



A PRIMER ON DIVERSIFICATION FOR INSTITUTIONAL INVESTORS

Introduction

Diversification is a fundamental component of an institutional investment strategy; however, determining the optimal approach invites considerable debate. This debate has intensified recently due to the fact that, for an extended period of time, portfolios with a traditional 60/40 allocation to US equity and US fixed income have outperformed many portfolios that include a broader set of asset classes. In response, many investors have questioned whether reverting to a simple US 60/40 portfolio represents a more optimal long term strategy.

We wrote this issue of *Investment Perspectives* with several objectives. Our first was to address the recent skepticism regarding the benefits of diversification. After completing analysis of this issue, we were able to reaffirm our belief in the value of broad diversification strategies.¹ Our second objective was to provide guidance on how to design effective diversification strategies. To this end, this paper defines several levels of diversification that investors should consider when constructing portfolios. Our final objective was to provide guidance on diversification strategy implementation. We approached this issue by identifying several problems that investors encounter when implementing a strategy, and then presenting potential solutions. In the end, our hope is that this paper helps restore investor confidence in broad diversification strategies, as well as provide practical guidance for successful implementation.

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Recent Underperformance of Diversified Portfolios

As of the writing of this paper, the US had entered the seventh year of a bull market. The relative strength of US equity and fixed income during this period distorted the relative performance of a US 60/40 portfolio in comparison to portfolios that are more broadly diversified. As an example, consider a sample diversified portfolio that includes international equity (both developed and emerging), real estate, hedge funds, and private equity in addition to traditional US equity and US fixed income.² Over the past ten years, the sample diversified portfolio would have returned 6.28% per year, which trails the 6.78% annual return achieved by a traditional 60/40 portfolio over the same time period.³

¹ By "broad diversification" we refer generally to strategies that include asset classes beyond US equity (as represented by the Russell 3000 Index) and fixed income (as represented by the Barclays US Aggregate Bond Index). Diversifying asset classes may include exposures, such as international developed equity, emerging markets equity, real estate, and a variety of alternative asset classes.

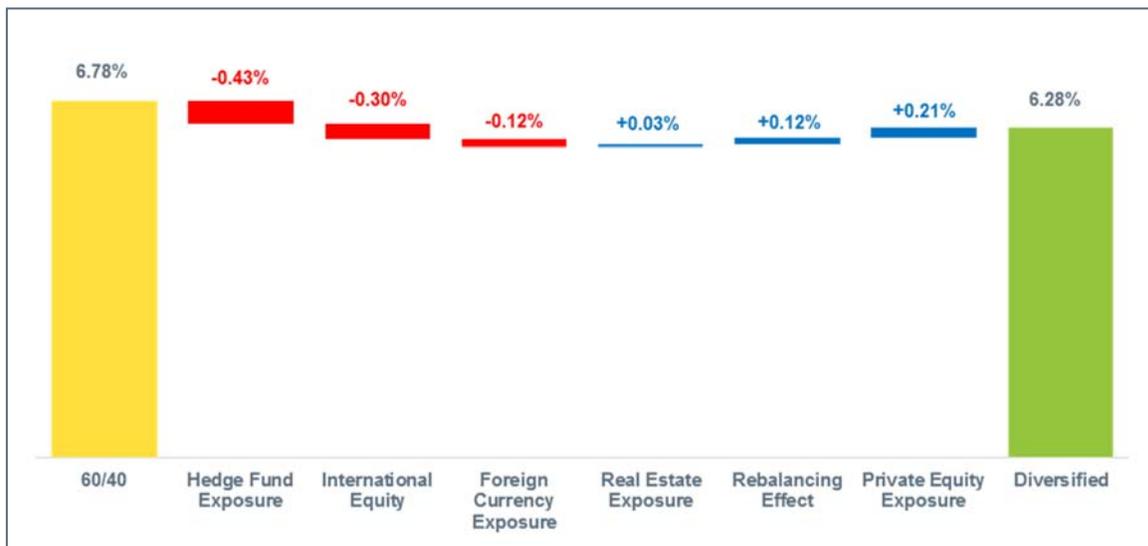
² Our hypothetical diversified portfolio was constructed with a 35% allocation to the Russell 3000 index, 15% to the MSCI ACW ex-US index, 25% to the Barclays US Aggregate Bond Index, 10% to the NCREIF ODCE Index, 10% to the HFN Fund of Funds Multi-Strategy Index, and 5% to the Cambridge US Private Equity Index. We recognize that this portfolio may differ substantially from actual institutional portfolios depending upon the investment objectives and the relevant time periods. However, it is important to note that we tested dozens of potential portfolios in addition to this sample. While the specific results varied, the fundamental observation that diversified portfolios have generally lagged a US 60/40 portfolio over the prior 10 years remained consistent. Therefore, we feel that the sample portfolio in this paper provides a reasonable representation of a broader trend.

³ The 6.28% annualized return presented for the diversified portfolio in [Figure 1](#) differs slightly from the return reported in [Figure 2](#) due to rounding of the attribution amounts.

