

# The Absurdity of Certainty:

The Total Portfolio Approach to  
Sizing Long Volatility

*We explore the important portfolio allocation factors when determining the appropriate weight to convexity, and how impactful implementation style is in determining the optimal weight to maximize returns.*

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## Introduction: The Absurdity of Certainty and Embracing Doubt for Better Compounding

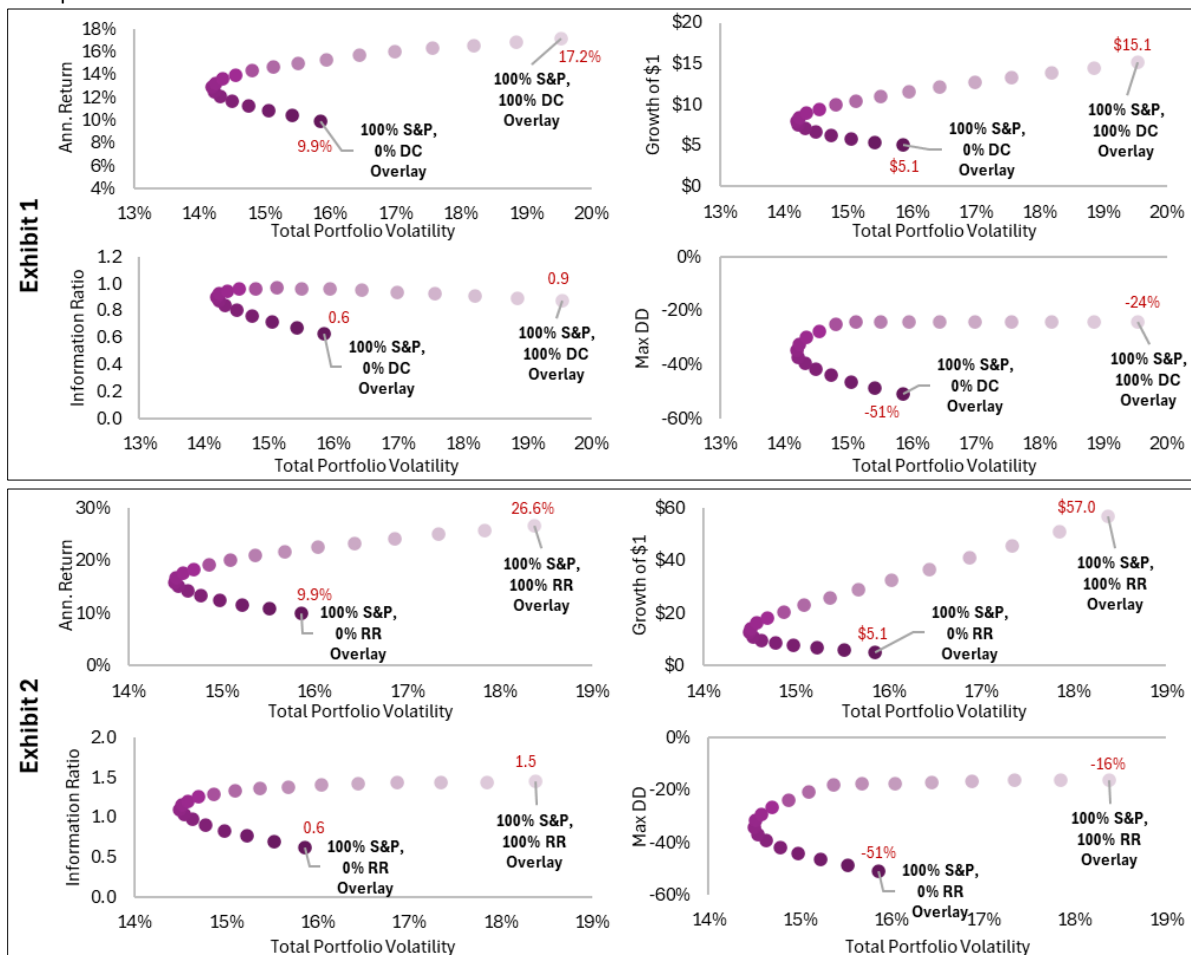
“Doubt is an unpleasant condition, but certainty is a ridiculous one.” — Voltaire

Portfolio diversification is a humble admission of uncertainty. If you had a crystal ball, diversification would be unnecessary. Of course, total certainty is an absurd and impossible condition. And yet, most investors fail to sufficiently diversify away from equity risk, because doing so is to accept a deeply discomforting level of uncertainty.

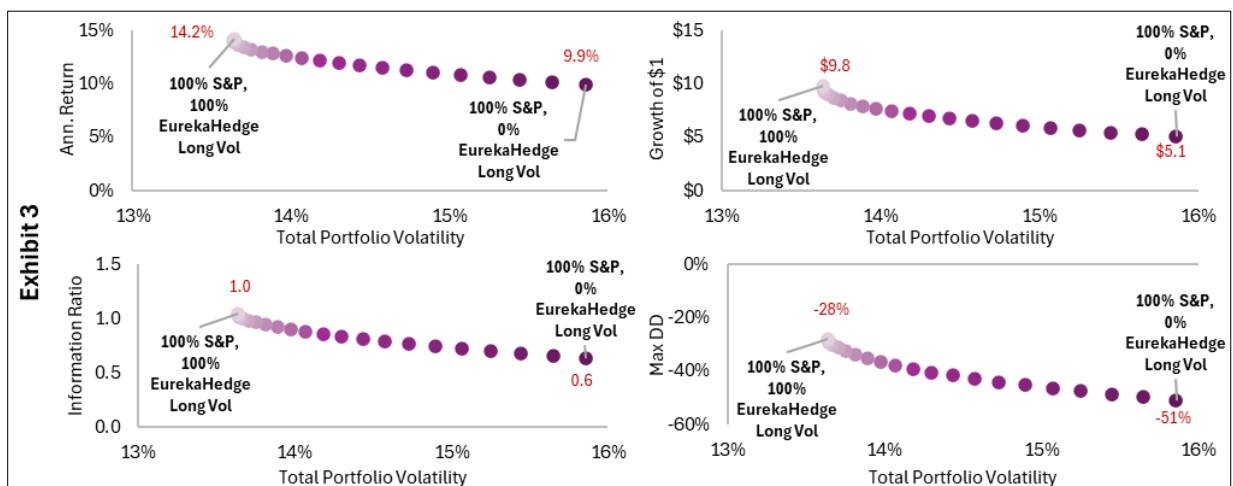
We have written extensively in recent papers ([Convexity, Correlation, and Compounding](#), [The Convexity \(Re\)Balancing Act](#)) about implementation techniques that can enable investors to embrace uncertainty (e.g., long volatility) to amplify portfolio returns and not drag them, despite the low / negative expected standalone return of many diversifying exposures.

