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Using data from the past 25 years, nearly 90% of the total volatility in a 60% equity / 40% fixed income portfolio is generated by the equity allocation.[1] In our piece, "TINA" from October 2021 we highlighted the exuberance witnessed in both equities and fixed income suggesting alternatives may be able to provide valuable diversification benefits to a portfolio without materially sacrificing returns. In this piece, we seek to highlight the blind spots of traditional allocation strategies. We will take a deeper dive into the portfolio risks driven by equities and how exposure to a true diversifier can add value within the portfolio.

In particular, we want to explore two well-known, but often overlooked concepts: 1) average stock market volatility is largely driven by a small number of steep drawdowns, and 2) a portfolio consisting of low cross-correlations among assets reduces total risk. These concepts are vitally important when considering allocations and time horizon. Despite long-term gains, equity investments are characterized by significant, rapid, and unpredictable drawdowns.

The Hidden Effects of Drawdowns

The annualized standard deviation of the S&P 500 is 15.4 since the mid-1990s, a period consisting of several boom-and-bust cycles. This figure jumps to 22.8 and 20.3 for the Nasdaq Composite and Russell 2000, respectively.[2] These data still do not provide the broader story as *average* statistics disguise more extreme environments, which ultimately have a major impact on long-term returns. Standard deviation provides little information about tail events or the direction of these events (i.e. positively or negatively skewed returns). Using monthly returns since 1997, the table below provides detail about the distribution of returns.

First, if the top 10% most volatile months are removed, standard deviations drop by approximately 25-30%. For most of the investment horizon, equity risk is relatively subdued, yet particularly salient events dramatically increase the holding period risk. These periods are overwhelmingly dominated by negative returns in both frequency and magnitude.

	S&P 500	Nasdaq Composite	Russell 2000
Standard Deviation	15.4	22.8	20.3
Standard Deviation (excluding top 10% most volatile periods)	11.4	16.6	14.8
Negative months in top 10% deviations	20 of 30	16 of 30	20 of 30
Max negative return	-16.8%	-22.9%	-21.7%
Max positive return	12.8%	22.0%	18.4%

Data provided by Bloomberg LP, calculations performed by Core Alternative

Furthermore, equity markets are highly correlated over time (0.8-0.9 correlation over the 25-year horizon) and increasingly so during drawdowns (approximately 0.90-0.95 during the prior three major recessions). *Another way of expressing this sentiment is that diversifying across large cap, small cap, or growth heavy indices provide minimal diversification benefits.*

Typically, the fixed income portion of the portfolio is expected to serve as a ballast during these periods of turmoil in equity markets, yet the first half of 2022 is the prime example of a scenario when this axiom does not hold. Bond yields will rise as the Fed raises short-term rates and investors demand greater compensation for their capital being eroded by inflation. In the context of a discounted cash flow analysis, higher bond yields directly increases the cost of capital and reduces returns to shareholders sending bond and stock prices downward in unison.

[1] Based on monthly returns of the S&P 500 Index and Bloomberg U.S. Aggregate Bond Index since June, 1997
[2] Based on monthly return data since June, 1997

How then do we go about reducing the volatility at the portfolio level without sacrificing returns?

Find low correlation assets.

