



## Shrinking Alpha, Momentum, and the Illusion of Diversification

March 2016

*After a challenging 2015, many alternative asset managers continue to be frustrated by intra-market moves. By taking a look under the hood and analyzing the factors that are driving markets, we find that persistent macro trends have led to material crowding in defensive, low volatility strategies proxied by the Momentum factor. We quantify the heightened concentration risk that is reducing the investment opportunity set and making the search for true diversification challenging. We expect episodic unwinds to persist in an investment landscape characterized by pervasive alternative beta exposures spread across a diverse set of active strategies. This scenario is symptomatic of a low growth, low inflation world in which considerable capital chases too few returns. Successful navigation requires a forward looking investment philosophy in which managers identify crowded themes and illiquid positions, and opportunistically reconstruct their portfolios to profit from sporadic unwinds.*

Macro themes played a critical role in the performance of active managers since early 2015 as the release of several “soft” economic data points suggested declining global growth, and stoked fears of a severe China slow-down and a commodity/currency crisis. No assets were immune to the moves in the dollar, crude and US interest rates, making the search for diversification and uncorrelated alpha particularly daunting.

These macro themes have certainly impacted headline indices, but they may have also contributed materially to intra-market bifurcations, driving sector, style and single-name dispersion – the dimensions through which active managers generate [alpha](#). This elevated return dispersion may create alpha opportunities – both on the way up and the eventual contraction. However, the *rise* in dispersion has been coupled with a

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substantial *decline* in market breadth<sup>1</sup>. **Breadth, for the duration of the paper, is defined as the number of independent investment opportunities afforded by the market.** The macro shifts have reduced the number of independent investment opportunities, thus challenging asset managers to generate returns without taking undue, highly correlated risk.

The collapse in market breadth is evident in a crowded equity Momentum trade. Lower liquidity and historically fast unwinds of Momentum trades can cause considerable pain to levered long/short portfolios<sup>2</sup>. This adverse scenario illustrates the additional risk faced by investors in long/short equity funds – a type of “tail risk” driven by liquidations and deleveraging that might be triggered by events completely unrelated to equity markets.

This scenario is symptomatic of a low growth, low inflation world in which alternative beta is pervasive, and true alpha is scarce. The Momentum unwind in February 2016 revealed this painful reality, as many funds that benefitted from Momentum’s strong performance in 2015 fell sharply in early 2016. Scenarios such as this may be commonplace in the new economic climate, which highlights the need for an adaptive, forward looking approach that can identify

inflection points in crowded trades. By incorporating a human element in their investment approach, managers may be able to successfully navigate this challenging economic climate.

## Macro’s Influence on Fundamental Styles

Themes can be fundamental, technical or macro in nature. Often in practice, underlying drivers of factors<sup>3</sup> cannot be cleanly delineated into one of these buckets (although, for the sake of simplicity, it is often presented that way). **For example, a theme can begin as a reaction to a change in a macro variable (i.e., structural rate change driven by a central bank), which influences a fundamental factor (i.e., balance sheet financial leverage, such as Debt/Equity) which, if the theme propagates long enough, is reflected as a Momentum trade (i.e., 12-Mth Price Momentum, a technical cross-sectional measurement of Winners against Laggards).** Note that themes need not always propagate in this direction: strong macro moves are not necessarily required for the development of fundamental/technical themes.

Historically, macro variables have had an influence on equity style dynamics. The original style timing strategies were predicated on a slow moving business cycle that offered extended periods of persistent style performance (aka, auto-correlated style returns). For example, US interest rates, crude and GDP have been key drivers of style

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<sup>1</sup> The Fundamental Law of Active Management posits that an active manager’s ability to deliver risk-adjusted performance is a function of two elements: (1) how accurate the manager is at forecasting (skill) and (2) how broadly that skill can be applied in practice (breadth). While many asset owners spend the majority of their time focused on evaluating a manager’s skill, breadth plays a critical role on whether active managers are able to deliver on mandates. Breadth measures the number of *independent* active ‘bets’ a manager makes in the investment process. (Grinold, 1989).

<sup>2</sup> As well as relative pain for some mutual funds and fundamentally tilted indices.

