Aon Hewitt
Retirement & Investment

Public Funds Can Still Compete

July 2017

Empower Results®

Key Points

- In past findings, public funds struggled to outperform endowments and foundations (E&Fs), as reported in our paper titled "Can Public Funds Compete?" dated Winter 2003/2004[1].
- In a study conducted in 2011, we confirmed that public funds can compete with returns above E&Fs[2].
- An update on this study through 2016 concluded that public funds have continued to outperform E&Fs on average by 100 basis points over the last five years ending December 31, 2016.
- Public funds had larger allocations to public equities—namely U.S. equities versus E&Fs, which has contributed to outperformance.
- Public funds' preference for private equity versus hedge fund exposure helped boost relative returns.
- Public funds typically have a cost advantage given their size (economies of scale).

Past Studies

Our original 2003 research[1] indicated that public funds underperformed E&Fs. In an update with data through 2011[2], a reversal occurred where public funds outperformed E&Fs, as shown below. We compared public funds to E&Fs given that, while they are very different in many areas, they are very similar in their total return approach to investing.

Exhibit 1

	Annualized Return (Net of Fees)[3]		
Fund Type	**1987–2002[4] (16 Years)**	**1995–2002[4] (8 Years)**	**2003–2011[5] (9 Years)**
Public Funds	8.63%	8.38%	6.55%
E&Fs	9.17%	8.91%	6.38%
Difference (Public Funds Minus E&Fs)	–0.54%	–0.53%	0.17%

Past Performance is no guarantee of future results.

During the 2003–2011 time period, performance of both investor types can be separated into public fund underperformance from 2003 through 2007, representing a relatively calm market environment, and outperformance during the more volatile period from 2008 through 2011. The conclusions from these studies indicated that relative performance was driven by three factors: asset allocation, asset class structure, and investment expenses. Similar factors also influenced relative performance for public funds versus E&Fs for the period from January 1, 2012, through December 31, 2016, which we evaluate in the following section.

[1] Richard M. Ennis, "Can Public Funds Compete?," *The Journal of Investment Consulting* (Vol. 6, No. 2, Winter 2003/2004)
[2] Sudhakar Attaluri and Mike Sebastian, "Research Note: Public Funds Can Compete," June 2012. We excluded corporate funds from this discussion as their framework for investing has changed significantly with the passage of the Pension Protection Act of 2006 (PPA).
[3] Net of investment management fees – does not include investment advisor fees
[4] Russell/Mellon Analytical Services
[5] Source: The Bank of New York Mellon (Performance & Risk Analytics Trust Universe); Net Returns used in the analysis are net of average fees reported by Greenwich Associates for the respective fund types

2012–2016 Update

We updated the prior studies with data through December 31, 2016. For this most recent analysis, we used a larger universe of data from PARis, a robust third party performance reporting program and universe generator from Investment Metrics that provides access to approximately 400 public funds and 300 E&Fs. We also conducted this most recent update gross of fees, instead of our preferred net-of-fees approach, as there is no longer a data source that provides total plan fees for a universe of public funds or E&Fs. However, we see no reason to believe that the cost advantage that existed in prior studies for public funds over E&Fs has changed.

The updated results in Exhibit 2 show the continued annualized outperformance of public funds versus E&Fs with public funds outperforming over the trailing five-year period ending December 31, 2016, by 1.00%, gross of fees. It is also worth noting that this return, albeit only over a five-year period, has outperformed the current average public fund actuarial assumed rate of return of 7.5%.[6] As was the case in the prior study, relative performance was driven by two factors: a) asset allocation (i.e., greater public market versus alternative strategy exposure), and b) asset class structure (higher private equity versus hedge fund exposure). While this data reflects gross of fee returns, we also believe public funds' investment expenses remain lower.