These results have tempted many investors to question the value of diversification. However, before considering such a reaction, it is important to understand why broad diversification has underperformed in recent years, as well as why the opposite result may occur in the future.

Figure 1 quantifies the primary factors that contributed to the underperformance of our sample diversified portfolio over the past 10 years.

Figure 1: Comparative Performance of Diversified Portfolio vs. US 60/40 Portfolio (January 1, 2006 – December 31, 2015)⁴



Sources: RVK, Inc., Morningstar, Bloomberg (2016)

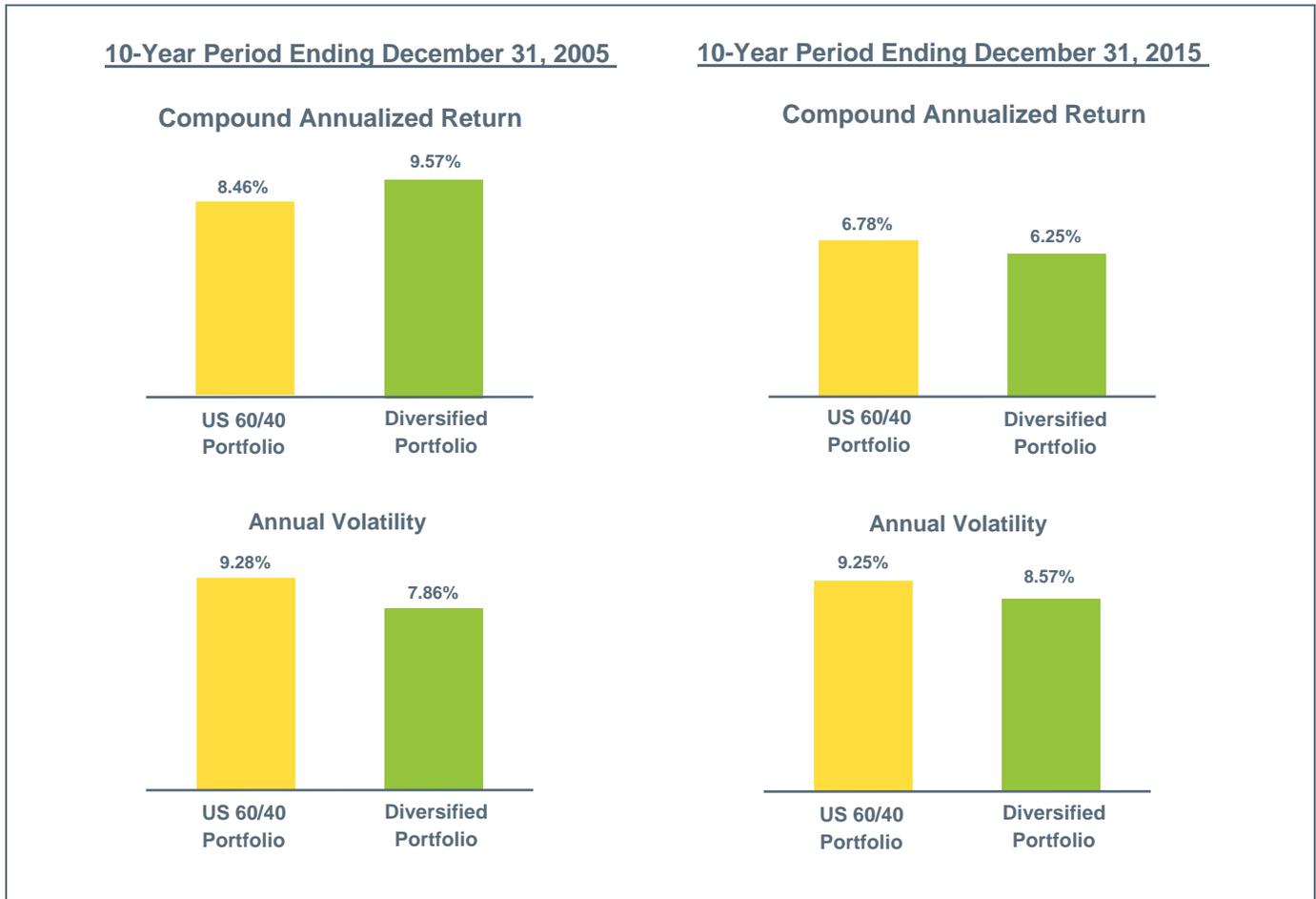
As illustrated in Figure 1 only two asset classes, private equity and real estate, added to the relative performance of the diversified portfolio over the trailing 10-year period.⁵ On the other hand, both hedge funds and international equities (as well as the foreign currency exposure that accompanies each allocation) detracted from performance.

Evaluated over longer periods these results look very different. For example, we evaluated the performance of a broadly diversified portfolio over the preceding 10-year period and observed the opposite trend. During this period, the diversified portfolio solidly outperformed a 60/40 portfolio with both higher returns AND lower risk. Figure 2 shows the relative performance of a US 60/40 portfolio and a diversified portfolio over the last ten years and the 10-year period preceding it. We believe it is worth noting that the diversified portfolio had lower risk in *both* periods.

