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**IS THE PERFORMANCE OF ACTIVE EQUITY MANAGERS
STILL CYCLICAL?**

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EXECUTIVE SUMMARY

In this paper, we explore whether active equity manager outperformance is cyclical. To help inform this discussion, we review the historical trends of how active equity managers have fared, identify the significant variables that have adversely impacted active equity management since the Global Financial Crisis (“GFC”), and hypothesize about the types of market environments in which active equity manager relative performance may prosper. We believe that, while active management is a zero sum game in the long term, a meaningful portion of the active equity manager universe will outperform and potentially generate attractive risk-adjusted returns. However, it is challenging to determine whether the recent manager underperformance will persist. That said, if history is a guide, when the market eventually turns downward, if stock market dispersion and breadth increase, and if the outflows from active into passive temper, active equity managers *should* be in a better position to outperform their passive counterparts with greater frequency and magnitude.

Active equity managers have tended to fare better than indices in declining markets, in part due to cash holdings. In rising markets, cash hurts performance, while in declining markets, cash helps performance. Additionally, higher active share managers have tended to outperform lower active share managers over long periods. This phenomenon suggests that when an investor chooses active over passive, he/she should seek managers who deviate meaningfully from the benchmark.

Active equity managers have underperformed their benchmarks with greater frequency relative to past cycles since the end of the GFC. Concurrent with this trend, more assets have migrated from active strategies into indexed products and exchange-traded funds (ETFs). The increased flows into passive strategies have created a feedback loop in which passive products purchase a greater percentage of the larger capitalization companies that are more heavily weighted in equity indices. This shift has likely hurt the relative performance of active managers who tend to hold more equal-weighted portfolios.¹

Increased enthusiasm for passive investing has also been correlated with less dispersion in stock returns. The trend toward lower dispersion has been another headwind for active managers and has made it more difficult for stock pickers to generate excess returns. Market breadth has also declined since the GFC, creating an environment with fewer large gainers. These trends have made it more challenging for active equity managers to find stocks that appreciate meaningfully more than the overall market. When performance ranges are tighter, as they have been, active management fees can become the biggest hurdle to an active equity manager’s ability to outperform its index.

In addition, in periods when there are extreme positive market inflections, such as the abrupt rebound from the GFC in 2009, dispersion widens but very small groups of positive outliers tend to drive most of the return. In these environments, the odds are lower that the average active manager will hold multiple stocks from among this small subset of large gainers. These

¹ Baker, Sophie. “Some seeing a new cycle back to active.” *Pensions and Investments*. 28 Nov. 2016.

outliers increase the challenge of outperforming for active equity managers if they lack exposure to this very small subset of index components. On balance, more active equity managers have underperformed during such periods.

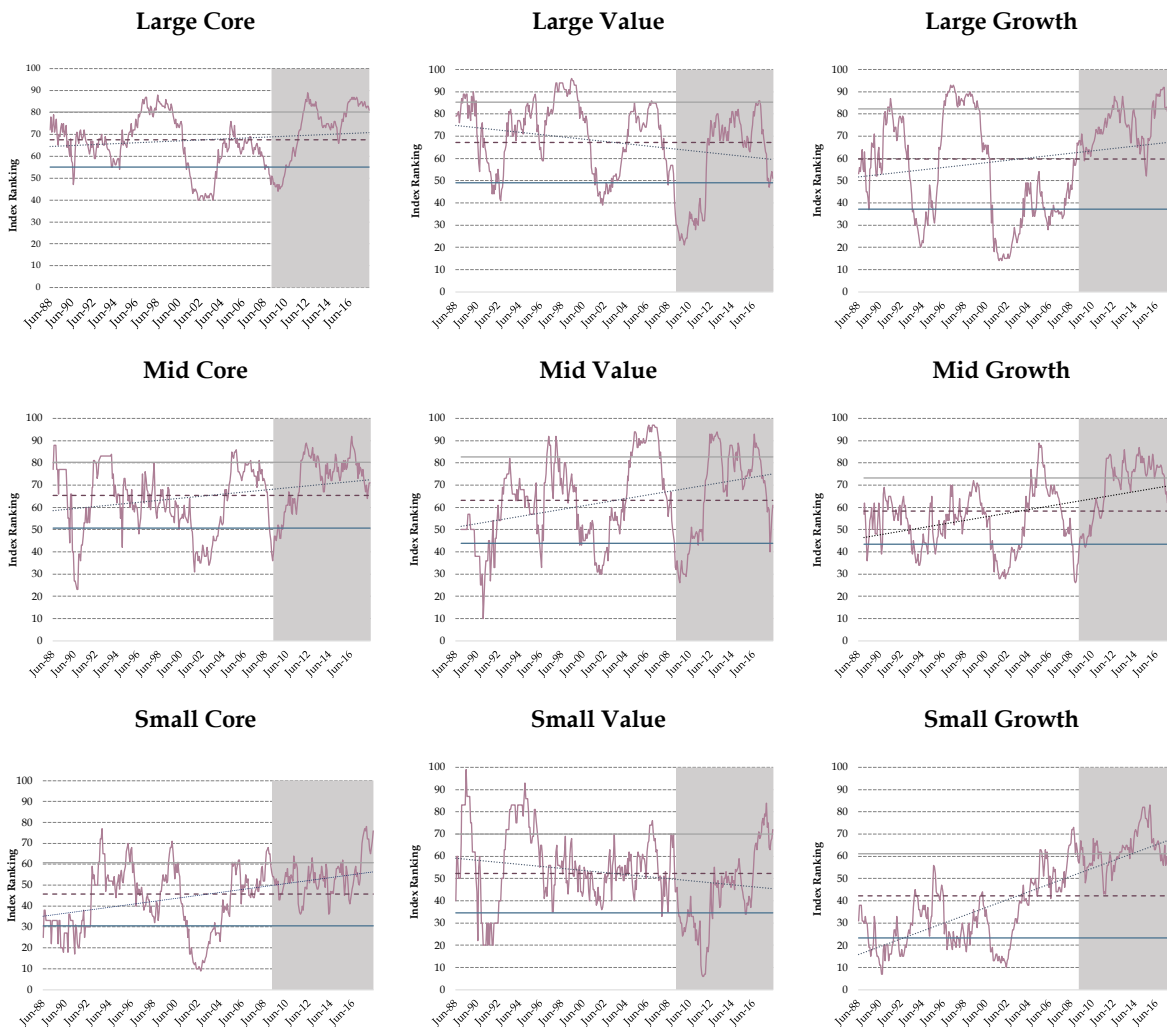
Lastly, while investors tend to juxtapose active versus passive management, not all types of active strategies have performed poorly over long periods of time. Strategies with high active share, on balance, have outperformed strategies with low active share. However, academic research shows that the percentage of low active share strategies has increased meaningfully over the long-term. This factor may be another reason for the decline in active manager outperformance.

HISTORICAL TRENDS IN ACTIVE MANAGEMENT PERFORMANCE

Charts 1-9 below show the peer universe rankings during the last 30 years for each of the Russell style box indices using rolling 3-year returns, computed monthly. The higher the number (Y-axis), the higher the index ranked relative to active managers over that time period. For example, among large cap core managers, the Russell 1000 ranked between the 65th and 80th percentile in the late 1980s, meaning it performed better than 65-80% of large cap core managers. Conversely, as of February 2003, the Russell 1000 index ranked in the 41st percentile of the large cap core universe, meaning it performed better than only 41% of large cap core managers.

These charts demonstrate the cyclicity of active manager performance. The shaded area of each chart highlights the 2009-2017 bull market. As is evident, for most of the market caps and styles, the indices have ranked highly compared with historical averages (dark purple dotted line). At the time of this writing, for some styles, such as all of small cap and large cap growth and core, the indices are at or above one standard deviation from their long-term averages. While the charts show a large degree of cyclicity, for some styles such as large and small growth, the indices have moved steadily higher (i.e., outperformed a greater percentage of active managers) since the bursting of the tech bubble in the early 2000s. This leads to the question: Why has the decline in the relative performance of active managers occurred?

