Memorandum

To	Ohio Retirement Study Council
From	RVK, Inc
Subject	Diversification Considerations
Date	October 12, 2017

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 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. After completing analysis of this issue, we were able to reaffirm our belief in the value of broad diversification strategies.[1]

Recent Underperformance of Diversified Portfolios

The US had entered the eighth 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.2 Over the past ten years, the diversified portfolio would have returned 5.70% per year, which trails the 6.70% annual return achieved by a 60/40 portfolio. Given the results it is important to understand why broad diversification has underperformed in recent years.

As illustrated in **Figure 1** only one asset class, private equity, added to the relative performance of the diversified portfolio over the trailing 10-year period.[3]

Figure 1: Comparative Performance of Diversified Portfolio vs. US 60/40 Portfolio (July 1, 2007 – June 30, 2017)

Sources: RVK, Inc., Morningstar, Bloomberg (2017)

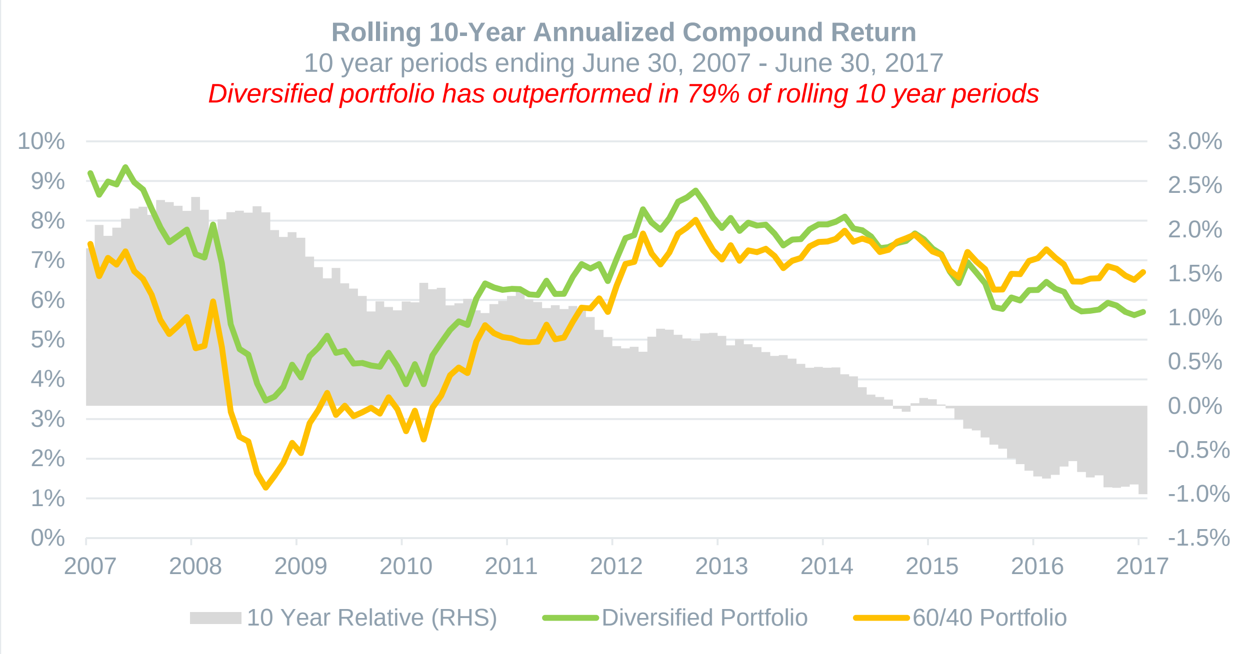
[1] By "broad diversification" we refer generally to strategies that include asset classes beyond US equity (as represented by the Russell 3000 Index) and fixed income (as represented by the Barclays US Aggregate Bond Index). Diversifying asset classes may include exposures, such as international developed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

[2] Hypothetical diversified portfolio is composed of 35% Russell 3000 index, 15% MSCI ACW ex-US index, 25% Bloomberg US Aggregate bond index, 10% NCREIF ODCE index, 10% HFN Fund of Funds Multi-Strategy index, and 5% Cambridge US Private Equity index. This portfolio may differ substantially from actual institutional portfolios depending upon the investment objectives and the relevant time periods. We tested dozens of potential portfolios in addition to this sample. While the specific results varied, the fundamental observation that diversified portfolios have lagged a US 60/40 portfolio over the prior 10 years remained consistent.

[3] The effect of rebalancing also benefitted the diversified portfolio. We have not hypothesized on the extent to which we expect this to continue benefiting diversified portfolios in the future.

It is important to note, the outperformance of a US 60/40 portfolio purely on a return basis is a relatively recent phenomenon. **Figure 2** 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 79% of the trailing 10-year periods. It was only recently that that this trend reversed.

Figure 2: Rolling Return of Diversified Portfolio vs. US 60/40 Portfolio



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.

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. The combination of higher income returns 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.

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.

3. **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. 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.

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 55 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 June 30, 2017 have not rewarded investors who have sought diversification beyond traditional US equity and fixed income. Despite recent underperformance, we have higher expectations for the future prospects of diversified portfolios. 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).