

# Intelligent Variable Annuity-MFS Global Equity - Init. Class

**Benchmark**  
 MSCI World GR USD

**Category**  
 Global Large-Stock Blend

**Overall Morningstar Rating™**  
**★★★★**
**Morningstar Return**  
 Above Average

**Morningstar Risk**  
 Above Average

Out of 998 Global Large-Stock Blend VA subaccounts. An investment's overall Morningstar Rating, based on its risk-adjusted return, is a weighted average of its applicable 3-, 5-, and 10-year Ratings. See disclosure page for details.

## Investment Information

**Investment Strategy** from investment's prospectus

The investment seeks capital appreciation.

The fund normally invests at least 80% of the fund's net assets in equity securities. 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. While MFS may invest the fund's assets in companies of any size, it primarily invests in companies with large capitalizations. The fund invests the fund's assets in U.S. and foreign securities, including emerging market securities.

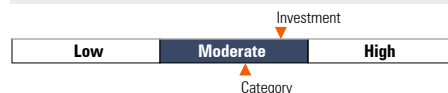
## Operations

Subaccount Incp Date	02-05-08
Undr. Fund Incep Date	05-03-99
Subacct Adoption Date	02-05-08
Prosp Net Exp Ratio	0.92%
Prosp Gross Exp Ratio	1.13%
Advisor	Massachusetts Financial Services Company
Subadvisor	—
Portfolio Manager(s)	Roger M. Morley Ryan P. McAllister

## Investment Manager

Since 1924, MFS has been committed to providing investment professionals with a diverse range of investment options and services that enables them to choose what fits for investors' individual financial goals. An investment staff of over 160 professionals has the global reach and resources to identify industry trends, study daily market developments, and uncover new and growing companies.

## Volatility Analysis

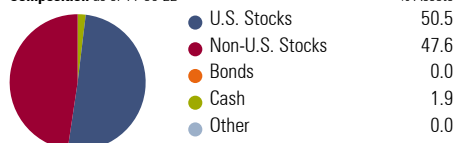


In the past, this investment has shown a relatively moderate range of price fluctuations relative to other investments. This investment may experience larger or smaller price declines or price increases depending on market conditions. Some of this risk may be offset by owning other investments with different portfolio makeups or investment strategies.

## Morningstar Proprietary Statistics

	1 Year	3 Year	5 Year	10 Year
Morningstar Rating™	—	★★★★	★★★★★	★★★★★
Fund Rank Percentile	30	37	11	6
Out of # of Investments	1,068	998	913	591

## Portfolio Analysis

**Composition** as of 11-30-22

**Morningstar Equity Style Box™** as of 11-30-22

Style	% Mkt Cap
Giant	40.86
Large	43.59
Medium	15.55
Small	0.00
Micro	0.00

**Top 20 Holdings** as of 11-30-22

Holder	% Assets
Visa Inc Class A	3.04
Thermo Fisher Scientific Inc	2.97
Schneider Electric SE	2.92
Linde PLC	2.65
LVMH Moet Hennessy Louis Vuitton SE	2.58
Accenture PLC Class A	2.49
Roche Holding AG	2.49
Honeywell International Inc	2.31
Comcast Corp Class A	2.30
Nestle SA	2.28
Medtronic PLC	2.26
Canadian Pacific Railway Ltd	2.15
Diageo PLC	2.10
The Goldman Sachs Group Inc	2.10
Charles Schwab Corp	1.83
Canadian National Railway Co	1.81
Oracle Corp	1.75
Willis Towers Watson PLC	1.73
Compagnie Financiere Richemont SA	1.72
Stryker Corp	1.71

Total Number of Stock Holdings	84
Total Number of Bond Holdings	0
Annual Turnover Ratio %	12.00
Total Fund Assets (\$mil)	49.34

## Statistics

	Port Avg	Rel S&P 500	Rel Cat
P/E Ratio	17.06	1.01	1.22
P/B Ratio	2.83	0.88	1.22
P/C Ratio	11.12	1.11	1.32
GeoAvgCap (\$mil)	77557.18	0.48	1.03