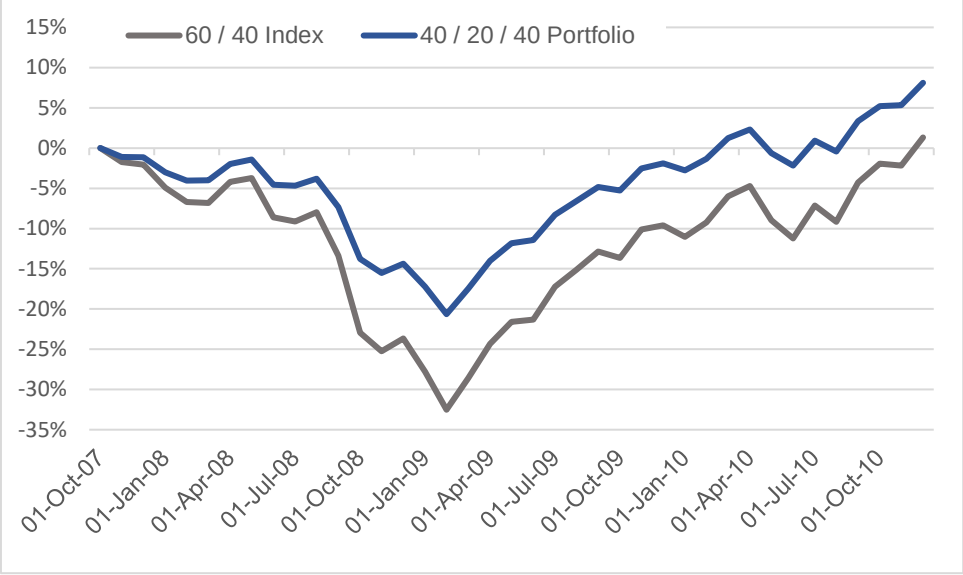
Smart Diversification

We conducted an analysis that demonstrates the benefits of adding a truly uncorrelated asset to a traditional portfolio allocation. We started with the 60/40 portfolio and proceeded to form additional portfolios attributing a greater weight to a proxy asset that maintains a low correlation (by construction) to both equity and fixed income indexes. The low correlation asset was set to have an average annual return of 6%, a standard deviation of 7% and zero correlation to stocks or bonds. Using Monte Carlo simulations, we generated 1000 unique portfolios for each specified allocation. Average results are displayed below across the iterations for each allocation:

	Annualized Return	Annualized St Dev	Max Drawdown	Sharpe Ratio
60% S&P500 / 40% Bond Agg	7.21%	9.32	-32.51%	0.67
50% S&P500 / 30% Bond Agg / 20% Alternative	7.14%	7.88	-26.76%	0.78
40% S&P500 / 20% Bond Agg / 40% Alternative	7.04%	6.78	-20.66%	0.89
30% S&P500 / 10% Bond Agg / 60% Alternative	6.91%	6.24	-14.07%	0.95

Data provided by Bloomberg LP, calculations performed by Core Alternative

By adding up to 40% of the portfolio allocation to an alternative asset uncorrelated to the stock or bond allocation, you would have only sacrificed 17 basis points of annualized returns while decreasing the standard deviation by 1.5% and max drawdown by ~12%. The Sharpe Ratio increases as you add to the diversified asset albeit by a decreasing margin. The primary culprit behind the results is more modest drawdowns. Capital preservation should be a top priority on all investor's minds, and most acutely for those nearing withdrawal periods. The figure below shows the max drawdown periods for both funds coinciding in the global financial crisis. The portfolio with the uncorrelated asset has a materially narrower drawdown and a 9-month shorter recovery period.



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How The Analysis Plays into Your Portfolio

In the portfolio construction process, it is typical to allocate based on asset class: "X"% to one asset class, "Y"% to another. Often, whether consciously or subconsciously, investors of all types start with something similar to a 60% stock / 40% bond portfolio and adjust from that foundation based on risk tolerance or for diversification purposes. Perhaps, we take some from bonds and add a bit of commodity exposure. Perhaps, we diversify the 60% equity into 40% large cap, 10% small cap, 10% international, and so forth. This description is, of course, an oversimplified version of the chronology, but it serves the purpose of reviewing the process. The problem with the process is that it's backward. **What should matter, first and foremost, is allocating based on the intersection of the investor's risk/return objective and time horizon.** From there, we can build a portfolio with the intent to achieve these goals.