Exhibit 2[7]

Annualized Return (Gross of Fees)	**2012–2016 (5 Years)**
Public Funds	8.47%
E&Fs	7.47%
Difference (Public Funds Minus E&Fs)	+1.00%

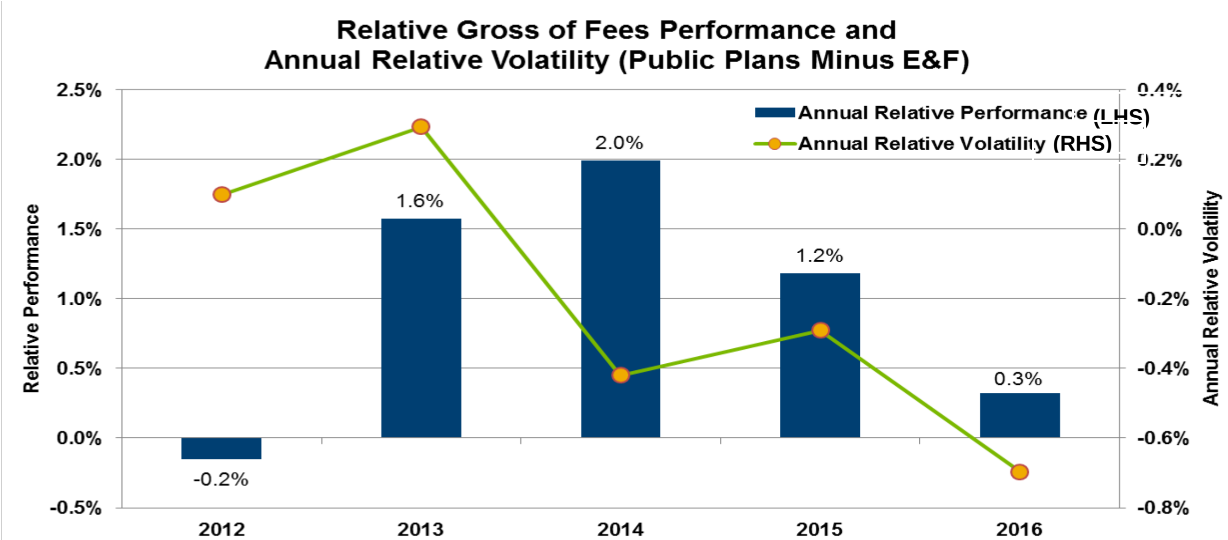
Past Performance is no guarantee of future results.

Public funds have not only outperformed E&Fs, but have achieved that outperformance at a lower level of volatility. The standard deviation over this period for the average public fund was 5.9%, and the standard deviation of the average E&F was 6.1%. This is surprising given public funds' general reliance on public equities; however, public funds have also consistently held a higher allocation to lower-risk fixed income than E&Fs, which has helped dampen volatility.

Exhibit 3 provides calendar-year comparisons of returns and risk for public funds versus E&Fs. Public funds have outperformed E&Fs for four out of the last five years with lower volatility in 2014, 2015, and 2016.

[6] Source: NASRA Issue Brief: Public Pension Plan Investment Return Assumptions Updated February 2017
[7] Source: Aon Hewitt/PARis, a performance reporting program and universe generator from Investment Metrics representing approximately 400 public funds and 300 E&Fs.

Exhibit 3: Relative Gross Performance and Annual Relative Volatility (Public Funds Minus E&Fs)[4]

