Wilshire

Manager Research

2022 Active Management Review

April 2023

Contents

Executive Summary 3

Introduction 4

Market Environment 4

U.S. Equity: Size 6

U.S. Equity: Style 8

U.S. Equity: Quality 10

U.S. Equity: Volatility 12

U.S. Equity: Momentum 15

Non-U.S. Equity: Emerging vs. Developed Markets 17

Non-U.S. Equity: Currency 19

Fixed Income: High Yield vs. Investment Grade 21

Active Management Summary 23

Active Management Universe Statistics 26

U.S. Large Core Equity 27

U.S. Large Growth Equity 30

U.S. Large Value Equity 33

U.S. Small Core Equity 36

U.S. Small Growth Equity 39

U.S. Small Value Equity 42

U.S. REITs 45

Developed Non-U.S. Equity 48

Developed Non-U.S. Small Cap Equity 51

Emerging Markets Equity 54

Global Equity 57

Core Fixed Income 60

High Yield Fixed Income 63

Consistency Statistics Multi-Year Summary 66

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.

Manager Universe Highlights/Lowlights (Exhibits 19 and 20):

- U.S. Equity Universes: As can be seen in the following list, which is sorted by median excess gross-of-fee returns, small caps (the core and value segments) and large core universes delivered particularly strong relative performance in 2022. Only the small growth segment underperformed versus its respective benchmark.
  - +4.99% Small Core
  - +4.52% Small Value
  - +3.92% Large Core
  - +1.90% REITs
  - +0.60% Large Growth
  - +0.53% Large Value
  - -4.90% Small Growth
- Non-U.S. Equity Universes: Most non-U.S. equity segments were positive during 2022, with three of four groups posting positive median gross-of-fee excess returns. As can be seen through the sorting below, the Developed ex-U.S. universe produced the only underperformance relative to its respective benchmark.
  - +7.13% Global
  - +0.73% Developed ex-U.S. Small Cap
  - +0.03% Emerging Markets
  - -2.98% Developed ex-U.S.
- Fixed Income Universes: The U.S. High Yield and Core fixed income universes had positive median gross-of-fee excess returns in 2022.
  - +3.03% U.S. High Yield
  - +2.78% U.S. Core
- There is little evidence of manager consistency through time beyond what would be expected from random outcomes. This is not to imply that performance consistency is unachievable, but rather that the successful use of active management cannot solely rely on picking past winners (Pages 66-68). Extracting long-term value from an active management program requires robust qualitative analysis to properly inform the interpretation of quantitative results. It is for these reasons that Wilshire continues to invest significant resources in our manager research process and has developed a research model that is heavily qualitative in nature.

Systematic Market/Factor Currents:

- Differences in return from a size perspective were modest in 2022 although U.S. small-cap stocks did outperform large-cap stocks by 0.4% (Exhibits 1, 2 and 3).
- U.S. value stocks significantly outperformed growth by 22.8% in 2022 (Exhibits 1, 4 and 5).
- "High quality" stocks outperformed "low quality" stocks in 2022 with the Quality factor posting a 6.2% return (Exhibits 6 and 7).
- The Volatility factor had a negative return (-6.5%) in 2022, which generally served as a headwind to strategies that prefer low volatility stocks (Exhibits 9 and 10).
- The Momentum factor experienced positive returns (1.0%) in 2022, potentially helping strategies that attempt to ride momentum trades (Exhibits 11 and 12).
- Emerging market stocks underperformed developed market stocks (-5.6% net), detracting from the returns of international managers with persistent tilts toward the emerging markets. (Exhibits 1, 13 and 14).
- A rising U.S. dollar in 2022 had a negative impact (-6.4%) on the U.S. dollar-based returns of international equities relative to local returns as foreign currencies weakened (Exhibit 1, 15 and 16).
- High yield bonds outperformed the core fixed income market (1.8% net), improving the relative returns of managers who systematically hold bonds of lower credit quality (Exhibits 1, 17 and 18).

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 thirteenth annual installment of the report; we expect this structure will continue to evolve through time.

Wilshire's general expectations across the capital markets are for the average/median manager to generate long-term gross-of-fees performance that is market-like. As such, once accounting for fees, we would expect average active results to trail passive indexes. While much of the quantitative universe data contained within this report support that general expectation, we do not view this as an indictment against the pursuit of active management. Instead, we note that the challenges revealed through historical analysis are the consequence of the "arithmetic of active management," where the market return simply reflects the accumulation of all investors and underscores the importance of incorporating a robust qualitative manager due diligence process within an active management program. It is for these reasons that Wilshire continues to invest significant resources in our manager research process and has developed a research model that is heavily qualitative in nature.

The Wilshire Compass℠ 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 2022, the Wilshire Investment Database covers approximately 12,000 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, readers should be aware of the possible biases in this study.

Except for the U.S. REIT and Developed Non-U.S. Small-Cap Equity segments, all manager universes used in this paper are Wilshire Defined Universes[1], which represent manager segmentations constructed from returns-based and holdings-based style analysis. In the case of the two exceptions noted above, which do not have preset Wilshire Defined Universes, customized database filters were utilized to populate the respective universes.

The layout of the paper begins with a study of systematic returns and the underlying factors driving market returns over the last 10 years. We then shift to a review of active management results within various segments of the equity and fixed income markets.

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

[1] Two additional filters were applied to the manager universes used in this study: 1) a filter to include only strategies identified as Active Bottom-up or Active Top-down to eliminate the impact of passive strategies, 2) exclude strategies that identify their returns as being net-of-fees.

important market drivers during the one-, three-, five- and 10-year time periods that can be applied to reaching a better understanding of individual manager performance during these intervals.

In Exhibit 1 below, we provide a comparison of periodic returns for various indicative market indexes, including a comparison of related index pairs.

Exhibit 1: Systematic Market/Factor Returns (Annualized)

Index Returns (thru Dec 2022)	1 Year	3 Years	5 Years	10 Years
Wilshire US Large Cap	-19.0%	7.7%	9.4%	12.6%
Wilshire US Small Cap	-18.7%	4.4%	5.1%	9.7%
Large minus Small	**-0.4%**	**3.3%**	**4.3%**	**2.9%**
Wilshire US 2500 Value	-6.3%	7.9%	8.4%	11.3%
Wilshire US 2500 Growth	-29.1%	6.4%	9.3%	13.1%
Value minus Growth	**22.8%**	**1.5%**	**-0.9%**	**-1.8%**
MSCI Emerging Markets ($ Net)	-20.1%	-2.7%	-1.4%	1.4%
MSCI EAFE ($ Net)	-14.5%	0.9%	1.5%	4.7%
Emerging minus Developed	**-5.6%**	**-3.5%**	**-2.9%**	**-3.2%**
MSCI ACWI-X US (LC Net)	-9.6%	2.7%	3.2%	6.7%
MSCI ACWI-X US ($ Net)	-16.0%	0.1%	0.9%	3.8%
Local minus USD	**6.4%**	**2.6%**	**2.3%**	**2.9%**
Bloomberg US High Yield	-11.2%	0.1%	2.3%	4.0%
Bloomberg US Aggregate	-13.0%	-2.7%	0.0%	1.1%
High Yield minus Core	**1.8%**	**2.8%**	**2.3%**	**3.0%**

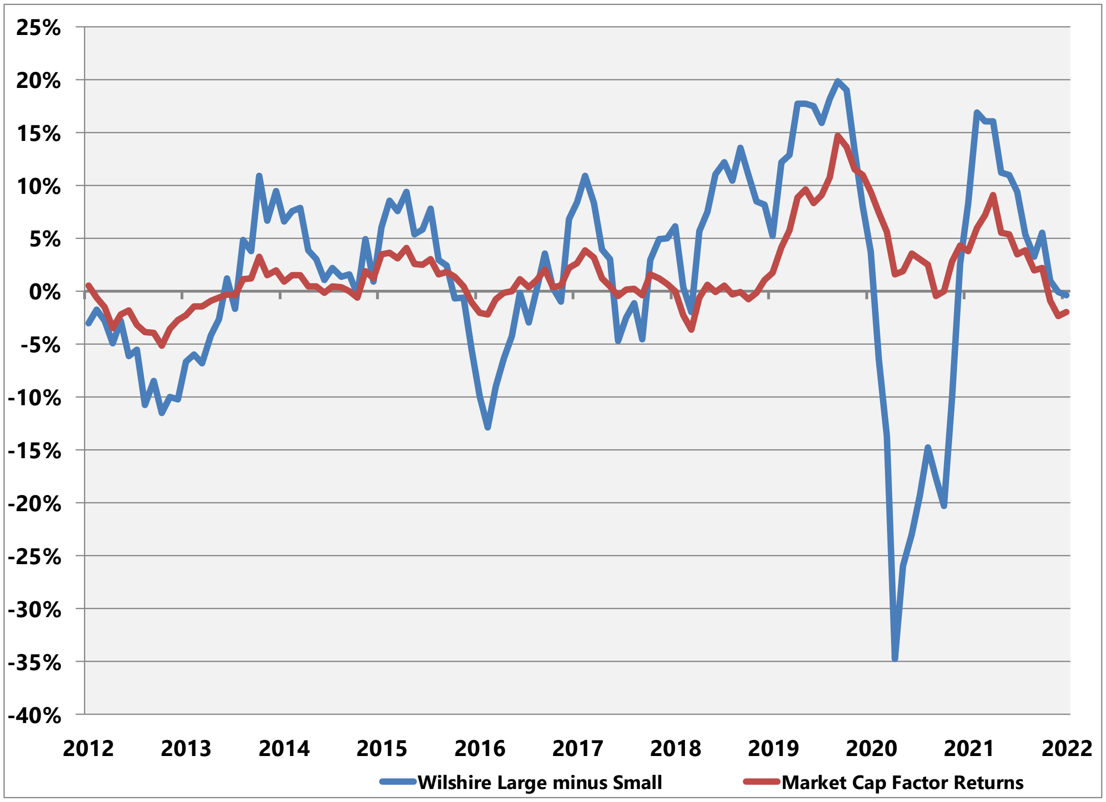
Source: Wilshire Compass.

For each index pair in the table above (e.g., Large vs. Small), we provide a summary row to highlight the arithmetic difference between index returns. This orientation of the data can be helpful in identifying areas of 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 market segment. For example, the -5.6%, -3.5%, -2.9% and -3.2% relative returns highlighted in the third panel correspond, respectively, to the one-, three-, five- and 10-year return differences between the MSCI Emerging Markets Index and the MSCI EAFE Index. This demonstrates that developed market stocks consistently outperformed emerging markets across all four holding periods. This suggests that managers carrying a consistent relative bias toward emerging market stocks were likely to have been hampered versus their benchmark and/or peers. We will take a deeper dive into the performance of specific market factors in the remainder of this section.

U.S. 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. Below, we review the size factor during various time periods from two different perspectives. First, we contrast the returns of large cap stocks to smaller stocks through a comparison of the Wilshire US Large Cap Index vs. the 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 US Equity Risk Model℠. 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.[2] 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 2022, the net exposure of the Wilshire US Large Cap Index relative to the Wilshire US Small Cap Index was 2.10, suggesting that a Log Market Cap factor return of 1.00% would contribute 2.10% to relative index performance.

Exhibit 2: U.S. Equity: Size Factor: 1-Year Rolling Returns

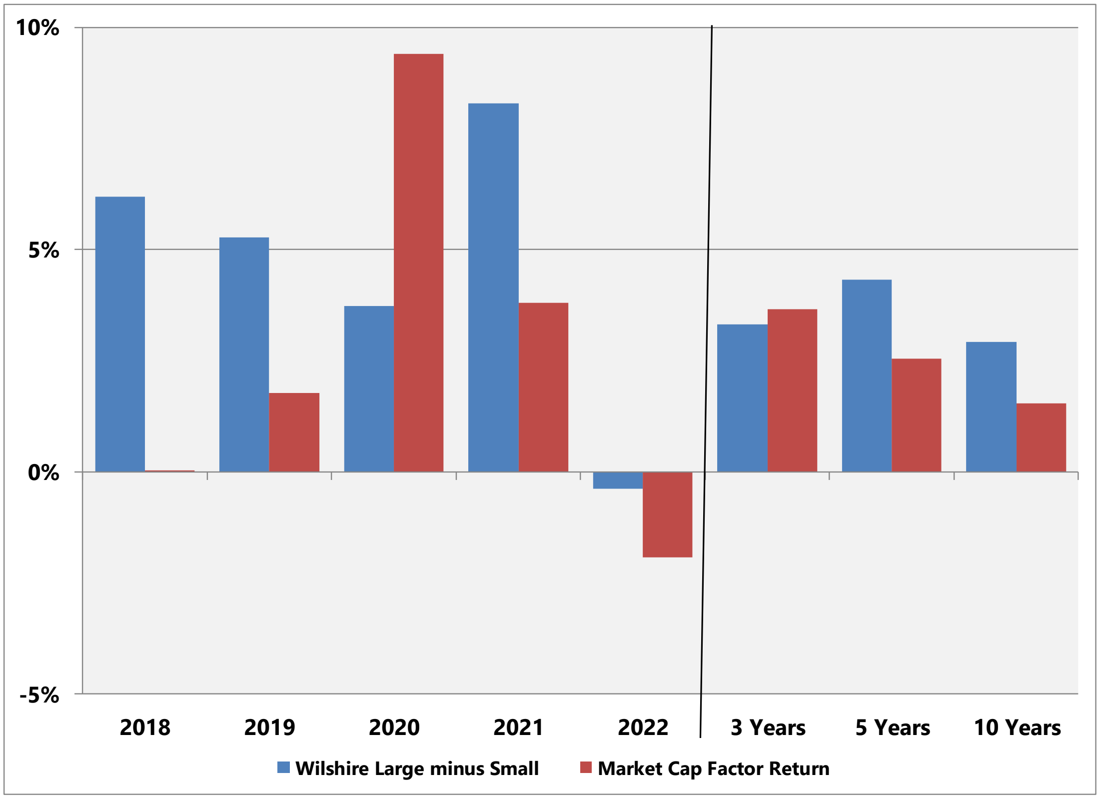


Source: Wilshire Compass and Wilshire Atlas.

[2] The Wilshire GR6 Equity Risk Model includes six fundamental factors (Log Market Cap, BP Ratio, EP Ratio, Volatility, Momentum, Historic Beta) and industry classifications.

In the following exhibit, we show the two size measures during the three-, five- and 10-year intervals reviewed earlier for active performance as well as the individual annual returns over the past five years. The individual return columns highlight the fact that 2022 was the first year in the past five where small-cap stocks enjoyed any return advantage versus large-cap stocks. During four of the past five years, large-cap stocks have strongly outperformed small-cap stocks, with noticeable outperformance (i.e., 5%-plus) in three of the past five years. As a result, large-cap outperforms small-cap stocks by an annualized 4.3% and 2.9% during the past three and five years, respectively.

Exhibit 3: U.S. Equity: Size Factor: Annual and 3, 5, 10 Year Annualized Returns

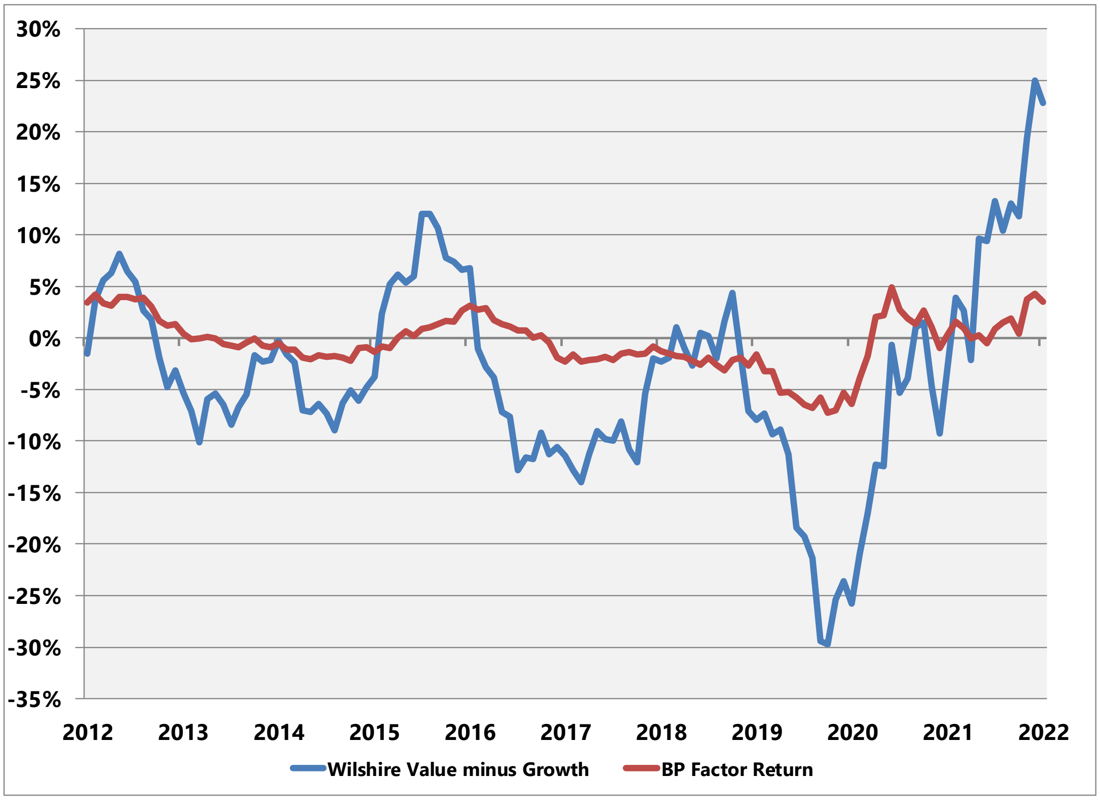


Source: Wilshire Compass and Wilshire Atlas.

U.S. 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 US Equity Risk Model. The blue line in the chart below reflects the relative performance of the Wilshire 2500 Value Index℠ versus the Wilshire 2500 Growth Index℠ 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 2022, the net exposure of the Wilshire US 2500 Value Index relative to the Wilshire US 2500 Growth Index was 0.62, suggesting that a BP factor return of 1.00% would contribute 0.62% to relative index performance.

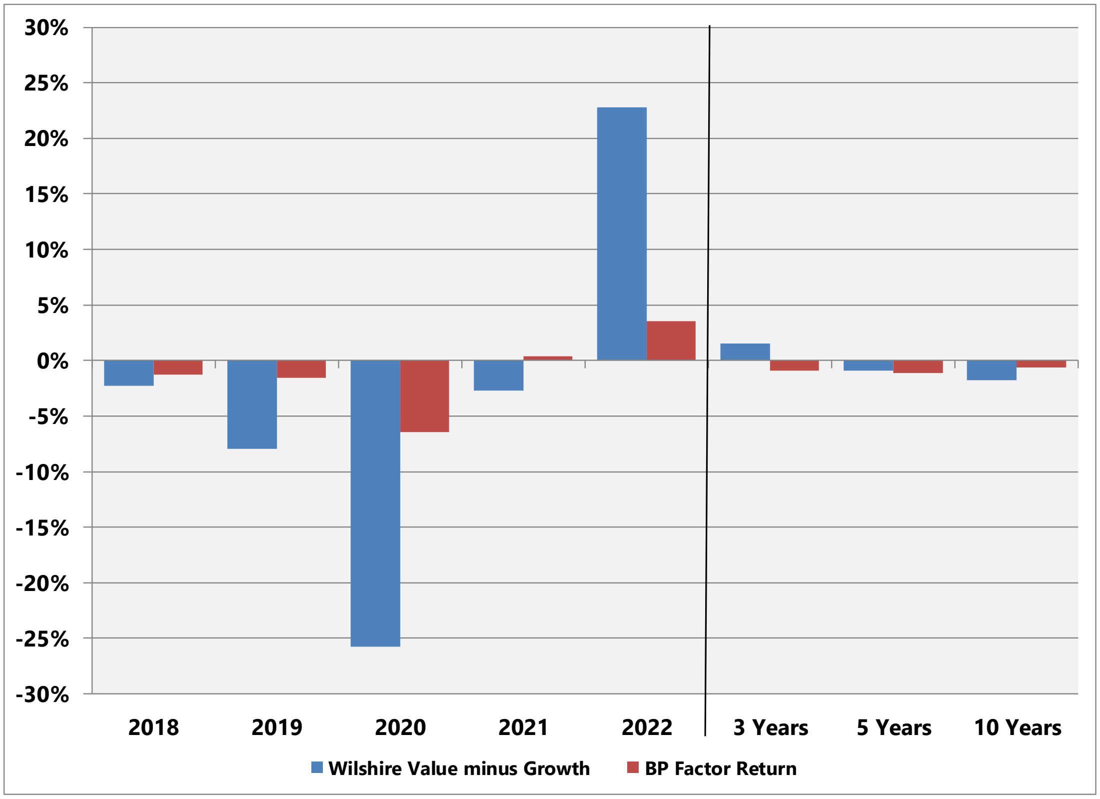
Exhibit 4: U.S. Equity: Style Factor: 1-Year Rolling Returns



Source: Wilshire Compass and Wilshire Atlas.

In the following exhibit, we show the two style measures during the three-, five- and 10-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, value stocks outperformed growth stocks in 2022 (22.8%), in a strong reversal of fortune from the negative relative performance during the prior four years. Last year's results were enough to push the three-year relative return in favor of value – when assessing the three-year compounded return of each index. However, growth stocks still outperform for the past five and 10 years.

Exhibit 5: U.S. Equity: Style Factor: Annual and 3, 5, 10 Year Annualized Returns

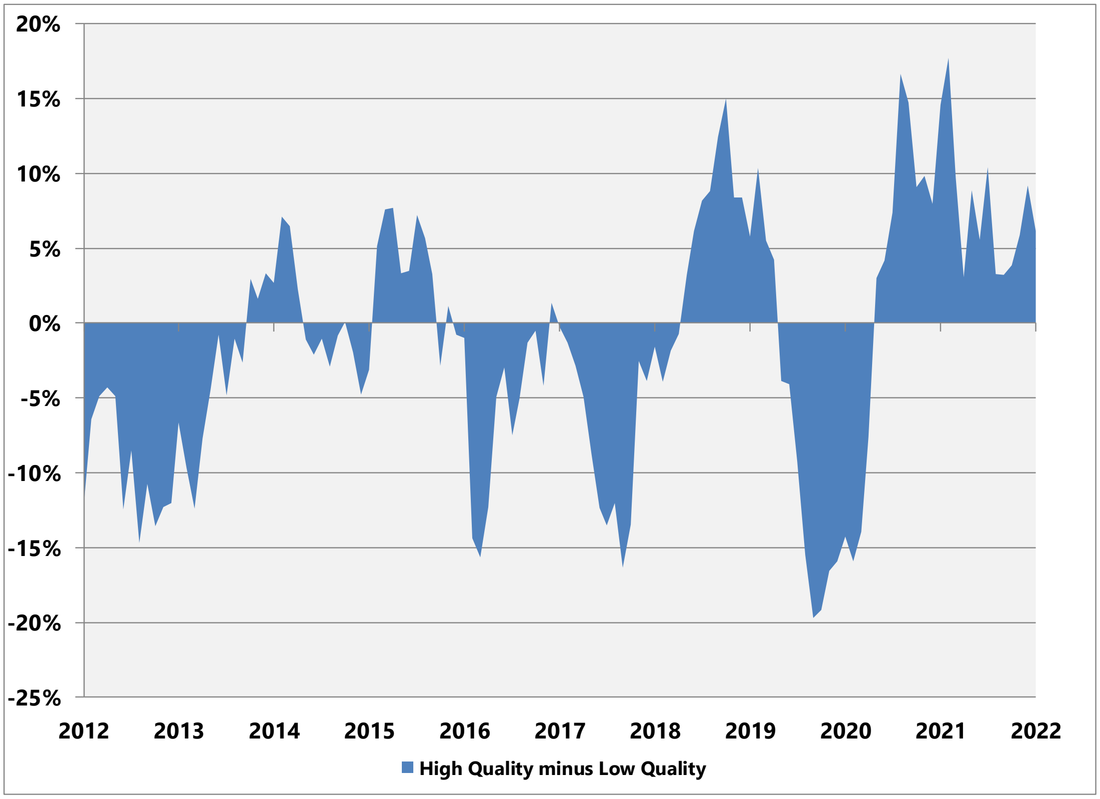


Source: Wilshire Compass and Wilshire Atlas.

U.S. Equity: Quality

Bias toward high- or low-quality companies can affect the relative performance of strategies at various points in a business cycle. The graphs below examine the difference in performance of high-quality companies versus low-quality companies in the Wilshire 5000 Total Market Index℠. 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 6 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.

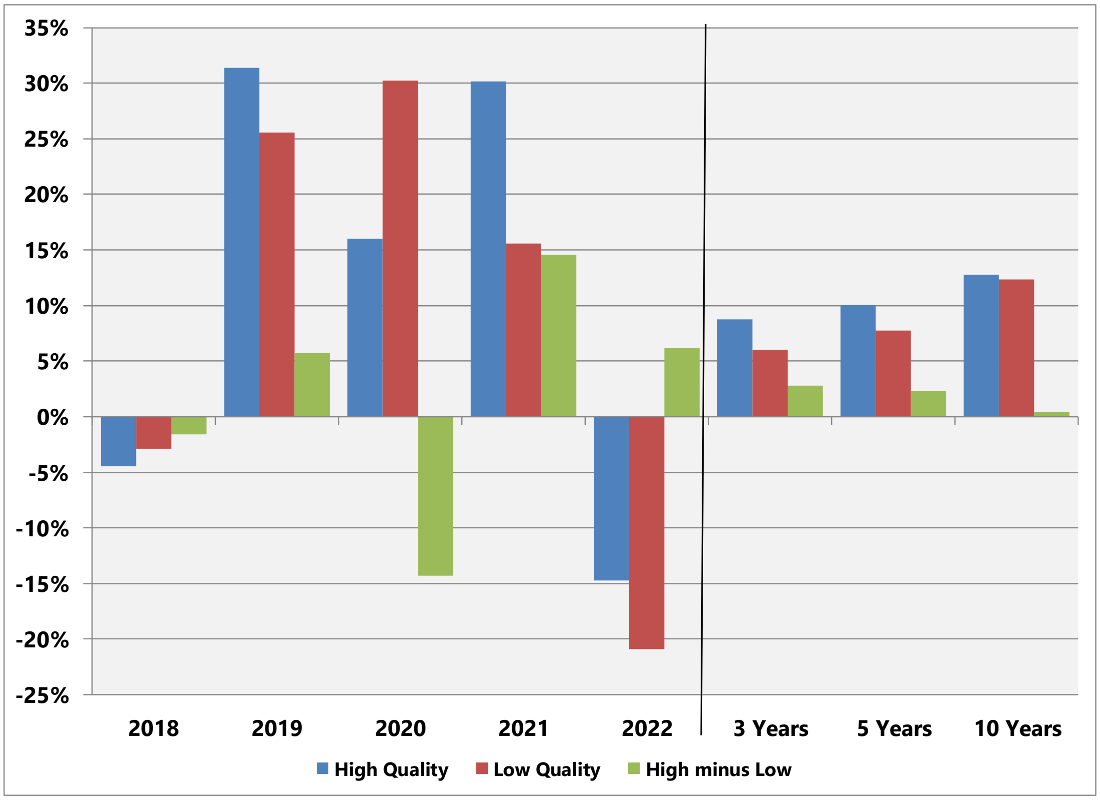
Exhibit 6: U.S. Equity: Quality: 1-Year Rolling Returns



Source: Wilshire Atlas.