⁴ The 6.28% annualized return presented for the diversified portfolio in Figure 1 differs slightly from the return reported in Figure 2 due to rounding of the attribution amounts.

⁵ The effect of rebalancing also benefitted the diversified portfolio. While this makes sense intuitively given the introduction of additional diversifying asset classes, for this paper, we have not hypothesized on the extent to which we expect this to continue benefiting diversified portfolios in the future.

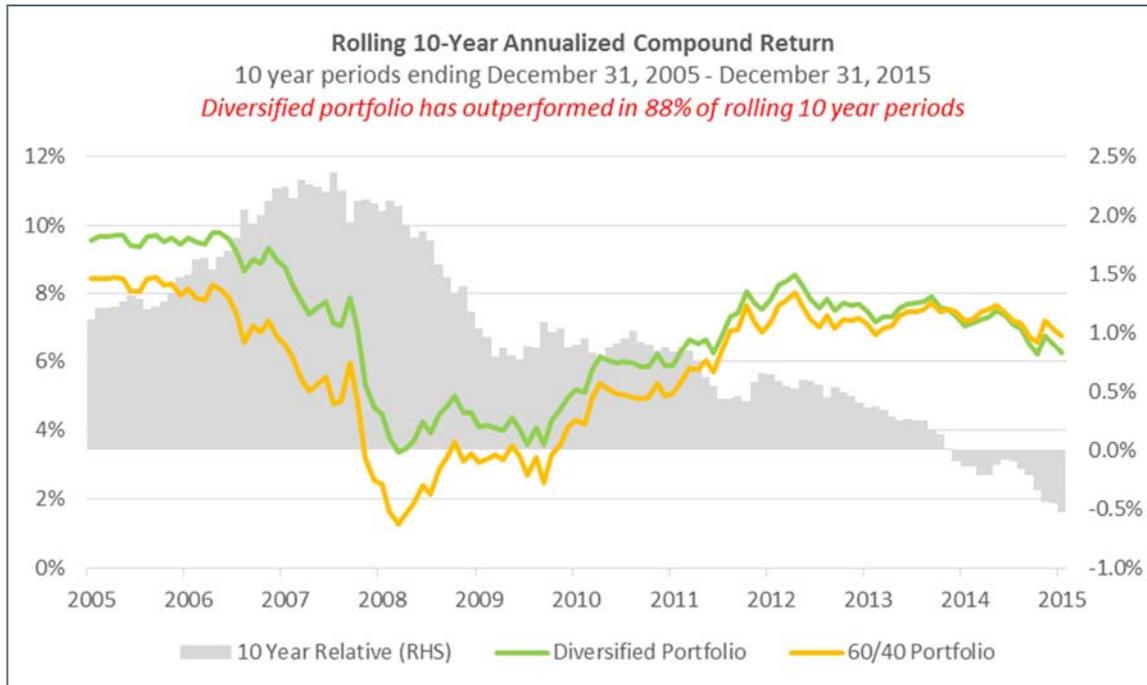
Figure 2: Comparative Performance of Diversified Portfolio vs. US 60/40 Portfolio
(January 1, 1995 – December 31, 2015)



Source: RVK, Inc. (2016)

Finally, it is also important to highlight the fact that even over the past 10 years, the outperformance of a US 60/40 portfolio purely on a return basis is a relatively recent phenomenon. [Figure 3](#) illustrates rolling 10-year periods of a US 60/40 portfolio and the sample diversified portfolio. The sample diversified portfolio significantly outperformed a US 60/40 portfolio over 88% of the trailing 10-year periods. It was only recently that this trend reversed.

**Figure 3: Rolling 10-Year Annualized Compound Net Return
(January 1, 1995 – December 31, 2015)**



Source: RVK, Inc. (2016)

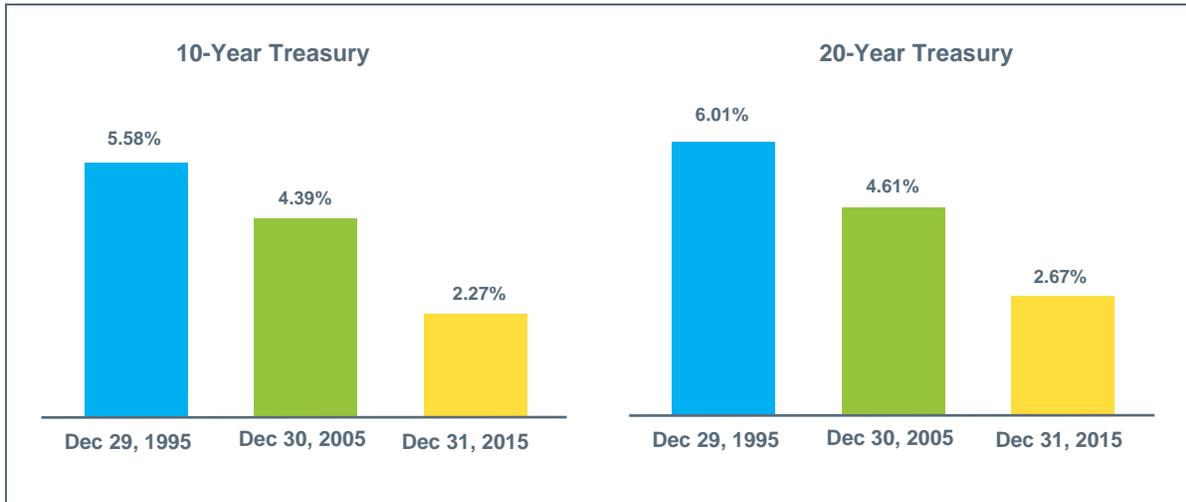
Drivers of Recent Underperformance of Diversified Portfolios

