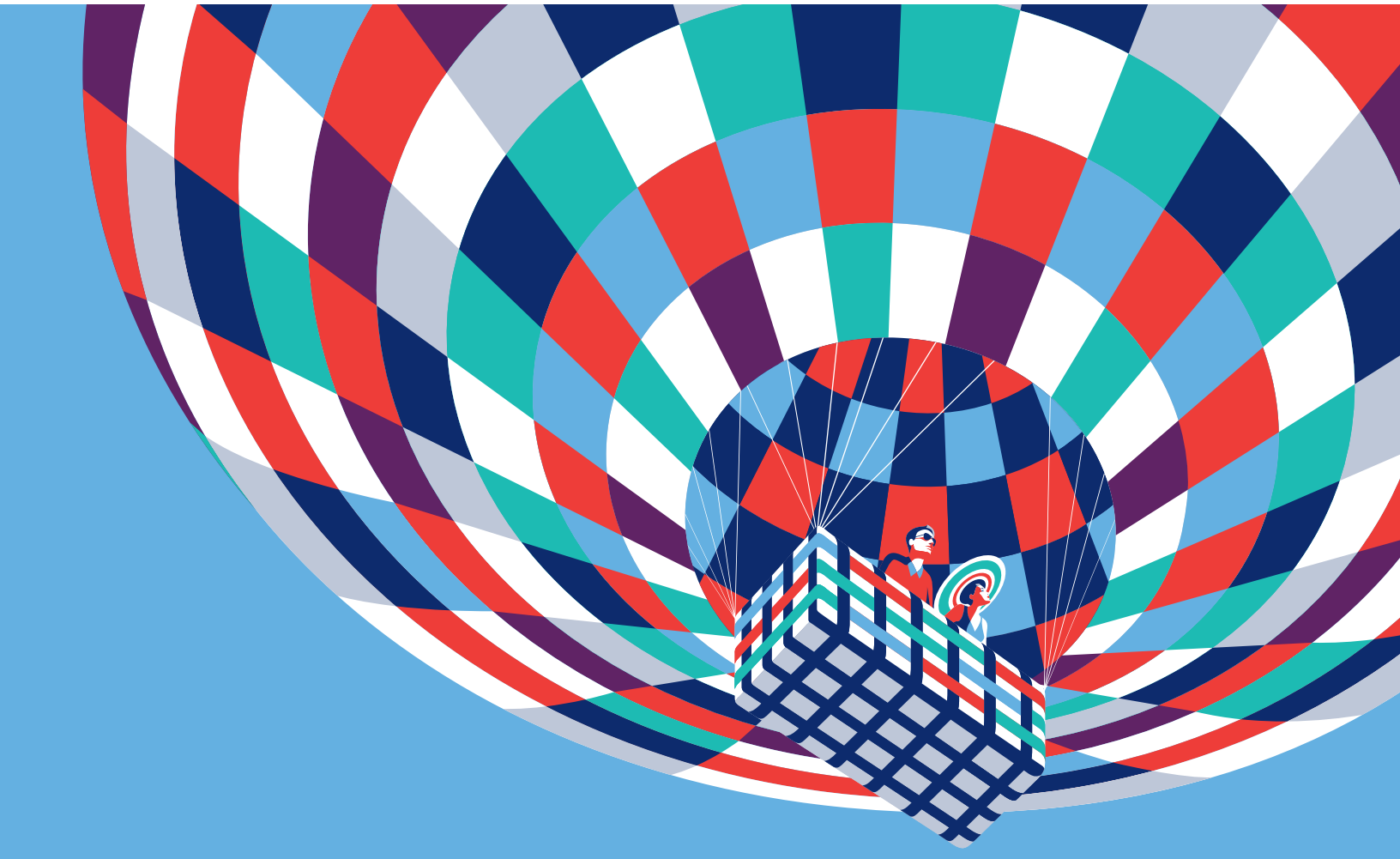
Delaware Life®

An index for all seasons

The (next) evolution of custom FIA indexing



Daniel Getler

Vice President and Head of Index and Fund Solutions at Delaware Life

As Vice President and Head of Index and Fund Solutions, Daniel Getler is responsible for the design and selection of the indexes that underlie the fixed index annuity products offered by Delaware Life Insurance Company (Delaware Life). Daniel has more than 15 years of experience in investments, with a focus on quantitative investing. His contributions have spanned multiple markets and asset classes across both active and passive mandates.

Prior to joining Delaware Life, Daniel worked on the design of custom indexes at Invesco. This included work on factor design, NLP-based thematic indexes, cryptocurrency, and a Paris-aligned benchmark framework.

Previously, Daniel led a quantitative research team at Arabesque focusing on the real-world application of ESG. The team analyzed sustainability metrics, including their effect on the risk and return characteristics of investment portfolios, to identify the optimal design of indexes to incorporate both financial and ESG constraints.

Additionally, Daniel spent several years on a quantitative global equities team at LMCG Investments, where he comanaged long-only and long/short portfolios across developed and emerging markets.

With this depth of experience, Daniel is uniquely positioned to provide rigorous examination of the index offerings in the market, each of which is run through a set of robust analyses before being considered for inclusion in a product.

He holds an MS in Finance from Boston College, a BA in Economics and Music Performance from Oberlin College, and is a CFA® Charterholder.

"Progress is impossible without change; and those who cannot change their minds cannot change anything."

— George Bernard Shaw

Abstract

The S&P 500®[1] remains the most popular option for a reference index in fixed index annuity (FIA) products due to its perceived simplicity and upside potential. Proprietary index alternatives are frequently subject to the criticism that they are unnecessarily complicated and opaque. Typically missing from the discussion is the intrinsic cost of volatility to contract owners that results from the option strategies used to back the annuities. Due to the relatively long time horizons of these option contracts, there is a disconnect between the volatility cost and the realized experience when referencing a FIA contract to an unconstrained equity index.

The first section of this paper outlines potential issues with using unconstrained equity indexes as FIA reference indexes, showing that FIA contract owners pay for underlying volatility despite the zero floor on payoffs.[2] Additionally, it demonstrates that the volatility cost of an option on the S&P 500® rarely aligns with the realized volatility, leading to situations where options are overpriced heading into up markets, reducing the potential payoff.

The next section shows how the developments to date in custom indexing have addressed this volatility disconnect by using modern financial theory to better link the volatility cost with the realized volatility and improve returns on a risk-adjusted basis. These developments include volatility control mechanisms, diversification across asset classes, and the inclusion of alpha strategies.

The final section expands on these concepts to examine how the incorporation of dynamic allocations based on asset-specific or broad macroeconomic signals can further improve the risk-adjusted performance of these indexes, and therefore the expected payoffs to FIA contracts that reference them. Utilizing an additional layer of signal to determine which asset classes are likely to add value in a particular environment can allow for performance across market regimes and maximize the upside versus downside skew.

[1] S&P and S&P 500® are trademarks of S&P Global Inc. or its affiliates.

[2] "Payoff" is used here and throughout this paper to describe the interest credited to a hypothetical FIA contract owner.

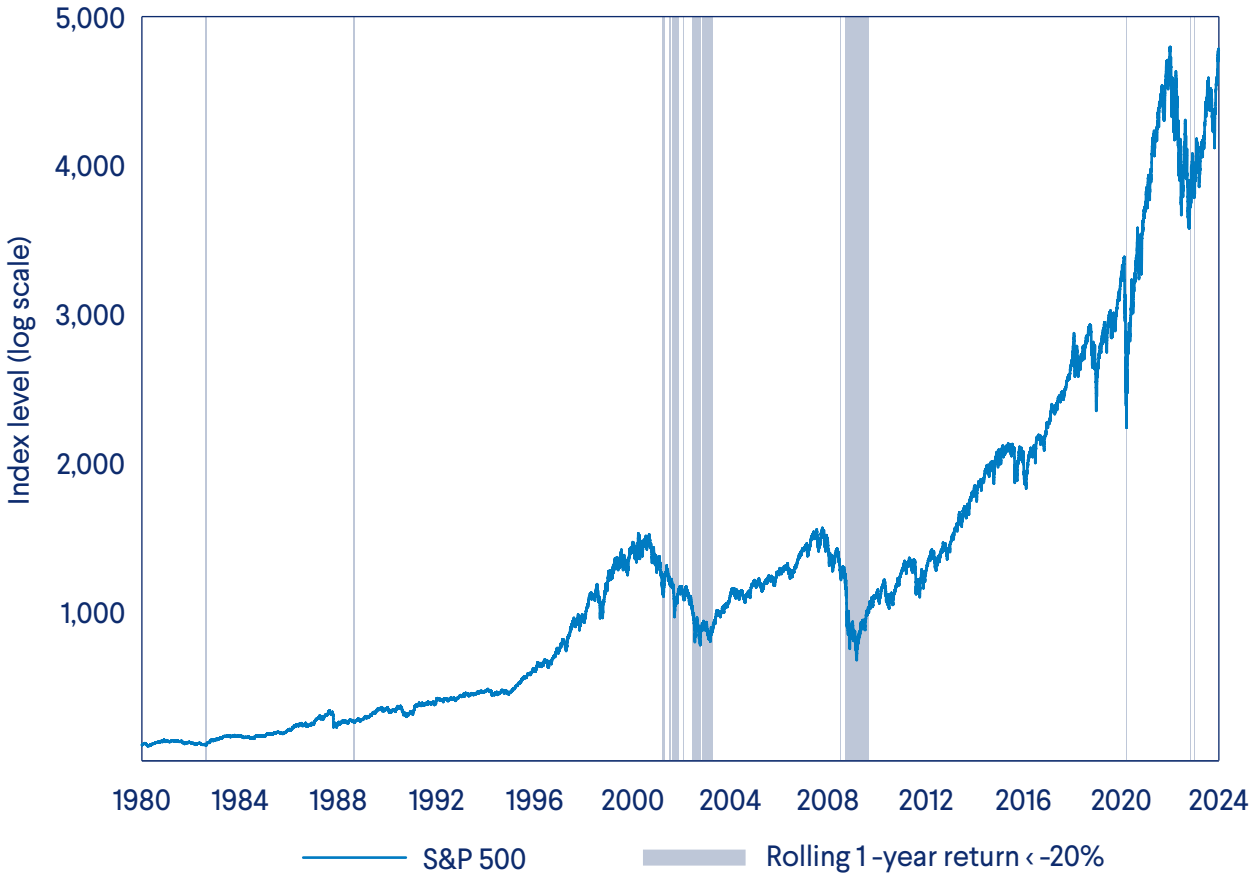
01

Index evolutions to date

S&P 500—the base case

The most popular index used as a reference in FIA contracts is the S&P 500.[3] Representing 500 of the largest companies listed on stock exchanges in the United States, it is well known and relatively simple to understand. One concern, particularly for those nearing or at retirement age, is that it can suffer large and sometimes extended drawdowns, such as during the collapse of the technology bubble, the great financial crisis, or the onset of the COVID-19 pandemic.

Major S&P 500 drawdowns



Source: Bloomberg data and Delaware Life analysis. 12/31/1979 - 12/29/2023

[3] See, for example, (Wink, Inc., 2024) showing a 43.3% allocation to S&P 500 in Q4 2023, with the aggregate sales to other indexes representing less than 40%.

