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Diversification: Often Discussed, but Frequently Misunderstood

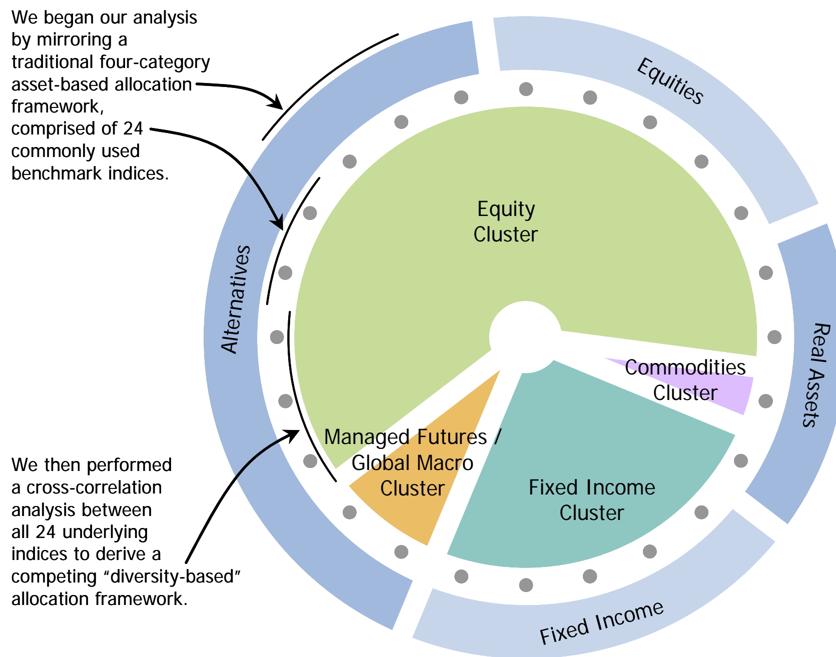
Diversification remains the cornerstone of modern portfolio theory. Yet, during the financial crisis many "diversifying" investments readily followed the direction of the equity markets as they collapsed in 2008 and 2009. This lesson forced investors to revisit their longest-standing beliefs about asset allocation, leading many to suspect that their allocation frameworks needed refining. Our analysis suggests they're right.

The following illustration reveals that traditional asset class-based allocation frameworks may be clouding investors' ability to clearly see the true underlying diversity relationships among their investments.

Our diversity-based allocation framework derived here provides an alternative viewpoint for investors seeking a model grounded in the pursuit of diversity-based portfolio construction.

*See **Figure 2** on page 3 for complete analysis.

Figure 1: Traditional Asset Class-Based Allocation Framework vs. a Diversity-Based Allocation Framework
(Jan 1999 – Jun 2010)



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Getting Back to Basics with Diversification and Allocation Frameworks

Diversification Remains the Core Tenet of Portfolio Theory

Modern Portfolio Theory (MPT) prescribes that investment portfolios are best constructed when they combine a wide variety of unrelated, return generating investments. This diversity minimizes overall portfolio risk, guards against excessively large drawdowns during times of stress, and increases the likelihood that the investor will be able to compound their way to long-term wealth accumulation.

Allocation Frameworks Should Illuminate Investment Diversity

Assuming that most investors adhere to the basic tenets of MPT, the practical utility of any allocation framework lies in its ability to help investors design well-diversified portfolios. To accomplish this, a framework should aggregate like-kind investments into a handful of categories (e.g., equities, real assets, fixed income, and alternatives), and each category's performance should be attributable to its own distinct set of return drivers and risk sources. If so, then the performance correlation between these categories will naturally be low, and each category will diversify the other. Armed with this understanding, investors can then begin developing MPT-optimizing portfolios by diversifying among their framework's investment categories.

Do Prevailing Allocation Frameworks Accurately Portray Investment Diversity? Let's See.

To answer this question, we developed a representative asset class-based allocation framework, like those used by pension consultants and wealth advisors. Drawing on the guidance of industry experts and our own research, we developed a four-category model consisting of equities, real assets, fixed income and alternatives. We then populated this framework with 24 commonly used indices to serve as performance benchmarks.

To assess diversity among these investments, we then performed a cross-correlation analysis between all 24 indices going back as far as the data would permit. This gave us correlation results based on a decade's worth of comparative data spanning 2-1/2 business cycles.[1]

This exercise yielded two distinctly different allocation frameworks: one, asset class-based (i.e., the traditional, or terminology-based model), and a second that was derived from actual investment performance behavior which we'll call the "diversity-based" model. These results appear in **Figure 2** on page 3.

