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## ***2014 Active Management Review***

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## Executive Summary

The following observations provide a summary of several key findings from this year's review of active management. The analysis was conducted across various manager universes, including a review of how the underlying market environment can impact manager performance.

- U.S. equity manager universes had a disappointing year in 2014, particularly in the Large Core, Small Core and Small Value segments. (Exhibit 19)
- U.S. large cap stocks outperformed small caps in 2014. Active equity managers tend to build portfolios that are much more equal weighted than cap weighted. Thus, when large caps outperform small caps, active equity managers tend to underperform, as a group. (Exhibit 4)
- Value stocks continued to underperform growth in 2014 and have underperformed over the 3, 5, and 10-year time periods. Managers with a value style tilt would face a headwind during such environments. (Exhibit 6)
- Higher quality companies outperformed lower quality companies in 2014. As many active managers tend to emphasize quality, this factor exposure should have provided a positive contribution to relative universe performance. (Exhibit 8)
- Lower volatility stocks outperformed higher volatility stocks in 2014. Active managers with a bias towards lower volatility companies were likely to benefit from this environment, reversing the recent trend from 2012 and 2013. (Exhibit 11)
- Non-U.S. equity universes posted strong results in 2014, particularly in the Developed ex-U.S. Small Cap and Emerging Markets segments. However, Global Equity managers – a universe new to this year's report - produced disappointing results. (Exhibit 19)
- Emerging markets stocks outperformed developed markets, providing a backwind to international managers with persistent tilts towards the emerging markets. (Exhibit 13)
- The strong U.S. Dollar rally in 2014 provided a boost to managers who employed currency hedging strategies. (Exhibit 15)
- There is very little evidence of manager consistency through time, with most universes only revealing consistency levels comparable to what would be produced from a random outcome. (Pages 65 and 66)

## Introduction

The purpose of this paper is to provide a review of active management in traditional asset classes. The report is intended to serve as a resource document for reference when conducting manager searches and contemplating the role of active management within various areas of the capital markets. As such, it is constructed to be heavy on statistical information with some brief commentary to make specific observations. This is the fifth annual installment of the report, whose structure we expect will continue to evolve through time. In this year's report we have added a segment reviewing Global Equity manager performance. As always, we welcome your feedback and suggestions in increasing the report's value to your organization.

The Wilshire Compass<sup>SM</sup> analytical tool was utilized as the primary resource engine for generating manager universe statistics included in the paper. Wilshire Compass is an investment technology system with capabilities in asset allocation, investment structure, as well as manager and total fund evaluation. Wilshire does not charge any fee, direct or indirect, for manager participation in our database. As of December 2014, the Wilshire Investment Database covers over 10,000 separate account products for which data are obtained directly from investment managers who fill out Wilshire's quantitative and qualitative questionnaires on a regular basis. Wilshire has a dedicated operations team that works directly with managers to assist in ensuring the timeliness and quality of manager-supplied information.

Unless otherwise stated, all returns used throughout the analysis reflect gross-of-fee performance, so the results will overstate actual realized returns. However the use of gross-of-fee returns allows for a more direct comparison of performance across investment products within a specific universe. As with any study conducted on a database populated by investment managers, it is subject to familiar biases such as survivorship bias, backfill bias and misclassification of strategies. While we believe it can be instructive to analyze the contents of our database, the reader should be aware of the possible biases in this study.

With the exception of the US REITS and Developed Non-US Small Cap Equity segments, all manager universes used in this paper are Wilshire Defined Universes<sup>1</sup>, which represent manager segmentations constructed from returns-based and holdings-based style analysis. The methodology for Wilshire Defined Universe construction is included in the appendix. In the case of US REITS and Developed Non-US Small Cap Equities, which do not have preset Wilshire Defined Universes, customized database filters were utilized to populate the respective universes.

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<sup>1</sup> Two additional filters were applied to the manager universes used in this study: 1) exclude passive strategies, 2) exclude strategies that identify their returns as being net-of-fees.

The layout of the paper begins with a study of systematic returns and the underlying factors driving market returns over the last ten years. We then shift to a review of active management results in US Equity style segments, Non-US Equity, Emerging Markets Equity, US REITs, Core Fixed Income and High Yield Fixed Income.

## Market Environment

It is difficult to glean an accurate perspective of the performance of active management without a clear understanding of the underlying market environment. Most active strategies, even those driven by bottom-up, security specific processes, carry some persistent exposure to one or more systematic factors of the market. In this section we leave aside statistics that measure active management and, instead, focus on the general market environment, the relative behavior of various market segments and the underlying currents of certain systematic market factors. We hope to present a high level perspective of important market drivers during the one, three, five and ten-year time periods that can be applied to reaching a better understanding of individual manager performance during these intervals.

The table below shows the performance of major market indexes from 2010 to 2014 in a heat map display. Market returns are sorted in descending order from the highest to the lowest asset class return. The columns to the right represent the five and ten-year annualized returns as of December 2014.

**Exhibit 1**  
**Calendar Year-End, Five and Ten-Year Market Returns**

2010	2011	2012	2013	2014	2010-2014	2005-2014
REITs 28.6%	U.S. TIPS 13.6%	Emrg Mkts 18.6%	U.S. Equity 33.1%	REITs 31.8%	REITs 17.3%	Emrg Mkts 8.8%
Emrg Mkts 19.2%	REITs 9.2%	Developed 17.9%	Developed 23.3%	U.S. Equity 12.7%	U.S. Equity 15.5%	REITs 8.3%
U.S. Equity 17.2%	Core Bond 7.8%	REITs 17.6%	High Yield 7.4%	Core Bond 6.0%	High Yield 9.0%	U.S. Equity 8.0%
Commodities 16.8%	High Yield 5.0%	U.S. Equity 16.1%	REITs 1.9%	U.S. TIPS 3.6%	Developed 5.8%	High Yield 7.7%
High Yield 15.1%	U.S. Equity 1.0%	High Yield 15.8%	T-Bills 0.1%	High Yield 2.5%	Core Bond 4.4%	Developed 4.9%
Developed 8.2%	T-Bills 0.1%	U.S. TIPS 7.0%	Core Bond -2.0%	T-Bills 0.0%	U.S. TIPS 4.1%	Core Bond 4.7%
Core Bond 6.5%	Developed -11.7%	Core Bond 4.2%	Emrg Mkts -2.3%	Emrg Mkts -1.8%	Emrg Mkts 2.1%	U.S. TIPS 4.4%
U.S. TIPS 6.3%	Commodities -13.3%	T-Bills 0.1%	U.S. TIPS -8.6%	Developed -4.5%	T-Bills 0.1%	T-Bills 1.5%
T-Bills 0.1%	Emrg Mkts -18.2%	Commodities -1.0%	Commodities -9.5%	Commodities -17.0%	Commodities -5.5%	Commodities -1.9%

Source: Wilshire Compass

It is evident from Exhibit 1 above that, REITs, US Equities, and yield oriented higher quality assets outpaced emerging markets, developed equities, and commodities in 2014. Over the 10 year period from 2005 to 2014, stocks, REITs and high yield bonds outperformed investment grade bonds and commodities.

In Exhibit 2 below, we continue with a comparison of periodic returns for various indicative market indexes, including a comparison of related index pairs.

**Exhibit 2**  
**Systematic Market/Factor Returns (Annualized)**  
**As of 12/31/2014**

Index	One Year	Three Years	Five Years	Ten Years
Wilshire US Large Cap	13.46%	20.23%	15.39%	7.87%
Wilshire US Small Cap	6.81%	20.81%	17.04%	9.51%
Large minus Small	6.65%	-0.58%	-1.65%	-1.64%
Wilshire US 2500 Value	12.63%	19.23%	15.41%	7.24%
Wilshire US 2500 Growth	12.92%	21.47%	15.70%	8.76%
Value minus Growth	-0.29%	-2.24%	-0.30%	-1.52%
MSCI Emerging Markets (\$ Net)	-2.19%	4.03%	1.77%	8.42%
MSCI EAFE (\$ Net)	-4.89%	11.06%	5.34%	4.43%
Emerging minus Developed	2.70%	-7.03%	-3.56%	3.99%
MSCI ACWI-X US (LC Net)	6.05%	13.99%	6.97%	6.12%
MSCI ACWI-X US (\$ Net)	-3.87%	9.00%	4.43%	5.13%
Local minus USD	9.93%	5.00%	2.54%	0.99%
Barclays Capital US High Yield	2.46%	8.43%	9.03%	7.74%
Barclays Capital US Aggregate	5.95%	2.66%	4.45%	4.71%
High Yield minus Core	-3.49%	5.77%	4.58%	3.03%

Source: Wilshire Compass

For each index pair in the table above (i.e. Large vs. Small, Value vs. Growth, etc.), we provide a summary row to highlight the arithmetic difference between index returns. This orientation of the data can be quite helpful in identifying areas of large relative performance differences and how these patterns may have created a headwind or tailwind for individual active strategies with tilts into or away from a particular market segment. For example, notice the 6.65%, -0.58%, -1.65% and -1.64% relative returns highlighted in the top panel that correspond, respectively, to the one, three, five and ten-year return differences between the Wilshire US Large-Cap Index<sup>SM</sup> and the Wilshire US Small-Cap Index<sup>SM</sup>. This demonstrates that large capitalization stocks significantly outperformed small cap stocks during the most recent one year period, but still under-performed during the three, five and ten year periods. This suggests that managers carrying a consistent relative bias towards smaller companies would have experienced a headwind versus their benchmark and/or peers in 2014, but still experienced a tailwind in the three, five and ten year periods. We will take a deeper dive into the performance of specific market factors in the remainder of this section.

## US Equity: Size

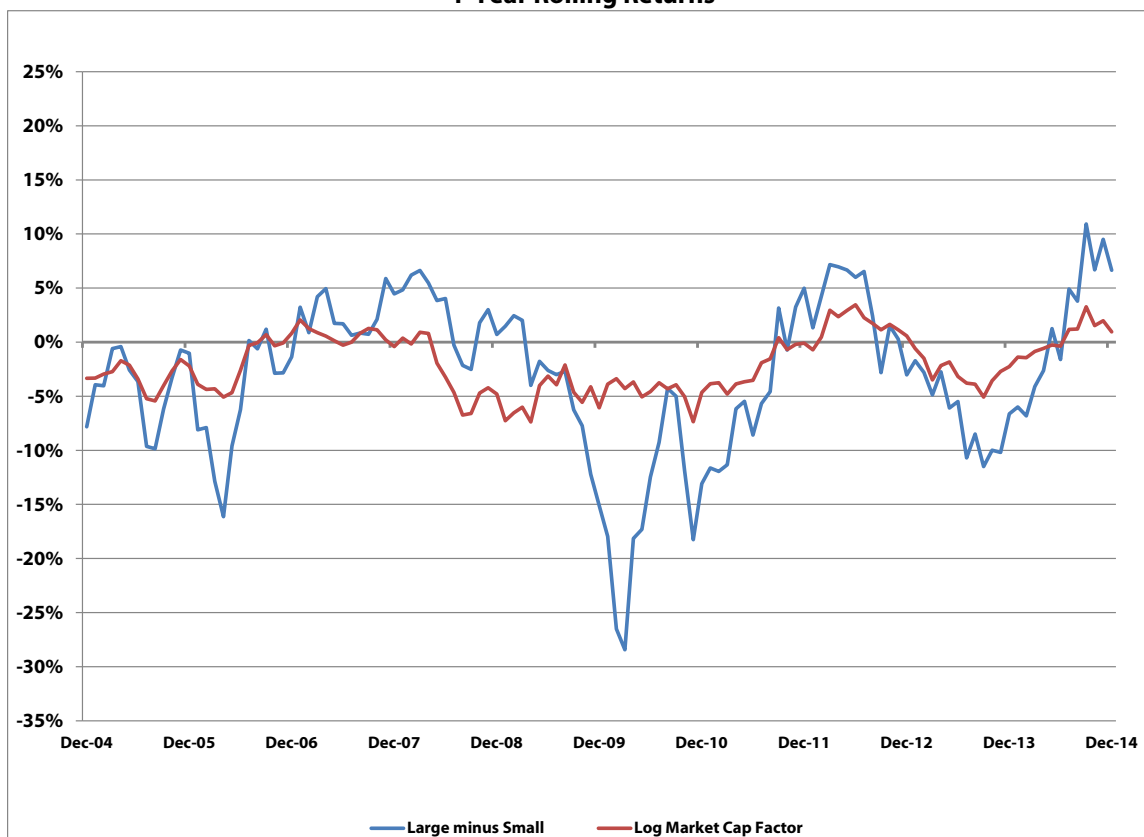
The relative behavior of stocks of various capitalization sizes is a key market dynamic that can influence the performance of some active strategies in a material way. On the next page, we review the size factor during various time periods from two different angles. First, as we did in the previous table, we simply contrast the returns of large cap stocks to smaller stocks through a direct comparison of the Wilshire US Large Cap Index vs. the Wilshire US Small Cap Index. The blue line in the chart below reflects this relative performance on a one-year rolling basis, rising when large cap stocks outperformed smaller stocks and falling when they lag. The red line in the exhibit displays the Log Market Cap factor from the Wilshire GR6 Equity Risk Model<sup>SM</sup>. The underlying factor returns of the risk model are derived from a multi-factor regression of security returns against a variety of factors and, therefore, reflect the net impact of capitalization differences among securities' behavior outside of what is explained by other model factors.<sup>2</sup> The Log Market Cap factor's impact on relative portfolio performance would depend on the portfolio's net exposure versus its benchmark. For perspective on the scaling magnitude of the Log Market Cap factor, at the end of December 2014, the net exposure of the Wilshire US Large-Cap Index relative to the Wilshire US Small-Cap Index was 1.98, suggesting that a Log Market Cap factor return of 1.00% would contribute 1.98% to relative index performance.

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<sup>2</sup> The Wilshire GR6 Equity Risk Model includes six fundamental factors (Log Market Cap, BP Ratio, EP Ratio, Volatility, Momentum, Historic Beta) and industry classification.



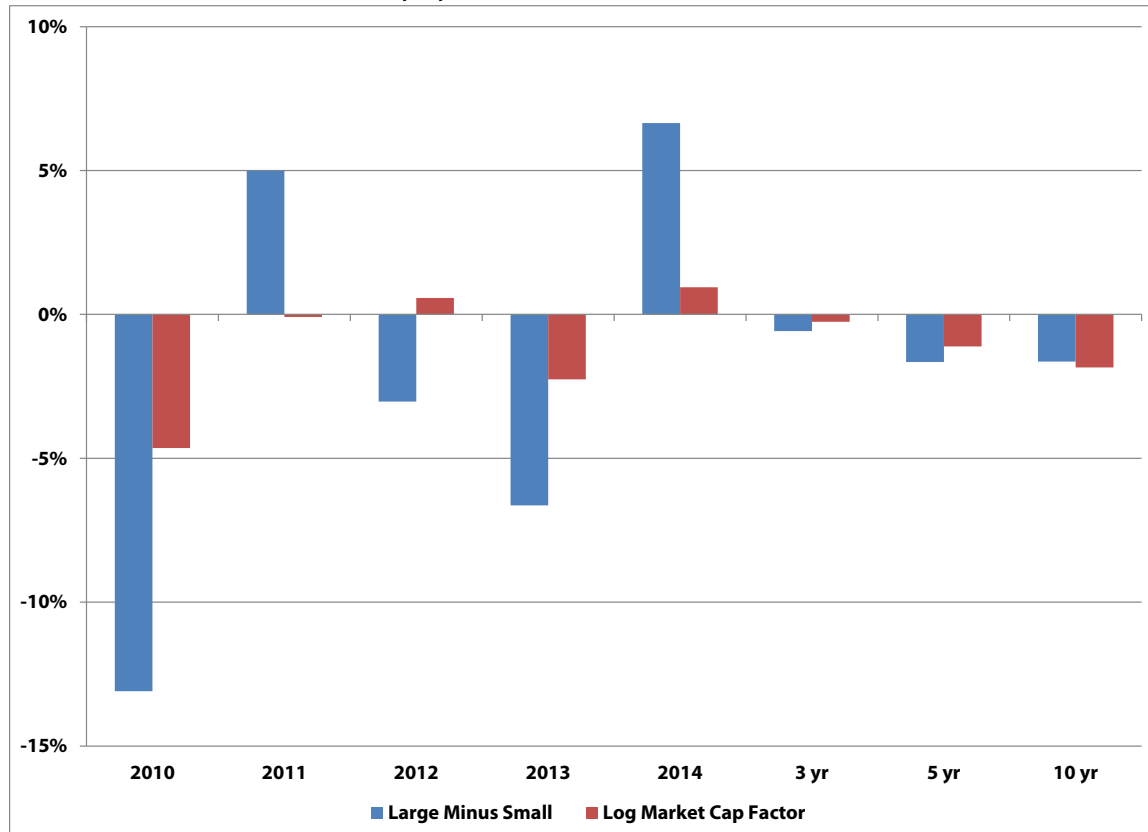
**Exhibit 3**  
**US Equity: Size Factor**  
**1-Year Rolling Returns**



Source: Wilshire Compass and Wilshire Atlas

In the following exhibit, we show the two size measures during the three, five and ten-year intervals reviewed earlier for active performance as well as the individual annual returns over the past five years.

**Exhibit 4**  
**US Equity: Size Factor**  
**3-, 5-, 10-Years and Annual Returns**



Source: Wilshire Compass and Wilshire Atlas

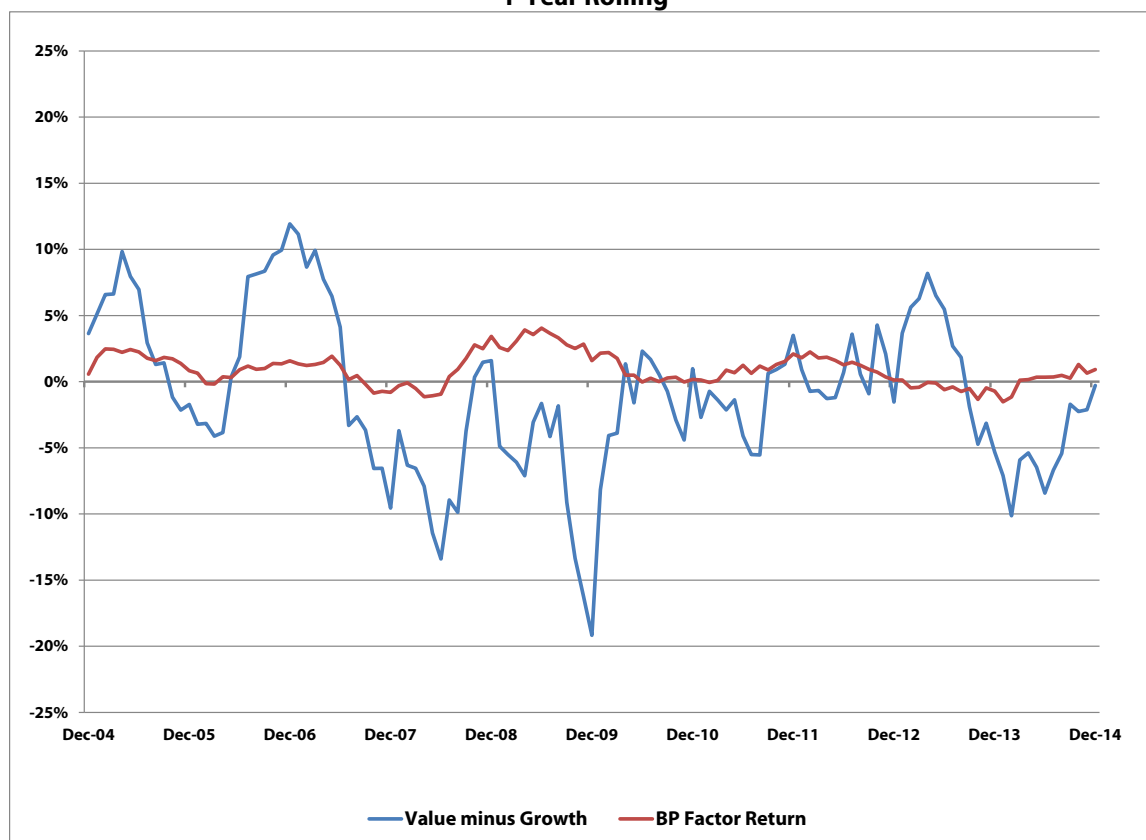
As can be seen in the chart above, both measures of performance by size demonstrate the relative performance edge of smaller stocks over the three, five and ten-year periods. Small cap stocks outperformed large cap stocks during 2012 and 2013, however that trend reversed in 2014 as large cap stocks outperformed small cap stocks by a notable 6.65%. During the longer three, five and ten-year periods, a tilt toward smaller cap stocks would have contributed positively to relative performance.

## US Equity: Style

Various style factors can have an important impact on the relative behavior of stocks. As we presented above for the size factor, we examine the behavior of the style factor during various time periods from the same two perspectives; directly from index returns and with components from the Wilshire GR6 Equity Risk Model. The blue line in the chart below reflects the relative performance of the Wilshire 2500 Value Index<sup>SM</sup> versus the Wilshire 2500 Growth Index<sup>SM</sup> on a one-year rolling basis, rising when value

stocks outperformed growth stocks and falling when they lag. Second, we review the book-to-price (BP) factor, a fundamental ratio that plays a key role in the index methodologies of various index providers when separating stocks between "growth" and "value." The red line in the exhibit displays the BP factor from the Wilshire GR6 US Equity Risk Model. As with the Log Market Cap factor, the BP factor's impact on relative portfolio performance would depend on a portfolio's net exposure versus its benchmark. For perspective on the scaling magnitude of the BP factor, at the end of December 2014, the net exposure of the Wilshire US 2500 Value Index relative to the Wilshire US 2500 Growth Index was 0.51 suggesting that a BP factor return of 1.00% would contribute 0.51% to relative index performance.

**Exhibit 5**  
**US Equity: Style Factor**  
**1-Year Rolling**

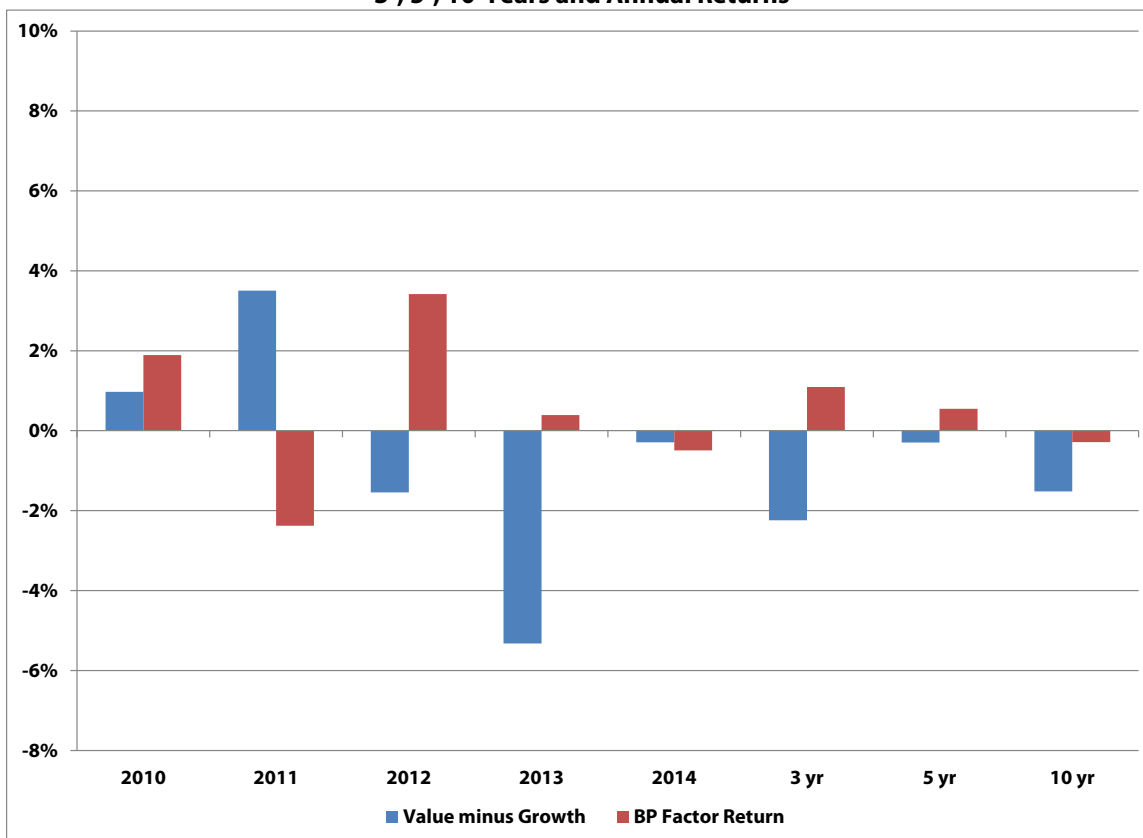


Source: Wilshire Compass and Wilshire Atlas

In the following exhibit, we show the two style measures during the three, five and ten-year intervals reviewed earlier for active performance as well as the individual annual returns over the past five years. As can be seen from the chart, the relative performance of value versus growth stocks has been somewhat mixed during the past

five years. Likewise, in 2014, growth and value stocks had similar performance with growth stocks delivering a narrow 0.29% edge.