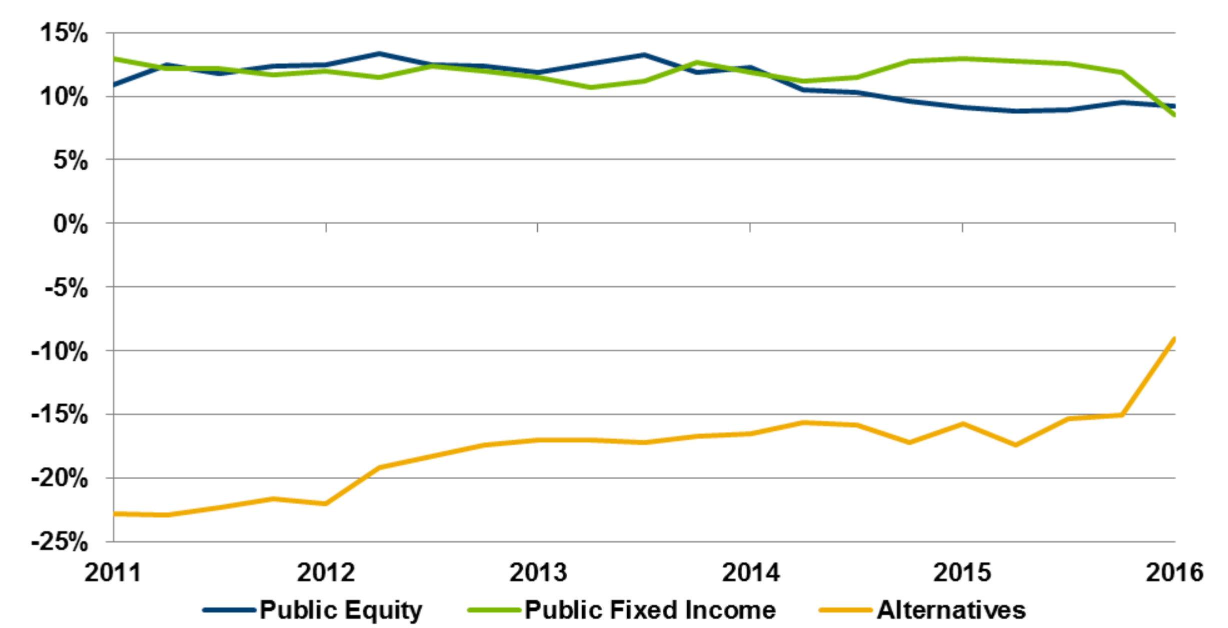


Past Performance is no guarantee of future results.

Asset Allocation

As in the prior study, public funds continued to have a relatively higher allocation to public equities and a corresponding lower allocation to alternatives (private equity and hedge funds). This has benefited public fund performance over the past five years given the strong returns in public equities during this period.

Exhibit 4: Percentage Point Differences in Asset Allocation (Public Fund Allocations Minus E&Fs)[8]



[8] Source: Aon Hewitt/PARis, a performance reporting program and universe generator from Investment Metrics representing approximately 400 public funds and 300 E&Fs.

Within their public equity allocations, public funds also have had a bias toward U.S. equities over the last five years. The typical E&F portfolio, based on the universe described above, had 28% allocated to U.S. equities versus public funds at 44%. This has contributed to the outperformance of public funds over the last five years and over the last eight years. U.S. equities exhibited strong relative outperformance versus all major asset categories as shown in Exhibit 5. U.S. equities have returned 17.8% since the end of the credit crisis, while international equities 10.0%, and U.S. fixed income 4.2%.

Exhibit 5: Annualized Performance of Market Indices

Index	Description	2012 Through 2016	Since End of Financial Crisis (3/2009 – 12/2016)
S&P 500 Index	U.S. Large Cap Equity	14.7%	17.8%
MSCI EAFE Index (Net)	Developed International Equities	6.5%	10.0%
MSCI ACWI ex USA Index (Net)	Developed & Emerging International Equities	5.0%	9.9%
Bloomberg Barclays U.S. Aggregate	U.S. Core Fixed Income	2.2%	4.2%
HFRI Fund Weighted Composite	Hedge Funds	4.5%	6.0%
Citigroup World Government Bond Index (WGBI)	Global Bonds	–1.0%	2.1%
NCREIF ODCE Index (Net)	Core Real Estate	11.2%	7.2%

Past Performance is no guarantee of future results. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect any fees or expenses. Investors cannot directly invest in an index. Please see the Appendix for the list of benchmarks and their definitions.