[1] National Bureau of Economic Research. http://www.nber.org/cycles/cyclesmain.html.

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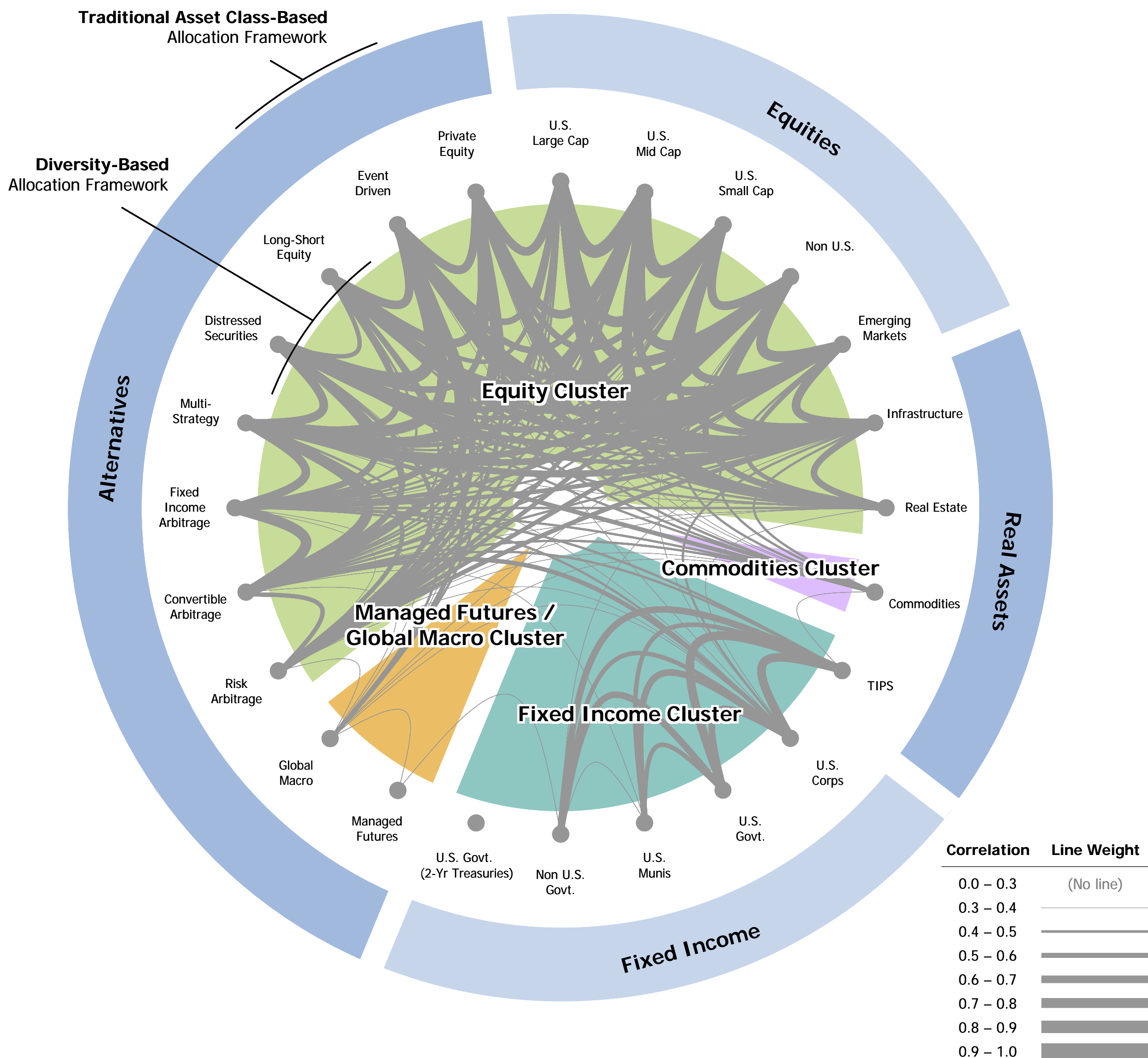
Figure 2: Traditional Asset Class-Based Allocation Framework vs. a Diversity-Based Allocation Framework [2]

(Jan 1999 – Jun 2010)



Correlation	Line Weight
0.0 – 0.3	(No line)
0.3 – 0.4	
0.4 – 0.5	
0.5 – 0.6	
0.6 – 0.7	
0.7 – 0.8	
0.8 – 0.9	
0.9 – 1.0	

[2] See Endnotes on page 11 for a complete list of indices analyzed.

