White Paper
Multi-Asset Solutions

May 2025

Volatility Guardrails for Uncertain Times

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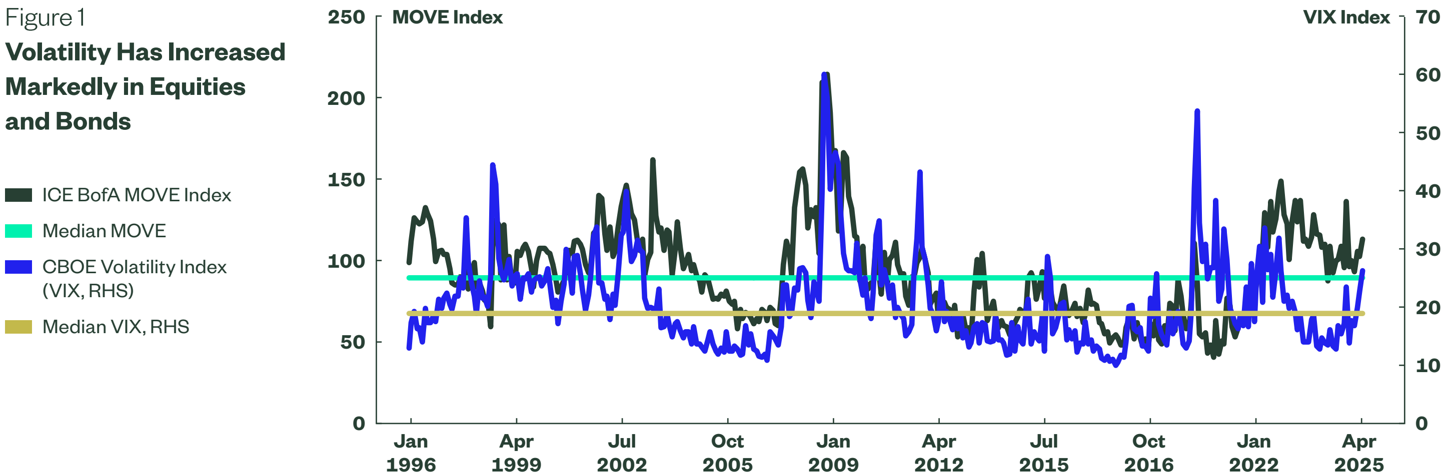
Executive Summary

Amid tariff uncertainties, inflationary pressures and geopolitical strife, there is no shortage of market, macro, and geopolitical risks to feed market volatility. Not surprisingly, those risks are prompting more investors to focus on downside protection strategies that may help limit portfolio drawdowns, while also allowing some participation in upside returns. In this piece, we look at several equity risk management approaches investors can consider, and discuss how to choose among them depending on your risk and return objectives.

In our 2025 Global Market Outlook, we wrote that we expected market volatility to remain a theme for the coming year. That conviction looks well placed; in the first three months of the year we have seen market volatility spike amid increased uncertainty around the future of the US exceptionalism in particular (Figure 1). Understandably, this has led investors to examine different strategies for downside protection.

Figure 1

Volatility Has Increased Markedly in Equities and Bonds



Source: Bloomberg Finance L.P., Data as of April 30, 2025.

The need for managing volatility is clearer than ever now. In a world where the outlooks for inflation and growth both seem challenged, and positive correlation between stocks and bonds has undermined portfolio hedging strategies that investors have long relied on, investors need to think about hedging in different ways.

In essence, investors must continue allocating to risk assets to achieve their return objectives, but also need to have strategies in place to manage volatility, as drawdowns can take a long time to recover from and can therefore undermine long-term outcomes.

> **“Whether these downside protection strategies should be more strategic (a permanent part of the portfolio design) or dynamic (dialed up and down as needed) depends on risk tolerance.”**

If the asset owner can withstand drawdowns, and patiently accumulate through the resulting recovery phases, then the added complexity of volatility management may not be necessary at all. For some, a moderate risk tolerance offers the ability to be more opportunistic in risk control, employing Dynamic Asset Allocation (DAA) or using derivative overlays when conditions suit. For others, a low tolerance for losses suggests the need to install some form of permanent shock absorber into their Strategic Asset Allocation (SAA) in the form of risk-controlled assets or a rolling options overlay.