The most important point when considering the merits of diversification is that the future may differ substantially from the past. While the use of broad diversification has not added value over the previous 10-year period, there are many reasons to believe that the reverse will be true over the next 10 years. Part of our conviction stems from future expectations with regard to several of the factors that contributed most to the underperformance of diversified portfolios over the previous 10-year period. Each of these factors are explained on the following pages.

- 1. Current Interest Rate Levels** – Over the past 20 years, investors in a 60/40 portfolio have benefited substantially from declining interest rates, as the 40% fixed income allocation is considerably higher than the level of most diversified portfolios. [Figure 4](#) shows the yield on the 10- and 20-year Treasury as of the end of 2015 and the two preceding 10-year periods.⁶ The combination of higher income returns in earlier years and consistent price gains due to interest rate declines over the past 10 years were a tail wind for 60/40 portfolios. Unfortunately, the opposite is likely to occur in the future, as fixed income investors are starting with a much lower level of income yield, and are also likely to experience downward pricing pressure as interest rates rise in coming years.

⁶ Typically a 30-year treasury yield would be used to represent the longest duration treasury security. However, due to a disruption of issuance over the past 20 years, data was not available for the 2005 period. In order to provide complete data, the 20-year treasury was used as an alternative.

Figure 4: Historical Interest Rates for 10- and 20-Year Treasuries
(December 29, 1995 – December 31, 2015)



Source: US Treasury (2016)

2. **Expected Equity Return Premiums** – Over the trailing 10-year period, exposure to international developed equities and emerging market equities have detracted from the performance of our sample diversified portfolio. However, due in part to this performance drag, valuations for each of these segments have improved, while valuations for US equities have deteriorated. Recognizing this trend, RVK forecasts higher long-term returns for each of these sectors relative to US equity. Figure 5 below shows RVK’s compound return assumptions for various US equity and international equity asset classes.⁷

Figure 5: RVK Long Term Compound Annual Equity Return Expectations
(as of December 31, 2015)

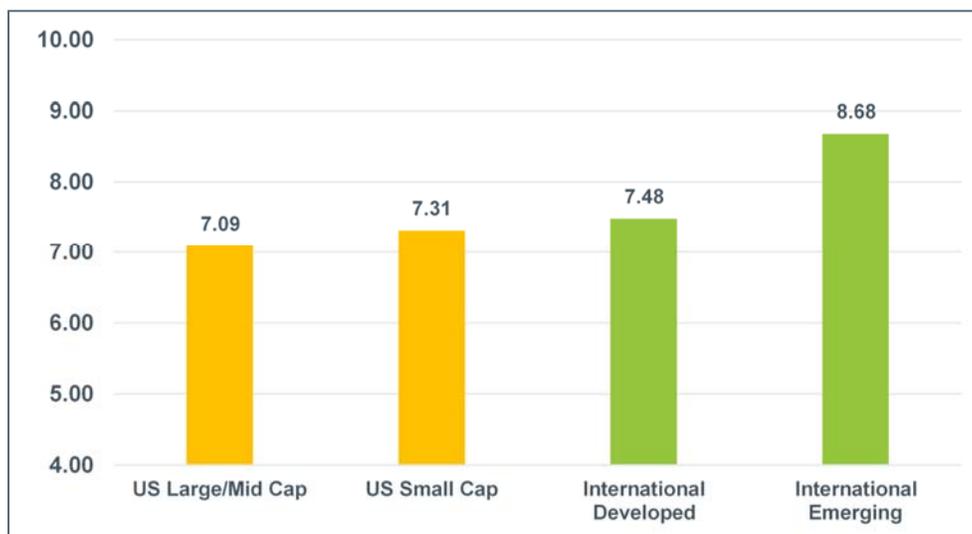


Source: RVK, Inc. (2016)

⁷ For additional data explaining the key drivers of expected return for each of these asset classes, please contact us for a copy of RVK’s annual Capital Markets Assumptions White Paper.

