Factor Insight:

Reducing the Downside of a Trend Following Strategy

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The dramatic fall in the price of stocks favored by trend following or momentum investors played out repeatedly in the news media in March and April of 2014. Momentum stocks[1] that had experienced a big run up in price leading to March 2014 gave up a portion of those gains in the subsequent two months, as investors became concerned about their rich valuation and a weak economic outlook. A basket of stocks that we track on S&P Capital IQ's Alpha Factor Library (AFL)[2] that replicates the returns to a trend following strategy underperformed the broad based S&P 500® index by 5.7% cumulatively in March and April. The underperformance of a trend following strategy is not new; trend following investors suffered larger losses in March and April 2009, when the top 20% or top quintile of momentum names in the S&P 500 underperformed the index by almost 13%. This underperformance was even more pronounced for long-short managers as the top momentum quintile underperformed the bottom quintile by over 40% in the same two month period. In this report, we review an approach that reduces the downside risk of a backtested trend following strategy. This new signal first separates a stock's return into its systematic and stock-specific components, and then picks stocks solely on the latter. We compare the performance of this new signal (*alpha momentum*) to a typical trend following strategy (*total momentum*) and report the following:

- **Alpha momentum dominates total momentum in the U.S when performance is measured on a risk-adjusted basis**. In the Russell 3000, while both trend following strategies generate similar long-short and long only excess returns, alpha momentum's annualized long-short information ratio is 0.85, twice that of total momentum (Jan 1988 – April 2014). **Globally, alpha momentum is superior to total momentum.** Similar to our finding in the U.S, alpha momentum produces higher risk-adjusted returns in four developed market countries and a global universe.

- **The efficacy of total momentum is restricted to the small cap segment.** The long-short and long-only excess returns of total momentum are *not* statistically significant in the large cap Russell 1000 universe. The returns to alpha momentum are statistically significant in both the Russell 1000 and small cap Russell 2000.

- **Alpha (total) momentum generates statistically significant average 1-month long-short spreads in eight (five) of nine GICS® sectors within the Russell 3000, with the best performance in Energy at 1.17% (1.04%).** Alpha momentum also has higher annualized long-short information ratios in all nine sectors.

- **The churn of both strategies is similar, suggesting that switching from total momentum to alpha momentum should not impact portfolio turnover materially.**

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[1] Trend following or momentum is defined as a stock's 12-month return, excluding the most recent month
[2] AFL is a web-based research platform that tracks the performance characteristics of 400+ signals globally. The basket of stocks refers to the top 20% of momentum names in SP500

1 Introduction

The momentum anomaly is one of the most widely studied phenomena ever since it was documented by Jegadeesh and Titman (JT) in their seminal paper published in 1993[3]. In their paper, JT formed decile portfolios based on past raw returns of stocks (using a 3-12 month formation window) between 1965 and 1989. The authors found that stocks with the highest raw returns ("winners") subsequently outperformed those with the lowest raw returns ("losers") over the next 3-12 months. Although JT acknowledged that the winners and losers portfolios had larger betas and smaller market capitalization compared to the other eight decile portfolios, they concluded that the profitability of a momentum strategy could not be explained by systematic factors, and was most likely due to delayed price reaction to stock specific information.

Even though trend following strategies have historically generated strong alphas and high risk-adjusted returns, there have been periods when they experienced significant drawdowns. We highlighted this risk in our October 2010 report[4] after the failure of momentum in 2009. Several academic papers have also pointed to previous episodes when trend following strategies failed[5]. Grundy and Martin (2000) note that the dynamic factor loadings of momentum portfolios increase the volatility of the strategy's return, leading to lower risk-adjusted performance. Blitz, Huij and Martens (2011) pointed out that given the dynamic exposures of a trend following strategy to Fama-French (FF) factor returns, investors were making an implicit bet on the persistence of these risk factor returns. They proposed a strategy based on residual returns (residual momentum) and demonstrated that it was superior to a typical trend following strategy constructed using raw returns (total momentum). Residual momentum ranks stocks based on their residual returns over the last 12-months (skipping the most recent one month). In effect, *stocks are selected on idiosyncratic return*. The residual momentum strategy first estimates residual returns monthly from the Fama-French model, with a 36-month rolling window

$$r_{i,t} = \alpha_i + \beta_i^M RMRF_t + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t + \varepsilon_{i,t}$$

where $r_{i,t}$ is the return of stock i in month t in excess of the one-month T-bill rate; $RMRF_t$, SMB_t and HML_t are the three FF factors; and $\varepsilon_{i,t}$ is the residual return of stock i in month t. The monthly residual returns are cumulated and then scaled by the standard deviation of these returns over the same period.