**Exhibit 6**  
**US Equity: Style Factor**  
**3-, 5-, 10-Years and Annual Returns**



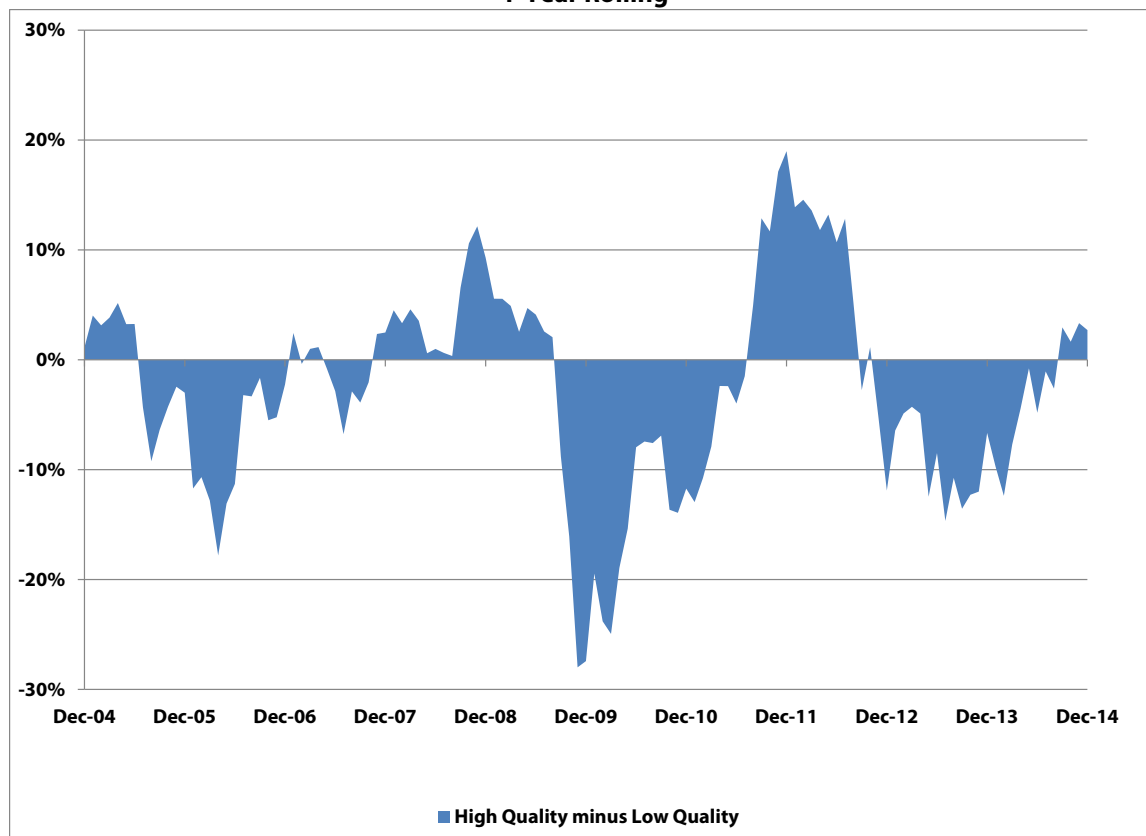
Source: Wilshire Compass and Wilshire Atlas

## US Equity: Quality

Bias towards high or low quality companies can affect the relative performance of strategies at various points in a business cycle. The graph below utilizes Wilshire Atlas to look at the difference in performance of high quality companies versus low quality companies in the Wilshire 5000 Total Market Index<sup>SM</sup>. We utilized the S&P equity quality ratings and define High Quality as stocks rated B and above and Low Quality as those rated B- and below. Exhibit 7 depicts high quality company returns minus low quality company returns on a one-year rolling basis. The solid area on the chart is positive when high quality companies outperform and negative when low quality companies outperform. As demonstrated in the chart, lower quality stocks led the 2009 'junk' rally, but this trend reversed in the latter part of 2011 with higher quality

companies outperforming. In the latter part of 2012 and throughout 2013, lower quality stocks once again began to outperform higher quality stocks, but in 2014 that trend reversed once again.

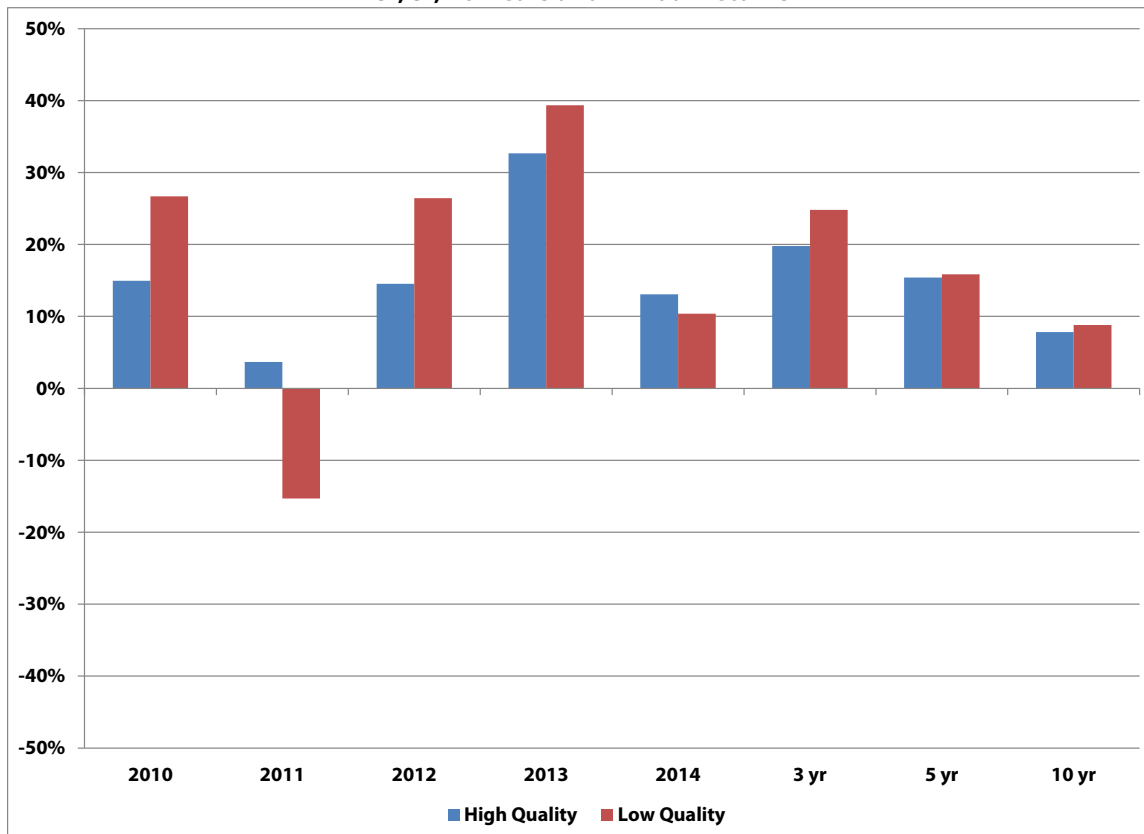
**Exhibit 7**  
**US Equity: Quality**  
**1-Year Rolling**



Source: Wilshire Atlas

In Exhibit 8, we show the two quality measures during the three, five and ten-year intervals as well as the individual annual returns during the past five years. The chart displays that during the last five years high or low quality companies have experienced significant return differences within individual calendar years, but that lower quality stocks have delivered notable cumulative outperformance over the past three years. In 2014, high quality companies outperformed low quality companies by 2.70%.

**Exhibit 8**  
**US Equity: Quality**  
**3-, 5-, 10-Years and Annual Returns**



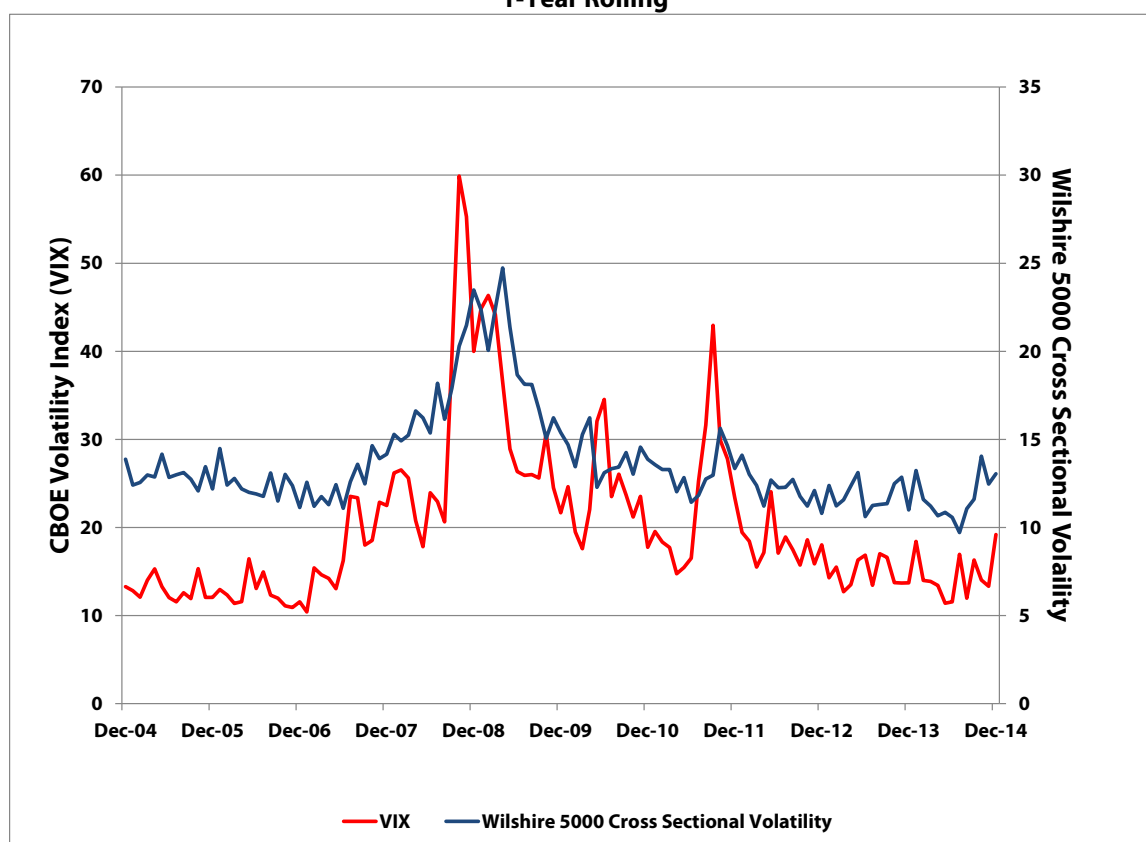
Source: Wilshire Atlas

## US Equity: Volatility

Security price volatility is not only a key market indicator of risk regimes, but can also be an important signal as to the general environment for active management. In Exhibit 9, we begin first by looking at the US stock market's general level of volatility across two dimensions to assess the level of pricing risk over recent years. The red line in the exhibit below graphs the monthly price of the CBOE Volatility Index (VIX), a widely followed measure of market risk. As can be seen, market volatility was low and stable through 2006 and the first half of 2007, rose in 2007 before spiking in 2008 following the Lehman collapse. The index began moderating in the second half of 2009 with a late 2009 and early 2010 rise. In 2011, the VIX spiked again during the mid-summer market turmoil but subsided in 2012 and, despite rising in 2014, has remained relatively low since then. The blue line in the exhibit shows the level of monthly cross-sectional volatility of all stocks in the Wilshire 5000 Total Market Index<sup>SM</sup>. Unlike the VIX, which provides a view of the risk of the overall market across

time periods, the cross-sectional risk statistic helps to reveal the underlying risk of securities to one another over a discrete period. This can be particularly useful in identifying those periods of time that may have provided an attractive environment for skillful active managers. For example, when cross-sectional risk is low, it suggests that there is a relatively low level of price differentiation among individual securities, providing scarce opportunity for security selection to contribute meaningfully to excess returns. As can be seen in the exhibit, cross-sectional risk did rise notably through the 2007 to 2008 environment before moderating from 2009 through 2014. In July 2014, the cross-sectional risk measure reached a 21-year low of 9.71%. Extended periods of moderate cross-sectional volatility can represent a difficult environment for even skillful managers.

**Exhibit 9**  
**Equity Market Volatility**  
**1-Year Rolling**

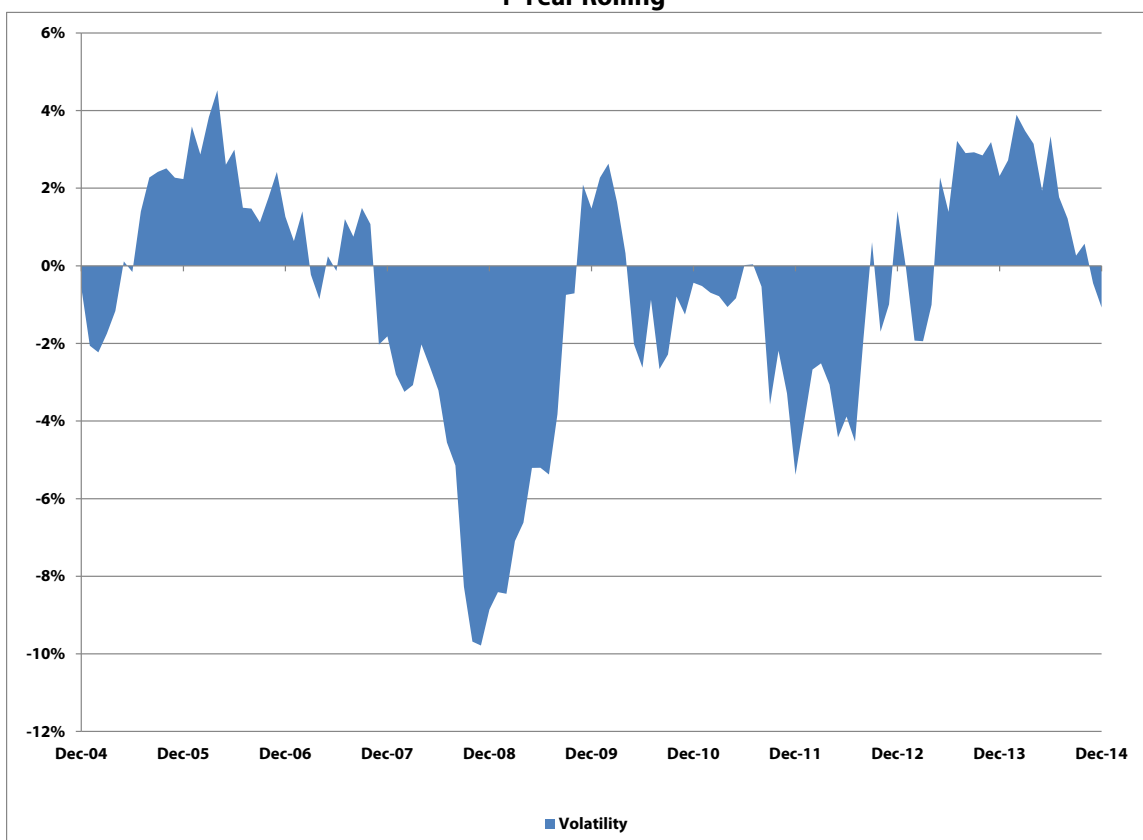


Source: Wilshire Compass and Wilshire Atlas

Another important perspective regarding volatility is its role as a systematic risk factor in explaining elements of security pricing. In this way, volatility as a factor can be examined similarly to our discussion of the Log of Market Cap and BP factors above. In the following exhibit, we chart the Volatility factor from the Wilshire GR6 Risk Model.

When the line is moving upward, more volatile stocks are enjoying relative outperformance versus less volatile securities and vice versa when the line is moving lower. As can be seen, volatile stocks suffered during the 2007-2008 market sell-off and during 2011. Strategies holding more volatile securities would have had a very difficult time keeping up with benchmarks and peers during those particular environments. In 2012, high volatility securities regained a slight edge over lower volatility securities. From May 2013 through August of 2014, higher volatility securities gained a larger edge over lower volatility securities. That trend reversed in the latter part of 2014, where lower volatility securities regained their edge over higher volatility securities.

**Exhibit 10**  
**US Equity: Volatility Factor**  
**1-Year Rolling**



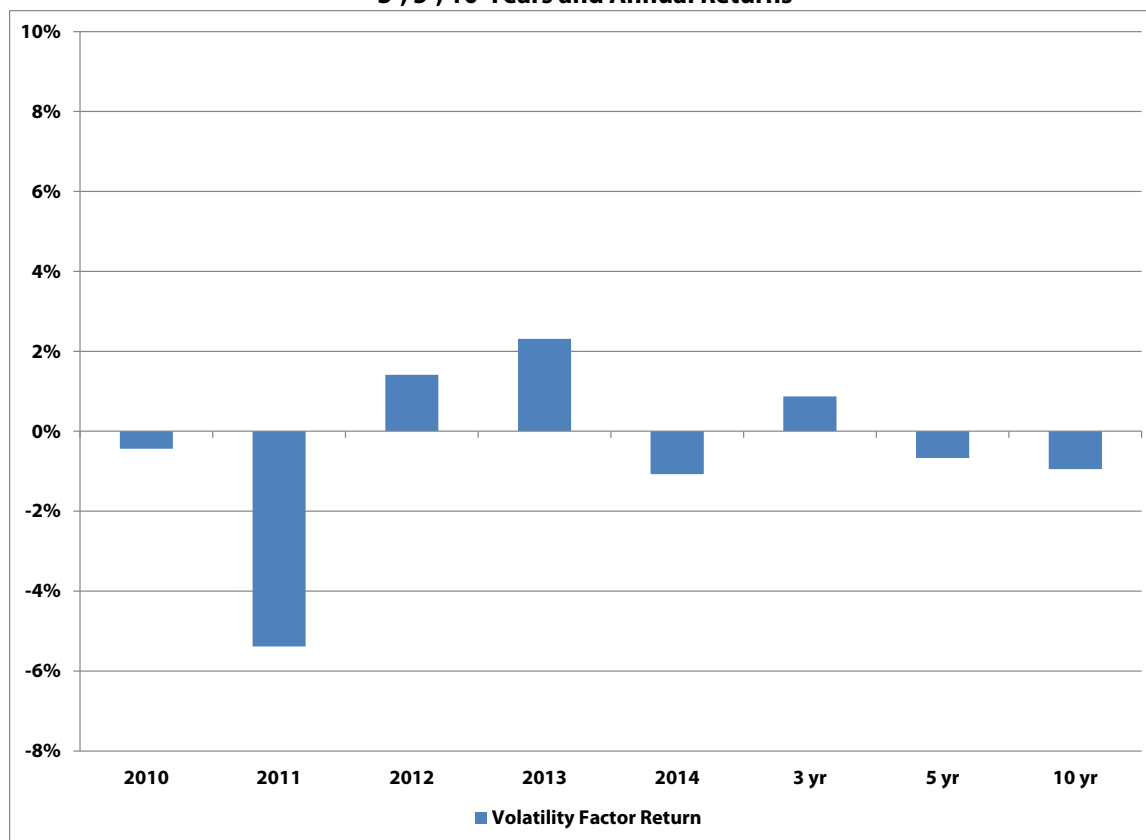
Source: Wilshire Atlas

In the following exhibit, we show the Volatility factor during the three, five and ten-year intervals reviewed earlier for active performance as well as the individual annual returns during the past five years. As noted above, the large negative factor return in 2011 demonstrates that exposure to more volatile stocks detracted from performance during the last five years. However, in 2012 and 2013, the volatility factor returns were



positive; indicating that exposure to more volatile stocks had a positive impact on performance. However, in 2014, the volatility factor once again turned negative; indicating that exposure to more volatile stocks would have had a negative impact on performance.

**Exhibit 11**  
**US Equity: Volatility Factor**  
**3-, 5-, 10-Years and Annual Returns**



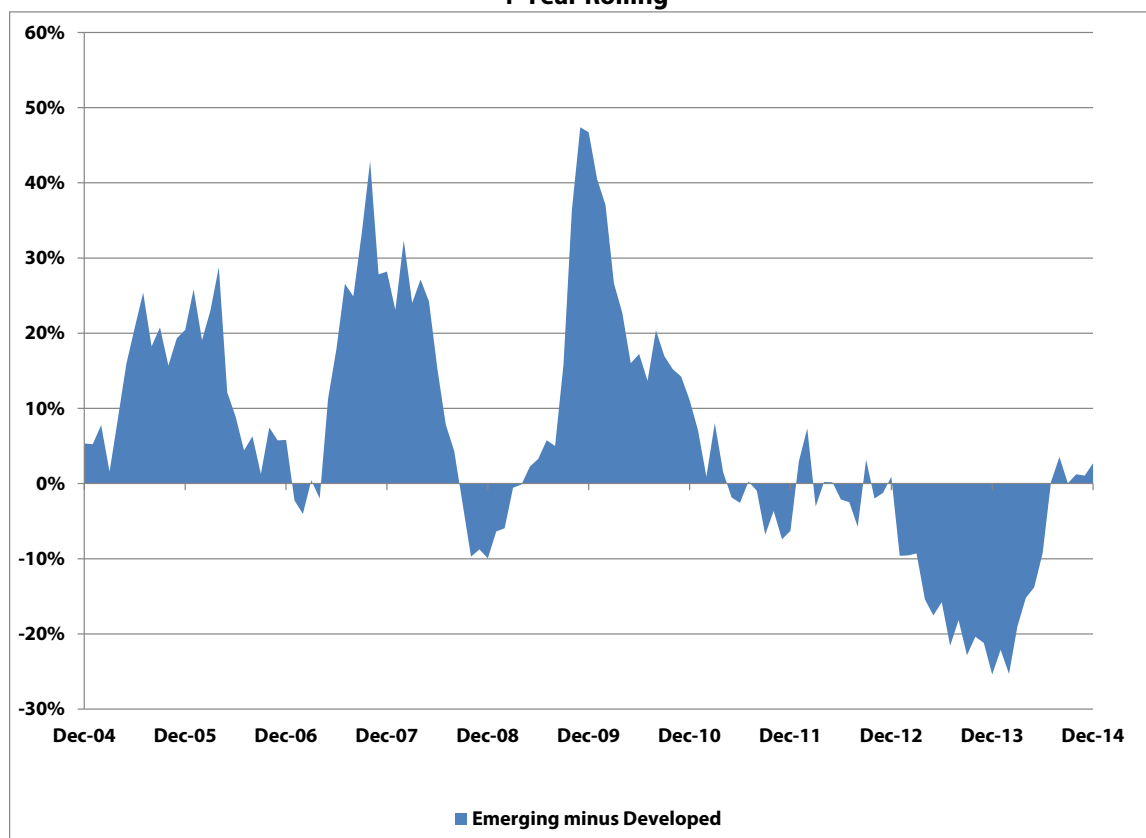
Source: Wilshire Atlas

### Non-US Equity: Emerging vs. Developed Markets

In the area of international equity investing, a manager's general approach to the emerging markets can have a large impact on the strategy's relative performance versus their benchmark and peers. Even developed market, EAFE type strategies, can take a "plus" approach that leads to persistent exposure to the emerging markets despite the absence of such names in the stated reference benchmark. As such, it is important to monitor the relative performance of the emerging versus developed markets to understand how a persistent tilt towards the emerging markets can influence manager returns during various market environments.

The following chart displays the relative performance difference of the MSCI Emerging Markets Index against the MSCI EAFE Index during one-year rolling periods since December 2004. The emerging market factor performed quite well from 2004 through 2012 with the exception of 2008 and 2011. However, in 2013, emerging markets under-performed vs. developed markets by 25.40%. The under-performance was the worst in ten years. However, in 2014, emerging markets outperformed developed markets by 2.70%

**Exhibit 12**  
**Emerging Markets vs. Developed Non-US Equity**  
**1-Year Rolling**

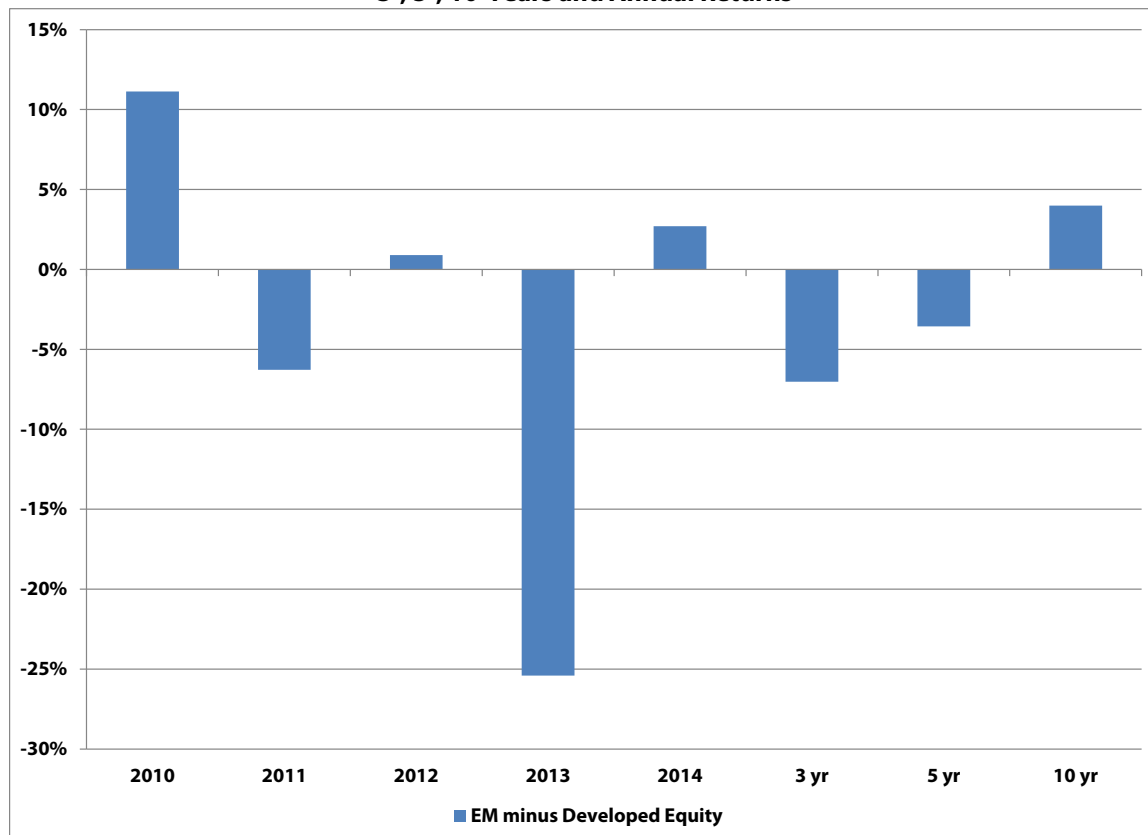


Source: Wilshire Compass

In the following exhibit, we display the emerging markets factor during the past five individual years as well as for the three, five and ten-year periods through December 2014. The results have been mixed. In 2010 and 2012, there was a positive relative performance of the emerging markets factor, with 2010 standing out as a banner year versus the developed markets. However, the performance of the emerging markets factor in 2013 was quite poor as investors moved away from emerging market equities and reallocated to developed markets. Despite the poor relative performance over the

three and five-year periods, emerging markets outperformed developed markets by 2.70% in 2014 and by 3.99% annualized over the ten-year period.