It is important to also note that RVK is not alone in our assumption. [Figure 6](#) shows the assumed compound return for international and US equity asset classes based on the average assumptions reported by 29 investment managers and consultants.⁸

**Figure 6: Average 20-Year Compound Annual Equity Return Expectations
(as of July 2015)**

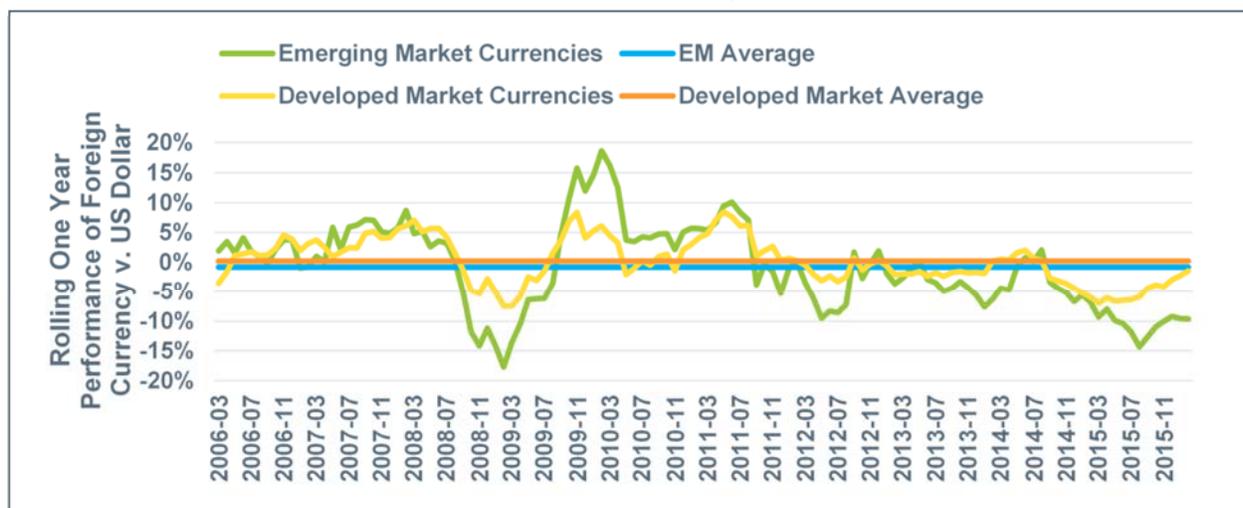


Source: Horizon Actuarial Services (July 2015)

- US Dollar versus Foreign Currencies** – Despite the fact that currency movements tend to have a negligible impact on US equities relative to foreign equities over long periods of time, the strength of the US dollar was a meaningful performance detractor over the prior 10 years. To illustrate this impact, [Figure 7](#) shows the rolling one-year performance of a basket of foreign developed currencies and emerging markets currencies versus the US dollar. The weightings in this index mirror the country weightings in the MSCI ACW World Ex-US Index and the MSCI Emerging Markets Index, respectively. The purpose is to show the impact of currency exposure taken by US dollar denominated investors when passively investing in international equities. Several important insights can be drawn from this analysis. First, developed and emerging market currencies have generated combined -9.6% return over the past one year relative to the US dollar. On the other hand, the long-term average return to foreign developed currencies has been close to zero (see the blue line, which represents the average one year return), while emerging market currencies have provided a negative return of nearly -1%.

⁸ This data was taken from an annual survey conducted by Horizon Actuarial Services. Horizon does not provide an expected return for broad US equity and broad international equity; however, given the fact that both international equity segments have a higher return expectation than the US equity segments, the expectation for broad international equity would be higher than US equity.

Figure 7: Developed and Emerging Market Currencies, Rolling One-Year Performance (March 1, 2006 – February 29, 2016)



Source: RVK, Inc. (2016)

Second, and perhaps most important, is the mean-reverting nature of foreign currency performance. For the past 18 months, the trailing one-year performance of developed and emerging market currencies has been negative but to a declining extent. Developed market foreign currency underperformance relative to the dollar has arisen due, in part, to global policy divergence, wherein interest rates in the US have remained higher than the rates in major developed markets. Considered in a simple framework, much of the US dollar appreciation is attributable to the fact that it has become inexpensive to borrow overseas and invest in higher-yielding dollar-denominated assets. In the future, however, should US and global central bank policies converge, US-based investors in foreign securities may experience a positive performance tailwind.

Emerging markets currencies, in contrast, have exhibited a relatively high correlation with emerging market equity local currency returns. This is not surprising, and is consistent with the theory that emerging market currencies offer investors compensation for risk. However, those who project strong relative performance of emerging markets economies often cite the improved competitiveness of export-led nations precisely due to weak currencies. As currencies weaken, exports become globally competitive, equity markets in export-driven economies see improvements in valuations due to increased earnings, and over longer periods, currencies appreciate toward equilibrium.