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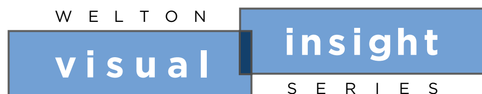

The Emergence of a Practical, Diversity-Based Allocation Framework

The key outcome from this exercise is that a new allocation framework emerges that is derived exclusively from the actual performance behavior of benchmark investments – not legacy naming conventions. While many narratives can be drawn from these results, we will highlight just a few of the larger points here.

Four Performance Clusters Emerge

The investment indices examined generally converge into four correlation clusters, and these clusters frequently do not conform to the traditional asset class-based boundaries investors use today. The performance convergence between investments toward a singular systemic root cause is certainly not a new concept. Equity Beta, for example, explains the systemic performance component of many investments. Of course, there are other sources of investment return, and so our observations that other investments likewise converge into their own distinct correlation clusters is not surprising. (In fact, these phenomena are sometimes referred to as “alternative Betas” by those who accept this emerging term).

Many Investments Are Highly Correlated with Equities

15 of the 24 indices examined (62%) share a high correlation to traditional passive equities, depicted as the green shaded region in **Figure 2**. This includes eight of ten alternative strategies examined, plus real estate and infrastructure. Interestingly, private equity shares a high .78 correlation to U.S. large caps. This should come as little surprise since both investments are fueled by the same underlying return drivers, and yet, prevailing asset class-based allocation taxonomies still classify private equity as an “alternative.” Why?

Prevailing Investment Terminology Is Inadequate, Particularly Regarding “Alternatives”

Alternatives. Hedge Funds. Absolute Return. All are commonly used terms to describe investments that fall outside of the traditional equity- and fixed income-centric landscape. This is unfortunate, because as this analysis reveals the vague catch-all nature of these terms is a disservice to investors trying to understand the utility of these strategies in constructing diversified portfolios.

For example, many investors reasonably assume that the term *alternative* suggests that these investments’ performance is, well… alternative. Surely these investments *hedge* one’s equity exposure, right? Unfortunately as this analysis reveals, eight of the ten alternative indices studied here share a strong relationship to passive equities.

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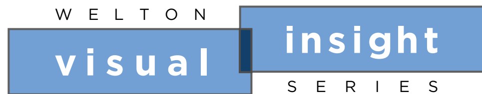

Identification of a Distinct Diversification Source – Managed Futures / Global Macro

Two of the most diversifying investments studied were Managed Futures (aka, Systematic Global Macro, or CTAs) and Global Macro. Both strategies employ a highly diverse set strategies, their practitioners seek out opportunities across all of the major global markets, and their performance is reliant upon harnessing capital flows between and within all of the major asset classes. Consequently, their performance signature is unique compared to investments reliant on a narrower set of return drivers, but occasionally similar to each other.

Although both are two of the oldest alternative investment strategies in existence, we expect this diversification source is likely the least familiar to many investors. This is changing. As we have done here, growing numbers of investors, wealth advisors and pension consultants have also performed their own bottoms-up diversification analyses to refine their allocation frameworks. When they do, managed futures and global macro routinely stand out for their unique performance traits. Consequently, over the coming years both strategies will become increasingly familiar and prevalent within investors' allocation frameworks.

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Applying the Diversity-Based Allocation Framework: Posing the Key Questions

It is worth clarifying that diversification knowledge alone is not sufficient for a truly well-reasoned investment allocation decision. However, MPT would suggest it is a logical starting-point for any portfolio construction exercise, and so we'll embark on a sample application of our learnings from **Figure 2** here.