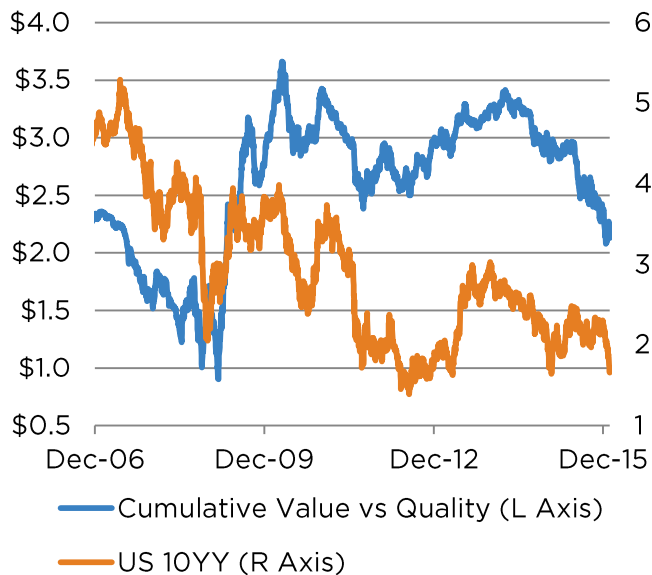
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<sup>3</sup> Unless otherwise specified, factor returns referenced in this note are generated from long/short quintile-sorted, dollar- and sector-neutral factor baskets. Underlying universe is the S&P 1500. Basket constituents are rebalanced monthly.

and sector performance within equities. **Exhibits 1 - 3** plot the ratio of a Value factor against a Quality factor, and illustrate the ratio's pro-cyclical characteristics against macro variables. The outperformance of Value has been characteristic of past tightening cycles, rises in crude, and rises in YoY GDP.

### Exhibit 1

*Value/Quality vs. US 10 YY*

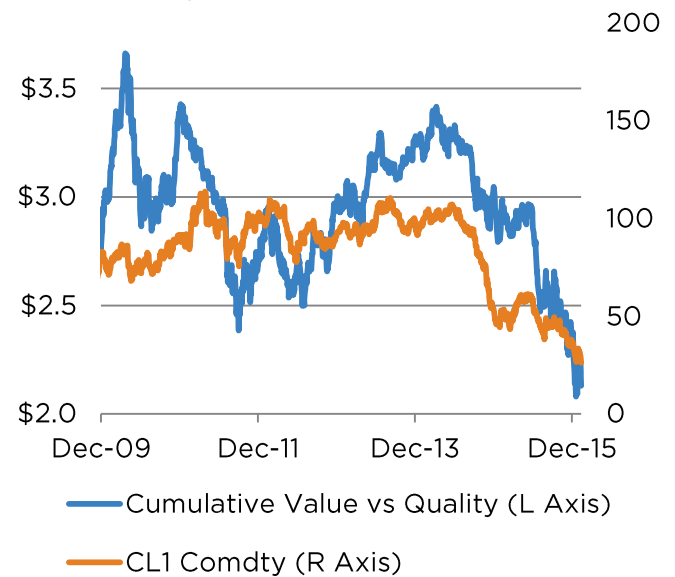


Source: Weiss.

Given that macro themes tend to be propagated in equity style performance, it is worth looking into what themes may be driving factors right now. Over the last several years the global market has witnessed significant changes in macro variables with oil and the US dollar moving sharply in opposing directions as credit spreads widened (**Exhibit 4**). Given that this trade has persisted for over one year, we now believe that several factor trades are simply reincarnations of this Crude/Dollar trade. This has resulted higher dispersion and lower breadth, as represented by crowded factor trades.

### Exhibit 2

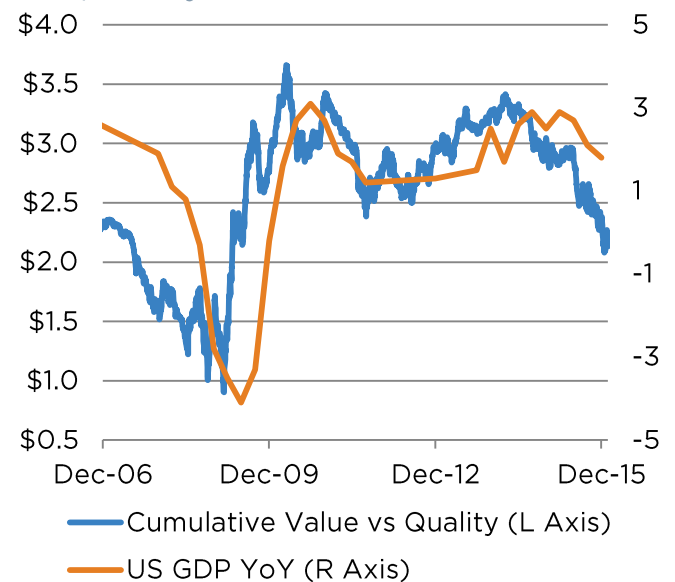
*Value/Quality vs. Crude Futures*



Source: Weiss.

