

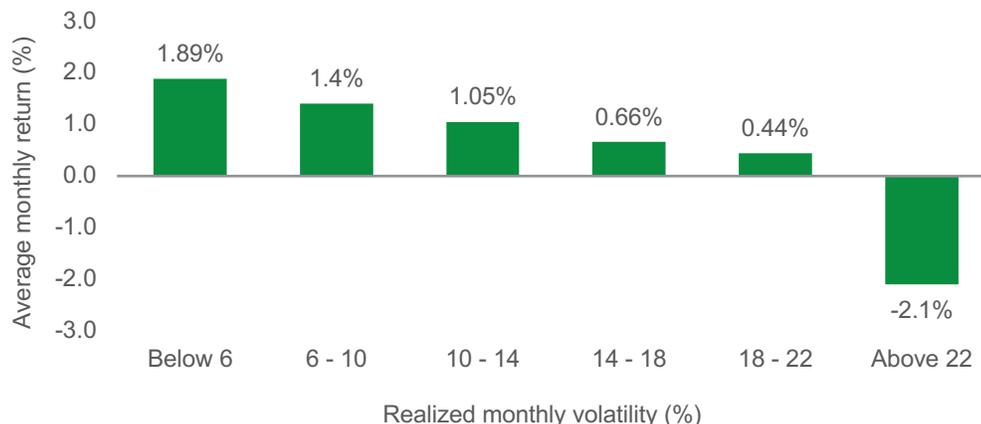
The Case for a Permanent Allocation to an Equity Stabilization Strategy

- **Institutional investors face a balancing act between two equally important needs: achieving robust long-term returns while avoiding the painful consequences of near-term drawdowns.**
- **Traditional asset allocation, risk parity and other hedging strategies have failed to perform as expected during recent downturns.** Fixed income assets have moved closely in line with equities in times of crisis.
- **Equity volatility levels exhibit a persistent and reliable relationship with equity returns over time** and through market cycles, including the latest market crisis, as illustrated for large cap U.S. equities in Chart 1.
- **A permanent strategic allocation to an equity stabilization strategy that utilizes the persistent volatility/return relationship can improve investors' long-term risk/return ratios – even if implemented right after a market selloff.** A rules-based approach, using the reliable indicator of recent volatility, can be successfully applied at any time via a spectrum of implementations against single or multiple risk asset class portfolios.

Chart 1: There is a Clear Relationship Between Monthly Equity Returns and Recent Volatility

AVERAGE MONTHLY S&P 500® RETURNS FOR RANGES OF REALIZED MONTHLY VOLATILITY

(January 1, 1928 – March 31, 2020)



Source: Bloomberg. Data as of April 1, 2020. The data spans from January 1, 1928, to March 31, 2020, and the table displays the average monthly returns for the S&P 500® for the time periods shown where the average monthly volatility was in the different volatility categories shown. Volatility is measured as the annualized standard deviation of daily returns of the index. The S&P 500® Index is an unmanaged index of 500 stocks that is generally representative of the performance of larger companies in the U.S and investments cannot be made directly in the indices. See additional disclosures at the end of the materials for additional information.

Risk Assets: Investors Manage a Double-Edged Sword

Institutional investors face the pernicious dilemma of having mutually conflicting needs. When building a portfolio, investors start with the understanding that, over the long term, expected return and volatility are strongly positively correlated. Unfortunately, most investors need both significant levels of return to meet their long-term goals *and* a stable stream of returns to ensure financial viability. A defined benefit pension plan, for example, needs solid returns to meet its actuarial funding goals and pay pensions, while it needs stability to avoid erosion of its funded status.

For institutional investors seeking stable funding, the same risk assets that provide essential upside potential also represent significant exposure to downside risk and unstable results. Although investors' need for risk mitigation is high, most investors have not implemented such strategies to date, for reasons we discuss below.

The Risks of Managing Risk: Why Most Portfolios Remain Exposed

For a risk mitigation strategy to be reliable, it must be built on a market relationship that is persistent over time. Unfortunately, most risk mitigation strategies to-date have been based on historic correlations that have broken down during strong bear markets, when they are most needed.

