

# Pioneer Mid Cap Value VCT Portfolio

Summary Prospectus | May 1, 2021

Class I Shares

Class II Shares

**Before you invest, you may want to review the portfolio's prospectus, which contains more information about the portfolio and its risks. You can find the portfolio's prospectus, statement of additional information and other information about the portfolio online at <https://www.amundi.com/usinvestors/Resources/Download-Literature>. You also can obtain this information at no cost by calling 1-800-225-6292 or by sending an email request to [ask.pioneer@pioneerinvestments.com](mailto:ask.pioneer@pioneerinvestments.com). The portfolio's current prospectus and statement of additional information, dated May 1, 2021, the independent registered public accounting firm's report and financial statements in the portfolio's annual report to shareholders dated December 31, 2020, are incorporated by reference into this summary prospectus.**

Paper copies of the portfolio's shareholder reports may no longer be sent by mail, unless you specifically request paper copies of the reports from the insurance company that offers your variable annuity or variable life insurance contract or from your financial intermediary. Instead, the insurance company may choose to make the reports available on a website, and will notify you by mail each time a shareholder report is posted and provide you with a website link to access the report. Instructions for requesting paper copies will be provided by your insurance company.

You may elect to receive all future portfolio shareholder reports in paper free of charge from the insurance company. You can inform the insurance company or your financial intermediary that you wish to continue receiving paper copies of your shareholder reports by following the instructions provided by the insurance company or by contacting your financial intermediary. Your election to receive reports in paper will apply to all portfolios available under your contract with the insurance company.

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## Portfolio summary

### Investment objective

Capital appreciation by investing in a diversified portfolio of securities consisting primarily of common stocks.

### Fees and expenses

This table describes the fees and expenses that you may pay if you buy, hold and sell shares of the portfolio. **Your costs would be higher if fees or sales charges imposed by a Variable Contract for which the portfolio is an investment option were included.** Please consult your insurance company's separate account prospectus or disclosure document for more information.

#### Annual portfolio operating expenses

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

	Class I	Class II
Management Fees	0.65%	0.65%
Distribution and Service (12b-1) Fees	0.00%	0.25%
Other Expenses	0.09%	0.09%
Total Annual Portfolio Operating Expenses	0.74%	0.99%

### Example

This example is intended to help you compare the cost of investing in the portfolio with the cost of investing in other mutual funds. The example assumes that you invest \$10,000 in the portfolio for the time periods shown and then redeem all of your shares at the end of those periods. It also assumes that (a) your investment has a 5% return each year and (b) the portfolio's total annual operating expenses remain the same. This example does not reflect any fees or sales charges imposed by a Variable Contract for which the portfolio is an investment option. If they were included, your costs would be higher.

Although your actual costs may be higher or lower, based on these assumptions your costs would be:

	Number of years you own your shares (with or without redemption)			
	1	3	5	10
Class I	\$76	\$237	\$411	\$918
Class II	\$101	\$315	\$547	\$1,213

### Portfolio turnover

The portfolio 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. These costs, which are not reflected in annual portfolio operating expenses or in the example, affect the portfolio's performance. During the most recent fiscal year, the portfolio turnover rate was 88% of the average value of the portfolio.

### Principal investment strategies

Normally, the portfolio invests at least 80% of its total assets in equity securities of mid-size companies. Mid-size companies are those with market values, at the time of investment, that do not exceed the greater of the market capitalization of the largest company within the Russell Midcap Value Index (\$51.3 billion as of December 31, 2020) or the 3-year rolling average of the market capitalization of the largest company within the Russell Midcap Value Index (\$41.23 billion as of December 31, 2020), as measured at the end of the preceding month, and are not less than the smallest company within the index. The Russell Midcap Value Index measures the performance of U.S. mid-cap value stocks. The size of the companies in the index changes constantly with market conditions and the composition of the index. The equity securities in which the portfolio principally invests are common stocks, preferred stocks and depositary receipts, but the portfolio may invest in other types of equity securities to a lesser extent, such as funds that invest primarily in equity securities, equity interests in real estate investment trusts (REITs), warrants and rights. The portfolio may invest in initial public offerings of equity securities.

The portfolio may invest up to 25% of its total assets in securities of non-U.S. issuers. The portfolio will not invest more than 5% of its total assets in the securities of emerging markets issuers.

The portfolio may invest up to 20% of its net assets in REITs.