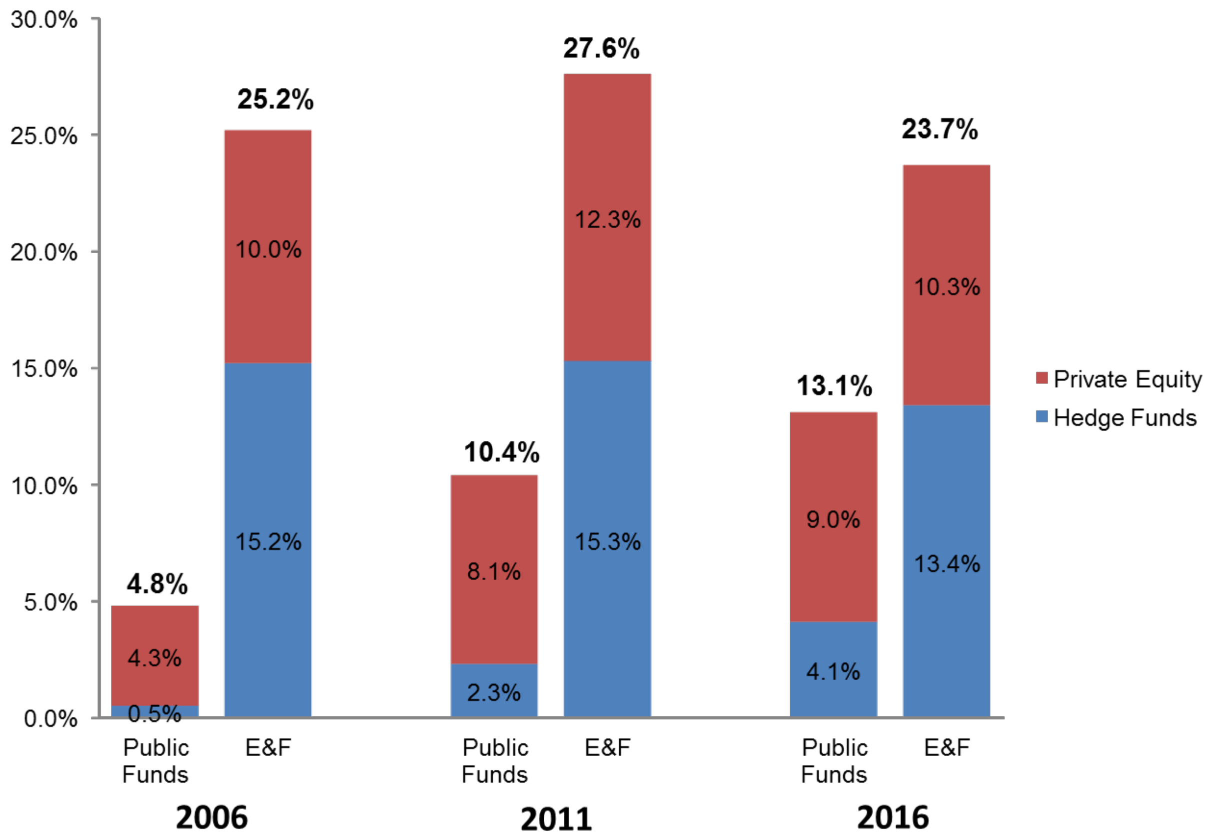
Asset Class Structure

As noted previously, E&Fs historically have had a substantial portion of their investment programs allocated to alternatives, and this allocation differs significantly from public funds. Another source for survey data, Greenwich Associates[9], indicates that while public funds have experienced an increase in allocations to hedge funds and private equity over the past 10 years, the overall allocations are still significantly lower than those of E&Fs. The aggregate allocation to hedge funds and private equity for public funds was 4.8% in 2006, 10.4% in 2011, and 13.1% in 2016. The survey indicates E&Fs' allocation to these two alternative asset categories was 25.2% in 2006, 27.6% in 2011, and 23.7% in 2016.