Fixed Income is an Anchor to Windward Until a Hurricane Comes

A common approach to mitigating equity volatility risk is the classic asset allocation strategy combining equity and fixed income assets, for example in the traditional 60/40 portfolio. The logic is that the two asset classes are negatively correlated most of the

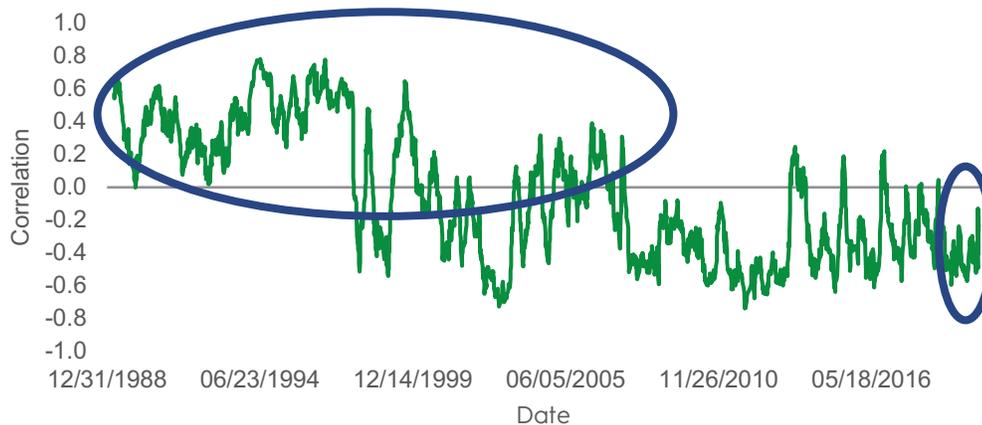
time, so fixed income serves as a portfolio's 'anchor to windward' when volatile equities experience periodic selloffs.

Unfortunately, the correlation between fixed income and equity investments is not stable through time. As Chart 2 illustrates, **there have been long periods where equities and bonds were positively correlated, and thus traditional portfolio diversification did not reduce portfolio risk.**

Chart 2: Fixed Income is Not a Reliable Equity Hedge

3-MONTH ROLLING CORRELATION – S&P 500 AND BLOOMBERG BARCLAYS U.S. AGGREGATE BOND INDEX

(January 1, 1989 – March 31, 2020)



Source: Bloomberg Barclays US Aggregate Bond Index and Securian Asset Management, Inc. Data as of April 1, 2020. The data spans from January 1, 1989, to March 31, 2020, and displays analysis of two indices, the 3-month rolling correlation of the S&P 500 vs. the Bloomberg Barclays U.S. Aggregate Bond Index. The blue circles highlight the specific periods of time.

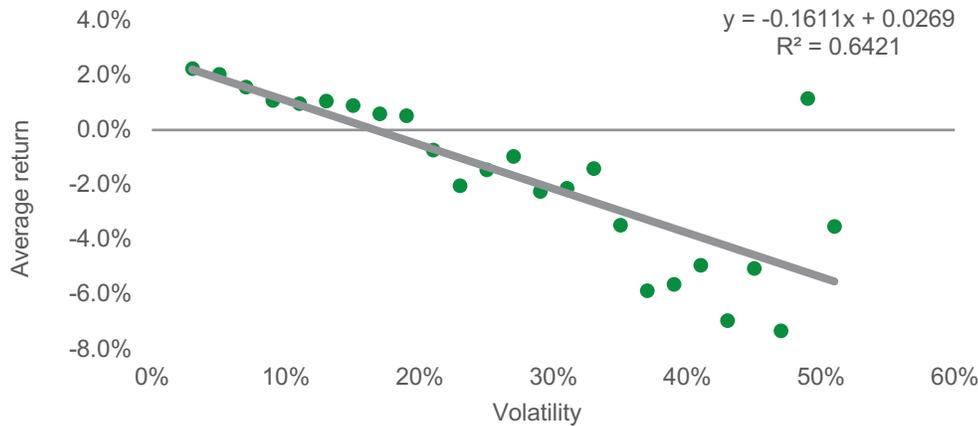
In crises — when an offset to downside equity risk is most needed — equities and fixed income often sell off at the same time. During the COVID-19 crisis, the correlation between fixed income assets and equities quickly became much less negative, diluting fixed income's portfolio diversification benefit. Further, there have been extended periods of time where fixed income was positively correlated with equity. Both are highlighted in the circles in Chart 2.