We take a slightly different approach to control for the effects of the FF factors on a trend following strategy. We first rank all the stocks in our universe by raw returns over a formation window (12 months excluding the most recent one month). We then perform a monthly cross-sectional regression of standardized momentum ranks on standardized ranks for beta, size and book-to-price. The residuals from this regression are alpha scores that we use to re-rank securities in our universe. Using this approach, we do not need to rely on the availability of the FF return data before we compute our scores. We call this strategy *alpha momentum,* and the typical trend following strategy based on raw returns (12 month stock return excluding the most recent one month), *total momentum*.

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[3] See "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency"
[4] Another Brick in the Wall: The Historic Failure of Price Momentum
[5] Barroso and Santa-Clara (2012) and Kent and Daniel (2013)

2 Trend Following in the U.S

We show the performance of both alpha momentum [AlphaMOM] and total momentum [TotMOM] in the broad Russell 3000 universe, and also by market capitalization - Russell 1000 and Russell 2000 universes - from January 1988 to April 2014 in Table 1. In the Russell 3000 universe [top panel], alpha momentum is clearly superior to total momentum on a risk-adjusted basis. Whilst they both have similar 1-month IC [Col 1], 1-month return spread [Col 3] and 1-month quintile excess return values[6] [Col 5], the annualized return spread information ratio [IR] for AlphaMOM is almost twice as large as that of TotMOM [0.85 vs 0.44 – see Col 4], similar to what Blitz et al. reported in their paper on residual momentum. For long-only managers, alpha momentum also offers superior risk-adjusted performance with an annualized top quintile IR that is 50% higher than that of total momentum [0.66 vs 0.41 - see Col 6].

Table 1: Factor Performance: Alpha & Total Momentum in the U.S
[January 1988 – April 2014]

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
	1M-IC	1M-IC IR	1M Return Spread	Return Spread IR [Annualized]	Top Quintile 1-M Excess Return	Top Quintile Excess Return IR [Annualized]
Russell 3000						
Alpha Momentum	0.035***	0.38	0.91%***	0.85	0.39%***	0.66
Total Momentum	0.040***	0.30	0.88%**	0.44	0.38%**	0.41
Russell 1000						
Alpha Momentum	0.025***	0.21	0.54%***	0.52	0.28%**	0.48
Total Momentum	0.024**	0.14	0.47%	0.23	0.29%	0.31
Russell 2000						
Alpha Momentum	0.039***	0.47	1.04%***	1.04	0.43%***	0.76
Total Momentum	0.046***	0.36	1.06%***	0.51	0.43%**	0.47

*** significant at 1% level; ** significant at 5% level; * significant at 10% level
Source: S&P Capital IQ Quantamental Research

Backtested returns do not represent the results of actual trading and were constructed with the benefit of hindsight. Returns do not include payment of any sales charges or fees. Inclusion of fees and expenses would lower performance. Past performance is not a guarantee of future results.

The results in the middle [Russell 1000] and bottom [Russell 2000] panels suggest that total momentum's efficacy is mostly concentrated in small cap stocks. Neither the return spread [Col 3] nor top quintile excess return [Col 5] for total momentum is statistically significant at the usual levels in the Russell 1000 universe. In contrast, all the three metrics we use to measure performance are significant for alpha momentum. AlphaMOM also has an annualized spread return IR [0.52 vs 0.23- see Col 4] that is more than twice that of TotMOM, similar to what we observed for the broad Russell 3000 universe. The performance of TotMOM improves dramatically

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[6] IC is the rank correlation of alpha forecasts to forward realized stock return; long-only or top quintile [Q1] excess return is the equal weighted average return of the top quintile [Q1] minus the return of the equal-weighted benchmark; long-short or return spread is the equal-weighted return of the top quintile minus that of the bottom quintile

in the small cap space, with the signal now showing statistically significant IC, return spread and top quintile excess return. However, AlphaMOM is still superior in terms of risk-adjusted metrics (Col 2, Col 4 and Col 6).