Downside Protection Strategies

Dynamic Asset Allocation (DAA)

Diversification, often described as the only "free lunch" in finance, relies on the empirical observation that over a business cycle, asset classes display correlations with each other that are less than one, so that when they are combined in portfolios, risk is reduced but return averaged. This promise of diversification lies at the heart of Strategic Asset Allocation (SAA) portfolios that are invested in a diverse set of assets, with the view that this mix could provide a stable risk-return profile over a business cycle.

In the last few years, the cornerstone of most SAA portfolios — diversification between government bonds and developed market equities — has been challenged as the market became more and more concerned about inflation and stock/bond correlations turned positive (Figure 2). (Also see: The Global Trend of Positive Stock/Bond Correlation). Furthermore, in times of stress, correlations between apparently diversified assets tend to approach 1 as fear sets in. While there are signs of a return to negative stock/bond correlation in some regions, recent market dynamics underline the worth of Dynamic Asset Allocation (DAA), which overlays the SAA with a set of shorter-term exposures based on market outlook and investor sentiment. DAA allows investors to keep risk and return closer to target through troubled times by allocating to less risky assets in higher risk market regimes, and adding more growth assets in safer times.

Figure 2
The Market's Emphasis on Inflation Could Impact Stock-Bond Correlation

Source: Bloomberg Finance L.P., as of May 2, 2025 based on excess monthly returns of the MSCI World Index over the US 3M T-Bill rate. For Global Bonds, Bloomberg US Aggregate Index returns less the US 3M T-Bill Rate were used prior to 1990, afterwards Bloomberg Global US Aggregate Bond Index was used less the return on the US 3M T-Bill Rate.

DAA does require investors to embrace a broader set of assets beyond the "classic" 60/40 mix, often using corporate investment grade and high yield bonds, small-cap, and emerging market equities, as well as commodities including oil and gold, and alternatives, among others. Potentially, derivative strategies can be used to finesse exposure to target levels and maturities. With this increased complexity comes reduced liquidity relative to the classic mix, as well as higher turnover in asset classes in which it may be more expensive to transact.

DAA strategies are often suited to investors for whom total portfolio risk is a focus (with less emphasis on a particular asset class), for example, with a defined benefit pension plan, or with a defined contribution plan in the later stages of a target date fund glidepath, where the need for moderate growth is married with capital preservation. The fact that DAA solutions can be packaged as funds can make life easier for trustees and sponsors alike — especially those at smaller firms where resources may be limited.

It is also important to note that the benefits of DAA usually accrue over a full market cycle, as the process generally requires a modest risk budget versus the SAA and should not be thought of as a high-risk absolute return strategy. Consequently, DAA will generally come at a lower cost and display lower volatility.

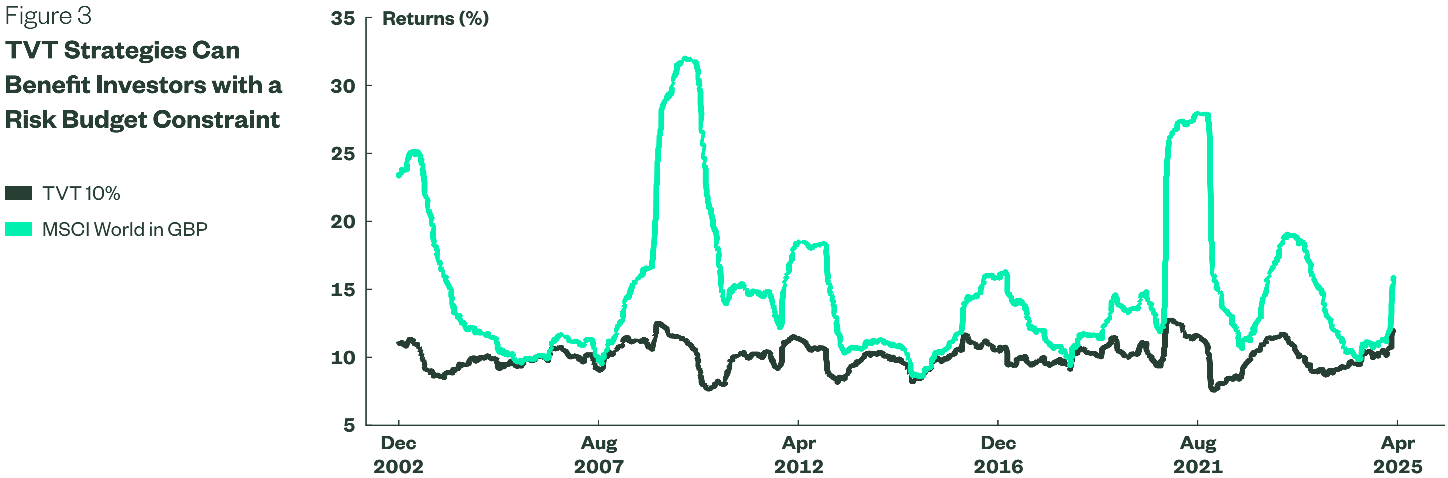
Target Volatility Triggers (TVT)

