

Historic Drawdowns

A review of recent mutual fund active performance

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Introduction

Actively managed large cap mutual funds have significantly underperformed their benchmarks from March 1 through April 30 this year, which raised questions among investors since it happened during a flat stock market with volatility levels at historically low levels.

In this paper, we demonstrate the significance of this recent performance, measure mutual fund tilts (exposures) on investment styles and analyze the impact of investment style tilts by calculating contributions of these tilts to the performance of funds. Further, we compare the best- and worst-performing mutual funds and identify the key drivers of performance.

There are four main findings:

1. Mutual fund managers have gone through one of the worst periods of active performance over the last ten years. Large cap mutual funds experienced their **worst monthly risk-adjusted performance** in March and April of 2014, -2.5 and -2.9 standard deviation events, respectively. The active fund performance was as poor as in periods of large economic shocks such as the financial crisis of 2008 and European debt crisis of 2012.
2. The magnitude of a market shock on active fund performance, identified using the cross-sectional **dispersion of mutual fund active performance**, was comparable to historical crisis periods such as the quant crunch of 2007, the financial crisis of 2008, and the U.S. debt ceiling crisis of 2011.
3. Tilts on investment styles were significant in explaining dispersion in large cap fund performance. Large cap funds' active performance from March 1 through April 30, as a group, was highly **negatively correlated** with their active exposures to **Growth, Momentum and Beta** and highly **positively correlated** with their active exposures to **Value, Profitability, and Earnings Quality**. The analysis of **best- vs. worst-performing mutual funds** reveals that best-performing funds had highest exposures to **Value, Profitability and Earnings Quality** investment styles among their peer group, while the worst-performing mutual funds tilted heavily on **Beta, Momentum, and Growth**.
4. The differences in investment style tilts and industry tilts were significant in explaining the **differences in performance** of the best and worst performing large cap managers. Our performance attribution results illustrate that the best performing managers outperformed the worst performing managers by 12.8% with 4.9% explained by differences in investment style tilts and 4.5% explained by differences in industry tilts.

These findings are consistent with our observations in "[Market Spin-cycle: Understanding Style and Sector Rotation in a Flat Market](#)," where we provided evidence of significant differences in performance across sectors and styles.

Active Performance: Difficult To Ignore

March and April marked an exceptional period for U.S. equity mutual funds; it was one of the worst periods of performance over the last 10 years with one of the largest dispersions in active fund performance.

Table 1 summarizes the active performance of large cap funds in 2014 and sub-periods of January - February, March - April, and May-June. Actively managed large cap mutual funds have underperformed their respective benchmarks by 1.1% in 2014. Most of the underperformance comes from March and April when the average large cap fund underperformed its benchmark by 1.7%. Funds that are managed against Russell 1000 Growth had the worst performance, trailing the benchmark by 2.9% from March 1 through April 30.

Table 1:

Large Cap Fund Performance by Benchmark

January 1 through June 30, 2014

	AUM (\$ Billion)	# of Funds	Active Performance			YTD
			Jan - Feb	Mar - Apr	May - Jun	
Large Cap Funds	1,790	769	0.3%	-1.7%	0.3%	-1.1%
<i>Large cap funds grouped by benchmarks</i>						
S&P 500	1,185	414	0.4%	-1.6%	0.3%	-0.9%
Russell 1000	37	39	-0.1%	-0.6%	0.1%	-0.6%
Russell 1000 Value	304	153	-0.2%	-1.1%	0.0%	-1.4%
Russell 1000 Growth	264	163	0.7%	-2.9%	0.6%	-1.6%