3   Trend Following Around the World

Table 2 shows the performance of alpha and total momentum in several developed markets, and also in the S&P BMI global universe. Out of all the 46 countries (developed and emerging) that we currently track within AFL, Australia and Canada rank first and eighth respectively in terms of the efficacy of total momentum; they are also the two countries where we see the largest divergence in absolute performance (IC and return spread) between total momentum and alpha momentum. In both countries, total momentum's 1-month IC (Col 1) and 1-month return spread (Col 3) are about 25% larger than those of alpha momentum. However, alpha momentum dominates in both countries when performance is measured on a risk-adjusted basis, similar to what we observed in the U.S. The information ratio of the average 1-month IC (Col 2), annualized return spread IR (Col 4) and annualized top quintile excess return IR (Col 6) of alpha momentum are larger than those of total momentum in both countries.

Table 2: *Alpha & Total Momentum Factor Performance – S&P BMI Country & Global Indices (S&P BMI Canada from September 1989 – April 2014; All Other S&P BMI Country & Global Indices from January 1995 – April 2014)*

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
	1M-IC	1M-IC IR	1M Return Spread	Return Spread IR (Annualized)	Top Quintile 1-M Excess Return	Top Quintile Excess Return IR (Annualized)
S&P BMI Canada						
Alpha Momentum	0.063***	0.53	1.68%***	1.44	0.85%***	1.39
Total Momentum	0.079***	0.47	2.10%***	1.05	0.94%***	1.03
S&P BMI UK						
Alpha Momentum	0.047***	0.41	1.12%***	1.09	0.54%***	0.90
Total Momentum	0.055***	0.34	1.07%***	0.56	0.55%***	0.64
S&P BMI Australia						
Alpha Momentum	0.063***	0.52	1.70%***	1.65	0.77%***	1.32
Total Momentum	0.080***	0.49	2.11%***	1.15	0.92%***	1.20
S&P BMI Japan						
Alpha Momentum	0.015*	0.13	0.34%	0.33	0.11%	0.23
Total Momentum	0.014	0.07	0.14%	0.08	0.00%	0.00
S&P BMI Global						
Alpha Momentum	0.043***	0.33	0.96%***	0.66	0.49%***	0.74
Total Momentum	0.047***	0.32	0.83%**	0.46	0.44%**	0.57

*** significant at 1% level; ** significant at 5% level; significant at 10% level
Source: S&P Capital IQ Quantamental Research

Backtested returns do not represent the results of actual trading and were constructed with the benefit of hindsight. Returns do not include payment of any sales charges or fees. Inclusion of fees and expenses would lower performance. Past performance is not a guarantee of future results.

The dominance of alpha momentum is even more pronounced in the U.K. In the UK, the 1-month IC, return spread and top quintile excess return of both strategies are similar. However, alpha momentum has an information ratio (IC) that is 20% higher than that of total momentum (0.41 vs 0.34 – see Col 2), an annualized return spread IR that is almost twice as large (1.09 vs 0.56 – see Col 4), and an annualized top quintile excess return that is 41% higher (0.90 vs 0.64 – see Col 6). Clearly, alpha momentum has delivered similar returns to total momentum in the UK, but at a much lower risk level. In Japan, where the weak performance of total momentum is well documented[7], alpha momentum has a statistically significant 1-month IC. The return spread or top quintile excess return for alpha momentum is however not significant.

4 Trend Following in U.S Sectors

We test both trend following strategies within nine of the ten GICs sectors[8] in the Russell 3000 universe. Companies are ranked within each sector into quintiles and we report both 1-month spread and annualized return spread IR in Table 3. Between January 1988 and April 2014, alpha momentum generates statistically significant return spreads in eight of nine sectors with the only exception being Consumer Staples. In addition, six of the eight sector return spreads are significant at the 1% level. Total momentum has statistically significant return spreads in five of nine sectors, with only three of the five significant at the 1% level. Across all sectors, we observe higher annualized information ratio for alpha momentum compared to total momentum.