**Exhibit 13**  
**Emerging Markets vs. Developed Non-US Equity**  
**3-, 5-, 10-Years and Annual Returns**



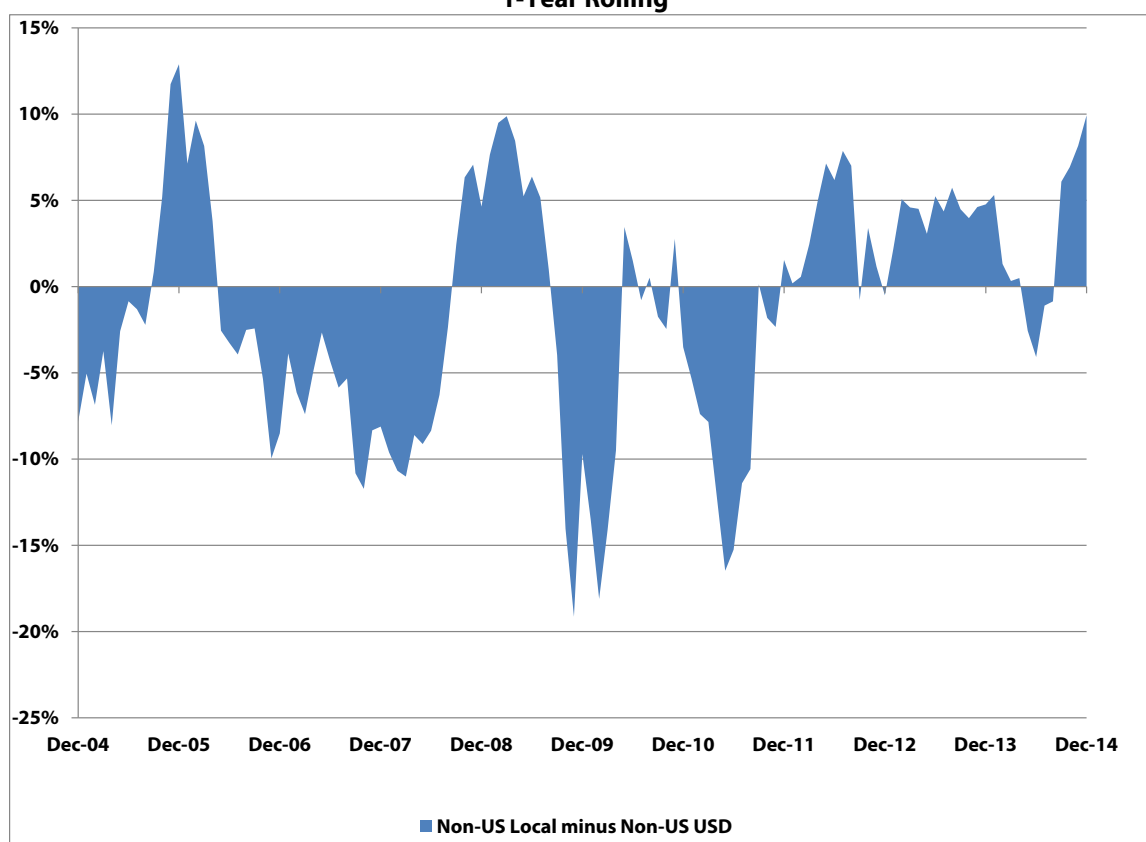
Source: Wilshire Compass

### Non-US Equity: Currency

Currency fluctuations can have a dramatic impact on the returns realized by investors holding assets denominated in a foreign currency. While it is not common, some international equity strategies employ various levels of currency hedging to control some of the volatility associated with holding foreign currency denominated securities. The magnitude and persistence of these hedges can have meaningful contributions to the returns of such strategies. In Exhibit 14, we show this currency effect from the perspective of a US Dollar-based investment in the MSCI ACWI ex US Index. The line represents the one-year rolling difference between the index's local currency return versus its return expressed in US Dollars. When the line plots above zero, a currency hedged strategy should experience a positive relative advantage

versus the benchmark and other unhedged international strategies. As can be seen in the chart, managers employing a hedging strategy experienced a large relative headwind through the 2006, 2007, 2009, 2010 and mid 2011 market environments because their hedges lost value against a falling US Dollar. In 2009 and mid-way through 2011 in particular, the relative drag on a fully hedged portfolio would have been in excess of 15% versus the unhedged market.<sup>3</sup> In 2013, managers who employed a hedging strategy would have benefited from a rising US dollar. The outperformance of the hedged portfolio was around 5%. The U.S. Dollar's continued strength in 2014 pushed the performance advantage of hedged strategies to 9.93%. Another way to view the chart is that when the graph is negative an unhedged dollar denominated investment in foreign countries received a tailwind from a depreciating dollar.

**Exhibit 14**  
**Non-US Equity: Currency Effect**  
**1-Year Rolling**

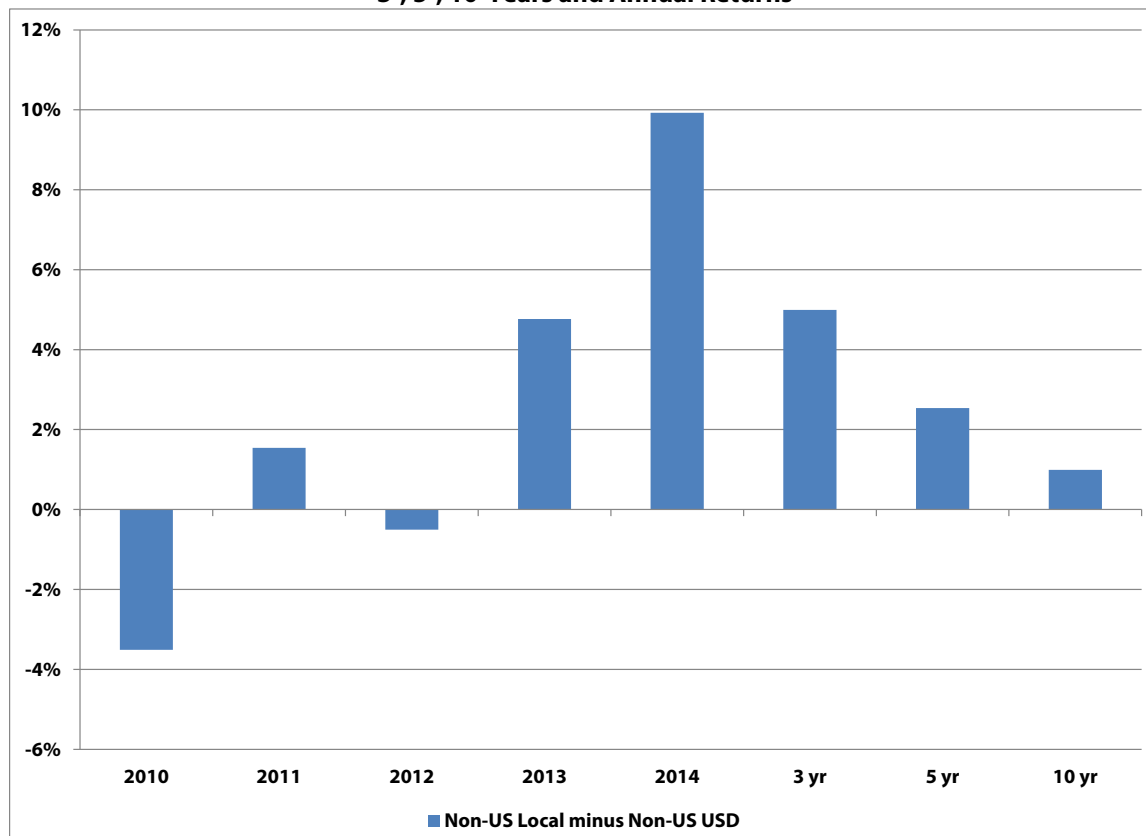


Source: Wilshire Compass

<sup>3</sup> Note that this methodology merely provides an indication of what a fully hedged strategy might have produced, as it simply takes the difference between USD and local currency returns, thus ignores the implicit and explicit costs of hedging (including the interest rate differentials priced into currency derivatives).

In the following exhibit, we display the variance between the MSCI ACWI ex US in local currency terms versus US dollar terms during the past five individual years as well as for the three, five and ten-year periods through December 2013. In 2010 and to a lesser degree 2012, the negative environment for the US Dollar, potentially contributed to negative relative performance for those strategies hedging foreign currencies, while providing a boon for unhedged dollar investors in foreign markets. However, in 2013 and even more so in 2014, the positive environment for the U.S. Dollar contributed to positive relative performance for those strategies hedging foreign currencies.

**Exhibit 15**  
**Non-US Equity: Currency Effect**  
**3-, 5-, 10-Years and Annual Returns**



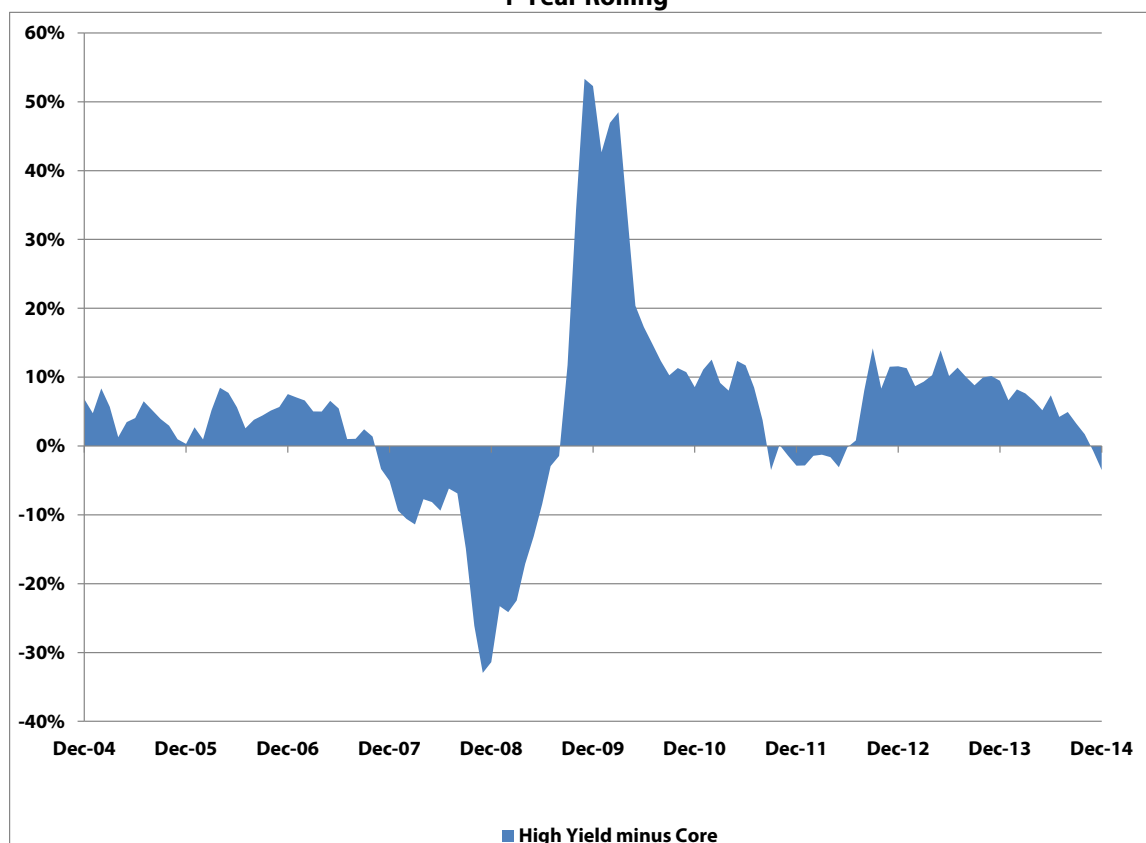
Source: Wilshire Compass

### Fixed Income: High Yield vs. Investment Grade

While there are many systematic factors that can drive the relative performance of fixed income strategies, the extent of credit risk taken by particular strategies can have a notable impact on benchmark and peer comparisons. This point became

abundantly clear during the 2007 to 2008 global financial crisis, as Core and Core Plus managers who reached for yield through relatively large holdings of non-investment grade credit suffered significant relative losses. In Exhibit 16, we chart this factor influence with a simple rolling one-year return comparison of the Barclays Capital High Yield Index versus the Barclays Capital US Aggregate Index. The chart reveals the significant underperformance of the high yield sector during the worst of the credit crisis in 2008. However, in 2009, high yield significantly rebounded as it outperformed the US core fixed income market by 52.28%. In 2013, high yield outperformed core fixed income by 9.47%, but underperformed by 3.49% in 2014.

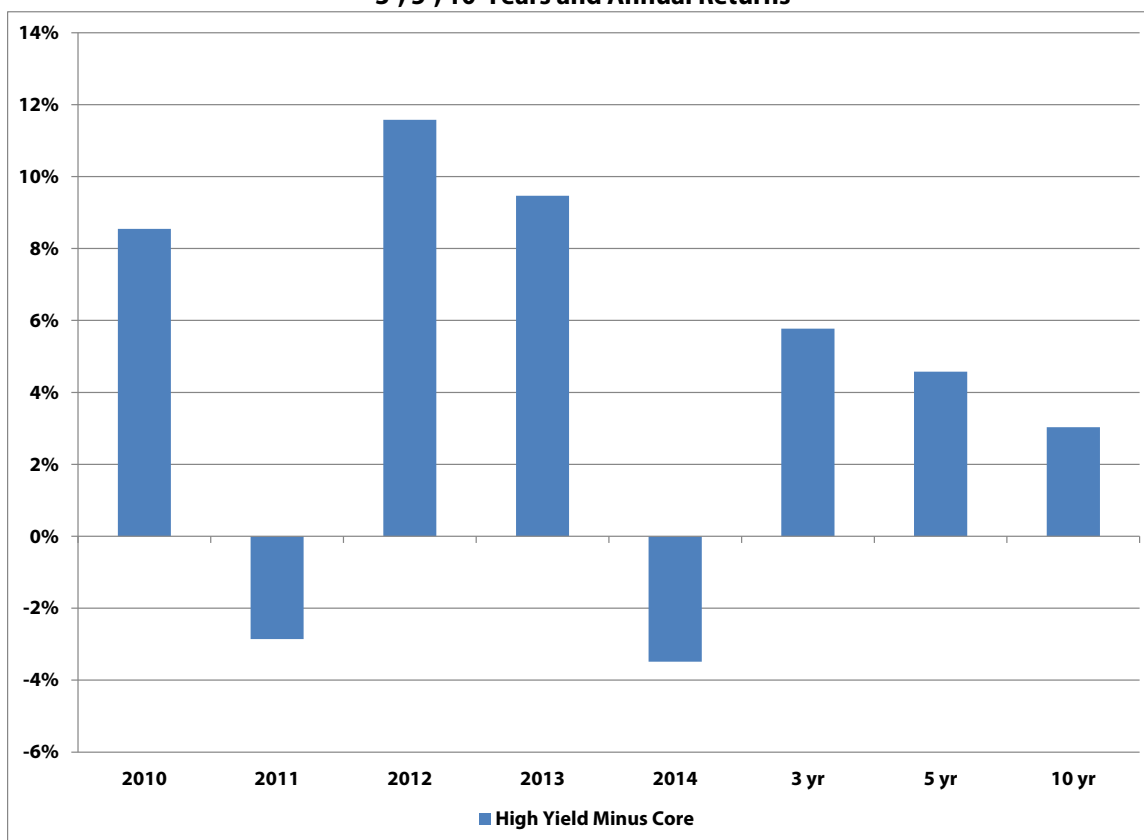
**Exhibit 16**  
**Fixed Income: High Yield Factor**  
**1-Year Rolling**



Source: Wilshire Compass

In the following exhibit, we examine the same relative performance comparison between high yield and core bonds during the past five individual years and for the three, five and ten-year periods through December 2014. High yield has rebounded strongly since the credit crisis in 2008. High yield performance was strong in 2013, outpacing the US core fixed income market by more than 9%. However, in 2014, high yield underperformed vs. US core fixed income by 3.49%.

**Exhibit 17**  
**Fixed Income: High Yield Factor**  
**3-, 5-, 10-Years and Annual Returns**



Source: Wilshire Compass

## Active Management Summary

We now shift to a review of active management by presenting Exhibit 18 below, which displays the index's percentile universe ranking in each traditional asset class. A high ranking, colored in red, reflects a benchmark that performed well versus the universe of active managers, suggesting poor performance for active management. A low ranking, colored in green, means the opposite and indicates that a high proportion of managers were able to outperform the benchmark.

**Exhibit 18**  
**Benchmark Percentile Rankings**  
**As of 12/31/2014**

Wilshire Defined Universes		Index Percentile Ranking			
Equity Style Index		1 Year	3 Year	5 Year	10 Year
Quartile	1st Quartile				
	2nd Quartile				
	3rd Quartile				
	4th Quartile				
Large Core					
Wilshire US Large Cap Index		41	56	42	71
Large Value					
Wilshire US Large Value Index		38	60	48	88
Large Growth					
Wilshire US Large Growth Index		30	33	49	60
Small Core					
Wilshire US Small Cap Index		35	43	43	45
Small Value					
Wilshire US Small Value Index		18	37	62	58
Small Growth					
Wilshire US Small Growth Index		51	47	46	36
EAFE					
MSCI EAFE Index (\$N)		63	75	93	93
EAFE Small Cap					
MSCI - EAFE Small Index (\$Net)		71	77	90	91
Emerging Markets					
MSCI Emerging Markets Index (\$N)		69	81	85	78
Global					
MSCI - AC World Index (\$N)		35	58	63	73
REIT					
Wilshire REIT Index		30	72	74	89
Fixed Income					
Core Fixed Income					
Barclays Capital US AG Index		42	63	56	64
US High Yield					
Barclays Capital US HY Index		52	47	43	44

Source: Wilshire Compass

The next table shows the excess returns within each universe broken out by selected percentile breakpoints and serves as an alternative perspective to the previous table. This orientation of the data helps identify at what point within the universe distribution that managers were able to generate positive excess returns.



**Exhibit 19**  
**Universe Breakpoints**  
**As of 12/31/2014**

Wilshire Defined Universes	Universe Breakpoints				
Asset Class	Breakpoints	1 Year	3 Years	5 Years	10 Years
Large Core Wilshire US Large Cap Index	10%	2.52	2.68	1.42	1.94
	25%	0.97	1.53	0.69	1.23
	50%	-0.44	0.32	-0.18	0.55
	75%	-2.57	-1.14	-1.23	-0.14
	90%	-4.58	-2.79	-2.37	-0.75
Large Value Wilshire US Large Value Index	10%	1.59	3.22	1.52	2.52
	25%	0.50	1.88	0.75	2.12
	50%	-0.63	0.67	-0.07	1.44
	75%	-1.96	-1.03	-0.70	0.63
	90%	-3.69	-2.20	-2.08	-0.15
Large Growth Wilshire US Large Growth Index	10%	1.60	1.63	2.03	2.01
	25%	0.29	0.68	0.98	0.98
	50%	-1.84	-0.62	-0.10	0.20
	75%	-4.03	-2.02	-0.92	-0.51
	90%	-5.96	-3.18	-1.89	-0.98
Small Core Wilshire US Small Cap Index	10%	2.49	2.54	1.96	1.54
	25%	1.13	1.03	1.07	0.87
	50%	-1.38	-0.53	-0.37	-0.23
	75%	-4.73	-2.51	-1.64	-1.17
	90%	-8.47	-4.35	-3.18	-1.94
Small Value Wilshire US Small Value Index	10%	1.21	2.44	3.21	1.91
	25%	-0.77	1.52	1.54	1.21
	50%	-2.00	-0.69	0.50	0.16
	75%	-3.64	-2.37	-0.81	-0.32
	90%	-5.13	-4.34	-2.12	-1.50
Small Growth Wilshire US Small Growth Index	10%	5.72	3.09	2.36	1.13
	25%	2.80	1.56	1.12	0.51
	50%	0.10	-0.31	-0.35	-0.29
	75%	-3.12	-1.89	-1.62	-1.42
	90%	-6.29	-4.00	-3.00	-2.36
EAFE MSCI EAFE Index (\$ Net)	10%	4.19	5.11	5.22	3.67
	25%	2.27	3.38	3.22	2.51
	50%	0.74	1.38	1.81	1.38
	75%	-0.73	0.02	0.75	0.88
	90%	-2.77	-0.73	0.21	0.24
EAFE Small Cap MSCI EAFE Small Index (\$ Net)	10%	6.30	5.48	4.26	4.23
	25%	4.10	3.47	2.80	4.04
	50%	2.17	2.26	2.36	2.36
	75%	-0.97	0.39	0.62	1.92
	90%	-4.63	-1.42	-0.01	0.06
Emerging Markets MSCI Emerging Markets Index (\$ Net)	10%	9.38	7.56	7.95	3.55
	25%	5.52	5.01	4.56	2.68
	50%	2.31	2.66	2.33	1.63
	75%	-0.74	0.75	0.78	0.19
	90%	-3.88	-0.97	-0.51	-0.79
Global MSCI - AC World Index (\$ Net)	10%	4.09	4.05	3.57	4.06
	25%	1.02	2.66	1.94	2.29
	50%	-1.68	0.67	0.53	0.98
	75%	-3.80	-1.72	-1.13	-0.08
	90%	-9.77	-5.29	-4.04	-1.62
REIT Wilshire REIT Index	10%	1.30	4.39	1.38	2.95
	25%	0.53	1.17	0.94	1.70
	50%	-0.89	0.52	0.52	1.24
	75%	-2.60	-0.11	-0.05	0.51
	90%	-6.64	-1.75	-1.13	-0.12
Core Fixed Income Barclays Capital US Aggregate	10%	0.57	1.25	1.02	0.97
	25%	0.29	0.78	0.65	0.67
	50%	-0.16	0.38	0.11	0.28
	75%	-2.10	-0.24	-0.43	-0.12
	90%	-2.64	-0.73	-0.97	-0.37
US High Yield Barclays High Yield Index	10%	2.34	2.33	1.18	1.03
	25%	1.23	0.71	0.53	0.39
	50%	0.05	-0.20	-0.26	-0.16
	75%	-0.92	-1.70	-1.74	-0.74
	90%	-1.83	-2.71	-2.86	-1.87

Source: Wilshire Compass

## Investment Category Detailed Statistics

In this section of the report we will step through each of the investment categories individually to provide a more detailed understanding of manager performance within each universe. The following exhibits are provided within three page sub-sections for each individual universe.

- **Universe Statistics Table:** The Universe Statistics Table at the top of the first page provides the index rankings, number of products included and the mean and median excess returns for the preceding one, three, five and ten-year time periods. This table is helpful in identifying the breadth of coverage and general level of active management success within each universe.
- **Manager Consistency Table (Excess Returns):** The Manager Consistency Table in the bottom-left panel of the first page compares the consistency of relative manager success in delivering excess returns across two consecutive, but distinct, three-year market intervals. The data are presented to identify the percentage breakdown of all the managers within a given quartile in the previous three-year period across performance quartiles in the most recent three-year period. As an example to understand the table, if one reads across the 1<sup>st</sup> quartile ranking row and down the 3<sup>rd</sup> quartile column, the intersection indicates the percentage of managers that were in the 1<sup>st</sup> quartile in 2011 and 3<sup>rd</sup> quartile in 2014. The no data row indicates managers that do not have return information for 2011 but do have returns reported for 2014. As a point of reference, if manager performance was completely random in nature (i.e. no positive or negative consistency), one would expect to see 25% of managers fall in each grid.
- **Manager Consistency Table (Information Ratio):** Unlike the Excess Returns Consistency Table described above, the Manager Consistency Table in the bottom-right of the first page attempts to normalize performance by risk when testing for consistency. The table compares the consistency of relative manager success by information ratios across two consecutive, but distinct, three-year market intervals. As with the Excess Returns Consistency Table, the data are presented to identify the percentage breakdown of all the managers within a given quartile in the previous three-year period across performance quartiles in the most recent three-year period.
- **Rolling Excess Return Percentiles Chart:** The Rolling Excess Return Percentiles Chart at the top of the second page displays the 10th, 25th, 50th (median), 75th and 90th percentile excess returns through time. The chart includes three-year rolling data (36 months) from December 2007 through December 2014 and is helpful in seeing the consistency of 3-year excess returns across the distribution of managers.

- **Rolling Information Ratio Percentiles Chart:** The Rolling Information Ratio Percentiles Chart at the bottom of the second page displays the 10th, 25th, 50th (median), 75th and 90th percentile information ratios through time. The chart includes three-year rolling data (36 months) from December 2007 through December 2014 and is helpful in seeing the consistency of 3-year risk-adjusted excess returns across the distribution of managers. This presentation of manager results can be quite useful in assisting in the development of excess return expectations for managers of varying risk levels (i.e. by multiplying a forecasted information ratio by the manager's expected tracking error).
- **Excess Return vs. Excess Risk Scatter Plot:** The Excess Return vs. Excess Risk Scatter Plot on the third page provides a graphical representation of the trade-off between excess return and excess risk (tracking error) for all managers in the universe during the previous ten years. Median return and risk lines are included to clearly display the mid-point across these two dimensions.