Exhibit 6 provides additional insight into the structure of the alternatives allocations for public funds and E&Fs. The survey indicates that public funds favor private equity versus hedge funds, whereas E&Fs allocate a greater percentage of their total alternatives allocation to hedge funds. The outperformance of private equity versus hedge funds has continued, with the Burgiss Global Private Equity Index outperforming the HFRI Fund Weighted Composite Index by an annualized 7.7% from September 30, 2011, through September 30, 2016.

[9] Greenwich Associates is a global provider of market intelligence and survey data. Each year they produce a survey report entitled "Greenwich Market Trends – Market Trends" that provides survey information across a range of categories and market segments within the institutional investment market. When we reference Greenwich Associates in this paper, the annual Market Trends survey is where we have sourced our data.

Exhibit 6[10]



We recognize that the next five years may not look the same as the last five years with U.S. equity and private equity dominating investment returns. In fact, we may enter a period where non-U.S. equity enjoys stronger returns and hedge funds produce more alpha than other active strategies. We still believe that public funds will be able to compete even if the future market environment looks different. It is worth noting that public funds continue to assess their public equity allocations in light of market valuations and areas for future growth, and are rigorously evaluating their allocations to hedge funds, real estate, private equity and other areas of the private market to ensure they are positioned for future success.

Investment Expenses

We see no reason to believe that the cost advantage that existed in prior studies for public funds over E&Fs has changed. Historically the average fees for public funds were approximately 31 basis points less than E&Fs (45 bps average for public funds vs. 76 bps for E&Fs)[11]. Due to the relatively larger size of public funds versus E&F, this public fund cost advantage will continue to exist and public funds will continue to aggressively negotiate fees.

[10] Source: Greenwich Market Trends 2006, 2011, 2016
[11] Greenwich Associates

Looking to the Future

Looking in the rearview mirror is important, but we would be remiss if we did not think about how public funds can remain competitive in the future. In general, institutional investment programs have a number of investment tools that allow them to invest their assets successfully in challenging markets to continue to generate strong returns at reasonable levels of risk. As a group, public funds are not missing out. Given their size, investment expertise, time horizon, and governance structure, many of these tools will be appropriate to pursue to remain competitive. However, this is not one size fits all, and it is imperative that public funds critically evaluate and identify their unique competitive advantages given their individual circumstances when determining which tools to use.

While many of these competitive advantages and investment tools are also available, and used by other institutional investors such as E&Fs, there are a few areas where we have seen public funds make significant progress. The first relates to governance structure. Many public funds in recent years have specifically evaluated and made changes to their governance structure to ensure that investment teams have levels of delegation that allow the funds to be more nimble and opportunistic. Along similar lines, we have seen public funds create broader asset classes or add opportunity allocations that allow the funds to take advantage of short-term market dislocations or invest in strategies that may not have historically fit into a traditional asset allocation.

Below we identify and define five tools that public funds can, and are using to navigate the current market:

- **Careful and thoughtful allocation of the active risk budget.** Public funds should take active risk only when risk tolerance exists among key stakeholders, and risk should be taken only in investment strategies and asset classes where there is high conviction of being able to earn alpha.
- **Diversification.** Diversification is a long-held tenet of investing. However, in today's environment, we expand the definition to mean not just asset class diversification, but also diversification across risk premiums, individual investment strategies (in one asset class or an opportunistic bucket), vehicle structures, and lockup time frames.
- **Short-term market dislocations.** Taking advantage of short-term market dislocations requires a public fund to be able to move quickly, to have an asset allocation that allows the inclusion of investment strategies that may not fit nicely into traditional asset class buckets, and to have the required level of expertise to identify opportunities.
- **Medium-term views.** Have one- to three-year views of capital markets and use these views when rebalancing, generating cash to pay contributions, investing contributions, or in some cases, tilting the portfolio.
- **Illiquidity premium.** There are strong returns available to long-term investors like public funds who can afford to act as providers of liquidity rather than demanders.