In fact, an equity portfolio can be substantially improved by overlaying an allocation to long volatility. **Exhibits 1-3** below show the impact of overlaying, at various weights, allocations to One River’s Dynamic Convexity (DC), Risk Responders (RR), or the Long Vol Index – all of which are predominantly long volatility - on top of an S&P 500 portfolio. Doing so lifted cumulative returns 2-11x, while also more-than-halving the portfolio’s maximum drawdown and improving risk-adjusted returns.

**Exhibits 1-3: Efficient Frontiers for Dynamic Convexity (DC), Risk Responders (RR), Long Vol Index (Returns per Unit of Risk)<sup>1</sup> Various S&P 500 Portfolios, Overlaying DC [1], RR [2], Long Vol Index [3] at 5% increments, Rebalanced Monthly**  
Full sample results: Jan 2007 – Feb 2024



<sup>1</sup>Source: One River, Bloomberg. The Long Vol Index used is the EurekaHedge Long Volatility Index. The S&P 500 returns used are the S&P 500 Total Return Index. The One River returns use live gross returns when possible, and backtested gross returns when necessary. The Dynamic Convexity and Systematic Trend live returns begin April 2015. Alternative Markets Trend and Risk Responders live returns begin Nov 2019. Performance before those inception dates is backtested. For illustrative purposes only. Does not deduct fees. Live net returns available upon request. Please see disclaimers. Past performance is not a guarantee of future results.



Source: One River, Bloomberg. The analyses show full sample results for an S&P 500 portfolio, overlaying DC, RR, EH Long Vol in 5% increments, from 0% to 100%.

Diversification can be achieved by adding any exposure to the portfolio mix that lowers the average correlation of the total portfolio. For equity-centric portfolios, the most efficient and direct way to lower the average correlation is to find sources of reliable negative correlation that aren't too costly to hold during strong periods for equities. Long volatility exposures provide the best opportunity to find such portfolio exposures, given their persistent negative equity correlation and potential to deliver positive convexity. But how much long volatility is needed to make a real impact at the total portfolio level?

In this paper, we will also explore important portfolio allocation factors when determining the appropriate weight to long volatility, and how impactful the implementation approach is in determining the optimal weight to maximize returns. Specifically, in this paper, we examine two distinct portfolio allocation frameworks: **Mixed Standalone Allocation Approach** and **Integrated Total Portfolio Approach**. We will also explore the important portfolio allocation factors when determining the appropriate weight to long volatility, and how impactful the implementation approach is in determining the optimal weight to maximize returns. The approach you adopt goes beyond just a mindset – it makes a world of difference in how much diversification you can achieve, and thus how effectively your portfolio can compound on itself over time.

## How to Maximize the Compounding Benefit of Long Volatility

We find that long volatility can significantly improve total portfolio outcomes, provided the long volatility exposure is:

- **Bleed minimized** – There is no source of convexity that is so great that it can't be rendered useless to the total portfolio through extreme negative carry (i.e., benign market "bleed"). If the cost in a benign market is too severe, then long volatility exposure needs to be timed in order to benefit the total portfolio. However, if the long volatility exposure has a high payout-to-bleed ratio, and monetizes gains well in a crisis, then it can be held full market cycle (no timing needed) and still greatly improve long-term total portfolio outcomes.
- **Capital-efficient** - Margin requirements and/or capital outlay per unit of payout in a crisis needs to be low, otherwise it requires too large of a dollar allocation to generate meaningful returns at the portfolio level, which can significantly drag capital away from other potentially productive uses.
- **Rebalanced routinely** – Especially with respect to equities, convexity allocations can benefit significantly from a disciplined rebalancing schedule, through which proceeds from convex exposures tend to naturally buy cheap equities on the back of a crisis, and vice versa (our paper, [The Convexity \(Re\)Balancing Act](#), covers this in detail).
- **Sized appropriately** – A true long volatility strategy leans against equity risk and, given the tendency for equity markets to drift upwards, this can lead to prolonged periods of low / negative returns for the strategy. Thus, even an optimistic long-term Sharpe Ratio expectation for long volatility should be low. Despite these truths, long volatility exposures can still materially benefit an equity-centric portfolio – but what is the optimal portfolio weight?

- If the long volatility allocation is too small, then the profits generated in a crisis won't make a difference to the total portfolio's returns.
- If the allocation is too large, then the low expected return of long volatility can drag the total portfolio's average return significantly enough to reduce its compounding potential.

So, how defensive should you be with your portfolio? It's perhaps the most common question we receive from investors who are considering adding long volatility (or other convex, lower long-term Sharpe ratio strategies) to their portfolio mix.

The answer is (of course), it depends. More specifically, it depends on your current portfolio mix, how you choose to access long volatility, and what implementation techniques you are willing to use.