### US Large Core Equity<sup>4</sup>

(Benchmark: Wilshire US Large-Cap Index)

(Universe: Wilshire Defined US Large Core)

Large Core managers delivered disappointing performance versus the Wilshire US Large Cap Index in 2014. The group has produced median excess returns of -0.44%, 0.32%, -0.18% and 0.55% for the one, three, five and ten-year time periods respectively. The negative performance in 2014 was on both an absolute and risk adjusted basis. There continues to be a lack of consistency in this style with only 27% of 2011 1<sup>st</sup> quartile managers staying in the top quartile and 31% of 2011 4<sup>th</sup> quartile managers landing in the top quartile. On a risk adjusted basis, 31% of 2011 1<sup>st</sup> quartile managers stayed in the top quartile, up from a discouraging 18% in last year's report.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	41	56	42	71
Number of Products	206	206	204	178
Average Excess Return	-0.85	0.02	-0.37	0.59
Median Excess Return	-0.44	0.32	-0.18	0.55
Average IR	-0.18	0.09	-0.05	0.17
Median IR	-0.20	0.12	-0.06	0.13

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	27%	27%	18%	27%	98%
2 <sup>nd</sup>	22%	26%	34%	16%	98%
3 <sup>rd</sup>	14%	35%	24%	27%	100%
4 <sup>th</sup>	31%	14%	22%	33%	100%
No Data	43%	14%	43%	0%	100%

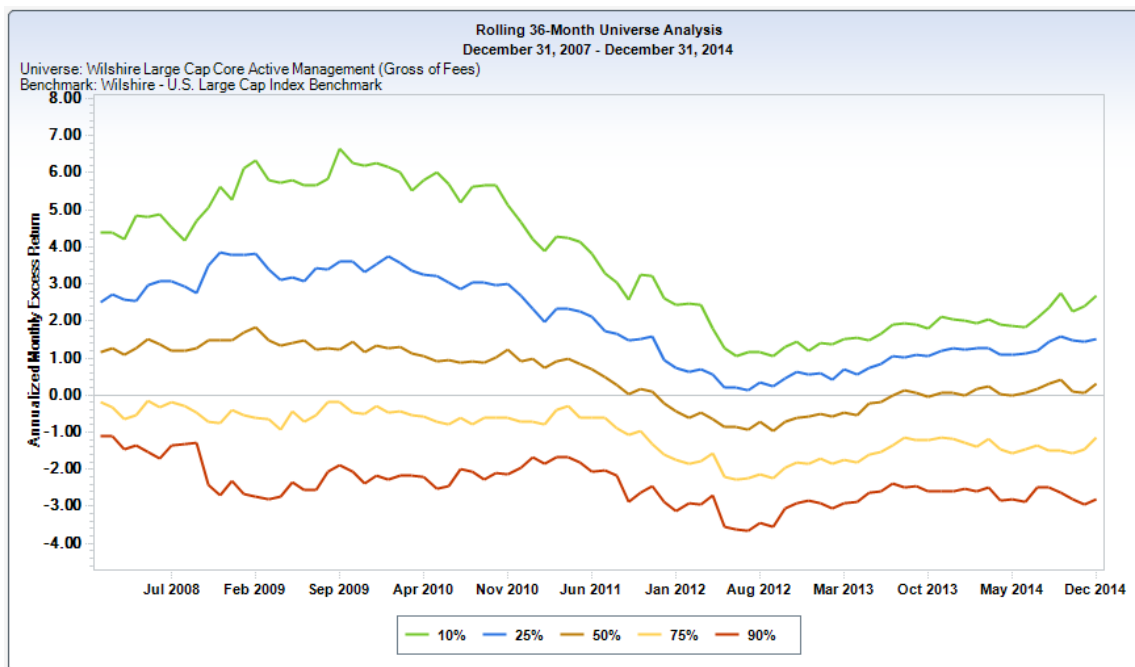
#### Manager Consistency

##### Information Ratio

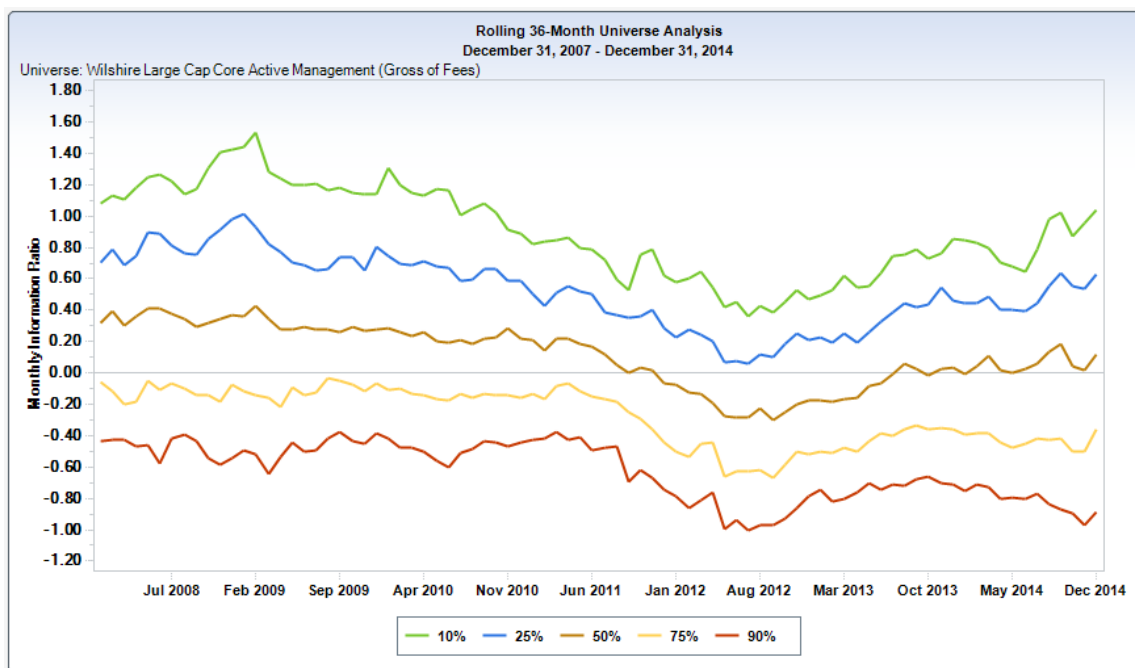
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	31%	27%	24%	18%	100%
2 <sup>nd</sup>	18%	26%	30%	22%	96%
3 <sup>rd</sup>	14%	25%	22%	39%	100%
4 <sup>th</sup>	31%	24%	22%	24%	100%
No Data	43%	14%	43%	0%	100%

<sup>4</sup> Source: Wilshire Compass

## US Large Core Equity

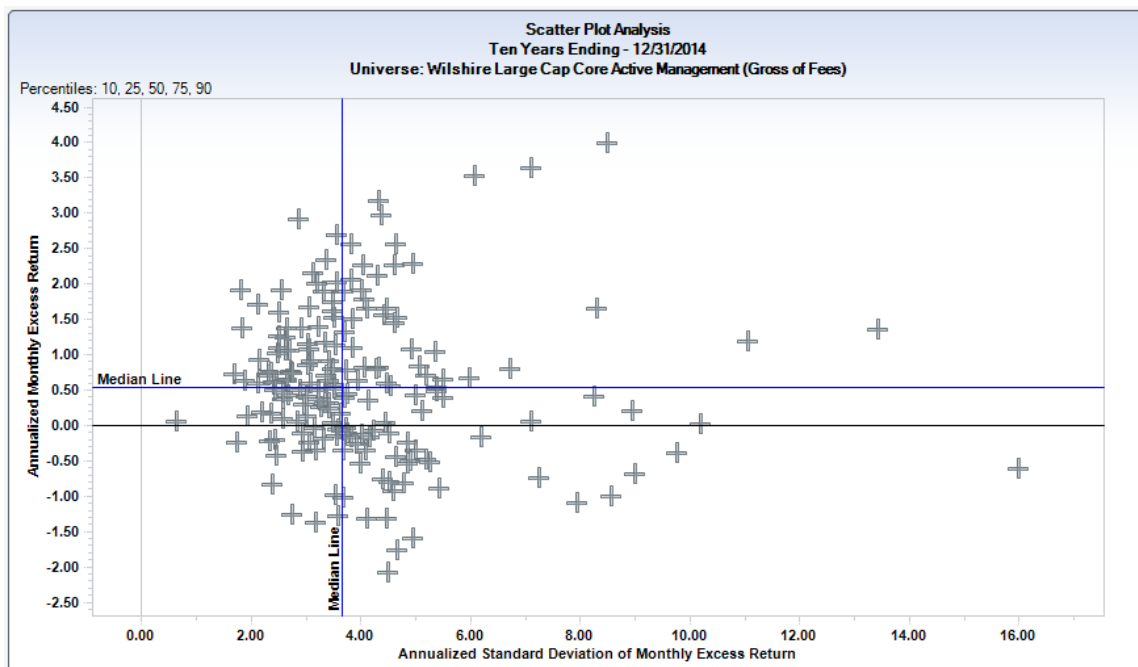


Source: Wilshire Compass



Source: Wilshire Compass

## US Large Core Equity



Source: Wilshire Compass

### US Large Value Equity<sup>5</sup>

(Benchmark: Wilshire US Large-Cap Value Index)  
(Universe: Wilshire Defined US Large Value)

Large Value managers delivered negative results in the one and five year time periods by producing median excess returns versus the Wilshire US Large Cap Value Index of -0.63% and -0.07%, respectively. However, Large Value managers still performed quite well over the long term with a median excess return of 1.44% over the ten year period. The Wilshire US Large Value Index placed below the 85th percentile within the universe over the ten-year period, demonstrating strong relative performance by managers over the long-term interval. However, the Large Value universe has shown a lack of consistency in recent years, with only 36% and 31% of top-quartile managers in the three years through 2011 remaining in the top two quartiles over the past three years on an absolute and risk adjusted bases, respectively.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	38	60	48	88
Number of Products	186	186	176	144
Average Excess Return	-0.92	0.46	-0.19	1.34
Median Excess Return	-0.63	0.67	-0.07	1.44
Average IR	-0.26	0.14	-0.04	0.33
Median IR	-0.26	0.23	-0.02	0.36

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank  2011	3 Year Quartile Rank				
	2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	19%	17%	26%	38%	100%
2 <sup>nd</sup>	25%	25%	25%	25%	100%
3 <sup>rd</sup>	21%	35%	28%	16%	100%
4 <sup>th</sup>	39%	25%	20%	16%	100%
No Data	0%	23%	31%	46%	100%

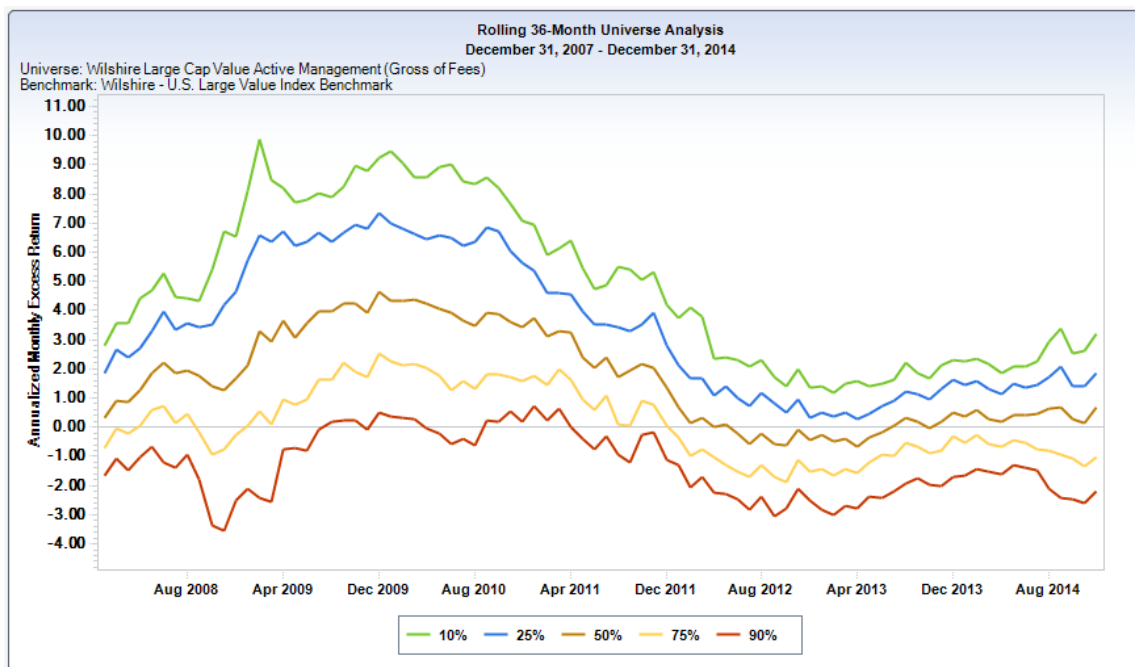
#### Manager Consistency

##### Information Ratio

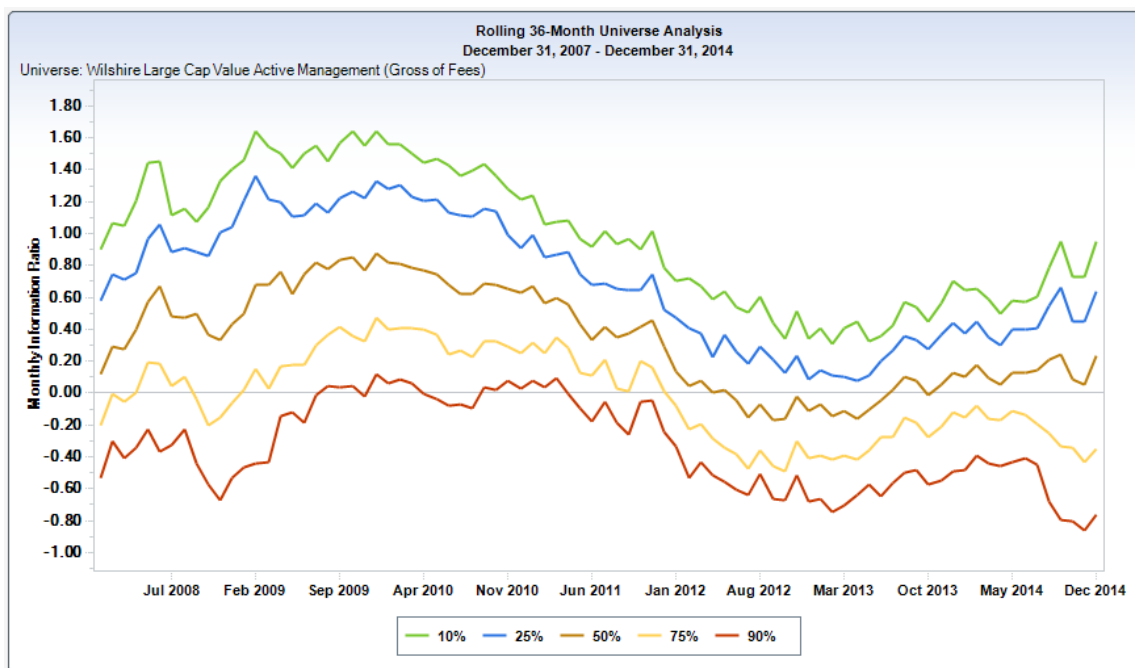
3 Year Quartile Rank  2011	3 Year Quartile Rank				
	2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	12%	19%	40%	29%	100%
2 <sup>nd</sup>	20%	36%	14%	30%	100%
3 <sup>rd</sup>	28%	30%	23%	19%	100%
4 <sup>th</sup>	41%	18%	23%	18%	100%
No Data	8%	15%	31%	46%	100%

<sup>5</sup> Source: Wilshire Compass

## US Large Value Equity



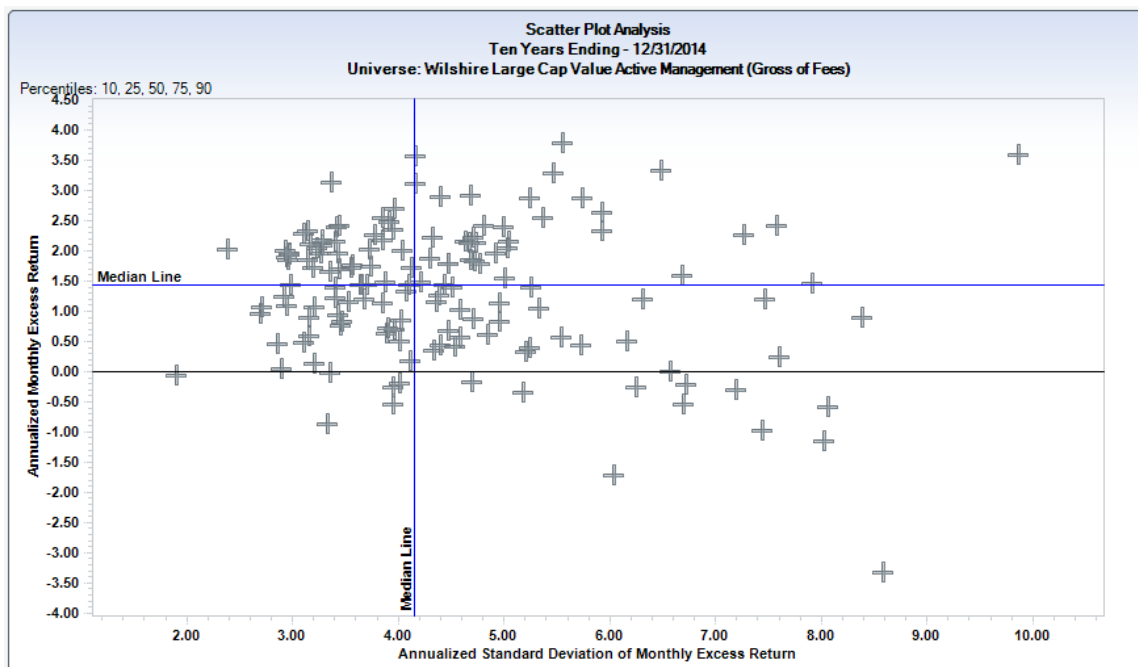
Source: Wilshire Compass



Source: Wilshire Compass



## US Large Value Equity



Source: Wilshire Compass

### US Large Growth Equity<sup>6</sup>

(Benchmark: Wilshire US Large-Cap Growth Index)  
(Universe: Wilshire Defined US Large Growth)

Large Growth managers delivered very poor results in 2014. As a group, these managers have produced median excess returns versus the Wilshire US Large Cap Growth Index of -1.84%, -0.62%, -0.10% and 0.20%, respectively, for the one, three, five, and ten-year time periods. The Wilshire US Large Growth Index placed above the 35th percentile within the universe over the one-year and three -year periods, while placing at the 60th percentile within the universe over the ten-year period. This indicates poor performance over shorter intervals, but reflects slightly better relative manager results over the longer term. The Large Growth universe has shown some improved manager consistency with 60% of top quartile managers in the three years through 2011 remaining in the top two quartiles in the last three years on both an absolute and risk-adjusted bases.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	30	33	49	60
Number of Products	249	249	242	193
Average Excess Return	-2.08	-0.73	0.05	0.34
Median Excess Return	-1.84	-0.62	-0.10	0.20
Average IR	-0.54	-0.24	0.00	0.06
Median IR	-0.53	-0.23	-0.03	0.04

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	29%	31%	17%	21%	98%
2 <sup>nd</sup>	17%	27%	35%	22%	100%
3 <sup>rd</sup>	28%	22%	25%	25%	100%
4 <sup>th</sup>	23%	21%	25%	31%	100%
No Data	27%	18%	18%	36%	100%

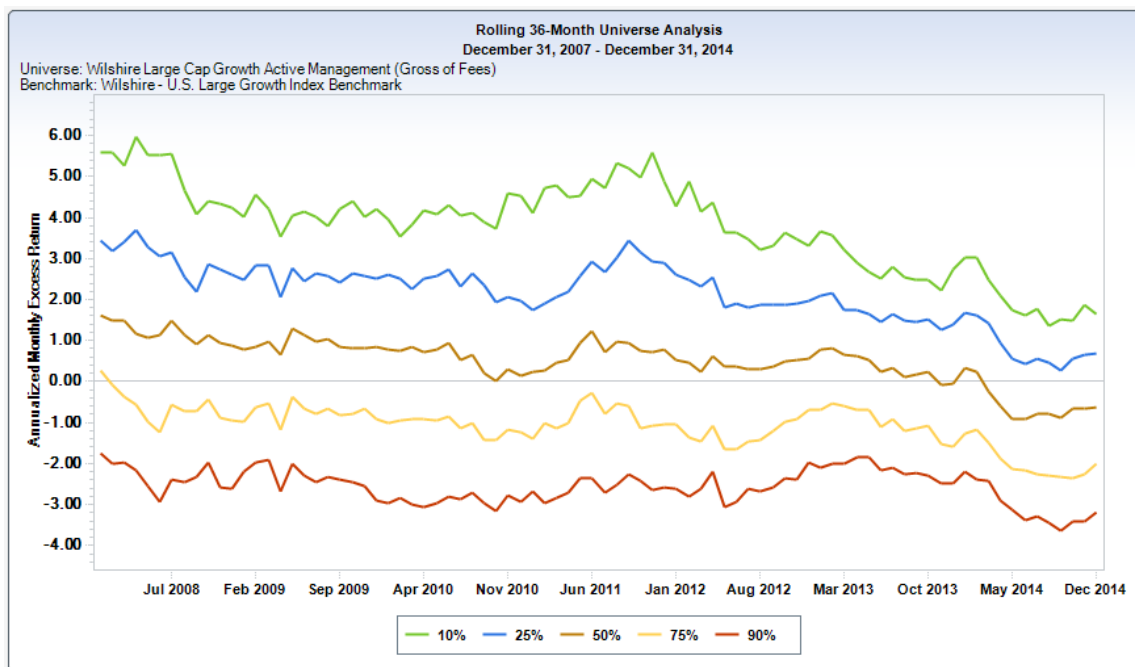
#### Manager Consistency

##### Information Ratio

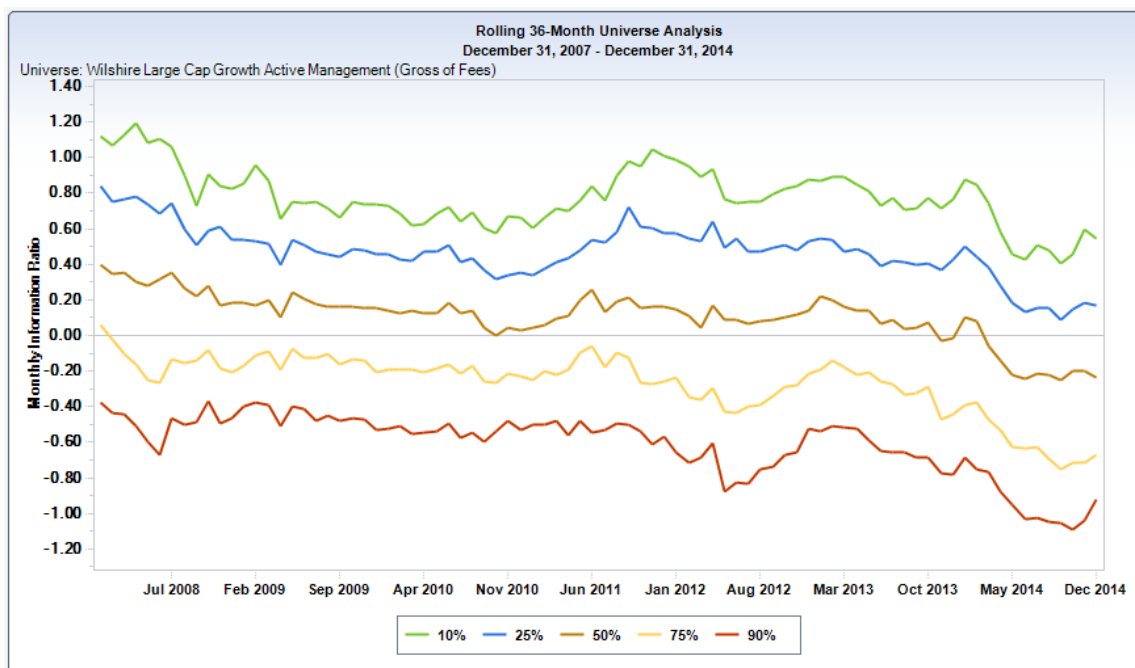
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	29%	31%	22%	16%	98%
2 <sup>nd</sup>	23%	22%	38%	17%	100%
3 <sup>rd</sup>	22%	27%	17%	35%	100%
4 <sup>th</sup>	23%	21%	21%	34%	100%
No Data	27%	18%	36%	18%	100%

<sup>6</sup> Source: Wilshire Compass

## US Large Growth Equity

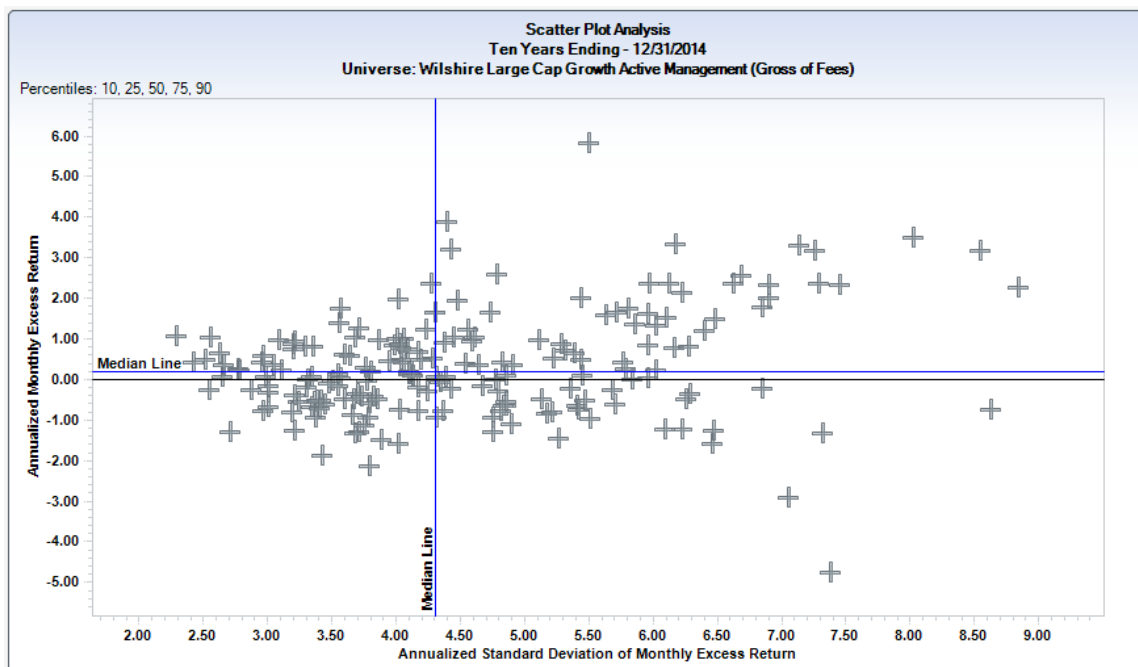


Source: Wilshire Compass



Source: Wilshire Compass

## US Large Growth Equity



Source: Wilshire Compass

### US Small Core Equity<sup>7</sup>

(Benchmark: Wilshire US Small-Cap Index)

(Universe: Wilshire Defined US Small Cap)

US Small Core Equity managers delivered poor performance in 2014 with a median excess return of -1.38%. This universe also continue to struggle over the intermediate to longer time horizons with median excess returns of -0.53%, -0.37% and -0.23% for the three, five and ten-year time periods. The Wilshire US Small Core Equity Index placed above the 45th percentile within the universe during the three and five-year time periods, demonstrating weak relative performance by managers over the intermediate time horizon. The manager consistency results have seen some slight improvement from last year. More managers were able to stay in the first quartile as 36% of 1<sup>st</sup> quartile managers remained in that quartile, up from 20% last year while 56% stayed in the top two quartiles, up from 43%. However, 31% and 27% of managers who were in the 1<sup>st</sup> quartile in the three years through 2011 fell to the 4<sup>th</sup> quartile in the last three years on both an absolute and risk adjusted return basis, respectively.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	35	43	43	45
Number of Products	201	201	191	142
Average Excess Return	-2.12	-0.67	-0.42	-0.18
Median Excess Return	-1.38	-0.53	-0.37	-0.23
Average IR	-0.37	-0.13	-0.07	-0.04
Median IR	-0.31	-0.14	-0.11	-0.05

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank  2011	3 Year Quartile Rank  2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	36%	20%	13%	31%	100%
2 <sup>nd</sup>	15%	26%	28%	32%	100%
3 <sup>rd</sup>	13%	24%	35%	28%	100%
4 <sup>th</sup>	30%	32%	26%	13%	100%
No Data	38%	19%	25%	19%	100%