In Exhibit 7 below, we show the return differences between the two quality measures during the three-, five- and 10-year intervals as well as the individual annual return differentials during the past five years. The chart displays that, based on this measure of quality, higher quality stocks outperformed lower quality stocks in 2022 (+6.2%), bringing their annualized performance edge to 2.8% during the past three years. Higher quality stocks also provide a return advantage during the five and ten-year periods.

Exhibit 7: U.S. Equity: Quality: Annual and 3, 5, 10 Year Annualized Returns



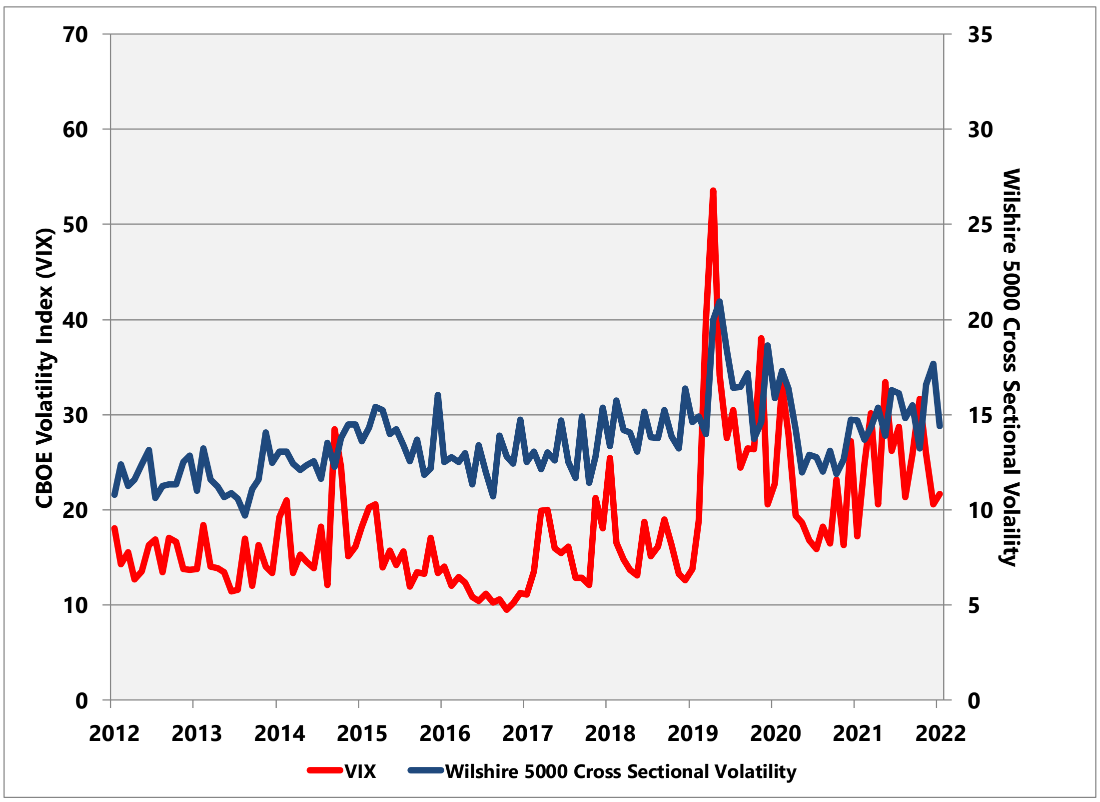
Source: Wilshire Atlas.

U.S. 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 8, we begin first by looking at the U.S. stock market's general level of volatility across two dimensions to assess the level of pricing risk over recent years. First, 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 remained slightly elevated during much of 2022.

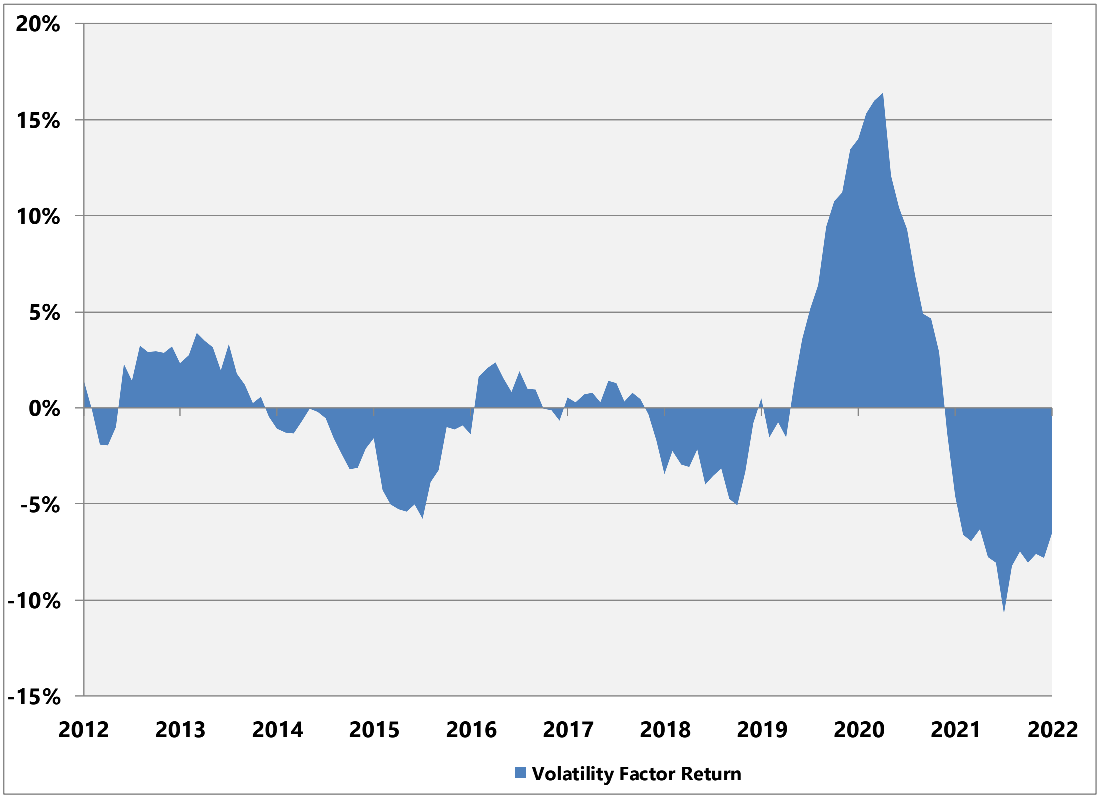
The blue line in the exhibit shows the level of monthly cross-sectional volatility of all stocks in the Wilshire 5000 Total Market Index℠. Unlike the VIX, which provides a view of the risk of the overall market across time periods, the cross-sectional risk statistic helps to reveal the underlying risk 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, the VIX reading moved towards the cross-sectional risk level during 2022.

Exhibit 8: Equity Market Volatility: Levels



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 US Equity 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. There has been a clear regime shift during the past few years with less volatile securities outperforming, including last year.

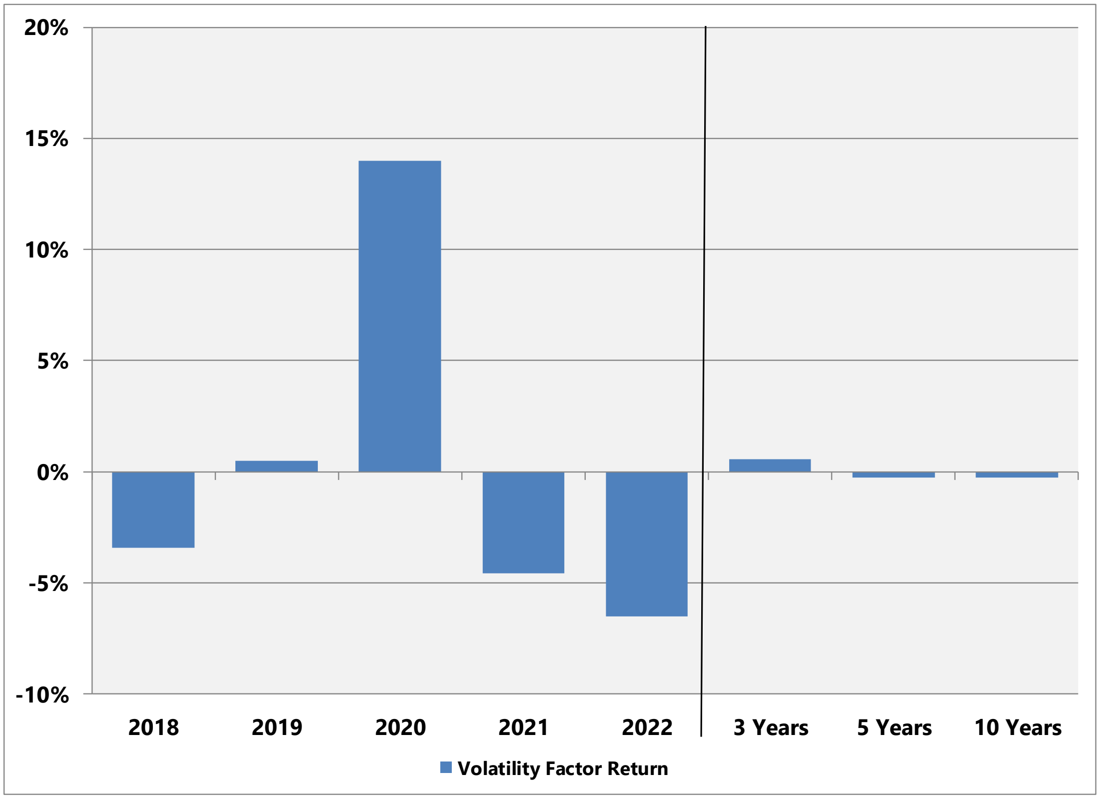
Exhibit 9: U.S. Equity: Volatility Factor: 1-Year Rolling Returns



Source: Wilshire Atlas.

Exhibit 10, below, shows the Volatility factor during the three-, five- and 10-year intervals reviewed earlier for active performance as well as the individual annual returns during the past five years. The Volatility factor suggests that strategies pursuing a low volatility investment approach would have endured a notable headwind versus traditional capitalization-weighted benchmarks in 2020; though rebounded in 2021 and 2022 to post positive returns. Over the past five- and 10-year periods, however, a low volatility investment approach continued to show headwinds relative to traditional capitalization-weighted benchmarks.

Exhibit 10: U.S. Equity: Volatility Factor: Annual and 3, 5, 10 Year Annualized Returns

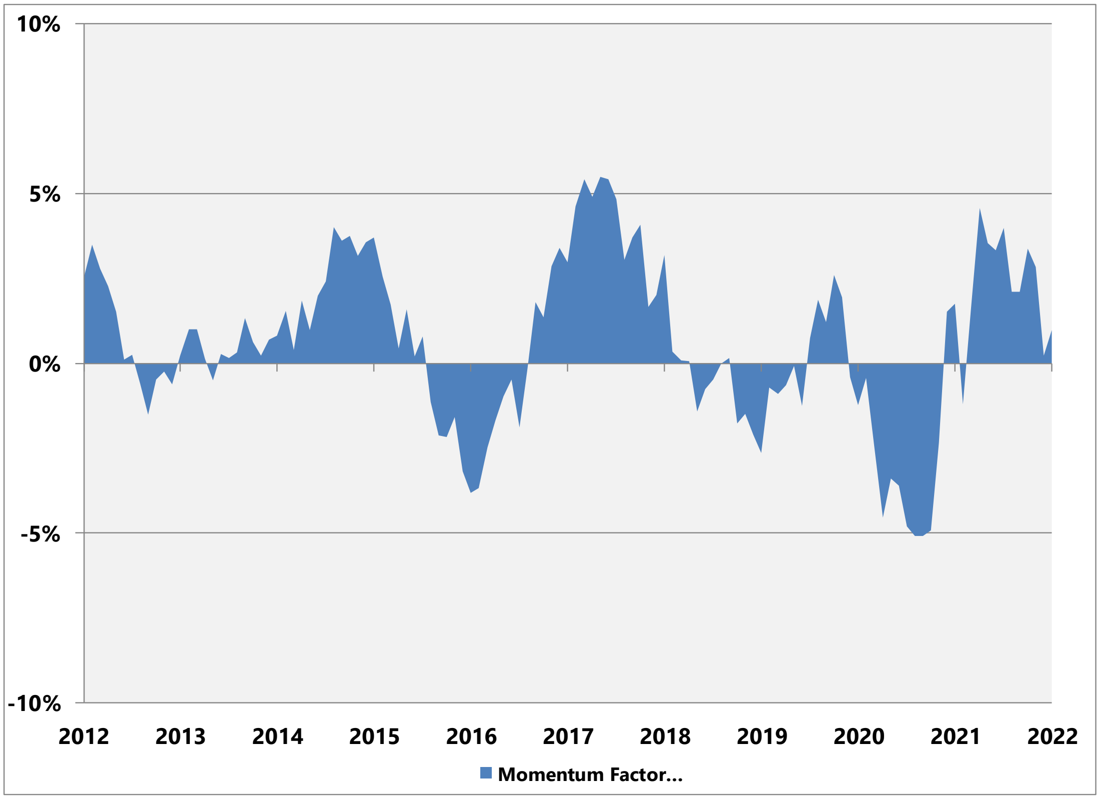


Source: Wilshire Atlas.

U.S. Equity: Momentum

Momentum, or the tendency for securities that have gone up or down in value to continue moving in the same direction, is another commonly measured and investable factor. In the following exhibit, we chart the Momentum factor from the Wilshire GR6 US Equity Risk Model. When the line is moving upward, recent higher-returning stocks are continuing to enjoy relative outperformance versus recent lower-returning securities, and vice versa when the line is moving lower (i.e., performance results are reversing or demonstrating mean-reverting tendencies).

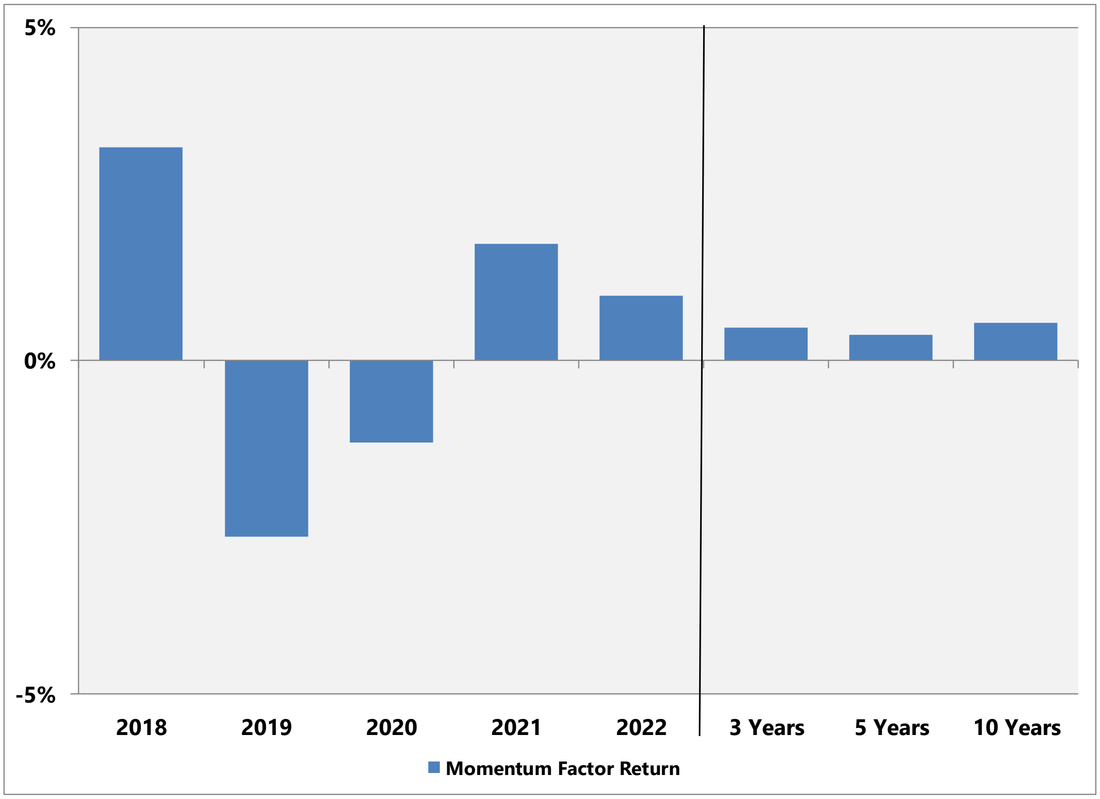
Exhibit 11: U.S. Equity: Momentum Factor: 1-Year Rolling Returns



Source: Wilshire Atlas.

In the following exhibit, we show the Momentum factor during the three-, five- and 10-year intervals as well as the individual annual returns during the past five years. The momentum factor has produced a positive return in both 2021 and 2022, after two negative annual periods. As a result, the momentum factor now has strong positive relative results over the three-, five- and 10-year intervals.

Exhibit 12: U.S. Equity: Momentum Factor: Annual and 3, 5, 10 Year Annualized Returns

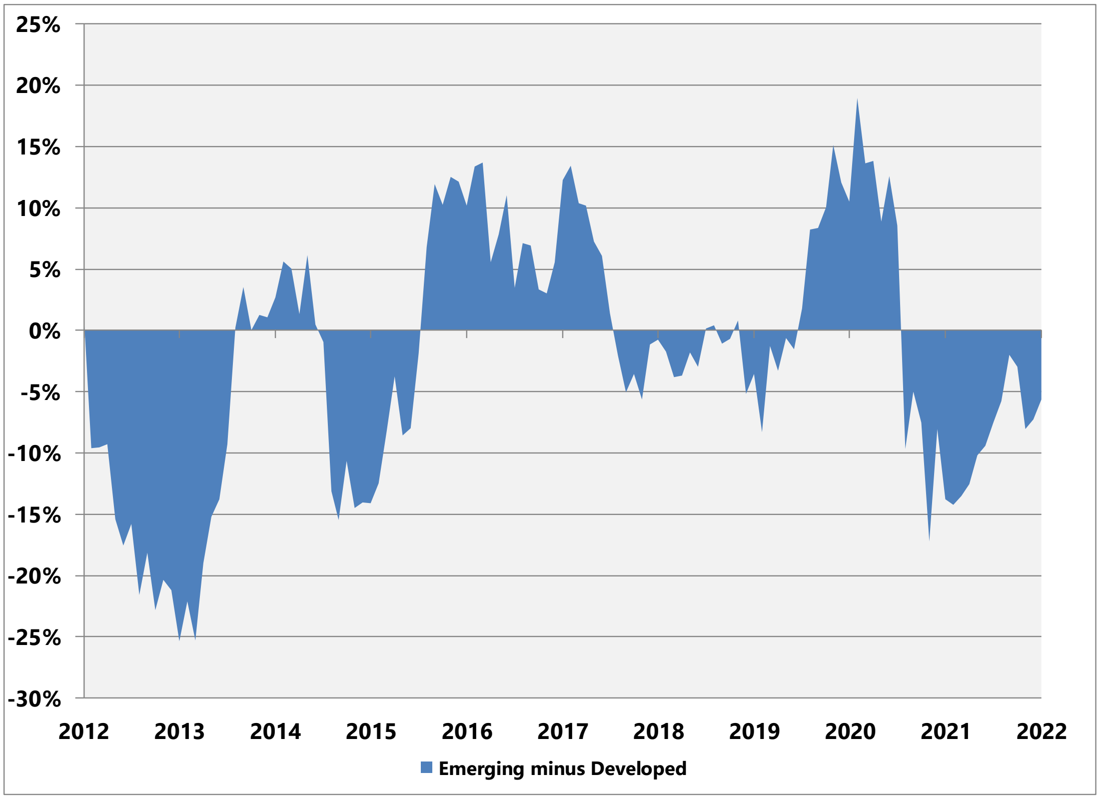


Source: Wilshire Atlas.

Non-U.S. 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 toward the emerging markets can influence manager returns during various market environments. The following chart displays the rolling one-year performance difference of the MSCI Emerging Markets Index against the MSCI EAFE Index over the last 10 years.

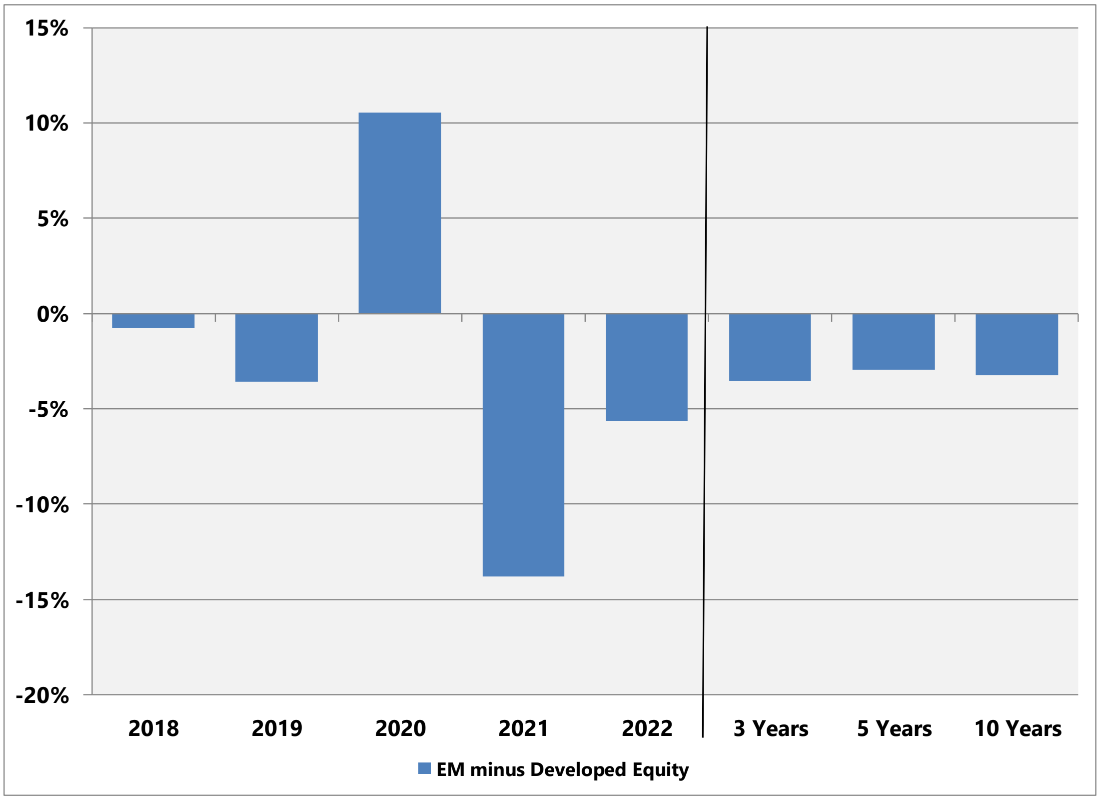
Exhibit 13: Emerging Markets vs. Developed ex-U.S. Equity: 1-Year Rolling Returns



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 10-year periods through December 2022. After experiencing positive relative returns in 2020, the emerging markets experienced significant underperformance in both 2021 (-13.8%) and 2022 (-5.6%). With EM's significant underperformance during four of the past five years, its three- and five- year periods have exhibited negative performance, -3.5% and -2.9%, respectively. Relative performance during the 10-year period has trailed by an annualized -3.2%.

Exhibit 14: Emerging Markets vs. Developed ex-U.S. Equity: Annual and 3, 5, 10 Year Annualized Returns

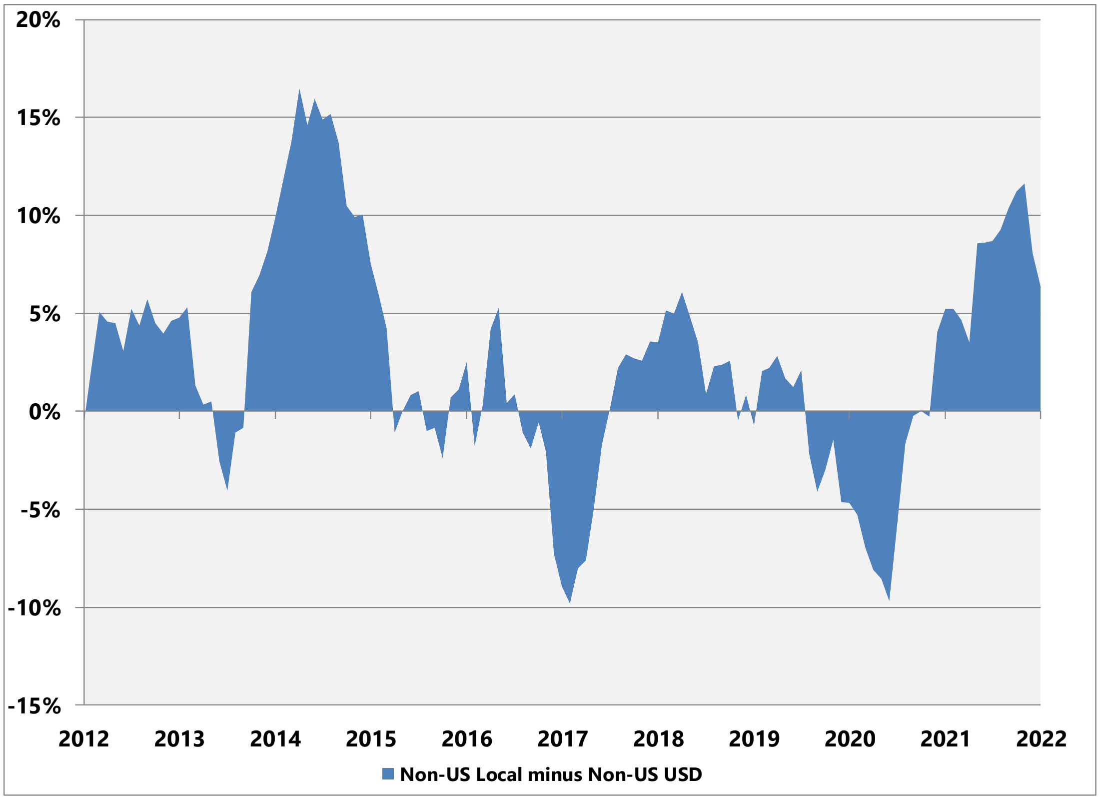


Source: Wilshire Compass.