In the context of modern portfolio theory, neither axis of the efficient frontier designates asset class. Rather the x- and y- axes denote risk and return, respectively. When designing an optimal portfolio, we can either maximize return for an expected level of risk or minimize risk for an expected level of return. At its roots, portfolio theory is asset class agnostic. Fundamentally, there is nothing to suggest that any asset (stocks, bonds, commodities, real estate, annuities, etc.) should play a role at all in any given portfolio, except for the fact that the asset's historical risk/return profile, in the context of the broader portfolio, meets the needs of the stated investment objective. Yet, instead of starting with the allocation based on historical risk/return metrics, we often start with the asset class and hope the numbers work out in the end. Often, they don't. By minimizing these metrics, as well as the cross-correlations of assets in the portfolio, we open ourselves up to unnecessary tail risks and the probability of falling short of the investment objective over a particular time horizon.

It would be a cheap shot to take another swing at the "60/40" after it has already been beaten up badly over the past several months. In both March and May it feebly rose from the mat only to get knocked back down. Our intention above is not to claim "60/40" is dead or even that this is a poor rule of thumb; it has undoubtedly served investors well over decades. Rather we hope this has helped to highlight that you may be able to improve upon aggregate portfolio performance by finding uncorrelated assets that can potentially mitigate the tail risk effects of equity markets.

Reach out to our team to find out more at sales@corealt.com

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Disclosures & Definitions:

Indexes are unmanaged and one cannot invest directly in an index. Investing involves risk, including the possible loss of principal. Diversification may not protect against market loss

Data provided by Bloomberg LP, calculations performed by Core Alternative

The Standard & Poor's 500, often abbreviated as the S&P 500, S&P, or SPX, is an American stock market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ. The S&P 500 index components and their weightings are determined by S&P Dow Jones Indices

The Nasdaq Composite Index is a market capitalization-weighted index of more than 3,700 stocks listed on the Nasdaq stock exchange. As a broad index heavily weighted toward the important technology sector, the Nasdaq Composite Index has become a staple of financial markets reports

The Russell 2000 Index refers to a stock market index that measures the performance of 2,000 smaller companies included in the broader Russell 3000 Index. The Russell 2000 is managed by London's FTSE Russell Group and is widely regarded as a bellwether of the U.S. economy because of its focus on smaller companies in the US market

The Barclays Capital US Aggregate Bond Index, also known as "the BarCap Aggregate," is a broad bond index covering most U.S. traded bonds and some foreign bonds traded in the U.S. The BarCap Aggregate was once known as the Lehman Brothers Aggregate Bond Index

Alpha: A measure of the difference between a portfolio's actual returns and its expected Alpha performance, given its level of risk as measured by Beta.

A Basis Point is equivalent to 1/100 of one percent

Beta: The measure of systematic risk with respect to the risk-free rate.

Correlation: A statistical measure of how two securities move in relation to one another.

The Efficient Frontier is the set of "optimal" portfolios that offer the highest expected return for a defined level of risk or the lowest risk for a given level of expected return. Portfolios that lie below the efficient frontier are sub-optimal because they do not provide enough return for the level of risk. Portfolios that cluster to the right of the efficient frontier are sub-optimal because they have a higher level of risk for the defined rate of return.

Max Drawdown: A portfolio's maximum loss in a peak-to-trough decline before a new peak is attained. Max Drawdown It is usually quoted as the percentage between the peak and the trough. It is an indicator of downside risk over a specified time period.

Modern portfolio theory (MPT) is a practical method for selecting investments in order to maximize their overall returns within an acceptable level of risk.

Monte Carlo simulations are used to model the probability of different outcomes in a process that cannot easily be predicted due to the intervention of random variables. It is a technique used to understand the impact of risk and uncertainty in prediction and forecasting models.

Sharpe Ratio: A statistical measure that uses standard deviation and excess return to determine reward per unit of risk. A higher Sharpe ratio implies a better historical risk-adjusted performance.

Standard Deviation: The statistical measurement of dispersion of returns of a set of sample stocks or funds about an average. It depicts how widely the returns varied over a certain period of time