Of course, FIAs are principal-protected products, so proponents of the S&P 500 argue that these drawdowns are nothing to worry about. While this is partially true, there are multiple reasons why this volatility is still relevant for a FIA contract owner. The first is the asymmetrical nature of compounded returns. The larger the decline, the less likely the index is to recover within a crediting term, and while the payoff is floored at zero, it is still preferable for the contract owner to receive a positive return whenever possible, particularly in the early years of the contract term when it can compound. While a 10% drawdown requires an 11.11% return to get back to neutral, a 20% drawdown requires 25%, and a 40% drawdown 66.67%! Due to this asymmetry, constraining the size of the decline will make it much more likely that a positive return can still be attained.

The second, and arguably more impactful, effect of the volatility comes from the way these FIA contracts are funded, which involves trading one or more option contracts. In the simplest example of a 1-year point-to-point participation crediting strategy, the participation rate is a function of the cost of purchasing a 1-year at-the-money call option. Volatility is a major input to option pricing models, and thus the participation rate depends heavily on the volatility of the underlying index.

The implied volatility level at which one can purchase S&P 500 options in exchange-based trading is determined by supply and demand, but it is much more a function of trailing realized volatility than it is of forward volatility. Thus, there is frequently a disconnect between the volatility paid for and the volatility realized over the life of the option contract.[4] For points that fall below the 45-degree line in the graph below, the paid-for volatility exceeds the realized volatility (i.e., the option buyer paid for more volatility than they used, and the participation rate is unnecessarily low as a result). Most of the positive returns occur in periods where the option was overpriced. The periods where volatility was discounted tend to result in negative returns, so no benefit is accrued from the relatively high participation rate.

S&P 500 implied vs. realized volatility

Source: Bloomberg data and Delaware Life analysis. 09/22/2004 - 01/03/2023

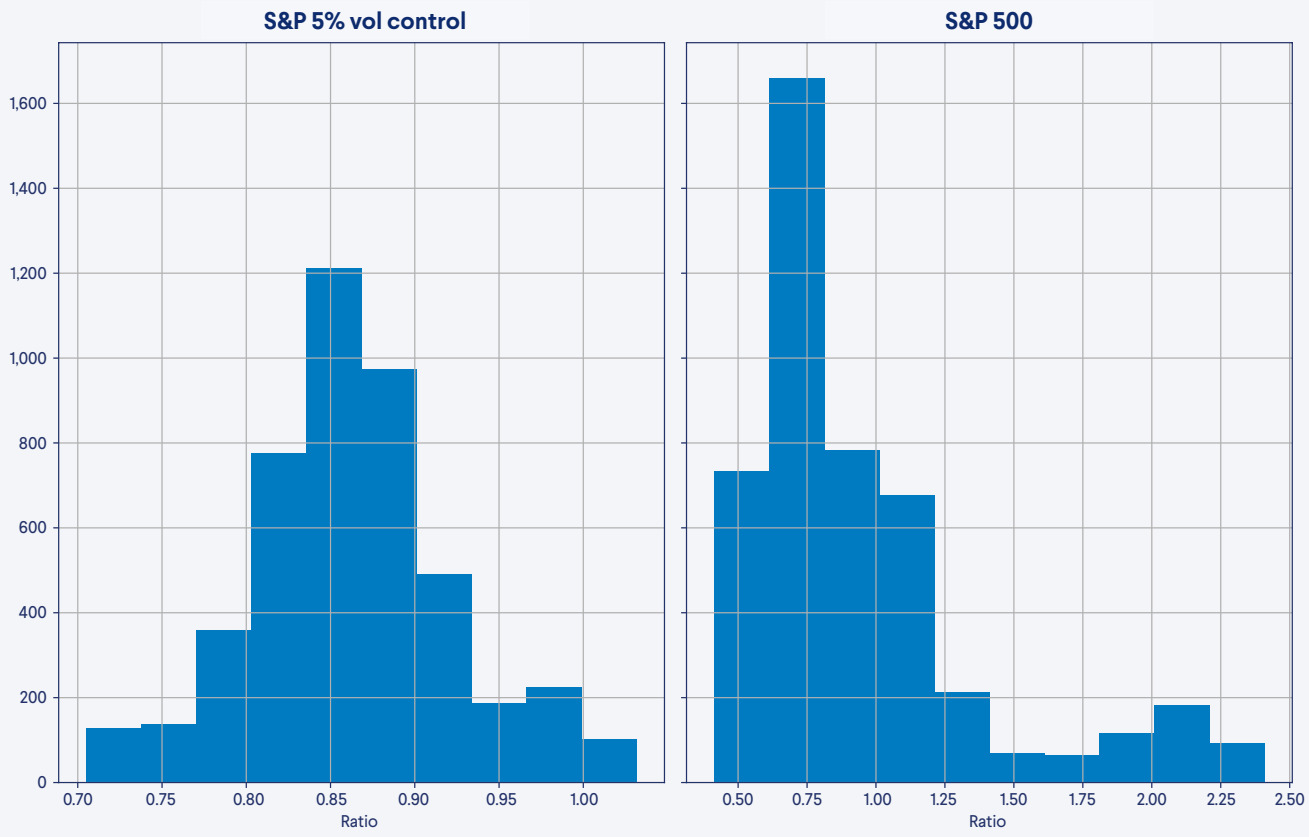
[4] In fact, exploiting this exact disconnect has been identified as a profitable trading strategy (Umarov, Lütkebohmert & Halbleib, 2024).

Volatility control—pay for what you use

This mismatch between pricing and return is a result of the underlying strategy of purchasing a long-dated option contract on an asset known to have inconsistent volatility. What if we could set the volatility level in advance and adjust our exposure dynamically to account for this inconsistency? This is the concept behind volatility-controlled indexes, in which the exposure to the underlying asset(s) is adjusted based on the predicted forward volatility of the asset(s), more closely aligning the volatility cost with the realized volatility.

We can see this using a simple 5% volatility-controlled index built on S&P futures.[5] Each day, the forward volatility is predicted using exponentially weighted historical volatility calculated across multiple trailing windows. The target exposure to the underlying index is then set to align the predicted volatility with the volatility target. Comparing the realized volatility of this index to its fixed volatility cost,[6] we see that the realized volatility stays in a more constrained range centered around the target compared to the wide swings in the raw index, resulting in a tighter distribution. This approach eliminates the periods of dramatic underpayment for realized volatility, but as we saw previously, nearly all of these had negative returns.

Distribution of ratio of realized to priced volatility



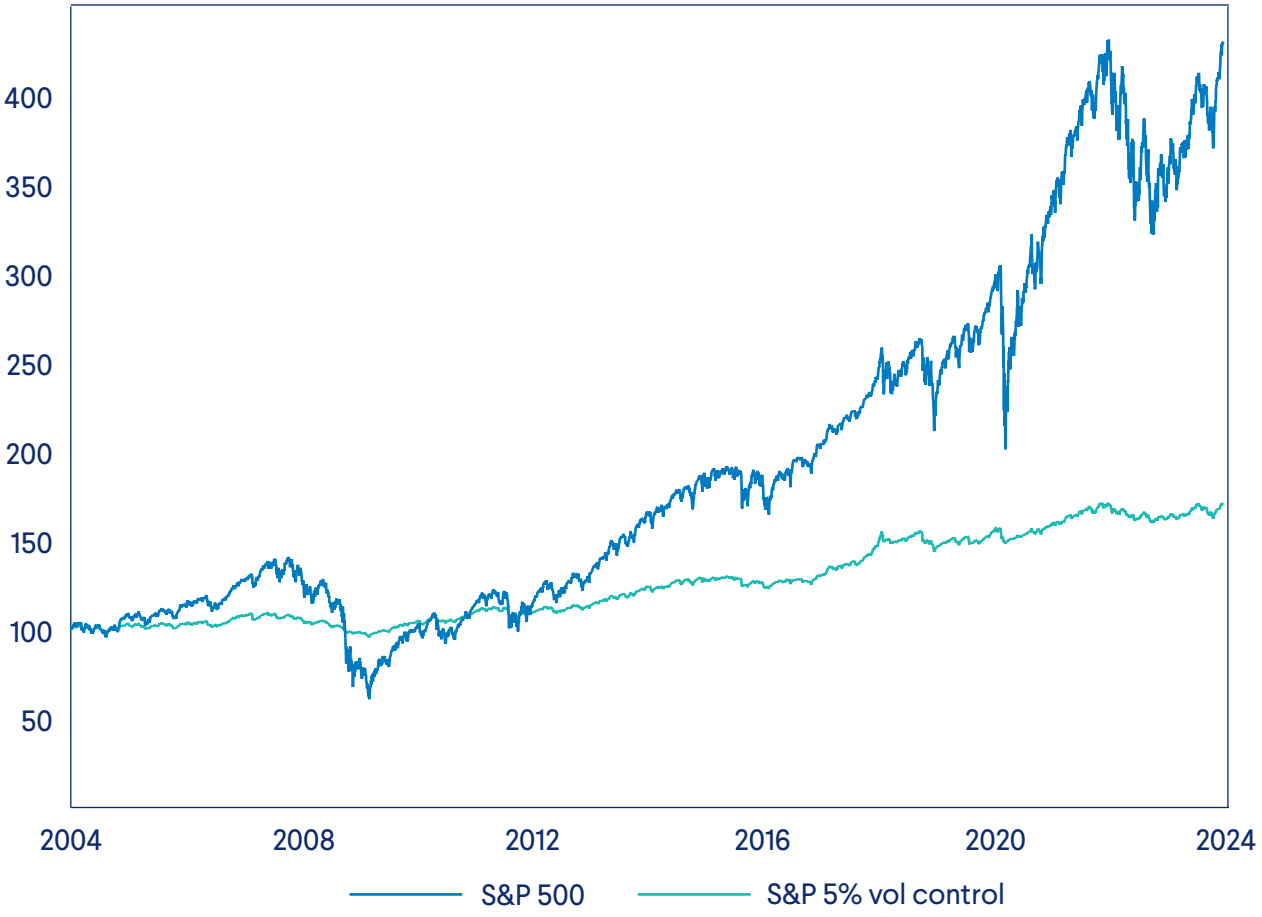
Source: Bloomberg data and Delaware Life analysis. 09/22/2004 - 01/03/2023

[5] The underlying assets of these indexes tend to be futures rather than the underlying index due to the process involved in hedging. The futures positions are unfunded, and thus the index represents an "excess return" over the risk-free rate, which reduces returns but also decreases option prices and therefore increases participation rate.

[6] The pricing volatility for all 5% volatility control indexes herein is assumed to be 5.60% and is based on analysis of the theoretical profit and loss of hedging the strategy and actual quoted prices on options tracking similar indexes.

Obviously, the raw returns of the volatility-controlled strategy are substantially compressed, but in a risk-adjusted context, the reduction in return magnitude is outweighed by the reduction in risk.