Volatility is a Reliable Indicator of Equity Performance

A persistent and reliable relationship exists between 1-month volatility and 1-month equity returns, both positive and negative. Volatility episodes tend to demonstrate persistence. As Chart 3 clearly shows, since 1928, for the S&P 500, high 1-month volatility tends to be associated with poor 1-month returns; and vice versa.

Chart 3: Since 1928, Volatility Levels Have Reliably Signaled Equity Returns
AVERAGE MONTHLY S&P 500 RETURN VS. AVERAGE MONTHLY REALIZED VOLATILITY

(January 1, 1928 – March 31, 2020)



Source: Bloomberg, Securian Asset Management, Inc. Data as of April 1, 2020. Data spans from January 1, 1928, to March 31, 2020, and displays the average monthly S&P 500 return vs. the average monthly realized volatility.

While we use the S&P 500 for the illustration above, our research shows the same relationship between volatility and returns across other equity markets.

A Volatility-Based Equity Stabilization Strategy Can Improve the Risk/Return Ratio

A strategy based on the reliably strong relationship between equity volatility and returns is well-suited to deliver portfolio risk mitigation in a more consistent manner than traditional asset allocation. An Equity Stabilization Strategy systematically adjusts equity exposures based on the volatility/return relationship. This approach holds greater equity market exposure during lower volatility periods, which tends to lead to better performance, as illustrated in Chart 3. Conversely, we believe this approach can quickly reduce equity market exposure during the higher volatility periods that tend to produce unfavorable performance, mitigating the drawdown of assets.

The Case for a Permanent Strategic Portfolio Allocation to Volatility-Based Equity Stabilization Strategies

To-date, institutional investors have implemented volatility-based stabilization strategies sporadically or not at all. We believe this reticence is due to two key investor concerns: Portfolio risk hedging is complex, and a desire to avoid periodic carrying costs of hedging – particularly right after a major market selloff.

A permanent strategic allocation to a systematic volatility-based approach over a full market cycle addresses both of these issues.



Strategic use of a volatility-based equity stabilization strategy to mitigate portfolio risk can help facilitate the following:

- **Greater equity market exposure in the lower volatility periods** that tend to lead to better performance
- **Reduced equity market exposure in the higher volatility periods** that tend to lead to unfavorable performance
- **Reduced impact of drawdowns**
- **More consistent return streams** over time
- **More stable outcomes** over a full market cycle

The Straightforward Principle of Volatility-Based Stabilization Strategies

A simple set of rules using 1-month risk asset volatility as the principal metric is the foundation of an equity stabilization strategy. A strategic overlay primarily employing listed equity index futures ensures transparency and simplicity while avoiding counterparty risk.

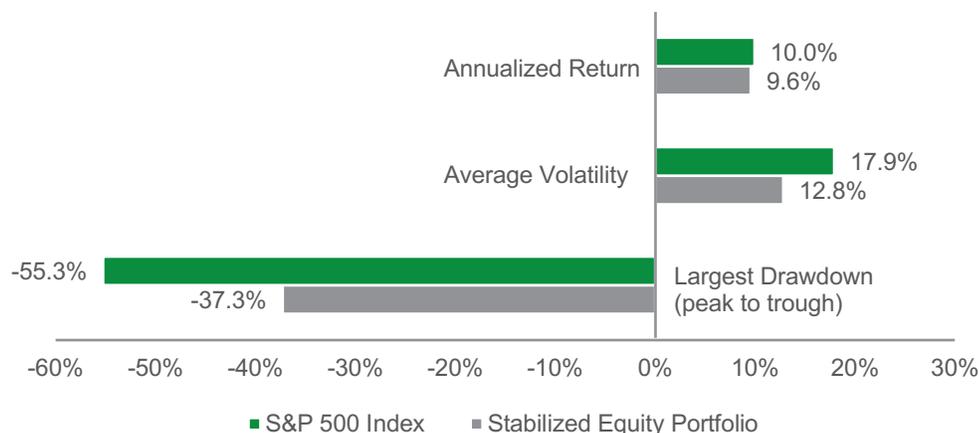
Implementing Volatility-Based Risk Mitigation is Straightforward

The Stabilized Equity Portfolio Hypothetical Example, is based on a pension plan aiming to reduce its domestic U.S. equity annualized volatility by about 25% from its historic average level of around 18% per annum. In this hypothetical, the pension fund added a futures-based overlay on top of its equity portfolio, using listed S&P 500 futures to dial the effective equity exposure up or down based on volatility. Using this overlay, the portfolio manager allows the portfolio's effective equity position to drop down to 20% of the portfolio's net assets in high volatility environments and increase it to as much as 150% in low volatility environments.