### Exhibit 3

*Value/Quality vs. US GDP YoY*

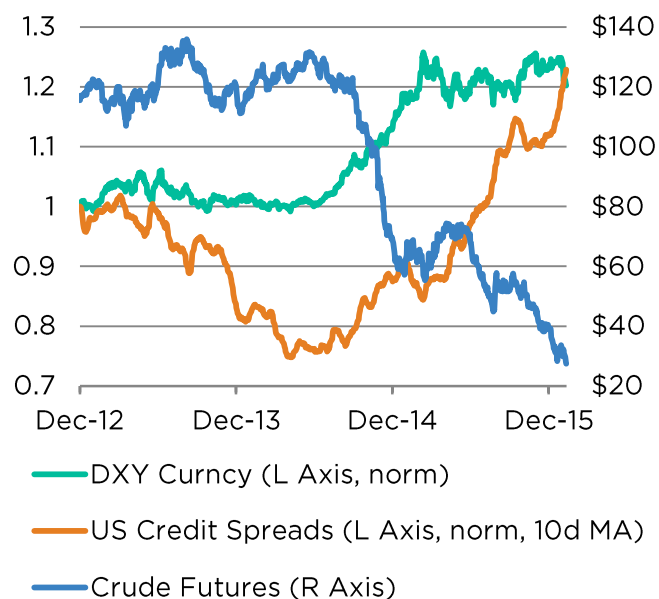


Source: Weiss.

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### Exhibit 4

Crude Futures, Normalized US Dollar, and Normalized Credit Spreads (BAA - US 10YY)<sup>4</sup>



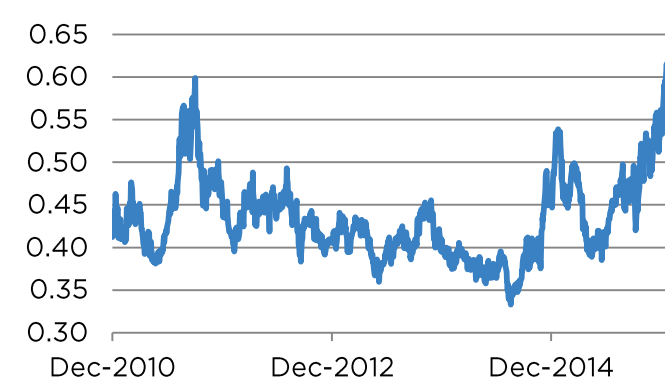
Source: Bloomberg.

## How Factor Returns and Breadth Impact Hedge Funds

Breadth is important to all active investors. In general, most investors prefer more breadth over less<sup>5</sup> because it increases the opportunities through which managers can apply their skill. Exhibit 5 shows how single-name stock dispersion increased rapidly over 2H15.

### Exhibit 5

Rolling 6-Mth Top Minus Bottom Decile Total Return Spread (S&P 1500, winsorized)



Source: Weiss.