Table 3: Total & Alpha Momentum Performance within GICS Sectors:
Russell 3000 (January 1988 – April 2014)

Sector	Alpha Momentum		Total Momentum	
	1M Return Spread	Annualized Return Spread IR	1M Return Spread	Annualized Return Spread IR
Energy	1.17%***	0.73	1.04%***	0.55
Materials	0.57%**	0.40	0.58%*	0.33
Industrials	0.64%***	0.61	0.55%*	0.38
Cons Desc	1.05%***	0.91	1.03%***	0.52
Cons Stap	0.31%	0.26	0.25%	0.17
Health Care	0.81%***	0.53	0.59%	0.27
Financial	1.03%***	0.87	0.86%***	0.55
Info Tech	0.86%***	0.60	0.60%	0.25
Utilities	0.44%*	0.38	0.29%	0.20

*** significant at 1% level; ** significant at 5% level; significant at 10% level
Source: S&P Capital IQ Quantamental Research

Backtested returns do not represent the results of actual trading and were constructed with the benefit of hindsight. Returns do not include payment of any sales charges or fees. Inclusion of fees and expenses would lower performance. Past performance is not a guarantee of future results.

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[7] See Size, Value and Momentum in International Stock Returns by E. Fama and K. French (2012)
[8] We exclude Telecoms because of coverage issues.

5 Signal Turnover

Will substituting total momentum with alpha momentum in a multi-factor strategy lead to increased portfolio churn? If the substitution leads to a significantly higher churn, it could erode the economic benefit of using AlphaMOM. We measured signal turnover in two ways: the 1-month rank auto-correlation of the signal and the proportion of stocks that remain in the top quintile between two consecutive months (top quintile stability). The two leftmost bars in Figure 1 show that the 1-month rank auto-correlation coefficients for both signals are similar: total momentum at 89% and alpha momentum at 86%.

Figure 1 : Alpha & Total Momentum Turnover in Russell 3000
(January 1988 – April 2014)
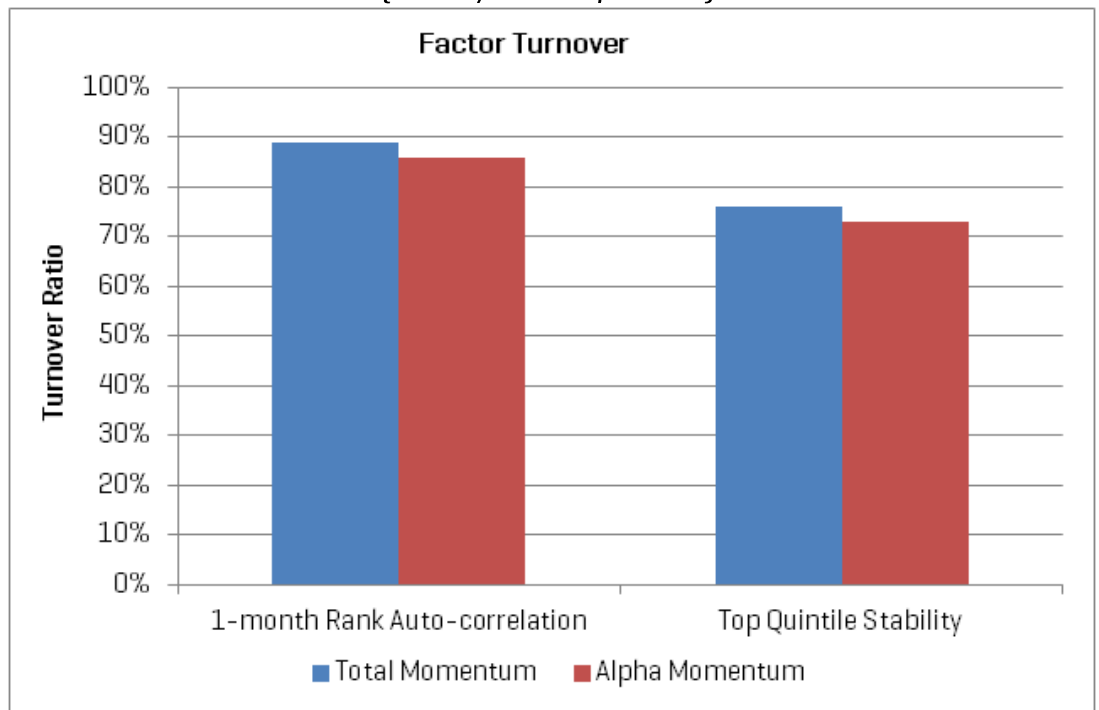
Source: S&P Capital IQ Quantamental Research
Past performance is not a guarantee of future results