Non-U.S. 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 15, we show this currency effect from the perspective of a U.S. 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 U.S. dollars. When the line plots above zero, indicative of a rising U.S. dollar environment, a currency hedged strategy should experience a positive relative advantage versus the benchmark and other unhedged international strategies.

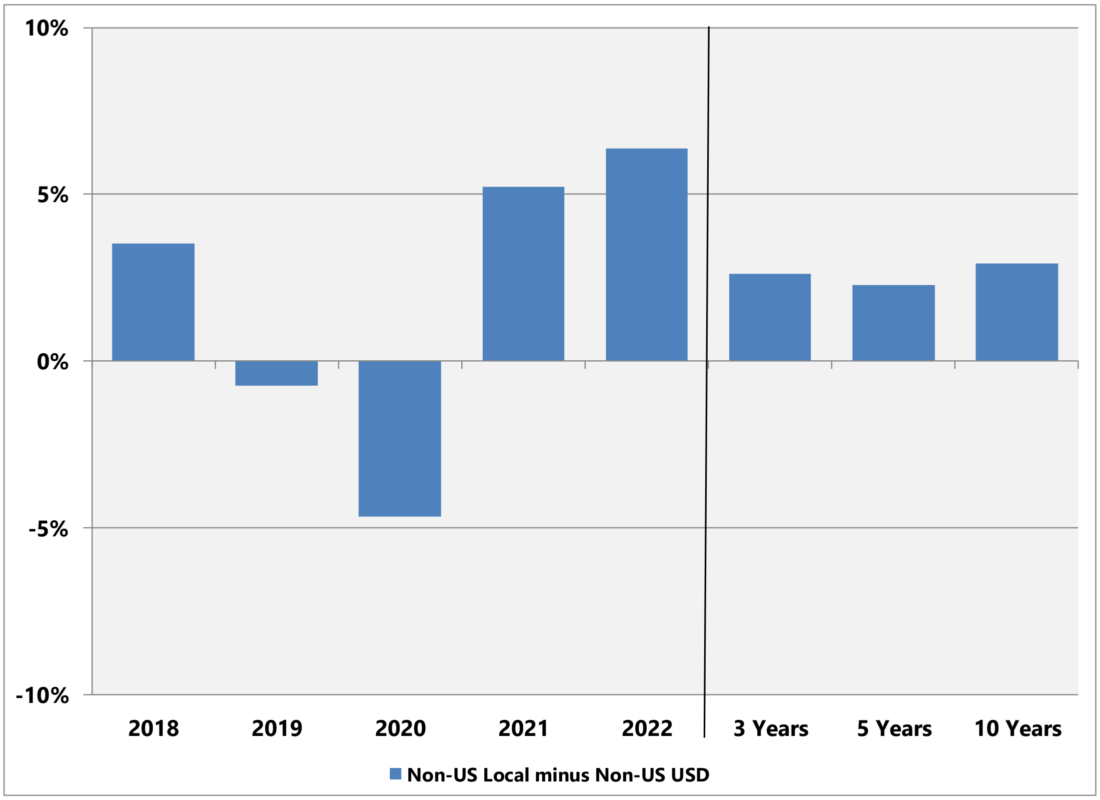
Exhibit 15: Non-U.S. Equity: Currency Effect: 1-Year Rolling Returns



Source: Wilshire Compass.

In the following exhibit, we display the variance between the MSCI ACWI ex-US in local currency terms versus U.S. dollar terms during the past five individual years as well as for the three-, five- and 10-year periods through December 2022. Last year's currency impact exceeded the positive return contribution experienced in 2021, as currency fluctuations added 6.4% to the equity returns of USD-based investors in 2022. Currency movements have provided a tailwind to U.S.-based investors during the past three-, five- and ten-year periods.

Exhibit 16: Non-U.S. Equity: Currency Effect: Annual and 3, 5, 10 Year Annualized Returns

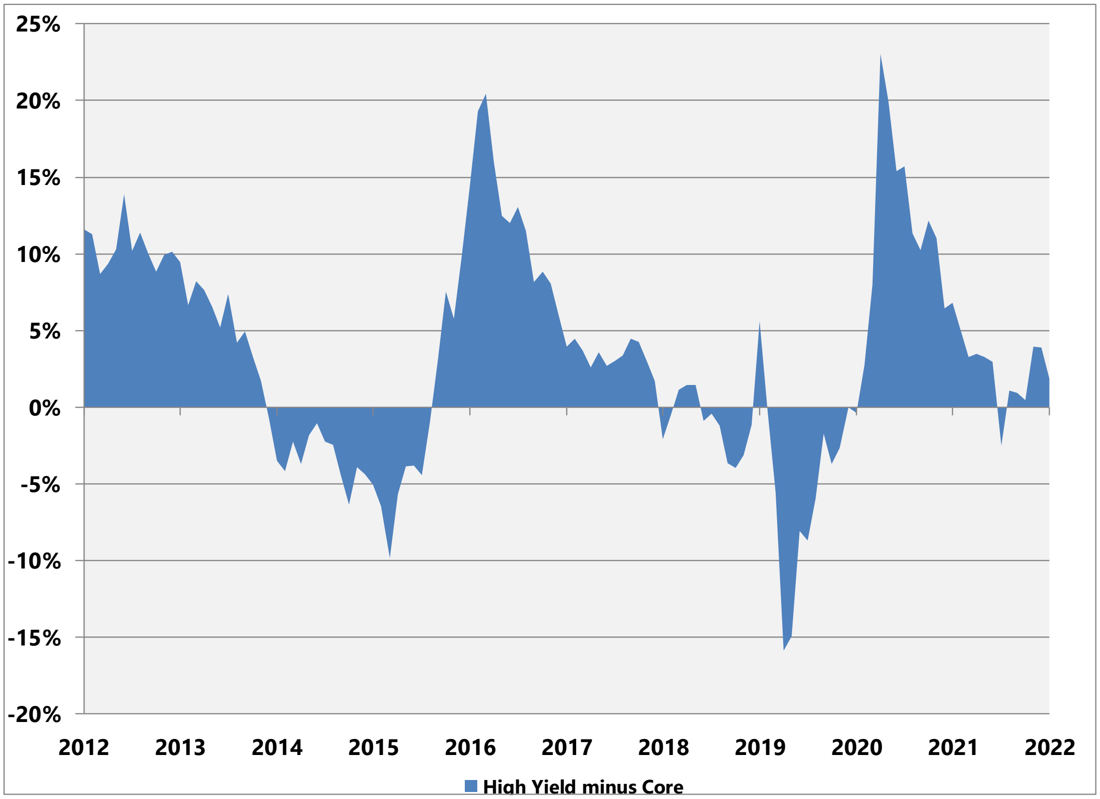


Source: Wilshire Compass.

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 can have a notable impact on benchmark and peer comparisons. This point becomes abundantly clear during times of credit stress, such as during the 2007 to 2008 global financial crisis, as Core and Core Plus managers who reach for yield through lower-rated holdings suffer significant relative losses. In Exhibit 17, we chart this factor influence with a simple rolling one-year return comparison of the Bloomberg Barclays High Yield Index versus the Bloomberg Barclays US Aggregate Index.

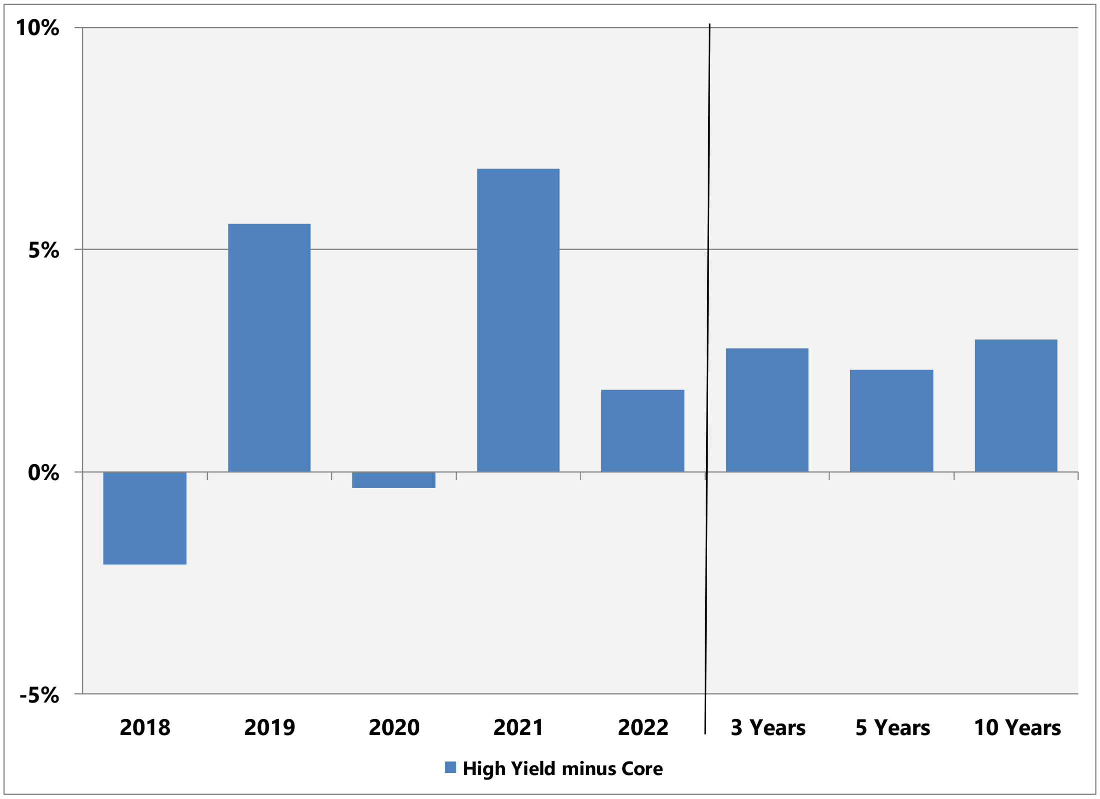
Exhibit 17: Fixed Income: High Yield Factor: 1-Year Rolling Returns



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 10-year periods through December 2022. High yield bonds and credit risk in general followed a negative 2020 with a significant positive relative performance in 2021 and an additional excess return in 2022. Relative to the core market, high yield bonds significantly outperformed by 6.8% in 2021 and 1.8% in 2022. As a result, high yield bonds hold a 2.8%, 2.3% and 3.0% annualized return edge, respectively, over the trailing three-, five- and 10-year periods.

Exhibit 18: Fixed Income: High Yield Factor: Annual and 3, 5, 10 Year Annualized Returns



Source: Wilshire Compass.

The remainder of the report focuses on active management results within various universe segments of the markets.

Active Management Summary

We now shift to a review of active management by presenting Exhibit 19 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 relative 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 19: Benchmark Percentile Rankings

Index Quartile:	1st Quartile 2nd Quartile 3rd Quartile 4th Quartile	Index Percentile Ranking (thru 2022)			
		1 Year	3 Years	5 Years	10 Years
Equity Segments					
Large Core Wilshire US Large Cap Index		84	49	43	41
Large Growth Wilshire US Large Growth Index		54	33	42	32
Large Value Wilshire US Large Value Index		54	44	39	38
Small Core Wilshire US Small Cap Index		77	79	68	74
Small Growth Wilshire US Small Growth Index		24	77	88	91
Small Value Wilshire US Small Value Index		84	70	61	70
REIT Wilshire REIT Index		77	89	93	89
EAFE MSCI EAFE Index ($N)		34	49	40	84
EAFE Small Cap MSCI - EAFE Small Index ($Net)		52	70	51	68
Emerging Markets MSCI Emerging Markets Index ($N)		51	64	71	91
Global MSCI - AC World Index ($N)		69	49	40	48
Fixed Income Segments					
Core Fixed Income Bloomberg US AG Index		85	96	97	80
US High Yield Bloomberg Barclays US HY Index		88	76	74	49

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 to identify at what point within the universe distribution that managers were able to generate positive excess returns.

Exhibit 20: Universe Breakpoints

Market Segment	Percentile	Universe Excess Return Breakpoints (thru 2022) 1 Year	3 Years	5 Years	10 Years
Large Core Wilshire US Large Cap Index	10%	12.71	2.82	1.99	1.11
	25%	8.12	1.19	0.96	0.39
	50%	3.92	-0.06	-0.19	-0.25
	75%	0.61	-1.04	-1.34	-0.99
	90%	-1.62	-2.16	-2.41	-1.63
Large Growth Wilshire US Large Growth Index	10%	12.69	2.10	1.99	1.12
	25%	6.62	0.52	0.81	0.22
	50%	0.60	-1.08	-0.36	-0.45
	75%	-4.76	-3.33	-1.53	-1.37
	90%	-11.52	-5.21	-2.90	-2.59
Large Value Wilshire US Large Value Index	10%	7.03	2.64	1.51	1.10
	25%	3.47	1.04	0.79	0.34
	50%	0.53	-0.29	-0.49	-0.28
	75%	-2.77	-1.27	-1.39	-1.00
	90%	-6.60	-2.22	-2.27	-1.86
Small Core Wilshire US Small Cap Index	10%	14.92	6.97	4.47	3.32
	25%	9.45	4.47	2.56	1.89
	50%	4.99	2.15	0.88	0.99
	75%	0.52	0.34	-0.30	-0.08
	90%	-5.33	-1.70	-1.40	-1.25
Small Growth Wilshire US Small Growth Index	10%	4.44	7.98	6.90	4.50
	25%	-0.51	4.59	4.80	2.73
	50%	-4.90	1.87	3.06	1.85
	75%	-10.23	0.08	1.37	1.02
	90%	-17.93	-1.41	-0.68	0.03
Small Value Wilshire US Small Value Index	10%	13.09	6.47	3.24	2.22
	25%	8.24	3.93	1.94	1.72
	50%	4.52	1.33	0.50	0.94
	75%	1.61	-0.73	-0.68	-0.10
	90%	-2.21	-2.03	-1.37	-0.77
REIT Wilshire REIT Index	10%	5.54	3.10	2.49	2.24
	25%	3.64	1.87	2.25	1.55
	50%	1.90	1.52	1.38	0.91
	75%	0.04	1.00	0.61	0.31
	90%	-0.62	-0.04	0.27	-0.02

Source: Wilshire Compass.

Exhibit 20 (continued): Universe Breakpoints

Market Segment	Percentile	Universe Excess Return Breakpoints (thru 2022)			
		1 Year	3 Years	5 Years	10 Years
EAFE MSCI EAFE Index ($ Net)	10%	6.71	2.28	2.00	2.55
	25%	2.40	1.15	0.84	1.51
	50%	-2.98	-0.10	-0.37	0.98
	75%	-8.76	-1.71	-1.54	0.42
	90%	-13.63	-2.99	-2.93	-0.30
EAFE Small Cap MSCI EAFE Small Index ($ Net)	10%	13.54	4.77	3.29	1.77
	25%	5.97	3.20	2.28	1.16
	50%	0.73	1.42	0.09	0.72
	75%	-6.41	-0.24	-0.95	-0.18
	90%	-10.73	-1.32	-1.70	-0.41
Emerging Markets MSCI Emerging Markets Index ($ Net)	10%	11.65	7.86	4.37	4.19
	25%	5.64	3.97	2.34	2.71
	50%	0.03	1.06	0.95	1.60
	75%	-4.91	-0.48	-0.26	0.90
	90%	-9.17	-2.21	-0.90	0.04
Global MSCI - AC World Index ($ Net)	10%	18.18	4.93	2.69	2.19
	25%	14.86	1.49	1.33	1.01
	50%	7.13	-0.20	-0.82	-0.19
	75%	-3.80	-2.31	-2.18	-1.27
	90%	-15.69	-4.68	-4.23	-2.74
Core Fixed Income Bloomberg US Aggregate	10%	6.17	1.92	1.05	0.63
	25%	5.56	1.66	0.85	0.45
	50%	2.78	1.25	0.67	0.31
	75%	0.33	0.56	0.35	0.15
	90%	-0.10	0.29	0.17	-0.09
US High Yield Bloomberg High Yield Index	10%	11.99	2.81	1.26	0.75
	25%	10.35	2.24	0.98	0.36
	50%	3.03	0.97	0.54	-0.02
	75%	1.12	0.06	-0.04	-0.35
	90%	-0.48	-0.68	-0.39	-0.55

Source: Wilshire Compass.

Active Management Universe 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 number of products included, index rankings and the average and median excess returns and information ratios for the preceding one-, three-, five- and 10-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, non-overlapping 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. Using an example to understand the table, if one reads across the 1st quartile ranking row and down the 4th quartile column, the intersection indicates the percentage of 1st quartile managers in the three years through 2019 that fell to the 4th quartile in the three years through 2022. Rows where the Total column sums to less than 100% indicate situations where managers have dropped out of the database (i.e., stopped reporting) within the last three years. 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 an equal distribution of manager percentages (i.e., ~ 25%) 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, non-overlapping 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. As was described for the manager consistency table above, if manager performance was completely random in nature (i.e., no positive or negative consistency), one would expect to see an equal distribution of manager percentages (i.e., ~ 25%) in each grid.

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 2015 through December 2022 and is helpful in seeing the consistency of three-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 2015 through December 2022 and is helpful in seeing the consistency of three-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 10 years. Median return and risk lines are included to clearly display the mid-point across these two dimensions.

U.S. Large Core Equity[3]

(Benchmark: Wilshire US Large Cap Index)
(Universe: Wilshire Defined US Large Core)

In 2022, the Large Core managers delivered positive performance relative to the Wilshire US Large Cap Index. The group generated median excess returns of 3.92%, -0.06%, and -0.19% for the one-, three-, and five-year time periods, respectively. Notably, 84% of managers outperformed the benchmark last year. However, the ten-year average and median gross-of-fee excess returns were -0.34% and -0.25%, respectively, indicating that the performance of the "average" active manager has been challenged when it comes to adding value over the long-term.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	169	169	168	151
Index Ranking (Percentile)	84	49	43	41
Average Excess Return	4.81	0.08	-0.26	-0.34
Median Excess Return	3.92	-0.06	-0.19	-0.25
Average Information Ratio	0.82	0.02	-0.04	-0.07
Median Information Ratio	0.83	-0.01	-0.06	-0.07

Universe Index: Wilshire - U.S. Large Cap Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	29%	22%	29%	15%	95%
2nd	23%	37%	23%	16%	100%
3rd	14%	21%	26%	31%	93%
4th	26%	19%	19%	30%	93%

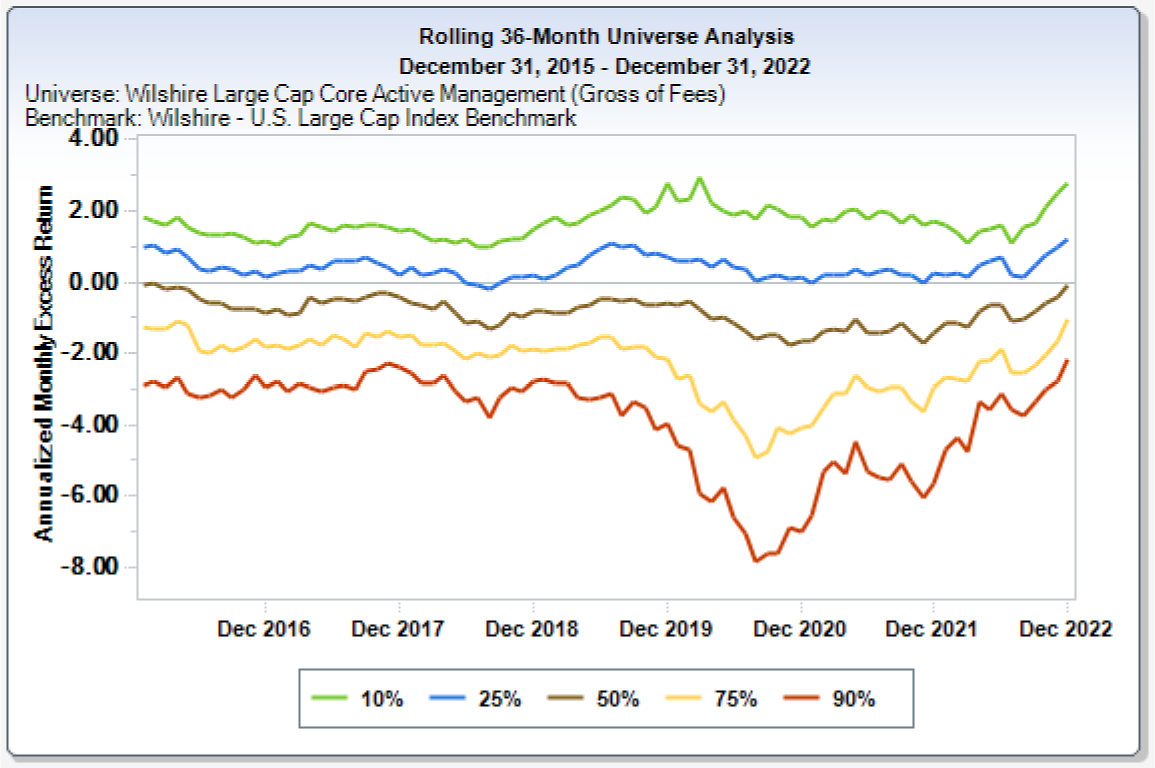
Consistency of Information Ratios

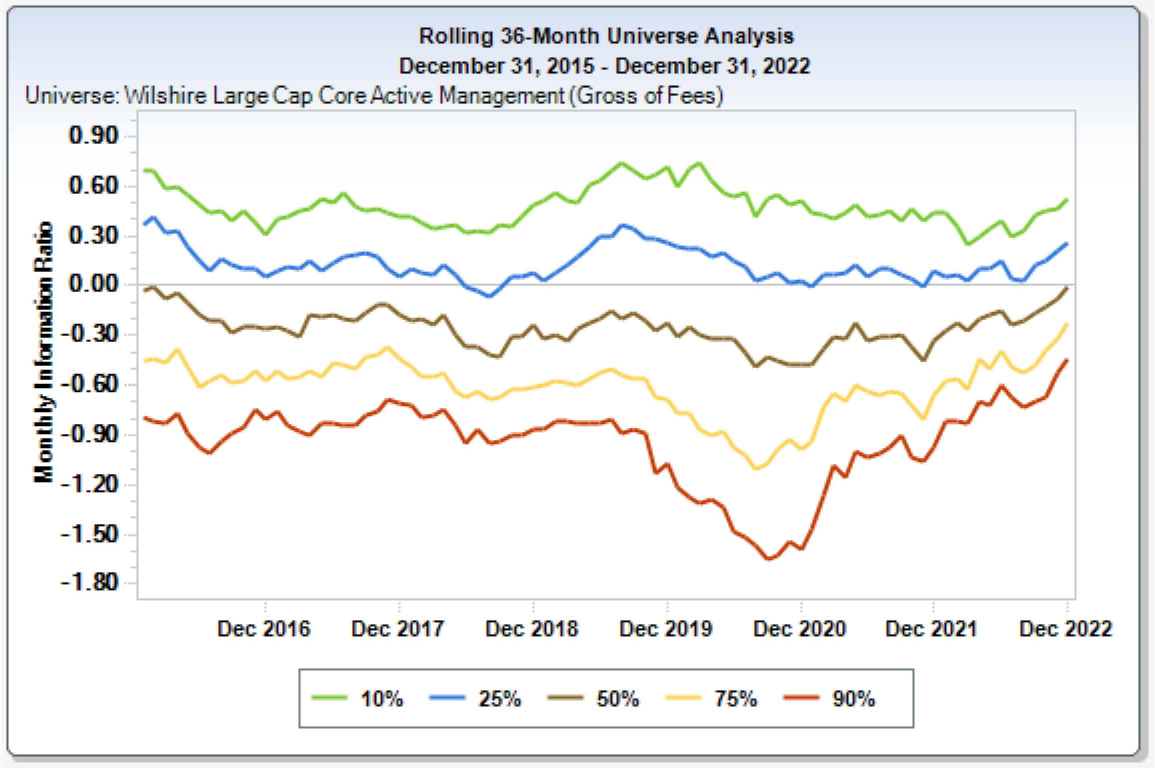
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	24%	24%	27%	20%	95%
2nd	26%	35%	19%	21%	100%
3rd	24%	19%	26%	24%	93%
4th	19%	21%	23%	30%	93%

Based on 169 products through 2019, 8 (4.7%) of which dropped out of the database by 2022

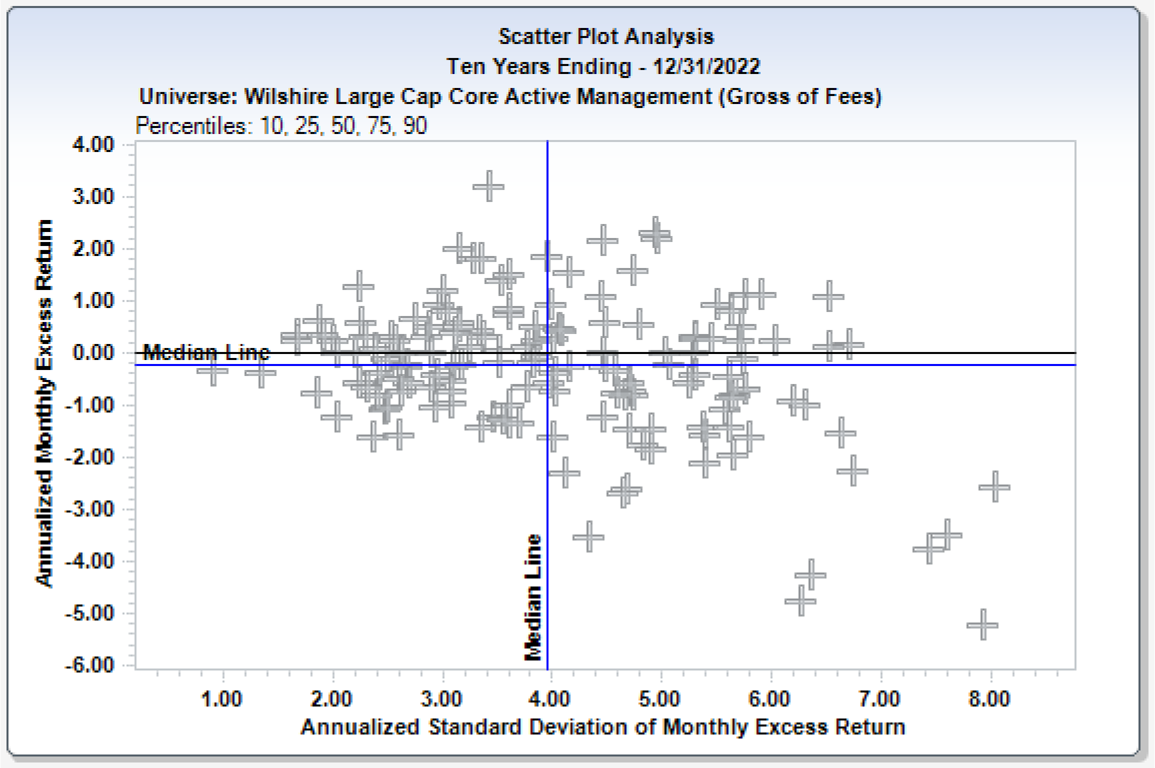
[3] Source: Wilshire Compass.