Some clients have equity portfolios that are managed against a pre-defined risk budget. Trustees and sponsors of defined benefit plans can find themselves in such a position: they need growth assets to bridge funding gaps, but with liabilities marching ever closer, they cannot afford to bear the brunt of market volatility with their funding ratios under major scrutiny. Other clients may have equity portfolios that are managed against a pre-defined risk budget. A TVT overlay on their portfolios can offer a cost-effective way of tackling these problems (Figure 3).

TVT strategies can be thought of as a DAA process that allocates between a risky portfolio and cash. The allocation is systematic, based on a forecast of volatility relative to a target level. As a result, its extra complexity comes not from new asset classes, but from the trading required to adjust the portfolio to the risk target.

TVT strategies are easy to understand. The investor can choose a target level of volatility, and as the strategy simply moves between a portfolio and cash, the cost of entering it should be relatively invariant to market conditions. However, TVT strategies cannot protect against extreme market movements which might cause a portfolio to "gap down" on the open, and will also generally lag the market in steep rallies (Figure 3), as the allocation to cash takes time to be reduced.

Figure 3
TVT Strategies Can Benefit Investors with a Risk Budget Constraint



For illustrative purposes only.

Source: State Street Global Advisors and Refinitiv. Data is from 31 December 2001 to 31 March 2025. The data displayed for TVT strategy is a hypothetical example of Back-Tested Performance for illustrative purposes only and is not indicative of the past or future performance of any SSGA product. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable. Research for SSGA's Target Volatility Triggers (TVT) Solution was conducted for the time period from 31 December 2001 to 31 March 2025 based on the availability of daily data on the MSCI World NR index in GBP index. The data displayed represents a back-test of SSGA's TVT Solution model and is not indicative of the past or future results of any SSGA product, but was achieved by means of the retroactive application of the model which was developed with the benefit of hindsight.

All data shown above does not represent the results of actual trading, and in fact, actual results could differ substantially, and there is the potential for loss as well as profit. The performance reflects an assumed trading cost of 15bp two-way. The performance does not reflect management fees and other fees and expenses a client would have to pay, which reduce returns. Please reference Backtested Methodology Disclosure for a description of the methodology used for backtesting, and an important discussion of the inherent limitations of backtested results.

Managed Volatility Equities

For over half a century, financial academics have been investigating the phenomenon that investing in higher risk equities is not necessarily rewarded with higher risk-adjusted returns *over the long term*. This "low-volatility anomaly" goes against the traditional belief that there should be an extra reward for taking more risk. Various reasons have been posited for this anomaly, both behavioral (people like buying lottery tickets) and structural (investors can't always access leverage).

Whatever the justification, this observation has led to the creation of systematic strategies which seek to create a portfolio of equities with managed volatility, usually through a combination of constrained optimization and screening. The appeal of these Managed Volatility strategies for existing equity investors is that they don't require a change or addition of an asset class; rather, there can be a substitution of the Managed Volatility portfolio for all or part of the market-capitalization-weighted equity portion.