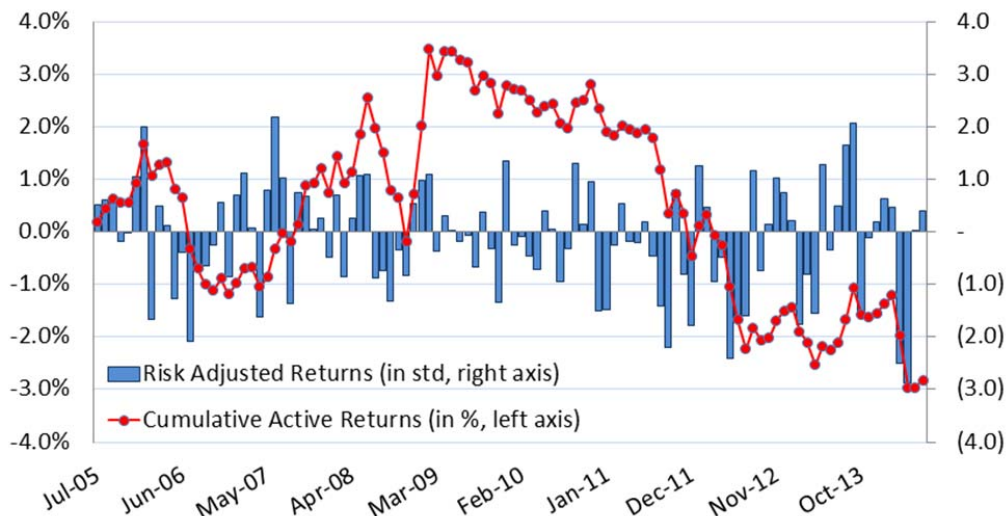
Source: MSCI Mutual Fund Analytics, Lipper

Despite the macroeconomic shocks and the financial crisis experienced in recent history, the recent performance of large cap funds stands out as one of the worst over the last ten years. **Figure 1** illustrates that both March and April stand out as the worst risk-adjusted monthly returns for this group with -2.5 and -2.9 standard deviation returns, respectively.

Figure 1:

Active Performance of Large Cap Mutual Funds

July 1, 2005 through June 30, 2014



Source: MSCI Mutual Fund Analytics, Lipper

Table 2 illustrates five periods of poor active performance of mutual funds. Performance of large cap mutual funds from March 1 through April 30 is comparable to underperformance of mutual funds during the financial crisis in 2008, the European debt crisis in 2012, and the US debt ceiling crisis in 2011.

Table 2:

Worst Periods of Mutual Fund Performance

July 1st, 2005 through June 30th, 2014

	<i>Period</i>	<i># of Months</i>	<i>Cumulative Active Performance</i>	<i>Monthly Active Performance</i>
Financial crisis	Jul - Nov 2008	5	-2.73%	-0.55%
European debt crisis	Mar - Jul 2012	5	-2.56%	-0.51%
2006 drawdown	May - Oct 2006	6	-2.43%	-0.41%
2014 March-April rotation	Mar - Apr 2014	2	-1.75%	-0.87%
U.S. debt ceiling crisis	Aug - Sep 2011	2	-1.60%	-0.80%

Source: MSCI Mutual Fund Analytics, Lipper

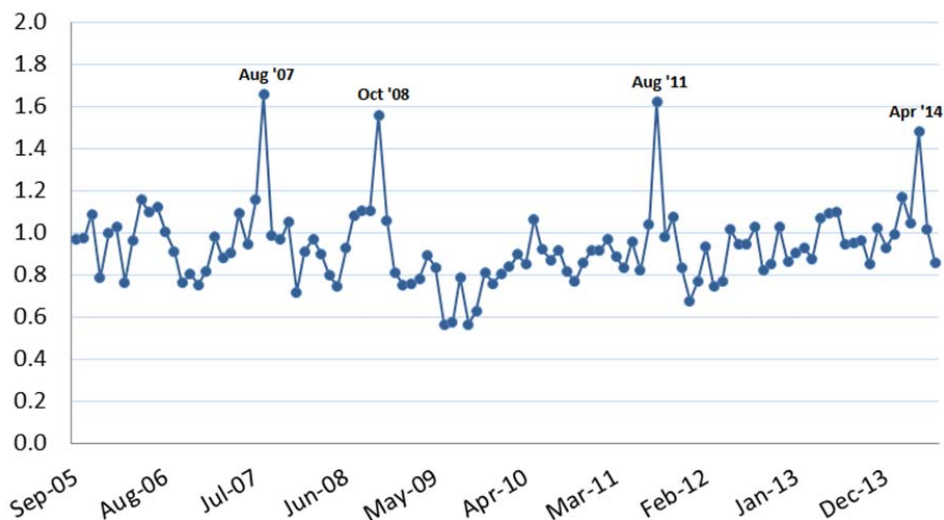
We used the cross-sectional dispersion of active fund performance as a proxy to identify periods of significant market shocks. Our premise is that the dispersion of the active fund performance increases during the periods of large market shocks as they magnify the impact of investment style and industry tilts.