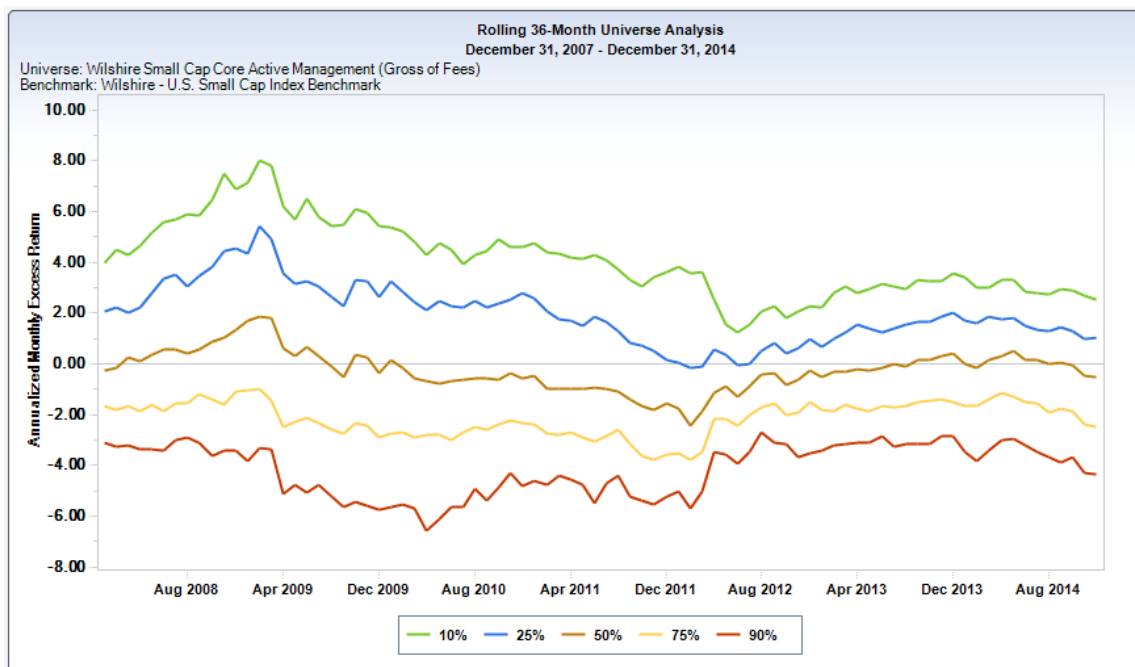
#### Manager Consistency

##### Information Ratio

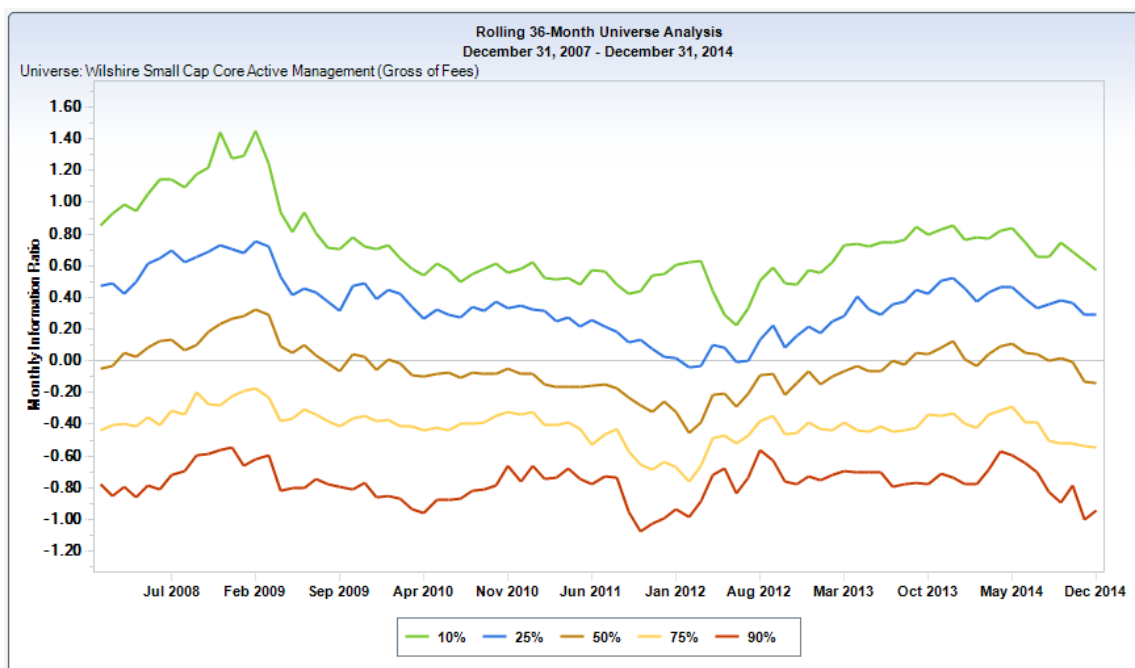
3 Year Quartile Rank  2011	3 Year Quartile Rank  2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	31%	22%	20%	27%	100%
2 <sup>nd</sup>	6%	26%	32%	36%	100%
3 <sup>rd</sup>	28%	28%	20%	24%	100%
4 <sup>th</sup>	26%	26%	30%	19%	100%
No Data	44%	19%	25%	13%	100%

<sup>7</sup> Source: Wilshire Compass

## US Small Core Equity

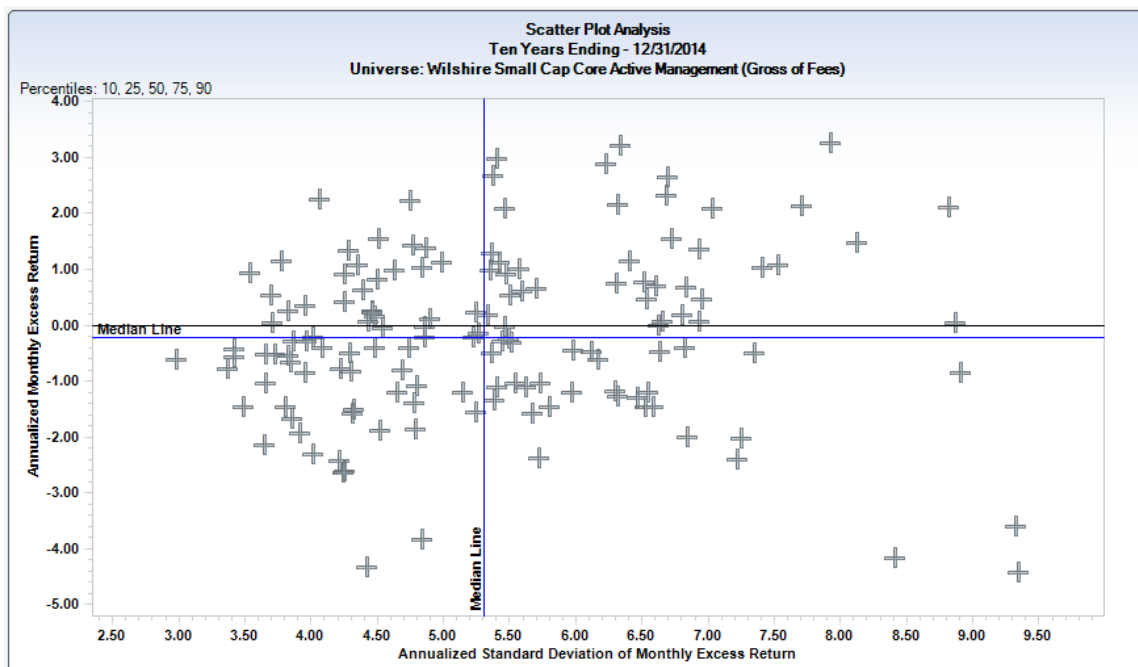


Source: Wilshire Compass



Source: Wilshire Compass

## US Small Core Equity



Source: Wilshire Compass

### US Small Value Equity<sup>8</sup>

(Benchmark: Wilshire US Small-Cap Value Index)

(Universe: Wilshire Defined US Small Cap Value)

The universe of Small Value managers performed very poorly in 2014, contributing to mixed longer-term results. As a group, these managers produced median excess returns versus the Wilshire US Small Value Equity Index of -2.00%, -0.69%, 0.50% and 0.16%, for the one, three, five and ten-year time periods. The manager universe showed significant improvement in the consistency of top performers, as 53% and 60% of 1st quartile managers in the three years through 2011 remained in the top quartile over the last three years on both an absolute and risk-adjusted excess returns basis, respectively. This reflects a 38% and 45% improvement from last year, so is highly time-period dependent.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	18	37	62	58
Number of Products	65	65	62	45
Mean Excess Return	-2.36	-0.87	0.36	0.40
Median Excess Return	-2.00	-0.69	0.50	0.16
Average IR	-0.64	-0.21	0.10	0.06
Median IR	-0.53	-0.17	0.12	0.04

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	53%	7%	20%	20%	100%
2 <sup>nd</sup>	19%	31%	19%	31%	100%
3 <sup>rd</sup>	13%	27%	20%	33%	93%
4 <sup>th</sup>	19%	25%	38%	19%	100%
No Data	0%	50%	25%	25%	100%

#### Manager Consistency

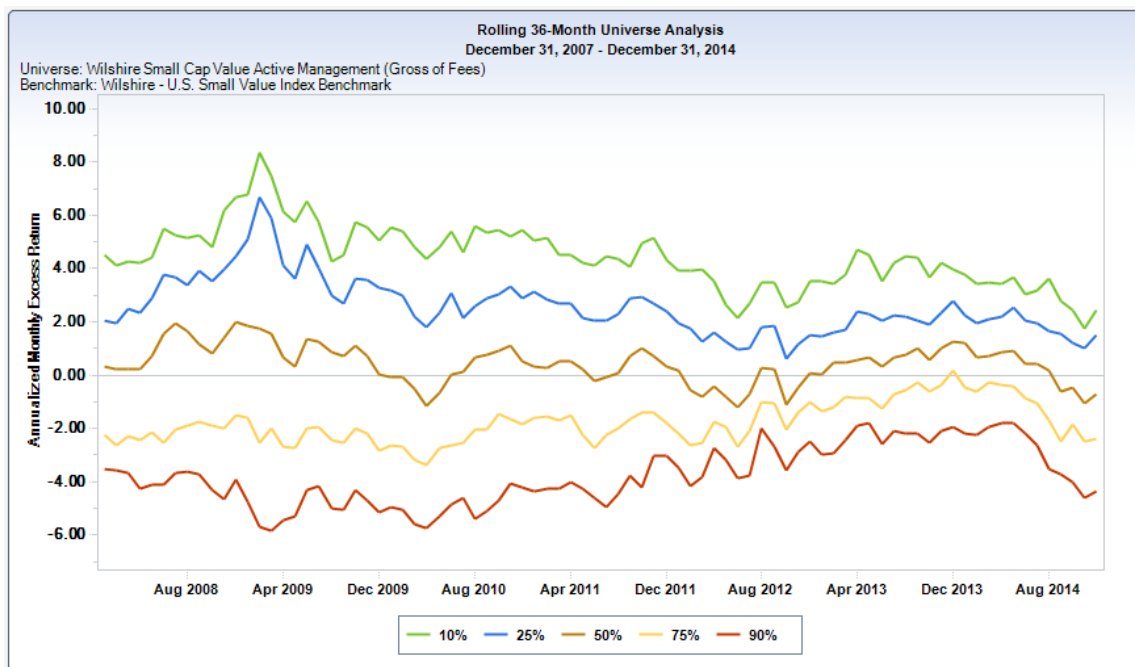
##### Information Ratio

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	60%	7%	20%	13%	100%
2 <sup>nd</sup>	19%	31%	19%	31%	100%
3 <sup>rd</sup>	7%	20%	33%	33%	93%
4 <sup>th</sup>	19%	31%	31%	19%	100%
No Data	0%	50%	0%	50%	100%

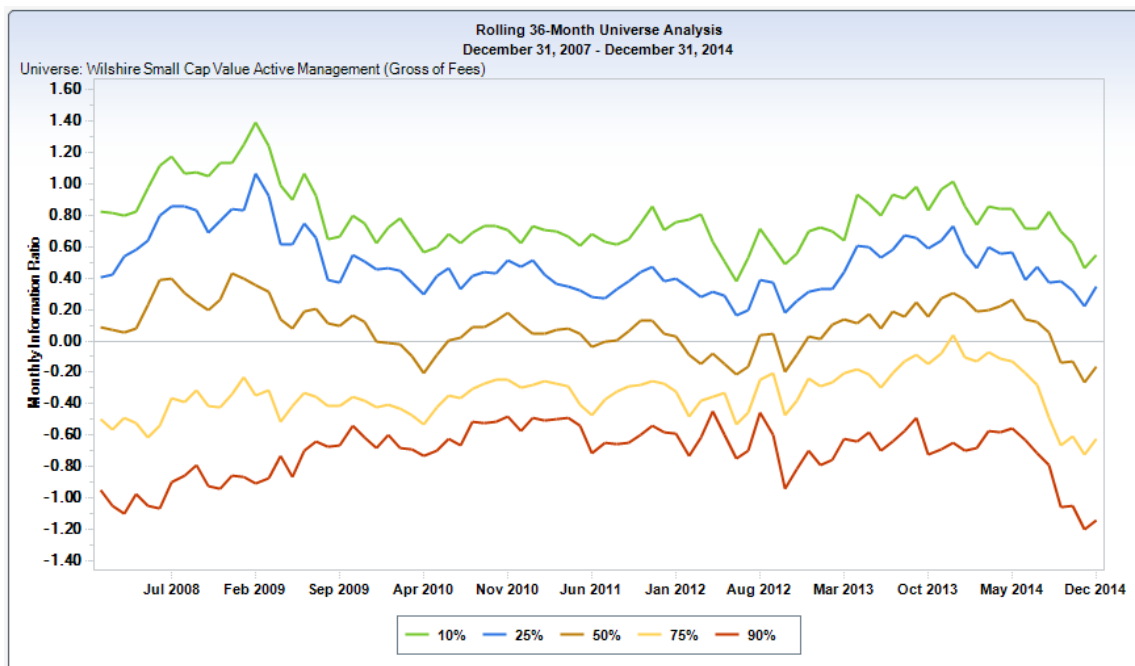
<sup>8</sup> Source: Wilshire Compass



## US Small Value Equity

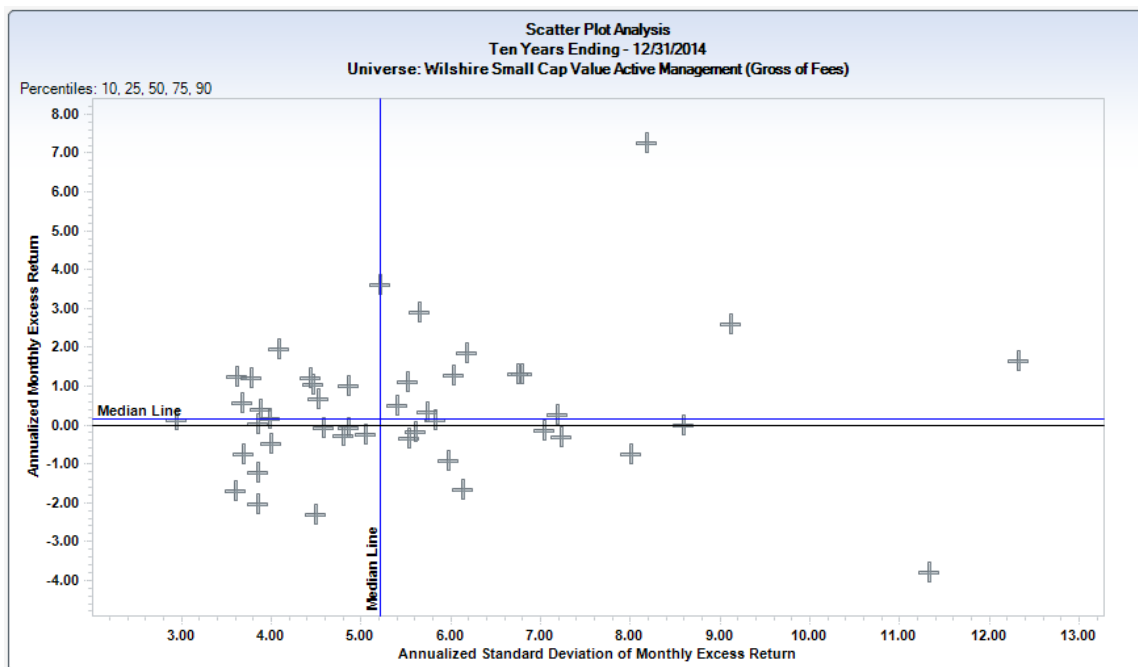


Source: Wilshire Compass



Source: Wilshire Compass

## US Small Value Equity



Source: Wilshire Compass

### US Small Growth Equity<sup>9</sup>

(Benchmark: Wilshire US Small-Cap Growth Index)

(Universe: Wilshire Defined US Small Cap Growth)

Small Growth manager performance in 2014 was benchmark-like, as the group delivered a median excess return of 0.10%. This universe continues to produce disappointing relative results over intermediate to longer time horizons, delivering median excess returns versus the Wilshire US Small Growth Equity Index of -0.31%, -0.35% and -0.29% for the three, five and ten-year time periods. The Wilshire US Small Growth Equity Index placed above the 50th percentile within the universe in three out of the four time periods, demonstrating lackluster benchmark-relative performance by managers over various time horizons especially over the ten-year period. The Small Growth universe also showed little consistency, as 51% of 1st quartile managers in the three years through 2011 remained in the top two quartiles in the latest three years on an absolute excess return basis.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	51	47	46	36
Number of Products	210	210	202	154
Average Excess Return	-0.35	-0.19	-0.24	-0.46
Median Excess Return	0.10	-0.31	-0.35	-0.29
Average IR	0.04	-0.03	-0.04	-0.07
Median IR	0.01	-0.06	-0.08	-0.05

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	35%	16%	20%	27%	98%
2 <sup>nd</sup>	18%	22%	31%	27%	98%
3 <sup>rd</sup>	10%	25%	31%	29%	96%
4 <sup>th</sup>	29%	33%	20%	18%	100%
No Data	42%	33%	8%	17%	100%

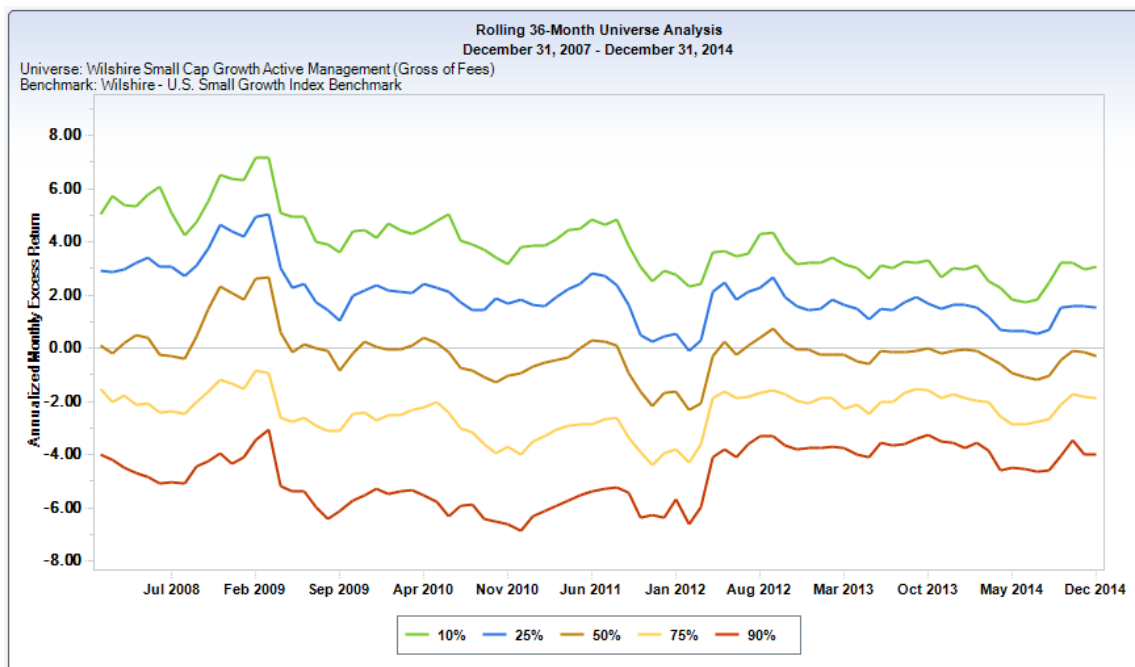
#### Manager Consistency

##### Information Ratio

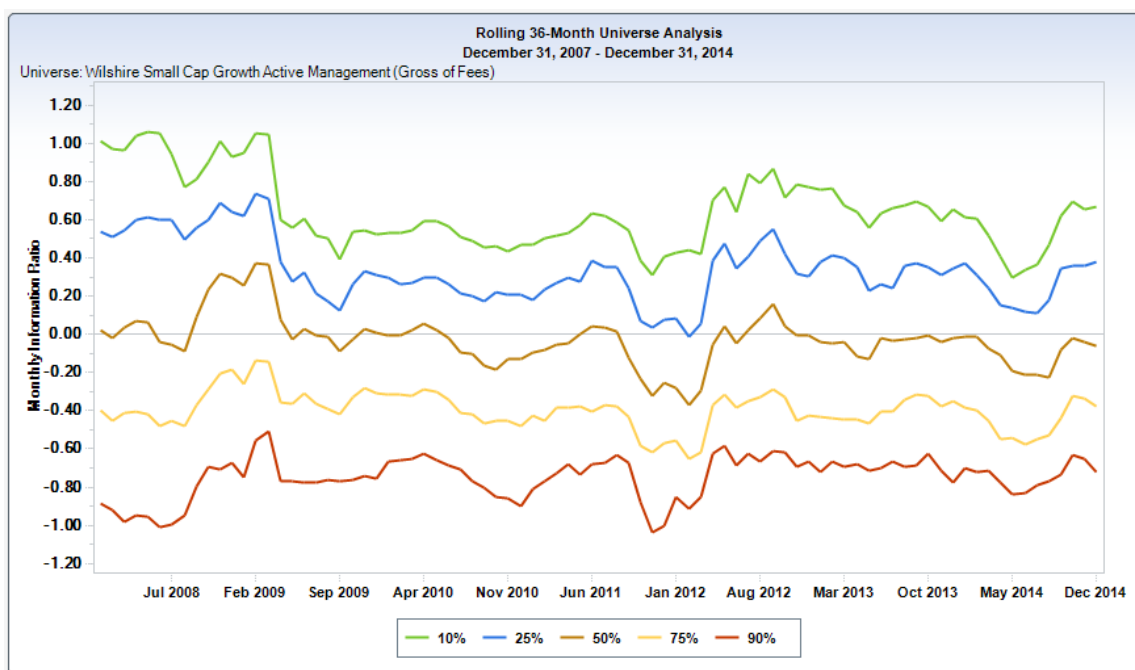
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	33%	24%	20%	20%	98%
2 <sup>nd</sup>	16%	18%	35%	27%	96%
3 <sup>rd</sup>	16%	24%	29%	29%	98%
4 <sup>th</sup>	29%	29%	18%	24%	100%
No Data	33%	42%	8%	17%	100%

<sup>9</sup> Source: Wilshire Compass

## US Small Growth Equity

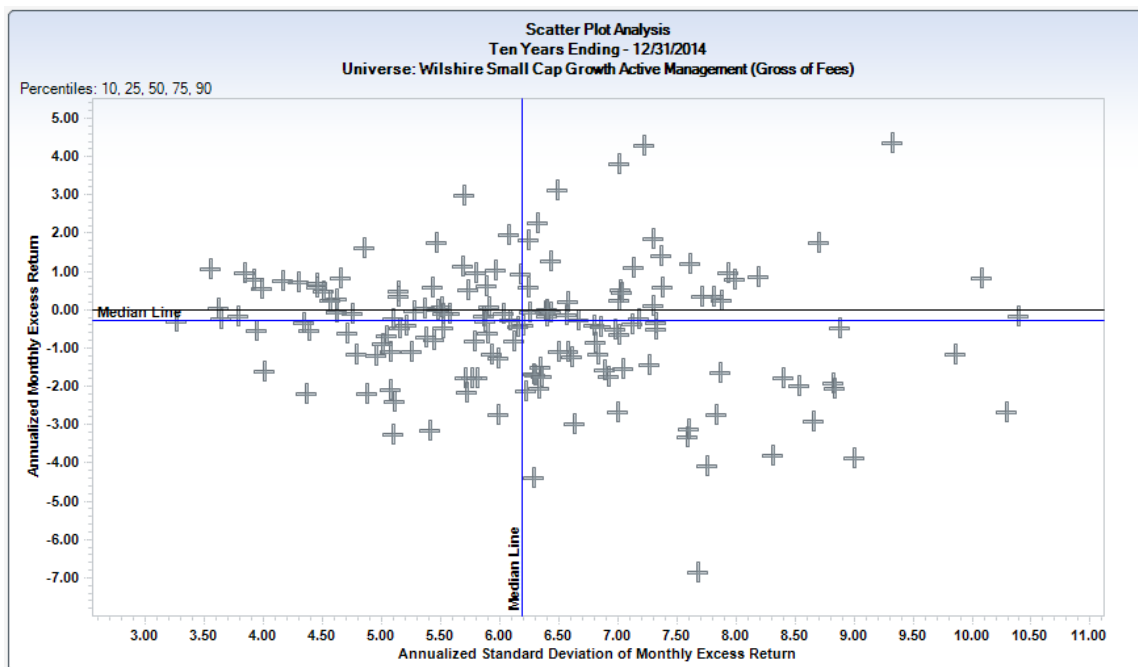


Source: Wilshire Compass



Source: Wilshire Compass

## US Small Growth Equity



Source: Wilshire Compass

### Developed Non-US Equity<sup>10</sup>

(Benchmark: MSCI EAFE Index (\$ Net))

(Universe: Wilshire Defined EAFE)

Developed Non-US Equity managers continued to provide robust relative results by delivering median excess returns versus the MSCI EAFE Index of 0.74%, 1.38%, 1.81% and 1.36%, respectively, for the one, three, five and ten-year time periods. The MSCI EAFE (\$net) Index placed at or below the 75th percentile within the universe in three out of four time periods (below 90<sup>th</sup> percentile for five and ten-year performance), demonstrating strong relative performance by managers over different time horizons. There continues to be a large dispersion in performance among Developed Non-US equity managers. On a risk-adjusted basis, managers performed well with median information ratios of 0.25, 0.52, 0.53 and 0.39 during the same time periods. This year's report shows an improvement in manager consistency on an absolute excess returns basis, as 47% of top quartile managers in the three years ending in 2011 remained in the top group in the last three years, up from 30% in the three years ending in 2010. The risk-adjusted statistics show a similar story, with 41% of top quartile managers through 2011 holding their position through 2014, up from 20% in 2013.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	63	75	93	93
Number of Products	77	75	71	52
Average Excess Return	0.78	1.91	2.20	1.64
Median Excess Return	0.74	1.38	1.81	1.38
Average IR	0.22	0.51	0.56	0.39
Median IR	0.25	0.52	0.53	0.39