However, there are features of Managed Volatility strategies that require scrutiny. As noted with DAA, any departure from the market-cap portfolio will likely be less liquid and require greater turnover to stay "on track." No factor investing strategy, of which Managed Volatility equity investing is a subset, can always outperform the market-cap portfolio, and so investors need to be either benchmark-agnostic or be able to tolerate significant tracking error (sometimes up to 10% on an annualized basis) over a market cycle. Investors must also understand that there will be periods of relative underperformance in Managed Vol strategies. See Stand United or Divide and Conquer? What is the Best Approach to Factor Investing? for a more in-depth study of (Minimum) Volatility and other factors' behavior over time, on their own, and in combination.

This tracking error raises governance issues: as equity investors move from a mandate structure of hiring active managers and terminating them if risk-adjusted performance after fees is not as expected, to a structure where some of their equity risk budget is allocated to systematic equity beta strategies, the burden of responsibility becomes greater for them to correctly choose, size, and potentially time the factor allocation. This extra responsibility underscores the importance of investors understanding how these factors will behave across different market conditions.

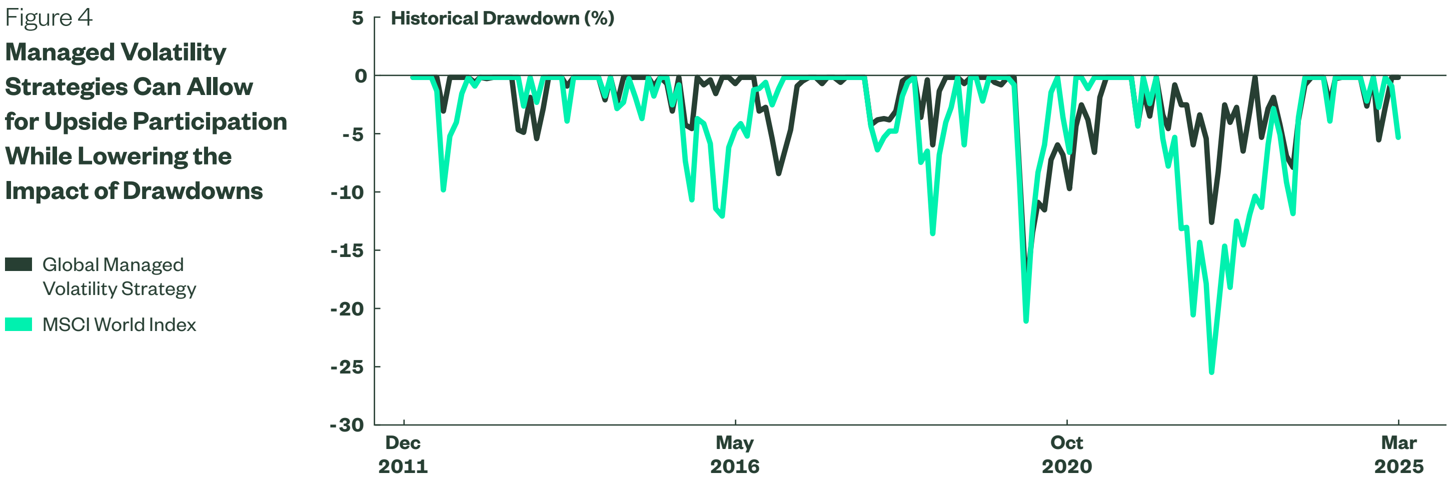
Despite these governance issues, we see interest in Managed Volatility investing.

- Asset owners who have been overweight (market-capitalization-weighted) equities, with a large concentration in US equities and the US Technology Sector in particular — and who have suffered their volatility and disproportionate consumption of risk budget — could switch portions of their equity holdings to Managed Volatility equities to continue reaping the equity risk premium over the business cycle, but with a reduction in overall risk and a dilution in the index concentration of IT.

- Like TVT, Managed Volatility strategies will generally lag the market in steep rallies and will almost certainly suffer drawdowns in large market drops. However, historically, those drawdowns have not been as steep as the broad equity market, as can be seen in Figure 4 below. The strategy seeks to "win by not losing" — benefitting from the power of compounding by losing less in falling markets.