The two rightmost bars show the top quintile stability of both strategies. The stability of the top quintile of both strategies is also close with total momentum's ratio (76%) slightly above that of alpha momentum (73%).

Both turnover metrics suggest that portfolio performance may not be materially impacted by transaction costs by switching from total momentum to alpha momentum.

6 Momentum's Dynamic Beta Exposure

Blitz et al. pointed out that total momentum exhibits dynamic exposures to the Fama-French factor returns, and the failure of the strategy occurs when future returns to the FF risk factors are in the opposite direction to what they were during the formation period. To capture the dynamic exposure of the top and bottom quintile portfolios to one of the FF factors - market beta, we

calculated the median beta of both top and bottom quintile portfolios for the two strategies, and used the ratio of the top to bottom quintile beta as our snapshot for the beta exposure of TotMOM and AlphaMOM. A ratio close to 1 suggests that both top and bottom quintile portfolios have similar market betas, while a beta above (below) 1 indicates that the top quintile portfolio has a higher (lower) beta than the bottom quintile portfolio. We overlaid this ratio with the return spread to total momentum and display the results in Figure 2. The blue and black lines represent the ratio of top (Q1) to bottom (Q5) quintile portfolio beta of TotMOM and AlphaMOM respectively (right axis), while the red bars represent the time series 1-month return spread to TotMOM (left axis).