Charts 1-9. Index Ranking in Peer Universe^{2,3}



PASSIVE FLOWS AND THE MARKET CAPITALIZATION EFFECT

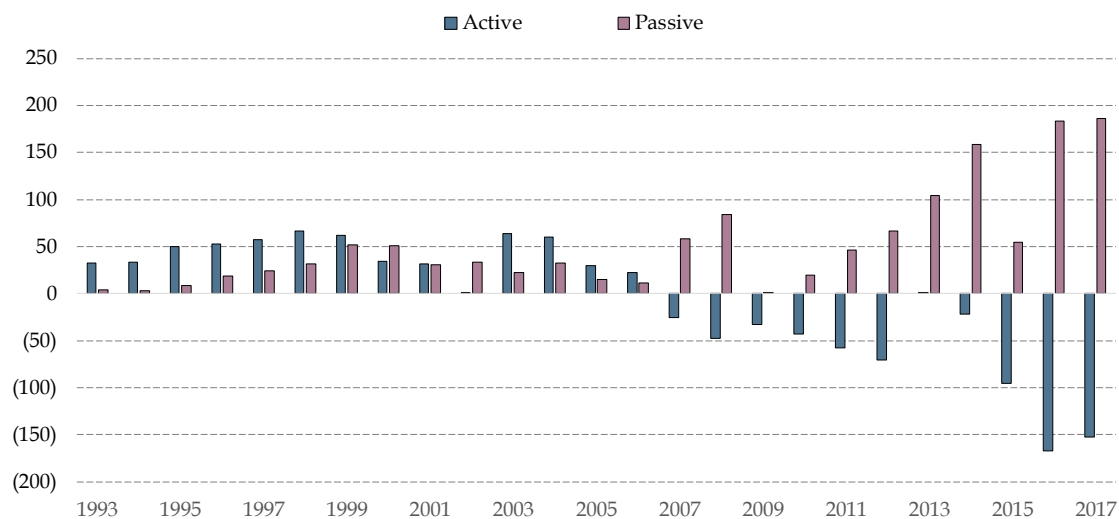
The ongoing flows into passive strategies could be one reason for the deterioration in active manager relative performance. Passive investing has grown from 6% of open-end fund and ETF assets in the 1990s to 46% at the end of 2017. As net cash inflows into index funds and ETFs continue, these funds are, in effect, forced buyers of companies in the index.⁴ As money pours into index products, these strategies must purchase more of all the index constituents, but proportionately *more* of the larger cap companies, given their higher index weighting. Relative to passive strategies, most active managers have higher allocations to mid- and small capitalization companies within their respective universes. The greater degree of forced purchasing of larger companies by passive products tends to drive up the prices of these

² Source: Morningstar.
³ Index ranking computed using respective Russell index versus universe of applicable Morningstar category, open-end funds, and oldest share class.
⁴ Market capitalization weighted strategies comprise the majority of passive assets.

companies by a greater percentage than their smaller counterparts. As a result, deciphering 'winners' from 'losers' becomes more challenging for active investors as the market trades less on fundamentals.

Chart 10 below, which shows annual active and passive flows for large cap equities (combined across value, core, and growth, including open-end funds and ETFs), highlights that since the GFC, investors have plowed money into passive funds, while making hefty withdrawals from active funds. The move away from active management has been especially pronounced during the three most recent years. In 2016 alone, \$167 billion was redeemed from active large cap strategies, representing ~21% of all large cap active assets as of the beginning of that year. During the same period, \$184 billion was invested in passive large cap products.

Chart 10. Annual Fund Flows Data - Large Cap⁵



The timing of this seismic shift coincides with an 8-year plus bull market and a period when the majority of active managers underperformed their respective benchmarks, as highlighted in charts 1-9. The shift from active to passive is likely attributable to the difficulty investors have in selecting active managers who can consistently outperform their benchmarks over the long term while taking into account the low fees that index funds offer.

Pressure on active management fees has mounted over the last five years. Lawsuits alleging that employers have violated their fiduciary duty by permitting excessively high fees in 401(k) plans have been on the rise. These lawsuits have prompted some plan sponsors to mitigate this legal risk by shifting from active to passive. As of October 2016, employer-sponsored 401(k) plans had a 25% allocation to index funds, an increase from 19% in 2012.⁶ The passage

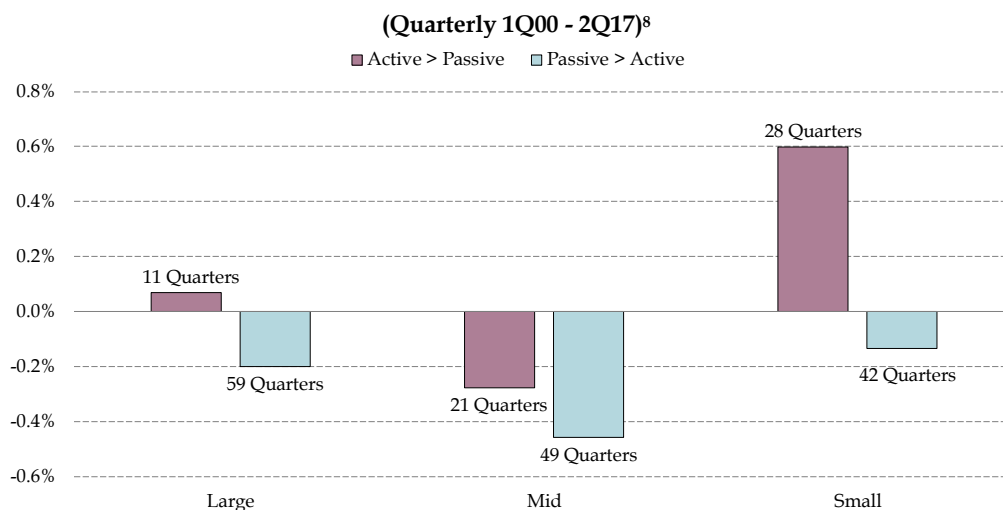
⁵ Source: Morningstar.

⁶ Source: Tergesen, Anne and Zweig, Jason. "The Dying Business of Picking Stocks." *The Wall Street Journal*. 17 Oct. 2016.

of a 2012 regulation requiring greater fee disclosure in 401(k) plans corresponded with a decline in fees charged by retail mutual funds in large 401(k) plans.⁷

Active managers have tended to fare relatively worse in periods when passive net inflows exceed active net inflows. Chart 11 below highlights the average active core manager's quarterly performance relative to the respective Russell index in different active/passive flow environments. On average, large cap core managers' relative performance was 27 bps better when active inflows exceeded passive inflows. Mid cap and small cap managers posted superior relative performance of 18 bps and 74 bps, respectively, when active inflows exceeded passive inflows.

Chart 11. Core Equity Average Fund Relative Performance in Different Flow Environments



If strong relative index performance is a primary reason why money has been flowing out of active and into passive strategies, the construction of these indices may render this performance-chasing pattern a self-fulfilling prophecy. Most indices, including the S&P, MSCI, and Russell indices, are market-cap weighted, meaning the largest companies comprise higher index weightings than smaller companies.

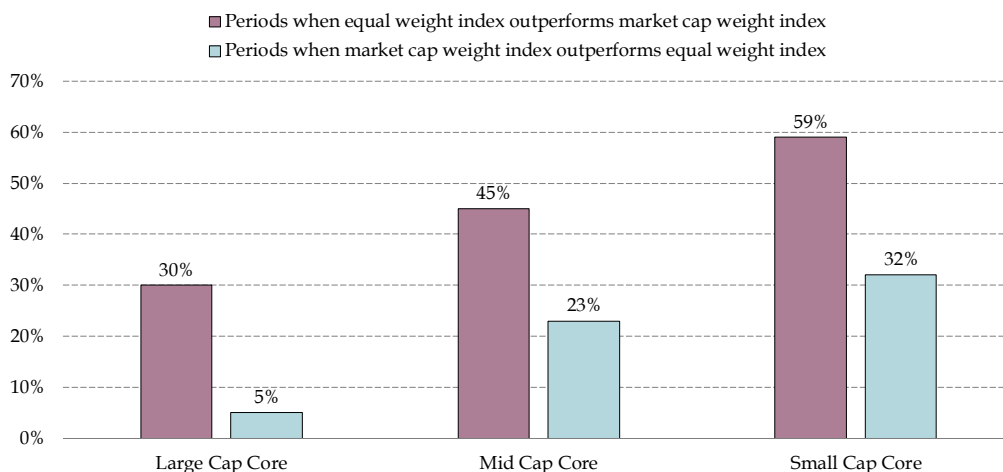
While it is challenging to assess the precise impact of passive flows on active manager relative performance, comparisons against alternative indices provide some additional insight. Chart 12 helps isolate the effect of market cap on active manager performance. Each index has a market-cap weighted version and an equal-weighted version. Market-cap weighted index performance is most commonly used as the benchmark against which active manager performance is gauged. Since 2000, during quarters when the equal-weighted core indices outperformed their market-weighted counterparts, the median active manager outperformed the market-weighted index with significantly greater frequency. This trend shows that the performance of active managers tends to coincide more with the returns of equal-weighted

⁷ Source: Tergesen, Anne and Zweig, Jason. "The Dying Business of Picking Stocks." *The Wall Street Journal*. 17 Oct. 2016.

⁸ Source: Morningstar.