In **Figure 2**, we show the monthly risk-adjusted dispersion of the fund active returns. During this period, the *cross-sectional dispersion* of active fund performance reached significant levels comparable to largest economic and market shocks in recent history.

Figure 2:

Dispersion of Mutual Fund Performance

Sep 1st, 2005 through June 30th, 2014



Source: MSCI Mutual Fund Analytics, Lipper

We offer two alternative explanations about the root cause of recent fund performance: (i) **economic developments** and (ii) **active trading** of large investors.¹ Economic developments and their impact on industries and investment styles were the main drivers of fund performance dispersion in October 2008 (financial crisis) and August 2011 (U.S. debt-ceiling crisis) and resulted in significant market losses in both periods. On the other hand, trading and deleveraging of large quant funds were the main drivers of performance dispersion in August of 2007; trading and deleveraging temporarily negatively impacted performance of many crowded systematic equity strategies without a significant impact on the market.

We suggested in "[Market Spin-cycle: Understanding Style and Sector Rotation in a Flat Market](#)" that sector and style rotation in March and April was driven by increased uncertainty about the speed of economic recovery. In "[Market Spin Cycle: The rotation continues...](#)" we showed that style rotation in March and April subsequently reversed in May and June. Given the flat market performance in March and April and the reversal of style rotation in May and June, it is plausible that a portion of fund performance can be attributed to active trading of several large funds rather than a change in the overall investor sentiment about economic growth. However, a formal testing of this view is beyond the scope of this note.²

Explaining Performance in March and April

In "[Market Spin-cycle: Understanding Style and Sector Rotation in a Flat Market](#)," we provided evidence of significant differences and reversal in performance across sectors and styles and concluded that "the rotation of sectors and styles signals greater uncertainty about the speed of the economic recovery". Our holdings-based analysis of mutual fund performance suggests that investment style tilts played a significant role in explaining cross-sectional dispersion in active performance.

In **Figure 3**, we present the scatter-plot of large cap mutual fund active returns from March 1 through April 30, 2014 (y-axis) against their investment style tilts (exposures) as of February 28, 2014 (x-axis). We focus on investment styles that were associated with the style rotation that we have observed in "[Market Spin-cycle: Understanding Style and Sector Rotation in a Flat Market](#)." We documented declining performance in growth-oriented styles associated with risk-taking behavior, such as Beta, Growth, and Momentum, with improving performance in Value, Profitability, and Quality.

Figure 3 captures that the large cap funds' active performance from March 1 through April 30 was highly negatively correlated with their active tilts to Growth and Beta, -0.77 and -0.80, respectively, and highly positively correlated with their active tilts to Value and Earnings Quality, 0.71 and 0.64, respectively.

While **Figure 3** is helpful in establishing relationships between style tilts and subsequent period returns, it is not conclusive in quantifying contributions coming from style exposures and attributing mutual fund performance. We use a multi-factor framework to identify sources of performance by decomposing a mutual fund's returns to industry tilts, investment style tilts, and stock specific contributions.