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank	3 Year Quartile Rank				
2011	2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	47%	12%	18%	24%	100%
2 <sup>nd</sup>	12%	35%	35%	18%	100%
3 <sup>rd</sup>	12%	29%	29%	24%	94%
4 <sup>th</sup>	6%	29%	24%	41%	100%
No Data	63%	13%	13%	13%	100%

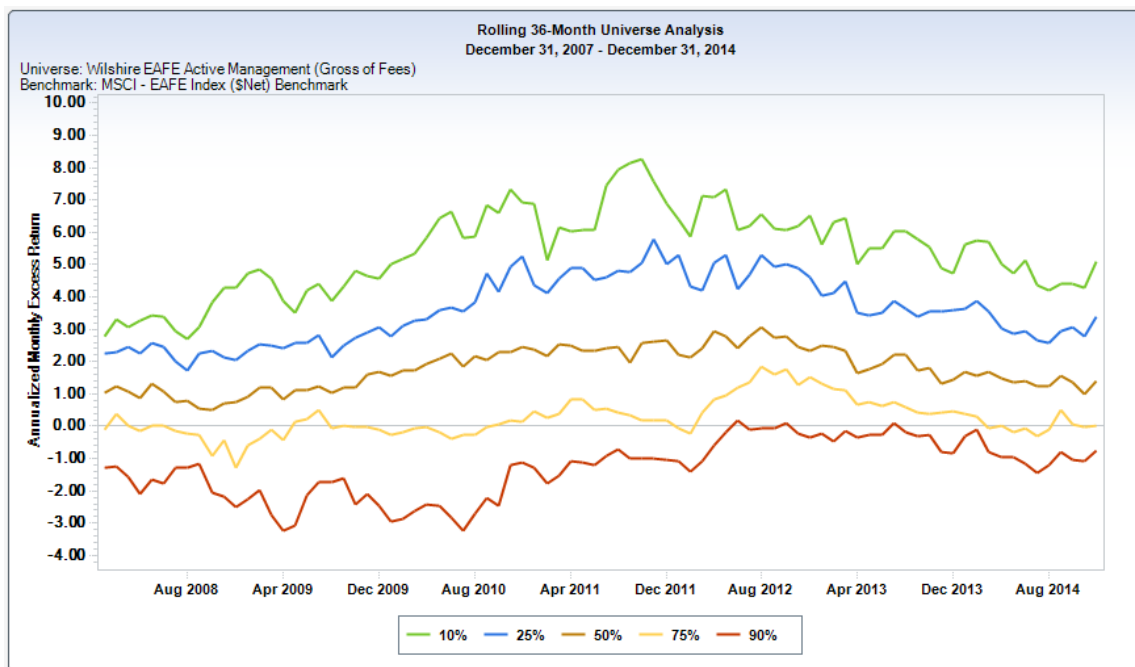
#### Manager Consistency

##### Information Ratio

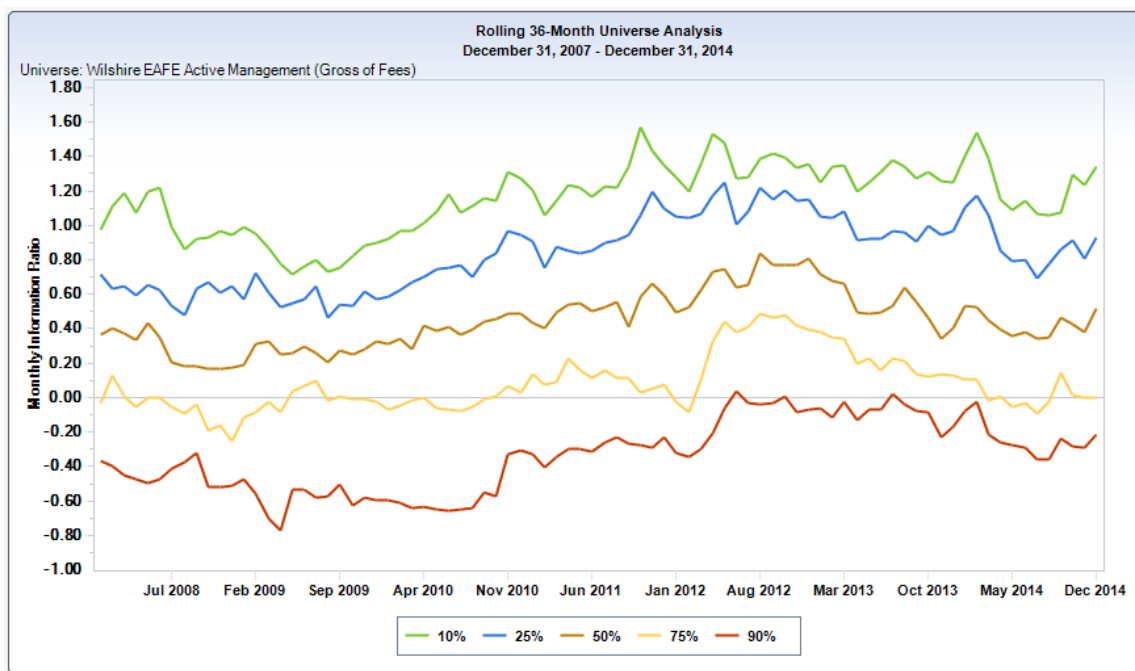
3 Year Quartile Rank	3 Year Quartile Rank				
2011	2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	41%	24%	24%	12%	100%
2 <sup>nd</sup>	12%	35%	35%	18%	100%
3 <sup>rd</sup>	29%	6%	24%	35%	94%
4 <sup>th</sup>	6%	29%	24%	41%	100%
No Data	38%	38%	13%	13%	100%

<sup>10</sup> Source: Wilshire Compass

## Developed Non-US Equity

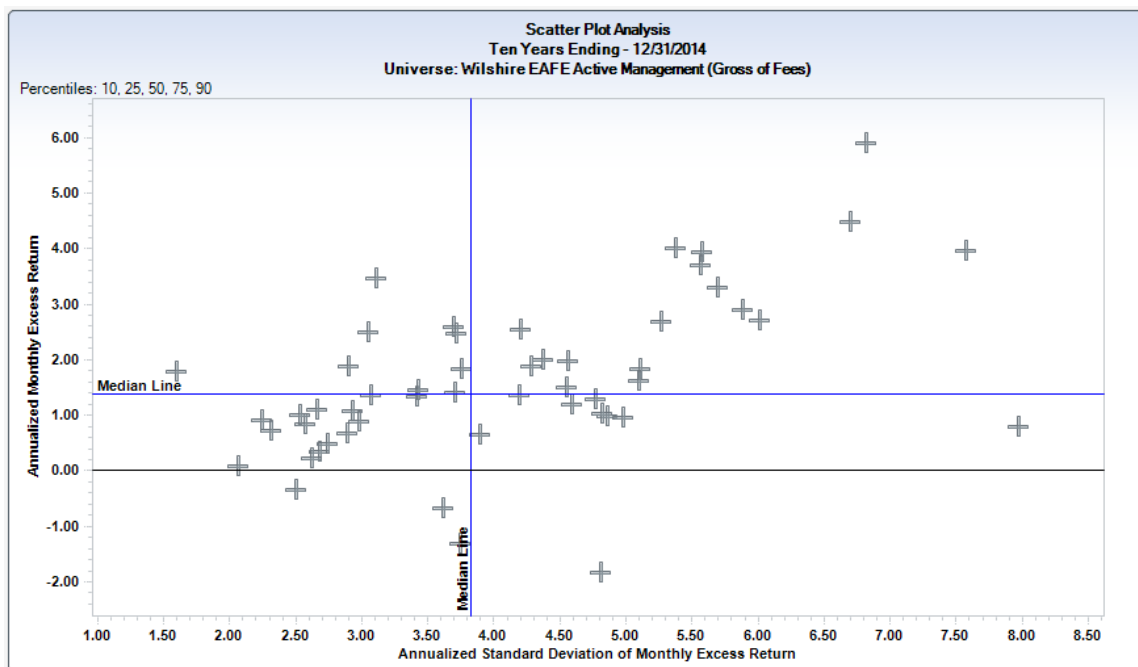


Source: Wilshire Compass



Source: Wilshire Compass

## Developed Non-US Equity



Source: Wilshire Compass



## Developed Non-US Small Cap Equity<sup>11</sup>

(Benchmark: MSCI - EAFE Small Index (\$Net))

Developed Non-US Small Cap Equity managers provided very strong relative performance in 2014 by delivering a median excess return of 2.17% versus the MSCI EAFE Small Cap Index. Relative performance was also outstanding over the three, five and ten year periods, as managers delivered median excess returns of 2.26%, 2.36% and 2.36%, respectively. The MSCI Small Cap EAFE (\$net) Index placed below the 75th percentile within the universe in three out of four time periods (90<sup>th</sup> percentile for five-year performance), demonstrating strong relative performance by managers over intermediate to longer time horizons. Much like the Core Developed Non-US Equity segment, there is a large dispersion in performance among Developed Non-US Small Cap Equity managers. On a risk-adjusted basis, managers had median information ratios of 0.72, 0.61, 0.48 and 0.55 during the same time periods. However, there is limited manager consistency on an absolute excess returns basis, as only 30% of top quartile managers in the three years ending in 2011 remained in the top group in the last three years. The risk-adjusted statistics magnify the inconsistency of the manager universe as only 20% of top quartile managers through 2011 held their position through 2014.

### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	71	77	90	91
Number of Products	47	46	40	24
Average Excess Return	1.52	1.88	2.01	2.47
Median Excess Return	2.17	2.26	2.36	2.36
Average IR	0.57	0.57	0.56	0.49
Median IR	0.72	0.61	0.48	0.55

### Manager Consistency

#### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	30%	20%	0%	50%	100%
2 <sup>nd</sup>	0%	33%	33%	22%	89%
3 <sup>rd</sup>	20%	20%	30%	30%	100%
4 <sup>th</sup>	10%	20%	50%	20%	100%
No Data	63%	38%	0%	0%	100%

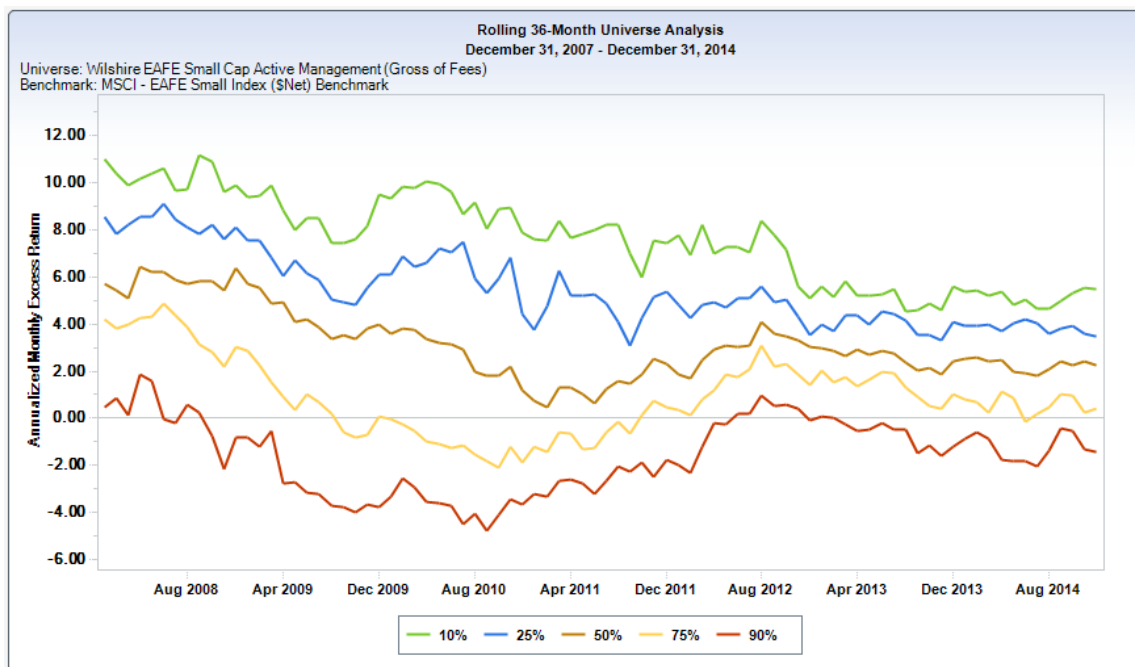
### Manager Consistency

#### Information Ratio

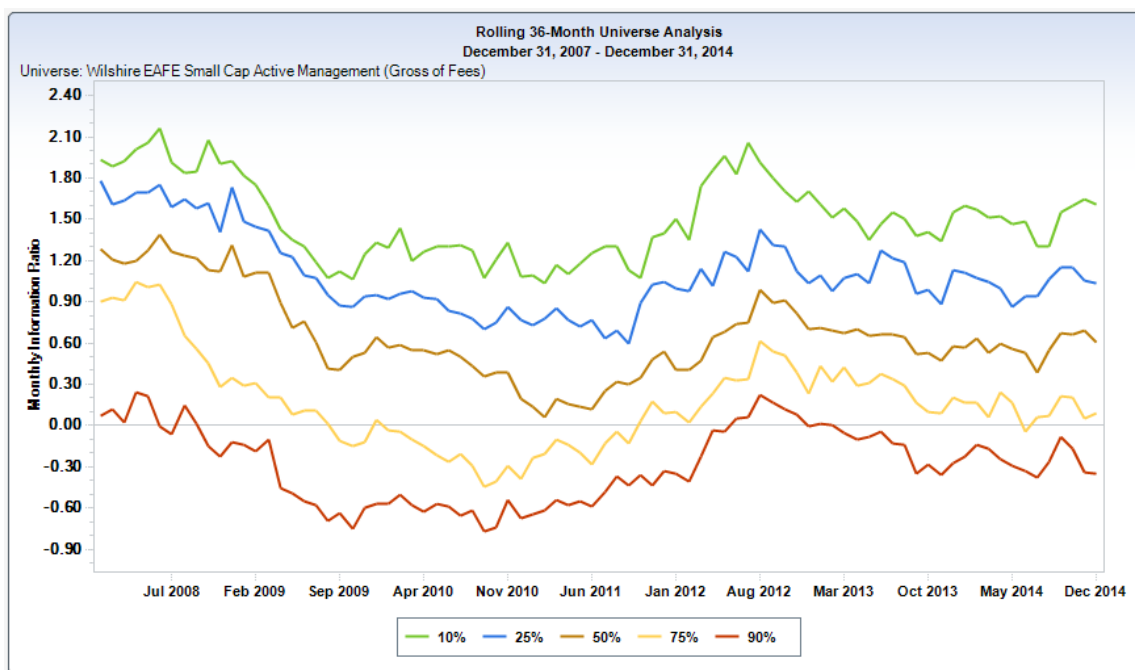
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	20%	30%	20%	30%	100%
2 <sup>nd</sup>	11%	33%	11%	33%	89%
3 <sup>rd</sup>	20%	20%	40%	20%	100%
4 <sup>th</sup>	0%	30%	30%	40%	100%
No Data	75%	13%	13%	0%	100%

<sup>11</sup> Source: Wilshire Compass

## Developed Non-US Small Cap Equity

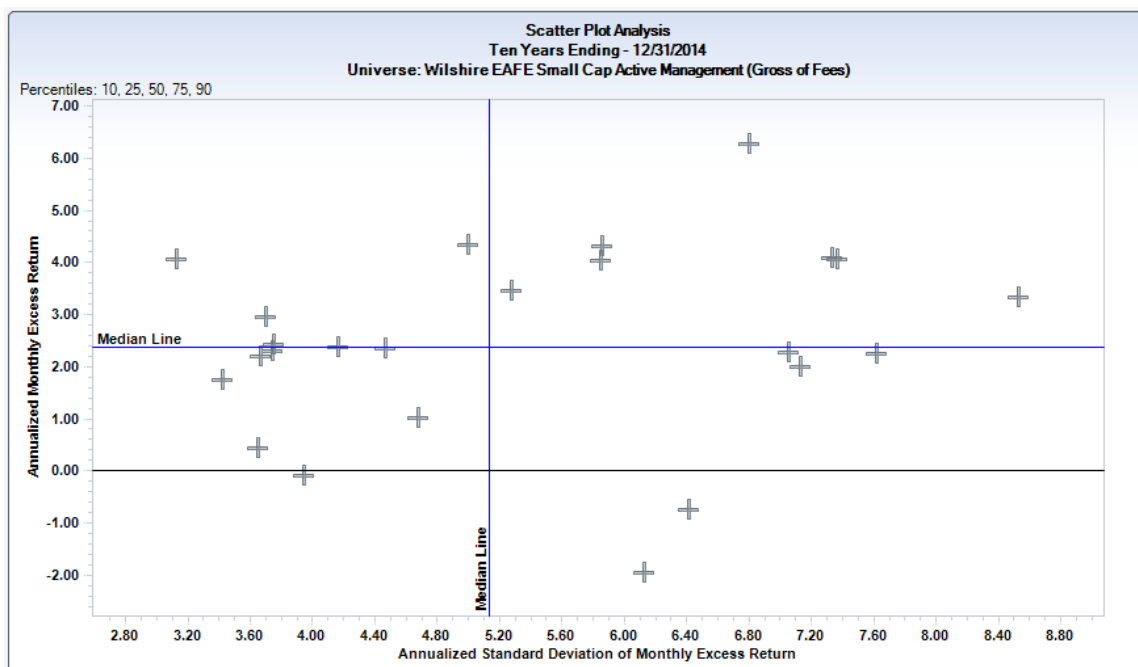


Source: Wilshire Compass



Source: Wilshire Compass

## Developed Non-US Small Cap Equity



Source: Wilshire Compass

## Emerging Markets Equity<sup>12</sup>

(Benchmark: MSCI Emerging Markets Index (\$ Net))  
(Universe: Wilshire Defined Emerging Markets)

Emerging Markets Equity managers delivered very strong performance in 2014 with a median excess return of 2.31%. The group has also delivered particularly strong results over the three, five, and ten-year time periods. Managers in this universe have produced median excess returns versus the MSCI Emerging Markets Index of 2.66%, 2.33% and 1.63%, respectively for the three, five and ten-year time periods. The MSCI Emerging Markets Index placed below the 75th percentile within the universe over intermediate to longer time horizons. However there was a drop off in manager consistency, with 64% of top quartile managers in the three years through 2011 remaining in the top two quartiles in the last three years, down from 79% in 2013.

### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	69	81	85	78
Number of Products	96	88	72	44
Average Excess Return	2.45	3.27	2.94	1.47
Median Excess Return	2.31	2.66	2.33	1.63
Average IR	0.52	0.62	0.52	0.27
Median IR	0.53	0.59	0.54	0.37

### Manager Consistency

#### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	35%	29%	24%	12%	100%
2 <sup>nd</sup>	13%	31%	25%	31%	100%
3 <sup>rd</sup>	18%	12%	35%	35%	100%
4 <sup>th</sup>	24%	35%	0%	35%	94%
No Data	32%	18%	36%	14%	100%

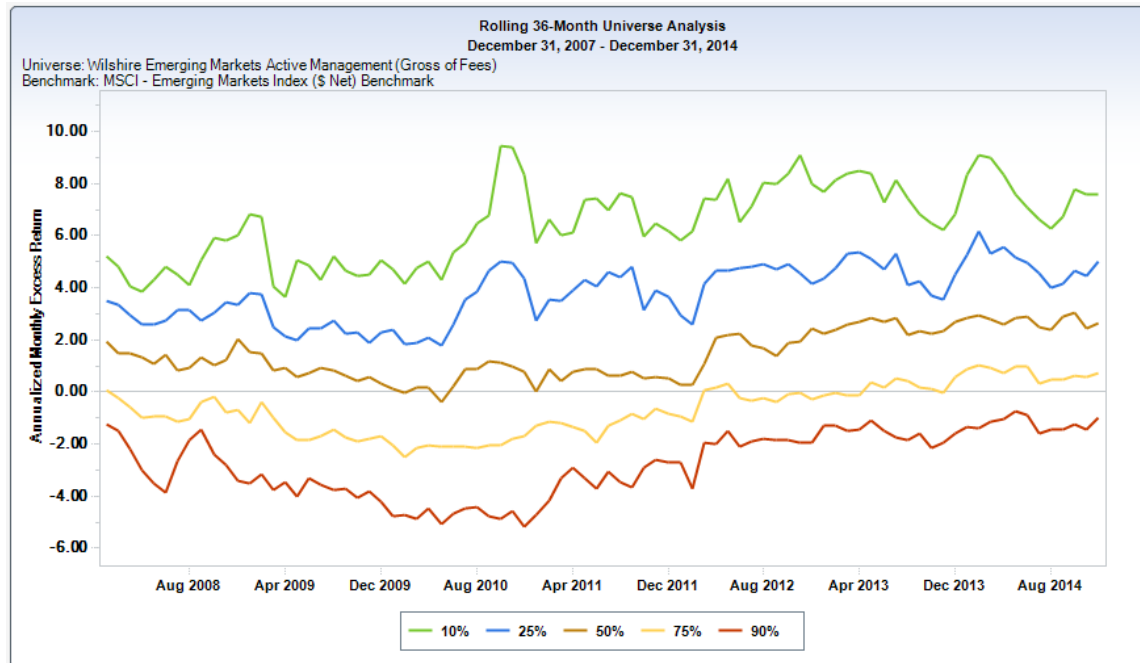
### Manager Consistency

#### Information Ratio

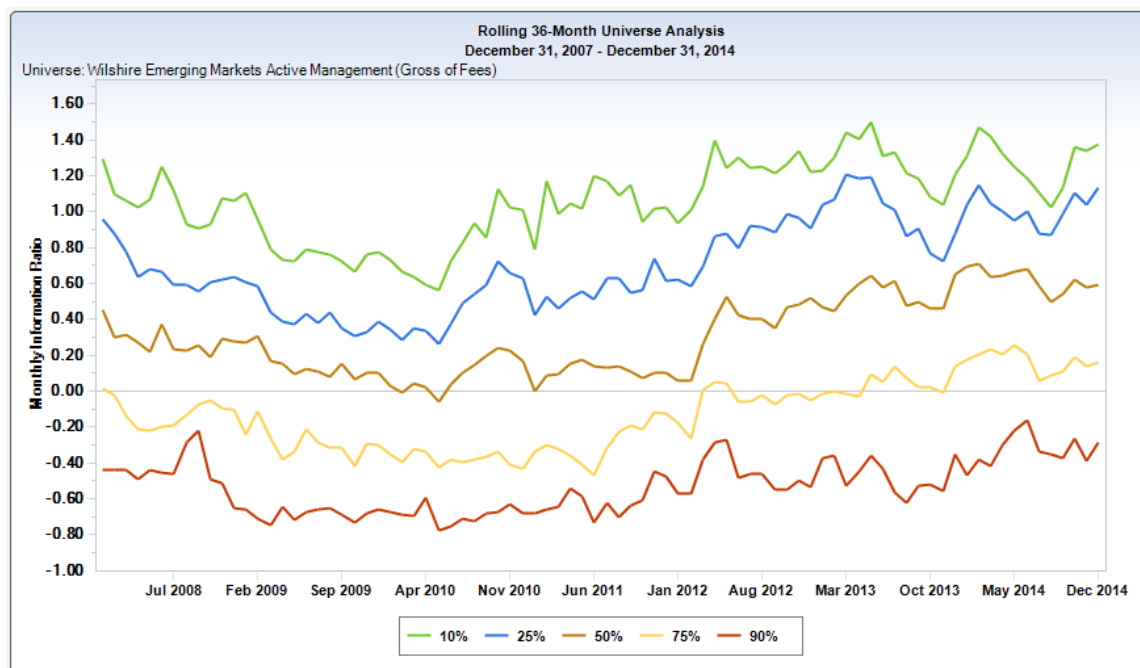
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	35%	24%	18%	24%	100%
2 <sup>nd</sup>	25%	31%	31%	13%	100%
3 <sup>rd</sup>	18%	24%	29%	29%	100%
4 <sup>th</sup>	12%	35%	6%	41%	94%
No Data	32%	14%	36%	18%	100%

<sup>12</sup> Source: Wilshire Compass

## Emerging Markets Equity

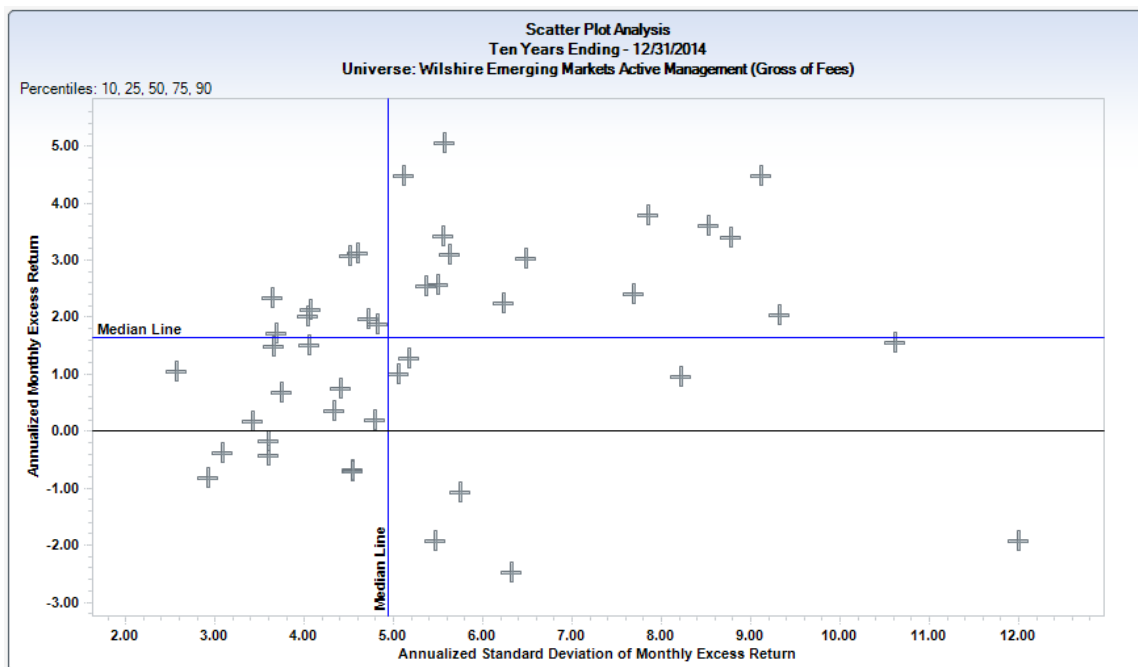


Source: Wilshire Compass



Source: Wilshire Compass

## Emerging Markets Equity



Source: Wilshire Compass

### Global Equity<sup>13</sup>

(Benchmark: MSCI - AC World Index (\$Net))  
(Universe: Wilshire Defined Global Equity)