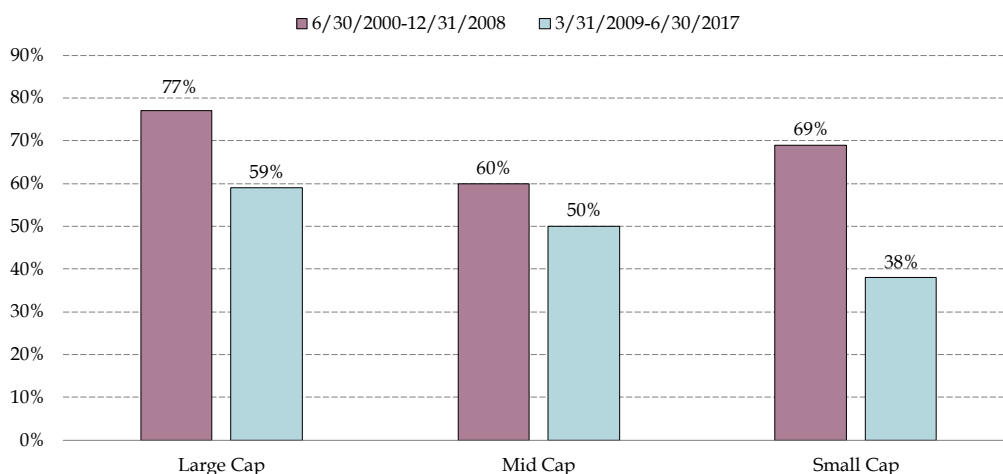
indices than with the returns of the market-cap weighted indices on which passive products are based. It also highlights the challenges faced by active managers as more money flows into index products, which, in turn, helps to prop up market-cap weighted indices.

Chart 12. Percent of Quarters Median Active Manager Outperforms Index (Quarterly 2Q00 - 2Q17)⁹



Furthermore, the frequency (i.e., the percent of quarters during the designated periods) when the equal-weighted index outperformed the market-cap weighted index has declined since the GFC rebound in March 2009. As shown in Chart 13 below, this trend is true for all market caps and is most pronounced in small cap. This period corresponds with the era of net inflows to passive strategies and net outflows from active strategies. Given the increased buying by index funds of higher market-cap names, it is not surprising to see the market-cap weighted index outperforming the equal cap weighted indices more frequently.

Chart 13. Percent of Quarters Equal-Weighted Indices Outperform Market-Cap Weighted (Quarterly 2Q00 - 2Q17)¹⁰



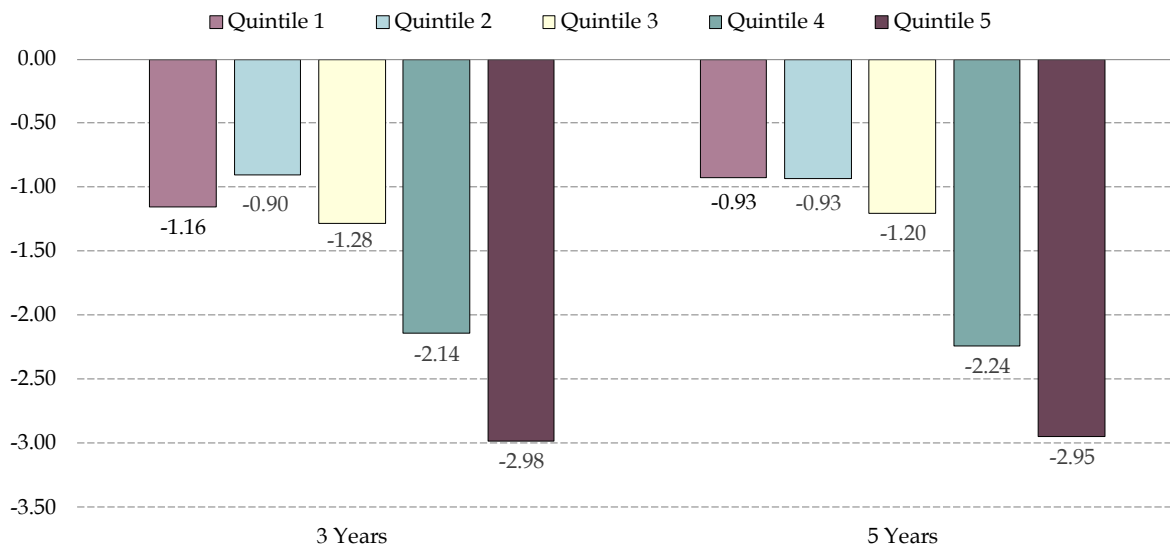
⁹ Source: Morningstar.

¹⁰ Source: Morningstar.

CAPITAL INFLOWS DRIVE PRICE MOMENTUM

The large inflows into passive strategies have contributed positively to the performance of stocks with high price momentum and the funds that invest in them. As more capital goes into passive strategies, the largest stocks in the indices experience incrementally more demand, resulting in ongoing upward momentum in their prices. Consequently, portfolios that are more exposed to the momentum factor have performed better than portfolios with less momentum exposure. At the same time, managers that are particularly sensitive to valuations have suffered increased underperformance because they tend to avoid the stocks with higher momentum given their discipline. Charts 14-16 show the three and five-year excess returns relative to respective Russell benchmarks of the Morningstar open-end fund core universes.¹¹ The funds are grouped into quintiles depending on their level of exposure to the momentum factor (quintile 1 being the highest exposure). The charts show that managers with more momentum exposure have performed better than managers with less momentum exposure.

Chart 14. Excess Return by Quintile of Momentum Exposure
Large Cap Core¹¹



¹¹ Source: Morningstar; as of 3/31/2018.

Chart 15. Excess Return by Quintile of Momentum Exposure
Mid Cap Core¹²

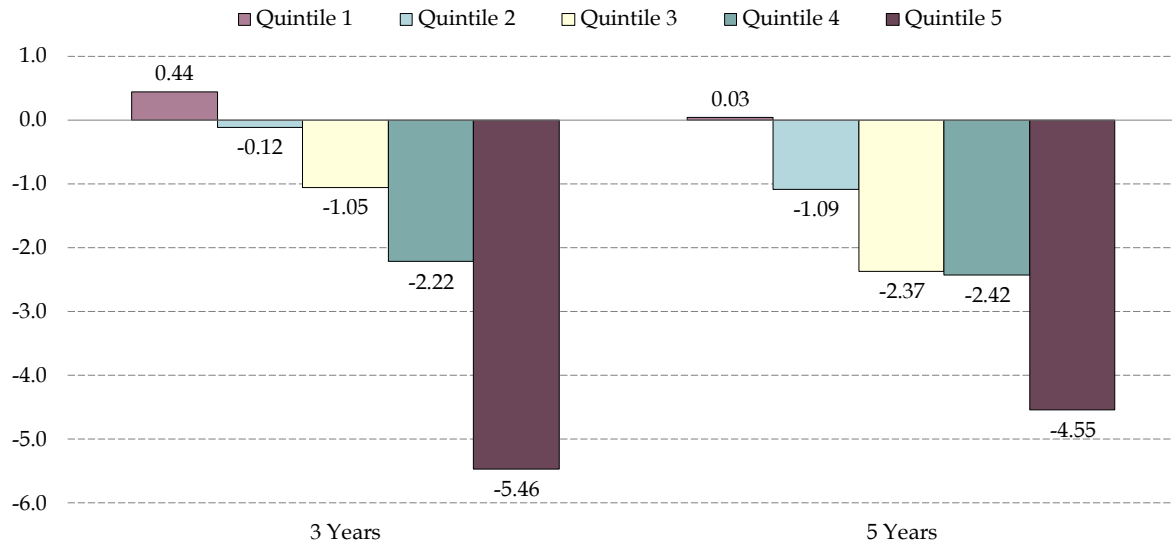
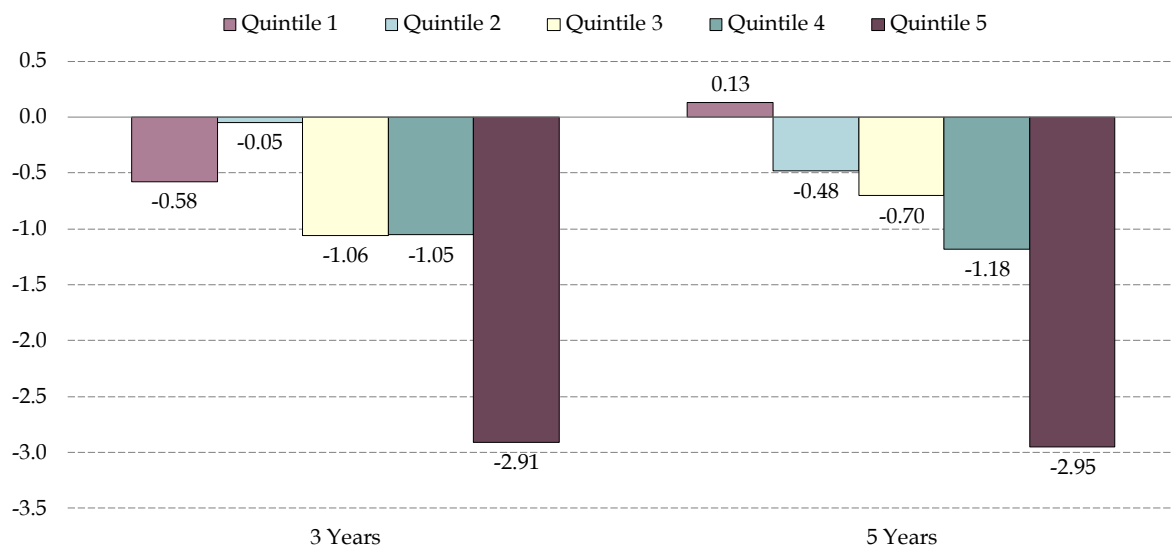


Chart 16. Excess Return by Quintile of Momentum Exposure
Small Cap Core¹²



Furthermore, there are more managers with lower momentum exposure than their respective index than there are managers with higher momentum exposure. Table 1 shows that, in aggregate, 63% of active open-end core funds had lower momentum exposure than their respective Russell indices. Therefore, it is not surprising that active managers have struggled

¹² Source: Morningstar; as of 3/31/2018.

in an environment favoring higher momentum. This dynamic has likely contributed to the strong relative performance of indices and their passive counterparts in recent years.