U.S. Large Core Equity (Source: Wilshire Compass)





U.S. Large Core Equity (Source: Wilshire Compass)



U.S. Large Growth Equity[4]

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

The Large Growth universe showed positive performance compared to the index in 2022, putting an end to three consecutive years of underperformance. As a group, Large Growth managers delivered median excess returns of 0.60% and average excess returns of 0.23% for the year. However, the performance of Large Growth managers has been disappointing over the past three and five years, with median excess returns of -1.08% and -0.36%, respectively. Looking at the past ten years, the average and median excess returns versus the Wilshire US Large Cap Growth Index were -0.62% and -0.45%, respectively.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	199	199	193	184
Index Ranking (Percentile)	54	33	42	32
Average Excess Return	0.23	-1.47	-0.44	-0.62
Median Excess Return	0.60	-1.08	-0.36	-0.45
Average Information Ratio	0.07	-0.20	-0.05	-0.10
Median Information Ratio	0.08	-0.19	-0.06	-0.10

Universe Index: Wilshire - U.S. Large Growth Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	19%	8%	29%	44%	100%
2nd	20%	24%	33%	22%	100%
3rd	27%	35%	27%	10%	98%
4th	27%	33%	10%	22%	92%

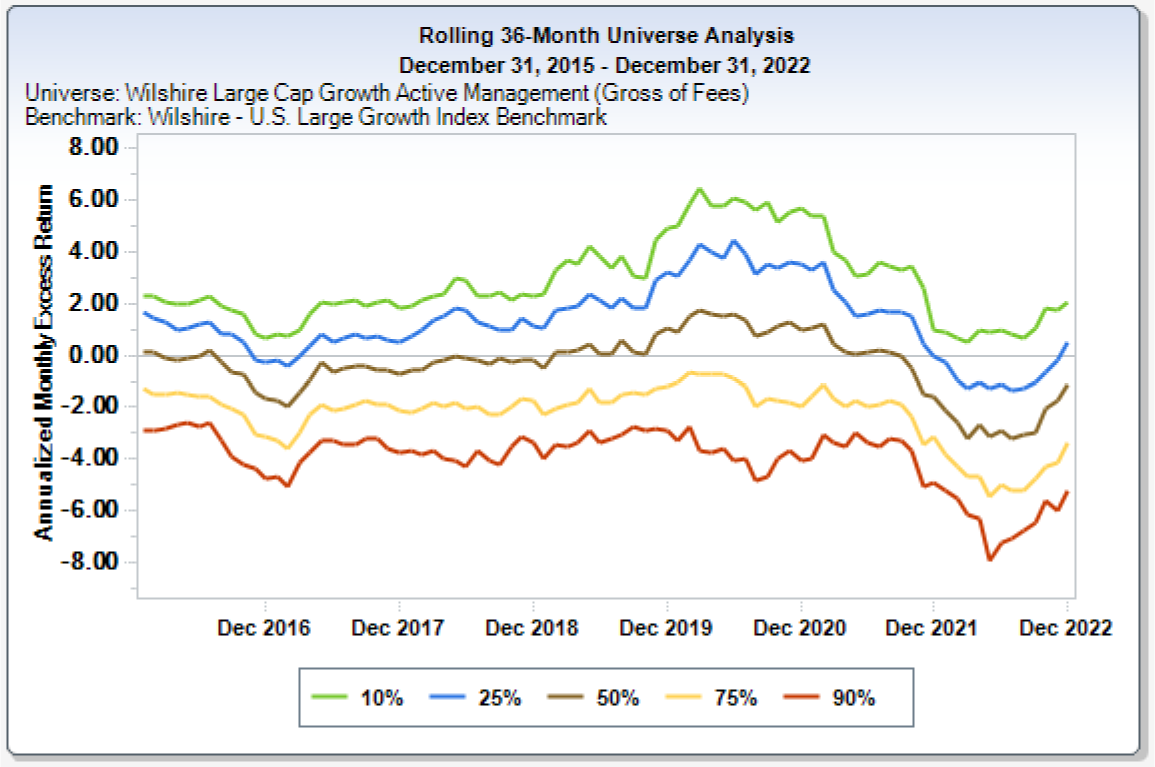
Consistency of Information Ratios

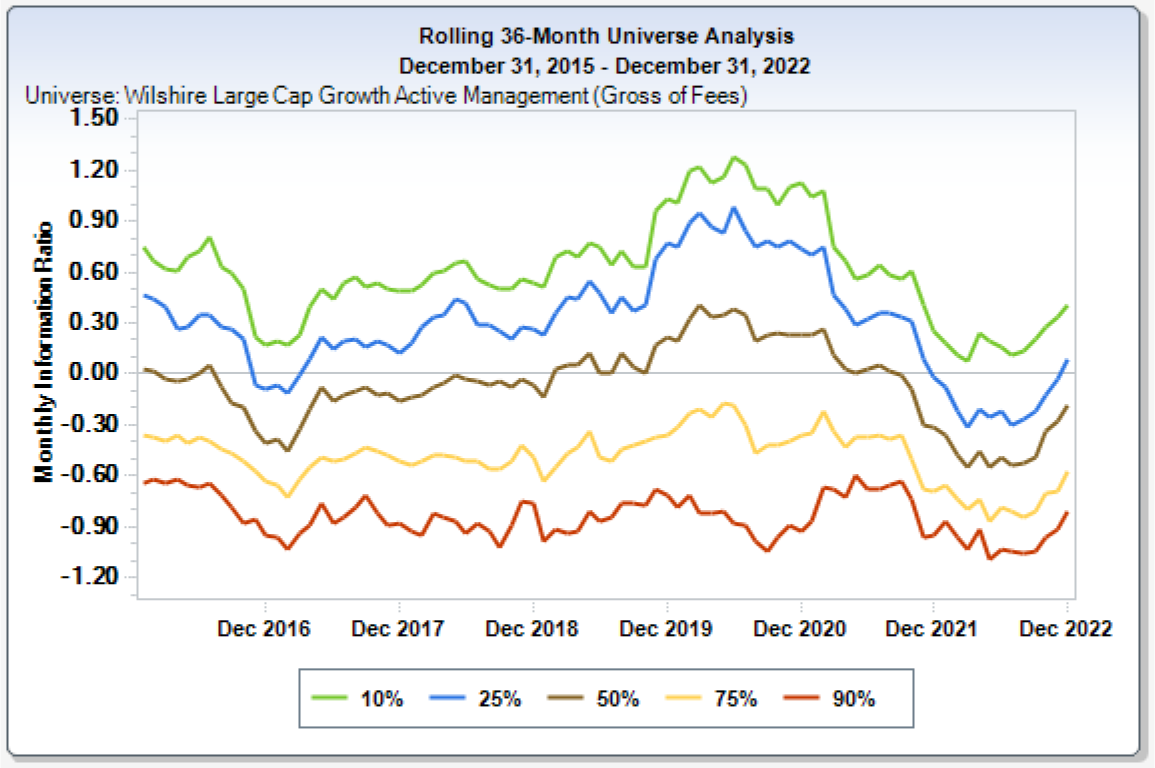
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	23%	17%	23%	38%	100%
2nd	14%	16%	39%	31%	100%
3rd	27%	31%	24%	16%	98%
4th	29%	35%	10%	18%	92%

Based on 195 products through 2019, 5 (2.6%) of which dropped out of the database by 2022

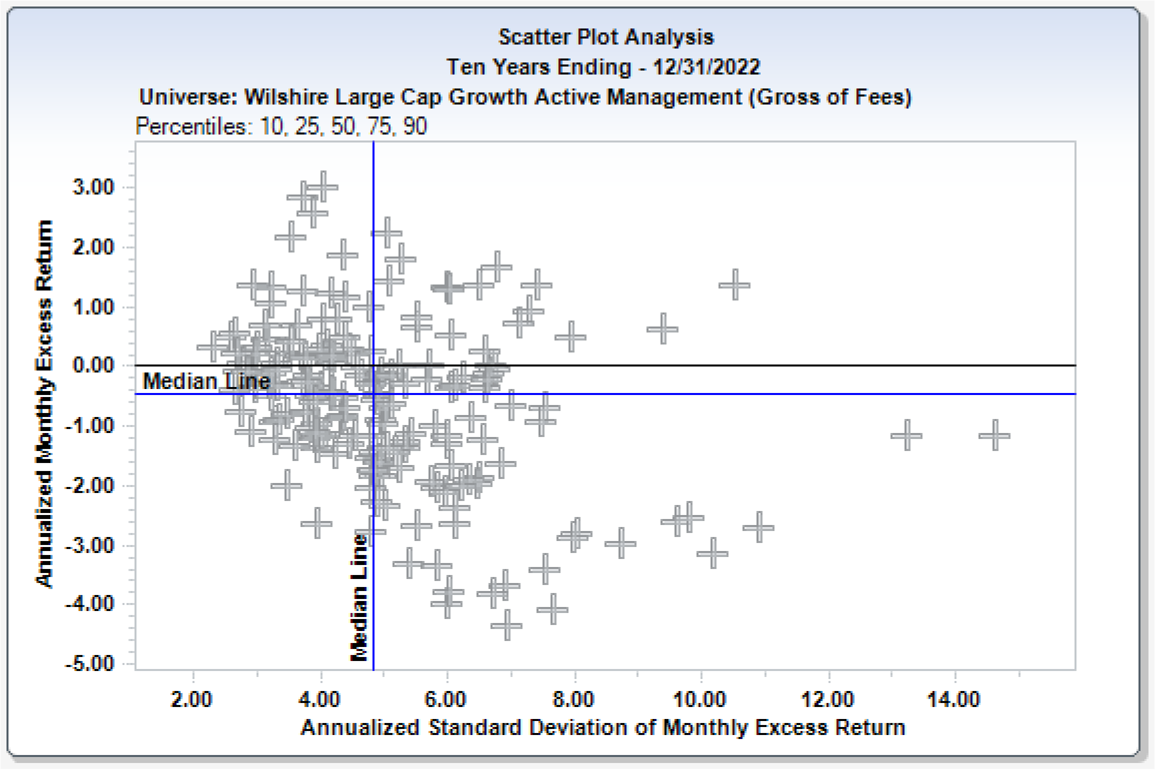
[4] Source: Wilshire Compass.

U.S. Large Growth Equity (Source: Wilshire Compass)





U.S. Large Growth Equity (Source: Wilshire Compass)



U.S. Large Value Equity[5]

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

The Large Value manager universe achieved positive relative results in 2022, generating a median excess return of 0.53% for the year. However, the three- and five-year periods showed underwhelming relative performance, with median excess returns of -0.29% and -0.49%, respectively. These results further illustrate the challenges of active management in the Large Value space, as evidenced by the average and median gross-of-fee excess returns over the past ten years, which were -0.32% and -0.28%, respectively.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	189	189	188	179
Index Ranking (Percentile)	54	44	39	38
Average Excess Return	0.28	-0.12	-0.39	-0.32
Median Excess Return	0.53	-0.29	-0.49	-0.28
Average Information Ratio	0.06	-0.04	-0.08	-0.06
Median Information Ratio	0.12	-0.06	-0.11	-0.07

Universe Index: Wilshire - U.S. Large Value Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	33%	30%	20%	17%	100%
2nd	13%	23%	33%	29%	98%
3rd	21%	31%	23%	23%	98%
4th	31%	15%	23%	29%	98%

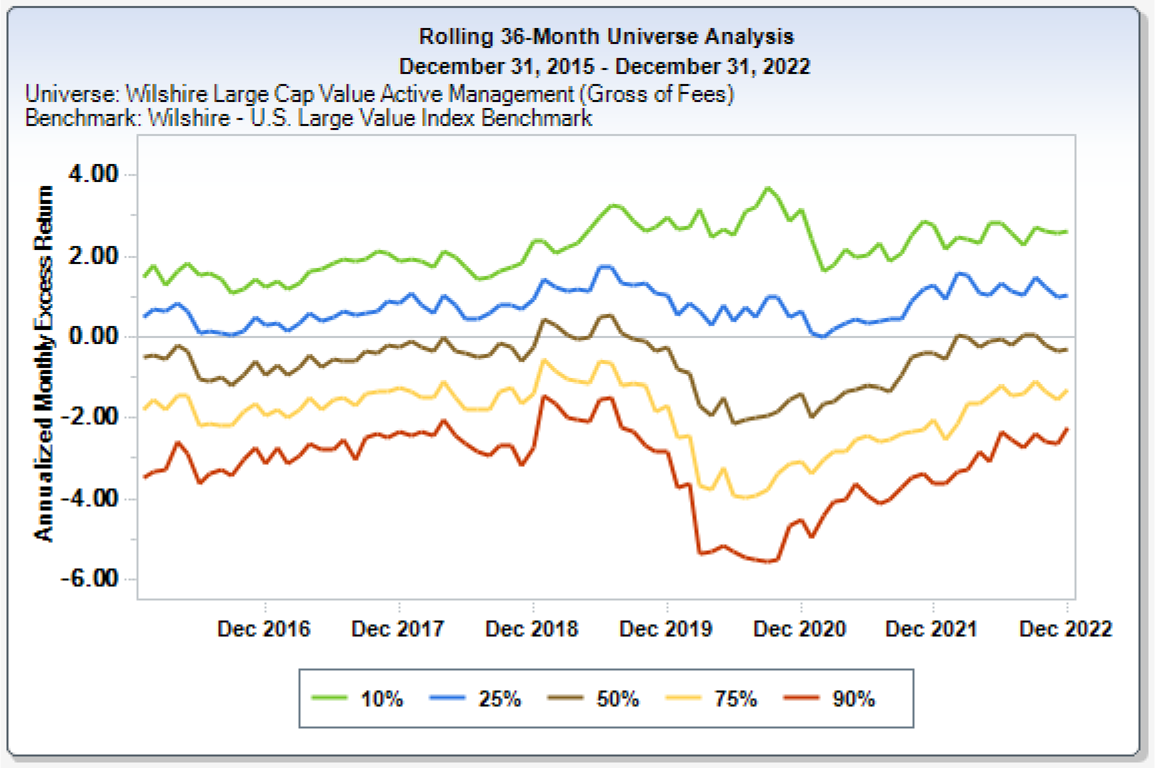
Consistency of Information Ratios

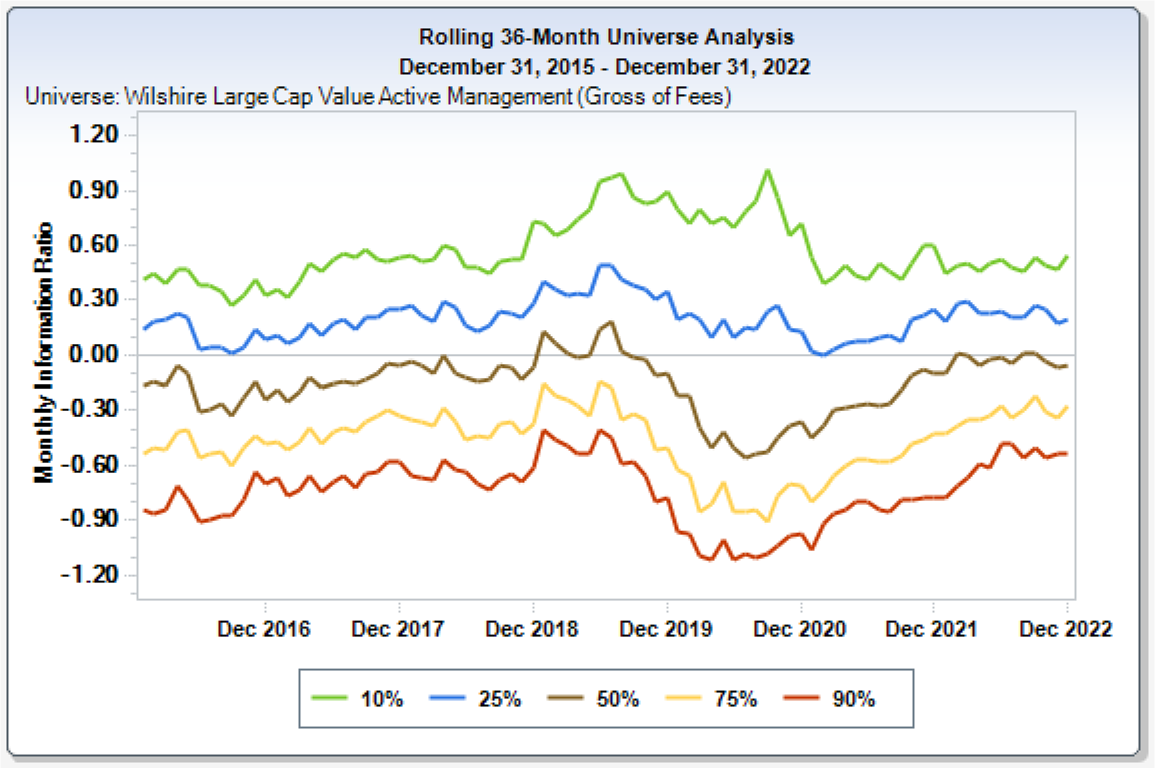
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	33%	28%	20%	20%	100%
2nd	15%	23%	29%	31%	98%
3rd	19%	31%	25%	23%	98%
4th	31%	17%	25%	25%	98%

Based on 190 products through 2019, 3 (1.6%) of which dropped out of the database by 2022

[5] Source: Wilshire Compass.

U.S. Large Value Equity (Source: Wilshire Compass)





U.S. Large Value Equity (Source: Wilshire Compass)

U.S. Small Core Equity[6]

(Benchmark: Wilshire US Small Cap Index)
(Universe: Wilshire Defined US Small Cap)

In 2022, U.S. Small Core Equity managers continued their strong relative performance from the previous year, with the group posting average and median excess returns of 4.47% and 4.99%, respectively. The Small Core manager universe also demonstrated positive results during the three- and five-year periods, with median excess returns of 2.15% and 0.88%, respectively. This recent robust relative performance has led to the average and median gross-of-fees excess returns for the group being positive over the past ten years.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	183	183	181	169
Index Ranking (Percentile)	77	79	68	74
Average Excess Return	4.47	2.55	1.36	0.96
Median Excess Return	4.99	2.15	0.88	0.99
Average Information Ratio	0.74	0.33	0.18	0.17
Median Information Ratio	0.88	0.29	0.13	0.16

Universe Index: Wilshire - U.S. Small Cap Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	22%	18%	22%	38%	100%
2nd	35%	20%	22%	22%	98%
3rd	11%	26%	33%	26%	96%
4th	28%	33%	22%	15%	98%

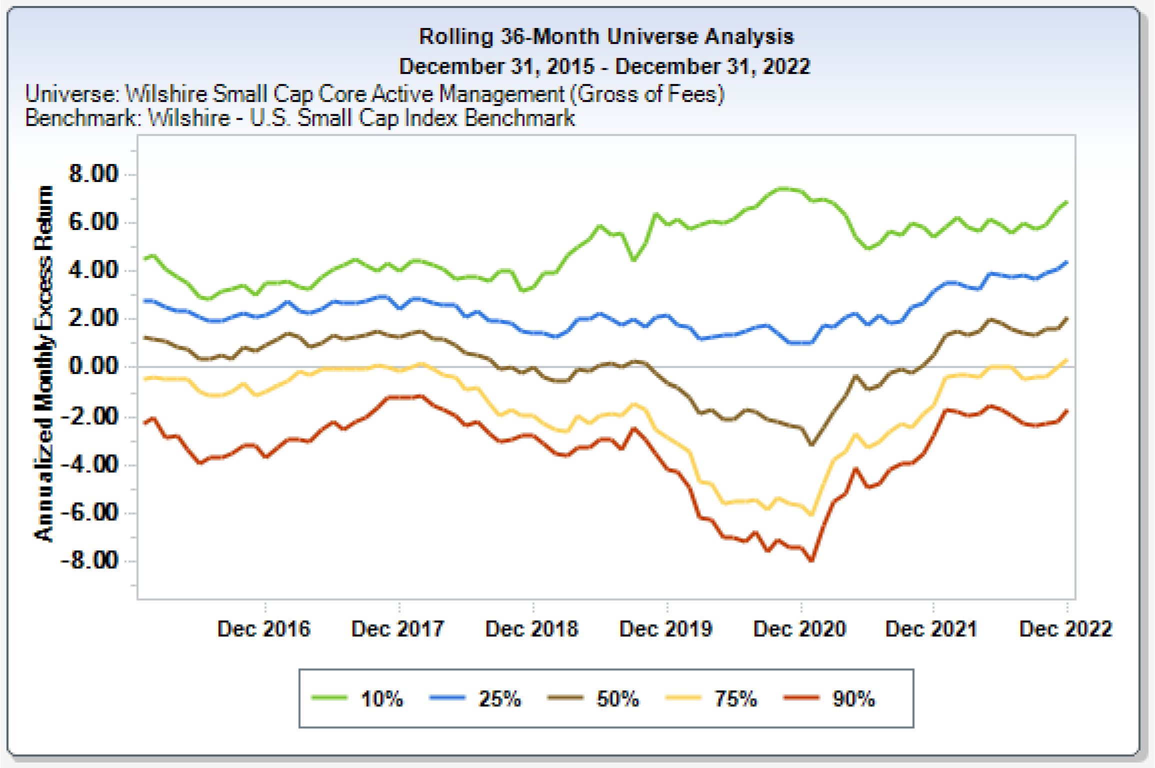
Consistency of Information Ratios

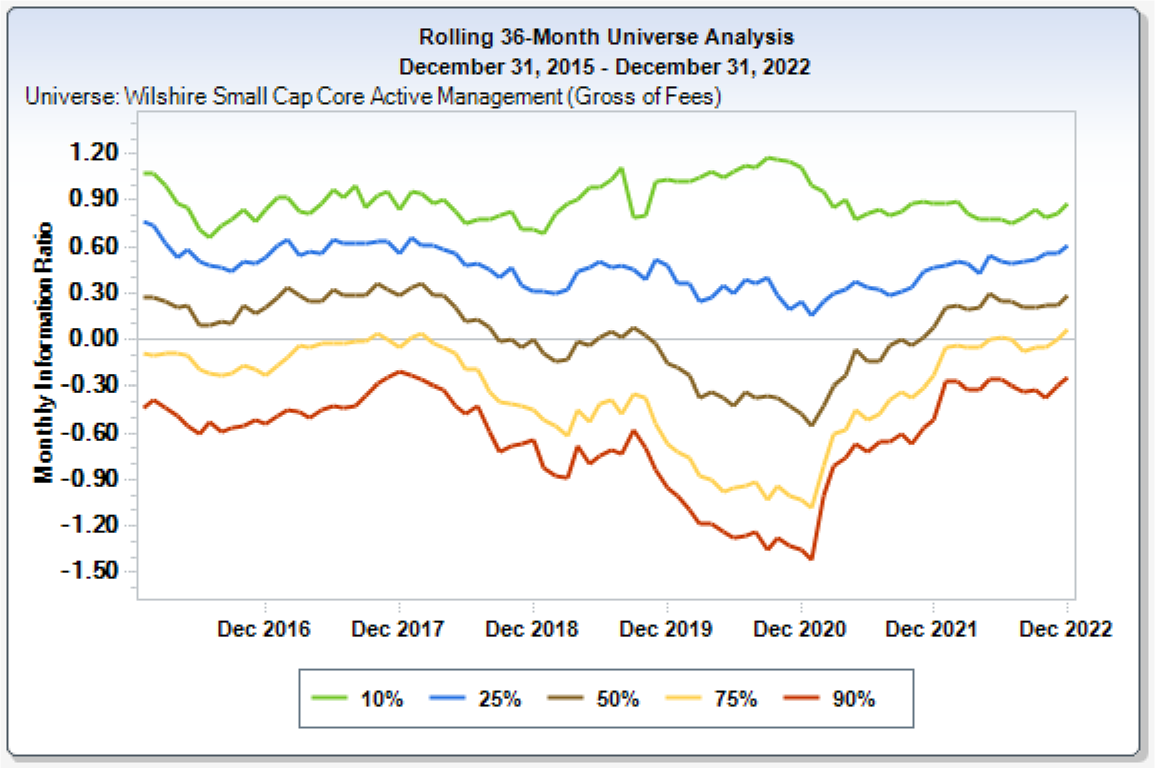
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	24%	18%	24%	33%	100%
2nd	33%	26%	15%	24%	98%
3rd	15%	20%	37%	26%	98%
4th	26%	28%	24%	17%	96%

Based on 183 products through 2019, 4 (2.2%) of which dropped out of the database by 2022

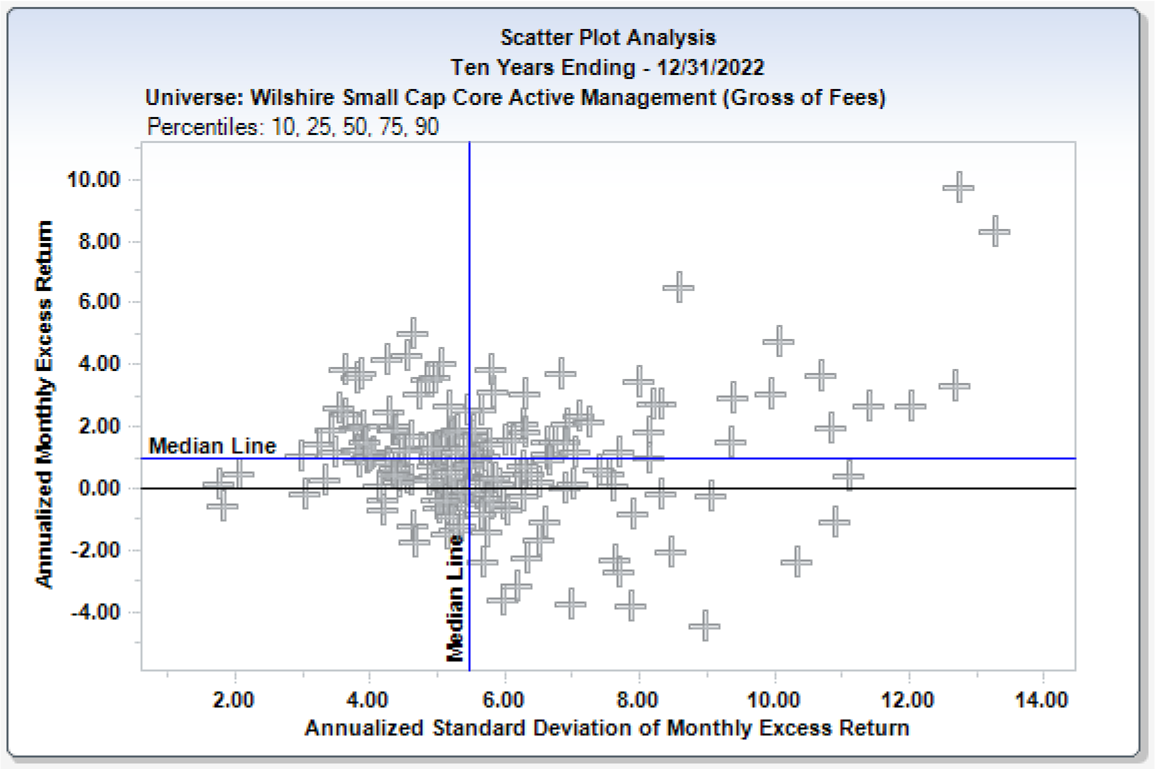
[6] Source: Wilshire Compass.