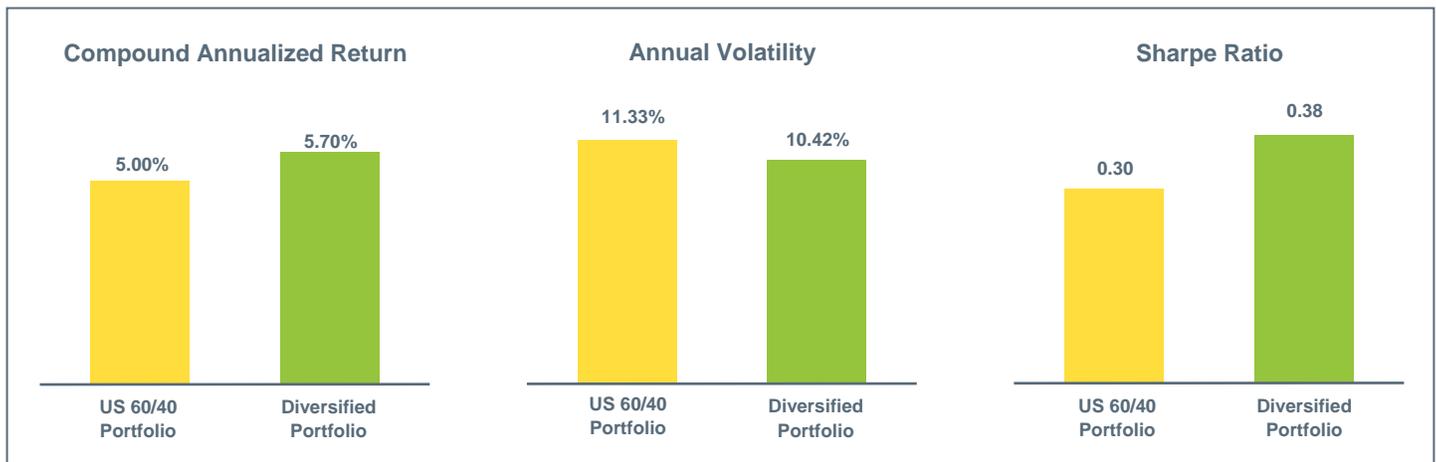
4. **Hedge Funds** – The prospective case for hedge funds is significant enough to justify a separate whitepaper. This point aside, an allocation to the HFN Fund of Funds Multi-Strategy Index would have detracted from a hypothetical diversified portfolio by approximately 43 basis points—more than any asset class under comparison in the illustration. To this we offer a few considerations:
 - a. Although the performance detraction over the past 10 years is the most significant in magnitude, it is also the most addressable through manager selection skill. This is due to the wide dispersion of strategies used by hedge funds and the wide resulting divergences in individual hedge fund performance. Therefore, despite the convenience to represent the space with a single index that measures a central tendency return, many hedge fund investors experience more attractive returns in the space.
 - b. The detraction is also a byproduct of strong US equity performance. Many hedge funds have reduced

volatility targets and intentionally target a low correlation to US equities. In a market environment marked by strong US equity outperformance, many would expect hedge funds—especially those with 50% less volatility than equities—to underperform despite providing an uncorrelated long-term source of return generation.

Future Prospects for 60/40 Appear Less Attractive

The last 10 years ending December 31, 2015 have not rewarded investors who have sought diversification beyond traditional US equity and fixed income. As illustrated above, key contributors were the tailwind for fixed income, as well as negative contributions from international equity, foreign currency exposure, and hedge funds. Despite recent underperformance, we have higher expectations for the future prospects of diversified portfolios. In fact, our current asset class return and risk assumptions forecast an outcome that differs dramatically from the past 10 years. **Figure 8** shows the expected compound return, volatility, and Sharpe ratio for a 60/40 portfolio versus the sample diversified portfolio. The analysis reveals that the diversified portfolio is expected to outperform on all metrics.

Figure 8: Expected Long-Term Return for US 60/40 versus Diversified Portfolio



Source: 2016 Capital Markets Assumptions. RVK, Inc. (2016)

The expected performance difference is primarily attributable to the weaker expectations for fixed income and US large cap equity. Expectations for fixed income are weak because of the historically low interest rates that serve as a starting point for fixed income investors, while expectations for large cap US equity are depressed by a high starting point for valuations (as represented by the Shiller PE ratio). As further evidence of muted return expectations for the US 60/40 portfolio, we ran a simple, separate analysis in which we forecast the expected 10-year return of a 60/40 portfolio based on the level of the Shiller P/E and intermediate term interest rates. Based on these results, which appear to be reasonably effective forecasting measures, the expected 10-year return of a US 60/40 portfolio was less than 4% -- considerably less attractive than our assumption in **Figure 8**.

In summary, there are many reasons to believe that the future prospects for a US 60/40 relative to a diversified portfolio are less attractive. Therefore, we strongly believe that a broadly diversified portfolio will reward investors over the long term both in terms of return generation and risk management.

Common Diversification Problems

For investors who share our conviction in the value of a broad diversification strategy, effective implementation is critical. In order to assist investors in this endeavor, we have outlined below several problems that investors commonly encounter when designing such strategies. These include: (1) failure to consider all levels of diversification, (2) insufficient use of diversification, and (3) excessive use of diversification.