## Allocation Frameworks and the Optimal Long Volatility Portfolio Weight

Allocators who wish to outperform the market portfolio must (by definition) make some active choices when constructing their allocation frameworks. Typically, investors must embrace one of two allocation approaches to achieve outperformance: **concentration and conviction**, or **diversification and uncertainty**. The risk of a concentrated portfolio is that an investor's high-conviction bets underperform, while the risk of a diversified portfolio is that the volatility drag of diversification offsets the expected pickup in risk-adjusted return.

A concentrated portfolio tends to be more volatile, as risks are less spread out. This volatility is beneficial in that investors using this approach do not typically require leverage to outperform the market – they just need to make the right bets. However, a diversified portfolio, as a consequence of its diversification, often produces both a lower volatility and higher risk-adjusted return. Without any additional leverage, you might expect to achieve market-like returns on a lower volatility, and with some added leverage you can seek to outperform the market.

The well-documented aversion that allocators have to leverage—likely the result of the many case studies on imprudent uses of leverage—in combination with an astoundingly strong outcome for equity markets over the most recent regime (more on this later), likely contribute to the fact that today's major institutional portfolios overwhelmingly represent highly concentrated portfolios in which equity risk accounts for 80-90% of the total portfolio's variance (e.g., portfolios such as 60/40, 70/30, etc.).

These factors have led to a landscape in which the vast majority of institutional allocators favor unlevered equity-centric portfolios, within which they seek diversification from their equity risk with a small portion of their capital and risk budget. In this piece, we refer to this approach as the **Mixed Standalone Allocation Approach**.

Conversely, a growing minority of institutional allocators are embracing models that use a far greater portion of their risk budget to pursue diversification away from equity risk. These allocators, in some instances, may choose to pair lowly / negatively correlated overlays with equity beta to achieve higher risk allocations to diversifying exposures. In this piece we call this the **Integrated Total Portfolio Approach**.

## Soup or Salad? The Optimal Convexity Weight for Each Framework

It boils down to a simple portfolio choice – **Soup**, or **Salad**?

Long volatility is like salt. Not very appetizing by itself (low return), but when added to a dish it can make everything taste better. You can't subsist on salt alone, nor would you be tempted to try. But it's a powerful enhancer when deployed properly.

The **Mixed Standalone Allocation Approach** is the byproduct of the above-mentioned allocator who is constrained in their ability to apply leverage, but less constrained when it comes to exposure concentration risks. When a new line item is added to this asset allocation framework, it is typically funded in a zero-sum way. For instance, such an investor may choose to invest in a new hedge fund strategy by funding that position from free cash in the portfolio, by selling down equity / bond exposure, or by redeeming from a different hedge fund. While this will likely improve portfolio diversification, it also necessarily creates a "drag" for the portfolio - you must reduce one exposure (e.g., equity beta) to fund another (e.g., diversifying hedge fund).

We liken this approach to a portfolio "**Salad**" sitting in a completely full salad bowl. You have portfolio ingredients, typically organized by asset class and strategy type, with a pre-determined ratio of ingredients. You then mix them together to create a combination that is (hopefully) more appealing than any of the ingredients standalone. Any changes or additions to the salad

require the removal of other ingredients, and there are likely inefficient pockets of empty space (e.g., unencumbered cash) between and within the various ingredients.

Alternatively, the **Integrated Total Portfolio Approach** (in its least constrained format) considers the portfolio to be a single pool of integrated risks, where each dollar of exposure in the portfolio is in a perpetual state of competition for expression versus other potential exposures. Typically, this framework calls for more focus on capital efficiency, as any unencumbered cash in the portfolio is directly evaluated against other, potentially more productive, uses of that capital. Here, you may choose to fund a new hedge fund allocation by commingling a derivatives-based strategy alongside equity or bond futures. In this case, one pool of capital can achieve what might otherwise require two pools of capital and zero-sum funding (selling of one exposure to buy another). In this approach, the “stacking” of returns using one pool of capital can either amplify or reduce risks, depending on the inherent diversification of the commingled exposures. Thus, reliably negative correlations (such as equity beta and long volatility) are prime targets for such an integration as you can achieve strong and consistent diversification in a highly capital efficient (low margin outlay per unit of volatility) manner.

We equate this approach to a portfolio “**Soup**” that is routinely stirred through rebalancing, where the various exposures and risks are fully integrated into one large, diversified pot. This approach typically deploys more economic leverage<sup>2</sup> than its **Salad** counterpart, but when done prudently, should balance both diversification objectives and leverage constraints concurrently.

Adding long volatility to an equity-centric portfolio reliably reduces volatility (through negative correlation), but whether that reduction in risk is accompanied by a commensurate pickup in expected return is where the nuance of Portfolio **Soup** vs. **Salad** becomes integral. To torture the metaphor – salt may indeed improve discreet parts of a salad independently, it enhances all ingredients in a soup together.

**Exhibit 4** below conducts efficiency frontier analyses on these two allocation frameworks. The **Mixed Standalone Allocation Approach** of introducing long volatility (here we use our Dynamic Convexity strategy) to an equity portfolio suggests that an allocation **greater than 0%, but less than 10%** is likely the range you should consider for a long volatility allocation. At this weight, we observe that a long volatility allocation fully preserves the total portfolio return, reduces the volatility by roughly 15% (from 15.9% volatility to 13.5% volatility), and thus improves risk-adjusted returns by a similar margin.

However, for the **Integrated Total Portfolio Approach**, by overlaying the long volatility allocation on top of equity beta, we are able to import the same amount of convexity as a standalone allocation per unit, but without any total portfolio beta drag. Here, we see better outcomes for larger weights as we converge towards a higher Sharpe ratio and stronger return portfolio. However, the marginal unit of the equity + long volatility combination portfolio actually begins increasing portfolio risk at about a **40% weight**. If the intention of diversification is to improve returns and/or reduce risk, then this could serve as an optimal weight.