U.S. Small Core Equity (Source: Wilshire Compass)





U.S. Small Core Equity (Source: Wilshire Compass)



U.S. Small Growth Equity[7]

(Benchmark: Wilshire US Small Cap Growth Index)
(Universe: Wilshire Defined US Small Cap Growth)

In 2022, the Small Growth manager universe reported negative relative returns, with an average gross-of-fees excess return of -5.70% and a median excess return of -4.90%. However, the group's previously strong relative performance has supported intermediate- to long-term returns, with median excess returns of 1.87% and 3.06% over the three- and five-year periods, respectively. Notably, the Wilshire US Small Growth Equity Index ranked in the 77th, 88th, and 91st percentiles over the three-, five-, and ten-year periods, respectively, indicating the managers' comparatively strong benchmark-relative performance over the longer time horizons.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	118	118	117	105
Index Ranking (Percentile)	24	77	88	91
Average Excess Return	-5.70	2.65	3.34	2.09
Median Excess Return	-4.90	1.87	3.06	1.85
Average Information Ratio	-0.60	0.33	0.41	0.29
Median Information Ratio	-0.66	0.26	0.40	0.29

Universe Index: Wilshire - U.S. Small Growth Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	27%	10%	17%	40%	93%
2nd	27%	27%	33%	13%	100%
3rd	20%	27%	27%	23%	97%
4th	19%	32%	23%	16%	90%

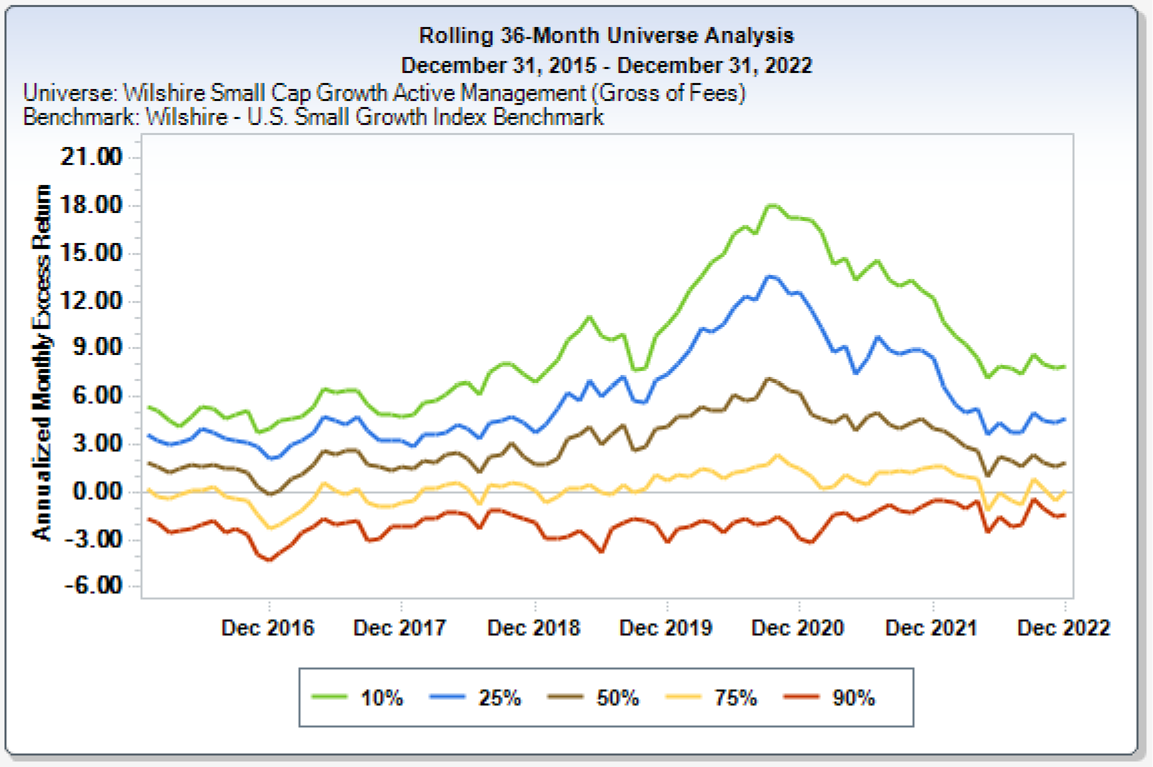
Consistency of Information Ratios

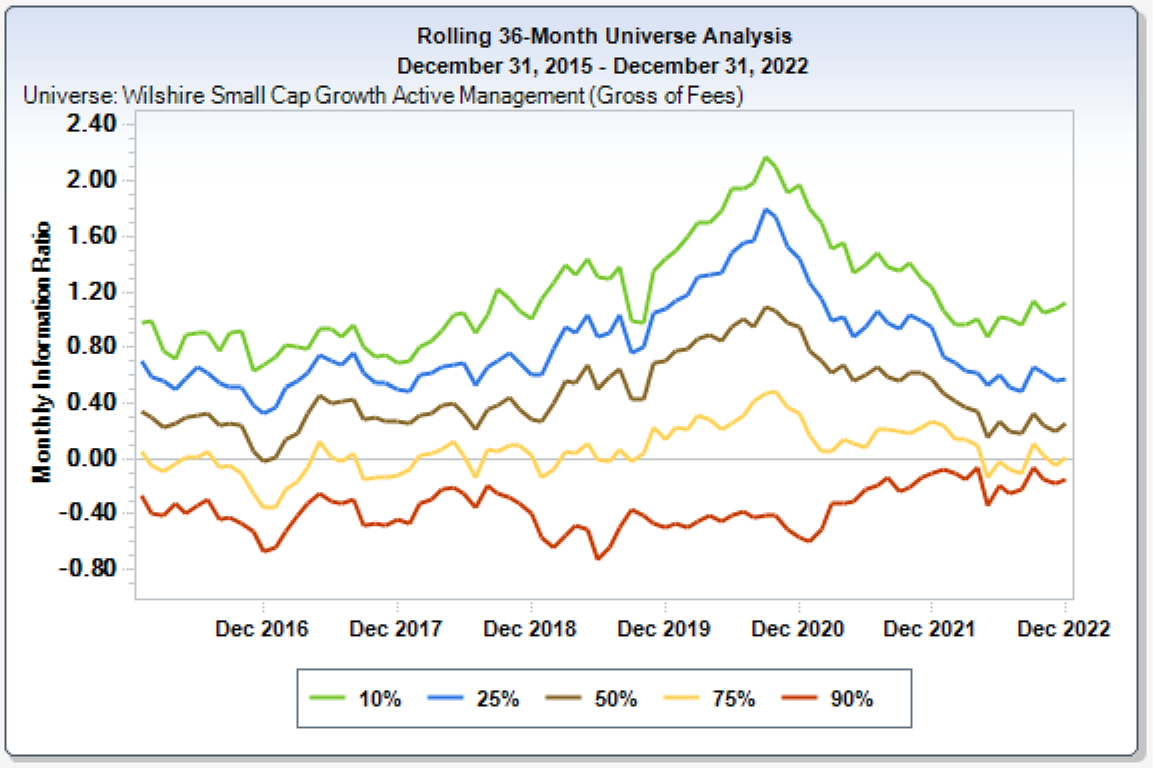
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	20%	23%	13%	43%	100%
2nd	17%	13%	43%	20%	93%
3rd	23%	40%	17%	17%	97%
4th	35%	16%	26%	13%	90%

Based on 121 products through 2019, 6 (4.9%) of which dropped out of the database by 2022

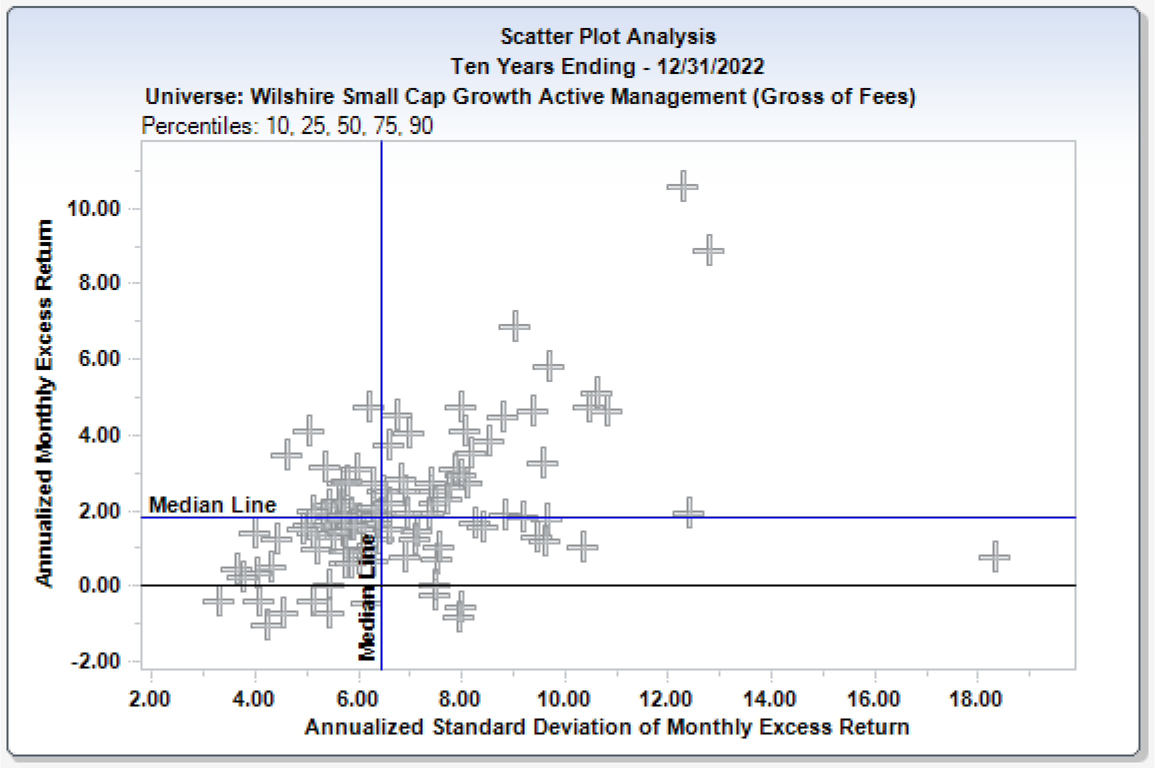
[7] Source: Wilshire Compass.

U.S. Small Growth Equity (Source: Wilshire Compass)





U.S. Small Growth Equity (Source: Wilshire Compass)



U.S. Small Value Equity[8]

(Benchmark: Wilshire US Small Cap Value Index)
(Universe: Wilshire Defined US Small Cap Value)

In 2022, the Small Value manager universe continued to exhibit robust relative performance, with an average gross-of-fees excess return of 4.88% and a median excess return of 4.52%. Over the past three- and five-year periods, these managers have outperformed the Wilshire US Small Cap Value Index, with median excess returns of 1.33% and 0.50%, respectively. Looking at the ten-year period, the universe has generated average and median gross-of-fees excess returns of 0.77% and 0.94%, respectively.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	68	68	67	60
Index Ranking (Percentile)	84	70	61	70
Average Excess Return	4.88	1.72	0.70	0.77
Median Excess Return	4.52	1.33	0.50	0.94
Average Information Ratio	0.76	0.26	0.11	0.14
Median Information Ratio	0.74	0.20	0.09	0.17

Universe Index: Wilshire - U.S. Small Value Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	18%	18%	29%	35%	100%
2nd	29%	18%	18%	29%	94%
3rd	24%	29%	18%	29%	100%
4th	22%	33%	33%	6%	94%

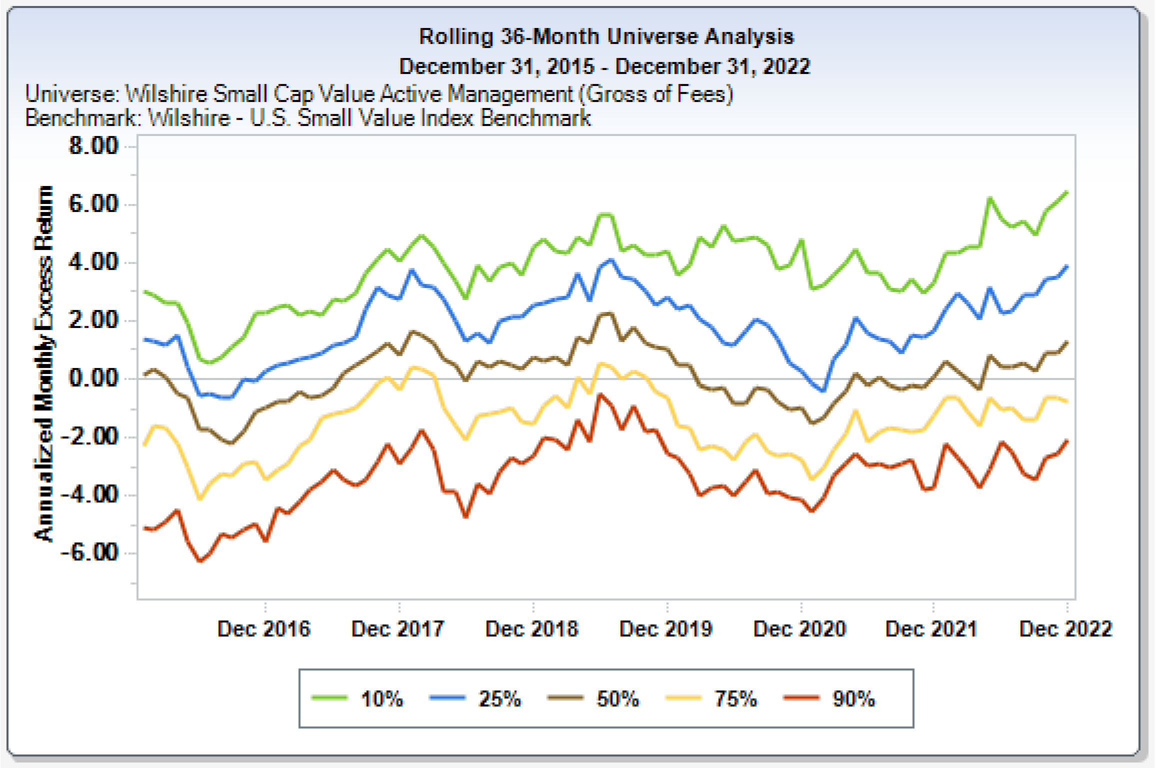
Consistency of Information Ratios

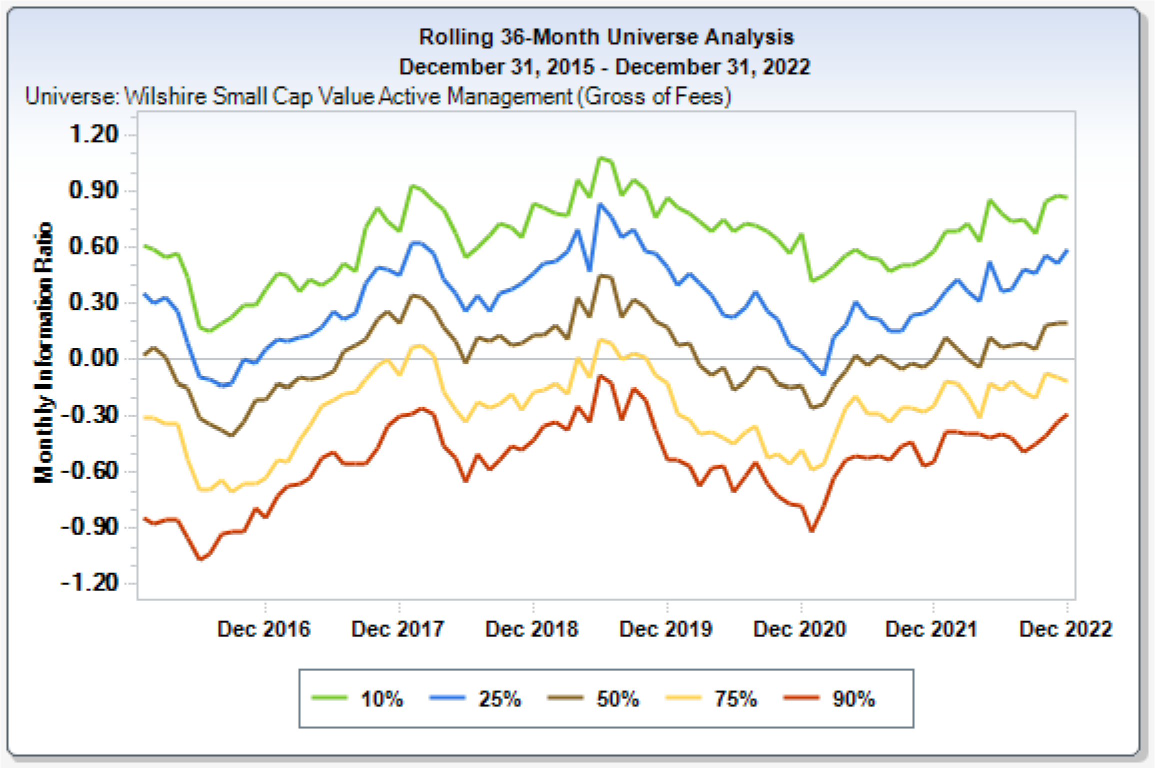
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	18%	24%	24%	35%	100%
2nd	18%	35%	18%	24%	94%
3rd	24%	18%	18%	35%	94%
4th	33%	22%	39%	6%	100%

Based on 69 products through 2019, 2 (2.9%) of which dropped out of the database by 2022

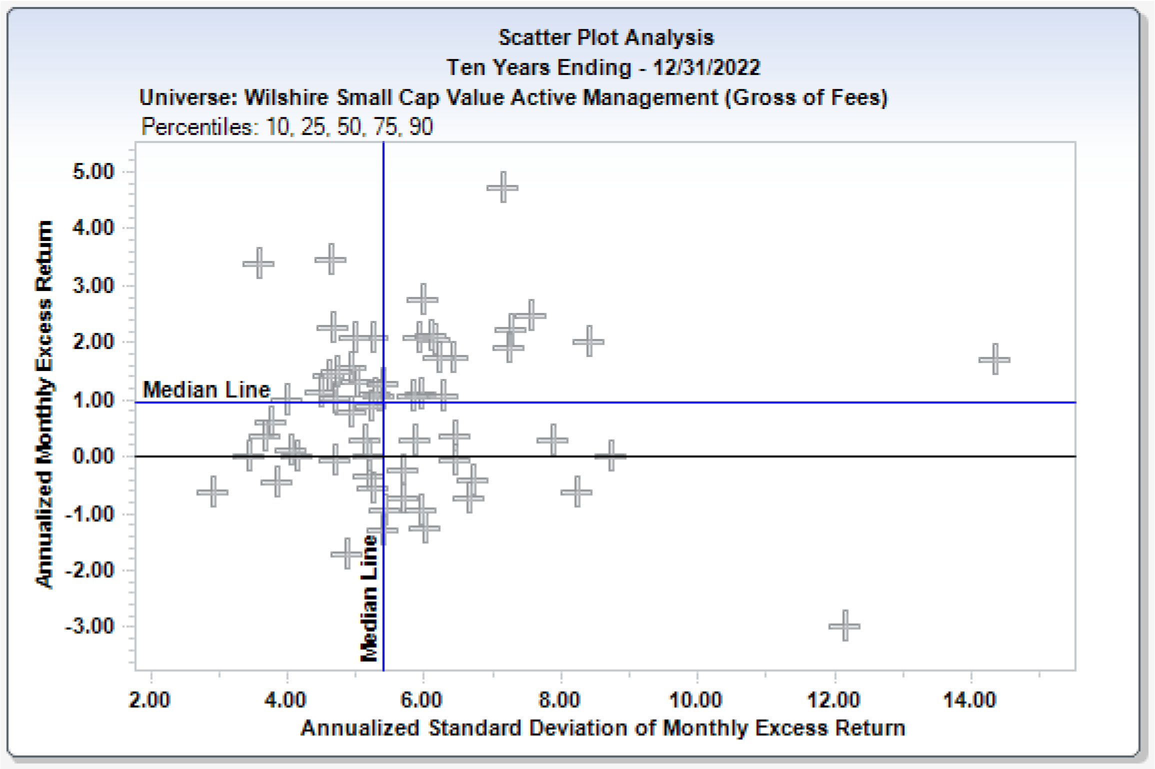
[8] Source: Wilshire Compass.