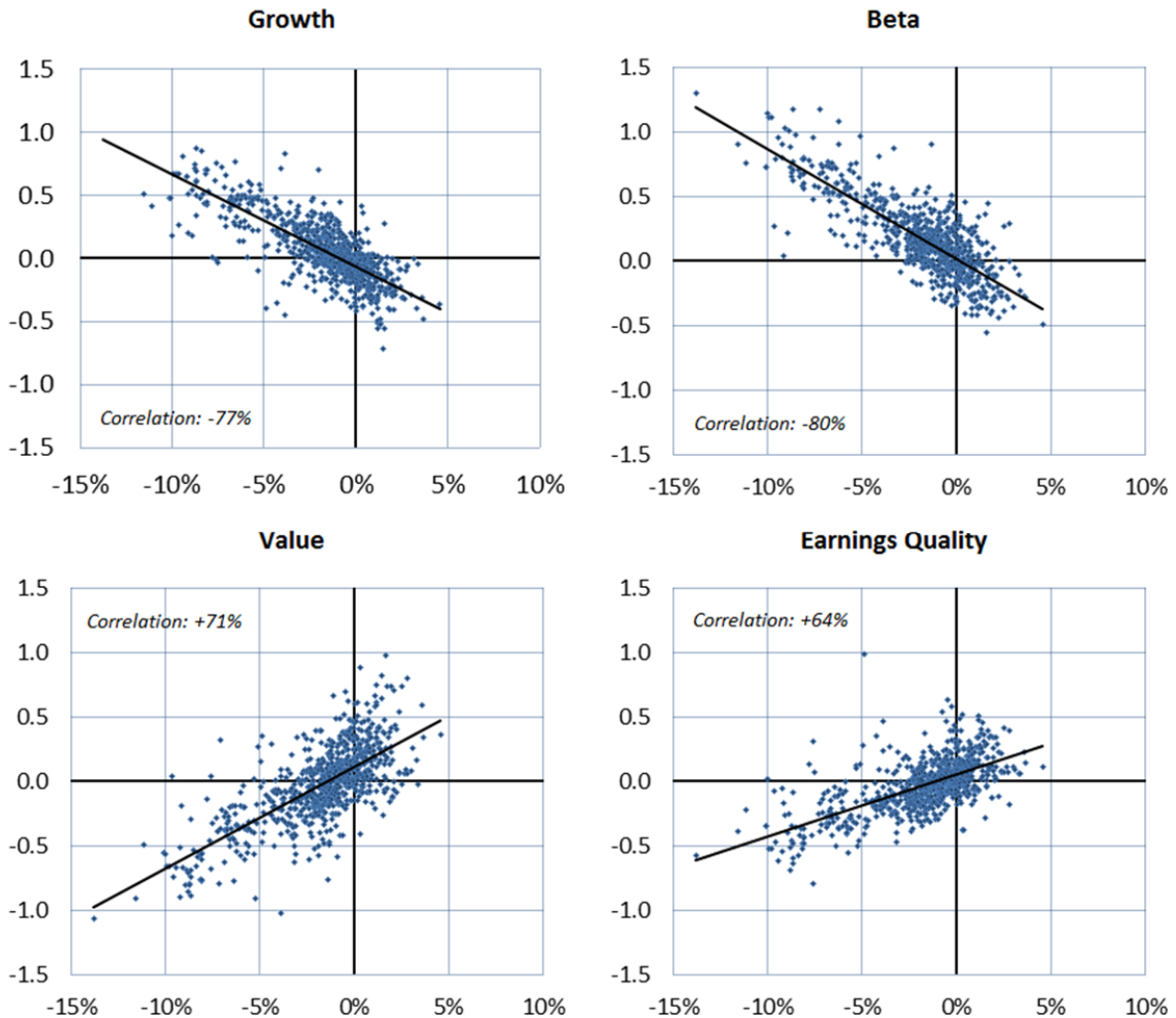
¹ Profit-taking and quarter-end trading was also raised as an alternative explanation in conversations with several of our clients.

² We are planning to investigate this question in our future research.

Figure 3:

Fund Active Returns vs. Style Exposures

Style Exposures (y-axis): February 28 Active Returns (x-axis): from March 1 through April 30, 2014



Source: Barra U.S. Sector Model, Lipper

Understanding Best- and Worst-Performing Funds

In this section, we show that the best and worst performing managers have very distinct investment style tilts. We identified the 10 large cap funds with the best performance and the 10 funds with the worst performance from March 1 through April 30 and investigated their investment style exposures.

To compute relative tilts, we ranked active style exposure of each fund with respect to its peer group and assigned a percentile-rank. This helps us measure the significance of styles tilts *relative to peers*. In

Table 3 we average style percentile-ranks across best- and worst-performing managers. For example,

93rd percentile-rank of the Worst 10 group to Growth means that 93% of funds in our large cap fund universe had Growth investment style exposure less than the group of Worst 10 performing managers.