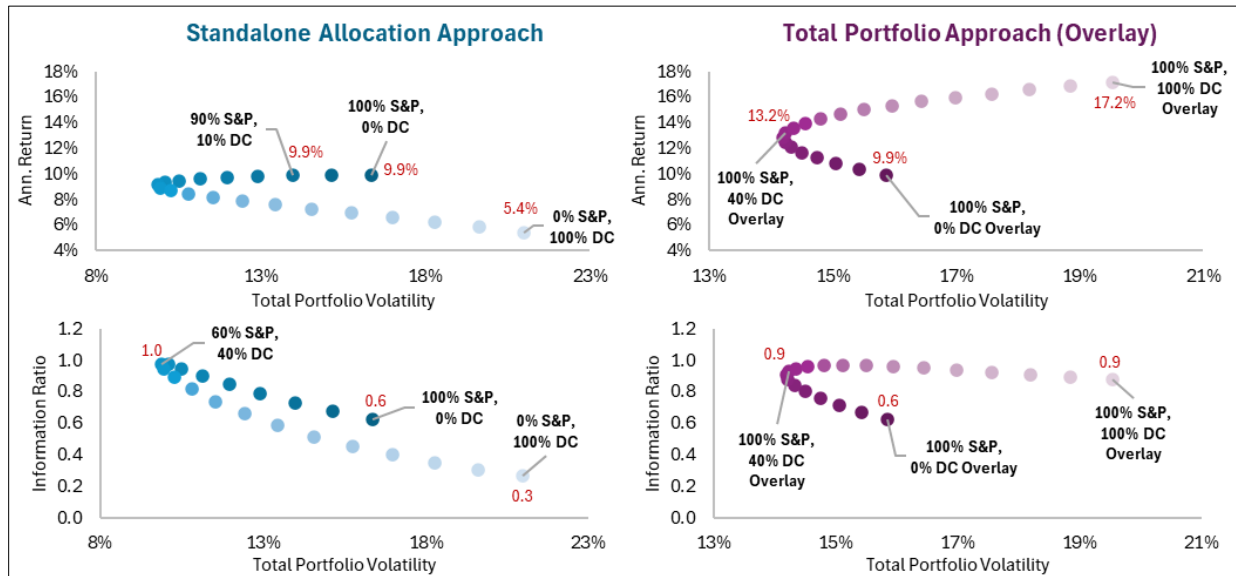
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<sup>2</sup> We differentiate economic leverage from financial leverage. For instance, economic leverage could entail simply buying an equity future in place of a cash equity portfolio. So, an investor with \$100 who wants 100% exposure to equities only needs to post the required \$5-7 in margin to support that position with an exchange (and be free to use their \$93+ elsewhere). This can differ greatly in cost and risk from borrowing funds from a bank to invest in risky assets, i.e., financial leverage.

**Exhibit 4: Efficient Frontiers (Return and Information Ratio per Unit of Risk) <sup>3</sup>**

**Various S&P 500 Portfolios, Adding in One River Dynamic Convexity at 5% increments, Rebalanced Monthly Layering in Dynamic Convexity Standalone (DC) Exposure vs. Dynamic Convexity Overlay (DC Overlay) Exposure**

Full sample results: Jan 2007 – Feb 2024



Source: One River, Bloomberg. The analysis shows the full sample results of a hypothetical S&P 500 portfolio, layering in Dynamic Convexity or a 100% Dynamic Convexity/100% S&P 500 Combination portfolio, in 5% increments, from 0% up to 100%.

How does this same exercise look if you instead overlay a long volatility + trend-following allocation? Our Risk Responders program is just that – a capital-efficient combination of long volatility and multi-asset trend, designed to both deliver robust portfolio protection, and significantly raise the expected average return versus a pure long volatility allocation.

In this instance, Risk Responders has produced standalone returns that compete with (and indeed slightly outpace) S&P 500 returns over this sample. Thus, adding Risk Responders at any weight is a marginal improvement on an equity-based portfolio in terms of expected geometric return. As an added bonus, the persistent negative correlation of Risk Responders to equities means that you can expect volatility reduction as well as return improvement, bolstering risk-adjusted returns markedly.

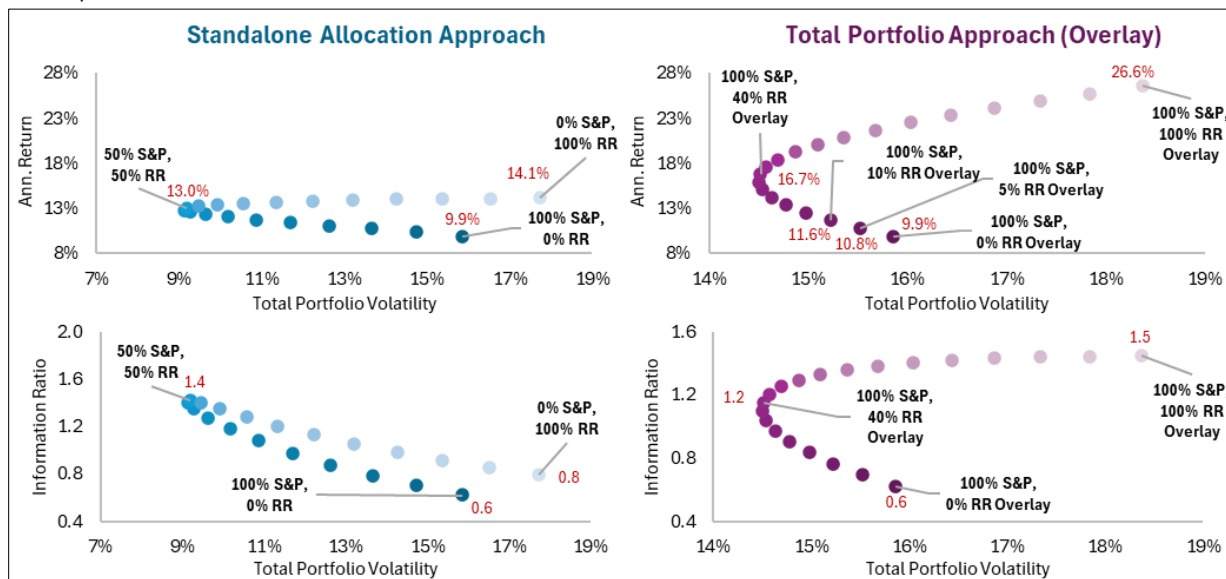
Interestingly, when implemented using an overlay implementation style, the combination of strong average returns and negative correlation have a profound impact on total portfolio returns. As seen in Exhibit 5, as you graduate from a **0% weight to even a 5-10% weight, you can improve total portfolio returns ~1-2% per annum**. This substantial improvement in returns on such a small allocation can only be achieved by removing the beta drag of the allocation through the overlay implementation.