Table 1. Morningstar Open-End Funds: Momentum Exposure vs. Russell Indices
As of 3/31/2018

Universe	Number of Strategies with Higher Momentum vs. Index	Number of Strategies with Lower Momentum vs. Index
Large Core	118	180
Mid Core	40	63
Small Core	64	129

At the same time, managers with more of a value bias have underperformed managers with more exposure to momentum. Table 2 shows that momentum-oriented managers have performed better than value-focused managers. Momentum managers with a value focus had inferior performance to pure momentum managers. Pure value managers had inferior performance to momentum managers with a value focus.

Table 2. Performance of Managers with Differing Styles¹³

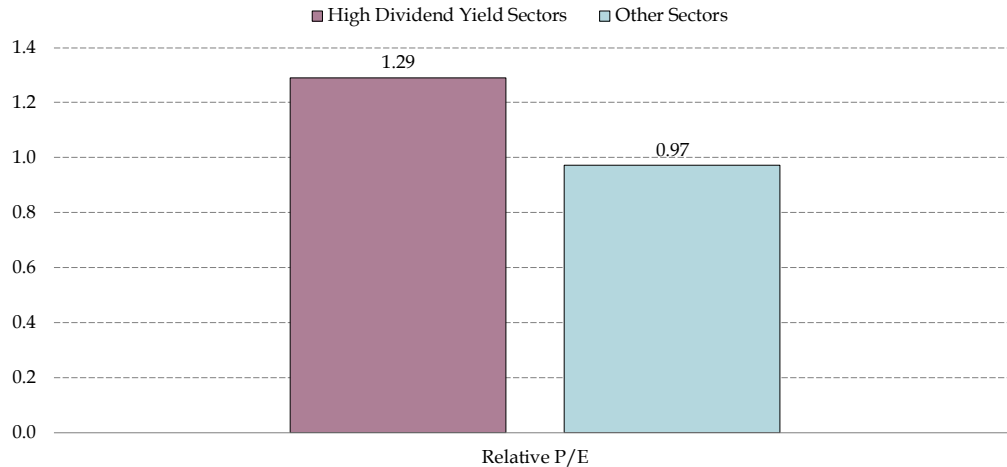
	1 Year	3 Years	5 Years	10 Years
Momentum Managers without a Value Focus (Average)	16.60	9.24	11.15	9.61
Momentum Managers with a Value Focus (Average)	13.95	7.62	8.92	9.47
Value Managers (Average)	9.54	6.94	8.73	8.37

INTEREST RATE ENVIRONMENT EFFECT ON VALUATIONS

The low interest rate environment since the GFC caused some yield-sensitive investors to invest more in high dividend-yielding stocks/investment strategies. These asset flows have skewed valuations upwards in certain higher-yielding sectors, such as Telecom, Utilities, and REITs. Chart 17 shows the relative premium/discount in price to earnings ratios during this low interest rate environment versus the longer-term historical averages (since 1985). The 'high dividend yield sectors' category includes Telecom, Utilities, and Real Estate, while 'other sectors' includes the remaining sectors. Since 1/1/2008, around when the Federal Reserve began lowering interest rates, the relatively lower dividend yield sectors have traded close to their historical P/E averages. In contrast, the higher dividend yield sectors, which had dividend yields roughly double that of the other sectors, traded at P/E levels that were on average 30% higher than historical norms.

¹³ Source: Style Research; as of 3/31/2018.

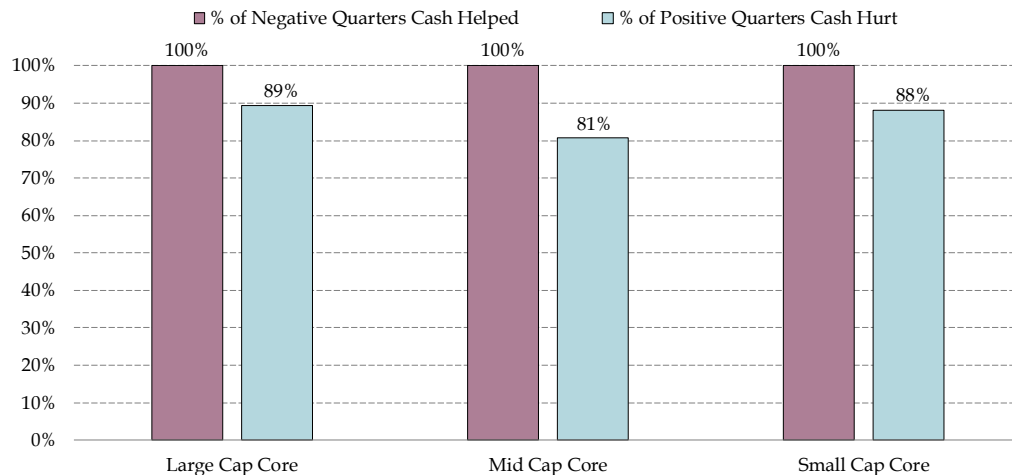
Chart 17. Relative Price/Earnings of GICS Sectors
1/1/2008 - 3/31/2018



CASH DRAG EFFECT

Managers who hold cash are affected differently depending on the market environment. As chart 18 illustrates, holding cash causes a manager to miss out in rising markets, but provides downside protection in negative markets. Over a full market cycle, holding cash is likely to depress returns.

Chart 18. Cash Drag Effect in Positive / Negative Market Environments
12/31/2008-3/31/2017, Computed Quarterly¹⁴

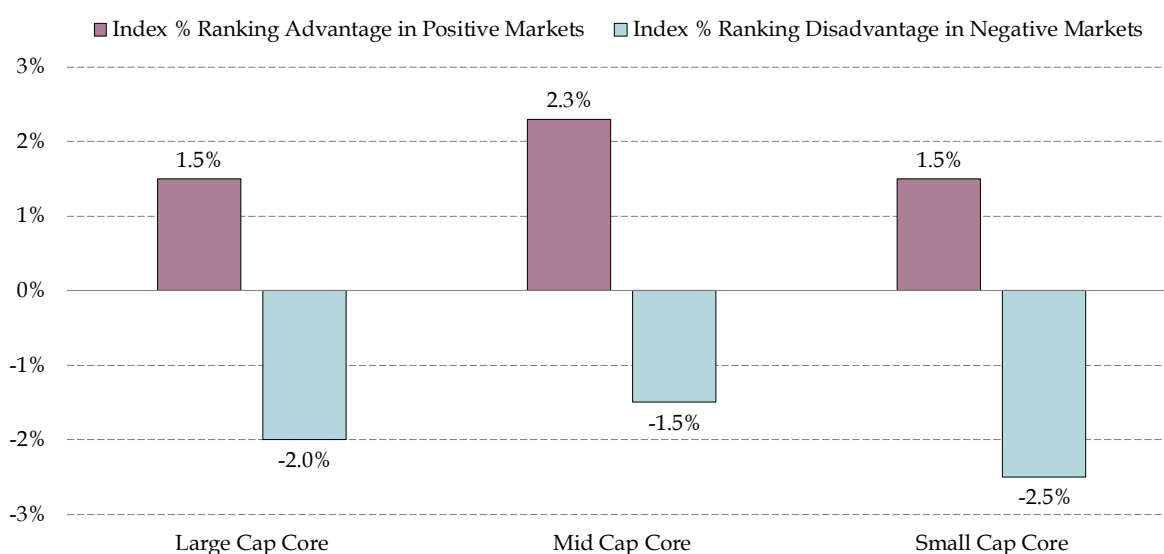


The negative impact of holding cash is compounded in a multi-year bull market. The larger the move in the market and the greater the amount of cash, the greater the impact.

¹⁴ Source: Morningstar.

The ranking of indices in their respective universes is affected, albeit marginally, by the willingness of active managers to hold cash. As chart 19 highlights, because managers hold cash and the index does not, the quarterly performance percentile index ranking benefits during positive quarters by an average of 1.5%-2.3%. Conversely, for the same reason, the index ranks deteriorate in each respective universe by 1.5%-2.5% in negative quarters. It is also worth noting that during times when there is an abrupt market move, the peer rank of the index can move in a very short period.

Chart 19. Index Ranking Change Due to Manager Cash Drag¹⁵
13/31/2008 – 3/31/2017, Computed Quarterly



THE ROLE OF DISPERSION ON ACTIVE MANAGER PERFORMANCE

The degree of stock return dispersion is another important variable that impacts active manager performance. Active managers tend to face more headwinds when the dispersion of stock returns is narrow. This type of environment implies less discrimination among companies by investors, making stock-picking relatively less important.