**Risk Measures** as of 12-31-22

	Port Avg	Rel S&P 500	Rel Cat
3 Yr Std Dev	21.50	1.02	1.06
3 Yr Beta	1.04	—	1.06
3 Yr Sharpe Ratio	0.18	0.44	1.29
3 Yr Alpha	-1.54	—	0.70
3 Yr R-squared	95.89	—	1.00

**Morningstar World Regions** as of 11-30-22

Region	% Fund
Americas	55.75
North America	55.46
Latin America	0.29
Greater Europe	41.48
United Kingdom	10.78
Europe Developed	29.68
Europe Emerging	0.00
Africa/Middle East	1.01
Greater Asia	2.77
Japan	1.86
Australasia	0.00
Asia Developed	0.91
Asia Emerging	0.00

# Disclosure

## Additional Information

All investment vehicles are subject to market and other risk factors, which could result in loss of principal.

**You should consider the investment objectives, risks, charges and expenses carefully before investing. Please call 877-518-9161 or go to [www.TIAA.org/prospectuses](http://www.TIAA.org/prospectuses) for current product and fund prospectuses that contain this and other information. Please read the prospectuses carefully before investing.**

## Prospectus Gross Expense Ratio

This is the percentage of fund assets paid for operating expenses and management fees. The expense ratio typically includes the following types of fees: accounting, administrator, advisor, auditor, board of directors, custodial, distribution (12b-1), legal, organizational, professional, registration, shareholder reporting, subadvisor, and transfer agency. The expense ratio does not reflect the fund's brokerage costs or any investor sales charges. In contrast to the net expense ratio, the gross expense ratio does not reflect any fee waivers in effect during the time period. Also known as the Total Annual Fund Operating Expense Ratio, Morningstar pulls the prospectus gross expense ratio from the fund's most recent prospectus. Prospectus expense ratios reflect material changes to the expense structure for the current period.

## Prospectus Net Expense Ratio

This is the percentage of fund assets paid for operating expenses and management fees. The expense ratio typically includes the following types of fees: accounting, administrator, advisor, auditor, board of directors, custodial, distribution (12b-1), legal, organizational, professional, registration, shareholder reporting, subadvisor, and transfer agency. The expense ratio does not reflect the fund's brokerage costs or any investor sales charges. In contrast to the gross expense ratio, the net expense ratio does reflect fee waivers in effect during the time period. Also known as the Total Annual Fund Operating Expense Ratio Net of Reimbursements, Morningstar pulls the prospectus net expense ratio from the fund's most recent prospectus. Prospectus expense ratios reflect material changes to the expense structure for the current period, while annual report expense ratios reflect the actual fees charged during a particular fiscal year.

## Morningstar Rating™, Return, and Risk

The Morningstar Rating™ for funds, or "star rating", is calculated for funds and separate accounts with at least a three-year history. Exchange-traded funds and open-ended mutual funds are considered a single population for comparative purposes. It is calculated based on a Morningstar Risk-Adjusted Return measure that accounts for variation in a managed product's monthly excess performance, placing more emphasis on downward variations and rewarding consistent performance. The Morningstar Rating does not include any adjustment for sales loads. The top 10% of products in each product category receive 5 stars, the next 22.5% receive 4 stars, the next 35% receive 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. The Overall Morningstar Rating for a managed product is derived from a weighted average of the performance figures associated with its three-, five-, and 10-year (if applicable) Morningstar Rating metrics.

The Morningstar Return rates a fund's performance relative to other managed products in its Morningstar Category. It is an assessment of a product's excess return over a risk-free rate (the return of the 90-day Treasury Bill) in comparison with the products in its Morningstar category. In each Morningstar category, the top 10% of products earn a High Morningstar Return (High), the next 22.5% Above Average (+Avg), the middle 35% Average (Avg), the next 22.5% Below Average (-Avg), and the bottom 10% Low (Low). Morningstar Return is measured for up to three time periods (three, five, and 10 years). These separate measures are then weighted and averaged to produce an overall measure for the product. Products with less than three years of performance history are not rated.