<sup>3</sup>Source: One River, Bloomberg. The S&P 500 returns used are the S&P 500 Total Return Index. The One River returns use live gross returns when possible, and backtested gross returns when necessary. The Dynamic Convexity live returns begin April 2015. Performance before those inception dates is backtested. For illustrative purposes only. Does not deduct fees. Live net returns available upon request. Please see disclaimers. Past performance is not a guarantee of future results.

**Exhibit 5: Efficient Frontiers (Return and Information Ratio per Unit of Risk) <sup>4</sup>**

**Various S&P 500 Portfolios, Adding in One River Risk Responders at 5% increments, Rebalanced Monthly Layering in Risk Responders Standalone (RR) Exposure vs. Risk Responders Overlay (RR Overlay) Exposure**

Full sample results: Jan 2007 – Feb 2024



Source: One River, Bloomberg. The analysis shows the full sample results of a hypothetical S&P 500 portfolio, layering in Risk Responders or a 100% Risk Responders/100% S&P 500 Combination portfolio, in 5% increments, from 0% up to 100%.

**Equities Are Tough to Beat, at Least for Now...**

Earlier we mentioned that recent equity market returns have led institutional allocators increasingly towards equity-centric portfolios. Let’s unpack this further.

The above analyses use pure equity portfolios as a starting point to consider how much convexity is needed. This is because although most institutional investors pursue diversification away from pure equity risk through privates, duration risk (bonds), and uncorrelated hedge funds, the predominant source of variance in portfolios today still comes from equity risk.

This is a topic we’ve explored in some depth in our 2021 piece [Regime Change Resilience](#), in which we explore the relationship between equity risk and historically diversifying exposures such as bonds. Of note, we observe that a prolonged period of accommodative monetary policy has generally shifted investor preferences towards more speculative, higher-duration assets, which has resulted in market-cap-weighted indices increasingly exposed to such duration risks. This is perhaps why post-2020, we have seen the stock-bond correlation flip to be positive on average, despite being persistently negative from the late 1990s to 2020, and why we saw both stocks and bonds respond so negatively to the rate hikes of 2022.

Today, the average portfolio, even one that appears well diversified, behaves not too dissimilarly from an equity portfolio. Common allocation frameworks such as 60/40, 70/30, or (most often) portfolios that synthetically replicate those weights though a combination of public and private equity, often accept that equity risk drives over 90% of the total portfolio’s variance.

The drift of portfolios towards equity index exposure makes sense, especially considering that today we are arguably in the best long-term lookback window for U.S. equities over the last century. As seen in **Exhibit 6** below, the 10-, 15-, and 20-year lookbacks are in the **97<sup>th</sup> percentile** versus the last century or so. It makes sense, then, that portfolios have naturally drifted to favor equity risk, and that insufficient diversification away from this risk has come at very little consequence (certainly less than it may have over previous regimes).

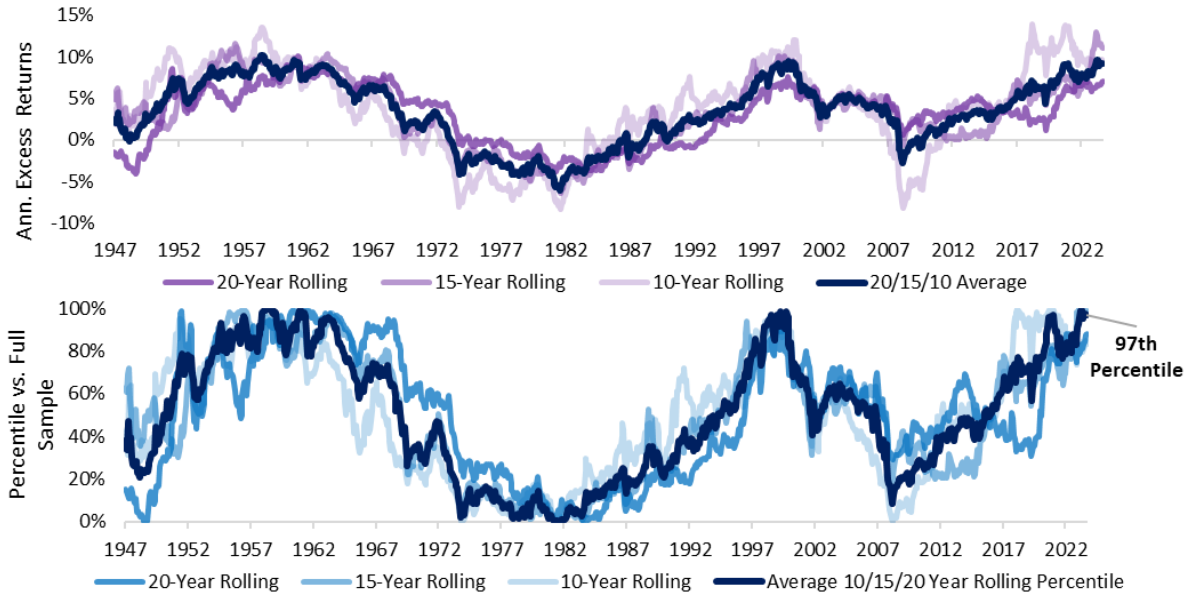
<sup>4</sup>The S&P 500 returns used are the S&P 500 Total Return Index. The One River returns use live gross returns when possible, and backtested gross returns when necessary. The Dynamic Convexity live returns begin the live period in April 2015. Systematic Trend live returns begin April 2015. Alternative Markets Trend live returns begin November 2019. Performance before those inception dates is backtested. For illustrative purposes only. Does not deduct fees. Live net returns available upon request. Please see disclaimers. Past performance is not a guarantee of future results.