U.S. Small Value Equity (Source: Wilshire Compass)





U.S. Small Value Equity (Source: Wilshire Compass)



U.S. REITs[9]

(Benchmark: Wilshire- REIT Index)

U.S. REITs managers achieved positive relative returns in 2022, with an average and median excess return of 2.06% and 1.90%, respectively. The U.S. REITs universe has consistently generated positive median excess returns gross-of-fees over the past three-, five-, and ten-year periods, with returns of 1.52%, 1.38%, and 0.91%, respectively. It is worth noting that approximately 90% of managers in the U.S. REITs universe have delivered outperformance relative to the Wilshire REIT Index over the past three, five, and ten years.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	25	24	22	22
Index Ranking (Percentile)	77	89	93	89
Average Excess Return	2.06	1.54	1.30	1.04
Median Excess Return	1.90	1.52	1.38	0.91
Average Information Ratio	0.54	0.41	0.44	0.40
Median Information Ratio	0.60	0.35	0.41	0.33

Universe Index: Wilshire - REIT Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	33%	33%	33%	0%	100%
2nd	33%	33%	0%	33%	100%
3rd	0%	17%	50%	33%	100%
4th	0%	14%	14%	29%	57%

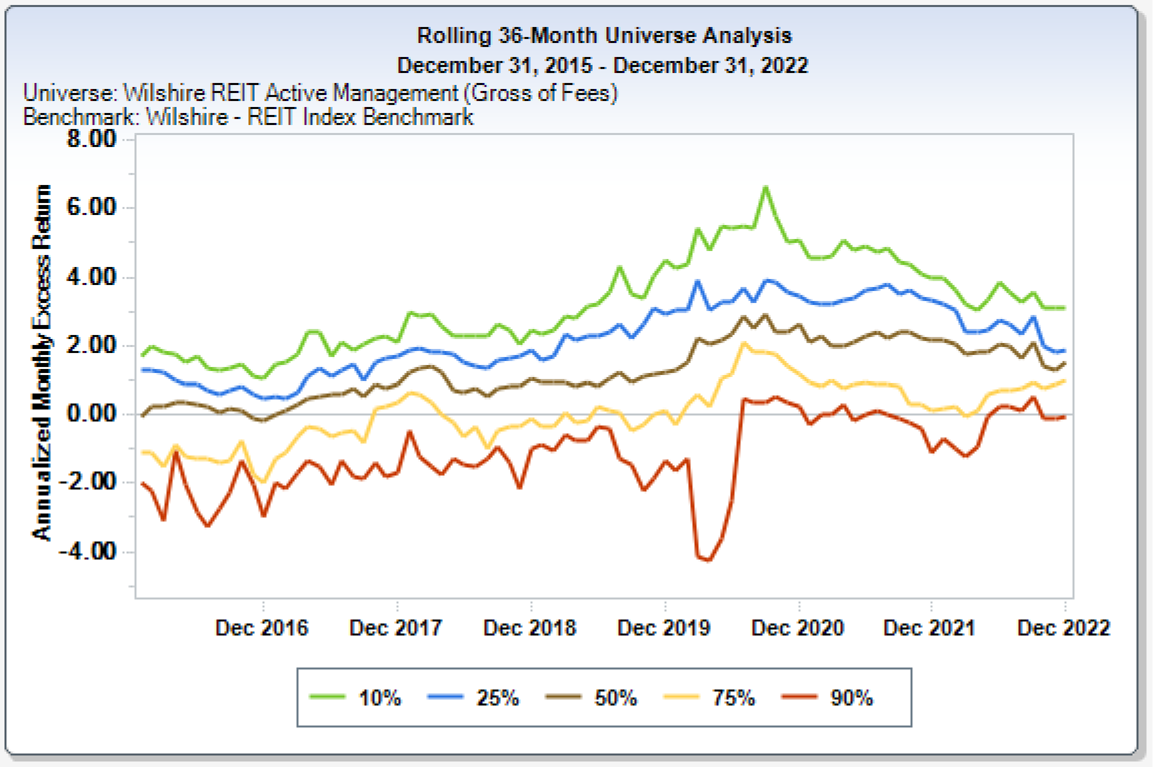
Consistency of Information Ratios

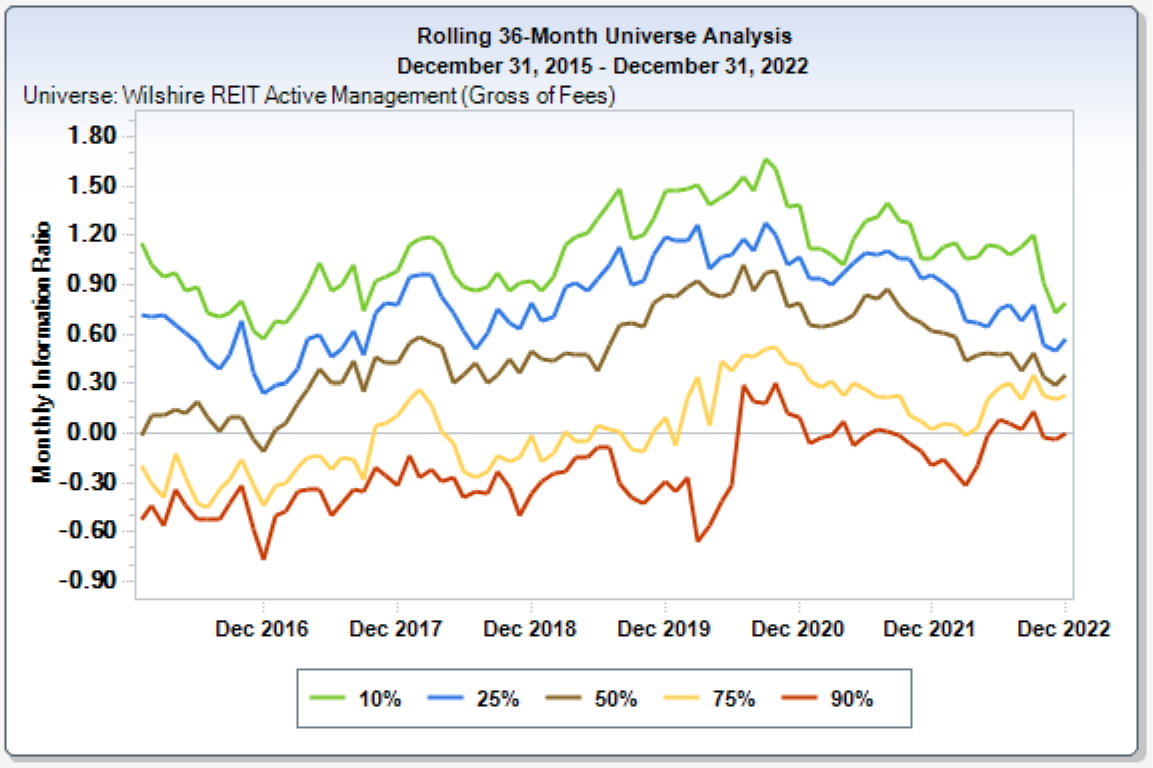
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	17%	33%	50%	0%	100%
2nd	33%	33%	0%	33%	100%
3rd	33%	17%	33%	17%	100%
4th	0%	0%	14%	43%	57%

Based on 25 products through 2019, 3 (10.7%) of which dropped out of the database by 2022

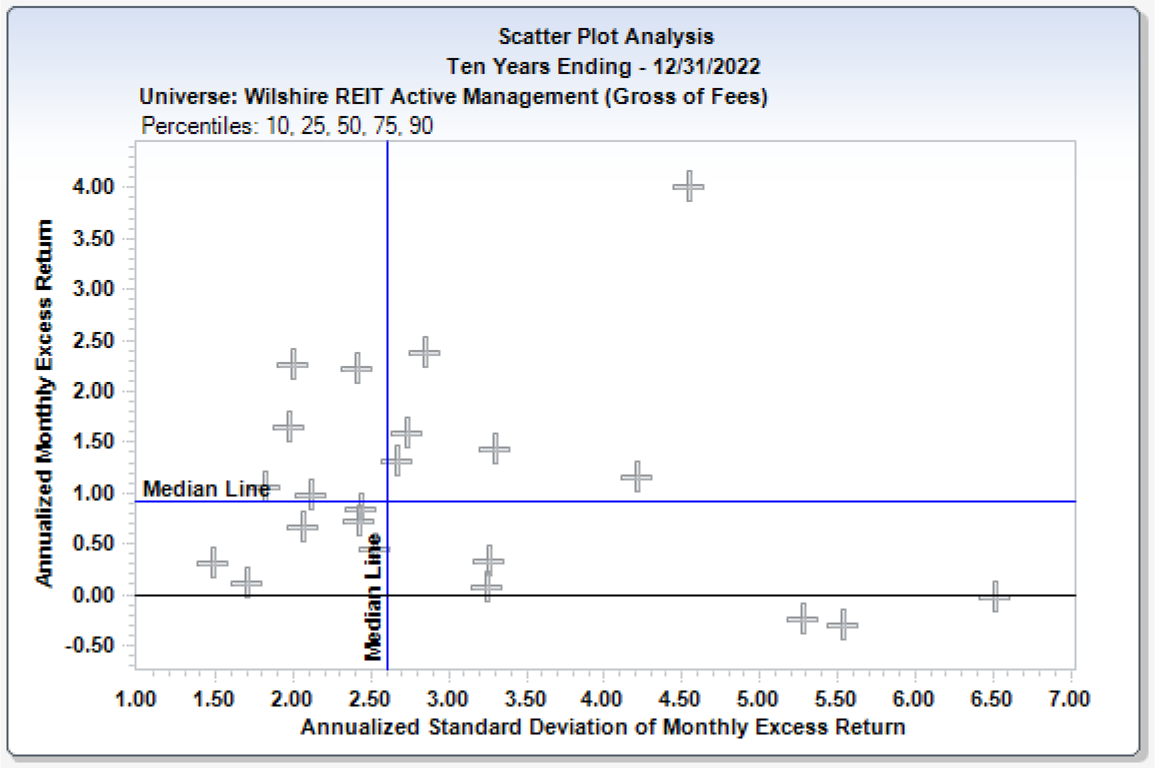
[9] Source: Wilshire Compass.

U.S. REITs (Source: Wilshire Compass)





U.S. REITs (Source: Wilshire Compass)



Developed Non-U.S. Equity[10]

(Benchmark: MSCI EAFE Index ($ Net))
(Universe: Wilshire Defined EAFE)

In 2022, Developed Non-U.S. Equity managers experienced negative relative performance, with average and median gross-of-fees excess returns of -3.30% and -2.98%, respectively. This contributed to negative median excess returns of -0.10% over the past three years and -0.37% over the past five years. However, the universe exhibited a positive median excess return of 0.98% over the ten-year period. Notably, 84% of managers outperformed the MSCI EAFE Index ($Net) over the past decade.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	82	82	81	68
Index Ranking (Percentile)	34	49	40	84
Average Excess Return	-3.30	-0.16	-0.25	1.03
Median Excess Return	-2.98	-0.10	-0.37	0.98
Average Information Ratio	-0.63	-0.01	-0.06	0.24
Median Information Ratio	-0.73	-0.03	-0.07	0.23

Universe Index: MSCI - EAFE Index ($Net)

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	25%	40%	15%	20%	100%
2nd	15%	30%	30%	25%	100%
3rd	30%	20%	20%	30%	100%
4th	30%	15%	35%	20%	100%

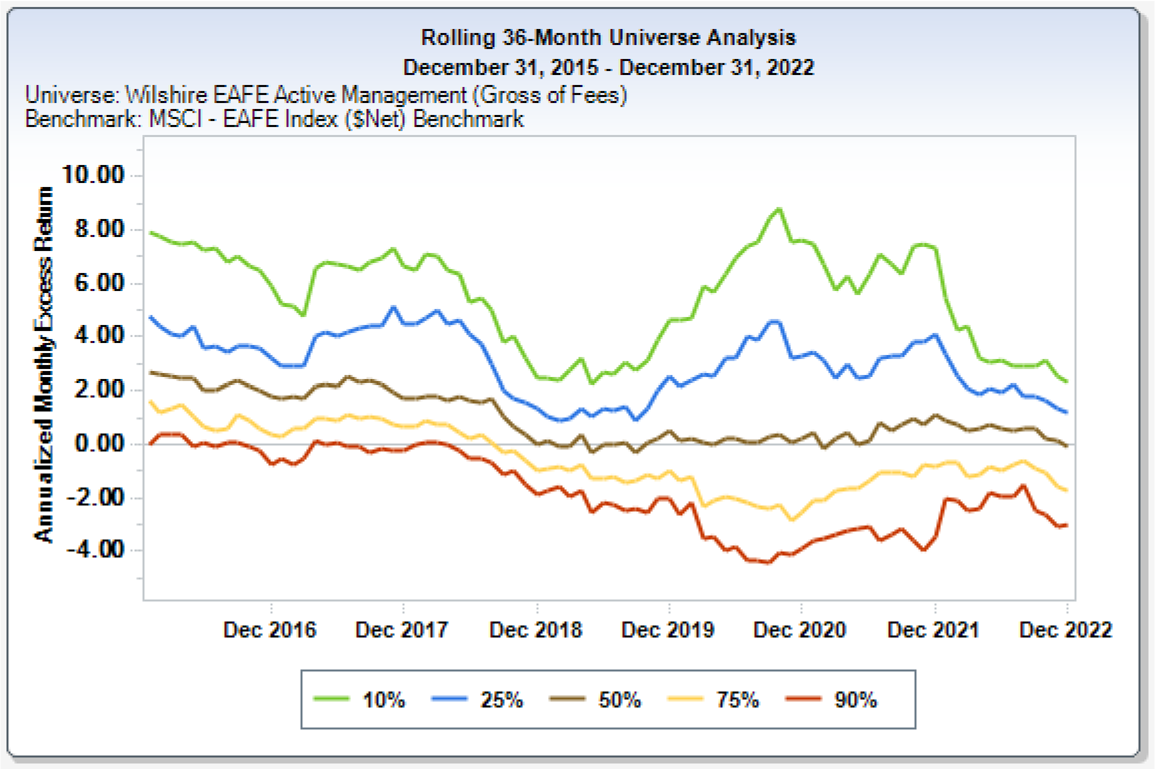
Consistency of Information Ratios

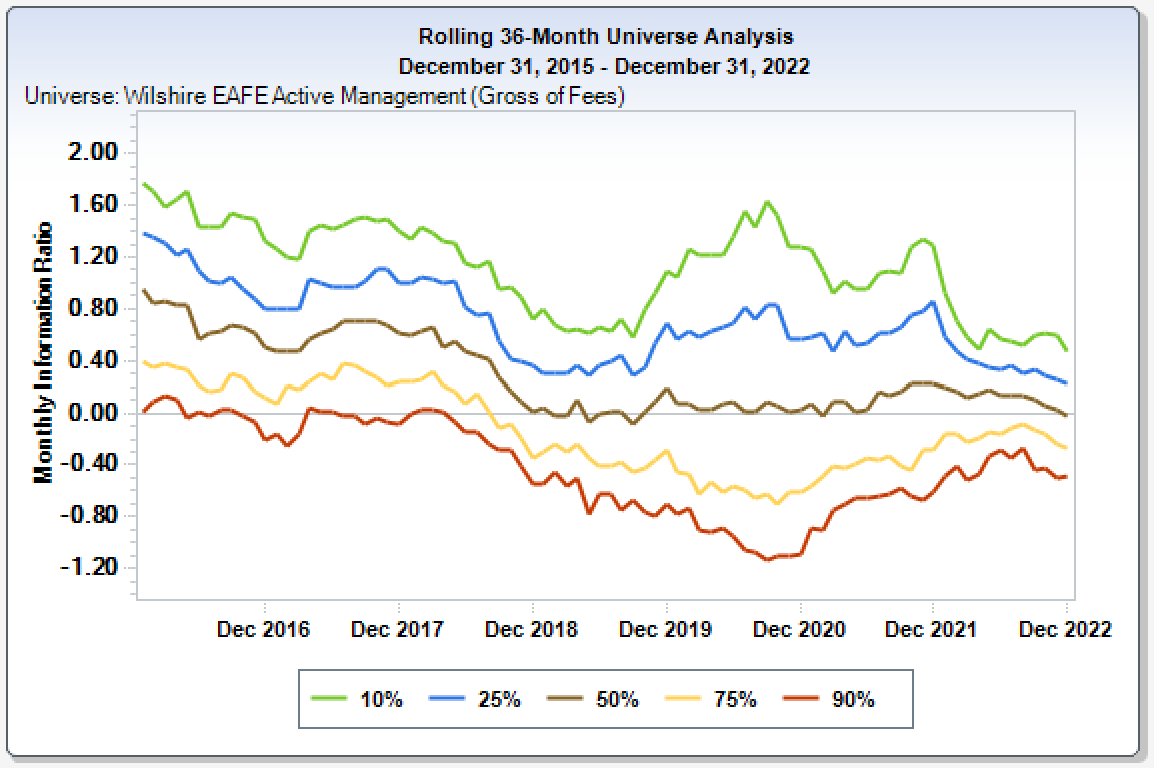
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	20%	35%	25%	20%	100%
2nd	20%	35%	25%	20%	100%
3rd	30%	15%	25%	30%	100%
4th	30%	20%	25%	25%	100%

Based on 80 products through 2019, 0 (0%) of which dropped out of the database by 2022

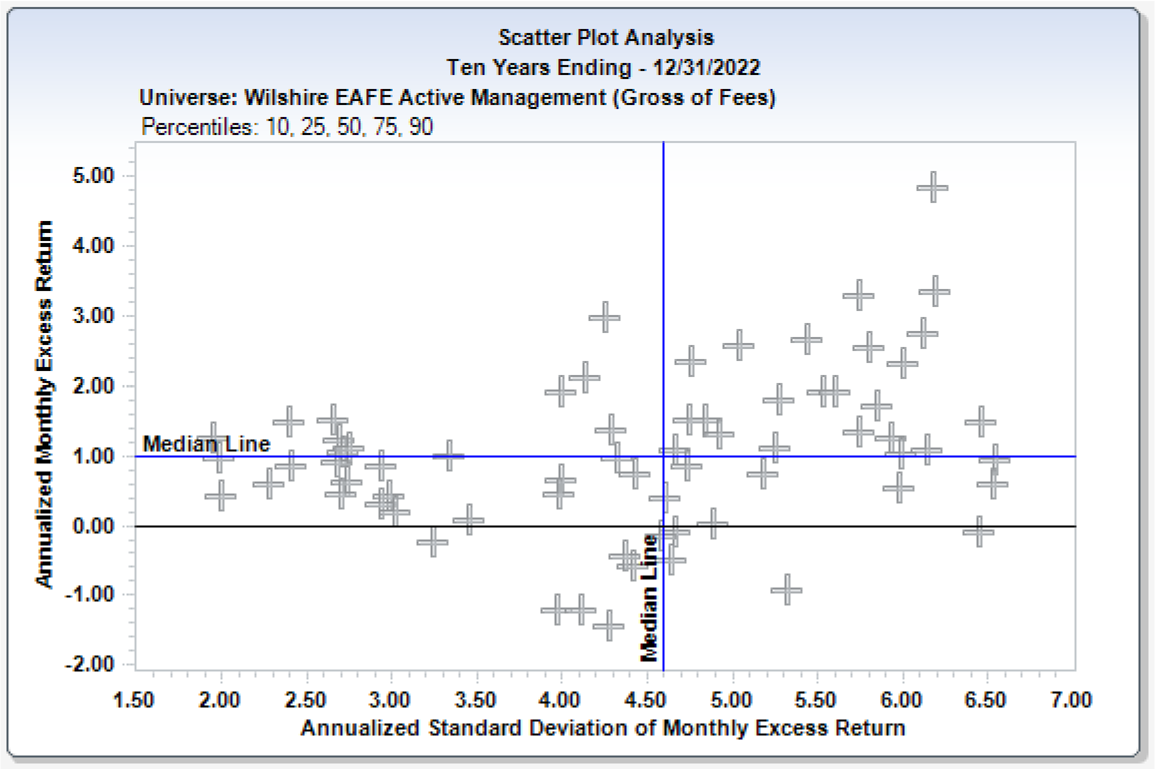
[10] Source: Wilshire Compass.

Developed Non-U.S. Equity (Source: Wilshire Compass)





Developed Non-U.S. Equity (Source: Wilshire Compass)



Developed Non-U.S. Small Cap Equity[11]

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

In 2022, Developed Non-U.S. Small Cap Equity managers achieved a favorable average excess return of 0.25% and a median excess return of 0.73%. Over the past three and five years, this group has delivered median excess returns of 1.42% and 0.09%, respectively. During the past ten years, the group has generated an average gross-of-fees excess return of 0.56% and a median excess return of 0.72% compared to the MSCI EAFE Small Cap Index ($Net).

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	30	30	30	26
Index Ranking (Percentile)	52	70	51	68
Average Excess Return	0.25	1.50	0.53	0.56
Median Excess Return	0.73	1.42	0.09	0.72
Average Information Ratio	0.26	0.21	0.04	0.15
Median Information Ratio	0.11	0.22	0.02	0.15

Universe Index: MSCI - EAFE Small Index ($Net)

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	25%	38%	25%	13%	100%
2nd	13%	25%	13%	50%	100%
3rd	50%	25%	13%	13%	100%
4th	13%	0%	38%	25%	75%

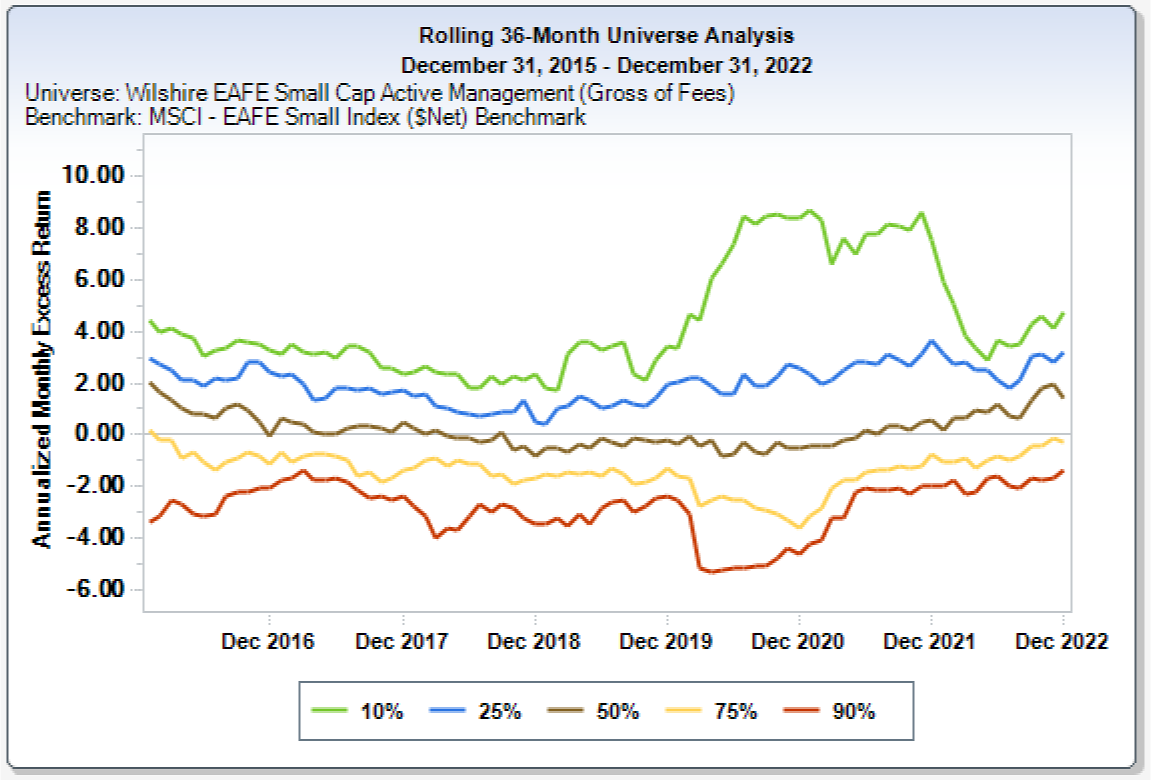
Consistency of Information Ratios

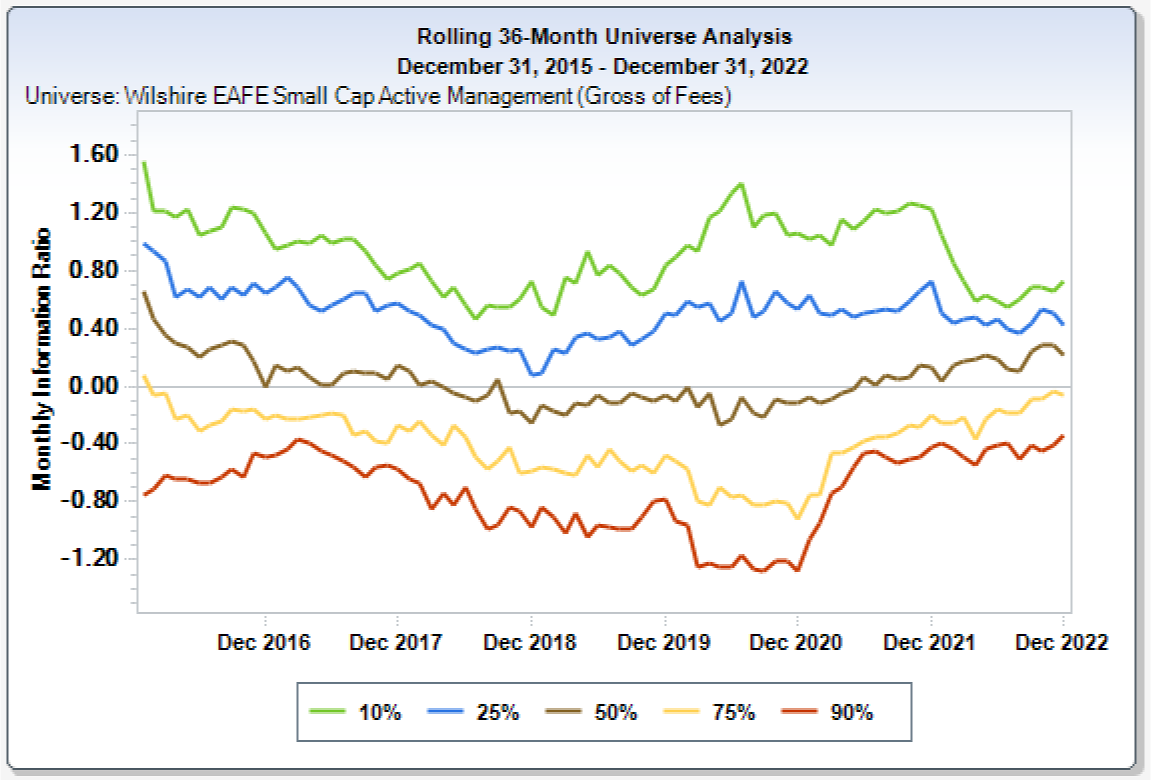
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	13%	25%	25%	38%	100%
2nd	25%	25%	25%	25%	100%
3rd	38%	25%	13%	25%	100%
4th	25%	13%	25%	13%	75%

Based on 32 products through 2019, 2 (6.3%) of which dropped out of the database by 2022

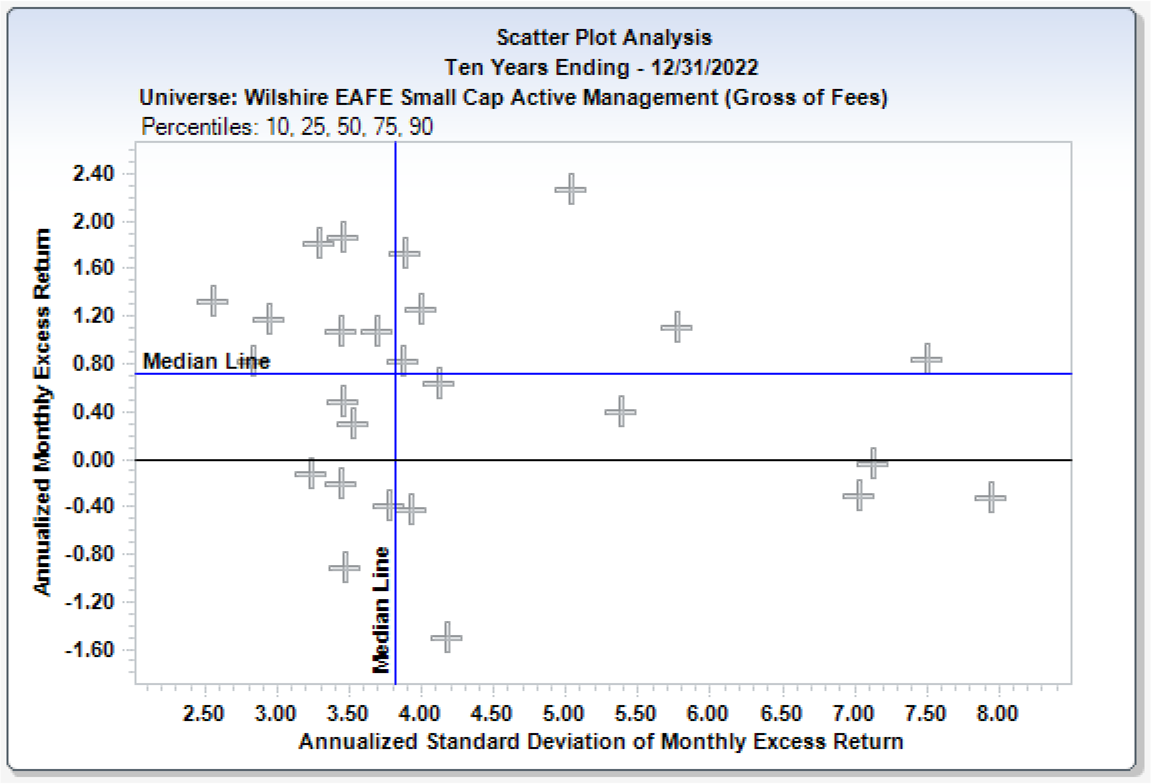
[11] Source: Wilshire Compass.