Dispersion at Inflection Points

Dispersion¹⁶ varies in periods of market inflection.¹⁷ Market inflections are time periods when the market breaks its current trend, moving dramatically upward or downward. During these

¹⁵ Source: Morningstar.

¹⁶ Dispersion is defined as the standard deviation of returns of the index constituents over the period under consideration.

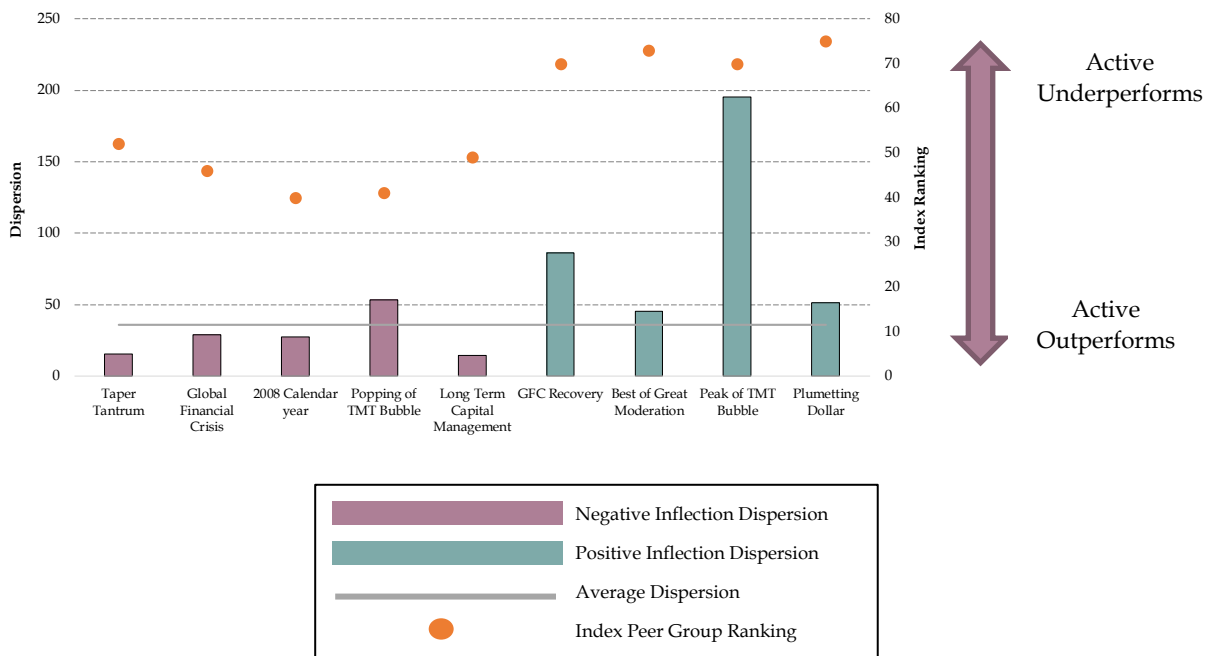
¹⁷ Inflection periods defined as follows: Taper Tantrum: May-August 2013; Global Financial Crisis: October 2007-March 2009; Popping of TMT Bubble: April 2000-September 2002; Long-Term Capital Management: July-August 1998; GFC Recovery: March 2009-November 2009; Best of Great Moderation: April 2003-February 2004; Peak of TMT Bubble: October 1998-March 2000; Plummeting Dollar: January 1986-August 1987.

times, the direction of the inflection affects manager relative returns. As chart 20 illustrates, dispersion in returns tends to be greatest during periods of positive market inflection (i.e., a strong recovery). Dispersion is lower in periods of negative market inflection. With the exception of the bursting of the tech bubble, dispersion was actually below the long-term average (calculated annually, since 1985) in downturns, that is, periods of negative market inflection.

Part of what underpins this dynamic is that stocks cannot decline more than 100%, but they can increase without any limit. For example, the dispersion of the Russell 1000 during the Global Financial Crisis ('GFC') Recovery versus the GFC is similar if all stocks that appreciated more than 100% are eliminated. During the Technology, Media, Telecom ('TMT') bubble, dispersion was only 38.7% if all stocks appreciating over 100% were eliminated (actual dispersion was 195.3%). Moreover, 74 of the 191 stocks that appreciated over 100% during the TMT bubble were technology stocks. These figures underscore how the dispersion of returns in the tech bubble were concentrated in that one sector.

In contrast to the long-term theme of greater dispersion equating with a better environment for active managers, passive outperformed active during the positive periods of market inflection when dispersion was high. Active managers generally fared better in periods of negative market inflection. As the next section highlights, the large relative impact of a concentrated group of outliers in positive market inflections likely played a role.

Chart 20. Russell 1000 Stock Dispersion and Ranking During Market Inflections



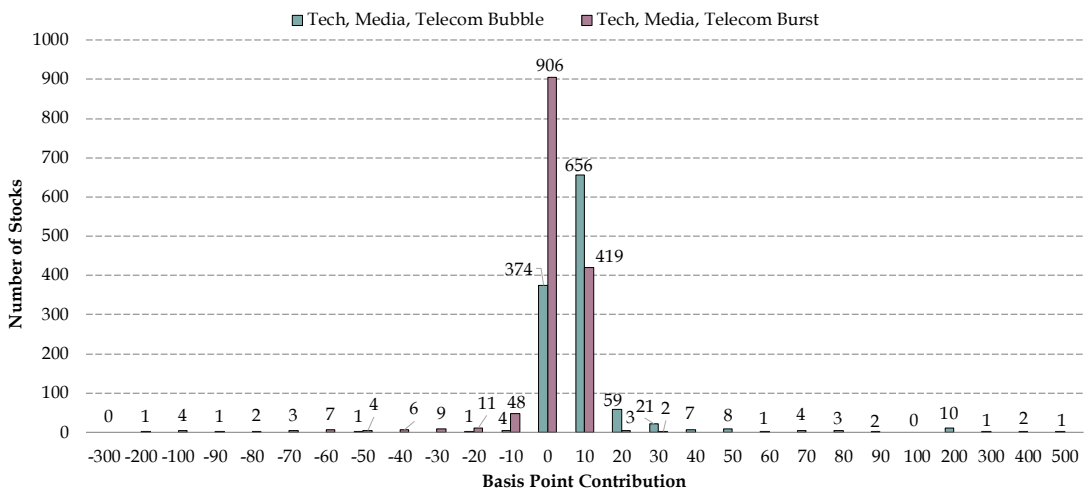
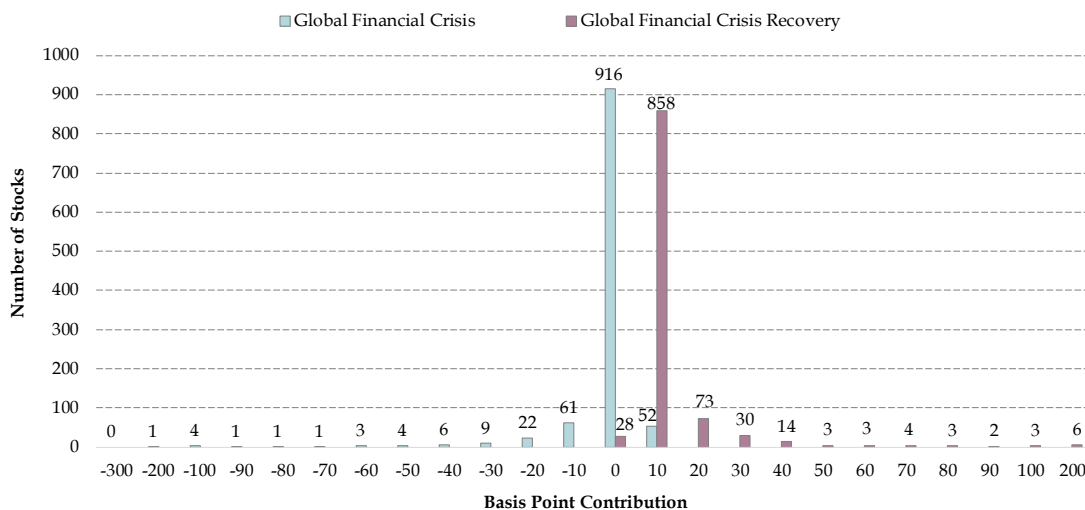
IMPACT OF SKEWNESS ON INDEX RETURNS

At times of market inflection, especially during positive market inflections, performance can be concentrated in a small subset of stocks or a single sector, and historically active managers have lagged in such an environment.