A critical guide for public funds to select the **right** tools for their circumstances is to focus on the fund's competitive advantages. There are five key areas where competitive advantages tend to exist for public funds:

- **Governance structure.** This component speaks to the level of delegation the board has given to the investment team to make investment decisions. In general, the more delegation to the investment team, the higher the speed of execution and implementation, and the greater the ability to be more opportunistic.

- **Investment team resources and expertise.** We have observed that many funds have unique internal expertise in a particular investment function or area, or the ability to hire specific asset class or strategy expertise. Funds should maximize their use of this internal expertise. However, there is also an abundance of external resources, and a public fund should assess where that gives them an additional advantage in terms of new asset classes, access to compelling private market strategies, and specialized expertise.
- **Board or committee expertise.** While we certainly recognize that public fund board members have varying levels of investment expertise, some boards do have individuals with specialized investment expertise. In addition, some boards have a separate investment committee or a sub-set of the board that is comprised solely of investment experts. Having investment expertise or access to a particular area of the capital markets can create a unique investment advantage. Public funds should evaluate and take advantage of this edge, if it exists.
- **Fund size.** There are competitive advantages for both small and large funds. Larger funds have the ability to build strategic partnerships with asset managers, which brings a breadth of expertise and investment ideas to the fund. Larger funds also easily meet minimums for alternative investment strategies and are typically able to gain access to the top funds in each universe, thereby increasing alpha potential. Smaller funds have the ability to access niche funds that may be more opportunistic and nimble in a particular market with a higher potential for alpha.
- **Time horizon.** Public funds typically have long time horizons, which allows for higher levels of active risk and the ability to take illiquidity risk. This is a distinct advantage in this market environment where the best returns are typically accessed through markets and vehicles that offer lower liquidity. While most public funds have long time horizons, it is critically important, when evaluating the appropriate level of liquidity, to consider current and projected funded status and net cash flow, the fund's expected contributions, demographic projections, and key stakeholder tolerance for illiquidity.

Once a public fund identifies its unique competitive advantages, these findings then inform the investment tools that are most appropriate to consider. The following table provides a guide for connecting a fund's competitive advantages with the right tools:

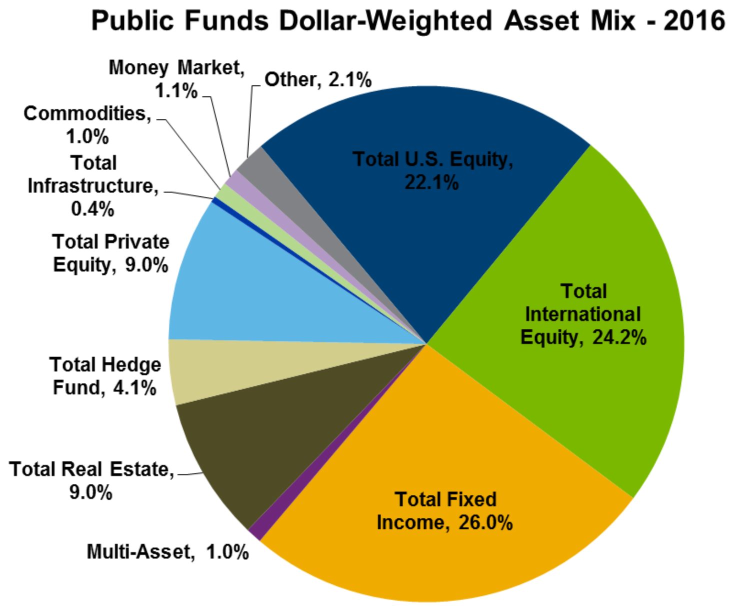
Competitive Advantage	Description	Corresponding Investment Tools
Governance structure	Higher level of board delegation increases speed of execution and ability to be opportunistic	Diversification, short-term market dislocations, medium-term views
Investment team resources and expertise	Special expertise in a particular asset class or strategy – informs where to look for alpha or when/how to take advantage of short-term opportunities	Informs where to take active risk, diversification, short-term market dislocations, medium-term views
Board or committee expertise	Take advantage when board or committee member has expertise or special access – allocate active risk to this area	Informs where to take active risk
Fund size	Large: strategic partnerships, access Small: access to niche, nimble, smaller sized opportunities	Large: Diversification, illiquidity premium Small: Informs where to take active risk, illiquidity premium
Time horizon	Longer time horizons allow for more active risk taking and illiquidity	Illiquidity premium