Raw performance of S&P 500 with/without volatility control



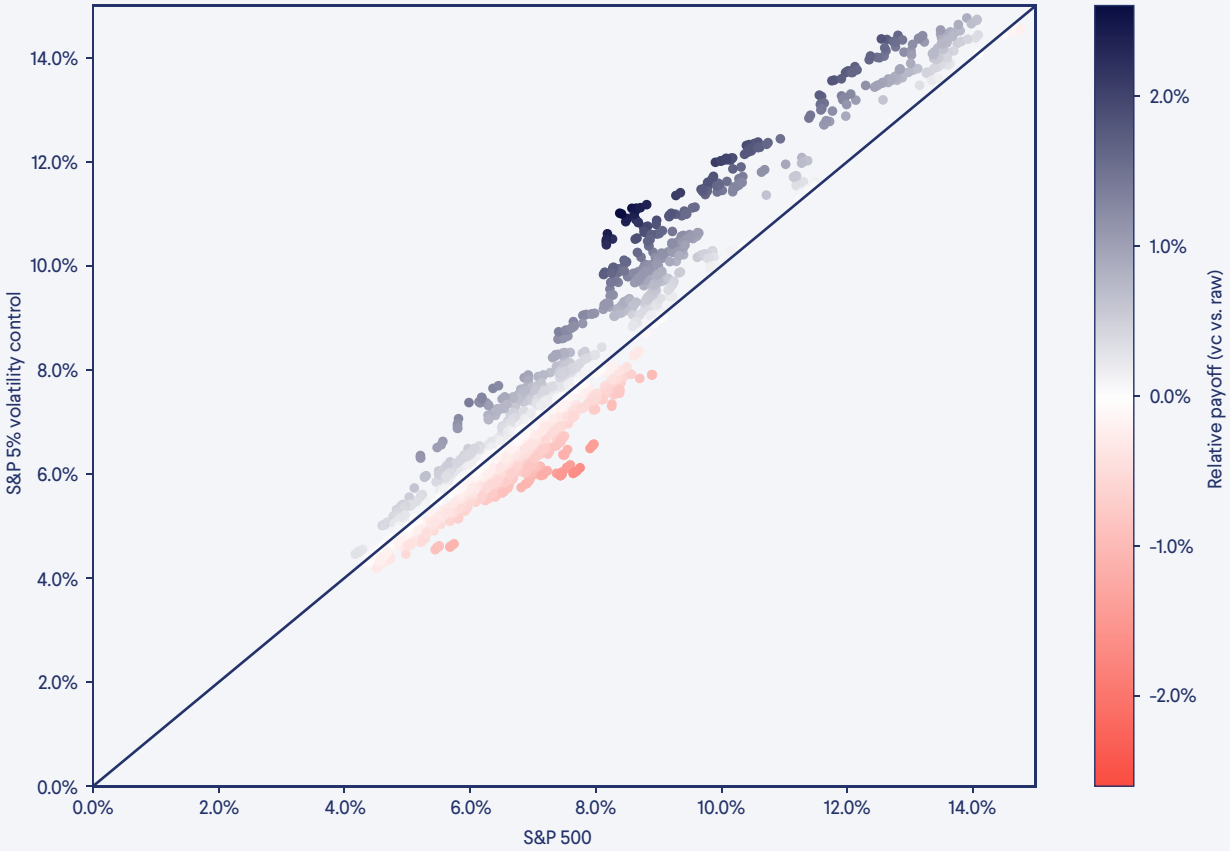
Source: Bloomberg data and Delaware Life analysis. 12/31/2003 - 12/29/2023

Historical FIA payoffs

To properly analyze the performance of any of these indexes in a FIA context, it is necessary to convert the raw index returns into the theoretical FIA payoffs that would have been achieved. When illustrating these products, it is typical to apply participation rates based on current option budgets and prices to the historical returns of the index. This applies the historical distribution of returns to the current rate, so it presents a good estimation of the potential forward 1-year outcomes, but it does not account for any correlation among budgets, rates, and the underlying index returns and so it does not provide the best picture of what the historical experience of purchasing the product would have been. Thus, we model historical option budgets as a function of BBB yields, option prices using Black-Scholes, and contemporaneous market data, and thus participation rates on a monthly basis. Each historical contract term return is then calculated as the maximum of zero and the participation rate calculated as of the previous month-end times the index return over the term.

In fact, comparing the compounded payoffs to theoretical FIA contracts holding either the unadjusted S&P 500 or the volatility-controlled strategy, we see that the volatility-controlled version performs better in periods where the S&P return was high. At first this seems counterintuitive, but it makes sense given what we have seen of the relationship between volatility cost and realized volatility. By not overpaying for the volatility in positive periods, more of the upside return potential can be realized.

10-year compounded theoretical FIA payoff—Dynamic rates



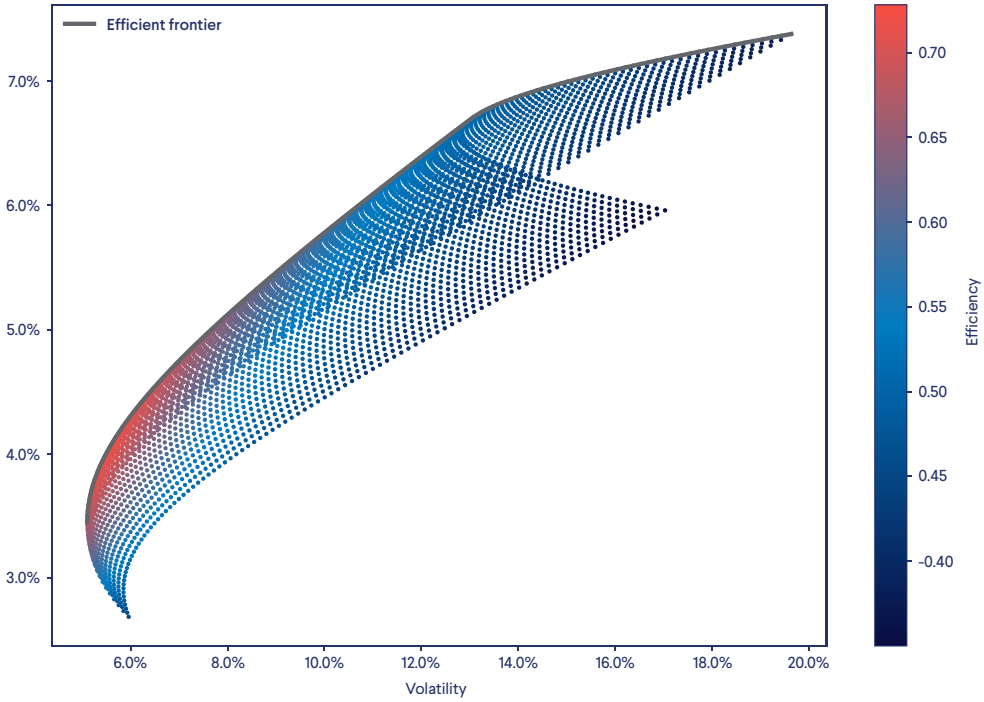
Source: Bloomberg data and Delaware Life analysis. 09/22/2004 - 12/29/2023

While opening the opportunity to benefit from more upside, the volatility-controlled strategy does not always perform better, so it is not unambiguously preferable. However, an additional benefit of using volatility control mechanisms comes from the reduced risk on the hedging side. While S&P 500 options have a robust and active options market, moving beyond a simple equity-only index—as we will show can be desirable—requires purchasing over-the-counter options. The counterparties to these purchases take on substantially less hedging risk when the underlying volatility is constrained to a tight range. This reduced risk translates to a reduction in the premium the counterparty needs to charge to cover the risk, thus reducing the overall option cost and increasing participation rate and potential contract owner payoffs.

Diversification – A rare free lunch

As demonstrated, due to the implicit cost of risk, the goal of any development in indexes for the FIA market should be to increase the risk-adjusted return profile of the index relative to a traditional unconstrained equity index. Fortunately, over 70 years of financial theory provides a means of accomplishing this. The Nobel laureate economist Harry Markowitz is apocryphally quoted as saying that "diversification is the only free lunch in investing," and the seminal 1952 work "Portfolio Selection" (Markowitz, 1952) shows that when assets are not perfectly correlated, holding combinations of those assets will provide a higher return per unit of risk than holding any of them individually. It is best to choose the asset mix that optimizes the risk/return trade-off, then use leverage to reach the desired level of portfolio risk or return. This aligns perfectly with the volatility control framework, which already dynamically levers the underlying portfolio up and down.

Example efficient frontier (S&P + 10-Year Treasury + gold futures)

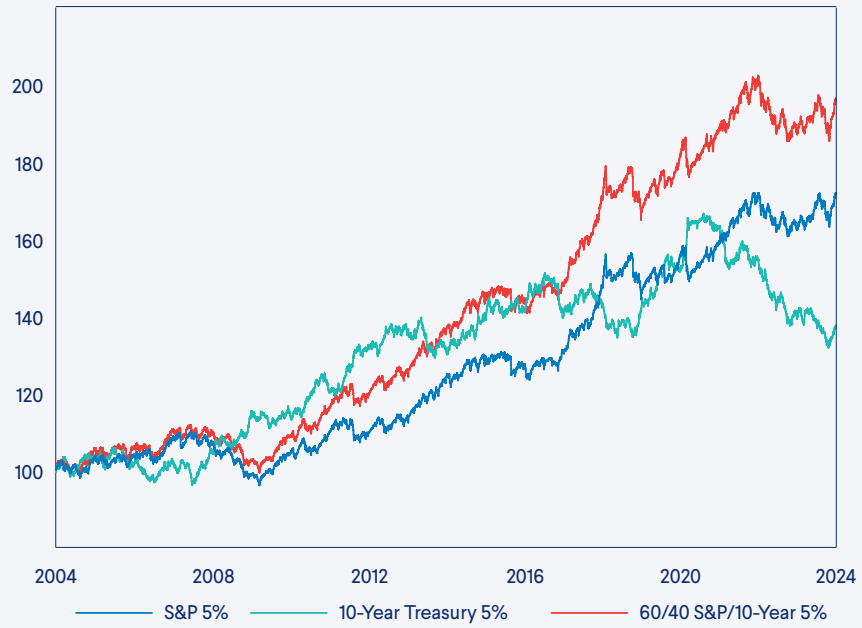


Source: Bloomberg data and Delaware Life analysis. 09/09/1997 - 12/29/2023

In theory, there are a nearly infinite number of ways to achieve diversification. In practice, much of the benefit can be accomplished relatively simply, so we will focus on simple combinations of equities, Treasurys, and gold as proxies for the many variations of these concepts that exist. The most commonly referenced combination is the 60/40 (balanced) portfolio, comprising 60% exposure to equities and 40% to fixed income. In this context, we can allocate 60% to S&P futures and 40% to 10-Year Treasury futures. Creating 5% volatility-controlled versions of the S&P futures and Treasury futures individually and comparing to the 60/40 portfolio with a 5% volatility control, we see that the long-term risk-adjusted return to the 60/40 strategy exceeds that of either of its underlying assets.

While the statically allocated 60/40 portfolio shows the benefits of diversification, it ignores the dynamic risk profiles of the underlying assets, which can be used to further improve the risk-adjusted return profile. The simplest way to accomplish this is to weight each asset by the inverse of its recent volatility. This sets the risk contribution of each asset approximately equal in a given period, allowing the portfolio to adjust to changing market conditions.