As charts 21 and 22 show, the impact of stocks with extreme positive/negative returns can effect an active manager's ability to outperform the index. During negative inflection periods, situations involving "land mine" stocks that decline precipitously are less frequent than the occurrence of "home run" stocks during positive inflection periods. Furthermore, in periods of market jubilation, "home run" stocks can rise beyond what their fundamentals would otherwise justify. Active equity managers focused on fundamentals and valuation would more likely be underweight these stocks. To illustrate these points, charts 21 and 22 examine the frequency of stocks by how much they contributed to index returns during two notable market declines/increases, the GFC/GFC recovery and the TMT bubble and its subsequent bursting. These charts demonstrate that a small number of outsized winners were responsible for a significant portion of the gains during positive inflections. Such an environment poses challenges for the average active manager, who is selecting a subgroup of stocks from the broader index to build his/her portfolio. Most potential combinations of stocks from which active managers choose will not include any or will only include a subset of this small group of "home run" stocks, creating headwinds. On the other hand, the index has exposure to the entire set, allowing it to benefit fully from these "home runs."

The TMT bubble and subsequent burst provides an interesting example of the significant effect outliers can have on index and active manager performance. During the bubble, the Russell 1000 index fared well, ranking in the 70th percentile of the large cap core universe. During this period, 14 companies each contributed **100** basis points or more to the Russell 1000's performance, representing approximately 42% of the index performance. Ten of the 14 companies were in the technology sector. These 10 companies alone accounted for 31% of the total index gain during this period. In the subsequent TMT burst, the index fared worse, ranking in the 41st percentile of the large cap core universe. During this period, there were fewer negative outliers than there were positive outliers in the bubble, with only 5 companies each **detracting 100** basis points or more from the Russell 1000's performance. Active managers who were cognizant of the high valuations in the technology sector stood to benefit during the burst. The same group of 10 technology leaders during the bubble collectively accounted for 27% of the Russell 1000's negative performance when the bubble burst.

Charts 21-22. Stock Dispersion and Index Rankings During Market Inflections¹⁸



In the small capitalization segment, the larger market weight of the star performers during the TMT bubble could have affected active manager returns. Comparing the TMT peak to the GFC recovery underscores potential market cap impacts on small cap active manager performance.

Active small cap core managers did not fare well during the TMT peak, with the Russell 2000 index ranking in the 64th percentile of the small cap core universe. During the TMT peak, twenty stocks in the Russell 2000 accounted for 21.4% of the index’s increase. The average market cap of these twenty names was ~\$7.5B. Given that the Russell 2000’s median market cap at the TMT peak was \$462M and the weighted average market cap was \$1.7B, some active

¹⁸ Global Financial Crisis defined as October 2007-March 2009; Global Financial Crisis Recovery defined as March 2009-November 2009; Tech, Media, Telecom Bubble defined as October 1998-March 2000; Tech, Media, Telecom Burst defined as April 2000-September 2002.

small cap managers may not have fully benefitted from the increase in these stocks because of market cap limits.

In contrast, during the GFC recovery, small cap core active managers did relatively better, with the Russell 2000 ranking in the 48th percentile of the small cap core universe. In the GFC recovery, not only were the highest contributing stocks more diversified among sectors, but stocks had also recently experienced significant declines in market cap due to the GFC. Therefore, the impact of market cap constraints for active managers was likely more limited during the GFC recovery than during the tech bubble. The average market cap of the top twenty contributors was only ~\$2.5 billion versus an overall weighted average index market cap of \$939 million and an overall median market capitalization of \$364 million. Lastly, the impact of these top twenty contributors amounted to only ~7% of overall Russell 2000 performance versus the 21.4% impact of the top twenty names during the tech bubble.

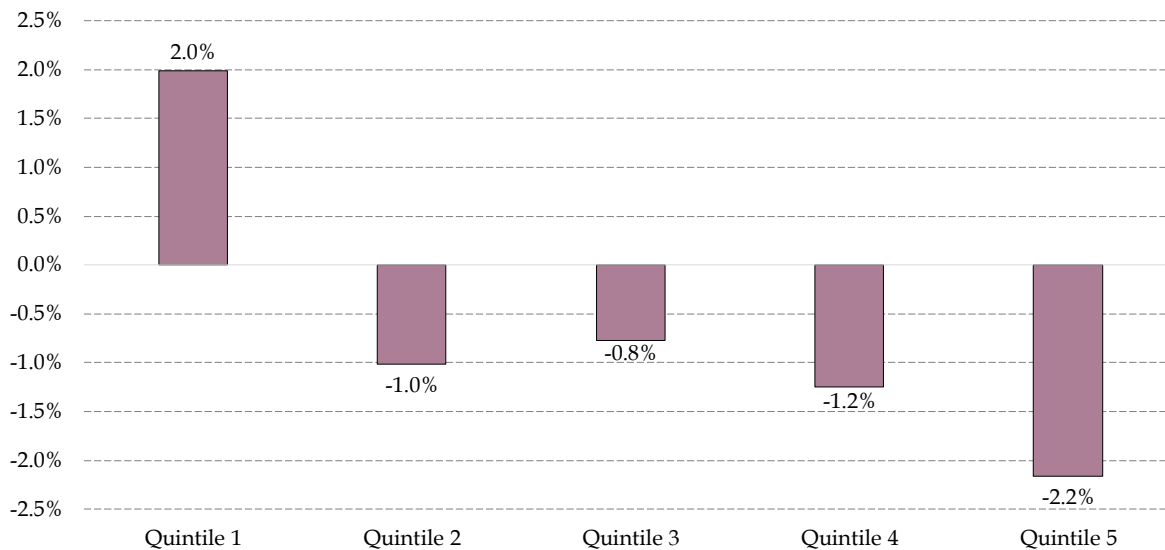
GREATER MARKET BREADTH AND THE ACTIVE OPPORTUNITY SET

In addition to high general dispersion, greater market breadth provides more opportunities for active managers to outperform. For this analysis, we define market breadth as the percentage of Russell 1000 index components with 12-month trailing returns exceeding the Russell 1000 by 25% or greater. Chart 23 below shows that for most 12-month periods in the last five years, market breadth has been relatively limited compared to history. Over the last five years, only 17% of active large cap core managers have beaten the Russell 1000 index. When a greater percentage of index components meaningfully outperform the broader index, active managers tend to fare relatively better. The reason for the better relative performance is likely due to the broader opportunity set of outsized gainers. Chart 24 below shows average large cap core active manager relative performance versus the Russell 1000 index in periods of differing market breadth. This chart demonstrates a link between degree of market breadth and the average active manager's ability to generate excess returns. In fact, active managers have exceeded the return of the Russell 1000 index only in periods when the percent of stocks rising by at least 25% more than the Russell 1000 is in the highest quintile.

Chart 23. Percent of Russell 1000 Index Components with Annual Returns Exceeding Russell 1000 by 25% or Greater^{19, 20}



Chart 24. Average Active Large Cap Core Performance Relative to Russell 1000 in Different Degrees of Market Breadth²¹



¹⁹ Source: FactSet.

²⁰ Returns calculated based on rolling 12-month periods computed monthly.

²¹ Quintiles are based on the percentage of Russell 1000 index components with a rolling 12-month return exceeding the broader Russell 1000 index by at least 25%. Quintile 1 corresponds with greatest market breadth.

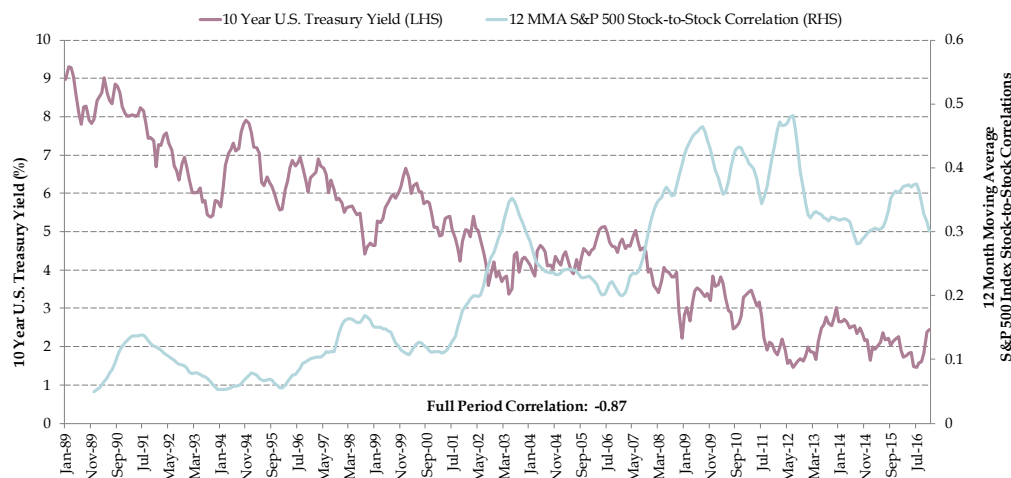
THE EFFECT OF THE MACRO ENVIRONMENT ON CORRELATIONS AND ACTIVE MANAGER PERFORMANCE

The macro environment can impact the degree of correlation among stocks. In the past, periods of higher interest rates have been associated with lower correlations among stock returns. As interest rates fell, correlations among stock returns increased. Chart 25 below shows a strong negative correlation of -0.87 between the declining 10-year U.S. Treasury yield and rising S&P 500 stock-to-stock correlations over time. Since the GFC, the Federal Reserve has intervened significantly to stabilize the U.S. economy. During this period, the size of the Fed's balance sheet increased 2.4X amid quantitative easing, and interest rates declined to nearly zero.