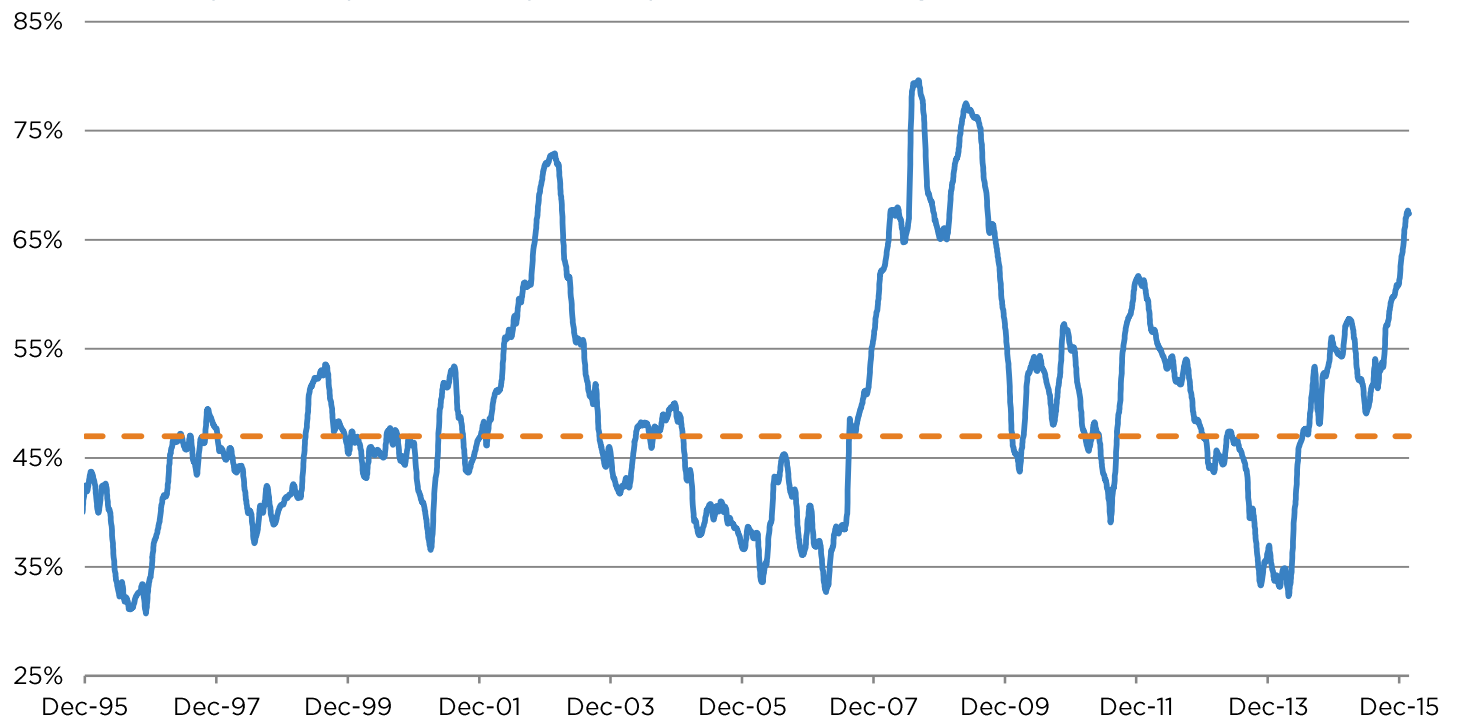
However this rise in dispersion has coincided with a decline in market breadth. To see how that can be the case, consider two negatively correlated securities. While they may exhibit wide dispersion, they might be influenced by the same underlying return driver. As a result, breadth is low because this two-legged trade is effectively just one bet.

Exhibit 6 shows one approach to quantitatively measure breadth using the absorption ratio, calculated from a 'diverse' set of fundamental factors<sup>6</sup>. Factor returns become more unified or tightly coupled as the absorption ratio increases. At high levels, there is a greater risk of a shock exposing investors to loss. The metric has increased since early 2014 and is currently over 65%, emphasizing the importance of a single source of risk governing factor returns.

<sup>4</sup> Both US dollar (DXY Comdty) and US corporate credit spreads (BICLB10Y Index, BAA - US 10YY) are normalized to 1 on Dec 31, 2012.

<sup>5</sup> Even investors that typically make a small number of large bets would prefer to have a larger, uncorrelated opportunity set from which to source trade ideas, all else being equal. (Grinold, 1989).

<sup>6</sup> The absorption ratio is calculated using the first principal component from a 90d rolling PCA analysis conducted on the following set of long/short factors: Beta (252d), Book/Price, Debt/Equity, 12-Mth Price Momentum, ROE, Short Interest Ratio, Turnover (252d, Median). Median level is represented by dashed orange line. For more details on the absorption ratio, we recommend the paper "[Principal Components as a Measure of Systemic Risk](#)" by Mark Kritzman et al., 2010.

**Exhibit 6: Rising Concentration of Risk Governing Factor Returns***% Variance Explained by First Principal Component (90d rolling, 10d MA)**Source: Weiss.*

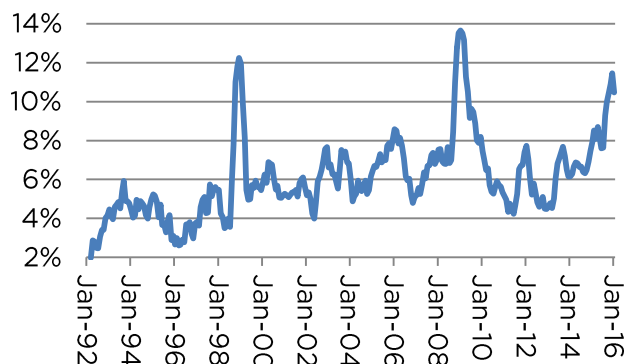
This dynamic is less problematic for portfolios that are factor neutral<sup>7</sup>, but most fundamental books are a bi-product of a refined bottoms-up investment process that, if unsupervised, will typically fall on one side of this trade. Since 2015, many active managers were either (1) on the right side of this trade, (2) on the wrong side or (3) hedged out much of this factor risk (thereby forfeiting much of the return dispersion offered last year). The result is high dispersion across active managers (with an average net return near zero). **Exhibit 7** shows that hedge fund return dispersion has increased steadily since 2014. The last two spikes occurred during major market disruptions characterized by heightened

factor and index-level volatility. The recent increase has been steadier and has materialized during a comparatively lower volatility environment. We suspect this dispersion is partially due to hedge fund factor exposure – both positive and negative – driven by persistent macro trends.