Developed Non-U.S. Small Cap Equity (Source: Wilshire Compass)





Developed Non-U.S. Small Cap Equity (Source: Wilshire Compass)



Emerging Markets Equity[12]

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

Following strong relative performance in 2021, Emerging Markets Equity managers delivered modest relative outperformance in 2022, with an average and median gross-of-fees excess return of 0.73% and 0.03%, respectively. However, their relative performance has remained strong over the past decade, with an average and median excess return of 1.89% and 1.60%, respectively, compared to the MSCI Emerging Markets Index ($Net). Notably, 91% of managers within the Emerging Markets universe have outperformed the index over the past ten years.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	156	149	143	113
Index Ranking (Percentile)	51	64	71	91
Average Excess Return	0.73	1.93	1.28	1.89
Median Excess Return	0.03	1.06	0.95	1.60
Average Information Ratio	0.11	0.21	0.19	0.32
Median Information Ratio	0.00	0.14	0.16	0.32

Universe Index: MSCI - Emerging Markets Index ($ Net)

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	9%	26%	41%	21%	97%
2nd	14%	14%	19%	53%	100%
3rd	26%	31%	26%	14%	97%
4th	36%	31%	17%	17%	100%

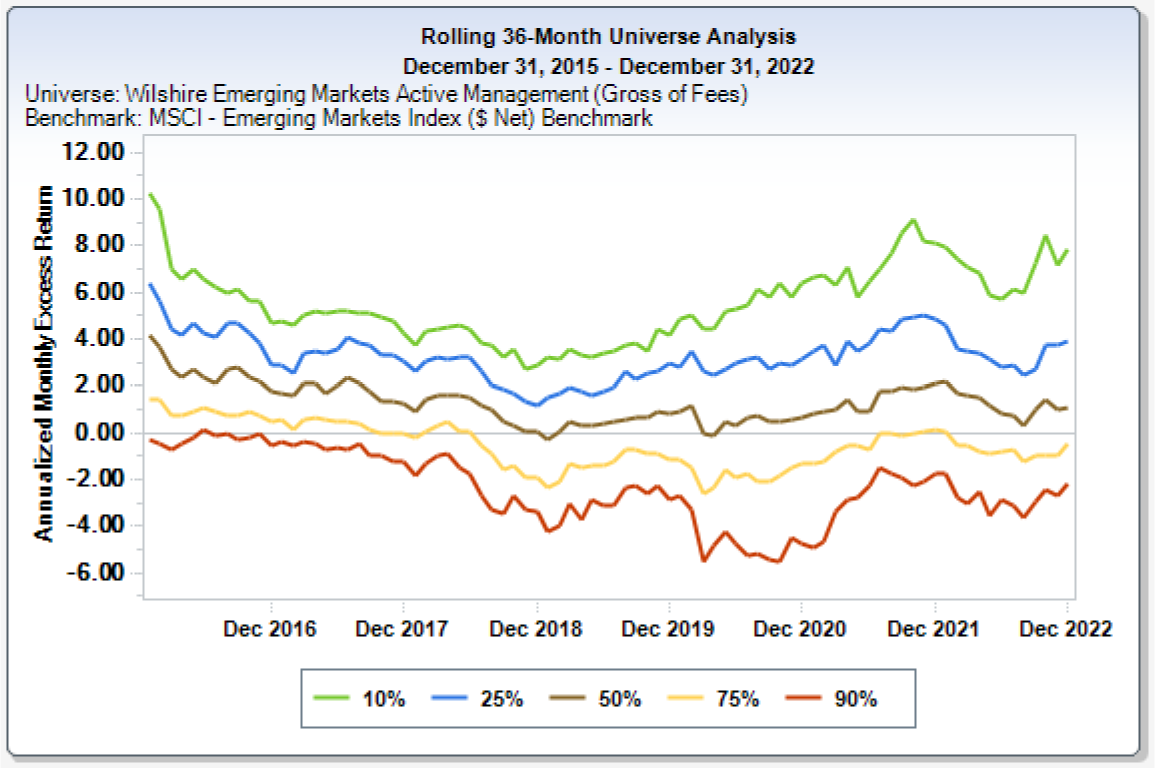
Consistency of Information Ratios

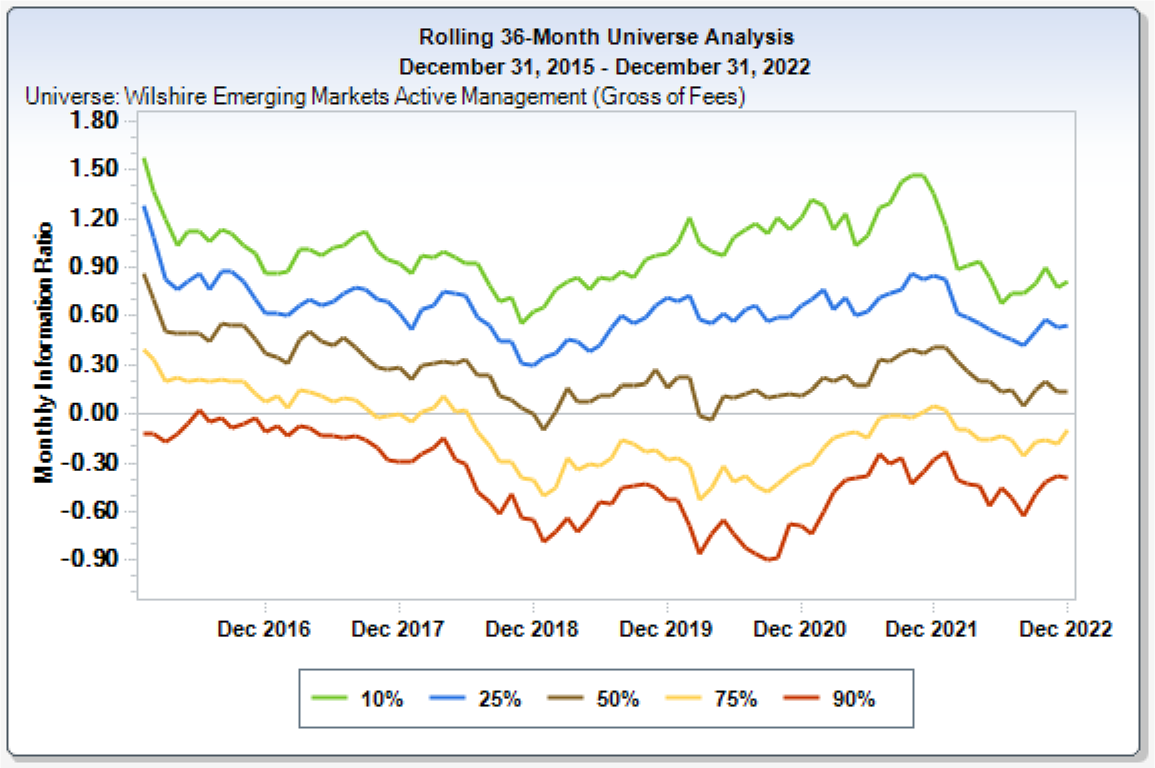
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	15%	24%	35%	26%	100%
2nd	8%	17%	25%	47%	97%
3rd	34%	20%	23%	20%	97%
4th	25%	44%	19%	11%	100%

Based on 141 products through 2019, 2 (1.4%) of which dropped out of the database by 2022

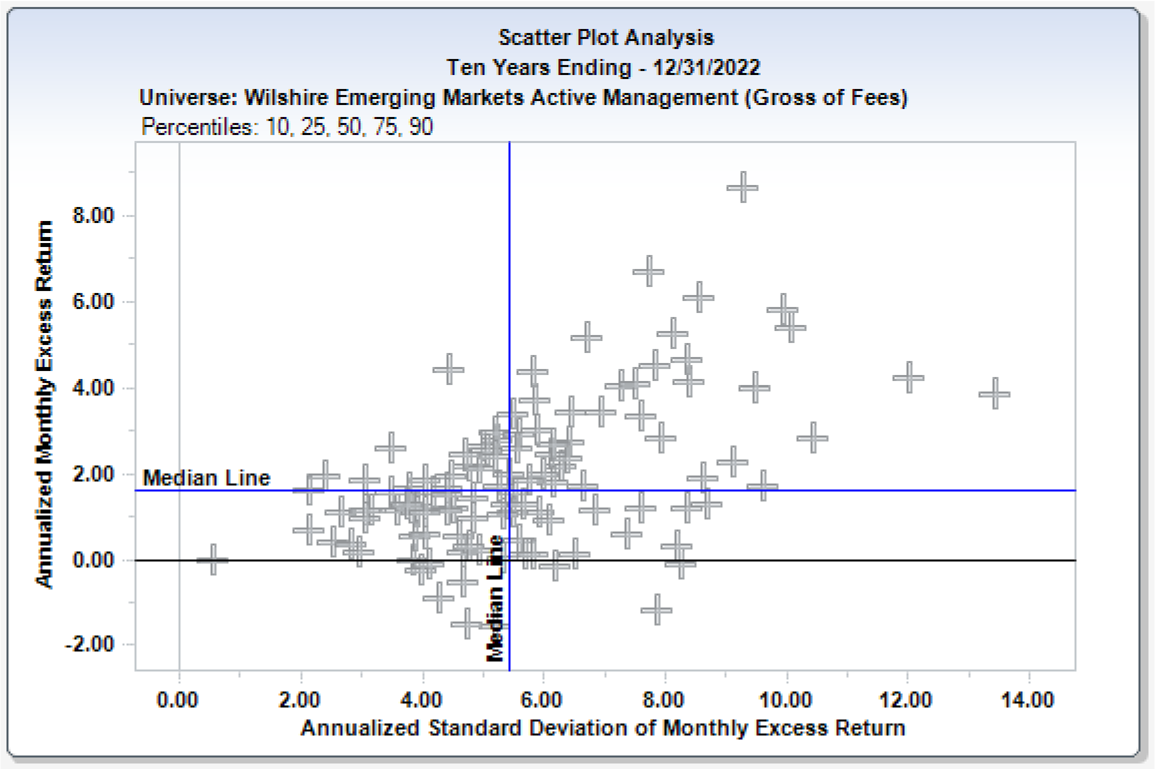
[12] Source: Wilshire Compass.

Emerging Markets Equity (Source: Wilshire Compass)





Emerging Markets Equity (Source: Wilshire Compass)



Global Equity[13]

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

Global Equity managers rebounded strongly in 2022, delivering an impressive average gross-of-fees excess return of 4.37%, with a median excess return of 7.13%. However, despite this noteworthy outperformance in 2022, the three- and five-year median excess returns remained negative, at -0.20% and -0.82%, respectively. Similarly, over the ten-year period, the universe produced an average excess return of -0.19% and a median excess return of -0.19% on a gross-of-fees basis.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	85	83	79	63
Index Ranking (Percentile)	69	49	40	48
Average Excess Return	4.37	-0.27	-0.70	-0.19
Median Excess Return	7.13	-0.20	-0.82	-0.19
Average Information Ratio	0.48	-0.02	-0.05	-0.01
Median Information Ratio	0.76	-0.02	-0.07	-0.03

Universe Index: MSCI - AC World Index ($Net)

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	26%	26%	21%	26%	100%
2nd	15%	20%	35%	25%	95%
3rd	21%	16%	26%	37%	100%
4th	35%	35%	15%	15%	100%

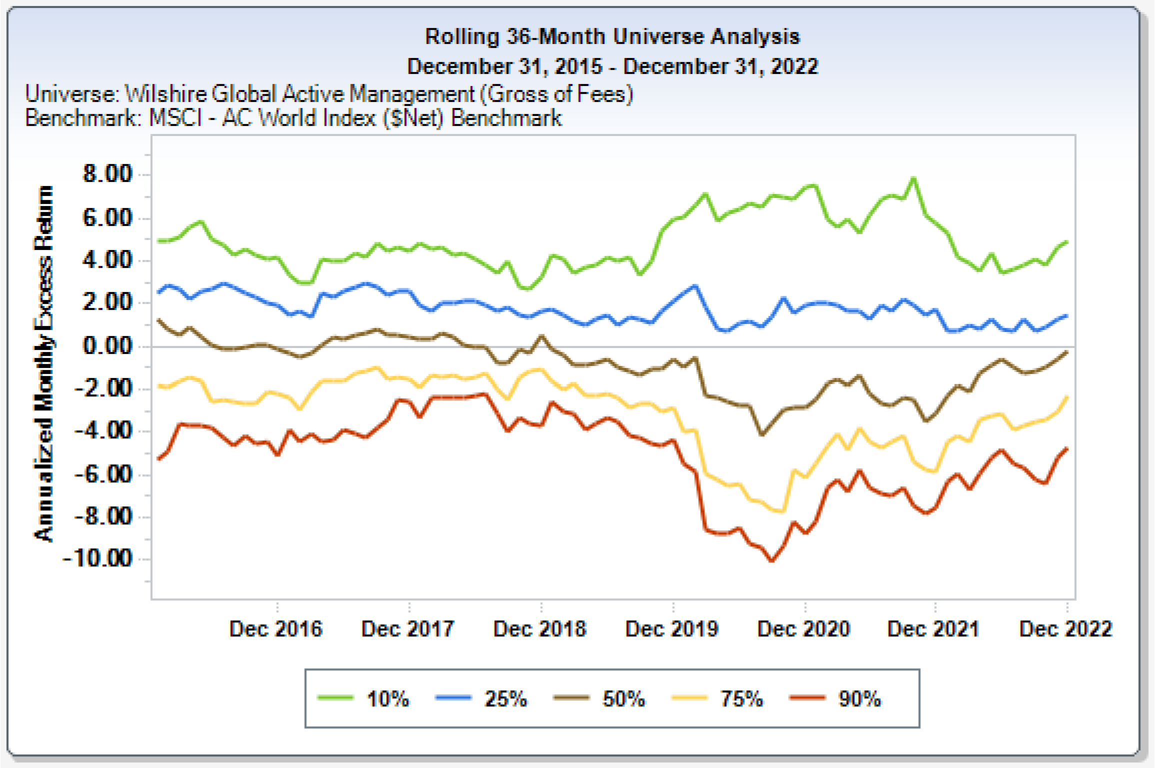
Consistency of Information Ratios

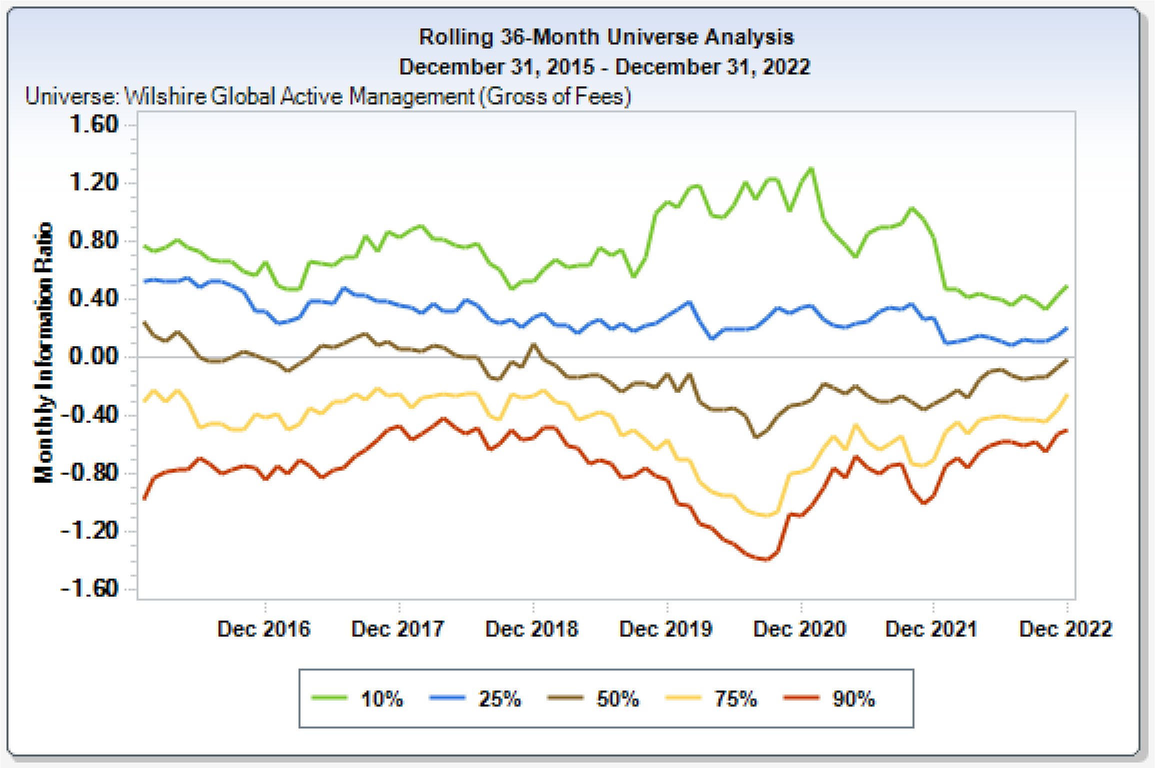
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	32%	26%	16%	26%	100%
2nd	15%	15%	40%	25%	95%
3rd	21%	37%	11%	32%	100%
4th	30%	20%	30%	20%	100%

Based on 78 products through 2019, 1 (1.3%) of which dropped out of the database by 2022

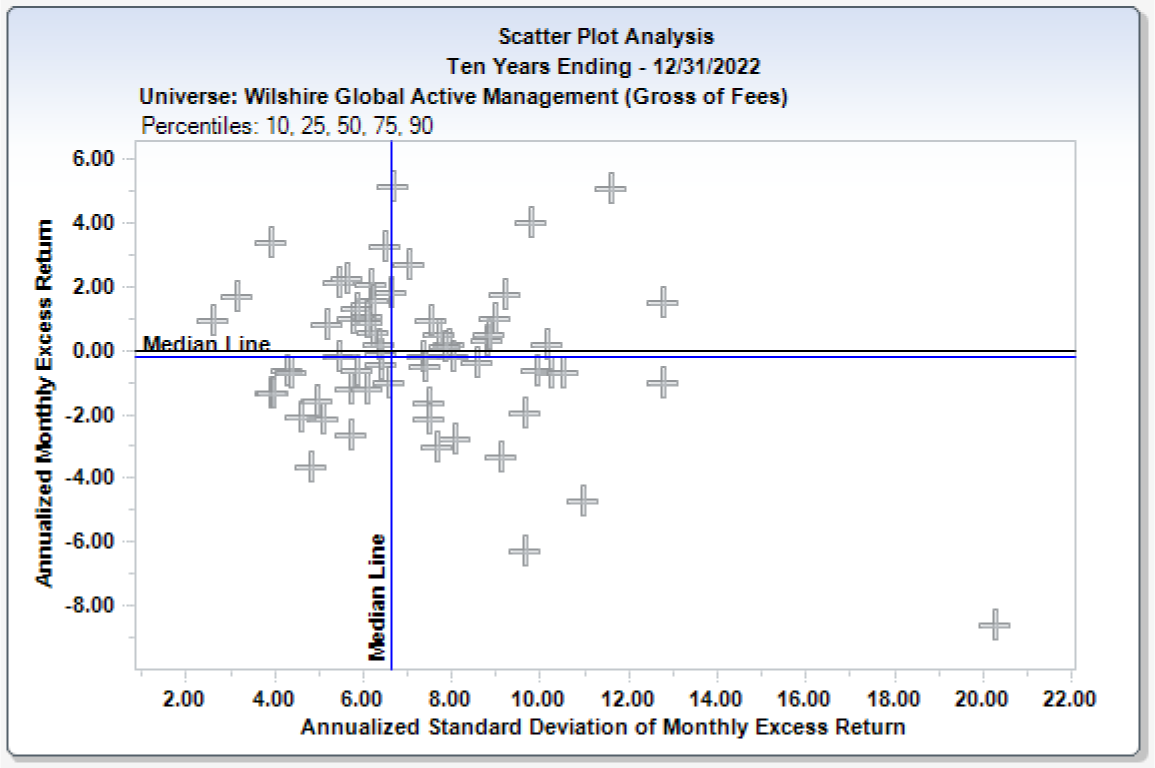
[13] Source: Wilshire Compass.

Global Equity (Source: Wilshire Compass)





Global Equity (Source: Wilshire Compass)



Core Fixed Income[14]

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

In 2022, Core Fixed Income managers demonstrated positive relative performance, with an average gross-of-fees excess return of 3.07% and a median excess return of 2.78%. This robust performance contributed to longer-term returns becoming positive, as the group has delivered median excess returns of 1.25%, 0.67%, and 0.31% over the three-, five-, and ten-year periods, respectively. It is worth noting that during the five-year period, 97% of the managers outperformed the Bloomberg Barclays US Aggregate Index.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	70	70	68	64
Index Ranking (Percentile)	85	96	97	80
Average Excess Return	3.07	1.15	0.62	0.28
Median Excess Return	2.78	1.25	0.67	0.31
Average Information Ratio	1.18	0.63	0.43	0.30
Median Information Ratio	1.53	0.65	0.40	0.25

Universe Index: Bloomberg - U.S. Aggregate Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	6%	12%	47%	35%	100%
2nd	6%	18%	29%	47%	100%
3rd	41%	29%	12%	18%	100%
4th	47%	41%	12%	0%	100%

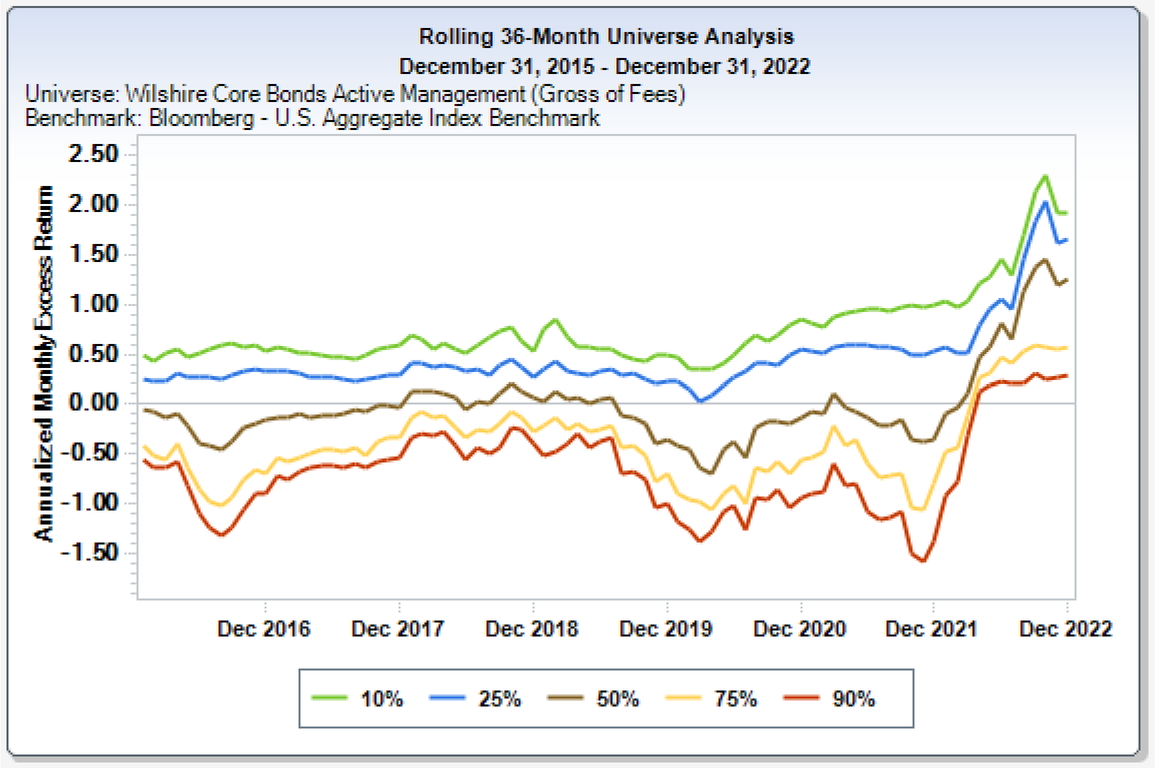
Consistency of Information Ratios

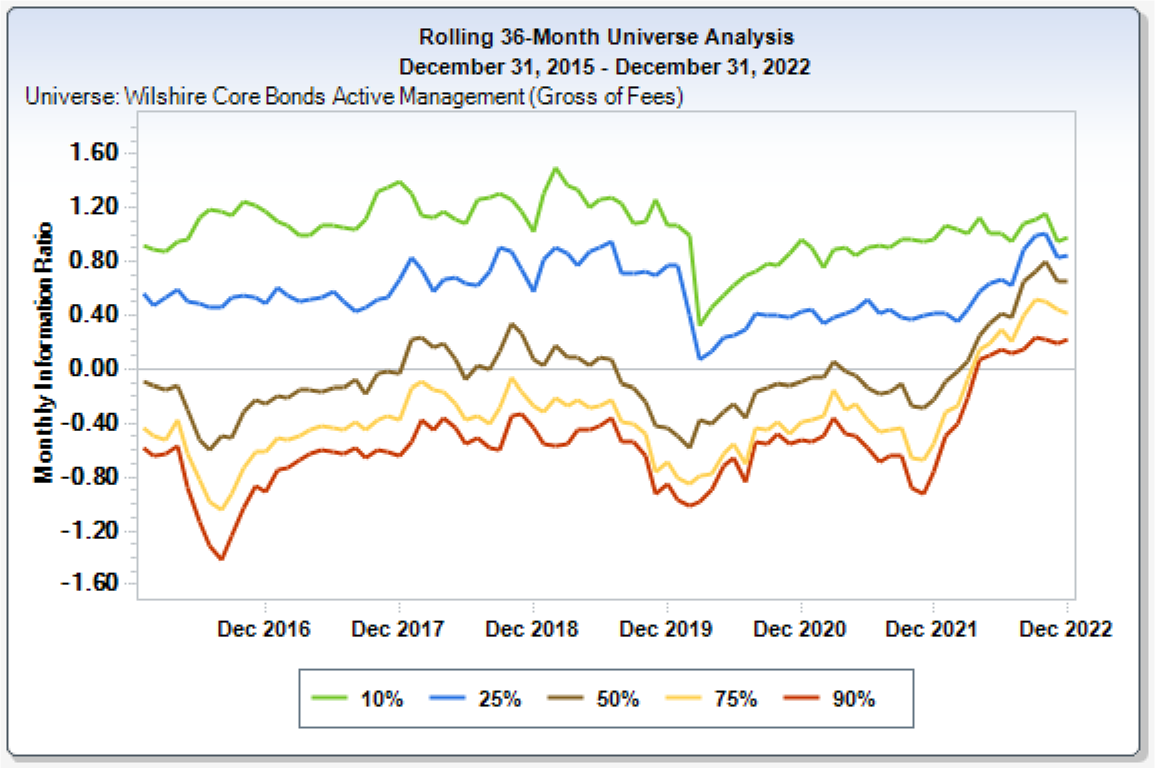
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	18%	29%	6%	47%	100%
2nd	35%	12%	29%	24%	100%
3rd	29%	35%	24%	12%	100%
4th	12%	24%	41%	24%	100%