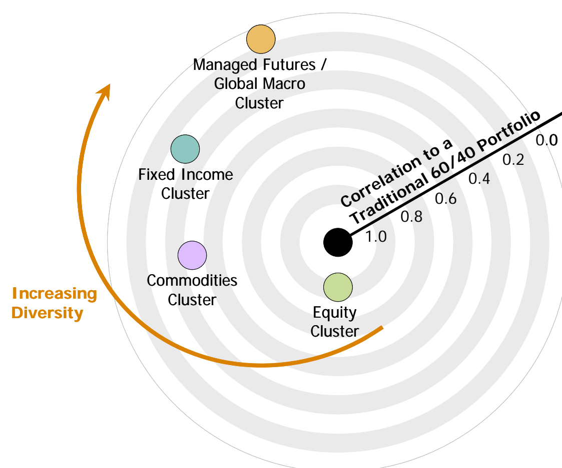
For purposes of illustration, we'll assume the perspective of a U.S. investor with a traditional 60/40 equity/ fixed income portfolio. From this investor's perspective, **which investment clusters offer the most relative diversification potential?** These results appear in **Figure 3**.

Based on these correlation relationships, the next logical question for our hypothetical investor would be **in what proportion should they invest among these four available clusters?** These results appear in **Figure 4**.

The following illustration plots the correlation between the four investment clusters identified in **Figure 2** to a traditional 60/40 equity/ fixed income portfolio.

Figure 3: Relative Diversification Benefit from the Perspective of a Traditional 60/40 Investor

(Jan 1999 – June 2010)



Past performance is not necessarily indicative of future results.

Because Managed Futures/ Global Macro is the most diversifying investment among the four identified, it would garner the largest share of the investor's diversification investment, while equity-related investments would garner the least given their high correlation to the investor's existing portfolio.

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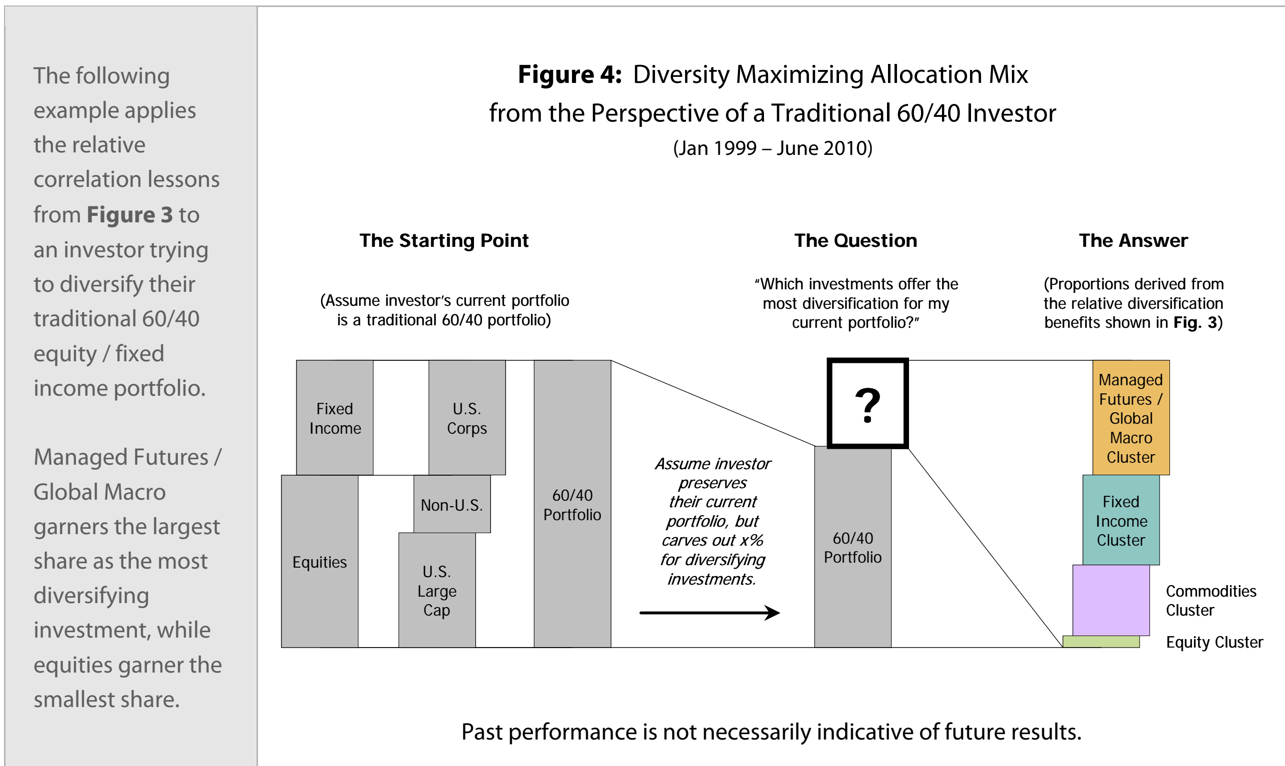

Figure 4: Diversity Maximizing Allocation Mix from the Perspective of a Traditional 60/40 Investor (Jan 1999 – June 2010)

Two Likely Insights into One's Own Portfolio

The diversity-based allocation framework derived in **Figure 2** can serve at least two actionable purposes. First, it enables investors to scrutinize their existing portfolios to see how truly diversified they are today. Second, it enables investors to more critically assess future investments for their true diversification potential.