Although the Fed's balance sheet had never previously reached post-GFC levels, economists broadly agree that as the Fed shrinks its balance sheet, upward pressure will be exerted on interest rates, which could affect companies differently. Companies with clean balance sheets should be less effected by higher rates because they will retain the ability to borrow and service debt if needed. These companies tend to be higher quality with strong competitive positions. On the other hand, companies with significant debt will encounter more financing difficulties in a rising rate environment. These companies will have diminished ability to invest in growth, hurting their prospects. Therefore, some believe that higher interest rates will result in more differentiation between high quality and low quality (e.g., highly levered) companies, and that correlations will once again decline.

However, we have found no concrete evidence that correlation or lack thereof in and of itself causes active manager underperformance. The correlation between monthly stock-to-stock Russell 1000 index correlations and median large cap manager excess returns from January 1985 through November 2017 has been virtually '0'. While correlations can spike due in part to the macro environment, market breadth seems to drive active manager performance relative to the index more so than correlations.

Chart 25. Interest Rates and Stock-to-Stock Correlations



Source: FactSet, Bank of America Merrill Lynch, Wellington Management

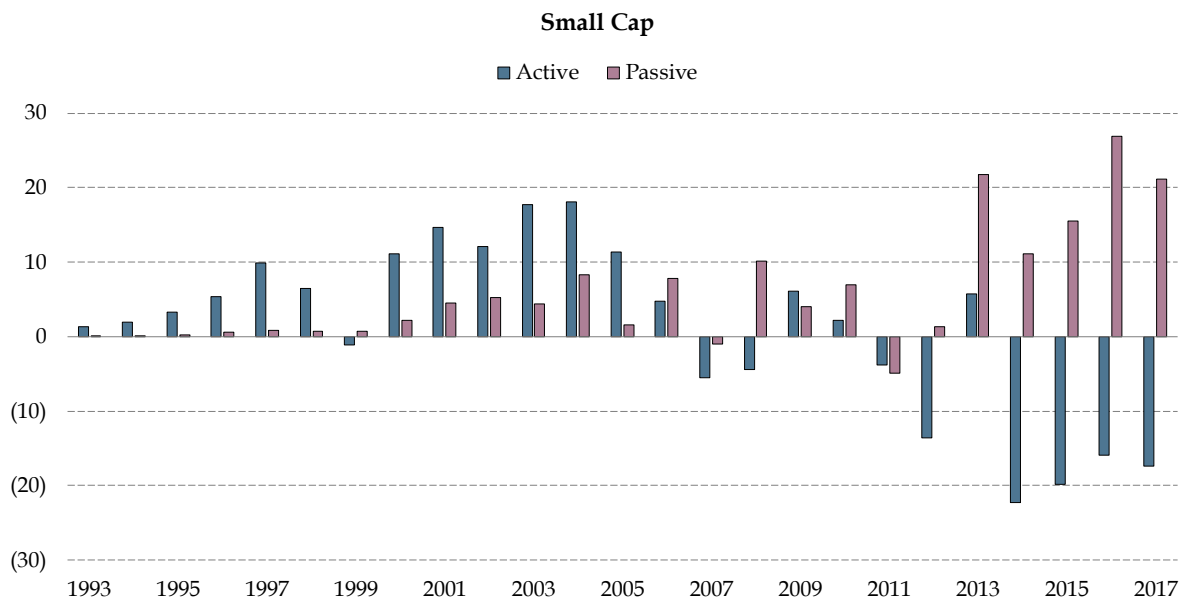
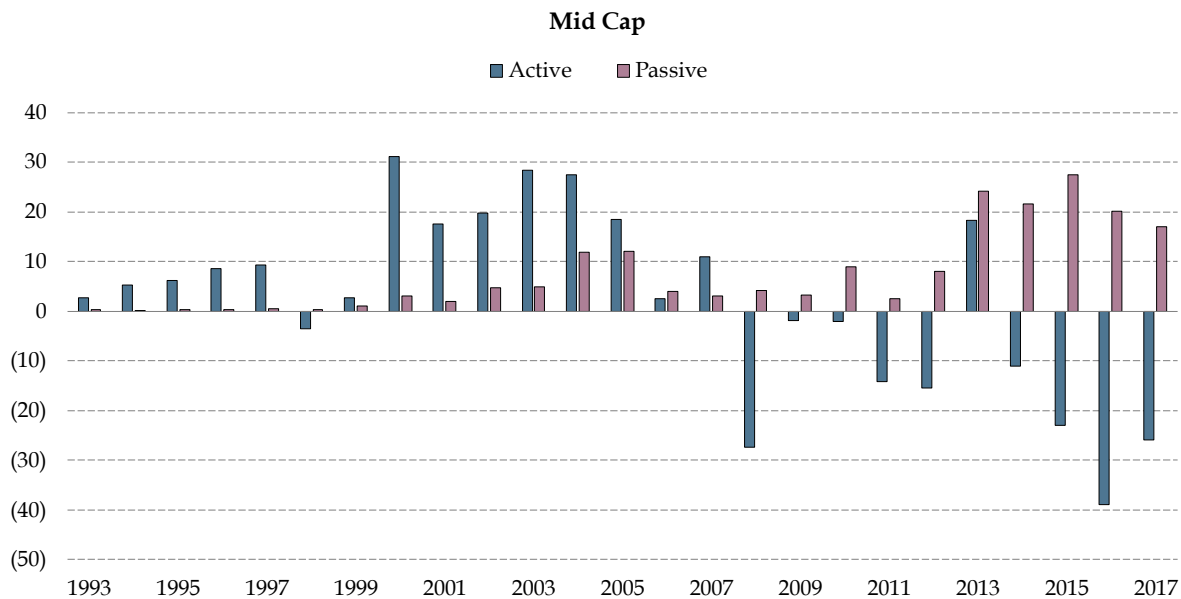
CONCLUSION

Since 2009, low stock dispersion, a lack of market breadth, increasing passive inflows and active outflows, and steadily rising markets have created headwinds for active managers. Active management tends to be more effective in periods when there is high dispersion in stock returns, wide market breadth, increasing active inflows, and declining markets. In the post-GFC world, these four variables have worked against active managers. Should any of these four factors reverse, a higher percentage of active managers will be better positioned to generate positive excess returns. Conversely, if current trends persist, many active managers will likely continue to struggle.

In a forthcoming “part two” to this paper, we will explore the implications of these findings for investor portfolios.

APPENDIX

Charts 26-27. Annual Fund Flows Data²²

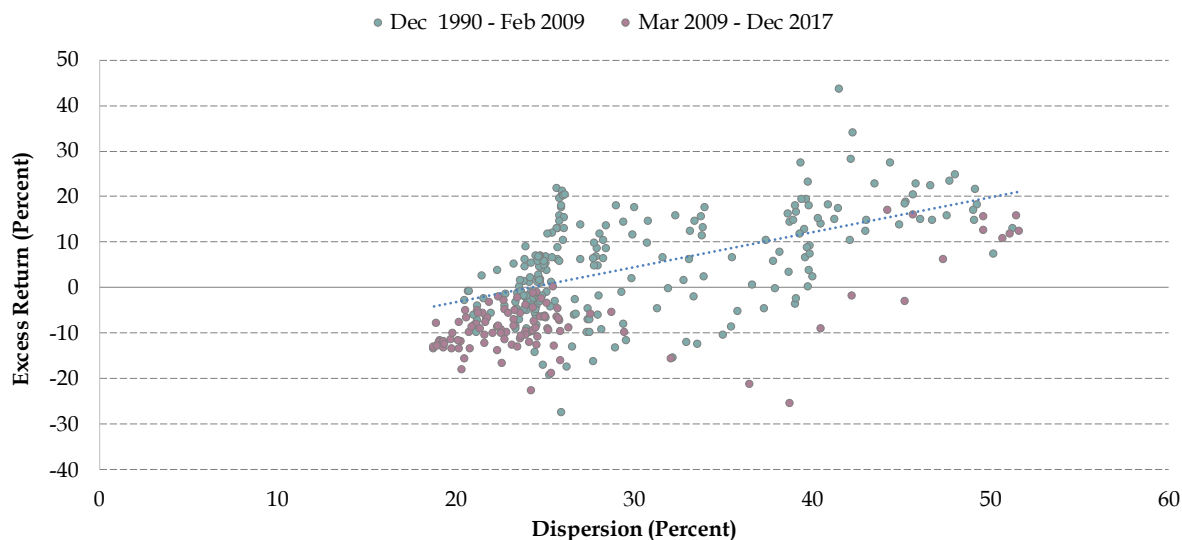


²² Source: Morningstar.