Individual vs. balanced 5% volatility control performance



Source: Bloomberg data and Delaware Life analysis. 12/31/2003 - 12/29/2023

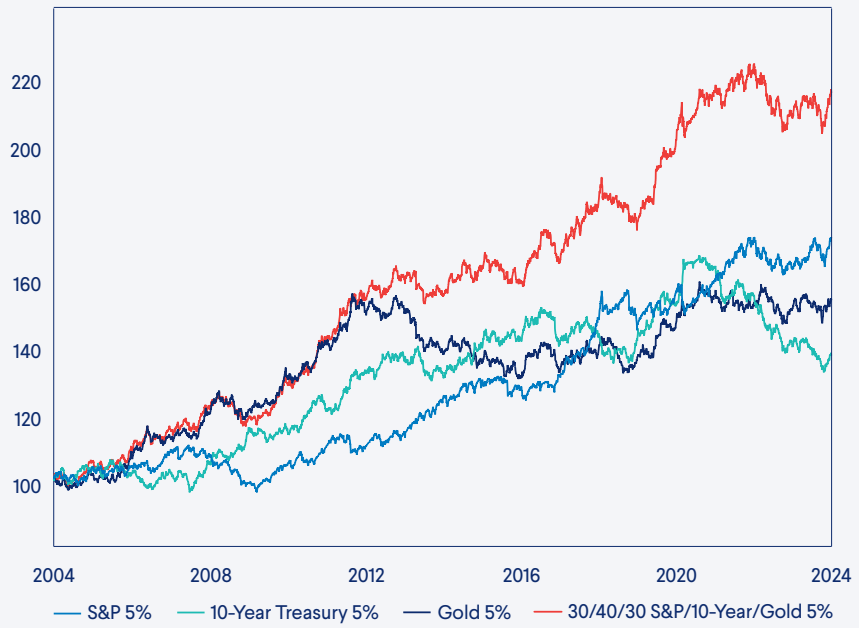
Static vs. inverse volatility weighted 5% volatility control performance

Source: Bloomberg data and Delaware Life analysis. 12/31/2003 - 12/29/2023

This risk-aware methodology adds substantial performance versus the static weighted portfolio.

We can also diversify beyond equities and fixed income, with the most obvious candidate being commodities. Here we look at a portfolio of S&P 500, 10-Year Treasury, and gold futures. The static multi-asset portfolio (30/40/30) substantially outperforms each of the individual constituents in the long term.

Individual vs. multi-asset 5% volatility control performance



Source: Bloomberg data and Delaware Life analysis. 12/31/2003 - 12/29/2023

Static vs. inverse volatility weighted 5% volatility control performance

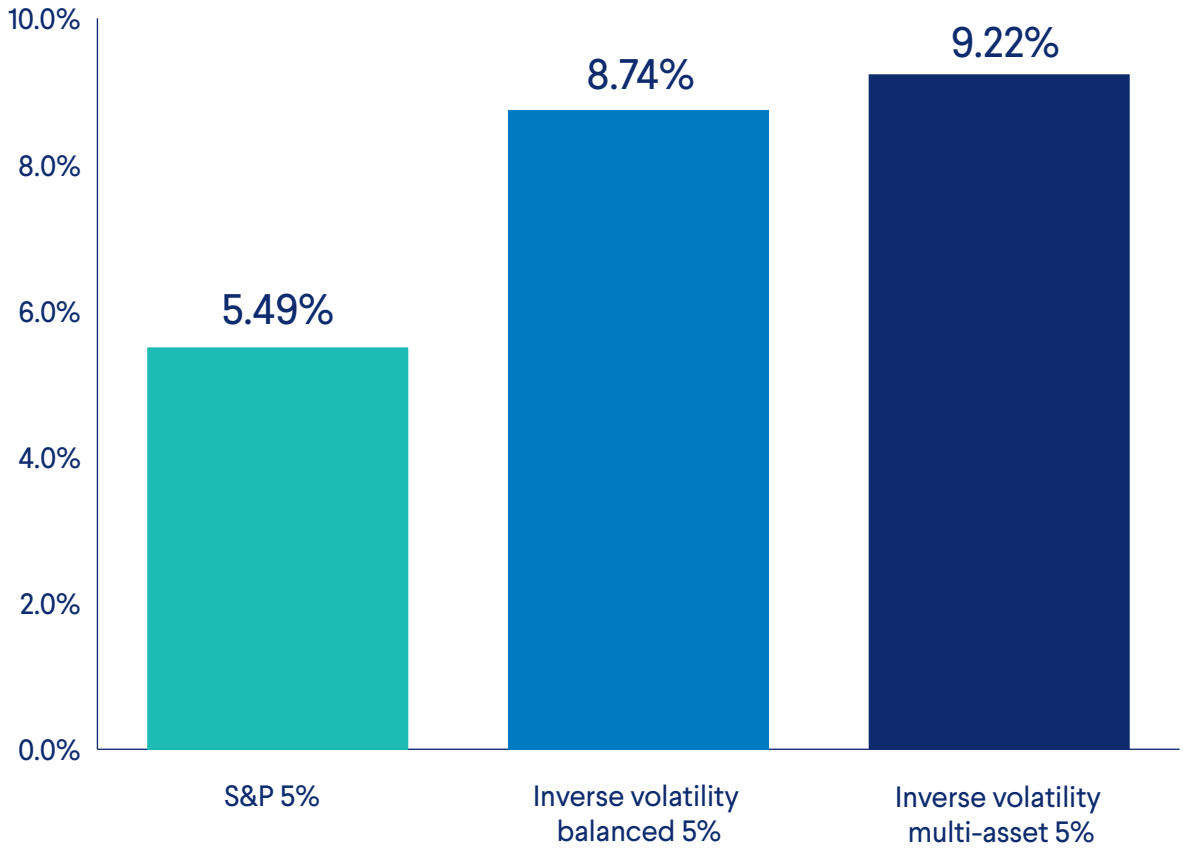
Source: Bloomberg data and Delaware Life analysis. 12/31/2003 - 12/29/2023

But again, the risk-aware inverse-volatility methodology continues to improve on the outcome versus the static methodology.

Combining this into a FIA context,[7] we can examine the theoretical payoffs of diversified strategies versus the S&P alone.

The combined return and volatility effects of the diversification lead to substantially better outcomes from both the balanced and multi-asset diversified indexes than from investing in the volatility-controlled S&P 500 strategy alone.

Mean 1-year theoretical FIA payoff—Dynamic rates



Source: Bloomberg data and Delaware Life analysis. 09/22/2004 - 12/29/2023

[7] Assumes a 10-year contract is purchased on each eligible day, with the budget for that contract fixed at its inception as the modeled historical budget for the purchase month. Option prices are modeled monthly as well, so each contract's participation rate for a given period is the contract budget divided by the periodic option price. The 1-year average looks at the average payoff for a period across all contracts that held the contract for that period, which is then averaged across the life of the index.

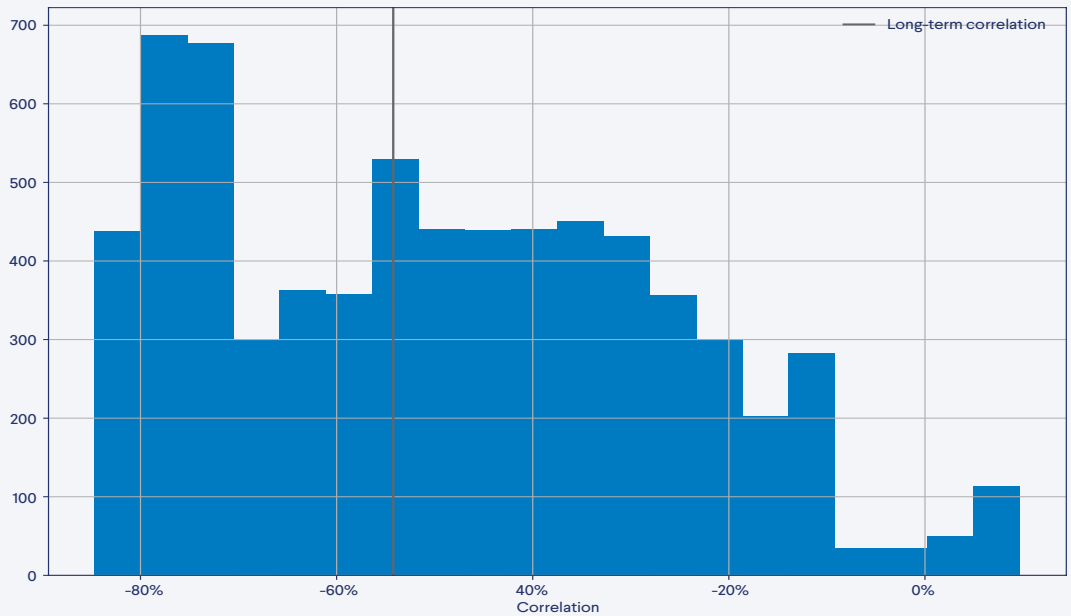
02

Alpha—an extra bonus

While diversifying across asset classes is one way to improve returns and reduce risk, it is not the only one. "Alpha"—generally considered purely a return booster—also provides a diversifying effect. The term traditionally referred to the excess return of a strategy versus its benchmark as calculated by a regression (alpha representing the intercept term in the regression equation) but has come to refer to outperformance in general. We use it here to refer to any long/short strategy that is intended to provide absolute returns, either endogenous or exogenous to the beta[8] strategy (see inset). Due to its long/short nature, alpha tends to have very low, and frequently even negative, correlation with beta even when it is endogenous to the investment process. For example, if we decompose the returns of the S&P 500 QVML Multi-Factor Index, we can see that the long-term correlation between the alpha and beta components of the index is -54%, with a range of rolling 1-year correlations between -85% and +10%.

Given this diversification benefit, even in the case where the alpha adds no performance, it reduces volatility and therefore increases performance per unit of volatility—our main goal in the FIA context. In the best-case scenario, it both adds performance and reduces volatility.

Distribution of rolling 1-year correlation (multi-factor alpha vs. S&P 500)



Source: Bloomberg data and Delaware Life analysis. 06/19/1995 - 12/29/2023

[8] Beta is used here to refer to market exposure. Like alpha, the term originates from the regression of a strategy versus a market benchmark. While alpha is the intercept term, beta is the coefficient on the market return and measures the exposure of the strategy to the selected benchmark.

Endogenous and exogenous alpha

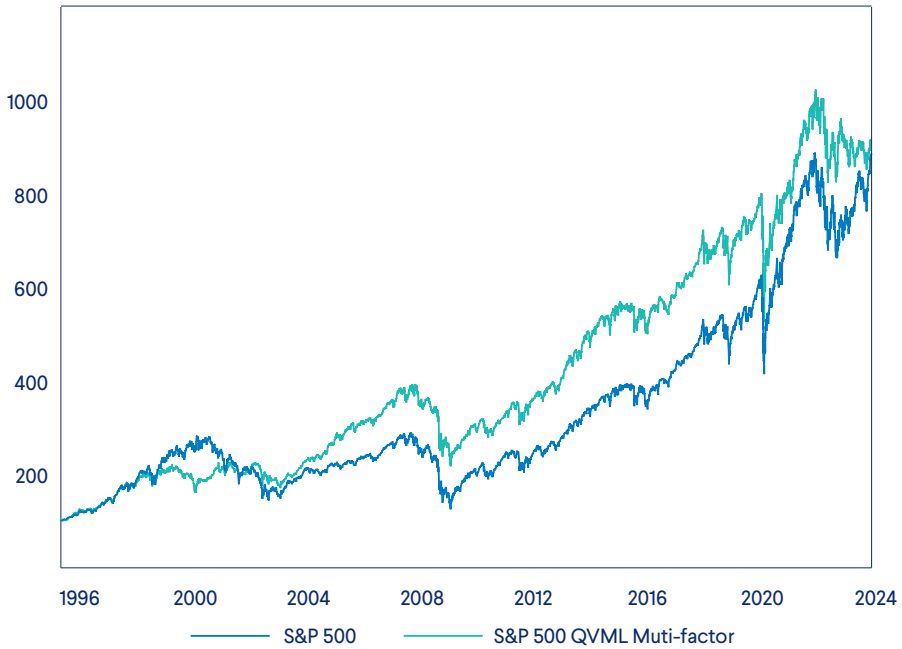
Endogenous alpha refers to alpha that is generated within the investment strategy, as in a stock-picking mutual fund that purchases a subset of the index against which it is benchmarked with the intent to systematically outperform the index. If the benchmark index is down 20% and the fund is only down 15%, this is positive alpha, despite the negative overall performance. This contrasts with exogenous alpha strategies, which are stand-alone long/short portfolios that tend to be beta neutral and are intended to provide absolute returns regardless of the performance of the underlying asset class(es). Appending an exogenous alpha strategy to a beta strategy is commonly referred to as "portable alpha," and considered a way to diversify the alpha generation from the beta itself. However, decomposing a traditional alpha strategy into its alpha and beta components, it can be shown that endogenous alpha also represents a long/short absolute return strategy on top of the underlying benchmark beta.