Problem #1: Failure to Consider All Levels of Diversification

Optimal diversification requires thinking about strategy execution on several levels. Effective execution at one level does not equate to optimal diversification in aggregate. For example, a portfolio with effective thematic or asset class diversification may still face substantial risk if implementation is achieved with just a few investment managers, all of whom run concentrated portfolios. In this case, the investor remains potentially overexposed to idiosyncratic manager and security risks. Building on this example, when designing portfolios, we encourage investors to consider three core levels of diversification:

1. **Asset Class-Level Diversification** – Asset class (and thematic) diversification is the highest level of portfolio diversification, and the level with which most investors are familiar. While there is much debate as to what constitutes an asset class, commonly accepted categories include equities, fixed income, and real assets. These asset classes are often decomposed further into sub-categories, such as US equities, international equities, short duration fixed income, core real estate, and many others. Finally, many “alternative asset classes” are often considered, such as hedge funds, private equity, commodities, and global tactical asset allocation (GTAA). Regardless of how asset classes are defined, asset class exposures are widely regarded as the most significant driver of long term portfolio returns. According to Ibbotson and Kaplan, a policy’s allocation accounts for roughly 40% of the variance among fund returns.⁹ Given the significant impact of asset class exposures, it is critical for institutional investors to diversify broadly in a manner that is congruent with their unique investment objectives and constraints.
2. **Manager-Level Diversification** – Institutional investors usually implement an investment strategy by hiring one or more investment managers to invest funds on their behalf. Manager-level diversification refers to the number and diversity of managers selected by an institutional investor. When determining an optimal number of managers in a portfolio, investors must hire enough managers such that the potential impact of underperformance of any single manager is tolerable. On the other hand, investors must also avoid hiring too many managers, which can dilute the positive effects of active management and add unnecessary costs. Unfortunately, there is no universal formula for determining an optimal number of investment managers. The number varies by asset class, types of strategies employed, relative concentration of manager portfolios, risk tolerance of the investor, and many other factors that are unique to every investor. Therefore, in order to determine an optimal number, investors must evaluate many quantitative and qualitative factors, as well as apply prudent judgement.¹⁰
3. **Security-Level Diversification** – The final level of diversification occurs at the securities level. For institutional investors, security-level diversification is primarily delegated to investment managers. Investors hire managers for distinct mandates (e.g., US small cap equity), and the managers then invest funds in a diversified portfolio of securities. That said, it is important for investors to monitor whether managers implement their diversification

⁹ Ibbotson, Roger G. and Paul D. Kaplan, 2000. “Does Asset Allocation Policy Explain 40%, 90%, or 100% of Performance?” Financial Analysts Journal. January/February 2000, Vol.56, No.1, pp.26-33.

¹⁰ While it is impossible to address all of these issues in this paper, for additional information on determining optimal manager diversification, we encourage readers to review the May 2015 issue of Investment Perspectives, entitled “[Using Active Share to Evaluate Single and Multi Manager Portfolios.](#)”

strategies in a manner that is consistent with the mandate. In addition, investors must monitor security-level diversification in aggregate to ensure that diversification at the asset class and total portfolio level is optimal. For example, one common problem (particularly for large investors) is hiring too many managers. In such cases, each manager may be optimally diversified, but the portfolio simply mirrors an index fund in aggregate.¹¹

The next two problems fall under the categories of "insufficient" or "excessive" diversification. These problems can occur at the asset class, manager, or securities level, and they are typically discovered in an asset class review and/or manager structure review. Thus, the risk of these problems reinforces the need for regularly conducting asset allocation and manager structure reviews.

Problem #2: Insufficient Diversification

Specific issues that commonly occur under the umbrella of insufficient diversification include:

1. **Asset Class Gaps** – An optimal asset allocation strategy is one in which the attributes of the portfolio closely match the investor's objectives, risk tolerances, and constraints. To this end, before settling on a strategy, it is critical for investors to fully appreciate their unique attributes as an investor. However, even if these attributes are known, many investors fail to consider the full universe of investable asset classes and are thus left with "asset class gaps." As an example, some investors allocate their entire equity portfolio to US equity. While limiting allocation to a constrained set of asset classes may make sense in a limited number of circumstances, we find that many portfolios have superior performance expectations if including additional asset classes, such as foreign equities, non-core fixed income, real estate, and various alternative asset classes. In summary, while the occurrence of asset class gaps is ultimately client-specific, it is critical for investors to consider a broad range of investable asset classes and employ those that further their investment objectives.
2. **Unintended Asset Class Biases** – A less obvious problem occurs when investors allocate to overlapping asset classes, thereby establishing a level diversification that is below what they intended. An example may occur if investors establish a substantial allocation to hedge funds and equity. Depending on the specific managers employed, investors may discover that the actual holdings of the managers are similar. For example, if using long-biased, US-focused hedge funds, the investor may have more exposure to US equities than they assume. In this example, overlapping asset classes provide a false sense of security, and the investor may suffer drawdowns that exceed expectations in a bearish equity market.
3. **Unintended Intra-Asset Class Style Biases** – This issue occurs when investors allocate to one or more managers in a way that establishes unintended style biases. A simple example is a portfolio that establishes a US equity allocation using a single manager with a consistent large cap value bias. By failing to diversify by style and capitalization, the investor may believe they have broad exposure to an asset class, but are in fact concentrated in a much more narrow market segment.
4. **Excessive Manager Concentration** – At the manager level, the most obvious diversification problem is not hiring enough. As an example, an investor may fill an entire US equity allocation with a single active manager. While this could very well produce excellent results (if the manager outperforms), it also exposes the investor to a significant risk of underperformance in the event of adverse manager selection.

¹¹ Ibid.