Global Equity managers had disappointing performance in 2014 with a median excess return of -1.68%. However this universe has delivered reasonable results over the three, five, and ten-year time periods reflected in median excess returns versus the MSCI-AC World Index of 0.67%, 0.53% and 0.98%, respectively. The MSCI-AC World Index placed below the 70th percentile within the universe over the ten-year time horizon. The manager universe showed little consistency, as 47% of 1st quartile managers in the three years through 2011 remained in the top two quartiles in the latest three years on an absolute excess return basis with only 17% of the top quartile managers remaining in the top quartile

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	35	58	63	73
Number of Products	129	117	99	62
Average Excess Return	-1.93	0.00	0.12	1.25
Median Excess Return	-1.68	0.67	0.53	0.98
Average IR	-0.30	0.09	0.11	0.20
Median IR	-0.46	0.15	0.12	0.22

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank	3 Year Quartile Rank				
2011	2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	17%	30%	17%	35%	100%
2 <sup>nd</sup>	33%	21%	21%	25%	100%
3 <sup>rd</sup>	9%	26%	39%	26%	100%
4 <sup>th</sup>	29%	21%	25%	21%	96%
No Data	33%	25%	21%	21%	100%

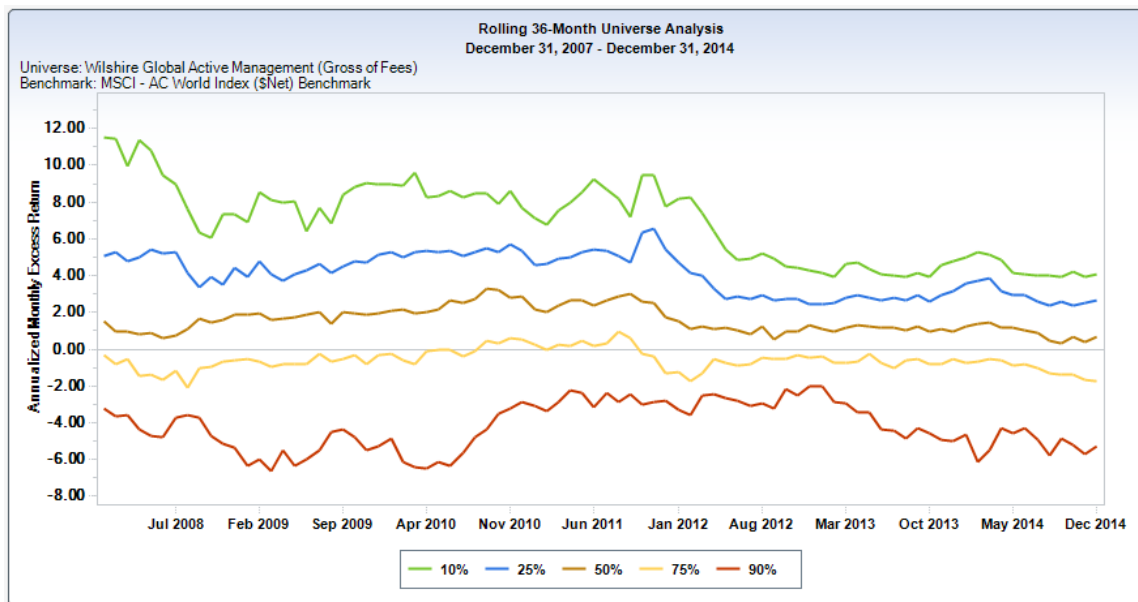
#### Manager Consistency

##### Information Ratio

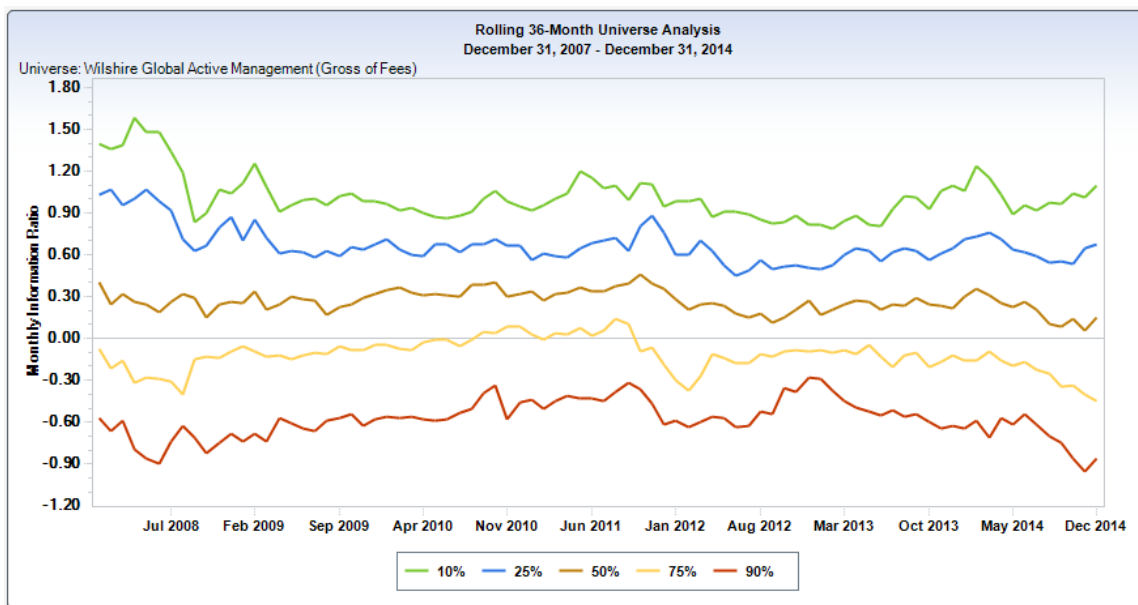
3 Year Quartile Rank	3 Year Quartile Rank				
2011	2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	26%	30%	13%	30%	100%
2 <sup>nd</sup>	25%	17%	33%	25%	100%
3 <sup>rd</sup>	17%	22%	30%	30%	100%
4 <sup>th</sup>	29%	21%	25%	21%	96%
No Data	25%	33%	21%	21%	100%

<sup>13</sup> Source: Wilshire Compass

## Global Equity



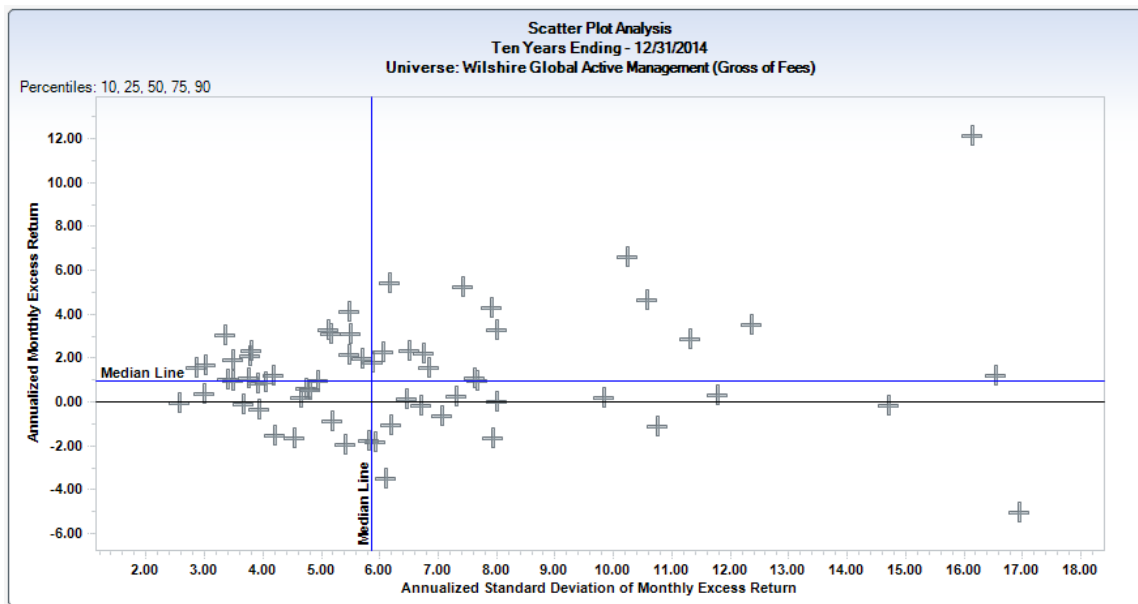
Source: Wilshire Compass



Source: Wilshire Compass



## Global Equity



Source: Wilshire Compass

## US REITs<sup>14</sup>

(Benchmark: Wilshire- REIT Index)

US REIT managers had a difficult year in 2014 with the group delivering a median excess return of -0.89%. However, over intermediate to longer term time horizons, US REIT managers have provided positive relative results with median excess returns versus the Wilshire- REIT Index of 0.52%, 0.52% and 1.24%, respectively, for the three, five and ten-year time periods. The Wilshire- REIT Index placed below the 70th percentile within the universe in three, five and ten-year periods (85<sup>th</sup> percentile for ten-year performance), demonstrating strong relative performance by managers over both intermediate and longer time horizons. There is also a large dispersion in performance among REIT managers over the short to intermediate term. On a risk-adjusted basis, managers performed well during the three, five, and ten year periods with median information ratios of 0.39, 0.30 and 0.40. This year's data show a drop-off in manager consistency on an absolute excess returns basis, as 51% of top quartile managers in the three years ending in 2011 remained in the top two quartiles in the last three years, down from 63% in last year's report.

### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	30	72	74	89
Number of Products	31	31	29	27
Average Excess Return	-1.59	0.78	0.29	1.29
Median Excess Return	-0.89	0.52	0.52	1.24
Average IR	-0.22	0.33	0.22	0.34
Median IR	-0.24	0.39	0.30	0.40

### Manager Consistency

#### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	38%	13%	13%	25%	88%
2 <sup>nd</sup>	14%	14%	57%	14%	100%
3 <sup>rd</sup>	29%	43%	14%	14%	100%
4 <sup>th</sup>	13%	25%	25%	25%	88%
No Data	33%	0%	0%	67%	100%

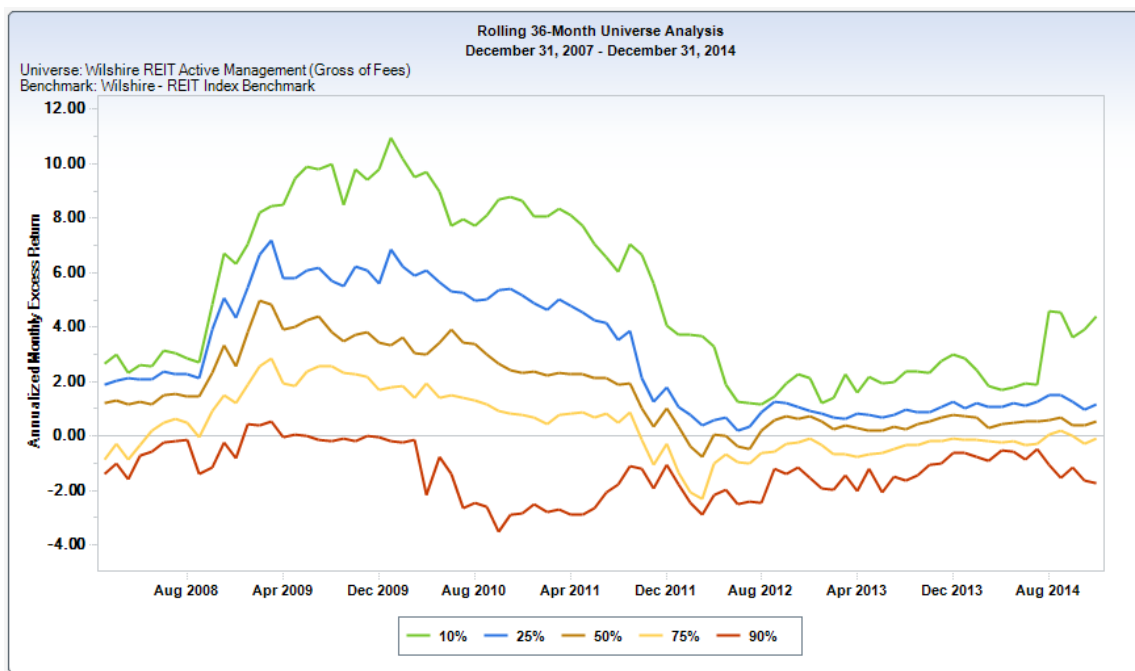
### Manager Consistency

#### Information Ratio

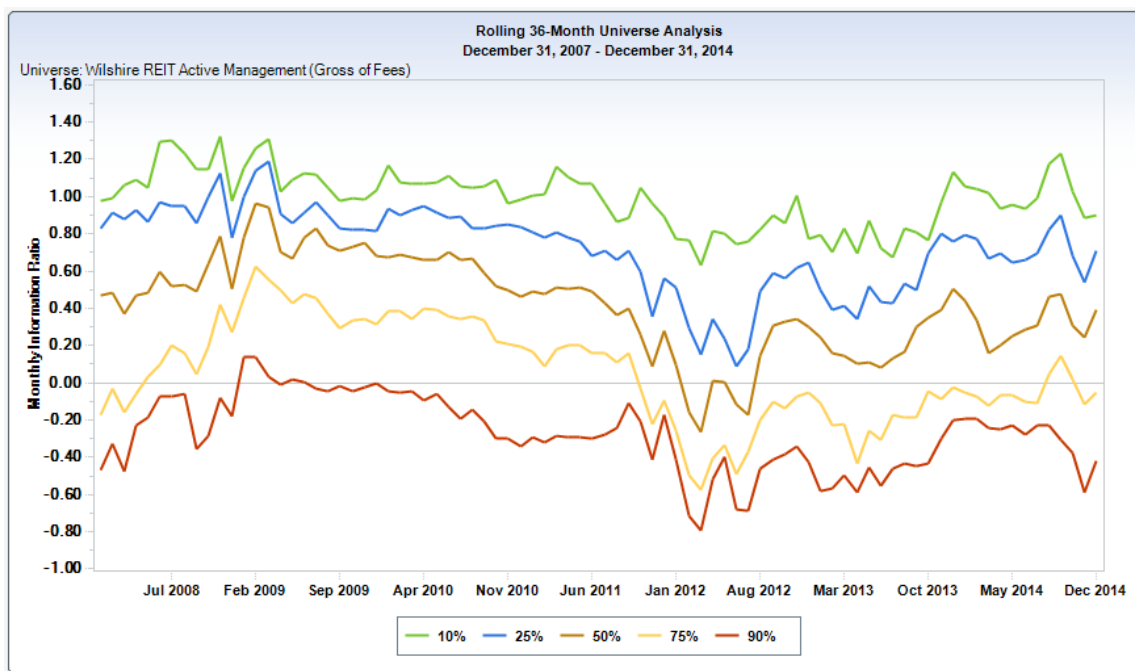
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	25%	13%	38%	13%	88%
2 <sup>nd</sup>	29%	14%	29%	29%	100%
3 <sup>rd</sup>	43%	14%	29%	14%	100%
4 <sup>th</sup>	0%	50%	13%	25%	88%
No Data	33%	0%	0%	67%	100%

<sup>14</sup> Source: Wilshire Compass

## US REITs

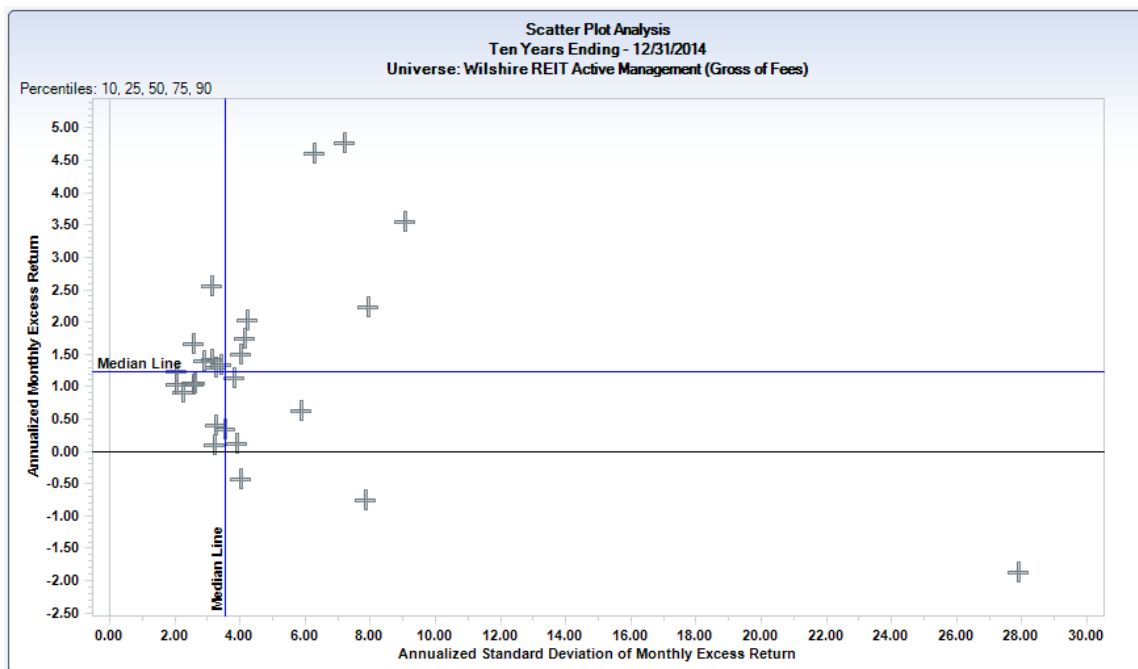


Source: Wilshire Compass



Source: Wilshire Compass

## US REITs



Source: Wilshire Compass

### Core Fixed Income<sup>15</sup>

(Benchmark: Barclays Capital US Aggregate Index)  
(Universe: Wilshire Defined Core)

Core Fixed Income managers had disappointing relative results in 2014 with a median excess return of -0.16%. However, relative gross-of-fee performance for the, three, five and ten-year periods has been positive with excess returns of 0.38%, 0.11% and 0.28%, respectively. On an absolute basis, Core Fixed Income did very well as yields once again trended lower (we include an additional table of index returns at the end of this section to provide return information across various segments of the US fixed income market). The dispersion of manager excess returns has remained relatively tight. Manager consistency in the universe has continued to improve, as 90% of top quartile managers in the three years through 2011 managed to stay in the 1<sup>st</sup> or 2<sup>nd</sup> quartile in the 2014 period on an absolute excess return basis, representing a 17% increase from last year.

#### Universe Statistics

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	42	63	56	64
Number of Products	76	74	73	64
Average Excess Return	-0.73	0.32	0.12	0.26
Median Excess Return	-0.16	0.38	0.11	0.28
Average IR	-0.52	0.62	0.21	0.25
Median IR	-0.46	0.67	0.17	0.22

#### Manager Consistency

##### Annualized Quarterly Excess Returns

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	58%	32%	5%	0%	95%
2 <sup>nd</sup>	21%	42%	21%	5%	89%
3 <sup>rd</sup>	11%	16%	47%	16%	89%
4 <sup>th</sup>	0%	10%	20%	70%	100%
No Data	50%	0%	0%	50%	100%

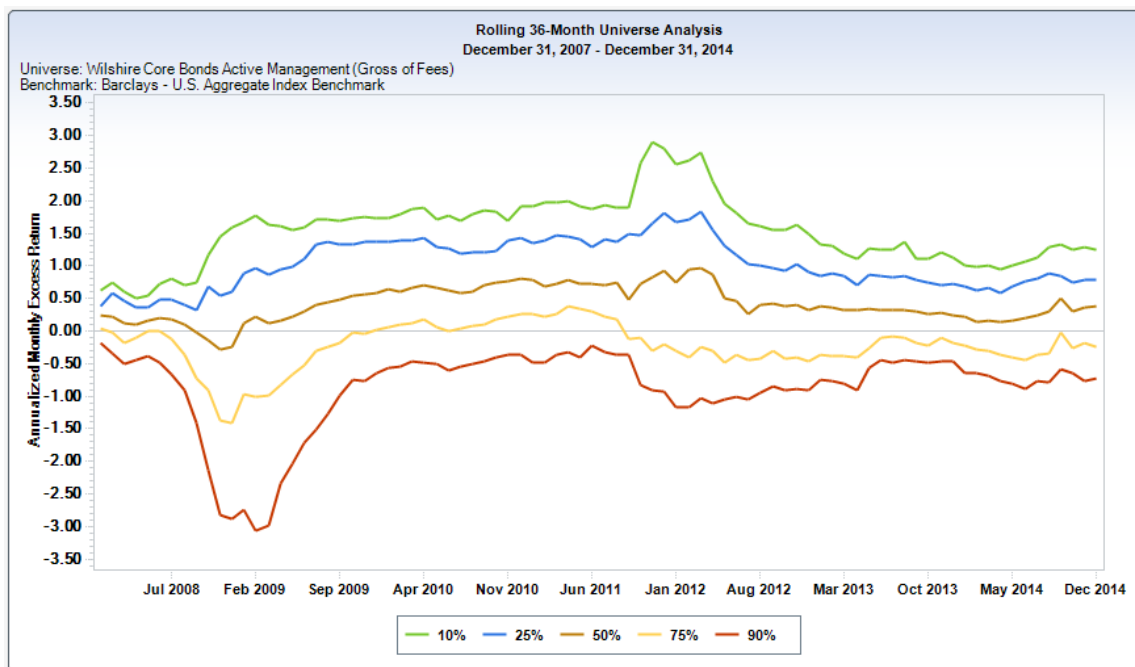
#### Manager Consistency

##### Information Ratio

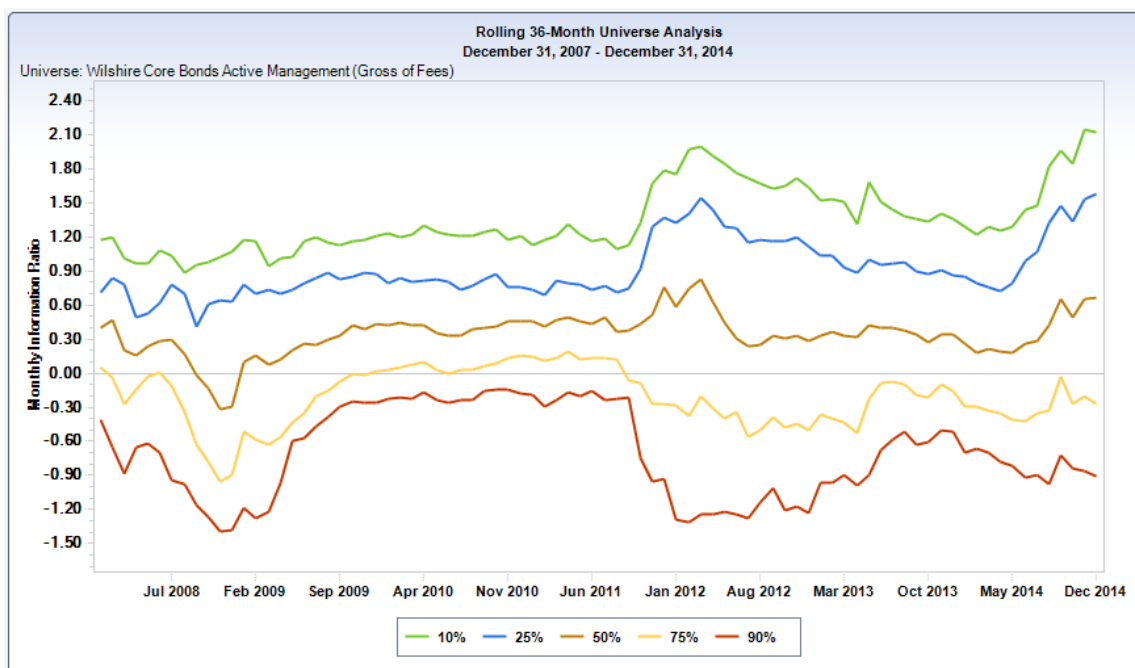
3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	63%	16%	16%	0%	95%
2 <sup>nd</sup>	21%	47%	11%	11%	89%
3 <sup>rd</sup>	5%	21%	47%	16%	89%
4 <sup>th</sup>	0%	15%	20%	65%	100%
No Data	50%	0%	0%	50%	100%

<sup>15</sup> Source: Wilshire Compass

## Core Fixed Income

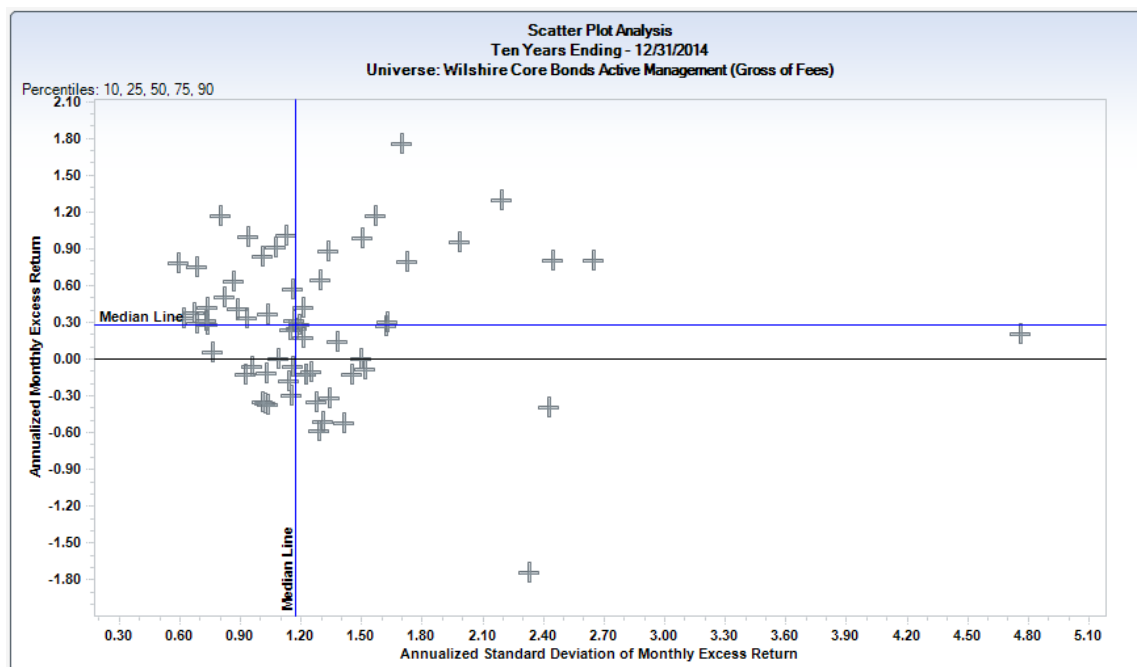


Source: Wilshire Compass



Source: Wilshire Compass

## Core Fixed Income



Source: Wilshire Compass

## Core Fixed Income Summary

31-Dec-14	1 yr	3 yr	5 yr	10 yr
Barclays Aggregate Bond Index	6.0%	2.7%	4.5%	4.7%
Barclays Treasury Index	5.1%	1.4%	3.9%	4.4%
Barclays Gov't-Related Index	6.1%	2.7%	3.9%	4.5%
Barclays Securitized Index	5.9%	2.5%	4.0%	4.7%
Barclays Corporate IG Index	7.5%	5.1%	6.5%	5.5%
Barclays LT Gov't/Credit Index	19.3%	5.8%	9.8%	7.4%
Barclays Long-Term Treasury Index	25.1%	4.2%	9.9%	7.5%
Barclays U.S. TIPS Index	3.6%	0.4%	4.1%	4.4%
Barclays High Yield Index	2.5%	8.4%	9.0%	7.7%
Treasury Bills	0.1%	0.1%	0.1%	1.5%

Source: Wilshire Compass

**High Yield Fixed Income<sup>16</sup>**  
(Benchmark: Barclays Capital High Yield Index)  
(Universe: Wilshire Defined High Yield)

The High Yield manager universe continued to produce disappointing results across various time periods, with median excess returns of 0.05, -0.20%, -0.26% and -0.16% over the most recent one, three, five and ten-year periods, respectively. The High Yield universe has demonstrated improved manager consistency, with 50% of 1<sup>st</sup> quartile managers in the three years through 2011 staying in the top quartile through 2014. The US High Yield summary table at the end of this section shows that exposure to higher quality segments (Ba credit) paid off in 2014.