Figure 4

Managed Volatility Strategies Can Allow for Upside Participation While Lowering the Impact of Drawdowns



Source: State Street Global Advisors, as of March 31, 2025. Past performance is not an indication of future results. The performance figures contained herein are provided on a net of management fees and do reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in USD. Index returns reflect capital gains and losses, income, and the reinvestment of dividends. The Supplemental Information above is that of a single representative account within the Composite, which is subject to change. The representative account was chosen because it has no material restrictions and fairly represents the investment style of the Strategy. The Supplemental Information should not be deemed to be reflective of (and could differ from) the overall Composite or any other single account within the Composite.

As with all systematic equity factor strategies, the benefits will generally accrue only over a full market cycle or longer. Taken together or separately, we believe TVT and Managed Volatility strategies should feature in investors' SAA going forward, with their relative proportions ultimately dictated by investors' risk appetites.

Option Overlays

As opposed to DAA and Managed Volatility strategies, options are time-limited products which require investors to choose the level (strike) and duration (maturity) of their protection in exchange for a single upfront payment (premium). Designing the right strategy involves balancing the following parameters:

Downside Protection What is the level of downside protection below which the investor requires their portfolio to be insulated from market moves?

Upfront Cost What premium can the investor afford to pay?

Upside Participation Is the investor willing to forego some upside participation to lessen the premium?

Maturity and Rebalancing Over what period does the investor require protection? Is this protection a "one-off" or should it be rolled? If so, should rebalancing be time-dependent or based on some form of trigger?

Strategic or Dynamic? Should the overlay be rules-based and strategic, or dynamically adjust to market conditions?

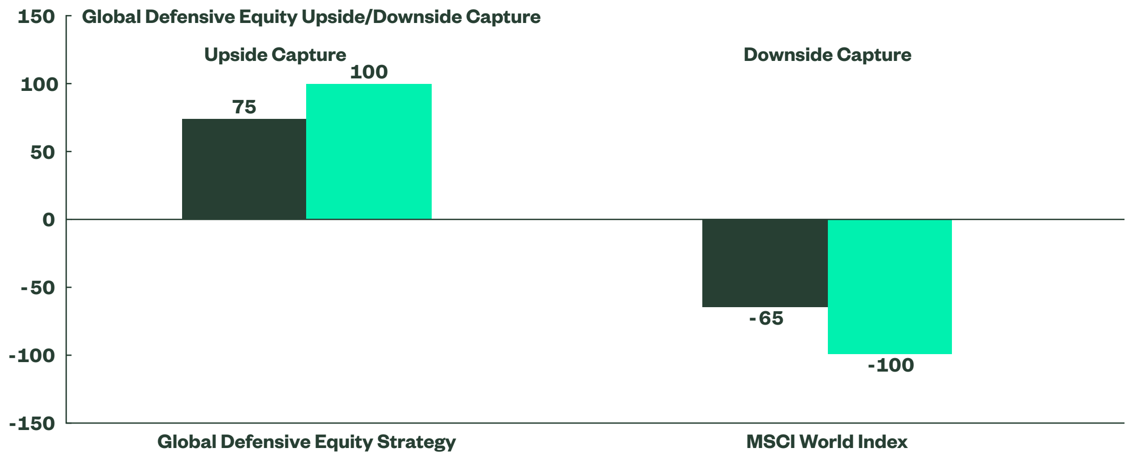
As an example of how an option overlay might be implemented, we consider the zero-premium put-spread collar strategy. This is used by investors who want to protect their downside below a certain level and are willing to give up some upside in return. In this strategy, the investor buys a put near the current market level and, to recoup some of the premium, sells a put with a lower strike and a call with a higher strike so that the net premium is zero. This option strategy requires zero premium, making it a popular candidate for a strategic hedge, which is kept "permanent" though rebalancing.

Compared with investing in DAA or managed volatility funds, option overlays can involve more operational complexity, with extra documentation, trading accounts, margin funding, and education for end investors. The pricing of options can also be more affected by market conditions and supply/demand dynamics. However, they can fully protect the investor against gap risk, where the market opens one day far below its previous level, and their costs and return profiles are known upfront, are realized fully on maturity, and need not be path dependent.