Consider a stock-picking fund manager with a benchmark comprising four names (A, B, C, and D), each with a 25% weight. The manager believes stocks A and B will outperform, so invests in those two with weights of 50% each. Ignoring transaction costs, this is equivalent to buying the benchmark portfolio and adding a long/short portfolio (+25% A, +25% B, -25% C, -25% D) with a net exposure of zero.

Thus, even in cases where alpha is endogenous to the beta process, it can provide both a return boost and a diversifying effect.

We can see this by comparing the performance of the S&P 500 and the S&P 500 QVML Multi-Factor Index. While the alpha index outperforms, it does so by only 0.13% per year on average. However, the annualized volatility of the alpha index is almost 3% lower. When we convert both to their volatility-controlled excess return versions, the alpha index clearly and consistently outperforms.

S&P 500 vs. S&P 500 QVML Multi-factor



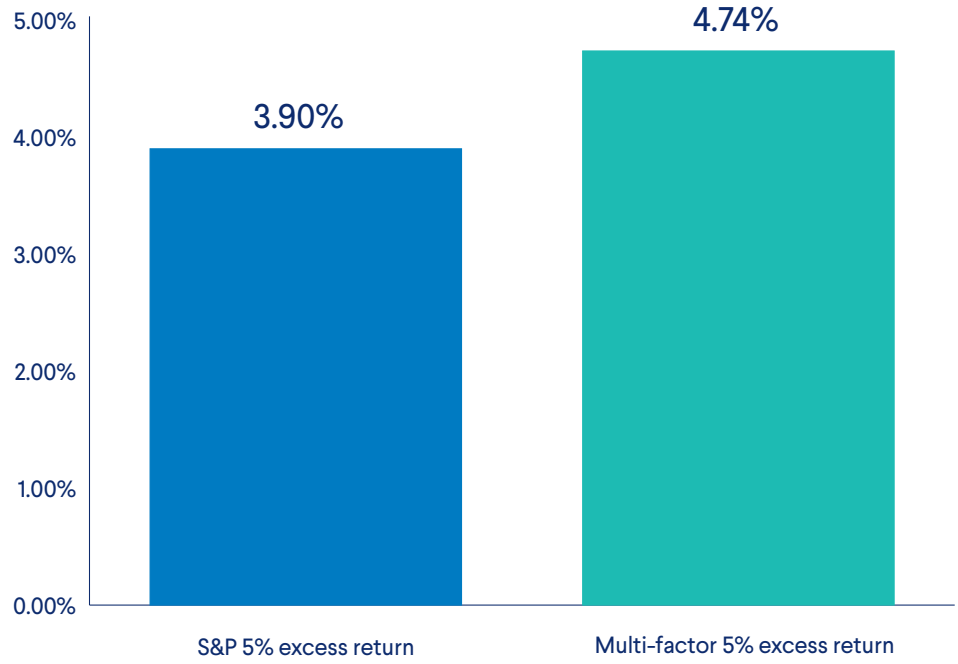
Source: Bloomberg data and Delaware Life analysis. 06/19/1995 - 12/29/2023

Volatility-controlled S&P vs. multi-factor

Source: Bloomberg data and Delaware Life analysis. 06/19/1995 - 12/29/2023

Putting it into a FIA context once again, the outperformance persists. Given the relatively small magnitude of the actual alpha, most of this effect comes from the reduction in risk. It is beyond the scope of this paper, but taken to the extreme, it can be shown that in some cases, an alpha strategy with a 0% excess return can still generate risk-adjusted outperformance through diversification.

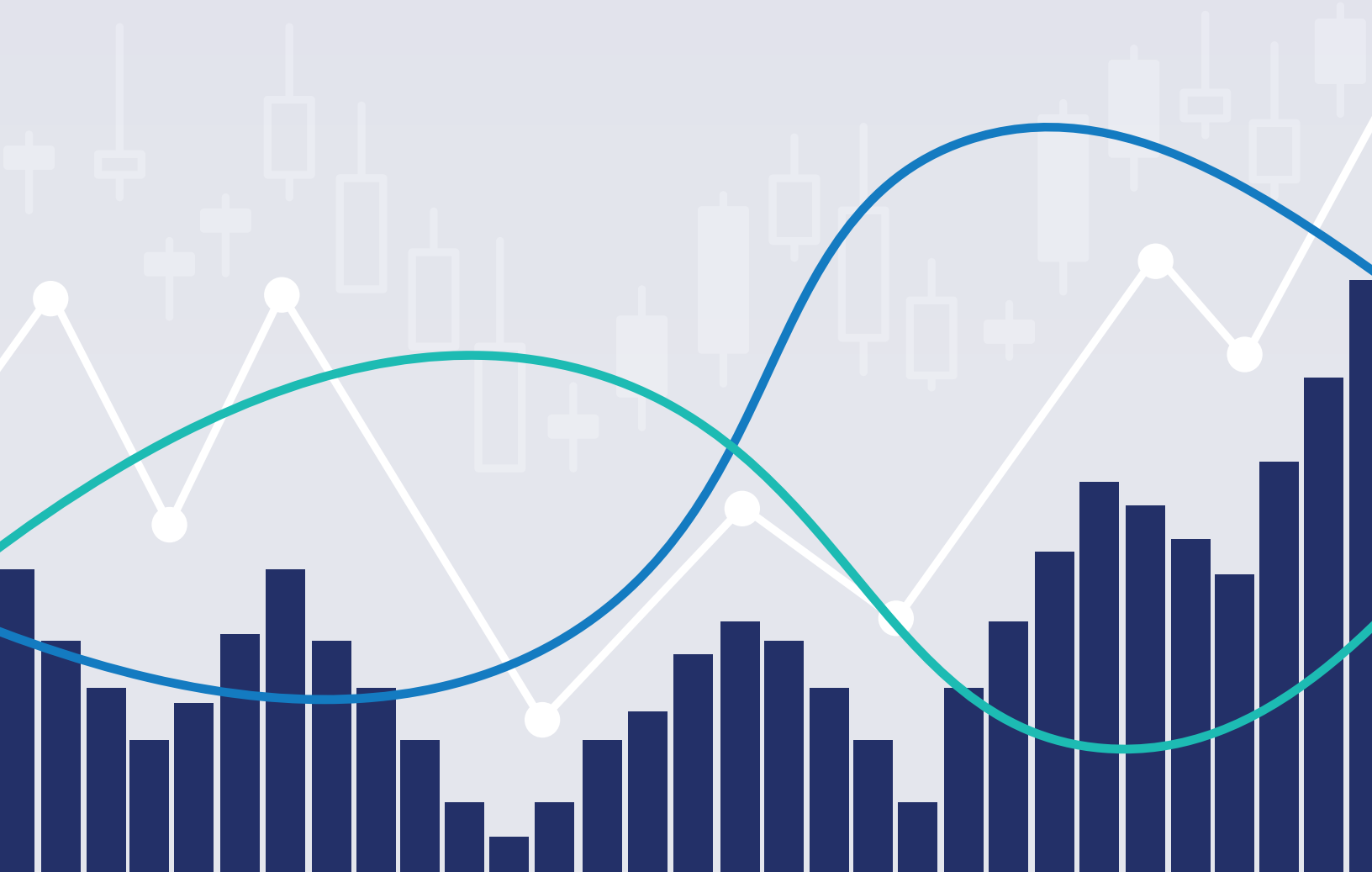
Mean 1-year theoretical FIA payoff—Dynamic rates



Source: Bloomberg data and Delaware Life analysis. 06/19/1995 - 12/29/2023

Not all sunshine and roses—potential pitfalls of these methods

In the long term, asset diversification and alpha are clearly net positives, but neither immunizes an index from market downturns. An equity alpha fund may be considered successful if it returns only -15% when the benchmark is -20%; no solace to the FIA owner who receives no interest either way. Likewise, while adding asset classes improves the long-term risk/return profile, in cases where the diversifying assets underperform, they can detract rather than add to performance, and in periods of crisis, correlations tend toward +1, erasing the benefits of holding multiple assets. Finally, alpha cannot be expected to be performance-additive in all periods. Even the best models will sometimes underperform and detract from returns rather than boost them.



03

Dynamic exposures—the next evolution

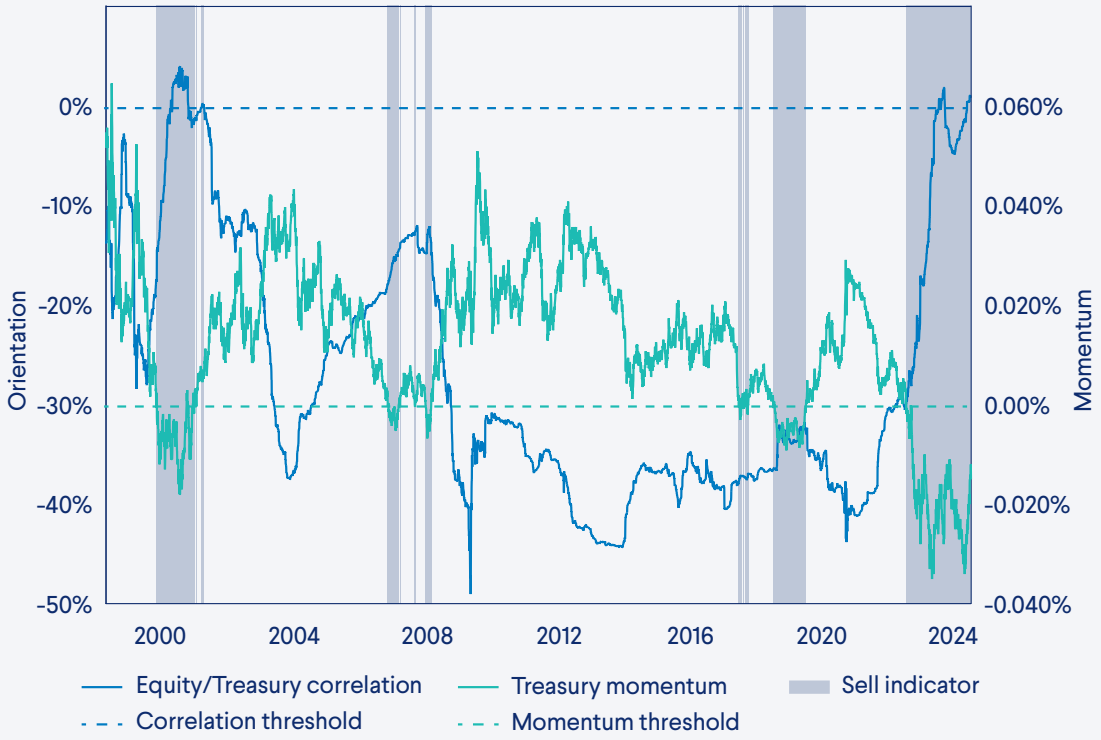
While not all of these pitfalls are avoidable, adding one more layer of sophistication to the index designs laid out previously can circumvent some of them and potentially boost long-term value. This involves dynamically adjusting beta exposure(s) based on market dynamics, not just using a static or risk-aware methodology as we have done to this point. Anticipating market regimes is notoriously difficult, but there are certainly periods where it is beneficial to avoid one or more asset classes, such as Treasurys in a rising rate environment. As with the previous strategies, there are innumerable ways to achieve this, but we focus here on a few that demonstrate the potential benefits. While each of these adjustments adds performance in the long term, none is a silver bullet, and though they increase the likelihood of getting the correct asset mix, overall performance will still suffer from some drawdowns. Instead, the improvement is incremental as it was with diversification and alpha. Each development is one more arrow in the quiver that improves outcomes over the historical period, but more importantly is expected to do so over an uncertain future as well.