Morningstar Risk evaluates a fund's downside volatility relative to that of other products in its Morningstar Category. It is an assessment of the variations in monthly returns, with an emphasis on downside variations, in comparison with the products in its Morningstar category. In each Morningstar category, the 10% of products with the lowest measured risk are described as Low Risk (Low), the next 22.5% Below Average (-Avg), the middle 35% Average (Avg), the next 22.5% Above Average (+Avg), and the top 10% High (High). Morningstar Risk is measured for up to three time periods (three, five, and 10 years). These separate measures are then weighted and averaged to produce an overall measure for the product. Products with less than three years of performance history are not rated.

## Morningstar Style Box™

The Morningstar Style Box™ reveals a fund's investment strategy as of the date noted on this report.

For equity funds, the vertical axis shows the market capitalization of the long stocks owned, and the horizontal axis shows the investment style (value, blend, or growth.) A darkened cell in the style box matrix indicates the weighted average style of the portfolio.

For portfolios holding fixed-income investments, a Fixed Income Style Box is calculated. The vertical axis shows the credit quality based on credit ratings and the horizontal axis shows interest-rate sensitivity as measured by effective duration. There are three credit categories - "High", "Medium", and "Low"; and there are three interest rate sensitivity categories - "Limited", "Moderate", and "Extensive"; resulting in nine possible combinations. As in the Equity Style Box, the combination of credit and interest rate sensitivity for a portfolio is represented by a darkened square in the matrix. Morningstar uses credit rating information from credit rating agencies (CRAs) that have been designated Nationally Recognized Statistical Rating Organizations (NRSROs) by the Securities and Exchange Commission (SEC) in the United States. For a list of all NRSROs, please visit <https://www.sec.gov/ocr/ocr-current-nrsros.html>. Additionally, Morningstar will use credit ratings from CRAs which have been recognized by foreign regulatory institutions that are deemed the equivalent of the NRSRO designation. To determine the rating applicable to a holding and the subsequent holding weighted value of a portfolio two methods may be employed. First is a common methodology approach where if a case exists such that two CRAs have rated a holding, the lower rating of the two should be applied; if three or more CRAs have rated a holding, the median rating should be applied; and in cases where there are more than two ratings and a median rating cannot be determined, the lower of the two middle ratings should be applied. Alternatively, if there is more than one rating available an

average can be calculated from all and applied.

Please Note: Morningstar, Inc. is not an NRSRO nor does it issue a credit rating on the fund. Credit ratings for any security held in a portfolio can change over time.

Morningstar uses the credit rating information to calculate a weighted-average credit quality value for the portfolio. This value is based only upon those holdings which are considered to be classified as "fixed income", such as government, corporate, or securitized issues. Other types of holdings such as equities and many, though not all, types of derivatives are excluded. The weighted-average credit quality value is represented by a rating symbol which corresponds to the long-term rating symbol schemas employed by most CRAs. Note that this value is not explicitly published but instead serves as an input in the Style Box calculation. This symbol is then used to map to a Style Box credit quality category of "low," "medium," or "high". Funds with a "low" credit quality category are those whose weighted-average credit quality is determined to be equivalent to the commonly used High Yield classification, meaning a rating below "BBB", portfolios assigned to the "high" credit category have either a "AAA" or "AA+" average credit quality value, while "medium" are those with an average rating of "AA-" inclusive to "BBB-". It is expected and intended that the majority of portfolios will be assigned a credit category of "medium".