<sup>7</sup> Nor is it a problem for strategies with a Momentum tilt that dynamically blend in Value exposure which is historically negatively correlated and thus a source of risk diversification (see Exhibit 9).

## Exhibit 7: Hedge Fund Return Dispersion

*Rolling 6-Mth Return Dispersion<sup>8</sup>*



Source: Weiss, Preqin.

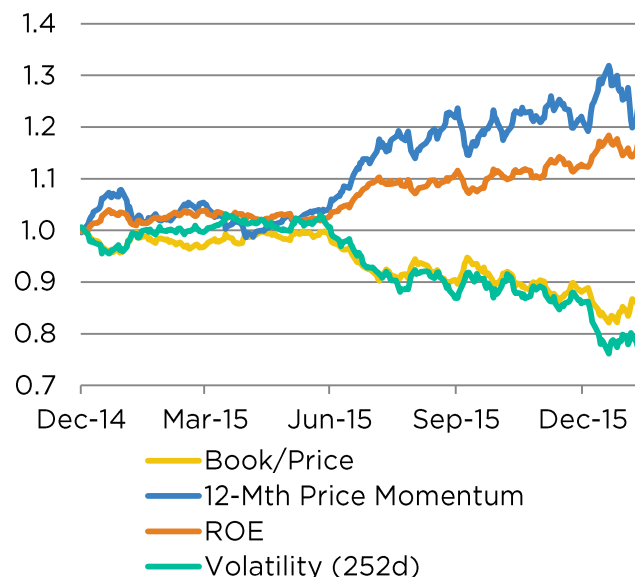
## What Factors Reveal About the Market

Since factor returns are so important in today's marketplace, they warrant a deeper investigation. **Exhibit 8** presents the information ratio (risk-adjusted performance) of four well-known factors over the last ten years through 2015<sup>9</sup>. Quality realized attractive risk-adjusted performance in 2015, while Value and Volatility had its worst year since 2007<sup>10</sup>

This bar chart masks the daily trading dynamics of these factors. **Exhibit 9** plots the cumulative performance of the same four factors. From this chart, it is easy to see just how correlated these themes have been, suggesting they have not traded as independent sources of risk.

## Exhibit 9

*Cumulative Factor Performance*

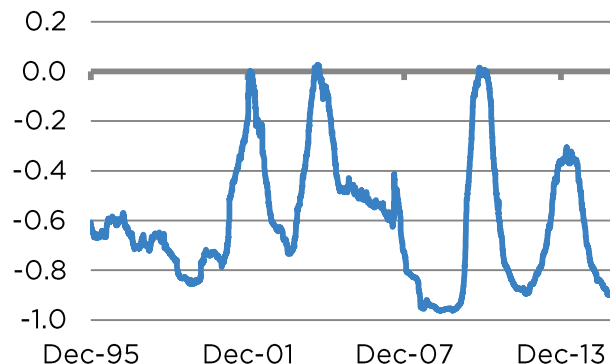


Source: Weiss.

The negative correlation between Value and Momentum is expected and well documented. However, **Exhibits 10 - 11** show how extreme the divergence has been lately, further suggesting that these two factors are not independent sources of risk.