Dynamic Treasury exposure

Perhaps the most obvious exposure one would want to adjust, particularly given the experience of the last few years, is exposure to Treasury assets. There have been many methods suggested for timing when to adjust fixed-income exposures (Hoffstein, 2018), but given that the point here of adding a Treasury sleeve is to improve returns while reducing risk, we can look to measures of how effectively Treasurys are providing this diversification versus equities as a means of dynamically adjusting exposure.

Combining a rolling measure of correlation between the S&P and 10-Year Treasury returns with a momentum metric on the 10-Year Treasury, we include the Treasury in the portfolio only when the correlation is negative and momentum is positive (i.e., we expect both diversification and excess return from the inclusion). Over a majority of the back-tested period, where correlations were negative and returns to both asset classes were positive, the strategies look similar. But as conditions change in the later years, we see a divergence, with Treasurys no longer offering the safe diversification they did over the prior 20 years.

Dynamic Treasury indicator



Source: Bloomberg data and Delaware Life analysis. 11/10/1997 - 12/29/2023

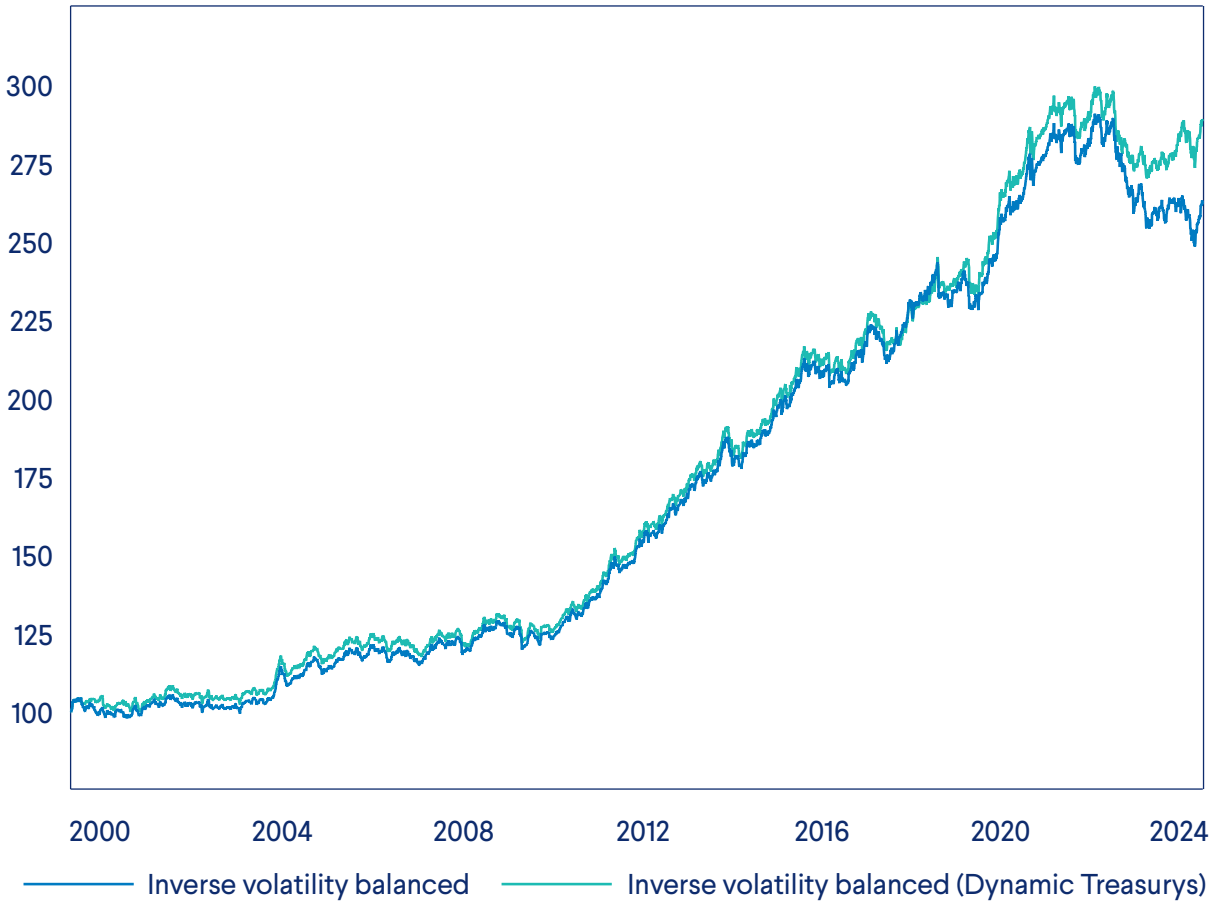
Performance of dynamic Treasury strategy

Source: Bloomberg data and Delaware Life analysis. 11/05/1998 - 12/29/2023

Sentiment-based equity beta

The obvious next step is to consider whether we can similarly avoid big negatives on the equity side. We saw earlier how prone to drawdowns the S&P 500 is, and while adding diversification, alpha, and volatility control can help mitigate this, there are still times when a large market decline cannot help but affect the performance of any index containing equity assets. While predicting the timing of changes in the equities market is not easy, there are some methods that can be effective at avoiding the worst drawdowns, which is particularly useful in a FIA context where the ability to recover to positive within a single year is quite relevant. One such method is to use indicators of sentiment[9] to predict when a large decline is likely (Basu, Hung, Oomen, & Stremme, 2006). We combine four of the

Balanced with dynamic Treasury vs. traditional balanced

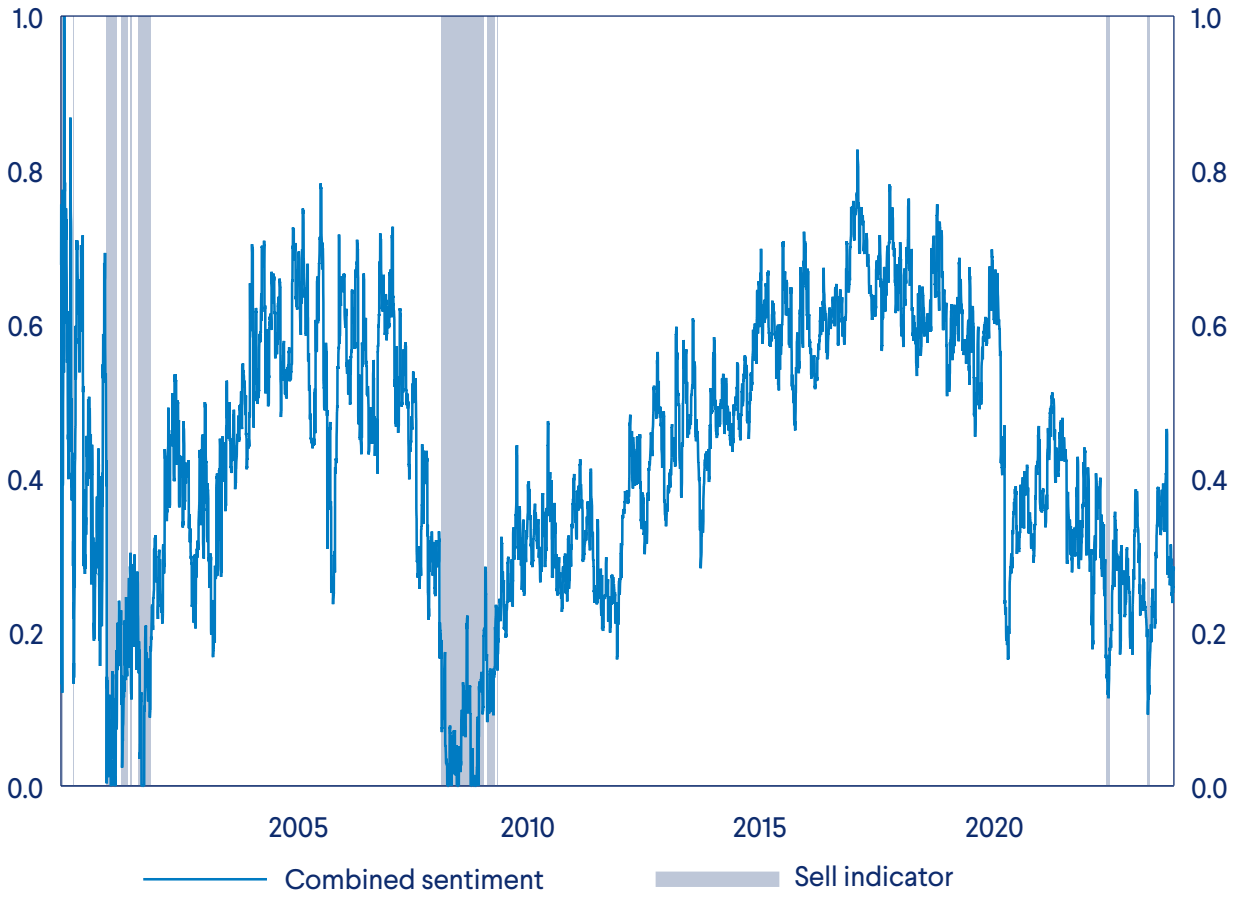


Source: Bloomberg data and Delaware Life analysis. 11/06/1998 - 12/29/2023

[9] Sentiment refers to the attitude of market participants regarding the state of the economy, measured through direct surveys, lexical analysis of text (e.g., news articles), and other means.

most cited indicators,[10] each measuring sentiment differently, to create a more robust signal. As we are only trying to capture the worst-case scenarios, we focus on cases where the sentiment signal exceeds a standard deviation threshold below its historical average, which is true about 10% of the time. However, despite the relative rarity of a signal, the performance effect is nontrivial. Much of the effect comes from the Great Financial Crisis of 2008 and 2009, but this is to be expected, and indicates that a strategy such as this one should help to achieve positive outcomes even in the face of the next "black swan" event.