The portfolio may invest up to 20% of its total assets in debt securities. The portfolio may invest up to 5% of its net assets in below investment grade debt securities (known as “junk bonds”), including below investment grade convertible debt securities.

The portfolio may, but is not required to, use derivatives, such as stock index futures and options. The portfolio may use derivatives for a variety of purposes, including: in an attempt to hedge against adverse changes in the market price of securities, interest rates or currency exchange rates; as a substitute for purchasing or selling securities; to attempt to increase the portfolio's return as a non-hedging strategy that may be considered speculative; to manage portfolio characteristics; and as a cash flow management technique. The portfolio may choose not to make use of derivatives for a variety of reasons, and any use may be limited by applicable law and regulations. The portfolio may also hold cash or other short-term investments.

The portfolio uses a “value” style of management. The adviser seeks to identify securities that are selling at reasonable prices or at substantial discounts to their underlying values and then holds these securities until the market values reflect their intrinsic values. The adviser evaluates a security's potential value, including the attractiveness of its market valuation, based on the company's assets and prospects for earnings growth. In making that assessment, the adviser employs fundamental research and an evaluation of the issuer based on its financial statements and operations, employing a bottom-up analytic style, which focuses on specific securities rather than on industries. The adviser focuses on the quality and price of individual issuers and securities. The adviser generally sells a portfolio security when it believes that the security's market value reflects its underlying value.

## Principal risks of investing in the portfolio

You could lose money on your investment in the portfolio. As with any mutual fund, there is no guarantee that the portfolio will achieve its objective.

**Market risk.** The market prices of securities held by the portfolio may go up or down, sometimes rapidly or unpredictably, due to general market conditions, such as real or perceived adverse economic, political, or regulatory conditions, recessions, inflation, changes in interest or currency rates, lack of liquidity in the bond markets, the spread of infectious illness or other public health issues, or adverse investor sentiment. In the past decade, financial markets throughout the world have experienced increased volatility, depressed valuations, decreased liquidity and heightened uncertainty. Governmental and non-governmental issuers have defaulted on, or been forced to restructure, their debts. These conditions may continue, recur, worsen or spread. Events that have contributed to these market conditions include, but are not limited to, major cybersecurity events; geopolitical events (including wars and terror attacks); measures to address budget deficits; downgrading of sovereign debt; changes in oil and commodity prices; changes in currency exchange rates; global pandemics; and public sentiment. U.S. and non-U.S. governments and central banks have provided significant support to financial markets, including by keeping interest rates at historically low levels. U.S. Federal Reserve or other U.S. or non-U.S. governmental or central bank actions, including interest rate increases or decreases, or contrary actions by different governments, could negatively affect financial markets generally, increase market volatility and reduce the value and liquidity of securities in which the portfolio invests. Policy and legislative changes in the U.S. and in other countries are affecting many aspects of financial regulation, and these and other events affecting global markets, such as the United Kingdom's exit from the European Union (or Brexit), may in some instances contribute to decreased liquidity and increased volatility in the financial markets. The impact of these changes on the markets, and the practical implications for market participants, may not be fully known for some time. Economies and financial markets throughout the world are increasingly interconnected. Economic, financial or political events, trading and tariff arrangements, terrorism, natural disasters, infectious illness or public health issues, and other circumstances in one country or region could have profound impacts on global economies or markets. As a result, whether or not the portfolio invests in securities of issuers located in or with significant exposure to the countries directly affected, the value and liquidity of the portfolio's investments may be negatively affected. The portfolio may experience a substantial or complete loss on any individual security or derivative position.

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**Recent events.** The respiratory illness COVID-19 caused by a novel coronavirus has resulted in a global pandemic and major disruption to economies and markets around the world, including the United States. Global financial markets have experienced extreme volatility and severe losses, and trading in many instruments has been disrupted. Liquidity for many instruments has been greatly reduced for periods of time. Some interest rates are very low and in some cases yields are negative. Some sectors of the economy and individual issuers have experienced particularly large losses. These circumstances may continue for an extended period of time, and may continue to affect adversely the value and liquidity of the portfolio's investments. The ultimate economic fallout from the pandemic, and the long-term impact on economies, markets, industries and individual issuers, are not known. Governments and central banks, including the Federal Reserve in the U.S., have taken extraordinary and unprecedented actions to support local and global economies and the financial markets. These actions have resulted in significant expansion of public debt, including in the U.S. The impact of these measures, and whether they will be effective to mitigate the economic and market disruption, may not be known for some time. The consequences of high public debt, including its future impact on the economy and securities markets, likewise may not be known for some time.