## Exhibit 6: Rolling 10,15, and 20 Yr Returns, S&P 500<sup>5</sup>

### Annualized S&P 500 Returns in Excess of the Risk-Free Rate (Top), Percentile vs. Full Sample (Bottom)

Jan 1928 – August 2024



Source: One River, Bloomberg, Fama-French Data Library. The equity Index used is the S&P 500 Index.

We chose to anchor our many convexity analyses to this period, and we elevated equities to be 100% of the portfolio *because* equities have done so well. In doing so, we are facing the highest possible hurdle as we seek to improve returns for such a portfolio. Particularly long volatility, which mechanically leans against equities, faced a large headwind for return generation over the recent regime. This high equity market return hurdle makes any improvement of a pure equity portfolio noteworthy.

In summary, if an exposure that has consistently leaned against this resilient equity market has still managed to amplify it (2-11x the cumulative return) when added into the portfolio mix, then it should lend some comfort to investors considering allocating to it in a macro environment with such pronounced left and right tail risks. These integrated convexity plus equity overlay frameworks afford investors the opportunity to fully embrace uncertainty, and be well compensated for it.

## Conclusion: Investors are Paid to Embrace Uncertainty

The hesitance of investors to fully embrace uncertainty creates opportunities for those who do. Volatility, being a measurement of uncertainty, is arguably the most direct way to import the uncertainty premium into a portfolio. However, long volatility exposures are priced such that they tend to produce protracted periods of losses (i.e., the so-called “bleed” of long volatility) until a crisis occurs, making such allocations difficult to hold long-term.

Long volatility investing is often challenged through this lens – if it is priced like an insurance policy (and when done passively, it likely is), then why pay away a premium that is expected to generate net-negative performance over the -term? Given the tendency for insurers to make money off of the insured, then surely the smart bet is to sell insurance, and not buy it.

However, we have demonstrated in this paper how through skillful implementation of long volatility, a disciplined rebalancing program, and efficient allocation frameworks, investors can construct highly diversified portfolios that concurrently pursue both growth and protection. Doing so can deliver superior compounding potential and multiply the value of diversified portfolios over the long-term.

<sup>5</sup>The S&P 500 returns used are the S&P 500 Index. The Risk-free rate is from the Fama-French Data Library. Please see important disclaimers in the appendix. Past performance is not a guarantee of future results. The exhibit is for illustrative purposes only and is not intended to forecast market returns.

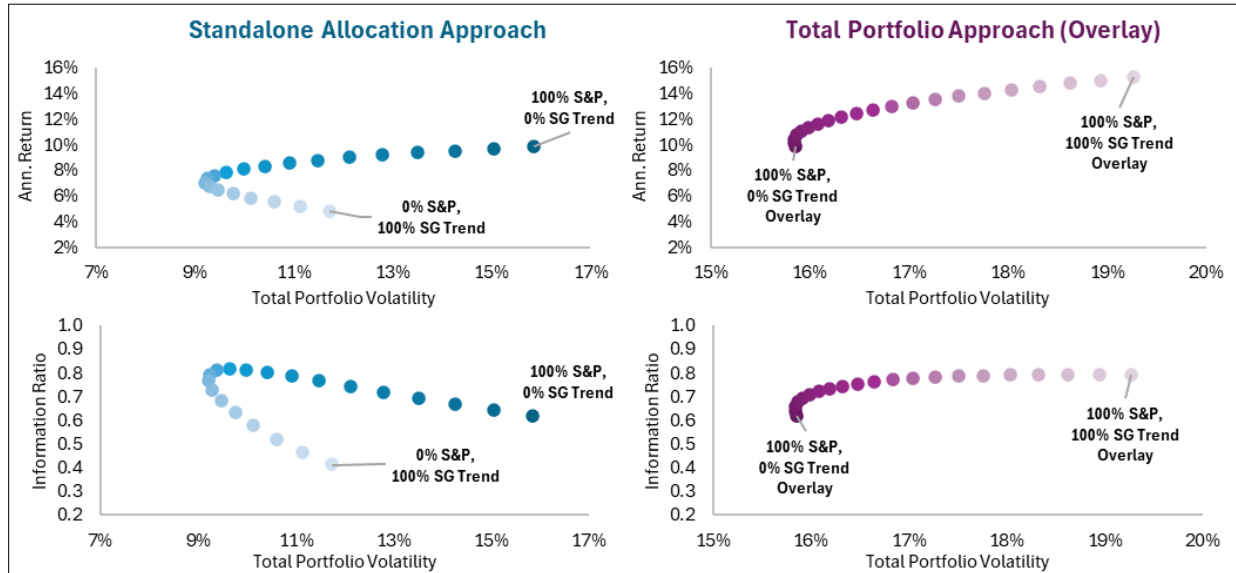
## Appendix – Other Defensive Exposure Efficient Frontiers

### Exhibit 7: Efficient Frontiers (Return and Information Ratio per Unit of Risk) <sup>6</sup>

Various S&P 500 Portfolios, Adding in SG Trend Index at 5% increments, Rebalanced Monthly