For assignment to an interest-rate sensitivity category, Morningstar uses the average effective duration of the portfolio. From this value there are three distinct methodologies employed to determine assignment to category. Portfolio which are assigned to Morningstar municipal-bond categories employ static breakpoints between categories. These breakpoints are: "Limited" equal to 4.5 years or less, "Moderate" equal to 4.5 years to less than 7 years; and "Extensive" equal to more than 7 years. For portfolios assigned to Morningstar categories other than U.S. Taxable, including all domiciled outside the United States, static duration breakpoints are also used: "Limited" equals less than or equal to 3.5 years, "Moderate" equals greater than 3.5 years but less than or equal to 6 years, and "Extensive" is assigned to portfolios with effective durations of more than 6 years.

Note: Interest-rate sensitivity for non-U.S. domiciled portfolios (excluding those in Morningstar convertible categories) may be assigned using average modified duration when average effective duration is not available.

For portfolios Morningstar classifies as U.S. Taxable Fixed-Income, interest-rate sensitivity category assignment is based on the effective duration of the Morningstar Core Bond Index (MCBI). The classification assignment is dynamically determined relative to the benchmark index value. A "Limited" category will be assigned to portfolios whose average effective duration is between 25% to 75% of MCBI average effective duration, where the average effective duration is between 75% to 125% of the MCBI the portfolio will be classified as "Moderate", and those portfolios with an average effective duration value 125% or greater of the average effective duration of the MCBI will be classified as "Extensive".

## Risk Measures

R-squared reflects the percentage of a fund's movements that are explained by movements in its benchmark index, showing the degree of correlation between the fund and the benchmark.

Beta is a measure of a fund's sensitivity to market movements. A portfolio with a beta greater than 1 is more

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# Disclosure

volatile than the market, and a portfolio with a beta less than 1 is less volatile than the market.

Alpha measures the difference between a fund's actual returns and its expected performance, given its level of risk (as measured by beta).

Sharpe ratio uses standard deviation and excess return to determine reward per unit of risk.

Standard deviation is a statistical measure of the volatility of the fund's returns.

## Investment Risk

*Foreign Securities Funds/Emerging Market Funds:* Risks include, but are not limited to, currency risk, political risk, and risk associated with varying accounting standards. Investing in emerging markets may accentuate these risks.

*Sector Funds:* The lack of industry diversification subjects the investor to increased industry-specific risks.

*Non-Diversified Funds:* Funds that invest more of their assets in a single issuer involve additional risks, including share price fluctuations, because of the increased concentration of investments.

*Small-Cap Funds:* Smaller companies typically have a higher risk of failure, and are not as well established as larger blue-chip companies. Historically, smaller-company stocks have experienced a greater degree of market volatility than the overall market average.

*Mid-Cap Funds:* The securities of companies with market capitalizations below \$10 billion may be more volatile and less liquid than the securities of larger companies.

*Bond Funds:* Bond investments are subject to interest rate risk so that when interest rates rise, the prices of bonds can decrease and the investor can lose principal value. Bonds investing in asset/mortgage-backed securities are subject to prepayment risk, where falling interest rates can cause security prices and income to decline due to early prepayment of principal, as well as extension risk, where rising interest rates can cause securities prices to decline because expected prepayments of principal do not occur.

*High-Yield Bond Funds:* Funds that invest in lower-rated debt securities (commonly referred to as junk bonds) involve additional risks because of the lower credit quality of the securities in the fund, including the possible higher level of volatility and increased risk of default.

*Commodity-Linked Derivative Funds:* Funds that invest in commodity-linked derivative instruments may subject the portfolio to greater volatility than investments in traditional securities, particularly if the investments invoke leverage.

*Value Funds:* Stock selection is based upon the portfolio manager's assessment of fundamentals of the companies that he/she believes to be undervalued. This style of investing may increase the volatility of the portfolio and may not produce the intended results over short or long time periods. Larger, more established companies may not be able to attain higher growth rates of smaller companies, especially during extended periods of economic expansion.

*Asset Allocation Funds:* These funds seek to accomplish dual goals of income and capital appreciation by investing in a variety of securities in different asset classes. Many of these portfolios are structured as a "fund of funds" which is a portfolio that specializes in buying shares of other portfolios rather than individual securities. The "fund of funds" structure may have higher costs than if you invested directly in the underlying portfolios.

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