For those investors willing to entertain this perspective, there are at least two insights we believe many investors will identify.

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Equity Beta Is Probably More Prevalent Than You Thought

Many investments are classified as diversifiers, when they simply are not. **Figure 2** reveals that 15 of the 24 indices examined, spanning three of the four traditional allocation framework categories, move in concert with passive equities. While it is true that the performance magnitude of these investments will vary (and sometimes significantly), the character of their movements is highly related, and so these investments will predictably prosper, and suffer, at the same times.

Performance Optimization in "Diversification" Clothing

Often investments are selected because one believes they are poised for outsized gains. While return potential is certainly a valid consideration, performance also has a natural tendency to muddle the diversification discussion. This is unfortunate, because as our analysis highlights investors are best served when they maintain a balanced understanding of not only return potential, but also the underlying source and behavior of the return sought.

Equity Example

Consider the ever-present debate among experts counseling investors to move from large cap equities to small caps, or into emerging markets, or expanding into private equity. On the surface, such discussions appear to be the discourse of diversification, but they are not. Refer simply to **Figure 2** to see how highly interrelated all of these investments are to each other. Rather, these are tactical discussions focused on optimizing one's returns from the same underlying return drivers. As such, these are not diversification discussions because no truly new sources of return are being considered.

Of course, tactical performance optimization is a valid and important consideration. For example, in the case of equities, these assessments can significantly improve an investor's equity-based return experience, particularly when one considers the full palate of choices available. (In other words, one should optimize their equity-based return experience by evaluating all 15 indices within the green region in **Figure 2**, and not limit their analysis to just passive long-only equity indices. Hint: analysis will show that passive long-only equities fair poorly on a risk-adjusted return basis when compared against equity-based alternatives).

The most common danger with mistaking performance optimization for diversification occurs when investors are drawn into a cycle of refining their equity-based returns exclusively. While these investors think they are

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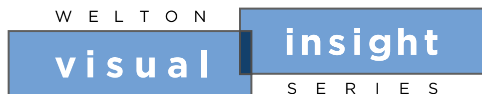

practicing prudent diversification, they may be unwittingly neglecting the pursuit of truly unique sources of return outside the familiar equity-based realm.

Hedge Fund Example

Hedge funds are widely regarded as "alternatives" by many, and so they are frequently perceived as diversifiers to an investor's broader equity holdings. During the financial collapse of 2008 and 2009, therefore, many hedge fund investors were surprised to find their hedge fund investments suffering along with the broader equity markets.

So what happened? Did hedge funds fail? No. While it's true that hedge funds lost money during the financial crisis, this was also an anticipatable outcome by those investors who understood the sources of return behind these strategies. Unfortunately, those investors disappointed by hedge fund performance were likely misled by the implications of legacy terminology like "alternatives" – a misunderstanding that might be mitigated by the type of diversity-based allocation framework derived here.

For example, as shown in **Figure 2**, most hedge fund strategies are closely related to passive equities. Investors familiar with these relationships knew hedge funds were not necessarily good diversifiers, as much as they were more efficient tactics for harnessing the same underlying equity Beta return drivers. For example, even though most hedge funds share a high correlation to the broad equity markets, they have historically delivered roughly equity-equivalent returns, yet with about half the volatility and drawdown.

As proposed here, informed investors reflected this understanding in their portfolio construction. These investors frequently reduced their passive equity exposure and replaced it with hedge fund exposure. This enabled them to maintain the same levels of aggregate equity risk, but with improved equity-related return expectations. These investors incorporated a balanced understanding of both diversification among their investments, and return optimization around the same underlying equity-based performance drivers, and their portfolios outperformed as a result. During the worst of the financial crisis passive equity indices suffered drawdowns of 35-40%, while hedge fund drawdowns were roughly half as severe.

