, counterparty (including credit), operational, legal and management risks, and valuation complexity. Changes in the value of a derivative or other similar investments may not correlate perfectly with, and may be more sensitive to market events than, the underlying asset, rate or index, and the Portfolio could lose more than the initial amount invested. Changes in the value of a derivative or other similar instrument may also create margin delivery or settlement payment obligations for the Portfolio. The Portfolio's use of derivatives or other similar investments may result in losses to the Portfolio, a reduction in the Portfolio's returns and/or increased volatility. Over-the-counter ("OTC") derivatives or other similar investments are also subject to the risk that a counterparty to the transaction will not fulfill its contractual obligations to the other party, as many of the protections afforded to centrally-cleared derivative transactions might not be available for OTC derivatives or other similar investments. The primary credit risk on derivatives that are exchange-traded or traded through a central clearing counterparty resides with the Portfolio's clearing broker or the clearinghouse. Changes in regulation relating to a registered fund's use of derivatives and related instruments could potentially limit or impact the Portfolio's ability to invest in derivatives, limit the Portfolio's ability to employ certain strategies that use derivatives or other similar investments and/or adversely affect the value of derivatives or other similar investments and the Portfolio's performance

Equity Risk: the risk that the value of equity securities, such as common stocks and preferred securities, may decline due to general market conditions which are not specifically related to a particular company or to factors affecting a particular industry or industries. Equity securities generally have greater price volatility than fixed income securities

Mortgage-Related and Other Asset-Backed Securities Risk: the risks of investing in mortgage-related and other asset-backed securities, including interest rate risk, extension risk, prepayment risk and credit risk

Foreign (Non-U.S.) Investment Risk: the risk that investing in foreign (non-U.S.) securities may result in the Portfolio experiencing more rapid and extreme changes in value than a portfolio that invests exclusively in securities of U.S. companies, due to smaller markets, differing reporting, accounting and auditing standards, increased risk of delayed settlement of portfolio transactions or loss of certificates of portfolio securities, and the risk of unfavorable foreign government actions, including nationalization, expropriation or confiscatory taxation, currency blockage, or political changes, diplomatic developments or the imposition of sanctions and other similar measures. Foreign securities may also be less liquid and more difficult to value than securities of U.S. issuers

Emerging Markets Risk: the risk of investing in emerging market securities, primarily increased foreign (non-U.S.) investment risk

Sovereign Debt Risk: the risk that investments in fixed income instruments issued by sovereign entities may decline in value as a result of default or other adverse credit event resulting from an issuer's inability or unwillingness to make principal or interest payments in a timely fashion

Currency Risk: the risk that foreign (non-U.S.) currencies will change in value relative to the U.S. dollar and affect the Portfolio's investments in foreign (non-U.S.) currencies or in securities that trade in, and receive revenues in, or in derivatives that provide exposure to, foreign (non-U.S.) currencies

Leveraging Risk: the risk that certain transactions of the Portfolio, such as reverse repurchase agreements, loans of portfolio securities, and the use of when-issued, delayed delivery or forward commitment transactions, or derivative instruments, may give rise to leverage, magnifying gains and losses and causing the Portfolio to be more volatile than if it had not been leveraged. This means that leverage entails a heightened risk of loss

Management Risk: the risk that the investment techniques and risk analyses applied by PIMCO will not produce the desired results and that actual or potential conflicts of interest, legislative, regulatory, or tax restrictions, policies or developments may affect the investment techniques available to PIMCO and the individual portfolio managers in connection with managing the Portfolio and may cause PIMCO to restrict or prohibit participation in certain investments. There is no guarantee that the investment objective of the Portfolio will be achieved

Short Exposure Risk: the risk of entering into short sales or other short positions, including the potential loss of more money than the actual cost of the investment, and the risk that the third party to the short sale or other short positions will not fulfill its contractual obligations, causing a loss to the Portfolio

Convertible Securities Risk: as convertible securities share both fixed income and equity characteristics, they are subject to risks to which fixed income and equity investments are subject. These risks include equity risk, interest rate risk and credit risk