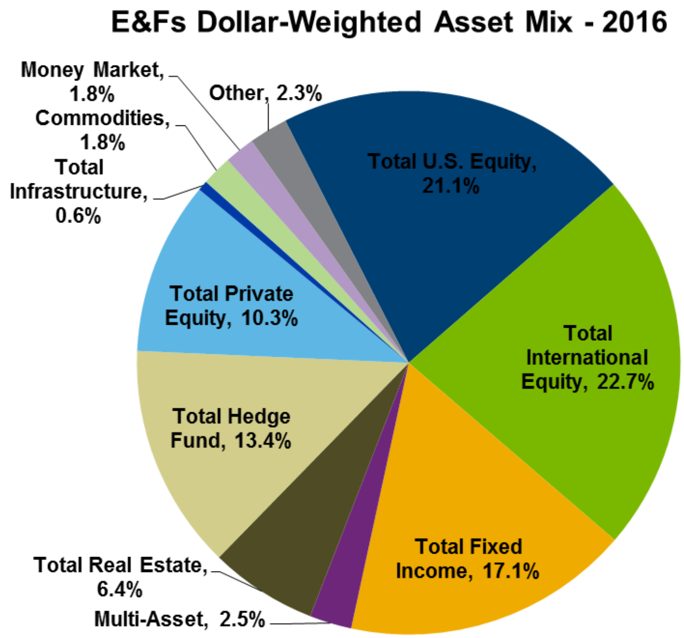
Conclusion

Public funds **can** compete. And they will **continue** to compete with other institutional investment programs like endowments and foundations. Public funds have unique, competitive advantages that enable them to use different tools for navigating a difficult, complex, and challenging future market environment.

Appendix – Asset Allocation Comparison

As of December 31, 2016[12]





[12] Greenwich Market Trends 2016

Appendix – Benchmark Definitions

S&P 500 Stock Index – A capitalization weighted index representing stocks chosen by Standard & Poor's, Inc. for their size, liquidity, stability and industry group representation. The companies in the S&P 500 Index are generally among the largest in their industries.

MSCI EAFE Index – A capitalization-weighted index of stocks representing 22 developed countries in Europe, Australia, Asia, and the Far East.

MSCI ACWI (All Country World) ex-U.S. Index – A capitalization-weighted index consisting of 23 developed and 21 emerging countries, but excluding the U.S.

Bloomberg Barclays Capital Aggregate Bond Index – This index is the broadest representation of the investment grade U.S. bond market. It includes allocations to U.S. Government bonds, investment grade corporate bonds and mortgage- and asset-backed securities.

HFRI Fund Weighted Composite Index – The HFRI Fund Weighted Composite Index is a global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of $50 Million under management or a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.

Citigroup WGBI – A market capitalization weighted bond index consisting of the government bond markets of the multiple countries. The index includes all fixed-rate bonds with remaining maturity of one year or longer and with amounts outstanding of at least $25 million.

NCREIF ODCE Index – A capitalization-weighted index of investment-grade income-producing properties.

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