**Universe Statistics**

As of 12/31/2014	1 Year	3 Years	5 Years	10 Years
Index Ranking	52	47	43	44
Number of Products	167	153	136	97
Average Excess Return	0.27	-0.16	-0.48	-0.24
Median Excess Return	0.05	-0.20	-0.26	-0.16
Average IR	0.31	-0.03	-0.08	-0.03
Median IR	0.06	-0.23	-0.14	-0.04

**Manager Consistency**  
**Annualized Quarterly Excess Returns**

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	50%	25%	22%	3%	100%
2 <sup>nd</sup>	9%	47%	38%	3%	97%
3 <sup>rd</sup>	24%	24%	30%	18%	97%
4 <sup>th</sup>	3%	6%	15%	70%	94%
No Data	33%	22%	15%	30%	100%

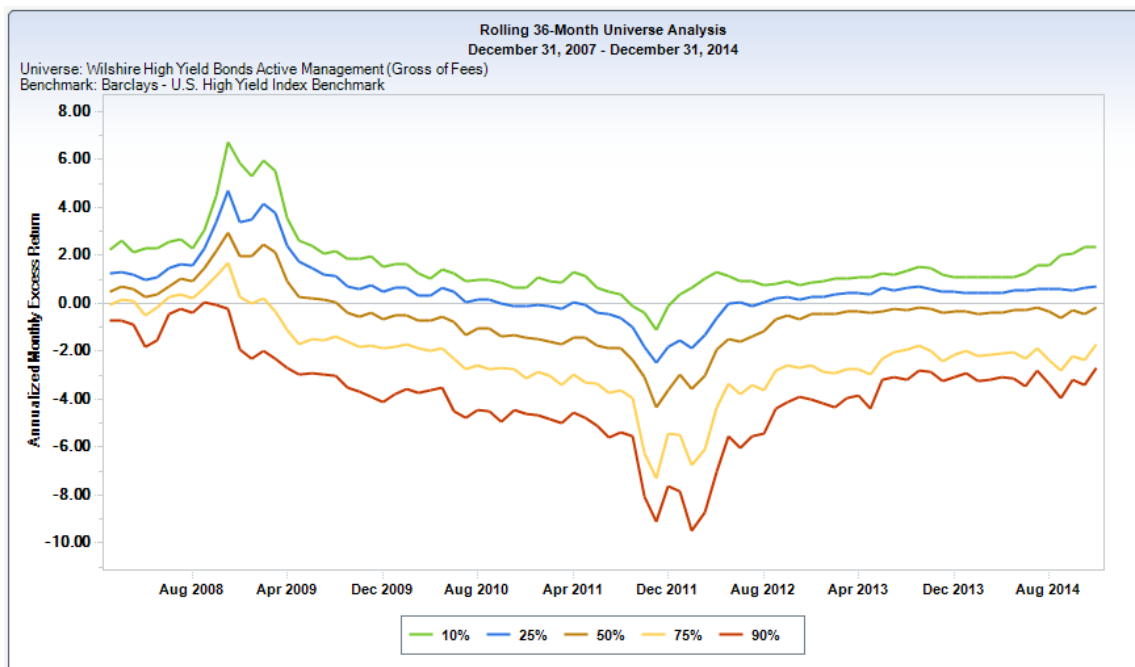
**Manager Consistency**  
**Information Ratio**

3 Year Quartile Rank 2011	3 Year Quartile Rank 2014				
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Total
1 <sup>st</sup>	50%	28%	19%	3%	100%
2 <sup>nd</sup>	16%	31%	22%	28%	97%
3 <sup>rd</sup>	21%	15%	33%	21%	91%
4 <sup>th</sup>	6%	18%	30%	45%	100%
No Data	26%	33%	15%	26%	100%

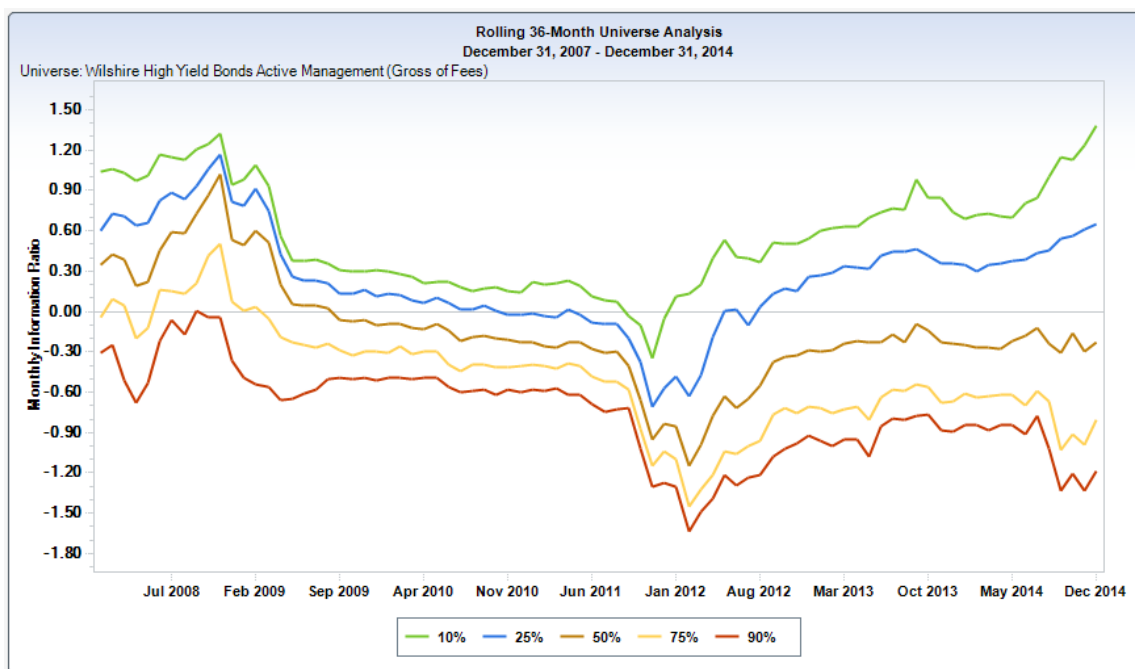
<sup>16</sup> Source: Wilshire Compass



## High Yield Fixed Income

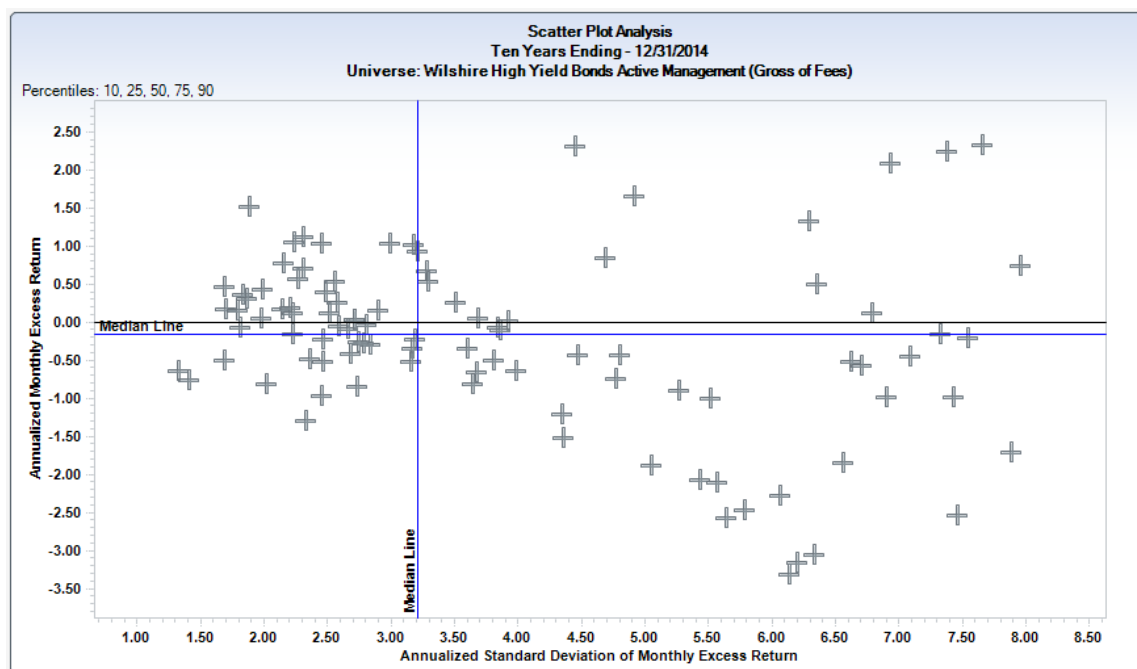


Source: Wilshire Compass



Source: Wilshire Compass

## High Yield Fixed Income



Source: Wilshire Compass

## US High Yield Summary

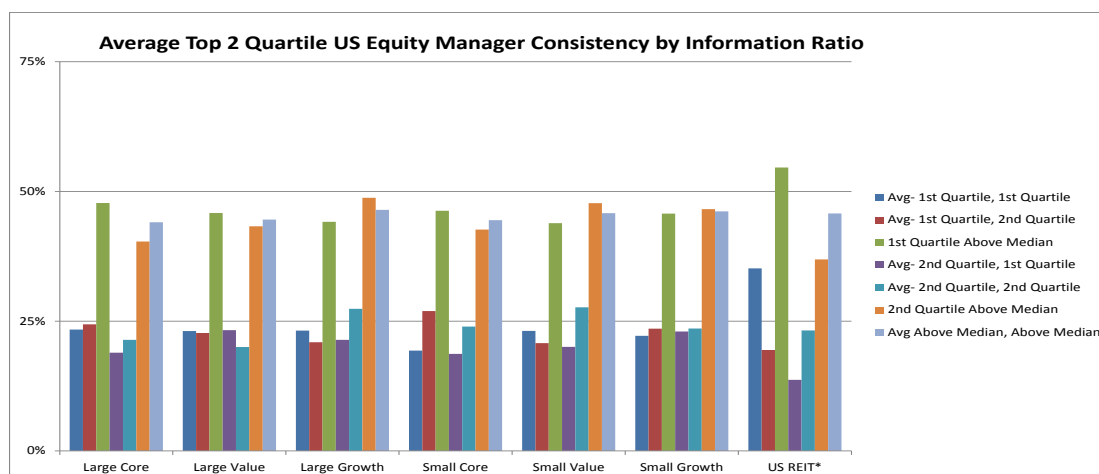
31-Dec-14	Index Weight	1 Year	3 Year	5 Year	10 Year
Barclays High Yield Index	100%	2.5%	8.4%	9.0%	7.7%
<b>Quality Distribution</b>					
Ba US High Yield	43.1	5.4%	8.2%	9.2%	8.0%
B US High Yield	40.7	1.5%	7.9%	8.6%	6.6%
Caa US High Yield	15.8	-1.1%	10.0%	9.4%	7.0%
Ca to D US High Yield	0.3	-38.9%	-5.9%	-0.9%	2.5%
Non-Rated US High Yield	0.2	4.2%	11.3%	10.5%	4.8%

Source: Barclays Capital

## Consistency Statistics Multi-Year Summary

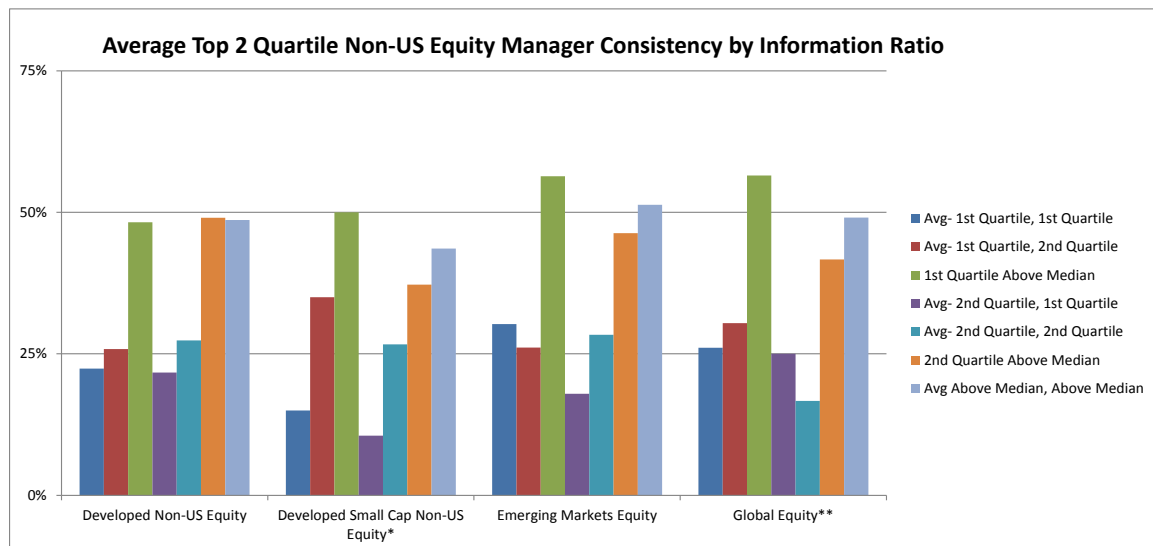
In this section of the report we look through each of the three major market segments (US Equities, International Equities and Fixed Income) to provide a summary of manager consistency across our five annual review reports. Each summary takes the information ratio (risk-adjusted) consistency approach discussed earlier, whereby we measure manager consistency through a comparison of distinct three-year periods (i.e. the three years through 2011 vs. the three years through 2014 in this year's report, etc.). The exception asset classes are Global Equity, Developed Small Cap Non-US Equity and US REITs where the statistics are limited to one, two and three years of ending point data, respectively. The charts include seven statistical columns for each investment category. These include the average percentage of managers that were in the 1<sup>st</sup> quartile in the previous three-year period who 1) remained in the 1<sup>st</sup> quartile in the subsequent period, 2) fell to the 2<sup>nd</sup> quartile in the subsequent period and 3) remained above median in the subsequent period.. The next three columns represent the same percentage outcomes in the most recent three-year period for those managers who were in the 2<sup>nd</sup> quartile in the previous three-year period. Finally, the seventh column bar displays the average percentages of above-median managers in the previous three-year period that remained above median in the subsequent three-year period.

In the chart below we see that, with the possible exception of US REITs, none of the US Equity segments showed any signs of risk-adjusted return consistency. In the case of US REITS, the Average 1<sup>st</sup> quartile, 1<sup>st</sup> quartile and 1<sup>st</sup> Quartile above Median average results were slightly above percentages that might be expected from a random outcome; 25% and 50%, respectively. Overall, the statistics in these segments are quite discouraging, representing the dearth of managers that are able to consistently add relative value across market cycles.



\* US REITS only have data for 2012, 2013, 2014 end points

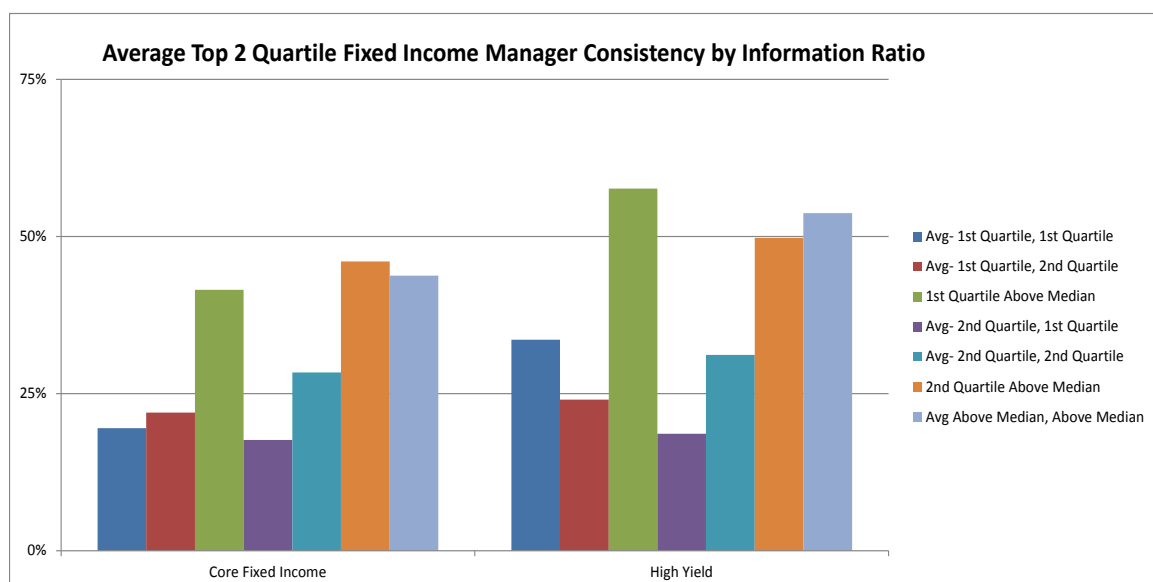
The results in the Non-US Equity chart below are similar to those above for US Equity, providing virtually no evidence of manager consistency. Only Emerging Markets Equity and Global Equity showed any positive consistency whatsoever and, even there, the results were barely above what would be expected from a random outcome.



\* Developed Small Cap Non-US Equity only has data for 2013 and 2014.

\*\* Global Equity only has data for 2014.

The disappointing consistency pattern continues in the Fixed Income chart below for the US core bonds segment. However, the High Yield manager universe shows some signs of positive return consistency, where the Average 1<sup>st</sup> quartile, 1<sup>st</sup> quartile and 1<sup>st</sup> Quartile above Median percentages were 37% and 62%, respectively.



## Appendix

### **Standard Wilshire Universes Calculation Methodology and Rules US & Non US Equity, Fixed Income US Equity Database**

#### **I. Large Growth Universe**

- A. The Product Type as described by the manager must be Equity, Index, Balanced, or Other.
- B. The R2 resulting from a four-factor<sup>1</sup> returns-based style analysis over a 3-year period ending the prior quarter must be 0.70 or greater.
  - 1) The four factors used in the style analysis are the Wilshire Large Growth, Wilshire Large Value Index, Wilshire Small Growth Index and Wilshire Small Value Index. This Analysis requires a minimum 3-year monthly return history as of the prior quarter for each product.
  - 2) The Total Large allocation is calculated by adding the Wilshire Large Growth Index and Wilshire Large Value Index allocations from a four-factor returns- based style analysis over the trailing 3 years.
  - 3) The Total Growth allocation is calculated by adding the Wilshire Large Growth Index and Wilshire Small Growth Index allocations from four-factor returns- based style analysis over the trailing 3 years.
  - 4) The Total Value allocation is calculated by adding the Wilshire Large Value Index and Wilshire Small Value Index allocations from four-factor returns- based style analysis over the trailing 3 years.
- C. The Size Score, as calculated using Wilshire's proprietary holdings-based methodology, must average greater than or equal to 30 over a two-quarter period ending the prior quarter.
- D. The Style Score, as calculated using Wilshire's proprietary holdings-based methodology, must average greater than or equal to 25 over a two-quarter period ending the prior quarter.
- E. The allocation to Total Large must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis<sup>2</sup>.
- F. The allocation to Total Growth must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis<sup>3</sup>.

#### **II. Large Value Universe**

- A. The Product Type as described by the manager must be Equity, Index, Balanced, or Other.
- B. The R2 resulting from a four-factor returns-based style analysis over a 3-year period ending the prior quarter must be 0.70 or greater.
- C. The Size Score, as calculated using Wilshire's proprietary holdings-based methodology, must average greater than or equal to 30 over a two-quarter period ending the prior quarter.
- D. The Style Score, as calculated using Wilshire's proprietary holdings-based methodology, must average less than or equal to -25 over a two quarter period ending the prior quarter.
- E. The allocation to Total Large must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis.
- F. The allocation to Total Value must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis<sup>4</sup>.

#### **III. Large Core Universe**

- A. The Product Type as described by the manager must be Equity, Index, Balanced, or Other.
- B. The R2 resulting from a four-factor returns-based style analysis over a 3-year period ending the prior quarter must be 0.70 or greater.

- C. The Size Score, as calculated using Wilshire's proprietary holdings-based methodology, must average greater than or equal to 30 over a two-quarter period ending the prior quarter.
- D. The Style Score, as calculated using Wilshire's proprietary holdings-based methodology, must average between -25 and 25 over a two-quarter period ending the prior quarter.
- E. The allocation to Total Large must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis.

#### **IV. Small Growth Universe**

- A. The Product Type as described by the manager must be Equity, Index, Balanced, or Other.
- B. The R2 resulting from a four-factor returns-based style analysis over a 3-year period ending the prior quarter must be 0.70 or greater.
- C. The Size Score, as calculated using Wilshire's proprietary holdings-based methodology, must average less than or equal -30 over a two quarter period ending the prior quarter.
- D. The Style Score, as calculated using Wilshire's proprietary holdings-based methodology, must average greater than or equal to 25 over a two quarter period ending the prior quarter.
- E. The allocation to Total Small must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis<sup>8</sup>.
- F. The allocation to Total Growth must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis.

#### **V. Small Value Universe**

- A. The Product Type as described by the manager must be Equity, Index, Balanced, or Other.
- B. The R2 resulting from a four-factor returns-based style analysis over a 3-year period ending the prior quarter must be 0.70 or greater.
- C. The Size Score, as calculated using Wilshire's proprietary holdings-based methodology, must average less than or equal -30 over a two quarter period ending the prior quarter.
- D. The Style Score, as calculated using Wilshire's proprietary holdings-based methodology, must average less than or equal to -25 over a two quarter period ending the prior quarter.
- E. The allocation to Total Small must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis.
- F. The allocation to Total Value must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis.

#### **VI. Small Core Universe**

- A. The Product Type as described by the manager must be Equity, Index, Balanced, or Other.
- B. The R2 resulting from a four-factor returns-based style analysis over a 3-year period ending the prior quarter must be 0.70 or greater.
- C. The Size Score, as calculated using Wilshire's proprietary holdings-based methodology, must average less than or equal -30 over a two quarter period ending the prior quarter.
- D. The Style Score, as calculated using Wilshire's proprietary holdings-based methodology, must average between -25 and 25 over a two quarter period ending the prior quarter.
- E. The allocation to Total Small must be greater than or equal to 50% for the prior quarter four-factor 3-year returns-based style analysis.

#### **Non-US Equity Database**

##### **I. EAFE Universe**

- A. The Product Type as described by the manager may not be REIT, Hedge Fund, Hedge Fund of Fund, or Alternative.
- B. The allocation to Developed (EAFE) Countries, as described by Morgan Stanley Capital Indices, must be greater than or equal to 90% over a two quarter average ending the prior quarter.

- C. The allocation to European Countries, as described by Morgan Stanley Capital Indices, must be less than 80% over a two quarter average ending the prior quarter.
- D. The allocation to Pacific Countries, as described by Morgan Stanley Capital Indices, must be less than 80% over a two quarter average ending the prior quarter.
- E. The allocation to Emerging Countries, as described by Morgan Stanley Capital Indices, must be less than or equal to 10% over a two quarter average ending the prior quarter.
- F. No weighting to an individual country may be greater than 50% over a two-quarter average ending the prior quarter.

## **II. Emerging Markets Universe**

- A. The Product Type as described by the manager may not be REIT, Hedge Fund, Hedge Fund of Fund, or Alternative.
- B. The allocation to Developed (EAFE) Countries, as described by Morgan Stanley Capital Indices, must be less than or equal to 50% over a two quarter average ending the prior quarter.
- C. The allocation to European Countries, as described by Morgan Stanley Capital Indices, must be less than 15% over a two-quarter average ending the prior quarter
- D. The allocation to Pacific Countries, as described by Morgan Stanley Capital Indices, must be less than 25% over a two-quarter average ending the prior quarter.
- E. The allocation to US stocks must be less than 5% over a two-quarter average ending the prior quarter over a two-quarter average ending the prior quarter.
- F. The allocation to Emerging Market countries must be greater than 50%.

## **Fixed Income**

### **I. High Yield Universe**

- A. Average quality must average less than 3.99 for a two-quarter period ending the prior quarter.
- B. The Average Quality cannot be 0 for either of the two quarters in the average calculation.
- C. The Sector Focus described by the manager may not be Municipals.

### **II. Core Universe**

- A. Average Quality must average more than 6.0 for a two-quarter period ending the prior quarter.
- B. The effective duration of the portfolio must average between 3.5 and 6.5 for a two-quarter period ending one the prior quarter.
- C. The allocation to Mortgage Backed Securities (% MBS Sect) must be less than or equal to 50% for a two-quarter period ending the prior quarter.
- D. The allocation to Municipal Securities (% Municipal Sect) must be less than or equal to 10% for a two-quarter period ending the prior quarter.
- E. The Sector Focus described by the manager may not be Municipals or TIPS.
- F. The allocation to Municipal Securities must be greater than or equal to 80% for a two quarter period ending the prior quarter.

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