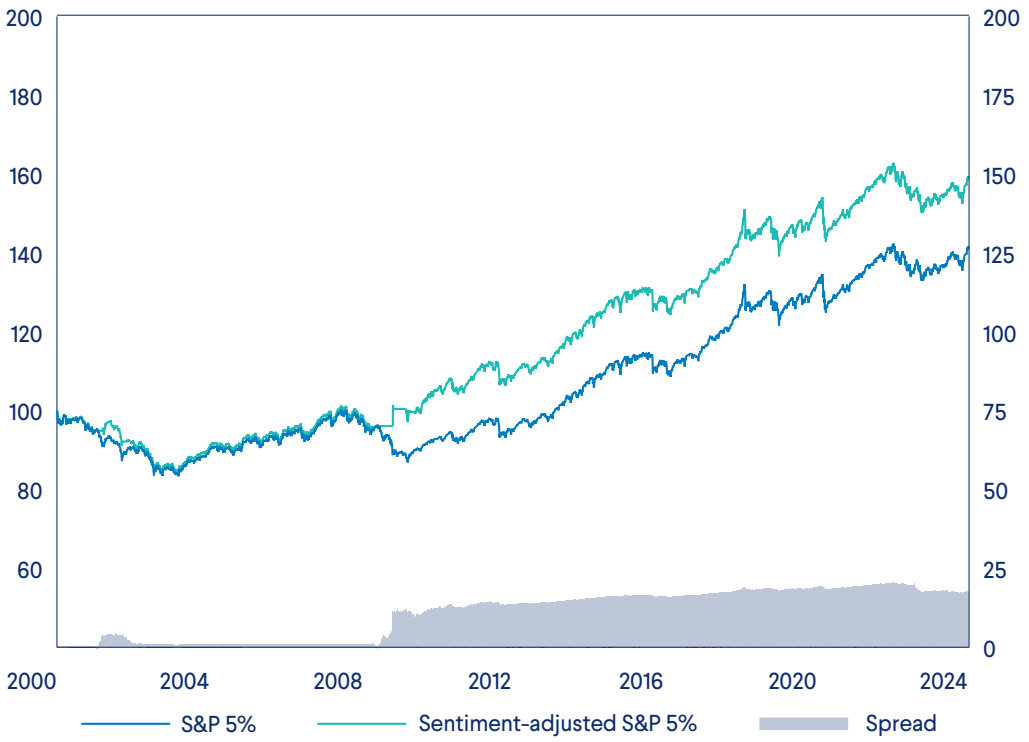
Sentiment regimes



Source: Bloomberg data and Delaware Life analysis. 01/17/2000 - 12/31/2023

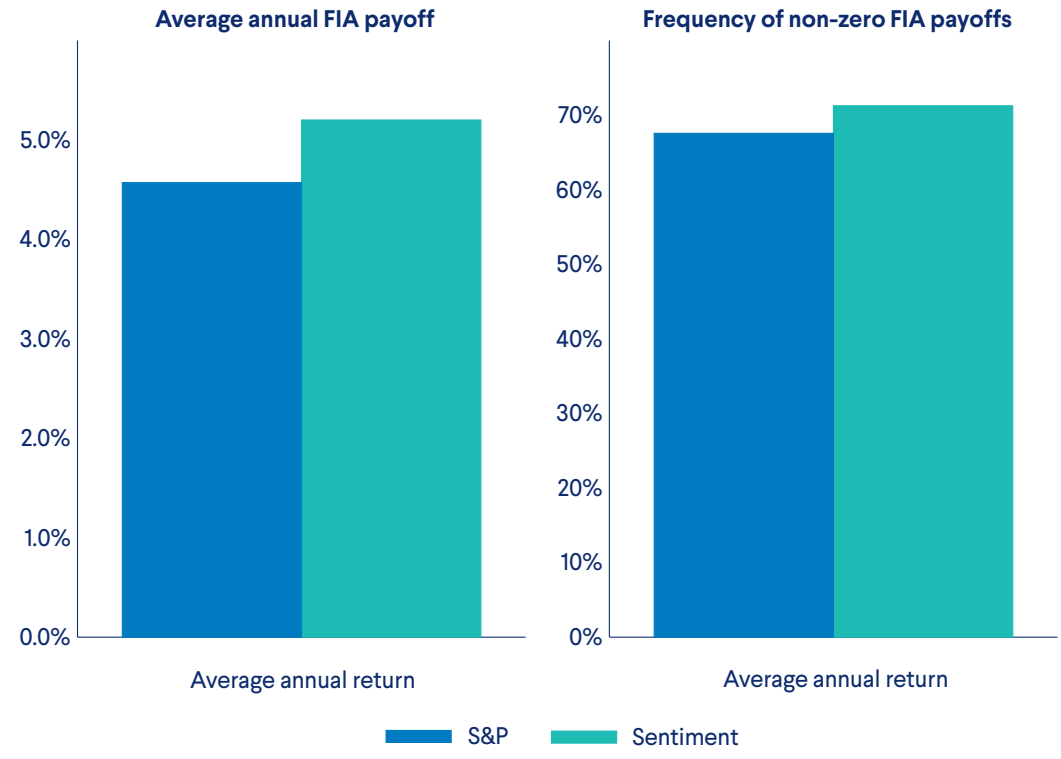
[10] University of Michigan Consumer Sentiment Index, AAII US Investor Sentiment Bearish Readings, US Federal Reserve Bank of San Francisco Daily News Economic Sentiment, University of Michigan Current Economic Conditions Index.

Sentiment-adjusted vs. raw S&P return



Source: Bloomberg data and Delaware Life analysis. 01/18/2000 - 12/29/2023

S&P 5% vs. sentiment 5%

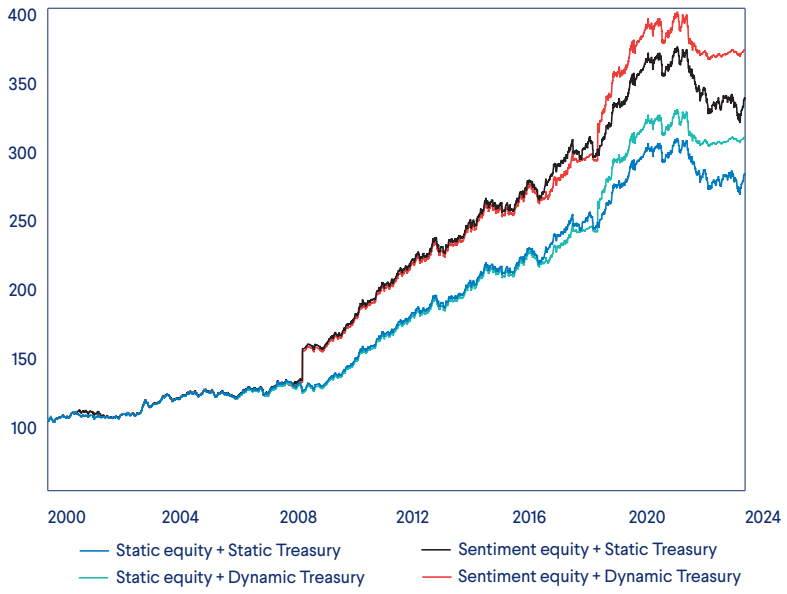


Source: Bloomberg data and Delaware Life analysis. 01/18/2000 - 12/29/2023

Combined dynamic equity + Treasurys

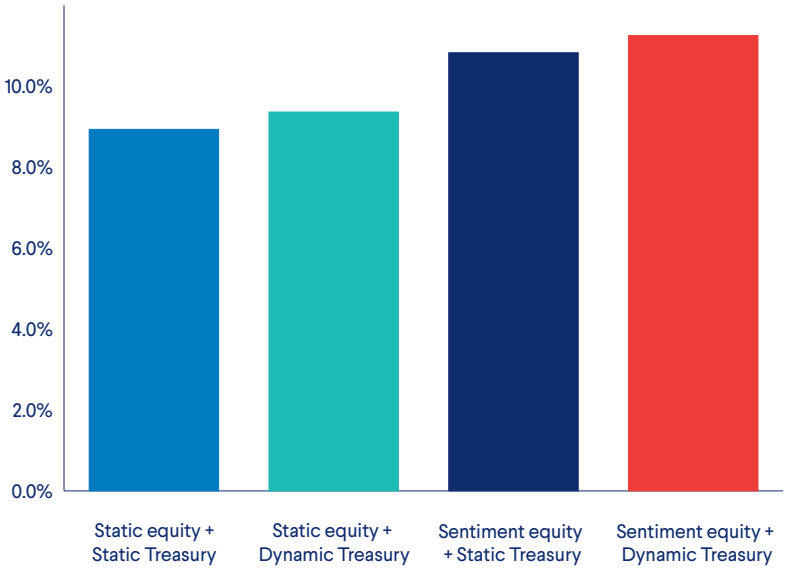
Naturally, we can also combine the equity and Treasury indicators into a single strategy. Each dynamic piece is additive, with the best performance coming from the combination of both. As with the individual strategies, the performance improvement comes largely from avoiding the worst periods in each asset class.

Sentiment equity + dynamic Treasurys



Source: Bloomberg data and Delaware Life analysis. 03/01/2000 - 12/29/2023

Mean 1-year theoretical FIA payoff—dynamic rates

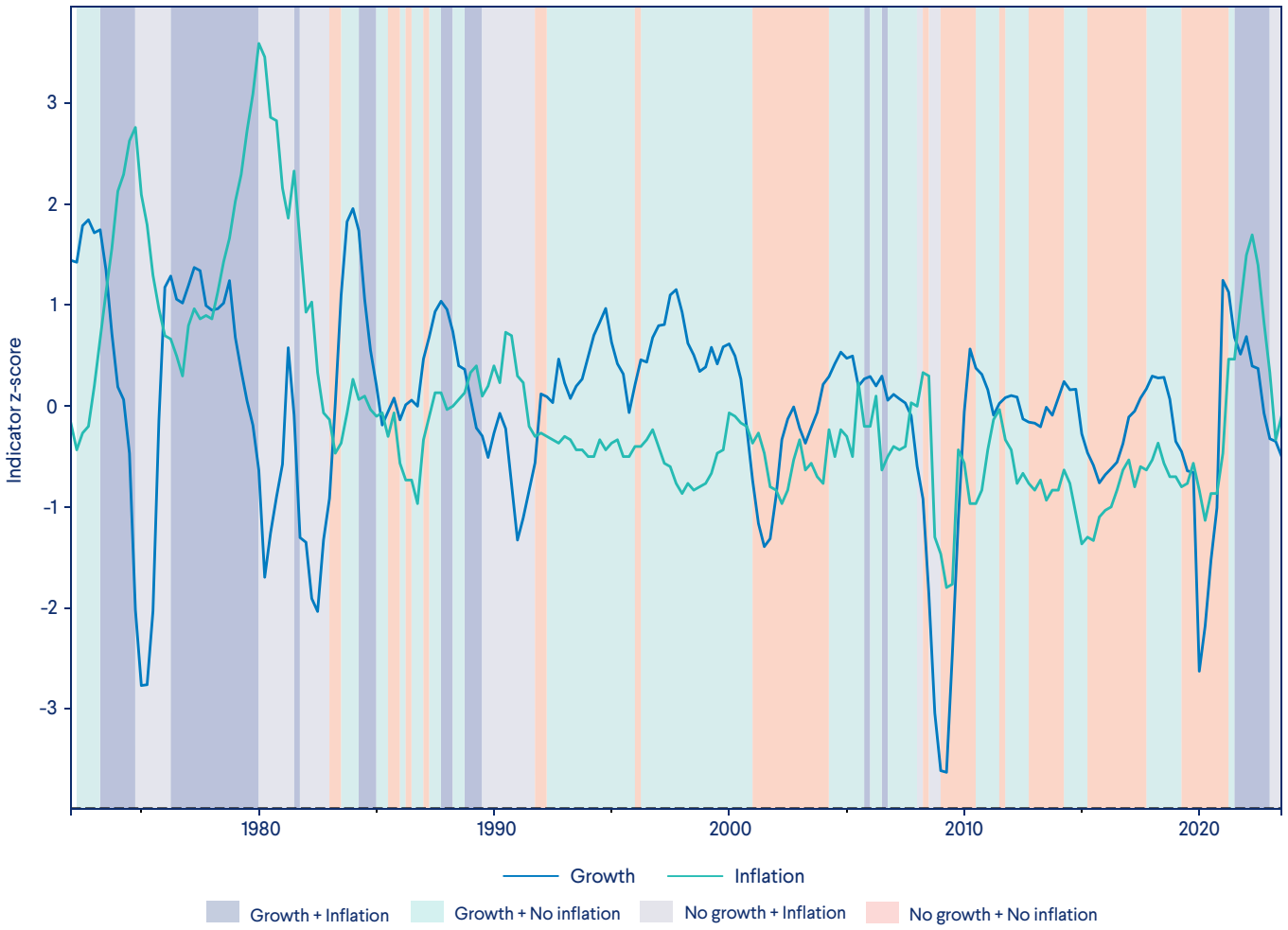


Source: Bloomberg data and Delaware Life analysis. 03/01/2000 - 12/29/2023

Macroeconomic multi-asset

The previous strategies looked at independent signals for the individual asset classes, but another possibility for developing dynamic strategies is to use broader macroeconomic data to drive the asset allocation. Two main drivers of asset returns are economic growth and inflation (Ilmanen, Maloney, & Ross, 2014). In the three-asset framework we are considering, we would expect equities to perform best when there is strong growth, Treasurys to outperform when growth is lower, and gold to act as an inflation hedge. To demonstrate a strategy built on this concept, we build indicators for both growth and inflation beginning in 1972 and use each indicator relative to its historical median on a given date to determine the contemporaneous macroeconomic environment, then set the strategy asset allocation accordingly.