Figure 2: Dynamic Exposures of Alpha & Total Momentum to CAPM Beta Overlaid with 1-month TotMOM Return Spread: Russell 3000 (January 1988 – April 2014)
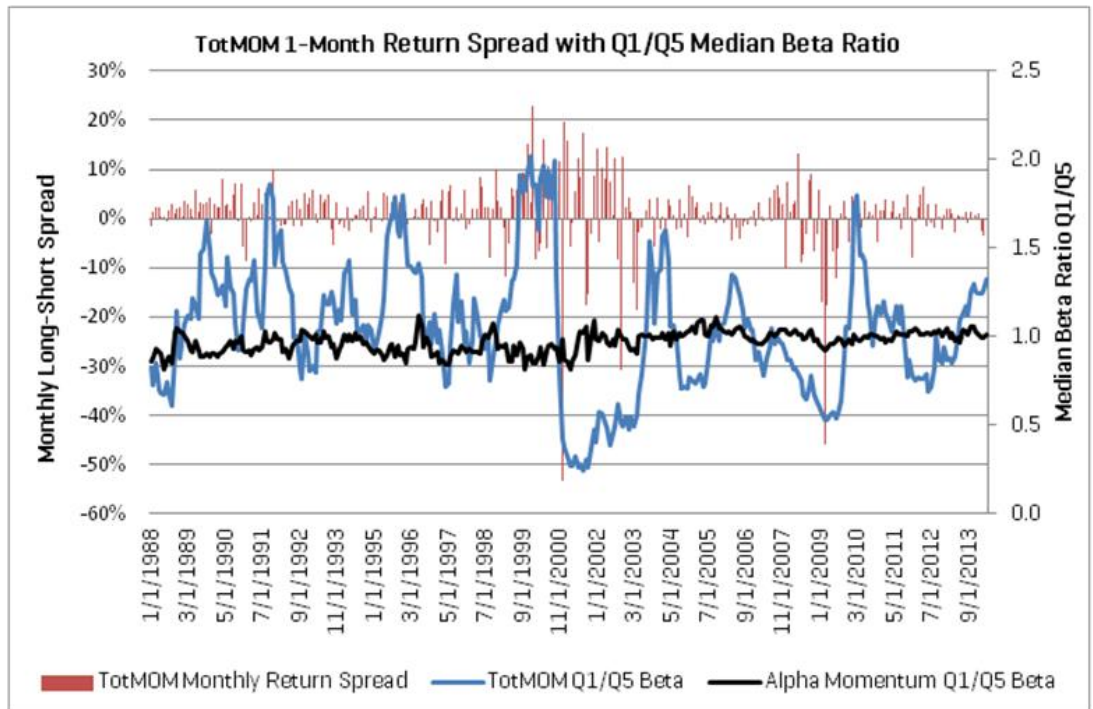
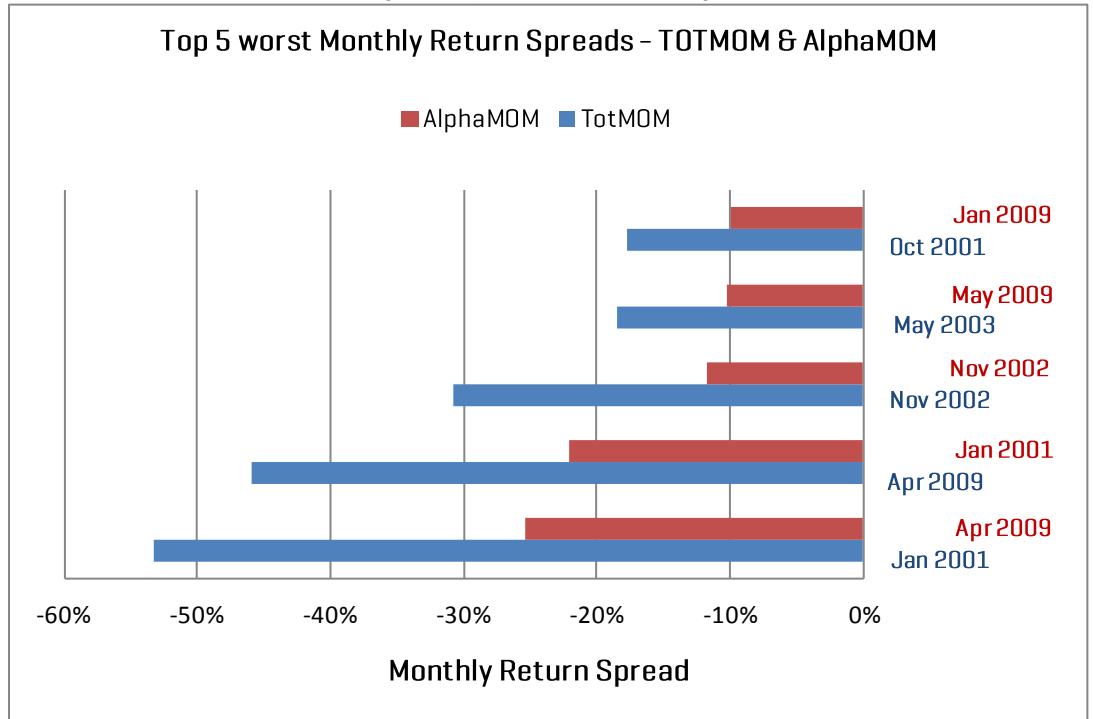Source: S&P Capital IQ Quantamental Research

Backtested returns do not represent the results of actual trading and were constructed with the benefit of hindsight. Returns do not include payment of any sales charges or fees. Inclusion of fees and expenses would lower performance. Past performance is not a guarantee of future results.

It is quite apparent that the beta ratio for TotMOM varies significantly over time with a low of 0.3 and a high of 2. In contrast, AlphaMOM's ratio was between 0.8 and 1.1 during our test period. Investors that use TotMOM should most likely monitor the strategy's beta exposure (as well as those of the other two FF factors) frequently; the beta ratio was 0.56 at the end of February 2009, just before TotMOM produced a negative return spread of 63% over the next three months as high beta stocks outperformed. Alpha momentum was down by 38% in the same period.

Typically, alpha momentum experiences smaller drawdowns compared to total momentum when market sentiment to momentum turns from positive to negative. Figure 3 shows the top five worst monthly return spreads to both strategies in the Russell 3000 from January 1988 to April 2014.

The worst monthly spread to TotMOM and AlphaMOM occurred in January 2001 (-53%) and April 2009 (-25%) respectively.