Dispersion of active management pre- and post-GFC

Chart 28 presents the monthly return dispersion for the S&P 500 versus the monthly excess returns of active long/short equity managers. Long/short equity managers are used for comparison because this group of active managers would arguably be best positioned to take advantage of volatility, both positive and negative. The chart demonstrates that as dispersion increases, so do the excess returns of active long/short equity managers. During the December 1990-December 2017 time period, there was a 0.61 correlation between S&P 500 dispersion and long/short manager excess returns. Furthermore, the chart disaggregates the post-GFC time period (in purple) from the ~18 years leading up to the post-GFC time period (in green). On average, monthly dispersion post-GFC has been 25.8% and excess returns have been -7.5%. In the ~18 years leading up to the GFC, monthly dispersion averaged 30.7% while excess returns averaged 5.1%. The higher pre-GFC stock market dispersion correlates with a period when active managers tended to outperform with greater frequency compared to the post-GFC period.

Chart 28. Excess Return of Long/Short Equity Managers²³ vs. Dispersion²⁴
(December 1990 - December 2017)²⁵



²³ Excess returns represent 12-month rolling returns.

²⁴ Dispersion calculated as the cross-sectional standard deviation of monthly returns of S&P 500 constituents. Figures represent trailing 12-month averages.

²⁵ Source: Hedge Fund Research, S&P, and AllianceBernstein.

Chart 29. Russell Mid Cap Stock Dispersion and Ranking During Market Inflections

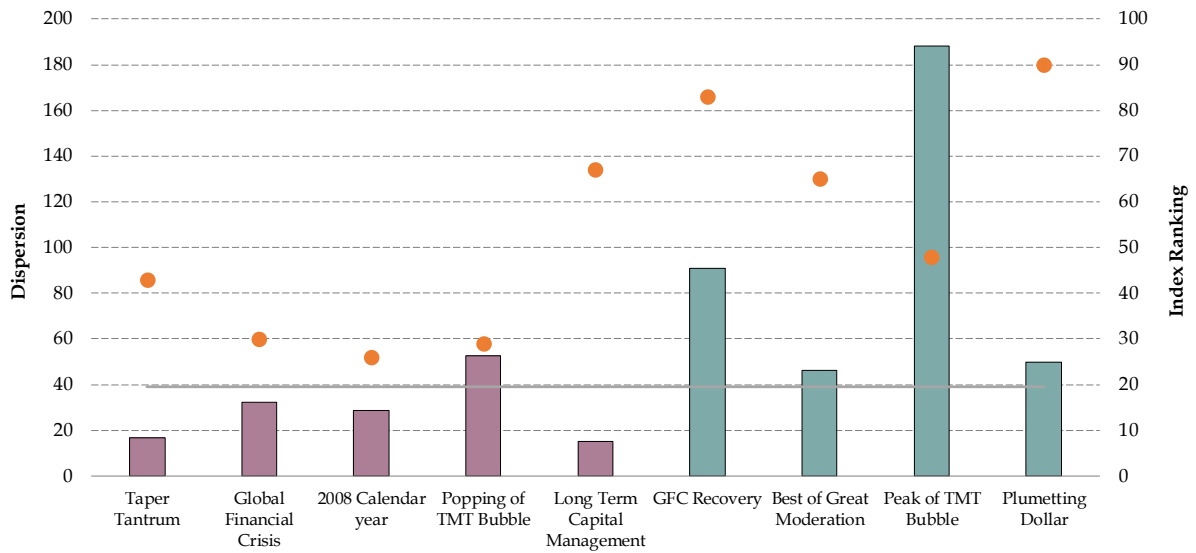
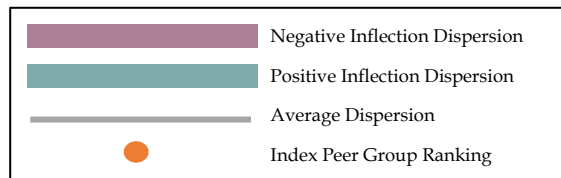
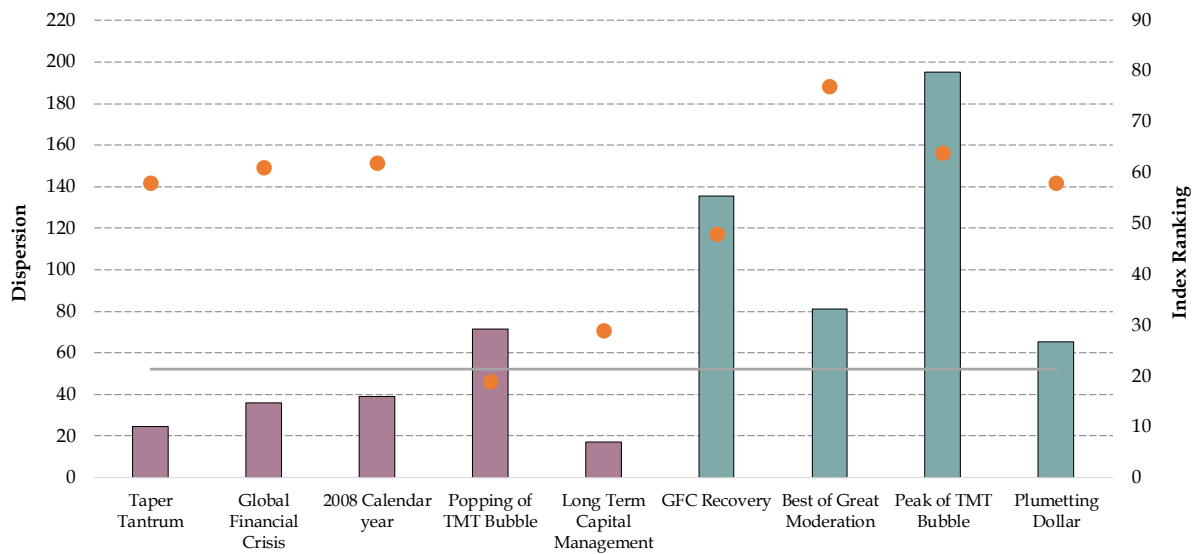


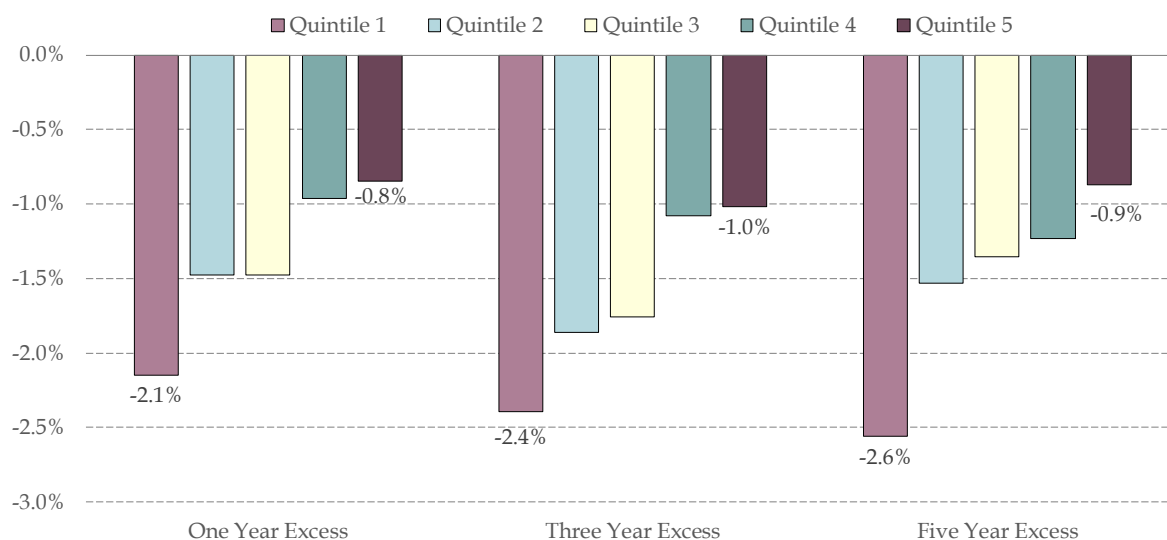
Chart 30. Russell 2000 Stock Dispersion and Ranking During Market Inflections



THE EFFECT OF FEES ON ACTIVE MANAGER PERFORMANCE

Fees have played a role in reducing the returns of active managers. Higher fee managers have tended to underperform lower fee managers, net of fees. Chart 32 shows trailing net excess performance of large cap core managers over the 1, 3, and 5-year periods, segmented by fee quintiles. Quintile 1 represents the highest fee active managers, while quintile 5 shows the lowest fee active managers. The managers with the highest fees have lagged the most, while the managers with the lowest fees have lagged the least over all three trailing time periods. Fees have accounted for ~35-45% of the underperformance over these time periods.

Chart 32. Large Cap Core Net Excess Returns by Fee Quintile²⁶



²⁶ Source: Morningstar; fees as of 3/31/2018; only includes open-end funds with a five-year track record for comparison purposes. Average fee quintile cut-offs as follows: 0.95% for quintile 1; 0.73% for quintile 2; 0.62% for quintile 3; 0.52% for quintile 4, 0.33% for quintile 5.

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