Table 3 shows that the worst and best performing managers had very distinct investment style tilts. The worst-performing managers fell in the 93rd, 89th, and 85th percentile in terms of their exposures to Growth, Beta, and Momentum implying that these managers had significant Growth, Beta, and Momentum tilts. On the other hand, the best-performing managers tilted heavily on Value, Profitability, and Earnings Quality.

Table 3:

Best- vs. Worst-Performing Funds: Style Peer Ranking

February 28th, 2014

	Best 10	Worst 10		Best 10	Worst 10
Growth	19%	93%	Prospect	40%	45%
Beta	16%	89%	Profitability	75%	28%
Momentum	33%	85%	Long-term Reversal	36%	24%
Liquidity	37%	84%	Seasonality	48%	22%
Sentiment	37%	72%	Leverage	55%	20%
Short-term Reversal	42%	56%	Asset Turnover	55%	18%
Industry Momentum	47%	51%	Value	77%	10%
Size	48%	49%	Earnings Quality	73%	10%
Residual Volatility	73%	49%			

Source: Barra U.S. Sector Model, Lipper

We present the performance attribution summary for the best- and worst-performing managers in **Table 4**. We find that the differences in investment style and industry tilts explain a significant portion of the difference in active fund performance. The best-performing managers outperformed the worst-performing managers by 12.8%. 4.9% of this outperformance was explained by differences in investment style tilts and 4.5% was explained by differences in industry tilts. Value, Beta, Growth, and Momentum investment style tilts had the most significant impact on active fund performance, each contributing more than 50bps to the difference in returns of best- vs. worst-performing funds.

Table 4:
Attribution of Best- vs. Worst-Performing Funds

March 1 through April 30, 2014

	Best 10	Worst 10
Active Return	3.3%	-9.5%
Investment Styles	0.9%	-4.0%
Industries	2.4%	-2.1%
Stock Specific	0.0%	-3.4%

Investment Style Decomposition

	Best 10	Worst 10		Best 10	Worst 10
Growth	0.1%	-0.5%	Prospect	0.0%	0.0%
Beta	0.1%	-0.7%	Profitability	0.1%	-0.3%
Momentum	0.1%	-0.5%	Long-term Reversal	0.1%	-0.1%
Liquidity	0.0%	-0.2%	Seasonality	0.0%	0.0%
Sentiment	-0.1%	0.1%	Leverage	0.1%	-0.2%
Short-term Reversal	0.0%	0.0%	Asset Turnover	0.2%	-0.1%
Industry Momentum	0.0%	0.1%	Value	0.4%	-1.6%
Size	-0.2%	0.0%	Earnings Quality	0.0%	0.1%
Residual Volatility	0.0%	-0.1%			

Source: Barra U.S. Sector Model, Lipper

Conclusion

Large cap mutual fund managers went through one of the worst periods of active performance in March and April of 2014. In this research paper, we showed that the active performance during this time was as poor as in periods of large economic shocks, such as the financial crisis of 2008 and European debt crisis of 2012. Furthermore, the dispersion of fund performance was comparable to historical crisis periods such as the quant crunch of 2007, the financial crisis of 2008, and the U.S. debt ceiling crisis of 2011.

We also showed that tilts to investment styles were significant in explaining dispersion in performance. Large cap fund performance from March 1 through April 30 was highly negatively correlated with tilts to Growth, Momentum and Beta and highly positively correlated with tilts to Value, Profitability, and Earnings Quality. The best-performing mutual funds had the highest exposures to Value, Profitability and Earnings Quality investment styles among their peer group, while the worst-performing mutual funds tilted heavily on Beta, Momentum, and Growth.

Furthermore, with our holdings-based attribution analysis, we illustrated that the differences in investment style tilts and industry tilts were significant in explaining the differences in performance of the best- and worst-performing large cap managers.

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¹As of March 31, 2014, as reported on June 25, 2014, by eVestment, Lipper and Bloomberg