**Mid-size companies risk.** Compared to large companies, mid-size companies, and the market for their equity securities, may be more sensitive to changes in earnings results and investor expectations, have more limited product lines and capital resources, experience sharper swings in market values, be harder to sell at the times and prices the adviser thinks appropriate, and offer greater potential for gain and loss.

**Value style risk.** The prices of securities the adviser believes are undervalued may not appreciate as expected or may go down. Value stocks may fall out of favor with investors and underperform the overall equity market.

**Portfolio selection risk.** The adviser's judgment about a particular security or issuer, or about the economy or a particular sector, region or market segment, or about an investment strategy, may prove to be incorrect, or there may be imperfections, errors or limitations in the models, tools and data used by the adviser.

**Risks of non-U.S. investments.** Investing in non-U.S. issuers, or in U.S. issuers that have significant exposure to foreign markets, may involve unique risks compared to investing in securities of U.S. issuers. These risks are more pronounced for issuers in emerging markets or to the extent that the portfolio invests significantly in one region or country. These risks may include different financial reporting practices and regulatory standards, less liquid trading markets, extreme price volatility, currency risks, changes in economic, political, regulatory and social conditions, terrorism, sustained economic downturns, financial instability, reduction of government or central bank support, inadequate accounting standards, tariffs, tax disputes or other tax burdens, and investment and repatriation restrictions. Lack of information and less market regulation also may affect the value of these securities. Withholding and other non-U.S. taxes may decrease the portfolio's return. Non-U.S. issuers may be located in parts of the world that have historically been prone to natural disasters. Emerging market economies tend to be less diversified than those of more developed countries. They typically have fewer medical and economic resources than more developed countries and thus they may be less able to control or mitigate the effects of a pandemic. Investing in depositary receipts is subject to many of the same risks as investing directly in non-U.S. issuers. Depositary receipts may involve higher expenses and may trade at a discount (or premium) to the underlying security. A number of countries in the European Union (EU) have experienced, and may continue to experience, severe economic and financial difficulties. In addition, the United Kingdom has withdrawn from the EU (commonly known as "Brexit"). Other countries may seek to withdraw from the EU and/or abandon the euro, the common currency of the EU. The range and potential implications of possible political, regulatory, economic, and market outcomes of Brexit cannot be fully known but could be significant, potentially resulting in increased volatility, illiquidity and potentially lower economic growth in the affected markets, which will adversely affect the portfolio's investments.

**Risks of investments in real estate related securities.** Investments in real estate securities are affected by economic conditions, interest rates, governmental actions and other factors. In addition, investing in REITs involves unique risks. They are significantly affected by the market for real estate and are dependent upon management skills and cash flow. REITs may have lower trading volumes and may be subject to more abrupt or erratic price movements than the overall securities markets. Mortgage REITs are particularly subject to interest rate and credit risks. In addition to its own expenses, the portfolio will indirectly bear its proportionate share of any management and other expenses paid by REITs in which it invests. Many real estate companies, including REITs, utilize leverage.

**Risks of initial public offerings.** Companies involved in initial public offerings (IPOs) generally have limited operating histories, and prospects for future profitability are uncertain. The market for IPO issuers has been volatile, and share prices of newly public companies have fluctuated significantly over short periods of time. The purchase of IPO shares may involve high transaction costs.

**Risks of investment in other funds.** Investing in other investment companies, including other funds managed by the adviser, subjects the portfolio to the risks of investing in the underlying securities or assets held by those funds. When investing in another fund, the portfolio will bear a pro rata portion of the underlying fund's expenses, including management fees, in addition to its own expenses.

**Risks of convertible securities.** The market values of convertible securities tend to decline as interest rates increase and, conversely, to increase as interest rates decline. A downturn in equity markets may cause the price of convertible securities to decrease relative to other fixed income securities.

**Preferred stocks risk.** Preferred stocks may pay fixed or adjustable rates of return. Preferred stocks are subject to issuer-specific and market risks applicable generally to equity securities. In addition, a company's preferred stocks generally pay dividends only after the company makes required payments to holders of its bonds and other debt. Thus, the value of preferred stocks will usually react more strongly than bonds and other debt to actual or perceived changes in the company's financial condition or prospects. The market value of preferred stocks generally decreases when interest rates rise. Preferred stocks of smaller companies may be more vulnerable to adverse developments than preferred stocks of larger companies.