- 5. Failure to Maintain Discipline in Dislocated Markets** – One of the benefits of establishing a well-diversified target allocation is that it forces investors to rebalance from high performing (and potentially overvalued asset classes) into low performing (and potentially undervalued asset classes). However, this creates an uncomfortable situation whereby the benefits of rebalancing are most pronounced when extreme market dislocations occur. As an example, during the financial crisis in 2008 and 2009, equity allocations in most investor portfolios fell far below target, while fixed income allocations rose well above target. While it may have appeared extremely risky at the time, investors that rebalanced from fixed income into equities were well rewarded during the subsequent 7-year bull market in equities. In short, maintaining a diversified portfolio requires fortitude in turbulent markets. Investors are facing a similar, albeit less dramatic situation in 2016, as several asset classes, such as emerging markets, high yield fixed income, and commodities, have suffered substantial losses over the trailing year.

Problem #3: Excessive Diversification

Investors often spend a disproportionate amount of time focused on broadening diversification in the portfolio. Therefore, it is important to also consider the risk of over diversification and the potentially harmful impact on performance. Listed below are a few examples that we encounter in which investors employ too much diversification.

- 1. Use of Non-Essential Asset Classes** – In an attempt to maximize diversification, investors may use asset classes that do not add value. One example could be an endowment with a long investment horizon, limited liquidity needs, and high tolerance for short term volatility. In this case, overuse of capital preservation-oriented investments, such as core fixed income, TIPS, and low volatility hedge funds, may be suboptimal.
- 2. Excessive Manager Diversification** – A second manifestation, which is especially common with larger investors, is the use of too many investment managers. While some level of manager diversification is usually desirable for investors, too many managers can impair returns by diluting value added by active management and adding additional fee drag. At its worst, excessive manager diversification produces portfolios that are index-like in aggregate but with active manager-level fees.

Solutions

There are multiple tactics that we commonly recommend to help investors identify potential diversification problems and implement solutions. While these tactics must be customized for each client, at a high level, we recommend the following three practices:

- 1. Regular Asset Allocation Reviews** – Investors should regularly revisit their long-term asset allocation strategy, including thematic considerations, to ensure optimal positioning. Although the optimal frequency of such reviews varies by institution, we generally recommend conducting an asset allocation review every one or two years. During this process, investors should begin by restating their key return objectives, risk tolerances, and investment constraints. After achieving consensus on objectives, investors should then consider a full array of potential asset classes that can help fulfill these objectives. Finally, investors should evaluate potential combinations of asset classes that provide the most attractive risk and return expectations within the stated constraints.
- 2. Periodic Manager Structure Studies** – After setting an asset allocation strategy, we also encourage investors to review the implementation of that strategy in the context of manager structure. When conducting a manager structure study, investors consider factors such as the number of managers, relative diversification of managers by style, and the aggregate active share in the portfolio. Done properly, a

manager structure study will identify and resolve asset allocation implementation flaws. Unlike a broad asset allocation strategy, however, the need for manager structure studies depends on the size and complexity of the portfolio. For example, small and simple allocations may not require a full structure analysis for most asset classes, while large and complex allocations may warrant annual reviews for all asset classes.

3. **Investment Policy Constraints** – Balancing the need for flexibility and specificity in an investment policy is a perennial challenge. Too many specifics can negatively impact performance (and increase monitoring costs), while too much ambiguity can produce unacceptable risks. While these conflicting objectives must be managed, incorporating some specific constraints to ensure optimal diversification can be helpful. Examples may include the establishment of asset class min/max ranges, limits on single security concentration, and limits on single manager concentration. While constraints inevitably vary by client, we encourage building investment policy constraints that foster disciplined diversification.

Conclusion

Diversification has been the cornerstone of institutional investment strategies for decades. Perhaps more so than ever before, the merits of broad diversification beyond US equity and fixed income have been called into question as investors pursuing such strategies have recently underperformed traditional US 60/40 portfolios. In this paper, we have detailed several of the key drivers of this underperformance, as well as reasons why we believe the future will not reflect the past. For those investors that continue to see the merits of broad diversification strategies, we have also outlined several common challenges related to the execution of diversification strategies, as well as potential solutions to the challenges. Our hope is that this paper helps restore what we believe is deserved confidence in the merits of broad diversification and helps investors execute effective diversification strategies. In order to assist in this regard, we conclude this paper with a quick diagnostic that investors can use to determine if there are issues related to diversification that they should consider. While an answer of "no" on any of these questions is not necessarily an indicator of a deficiency, we would encourage investors to evaluate whether taking action on the issue could be beneficial.

Figure 9: Diversification Diagnostic

Questions	Response
1. Do you re-evaluate your investment objectives and constraints at least every 2 years?	Yes No
2. Do you review your long term asset allocation strategy at least every 2 years?	Yes No
3. Do you consider asset classes in which you are not currently invested in asset allocation reviews?	Yes No
4. Do you conduct manager structure studies on select asset classes in your portfolio (as needed)?	Yes No
5. Do you include diversification-related guidelines in your Investment Policy?	Yes No
6. Do you have rebalancing guidelines in your investment policy?	Yes No

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