LIBOR Transition Risk: the risk related to the anticipated discontinuation of the London Interbank Offered Rate ("LIBOR"). Certain instruments held by the Portfolio rely in some fashion upon LIBOR. Although the transition process away from LIBOR has become increasingly well-defined, any potential effects of the transition away from LIBOR on the Portfolio or on certain instruments in which the Portfolio invests can be difficult to ascertain and could result in losses to the Portfolio

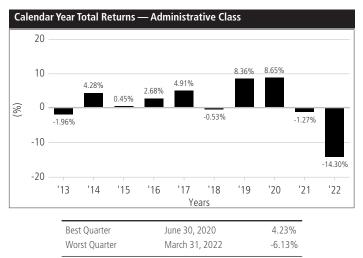
Please see "Description of Principal Risks" in the Portfolio's prospectus for a more detailed description of the risks of investing in the Portfolio. An investment in the Portfolio is not a deposit of a bank and is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency.

Performance Information

The performance information shows summary performance information for the Portfolio in a bar chart and an Average Annual Total Returns table. The information provides some indication of the risks of investing in the Portfolio by showing changes in its performance from year to year and by showing how the Portfolio's average annual returns compare with the returns of a broad-based securities market index. The Portfolio's performance information reflects applicable fee waivers and/or expense limitations in effect during the periods presented. Absent such fee waivers and/or expense limitations, if any, performance would have been lower. Performance shown does not reflect any charges or expenses imposed by an insurance company, and, if it did, performance shown would be lower. The bar chart and the table show performance of the Portfolio's Administrative Class shares. *The Portfolio's past performance is not necessarily an indication of how the Portfolio will perform in the future.*

The Bloomberg U.S. Aggregate Index represents securities that are SEC-registered, taxable and U.S. dollar denominated. This index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

Performance for the Portfolio is updated daily and monthly and may be obtained as follows: daily updates on the net asset value may be obtained by calling 1-888-87-PIMCO and monthly performance may be obtained at www.pimco.com/pvit.



Average Annual Total Returns (for periods ended 12/31/22)

| | 1 Year | 5 Years | 10 Years |
|---|---------|---------|----------|
| Administrative Class Return | -14.30% | -0.18% | 0.92% |
| Bloomberg U.S. Aggregate Index (reflects no deductions for fees, expenses or taxes) | -13.01% | 0.02% | 1.06% |

PIMCO Total Return Portfolio

Investment Adviser/Portfolio Managers



PIMCO serves as the investment adviser for the Portfolio. The Portfolio's portfolio is jointly and primarily managed by Daniel J. Ivascyn, Mark Kiesel, Qi Wang, and Mohit Mittal. Mr. Ivascyn is Group Chief Investment Officer, Mr. Kiesel is CIO Global Credit and Ms. Wang is CIO Portfolio Implementation. Messrs. Ivascyn, Kiesel and Mittal and Ms. Wang are Managing Directors of PIMCO. Mr. Kiesel has jointly and primarily managed the Portfolio since September 2014, Mr. Mittal has jointly and primarily managed the Portfolio since December 2019 and Ms. Wang and Mr. Ivascyn have jointly and primarily managed the Portfolio since October 2022.

Purchase and Sale of Portfolio Shares

Shares of the Portfolio currently are sold to segregated asset accounts ("Separate Accounts") of insurance companies that fund variable annuity contracts and variable life insurance policies ("Variable Contracts") and other funds that serve as underlying investment options for Variable Contracts (*i.e.*, variable insurance funds). Investors do not deal directly with the Portfolio to purchase and redeem shares. Please refer to the prospectus for the Separate Account for information on the allocation of premiums and on transfers of accumulated value among sub-accounts of the Separate Account.

Tax Information

The shareholders of the Portfolio are the insurance companies offering the variable products or other variable insurance funds. Please refer to the prospectus for the Separate Account and the Variable Contract for information regarding the federal income tax treatment of distributions to the Separate Account.

Payments to Insurance Companies and Other Financial Intermediaries

The Portfolio and/or its related companies (including PIMCO) may pay the insurance company and other intermediaries for the sale of the Portfolio and/or other services. These payments may create a conflict of interest by influencing the insurance company or intermediary and your salesperson to recommend a Variable Contract and the Portfolio over another investment. Ask your insurance company or salesperson or visit your financial intermediary's Web site for more information.