Chart 4: Equity Stabilization Strategy Improves Risk/Return

STABILIZED EQUITY PORTFOLIO HYPOTHETICAL RISK & RETURN CHARACTERISTICS

(January 1, 1988 – March 31, 2020)



Source: Bloomberg, Securian Asset Management, Inc. The data spans from January 1, 1988, to March 31, 2020, and displays the hypothetical backtested returns of a hypothetical portfolio created for illustrative purposes only. No investor actually achieved the results shown. No representation is being made that any account will or is likely to achieve results similar to those shown. Please see important disclosures on the limitations of hypothetical backtested performance at the end of the materials.

Skillful Implementation Adds Further Value to a Stabilization Strategy

The pension fund's overlay manager should take the following steps:

- Run the overlay model daily
- Combine experience-based judgement and additional subsidiary indicators such as the VIX and high-yield spreads to better assess the likely volatility environment daily
- Primarily use listed futures, and use listed options when inexpensive or more attractive
- Employ strict trading rules to protect the pension fund from being whipsawed in rapidly changing market environments
- Employ strong derivatives governance and oversight

Balanced Portfolios Benefit as Well

Using a volatility-based risk mitigation strategy on the equity portion of a balanced portfolio is an effective way to adjust the equity/bond mix to changing risk environments, without the costs and timing issues of selling the underlying assets.

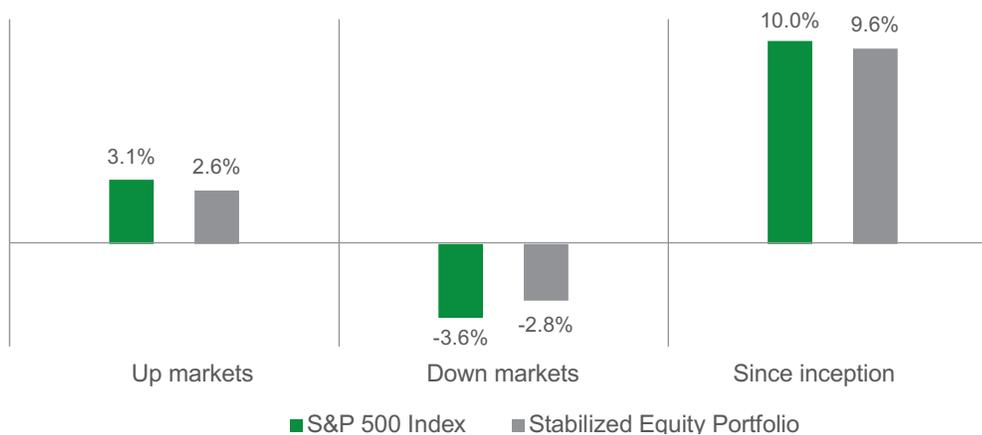
Positive Full Market Cycle Cost/Benefit

When a volatility-based portfolio risk management approach is maintained throughout a full market cycle, its outperformance in down markets can offset its underperformance in up markets, **rendering a market-like return over a full cycle.**

Chart 5: Thoughtful Equity Stabilization Can Pay for Itself Over a Full Market Cycle

AVERAGE MONTHLY RETURNS OF THE S&P 500 INDEX AND THE STABILIZED EQUITY PORTFOLIO HYPOTHETICAL EXAMPLE IN UP MARKETS, DOWN MARKETS, AND LONGER-TERM

(January 1, 1988 – March 31, 2020)



Source: Bloomberg, Securian Asset Management, Inc. The data spans from January 1, 1988, to March 31, 2020, and displays the hypothetical backtested returns of a hypothetical portfolio created for illustrative purposes only. No investor actually achieved the results shown. No representation is being made that any account will or is likely to achieve results similar to those shown. Please see important disclosures on the limitations of hypothetical backtested performance at the end of the materials.