## Exhibit 10

*Rolling 252d Correlation of Book/Price vs. 12-Mth Price Momentum*

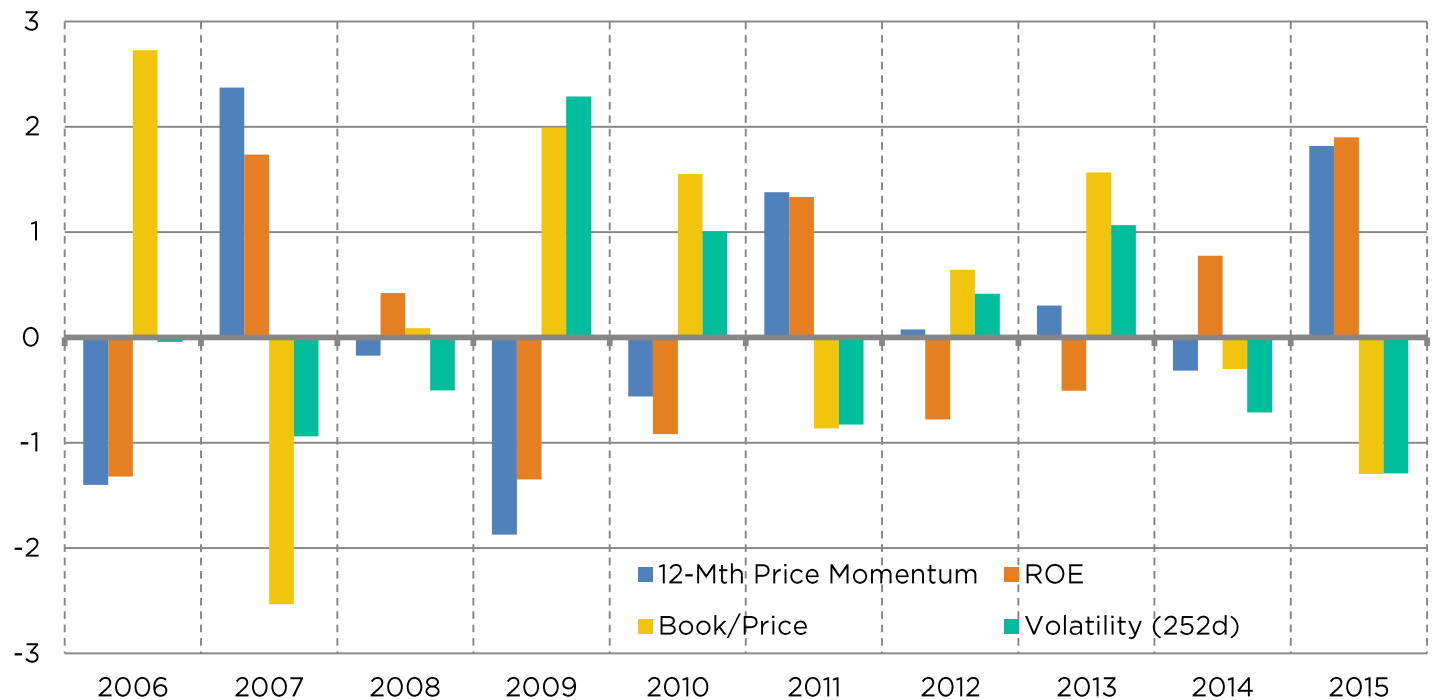
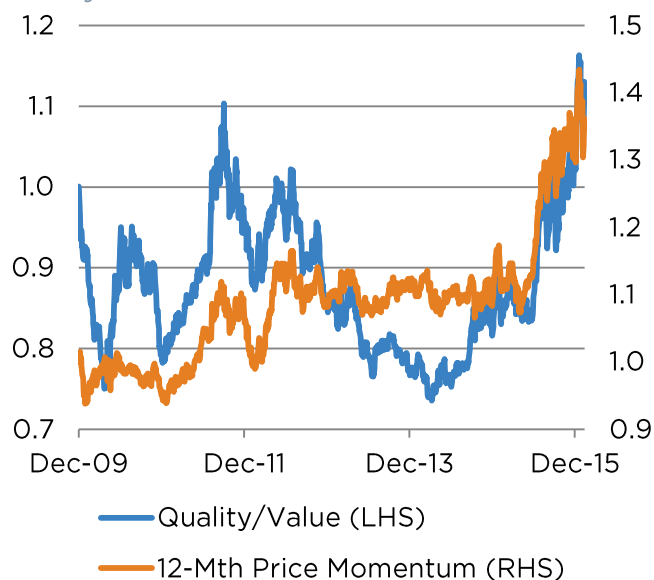


Source: Weiss.

<sup>8</sup> The smoothed cross-sectional standard deviation of a heterogeneous set of long/short funds, spanning multi-strategy, equity long/short, macro and quant funds.

<sup>9</sup> Jan 2016 style performance is largely a continuation of 2015.

<sup>10</sup> Quality here is proxied by ROE, a common Profitability factor. Value is proxied here by Book/Price.