Figure 3 : Top 5 Worst Monthly Returns to Alpha & Total Momentum in the Russell 3000 (January 1988 – April 2014)

Source: S&P Capital IQ Quantamental Research

Backtested returns do not represent the results of actual trading and were constructed with the benefit of hindsight. Returns do not include payment of any sales charges or fees. Inclusion of fees and expenses would lower performance. Past performance is not a guarantee of future results.

7 Conclusions

In this report, we compared the performance of a trend following strategy proposed by Blitz et al. to a typical trend following strategy based on total raw returns. We report that the new backtested strategy outperformed the typical momentum strategy on a risk-adjusted basis globally. The efficacy of alpha momentum was not restricted to small cap stocks, as demonstrated by the statistically significant returns to AlphaMOM in both large and small cap universes in the U.S. In contrast, the returns to total momentum were only statistically significant in a small cap universe. We also found that alpha momentum is superior to total momentum within nine of the ten GICS sectors (Russell 3000). Given the similarity in turnover characteristics of both signals, switching from total momentum to alpha momentum may not materially impact portfolio churn.

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Our Recent Research

May 2014: Introducing S&P Capital IQ's Fundamental China A-Share Equity Risk Model

Factor risk models play an important role in equity portfolio management. Portfolio managers depend upon factor risk models to obtain portfolio risk prediction and risk attribution against a group of largely orthogonal factors each with meaningful econometric explanations. S&P Capital IQ is dedicated to providing a broad set of high-quality models and products to the global asset management community. Since 2010, we have released a series of single country risk models as well as global and regional equity risk models. We are now releasing single country risk model covering China A-Shares equities,

April 2014: Riding the Coattails of Activist Investors Yields Short and Long Term Outperformance

On August 13, 2013, Apple's stock price rose 4.75% on high volume after Carl Icahn, a renowned activist investor, tweeted that his firm had accumulated a large position in the company. In the ensuing 6 months, the stock rose an additional 9.33% as Icahn demanded that the company add another $50 billion to its existing stock buyback plan. Icahn backed off from this demand on February 10, 2014, but not before Apple's stock price had risen to $528.99 from $461.88 where it was before he embarked on the campaign. By then, the company had already aggressively repurchased its stock, including $14 billion in a two-week stretch. As high-profiled campaigns have occurred with greater frequency and resulted in more successes, the AUM for investor activist funds has tripled to $95 billion in 2013, 3 times the amount in 2008.

March 2014: Insights from Academic Literature: Corporate Character, Trading Insights, & New Data Sources

As part of our research process, we make a concerted effort to stay abreast of interesting white papers. Academic research papers are a rich source for new ideas and fine tuning of areas for future work. Often they provide a launch pad for debate and exploration for our team. Our readers agree, as we regularly receive positive feedback on our academic research highlights.

In this piece we have assembled a number of interesting articles that we believe will be of broad interest to our clients, and all investment professionals – Corporate Character, Trading Insights & New Data Sources. For each article we provide a link to the article, the abstract, and a brief discussion of the article highlights and how it will be useful to fellow practitioners. It is our hope that these papers help you generate differentiated thinking, and to better serve your clients.

February 2014: Obtaining an Edge in Emerging Markets

Following the introduction of our global stock selection models for developed markets (DM) in August 2013, we launch our stock selection model for emerging markets (EM) and report the following:

- The Model generated a top quintile average monthly excess return of 0.90% within the S&P BMI Emerging Market Index (Jan 2002 – Sept 2013)*.
- The Model's performance is robust across regions and sectors.
- We do not observe performance degradation within mid to large cap stocks.

- Model's top quintile average monthly excess return is identical in growth and value environments (0.80%), and positive in periods of elevated volatility (0.53%).*
- A simulated portfolio generated an annualized excess return of 10.5% after accounting for transactions costs.*

February 2014: U.S Stock Selection Model Performance Review

The performance of S&P Capital IQ's four U.S. stock selection models since their launch in January 2011 has been strong, and 2013 was no exception. Key differentiators, such as distinct formulations for large and small cap stocks, bank-specific factors, sector-neutrality to target stock-specific alpha, and the combination of sub-components representing different investment themes have enabled the models to outperform across disparate market environment

January 2014: Buying Outperformance: Do share repurchase announcements lead to higher returns?