Implementing a volatility-based risk mitigation approach by means of a derivative overlay means there is no disposition of underlying assets, merely a modification of risk exposures, thus avoiding trading costs and buy/sell spread costs. While there may be periodic 'carrying costs' of foregone performance in a bull market, the strategy may pay for itself over a full market cycle – avoiding the extensive long-term portfolio damage that a liquidity crisis during a bear market can wreak – as shown in Chart 5, above.

Portfolio Hedging is Vital after a Market Selloff

Perhaps counterintuitively, a volatility-based stabilization strategy is vital after a severe market shock, such as the recent COVID-19 pandemic shock.

After an historic downturn in the markets, most institutional portfolios are significantly underweight equities. In order to benefit fully when the markets inevitably recover – and in order to rebalance to their strategic asset mix targets – institutions need to re-risk by adding to their equity exposures.

This may be a difficult decision for many institutions, because the market bottom is only known to have occurred well after the fact. A reliable risk management strategy, such as the kind of volatility-based approach described in this paper, enables institutions to re-risk without needing to have certainty about the market bottom, as it entails significant protection against further drawdowns and yet will participate when the market recovers.

Summary: A Permanent Allocation to Volatility-Based Risk Mitigation is a Strategic Necessity for Institutional Investors

An airbag must be permanently installed in a car in order for it to deploy when it is needed – during the moment of impact, the timing of which cannot be predicted.

Similarly, we believe institutional investors obtain the best results from a stabilization approach based on volatility when they make it a full-time strategic allocation in their portfolios. A permanent strategic allocation to volatility-based stabilization ensures investors and their beneficiaries can benefit from the consistent and sustained mitigation of volatility shocks on an ongoing basis.

About Securian Asset Management, Inc.

As a financially stable non-public company, we focus on the long-term and execute consistently for our clients. Our asset management business has been built with a risk and liability management focus, coming from our long, successful history investing for our parent company's general account. We stay true to our purpose, our values and our St. Paul roots, while being innovative and nimble to help prepare our clients to meet their investment objectives from a position of strength.

Disclosures

The hypothetical backtested data shown reflects hypothetical performance an investor may have obtained had it invested in the strategy shown and does not represent performance that any investor actually attained. The hypothetical portfolio was constructed for the purpose of demonstrating possible performance if a portfolio manager had invested the portfolio's assets according to a specific formula. The hypothetical portfolio consists of a combination of an investment in the S&P 500, cash and certain "front month" S&P 500 futures contracts. The portfolio's investments were adjusted based on a formula that directs portfolio managers each day to either maintain current equity exposure or adjust equity exposure to a specific level based on the twenty-day realized volatility of the S&P 500, up to and including the present day. The formula **directs portfolio managers to drop the portfolio's effective equity position down to as little as 20% of the portfolio's net assets in high volatility environments and increase it to as much as 150% in low volatility environments.** Therefore, unless an investor managed the portfolio's equity exposure according to this formula from January 1, 1988 through March 31, 2020, they would have achieved different results than those shown.

No investor actually achieved the results shown. No representation is being made that any account will or is likely to achieve results similar to those shown. Certain of the assumptions have been made for modeling purposes and are unlikely to be realized. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Hypothetical returns have many inherent limitations and may not reflect the impact that material economic and market factors may have had on the decision-making process if client funds were actually managed in the manner shown. Hypothetical returns are also developed with the benefit of hindsight. Actual performance may differ substantially from the hypothetical performance presented. Changes in the assumptions may have a material impact on the hypothetical returns presented. There can be no assurance that Securian Asset Management, Inc. will achieve profits or avoid incurring substantial losses.

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Benchmark Descriptions: The S&P 500 Index consists of 500 large cap common stocks which together represent approximately 80% of the total U.S. stock market. It is a float-adjusted market-weighted index (stock price times float-adjusted shares outstanding), with each stock affecting the index in proportion to its market value. The Securian AM Dynamic Managed Volatility Strategy seeks to track 60% of the S&P 500 Index and 40% of the Bloomberg Barclays U.S. Aggregate Bond Index. The Bloomberg Barclays U.S. Aggregate bond Index is a broad-based index that measures the investment grade, U.S. dollar denominated, fixed rate taxable bond market and reflects the investment objective of the strategy. The S&P 500 Index consists of 500 large cap common stocks which together represent approximately 80% of the total U.S. stock market. The benchmark for the composite is rebalanced monthly.

Sources: Bloomberg and Securian Asset Management, Inc.

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