**Risks of warrants and rights.** If the price of the underlying stock does not rise above the exercise price before the warrant expires, the warrant generally expires without any value and the portfolio loses any amount it paid for the warrant. The failure to exercise subscription rights to purchase common shares would result in the dilution of the portfolio's interest in the issuing company.

**Debt securities risk.** Factors that could contribute to a decline in the market value of debt securities in the portfolio include rising interest rates, if the issuer or other obligor of a security held by the portfolio fails to pay principal and/or interest, otherwise defaults or has its credit rating downgraded or is perceived to be less creditworthy or the credit quality or value of any underlying assets declines. A general rise in interest rates could adversely affect the price and liquidity of fixed income securities and could also result in increased redemptions from the portfolio. Junk bonds have a higher risk of default or are already in default and are considered speculative.

**Market segment risk.** To the extent the portfolio emphasizes, from time to time, investments in a market segment, the portfolio will be subject to a greater degree to the risks particular to that segment, and may experience greater market fluctuation than a portfolio without the same focus.

**Derivatives risk.** Using stock index futures and options and other derivatives can increase portfolio losses and reduce opportunities for gains when market prices, interest rates or the derivative instruments themselves behave in a way not anticipated by the portfolio. Using derivatives may increase the volatility of the portfolio's net asset value and may not provide the result intended. Derivatives may have a leveraging effect on the portfolio. Some derivatives have the potential for unlimited loss, regardless of the size of the portfolio's initial investment. Derivatives are generally subject to the risks applicable to the assets, rates, indices or other indicators underlying the derivative. Changes in a derivative's value may not correlate well with the referenced asset or metric. The portfolio also may have to sell assets at inopportune times to satisfy its obligations. Derivatives may be difficult to sell, unwind or value, and the counterparty may default on its obligations to the portfolio. Use of derivatives may have different tax consequences for the portfolio than an investment in the underlying security, and such differences may affect the amount, timing and character of income distributed to shareholders. The U.S. government and foreign governments are in the process of adopting and implementing regulations governing derivatives markets, including mandatory clearing of certain derivatives, margin and reporting requirements. The ultimate impact of the regulations remains unclear. Additional regulation of derivatives may make them more costly, limit their availability or utility, otherwise adversely affect their performance or disrupt markets.

**Leveraging risk.** The value of your investment may be more volatile and other risks tend to be compounded if the portfolio borrows or uses derivatives or other investments, such as ETFs, that have embedded leverage. Leverage generally magnifies the effect of any increase or decrease in the value of the portfolio's underlying assets and creates a risk of loss

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of value on a larger pool of assets than the portfolio would otherwise have, potentially resulting in the loss of all assets. Engaging in such transactions may cause the portfolio to liquidate positions when it may not be advantageous to do so to satisfy its obligations or meet segregation requirements.

**Portfolio turnover risk.** If the portfolio does a lot of trading, it may incur additional operating expenses, which would reduce performance. A higher level of portfolio turnover may also cause taxable shareholders to incur a higher level of taxable income or capital gains.

**Valuation risk.** The sales price the portfolio could receive for any particular portfolio investment may differ from the portfolio's valuation of the investment, particularly for illiquid securities and securities that trade in thin or volatile markets or that are valued using a fair value methodology. These differences may increase significantly and affect portfolio investments more broadly during periods of market volatility. Investors who purchase or redeem portfolio shares on days when the portfolio is holding fair-valued securities may receive fewer or more shares or lower or higher redemption proceeds than they would have received if the portfolio had not fair-valued the securities or had used a different valuation methodology. The portfolio's ability to value its investments may also be impacted by technological issues and/or errors by pricing services or other third party service providers.

**Liquidity risk.** Some securities and derivatives held by the portfolio may be or become impossible or difficult to purchase, sell or unwind, particularly during times of market turmoil. Illiquid securities and derivatives also may be difficult to value. If the portfolio is forced to sell an illiquid asset or unwind a derivatives position to meet redemption requests or other cash needs, the portfolio may be forced to sell at a loss.

**Redemption risk.** The portfolio may experience heavy redemptions that could cause the portfolio to liquidate its assets at inopportune times or at a loss or depressed value, which could cause the value of your investment to decline.

**Cybersecurity risk.** Cybersecurity failures by and breaches of the portfolio's adviser, transfer agent, distributor, custodian, fund accounting agent or other service providers may disrupt portfolio operations, interfere with the portfolio's ability to calculate its NAV, prevent portfolio shareholders from purchasing, redeeming or exchanging shares or receiving distributions, cause loss of or unauthorized access to private shareholder information, and result in financial losses to the portfolio and its shareholders, regulatory fines, penalties, reputational damage, or additional compliance costs.