Global Defensive Equities

As illustrated, low-volatility equity indices have broadly achieved better Sharpe ratios than the market over long periods through a systematic beta approach. An investment in an active Defensive Equity strategy may be a way to incorporate both return enhancement and lower risk versus market-cap-weighted equity indices (Figure 5) by using systematic active management.

Figure 5
The Global Defensive Equity Strategy Has Enabled Risk Control via Active Management



Source: State Street Global Advisors as of March 31, 2025. Past performance is not a reliable indicator of future performance. The performance figures contained herein are provided on a gross of fees basis, before taxes but after management and transaction costs. Performance statistics are those of the composite. The index returns are unmanaged and do not reflect the deduction of any fees or expenses.

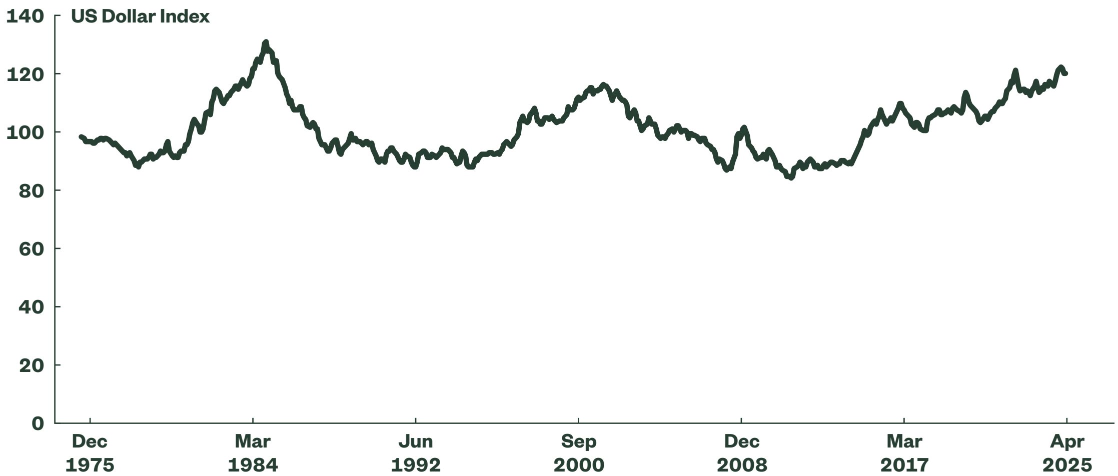
An active defensive equities strategy incorporates both defensive portfolio construction through greater portfolio diversification and risk factor mitigation, as well as active stock selection. At State Street Global Advisors, in our Global Defensive Equities strategy, we invest only in our highest conviction stocks, with a focus on names with high quality, reasonable value, sustainable earnings, internal growth, and positive outlook.

The goal with this approach is to deliver long-term sustainable returns with lower drawdowns and lower total risk than the market. The Strategy may be able to capture opportunities in the equity space, such as those that are coming to fruition with the growth in AI. However, the Strategy is also structured to manage risks associated with the disruptive nature of the technology as well as other emerging forces that can and will drive market risk higher.

An Additional Consideration: Protecting Against Currency Volatility

Currency markets are extremely liquid, but certainly not immune to volatility (Figure 6).

Figure 6
US Dollar Strength Has Been Called into Question Amid Tariff Uncertainties



Source: Bloomberg Finance L.P., Data as of 30 April 2025.

The chart above shows the evolution of the Fed's Broad Real Trade-Weighted Dollar Index over the last 50 years. Even though the currency shows low day-to-day volatility, we can see that it moves in deep and steep trends with cycles persisting over decades. Major events such as changes in Federal Reserve posture, or the Eurozone crisis have historically marked a new up/down cycle for the dollar.

By the end of January 2025, the dollar had risen more than 46% from its 2011 lows but had come down 2% from the start of the year on worries about the effects of tariffs on the US economy, and perhaps more generally, on the USD's status as the reserve currency. This could be a harbinger of what can happen amid the broad capital repatriation toward the Euro and elsewhere, away from the US.

The prolonged cycle since 2011 alongside the narrative of US exceptionalism may have created too much complacency. Maybe the US dollar was settling into a permanently higher plateau, and its bull market gains would not "wash out" this time. We would caution that the volatility experienced since the start of this year is a wake-up call, not for less volatility from here, but for more. A continuation of increased stimulus in Europe could drive the Euro further up, and for the USD, we do think the gains of the past 14 years wash out (see: US Tariffs Break the USD Bull Case).