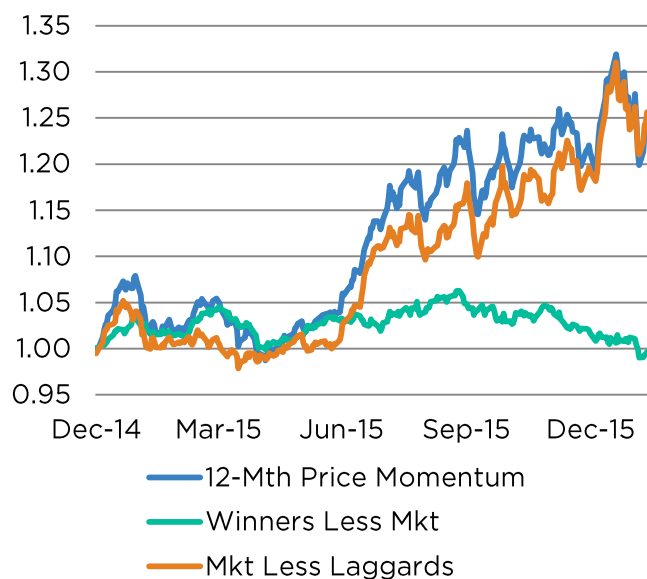
**Exhibit 8: Risk-Adjusted Factor Performance***Trailing 10-Yr Factor Information Ratios**Source: Weiss.***Exhibit 11***Quality/Value vs. 12-Mth Price Momentum**Source: Weiss.***Momentum Autopsy**

To get perspective on Momentum and the risks it may face going forward, it is important to look deeper into the drivers of its attractive risk-adjusted performance from May 2015 – Jan 2016. [Exhibit 12](#) clearly illustrates that much of the factor performance is driven by laggards' underperformance, which itself is heavily influenced by macro themes. The relative performance of Winners varied: outperforming May – September 2015, before posting relative underperformance.



## Exhibit 12

### 12-Mth Price Momentum Factor Breakdown

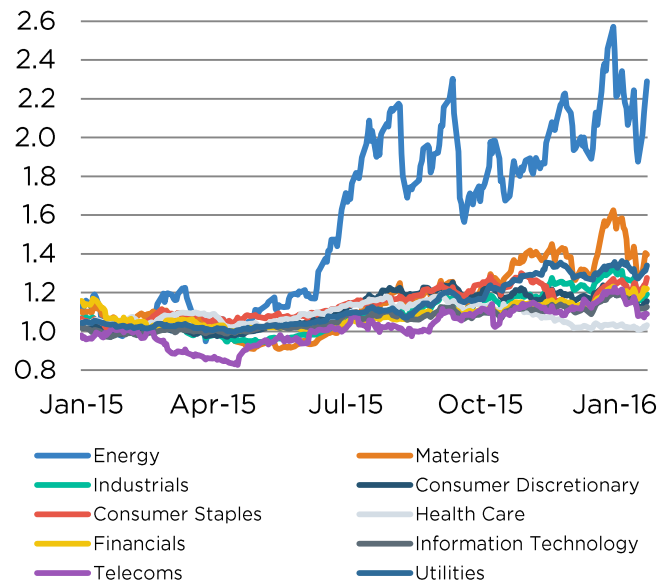


Source: Weiss.

Exhibit 13 shows that Momentum worked well across all sectors in 2H15, but the performance within Energy (and to a lesser extent Materials) was almost literally “off the chart”. Much of this was driven by the second major leg down in crude from \$70 to \$28.

## Exhibit 13

### 12-Mth Price Momentum Sector Performance

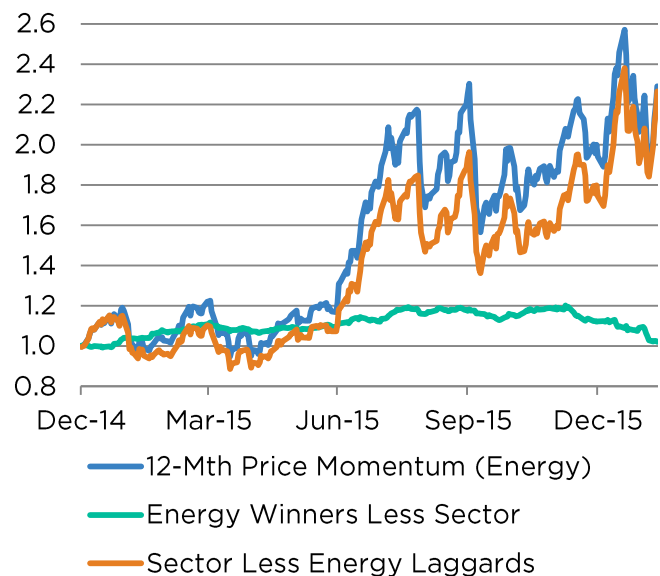


Source: Weiss.

Like the market-level performance of Momentum (sector neutral), the Energy laggards drove the factor’s outperformance, as seen in Exhibit 14.