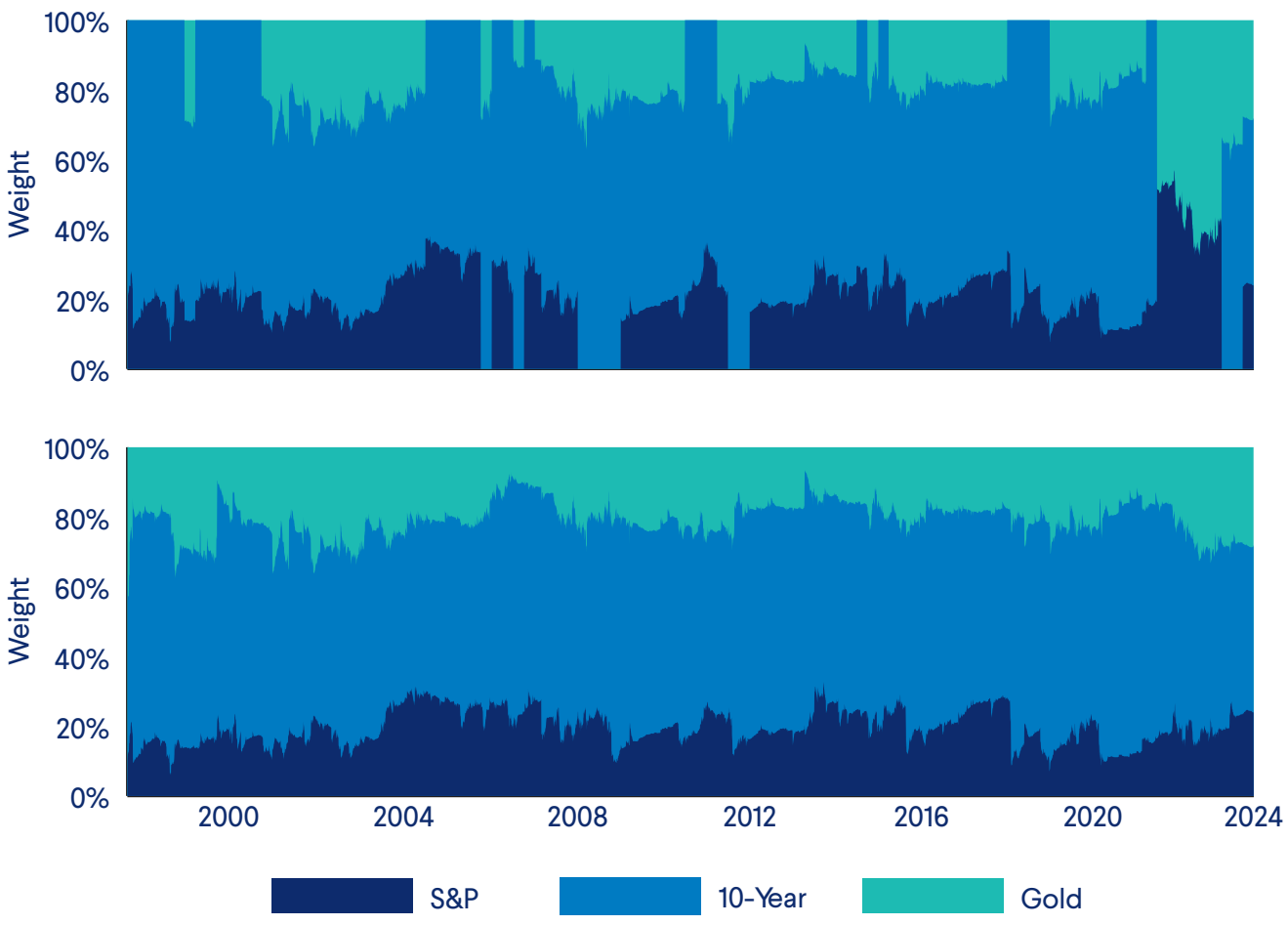
Growth and inflation indicators



Source: Bloomberg data and Delaware Life analysis. 03/31/1972 - 09/30/2023

Using the same inverse volatility weighting methodology we have used previously, the weights in the underlying assets are not dramatically different in most periods, but there are times when a single asset will drop out for a period.

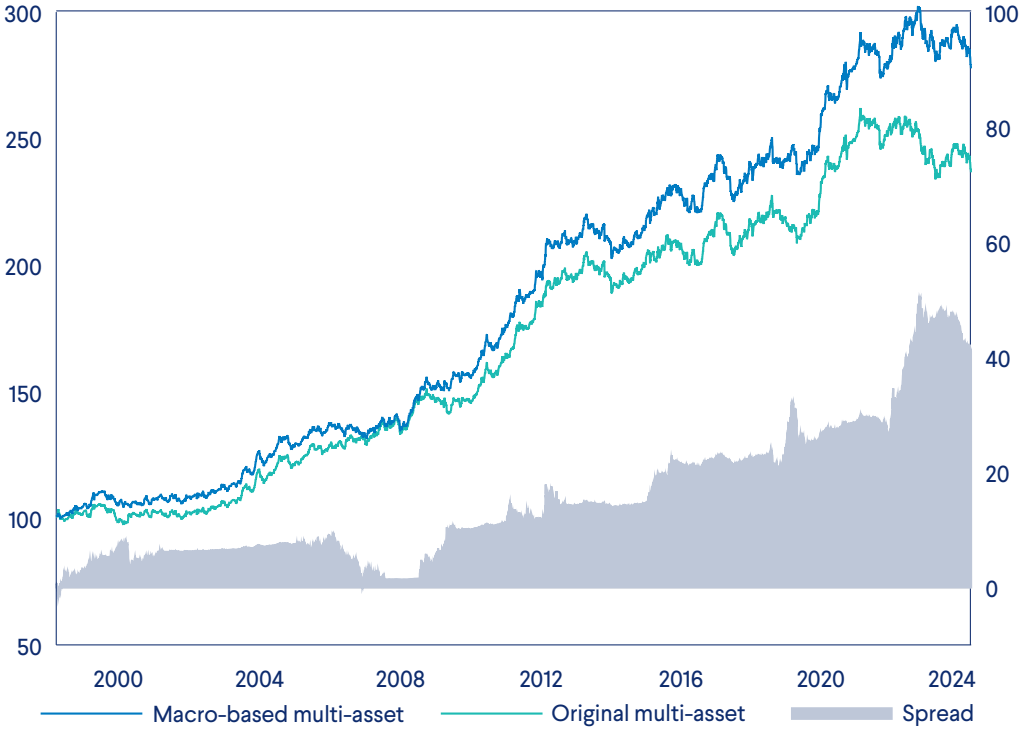
Macro-based inverse volatility weights vs. original inverse volatility weights



Source: Bloomberg data and Delaware Life analysis. 09/11/1997 - 09/29/2023

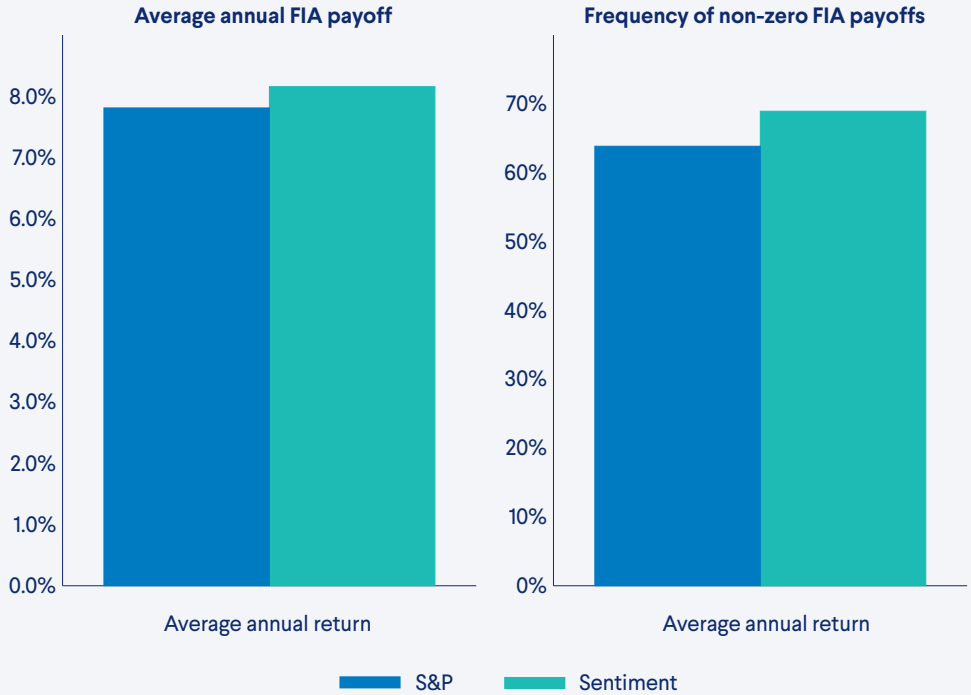
The performance improvement of this strategy is more consistent through time, gradually (though not always) adding excess return. Importantly, by avoiding the asset classes that are not value additive in a given period, it achieves non-zero returns more frequently, which is particularly valuable due to the compounding nature of FIA contracts.

Timed multi-asset vs. original multi-asset



Source: Bloomberg data and Delaware Life analysis. 09/16/1997 - 09/29/2023

Inverse volatility multi-asset vs. macro-based dynamic multi-asset



Source: Bloomberg data and Delaware Life analysis. 09/12/1997 - 09/29/2023

Conclusion

Despite the criticisms that are often levied against them, volatility control, alpha, and asset-class diversification can be valuable tools within a FIA reference index, providing more consistent risk-adjusted return than traditional equity indexes such as the S&P 500. While each of these features is value-additive, it is essential to acknowledge that they cannot entirely shield against market conditions that overpower gains with underlying asset losses. While these losses can be frustrating, they also provide opportunities to learn and evolve the next iteration of indexes for FIA products. To that end, adding an additional dynamic layer, built to adjust the index composition to the predicted market environment, can help mitigate these periods of loss and may provide more consistent positive returns over time.

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