Layering in SG Trend Standalone Exposure vs. SG Trend Index Overlay Exposure

Full sample results: Jan 2007 – Feb 2024



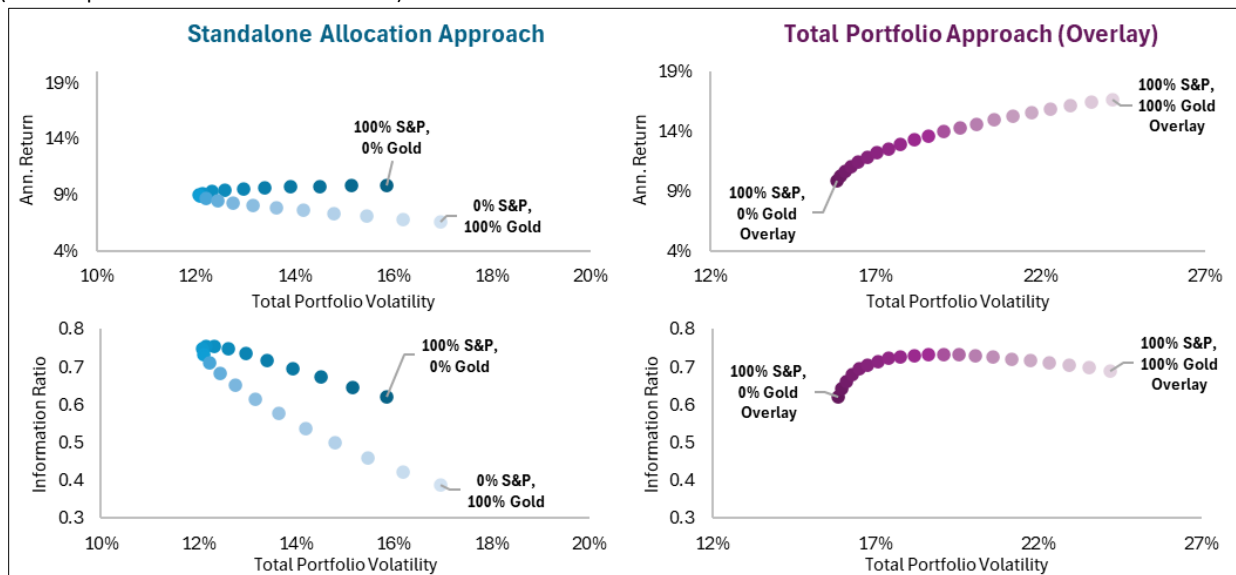
Source: One River, Bloomberg. The analysis shows the full sample results of a hypothetical S&P 500 portfolio, layering in SG Trend or a 100% SG Trend/100% S&P Combination portfolio, in 5% increments, from 0% up to 100%.

### Exhibit 8: Efficient Frontiers (Return and Information Ratio per Unit of Risk) <sup>7</sup>

Various S&P 500 Portfolios, Adding in Gold at 5% increments, Rebalanced Monthly

Layering in Gold Standalone Exposure vs. Gold Overlay Exposure

(Full sample results: Jan 2007 – Feb 2024)

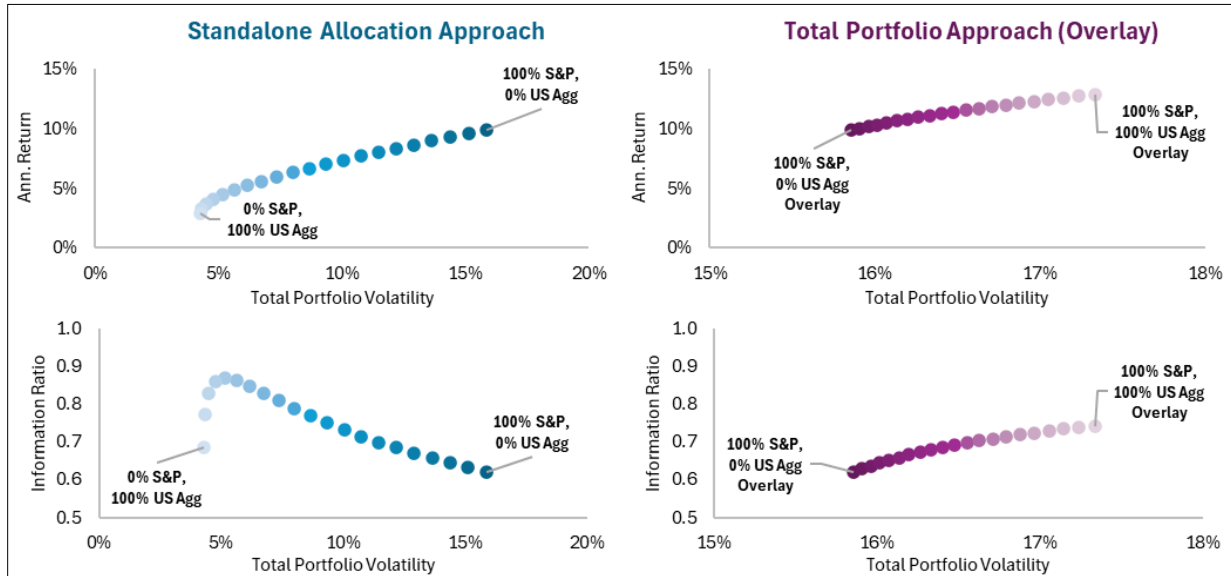


Source: One River, Bloomberg. The analysis shows the full sample results of a hypothetical S&P 500 portfolio, layering in Gold or a 100% Gold/100% S&P 500 Combination portfolio, in 5% increments, from 0% up to 100%.

<sup>6</sup>The SG Trend returns used are the SG Trend Index. Past performance is not a guarantee of future results.