**Expense risk.** Your actual costs of investing in the portfolio may be higher than the expenses shown in "Annual portfolio operating expenses" for a variety of reasons. For example, expense ratios may be higher than those shown if overall net assets decrease. Net assets are more likely to decrease and portfolio expense ratios are more likely to increase when markets are volatile.

Please note that there are many other factors that could adversely affect your investment and that could prevent the portfolio from achieving its goals.

An investment in the portfolio is not a bank deposit and is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency.

### The portfolio's past performance

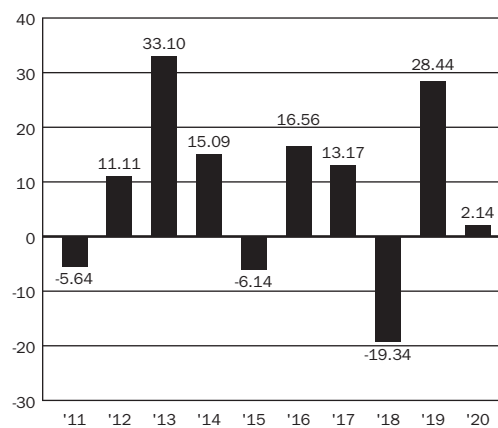
The bar chart and table indicate the risks and volatility of an investment in the portfolio by showing how the portfolio has performed in the past. The bar chart shows changes in the performance of the portfolio's Class I shares from calendar year to calendar year. The table shows the average annual total returns for Class I and Class II shares of the portfolio over time and compares these returns to the returns of the Russell Midcap Value Index, a broad-based measure of market performance that has characteristics relevant to the portfolio's investment strategies.

The bar chart and table do not reflect any fees or expenses payable with respect to a Variable Contract. Such fees and expenses will reduce your return.

The portfolio's past performance does not necessarily indicate how it will perform in the future.

### Annual return Class I Shares (%)

(Year ended December 31)



For the period covered by the bar chart:

The highest calendar quarterly return was 16.84% (10/01/2020 to 12/31/2020).

The lowest calendar quarterly return was -28.76% (01/01/2020 to 03/31/2020).



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## Average annual total return (%)

(for periods ended December 31, 2020)

	1 Year	5 Years	10 Years	Since Inception	Inception Date
Class I	2.14	6.90	7.72	8.92	03/01/95
Class II	1.87	6.62	7.45	7.61	05/01/00
Russell Midcap Value Index (reflects no deduction for fees, expenses or taxes)	4.96	9.73	10.49	11.01	03/01/95

## Management

**Investment adviser** Amundi Asset Management US, Inc.

**Portfolio management** Timothy P. Stanish, Vice President and EVA (economic value added) Analyst of Amundi US (lead portfolio manager) (portfolio manager of the portfolio since 2018); and Raymond Haddad, Vice President of Amundi US (portfolio manager of the portfolio since 2018)

## Tax information

Shares of the portfolio are held by life insurance company separate accounts that fund the benefits under variable annuity and variable life insurance contracts (Variable Contracts) issued by their companies and by certain qualified pension and retirement plans (Qualified Plans). Owners of Variable Contracts should read the prospectus of their insurance company's Variable Contract for a discussion of the tax status of a Variable Contract, including the tax consequences of withdrawals or other payments. Participants in a Qualified Plan should consult their tax advisers regarding the tax consequences of participating in and receiving distributions or other payments relating to such plans.

## Payments to broker-dealers and other financial intermediaries

If you purchase the portfolio through a broker-dealer or other financial intermediary (such as a bank), the portfolio and its related companies may pay the intermediary for the sale of portfolio shares and related services. These payments may create a conflict of interest by influencing the broker-dealer or other intermediary and your salesperson or investment professional to recommend the portfolio over another investment. Ask your salesperson or investment professional or visit your financial intermediary's website for more information.

In addition, shares of the portfolio are offered to insurance companies to fund the benefits under Variable Contracts issued by their companies and are additionally offered to Qualified Plans. The portfolio and its related companies may pay the sponsoring insurance companies and their affiliated broker-dealers and service providers for the sale of portfolio shares and related services. These payments may create a conflict of interest by influencing insurance companies to recommend the portfolio over another investment. Your insurance company's separate account prospectus or disclosure document may contain additional information about these payments.