Based on 68 products through 2019, 0 (0%) of which dropped out of the database by 2022

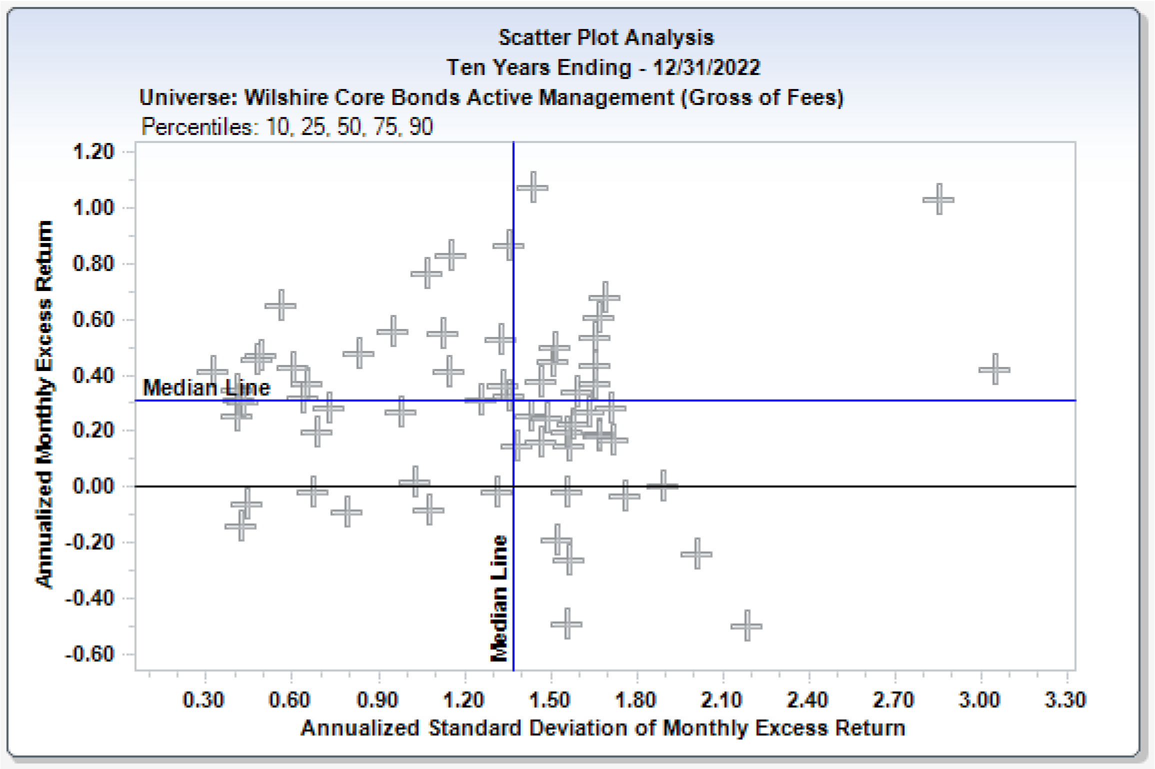
[14] Source: Wilshire Compass.

Core Fixed Income (Source: Wilshire Compass)





Core Fixed Income (Source: Wilshire Compass)



High Yield Fixed Income[15]

(Benchmark: Bloomberg Barclays High Yield Index)
(Universe: Wilshire Defined High Yield)

In 2022, the High Yield manager universe exhibited significant outperformance, with an average gross-of-fees excess return of 4.93% and a median excess return of 3.03%. As a result, there was a slight improvement in the median excess returns for the three-, five-, and ten-year periods, at 0.97%, 0.54%, and -0.02%, respectively. Over the short- to medium-term, a greater number of managers have outperformed the Bloomberg Barclays High Yield Index, while only 49% of managers outperformed over the ten-year period.

Universe Statistics

Periods Ending 12/31/2022	1 Year	3 Years	5 Years	10 Years
Number of Products	140	137	133	119
Index Ranking (Percentile)	88	76	74	49
Average Excess Return	4.93	1.09	0.50	0.05
Median Excess Return	3.03	0.97	0.54	-0.02
Average Information Ratio	0.96	0.26	0.16	0.05
Median Information Ratio	1.08	0.30	0.15	-0.01

Universe Index: Bloomberg - U.S. High Yield Index

Consistency of Excess Returns

3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	9%	12%	36%	39%	97%
2nd	9%	23%	31%	31%	94%
3rd	26%	21%	21%	32%	100%
4th	49%	37%	9%	0%	94%

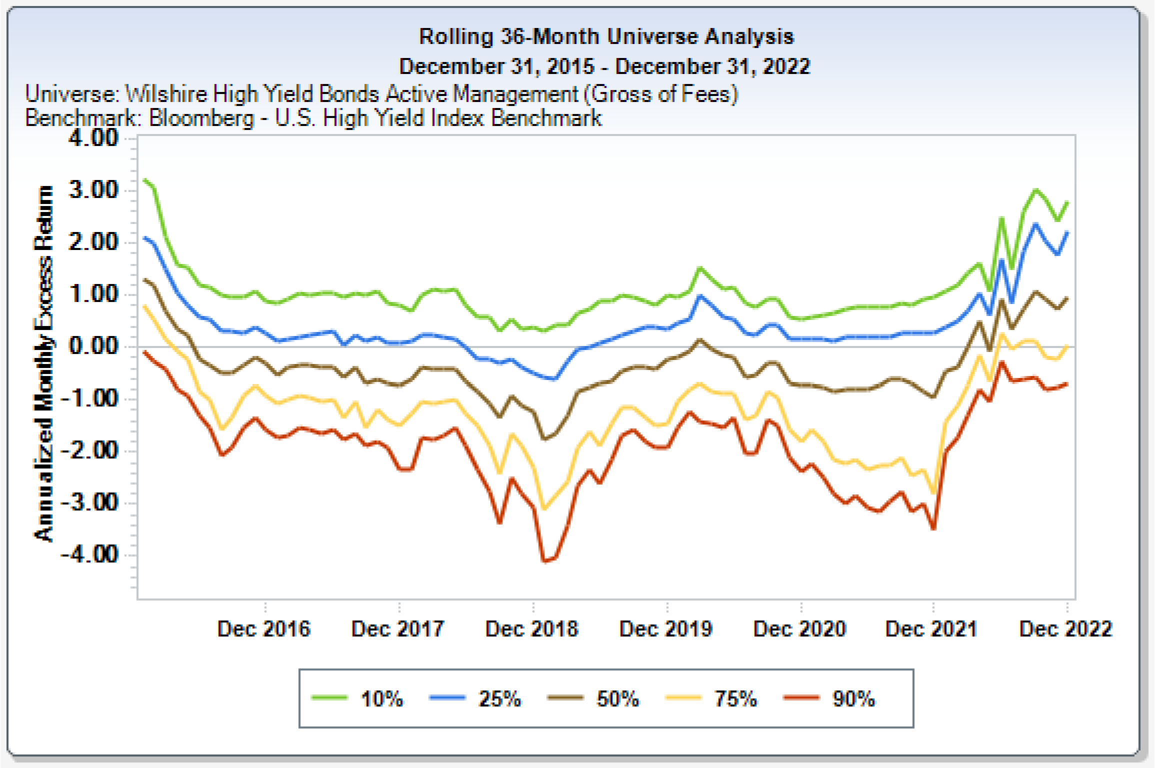
Consistency of Information Ratios

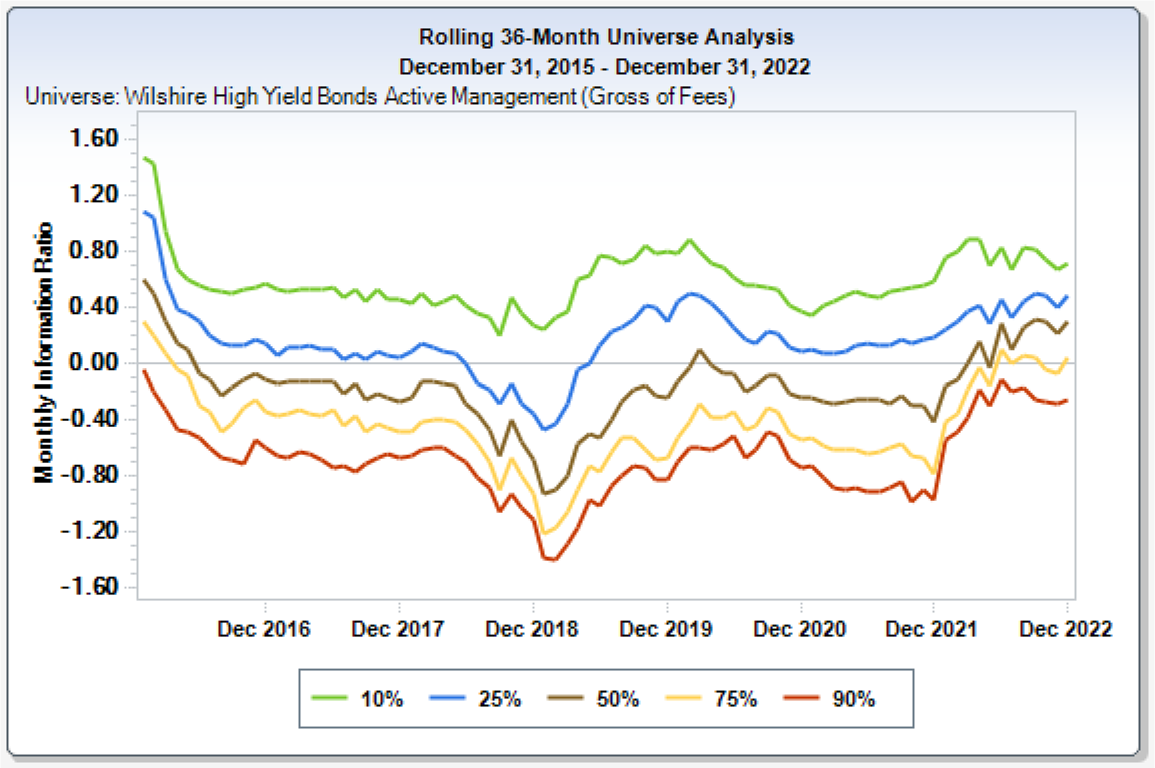
3 Yr Qtile Rank 2019	3 Year Quartile Rank 2022				
	1st	2nd	3rd	4th	Total
1st	36%	9%	15%	36%	97%
2nd	29%	11%	14%	40%	94%
3rd	15%	35%	35%	15%	100%
4th	11%	40%	31%	11%	94%

Based on 137 products through 2019, 5 (3.6%) of which dropped out of the database by 2022

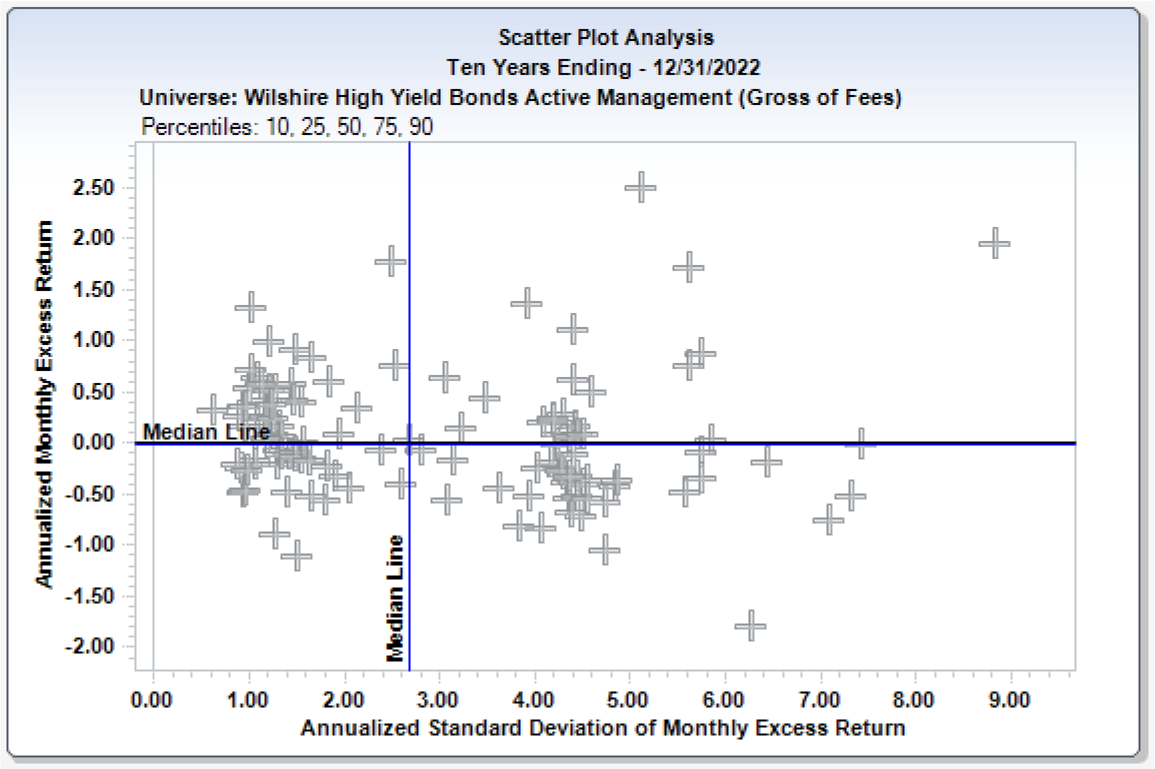
[15] Source: Wilshire Compass.

High Yield Fixed Income (Source: Wilshire Compass)





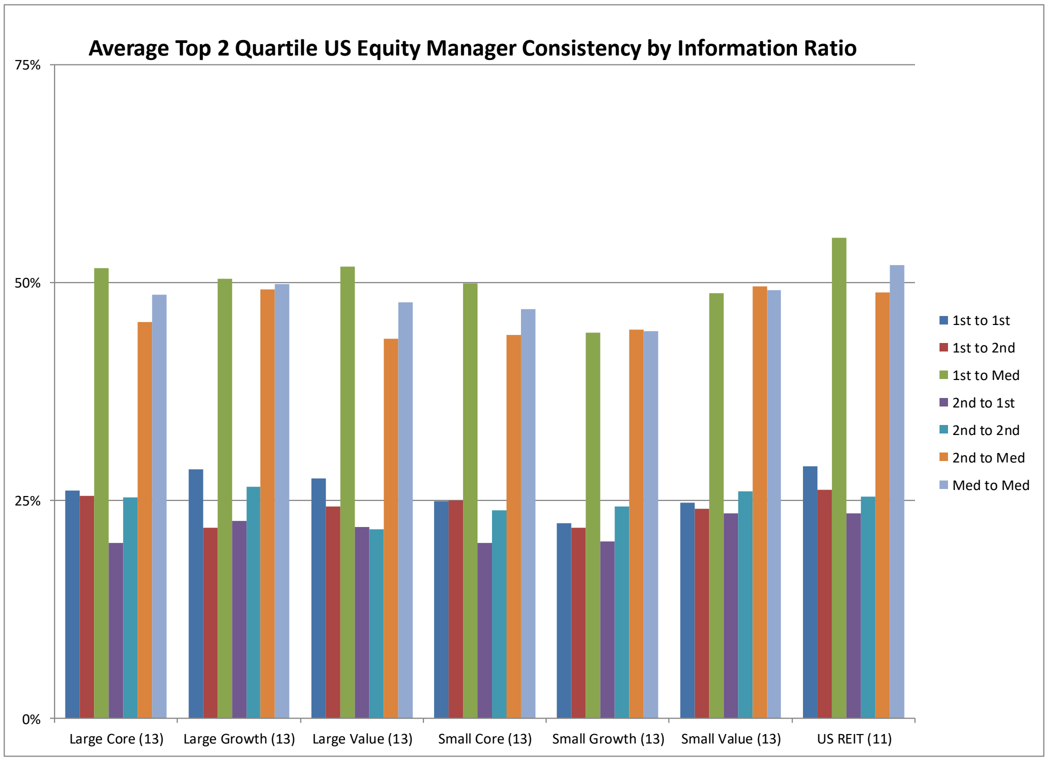
High Yield Fixed Income (Source: Wilshire Compass)



Consistency Statistics Multi-Year Summary

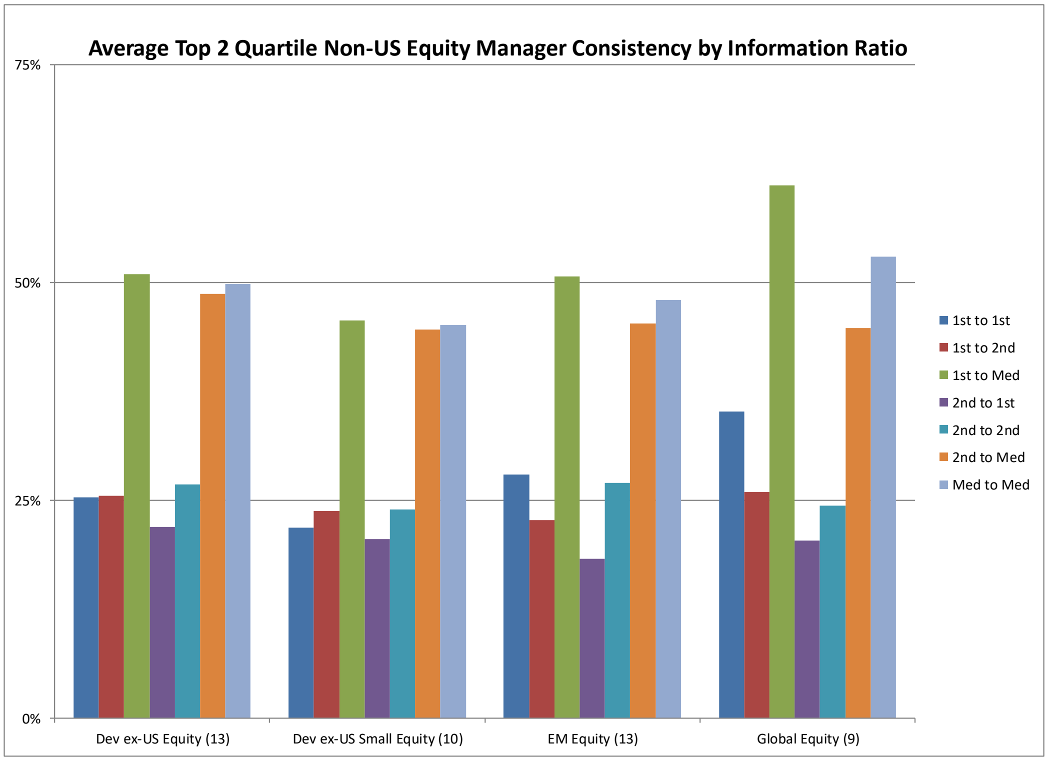
In this section of the report, we look through each of the three major market segments (U.S. Equities, International Equities and Fixed Income) to provide a summary of manager consistency across our 13 annual review reports. Each summary takes the information ratio (risk-adjusted) consistency approach discussed earlier, whereby we measure manager consistency through a comparison of distinct three-year periods (i.e., the three years through 2019 vs. the three years through 2022 in this year's report, etc.). The exception asset segments are U.S. REITs, Developed Small-Cap Non-U.S. Equity and Global Equity where the statistics are limited to eleven, ten and nine years of ending point data, respectively. The charts include seven statistical columns for each investment category. The first three columns chart the average percentage of managers that were in the 1st quartile in the previous three-year period who 1) remained in the 1st quartile in the subsequent period, 2) fell to the 2nd quartile in the subsequent period, and 3) remained above median in the subsequent period. The next three columns present the same percentage outcomes in the most recent three-year period for those managers who were in the 2nd 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 none of the U.S. Equity segments showed any signs of sustained risk-adjusted return consistency. The average 1st quartile to 1st quartile and 1st quartile to above median results were all near 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 can consistently add relative value across market cycles.



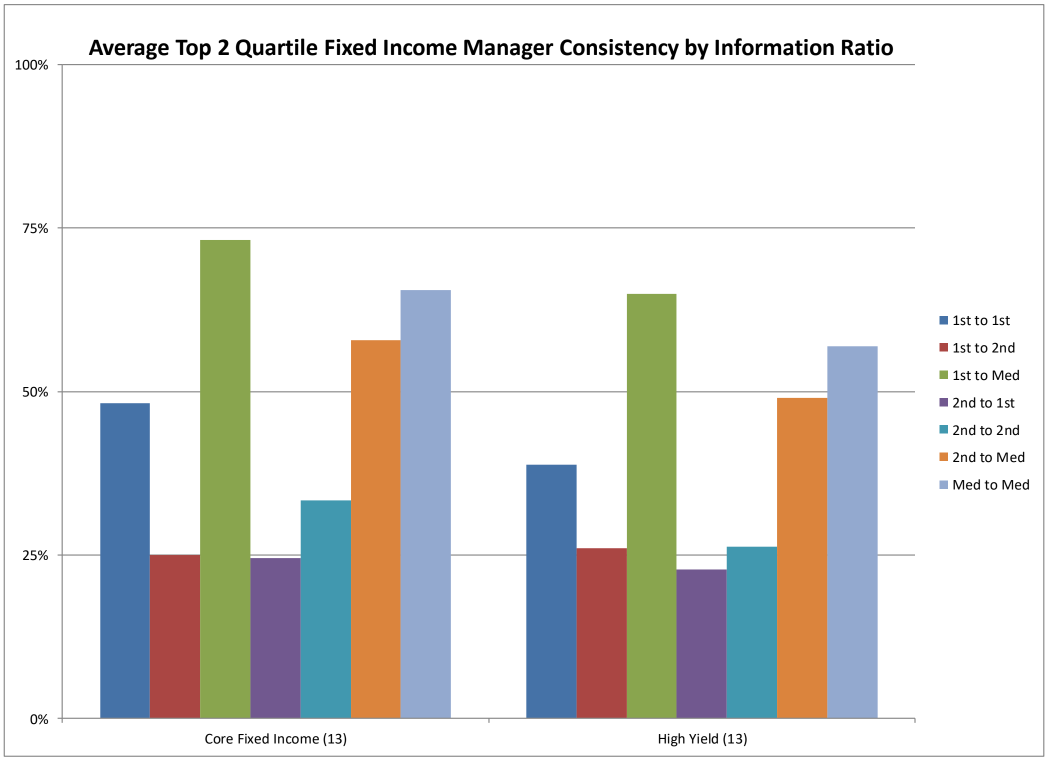
The figures in parenthesis indicate how many report years are embedded in the average statistics.

The results in the Non-U.S. Equity chart below are similar to those above for U.S. Equity, providing scarce evidence of manager consistency. While several segments show some positive consistency to top-quartile performers, these statistics are not materially different from what would be expected from a random outcome. These results seem to confirm that the practice of simply selecting yesterday's winners is not a recipe for success in pursuing the potential benefits of active management.



The figures in parenthesis indicate how many report years are embedded in the average statistics.

The Fixed Income chart below shows slightly more evidence of consistency than is apparent in the equity segments above. These results are likely due in part to the persistent factor tilts found in many fixed income strategies, whose linkages would tend to lift and drop cohorts of managers who maintain similar exposures. As such, we would view these moderate indications of consistency to be market driven as opposed to being driven by consistency in delivering alpha. Ultimately, these statistics along with others within this report suggest that successful active management requires a qualitative edge to accompany the analysis of historical quantitative results. At the risk of concluding with an overused metaphor, active management is a car that cannot be safely driven by looking only in the rear-view mirror.



The figures in parentheses indicate how many report years are embedded in the average statistic.

Important Information

Wilshire is a global financial services firm providing diverse services to various types of investors and intermediaries. Wilshire's products, services, investment approach and advice may differ between clients and all of Wilshire's products and services may not be available to all clients. For more information regarding Wilshire's services, please see Wilshire's ADV Part 2 available at www.wilshire.com/ADV.

Wilshire believes that the information obtained from third party sources contained herein is reliable, but has not undertaken to verify such information. Wilshire gives no representations or warranties as to the accuracy of such information, and accepts no responsibility or liability (including for indirect, consequential or incidental damages) for any error, omission or inaccuracy in such information and for results obtained from its use.

This material may include estimates, projections, assumptions and other "forward-looking statements." Forward-looking statements represent Wilshire's current beliefs and opinions in respect of potential future events. These statements are not guarantees of future performance and undue reliance should not be placed on them. Such forward-looking statements necessarily involve known and unknown risks and uncertainties, which may cause actual events, performance and financial results to differ materially from any projections. Forward-looking statements speak only as of the date on which they are made and are subject to change without notice. Wilshire undertakes no obligation to update or revise any forward-looking statements.

Wilshire Advisors, LLC (Wilshire) is an investment advisor registered with the SEC. Wilshire® is a registered service mark.

MM-369404 E1223