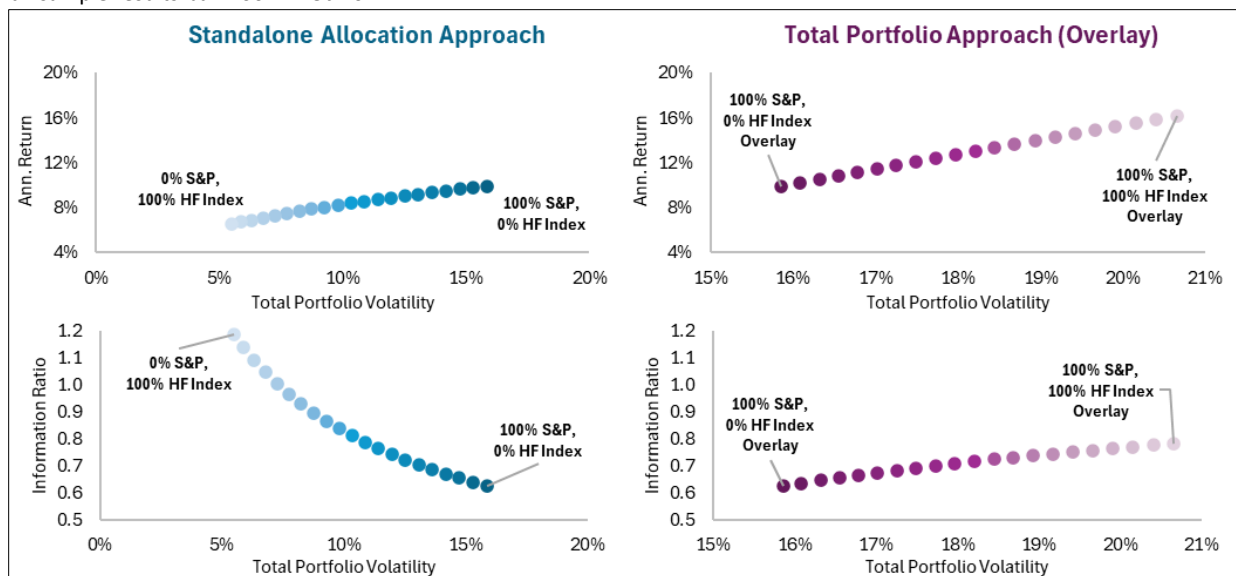
<sup>7</sup>The Gold returns used are the SPDR Gold Shares ETF. Past performance is not a guarantee of future results.

**Exhibit 9: Efficient Frontiers (Return and Information Ratio per Unit of Risk) <sup>8</sup>**  
**Various S&P 500 Portfolios, Adding in US Aggregate Bond Index at 5% increments, Rebalanced Monthly**  
**Layering in US Aggregate Bond Standalone Exposure vs. US Aggregate Bond Overlay Exposure**  
 Full sample results: Jan 2007 – Feb 2024



Source: One River, Bloomberg. The analysis shows the full sample results of a hypothetical S&P 500 portfolio, layering in US Aggregate Bond Index or a 100% US Aggregate Bond Index/100% S&P 500 Combination portfolio, in 5% increments, from 0% up to 100%.

**Exhibit 10: Efficient Frontiers (Return and Information Ratio per Unit of Risk) <sup>9</sup>**  
**Various S&P 500 Portfolios, Adding in HF Index at 5% increments, Rebalanced Monthly**  
**Layering in HF Index Standalone Exposure vs. HF Index Overlay Exposure**  
 Full sample results: Jan 2007 – Feb 2024



Source: One River, Bloomberg. The analysis shows the full sample results of a hypothetical S&P 500 portfolio, layering in HF Index or a 100% HF Index/100% S&P 500 Combination portfolio, in 5% increments, from 0% up to 100%.

<sup>8</sup>The US Aggregate Bond returns used are the Bloomberg US Aggregate Index. Past performance is not a guarantee of future results.

<sup>9</sup>The HF Index returns used are the Eureka Hedge Hedge Fund Index. Past performance is not a guarantee of future results.

## Disclaimers

Past performance is not necessarily indicative of future results.

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limitations because indexes have volatility and other material characteristics that may differ from the One River Funds. Indices shown include the following. 1. The EurekaHedge Long Volatility Index is an equally weighted index of 9 constituent funds. The index is designed to provide a broad measure of the performance of underlying hedge fund managers who take a net long view on implied volatility with a goal of positive absolute return. 2. The S&P 500® is widely regarded as the best single gauge of large-cap U.S. equities. The index includes 500 leading companies and covers approximately 80% of available market capitalization. 3. The SG Trend Index is equal-weighted and reconstituted annually. The index calculates the net daily rate of return for a pool of trend following based hedge fund managers. 4. The Bloomberg US Aggregate Bond Index is a market capitalization-weighted index that tracks the performance of the US dollar-denominated investment grade bond market. It's used as a benchmark for investment grade bonds in the US and is an important tool for tracking fixed income asset allocation.

Prior to December 2019, the Dynamic Convexity Strategy returns reflect the actual returns of the strategy within a One River managed SPC (Segregated Portfolio Company). Returns for the SPC are available upon request. Prior to December 2019, operating expenses are excluded for the net return calculation. The Dynamic Convexity SP caps expenses at 20 bps if AUM is above USD 250 million.

The Risk Responders Strategy performance from Nov 2019 through Feb 2022 represents a pro-forma combination of live Dynamic Convexity, Trend, and Alternative Markets Trend fund returns as implemented in the live Risk Responders strategy. Returns for the individual funds are available upon request.

HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM. ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

Eric Peters serves as the CEO/CIO of One River Asset Management as well as the CEO/CIO of Coinbase Asset Management, LLC (formerly One River Digital Asset Management, LLC), which are unaffiliated and independent investment advisory businesses. Conflicts of interest could potentially arise as a result of Eric Peters' dual roles. However, we believe such risks are unlikely given the differences in the investment strategies and asset classes of One River Asset Management and Coinbase Asset Management. Additionally, Mr. Peters may not devote all of his time to either business as a result of his dual roles. However, we believe any such conflicts of interest would also be mitigated by the fact that One River Asset Management and Coinbase Asset Management have separate, dedicated investment teams.