We examine the returns surrounding buyback announcements to test whether, and when, buyback programs signal subsequent outperformance and shareholder value. We find:

- Buyback announcements precede excess returns in the US. Stocks on average outperformed the equally weighted Russell 3000 by 0.60% over one month, and by 1.38% over one year periods following buyback announcements.*
- Outperformance is greatest among small caps or larger magnitude buybacks as a % of shares outstanding.
- Reported insider trading and buyback announcement signals are complementary.
- In Europe, some post-buyback outperformance over 12 months, but no significant excess return after one month.

October 2013: Informative Insider Trading – The Hidden Profits in Corporate Insider Filings

In this report, we investigate the impact of the public disclosure of insider trading on equity prices, using both an event study framework and a portfolio formation approach. Leveraging S&P Capital IQ's Ownership database, we explore several practical methods of identifying "informative" insider trades, and how to construct a portfolio of stocks using recent "informed" insider transactions. We document the following results:

- Consistent with existing literature, insider trades are predictive of future stock returns.
- Outside investors can earn economically significant excess returns by trading on "informative" insider trading signals.
- Mimicking the net purchase actions of CEOs yielded an excess return of 1.27% over the next one week.*
- A trading strategy based on the three characteristics: opportunistic, intensive and directional change, yielded 0.36% weekly excess returns after transaction costs.*

* Backtested returns do not represent the results of actual trading and were constructed with the benefit of hindsight. Returns do not include payment of any sales charges or fees. Inclusion of fees and expenses would lower performance. Past performance is not indicative of future returns.

September 2013: Beggar Thy Neighbor – Research Brief: Exploring Pension Plans

Pension underfunding is a worldwide problem. There has been an unending wave of news stories about cities and states across the United States suffering from defined benefit pension funding shortfalls, but these issues extend far beyond the public sector and beyond the United States as well.

In this brief we leverage S&P Capital IQ datasets to examine:

- Companies with the strongest and weakest pension funding status globally.
- Companies with the most optimistic return and discount rate assumptions globally.
- The relationship between projected and realized pension portfolio returns.
- The historical global trends in funding status, portfolio returns, and discount rates.

August 2013: Introducing S&P Capital IQ™ Global Stock Selection Models for Developed Markets: The Foundations of Outperformance

In this report, we explore the efficacy of different stock selection strategies globally and use this information to develop a suite of robust global stock selection models targeting Canada and the developed markets of Europe and Asia Pacific. Our global models were developed using S&P Capital IQ's industry leading Global Point-in-Time data, as well as the Alpha Factor Library, our web-based global factor research platform. We find that each of our Global Stock Selection Models for Developed Markets yield significant long-short spread returns and information coefficients at the 1% level. This performance is also robust providing similar statistical significance after controlling for Market Cap and Beta exposures.

July 2013: Inspirational Papers on Innovative Topics: Asset Allocation, Insider Trading & Event Studies

Inspiration drives innovation. The writings of Plutarch inspired Shakespeare, Galapagos finches inspired Darwin, and the German Autobahn inspired Eisenhower, but what inspires investment researchers to develop the next innovations for investors? When we get a new investment idea, we seek out literature on that topic to inspire us to bring the idea to fruition. This literature can help to further develop our own thoughts, polish up and expand on our priors, and avoid the pitfalls experienced by earlier researchers. Inspiration from academia enhances our ability to provide innovative solutions for our clients.

June 2013: Supply Chain Interactions Part 2: Companies – Connected Company Returns Examined as Event Signals

June 2013: Behind the Asset Growth Anomaly – Over-promising but Under-delivering

April 2013: Complicated Firms Made Easy – Using Industry Pure-Plays to Forecast Conglomerate Returns.

March 2013: Risk Models That Work When You Need Them – Short Term Risk Model Enhancements

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February 2013: Stock Selection Model Performance Review: Assessing the Drivers of Performance in 2012

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November 2012: 11 Industries, 70 Alpha Signals -The Value of Industry-Specific Metrics

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January 2012: S&P Capital IQ Stock Selection Model Review – Understanding the Drivers of Performance in 2011

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September 2011: Research Brief: Return Correlation and Dispersion

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