For investors looking to protect against long-term currency volatility, or indeed for those targeting to profit from it, Dynamic Strategic Hedging — where the hedge ratio is tailored for each currency in a portfolio according to the specific currency's deviation from long-term fair value — can add value. For those also concerned with shorter term volatility adding a more tactical component via our Enhanced Dynamic Strategic Hedging can be quite attractive.

In periods where currencies can overshoot violently, this type of hedging can provide an opportunity for prudent investors to increase or decrease their hedge ratios to take advantage. Dynamic hedging can assist investors in reducing realized currency losses that can result from static hedging programs — especially when currencies have deviated significantly from their long-run fair value. Tactical enhancements can be very useful in reacting to more immediate market dislocations and related cyclical economic impacts of changing polices during this period of heightened uncertainty.

Closing Content

Volatility management is understandably on investors' radars, as the correlation between stocks and bonds has increased, leaving traditional diversification foundations fragile. Investors may need to think beyond the 60/40 allocations and consider new options that will have hedging qualities in various market environments.

Investors can take a strategic approach — switching a portion of their core equity holdings to TVT or Managed Volatility strategies, or applying systematic option overlays — or a more dynamic approach, through DAA or opportunistic option trading. Limiting losses during market drawdowns can help investors save "dry powder," which they can then re-allocate towards riskier assets after the drawdown to benefit from rising returns.

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For over four decades, State Street Global Advisors has served the world's governments, institutions, and financial advisors. With a rigorous, risk-aware approach built on research, analysis, and market-tested experience, and as pioneers in index and ETF investing, we are always inventing new ways to invest. As a result, we have become the world's fourth-largest asset manager* with US $4.67 trillion† under our care.

* Pensions & Investments Research Center, as of December 31, 2023.
† This figure is presented as of March 31, 2025 and includes ETF AUM of $1,553.58 billion USD of which approximately $106.42 billion USD in gold assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated. Please note all AUM is unaudited.

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Currency Risk is a form of risk that arises from the change in price of one currency against another. Whenever investors or companies have assets or business operations across national borders, they face currency risk if their positions are not hedged.

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Investments in mid-sized companies may involve greater risks than those of larger, better-known companies, but may be less volatile than investment in smaller companies.

Actively managed funds do not seek to replicate the performance of a specified index.

The Global Defensive Equity Strategy is actively managed and may underperform its benchmarks. An investment in the strategy is not appropriate for all investors and is not intended to be a complete investment program. Investing in the strategy involves risks, including the risk that investors may receive little or no return on the investment or that investors may lose part or even all of the investment.

This document provides summary information regarding the Strategy. This document should be read in conjunction with the Strategy's Disclosure Document, which is available from SSGA. The Strategy Disclosure Document contains important information about the Strategy, including a description of a number of risks.

Diversification does not ensure a profit or guarantee against loss.

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The MSCI World Index is a trademark of MSCI Inc.

The composite/criteria definition is available upon request.

Back Tested Disclosures — Target VolatilityTriggers

The back tested performances shown in Figure 4 was created by the Investment, Strategy & Research team (IS&R). The returns were generated by using Target Volatility Triggers (TVT), a proprietary portfolio management tool developed by SSGA's Investment Solutions Group. TVT uses historical measures of realised volatility within the portfolio in order to forecast future volatility. Portfolio weights are dynamically adjusted based on the volatility forecast in an attempt to target a given volatility level of the portfolio.

The results shown do not represent the results of actual trading using client assets but were achieved by means of the retroactive application of a model that was designed with the benefit of hindsight. The Back-Tested performance was compiled after the end of the period depicted and does not represent the actual investment decisions of the advisor.

These results do not reflect the effect of material economic and market factors on decision making.

The theoretical equity performance was calculated using the MSCI World Net Total Return Index as the equity. The back tests are net of trading costs assumed to correspond to one-way trading costs of 15 bps, gross of advisory fees.

ID2850950-7932417.1.2.GBL.INST 0525
Exp. Date: 05/31/2026