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Conclusion

The primary value of any framework, whether in investing, the sciences, or business, lies in its ability to accurately model underlying truths. As investors discovered following the lessons of the current financial crisis, asset class-based allocation frameworks and legacy terminology failed many investors seeking guidance in constructing well-diversified investment portfolios. In their place, we suggest that a diversity-based allocation framework such as the one derived here is more useful because it classifies like-kind investments based on common underlying sources of return and risk.

A second test of any framework lies in its ability to predict the future. Here too, we believe the insights illuminated within **Figure 2** help to explain developing changes in investor behavior, and shifts within the investment industry that will unfold for years to follow. Consider the following:

Diversification sources are rare	↓	The financial collapse of 2008 and 2009 caused many investors to suspect that truly diversifying investments were more scarce than they previously believed. The correlation relationships depicted in **Figure 2** confirm that this is indeed true, as many investments correlate highly with equities.
Attractiveness of passive equities vs. alternatives	↓↑	In recognition of the tail risk[3] associated with passive equity holdings, institutional investors are increasingly reducing their passive equity holdings and increasing their exposure to alternatives.
Availability of alternatives-based products	↑	Demand for alternatives-based products that are either non-correlated or more efficient in their performance delivery are among the fastest growing segments of the U.S. mutual fund and European UCITS industries today, and are predicted to grow exponentially.
Growth of Managed Futures	↑	Managed Futures distinguishes itself as the most diversifying of the 24 indices studied here, and was recently proclaimed to be the largest hedge fund strategy by investment size due to increasing investor awareness and demand.[4]

[3] Welton Visual Insight Series: "Tail Risk: About 5x Worse Than You Think." August 2010. https://www.welton.com/resources/wss_view/tailrisk.

[4] "Managed Futures Surpasses All Other Hedge Fund Investment Strategies in Assets Under Management During Second Quarter of 2010," BarclayHedge, October 5, 2010. http://www.barclayhedge.com/research/press_releases/PR_Oct_5_2010.html.

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Endnotes

Welton's correlation analysis referenced in **Figures 1 - 4** was performed using monthly index data spanning the +10-year period from January 1999 to June 2010. Private Equity was analyzed on a quarterly basis due to unavailability of a monthly benchmark. Data sources included PerTrac and Bloomberg. Specific indices included the following:

Equities	
U.S. Large Cap	S&P 500 Index
U.S. Mid Cap	S&P Midcap 400 Index
U.S. Small Cap	S&P Small Cap 600 Index
Non U.S.	MSCI AC World Index Free ex USA Value
Emerging Markets	MSCI EMF (Emerging Markets Free)
Real Assets	
Infrastructure	S&P Global Infrastructure TR Index (12/01 – 6/10)
	UBS Global Infrastructure & Utilities 50-50 TR Index (1/99 – 11/01)
Real Estate	FTSE EPRA/NAREIT U.S. Index
Commodities	Dow Jones - UBS Commodity Index
Fixed Income	
TIPS	Citigroup U.S. Inflation-Linked Securities Index
U.S. Corps	Merrill Lynch Corporate Master Bond Index
U.S. Govt	Barclays Government Bond Index
U.S. Munis	Barclays Municipal Bond Index
Non U.S. Govt	Citi World Government Bond Index
U.S. Govt. (2-Yr Treasuries)	U.S. 2-Year Treasuries (TCMNOMY2)
Alternatives	
Private Equity	Cambridge Associates LLC U.S. Private Equity Index
Event Driven	Dow Jones Credit Suisse HFI Event Driven
Long-Short Equity	Dow Jones Credit Suisse HFI Long-Short Equity
Distressed Securities	Dow Jones Credit Suisse HFI Event Driven -Distressed
Multi-Strategy	Dow Jones Credit Suisse HFI Multi-Strategy
Fixed Income Arbitrage	Dow Jones Credit Suisse HFI Fixed Income Arbitrage
Convertible Arbitrage	Dow Jones Credit Suisse HFI Convertible Arbitrage
Risk Arbitrage	Dow Jones Credit Suisse HFI Event Driven - Risk Arbitrage
Global Macro	Dow Jones Credit Suisse HFI Global Macro
Managed Futures	Dow Jones Credit Suisse HFI Managed Futures

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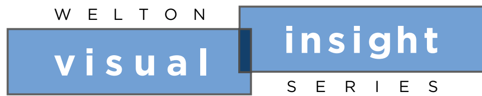

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