## Exhibit 14

### Energy Sector 12-Mth Price Momentum Breakdown



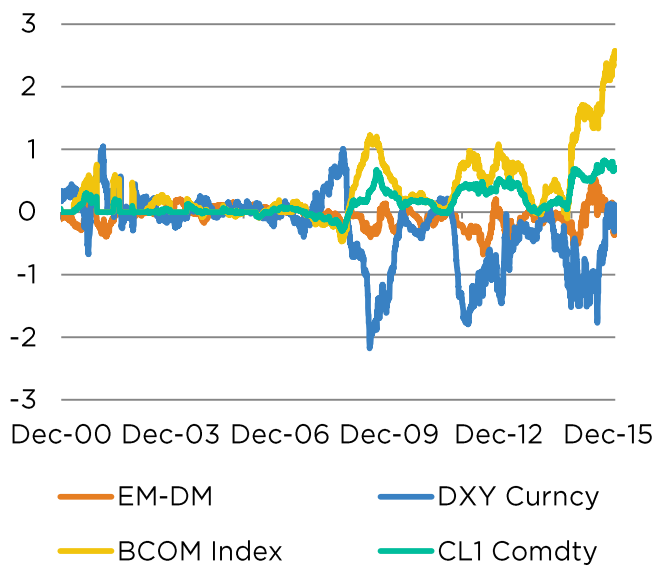
Source: Weiss.



In fact, the rolling beta of the relative Energy laggards performance with crude oil and broad-based commodity baskets is at all-time highs.

### Exhibit 15

*Rolling 252d Beta of Energy Laggards<sup>11</sup> vs. Macro Themes*



Source: Weiss.

## The Importance of Momentum

Momentum is always an important factor to active managers. A Momentum strategy is predicated on the belief that markets do not follow a “random walk” and past returns may be indicative of future returns. More specifically, a cross-sectional Momentum strategy bets that past winners will continue to outperform past laggards without regard to underlying fundamental value. The strategy is rebalanced over time to minimize style drift. Momentum is a strategy employed explicitly by numerous long/short quantitative investors (within and

across multiple asset classes) and is embedded in most smart beta offerings. Even long-only mutual fund managers can incorporate Momentum tilts with the hope of enhancing returns over benchmarks.<sup>12</sup>

As seen above, Momentum is unique because its underlying fundamental characteristics evolve, always reflecting the prevailing “working” theme(s). This is partly why this factor is always important. **After a period of persistent risk-adjusted gains, the factor has the potential to proxy crowded trades.** This is particularly problematic in low breadth environments, as it further reduces the number of independent investment opportunities, and illustrates the increasing scarcity of true alpha. Amid the current economic backdrop, Momentum’s current constituents reflect defensive themes that have worked since May 2015. In fact, the factor also realized its strongest risk-adjusted performance since 2007.<sup>13</sup>

**Exhibit 16** shows the largest net style exposures of a traditional sector neutral, long-term Momentum factor constructed at the end of Jan 2016. **It is tilted towards lower turnover, lower volatility, and lower financial leverage companies which are relatively more expensive, but offer the potential for profitability and growth.**

<sup>11</sup> Laggards are rebalanced monthly and in excess of the S&P 1500 return.

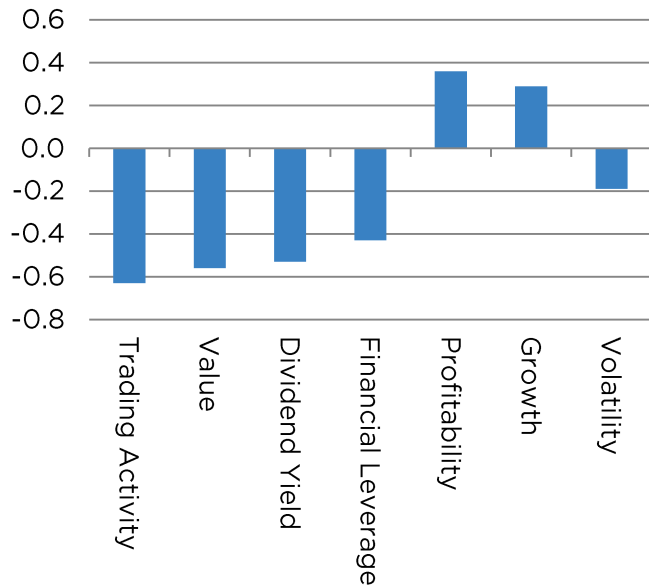
<sup>12</sup> Ilmanen, Antti, *Expected Returns*, 303-305.

<sup>13</sup> See Exhibit 8.

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### Exhibit 16

*Net Factor Exposures of Long/Short 12-Mth Price Momentum*

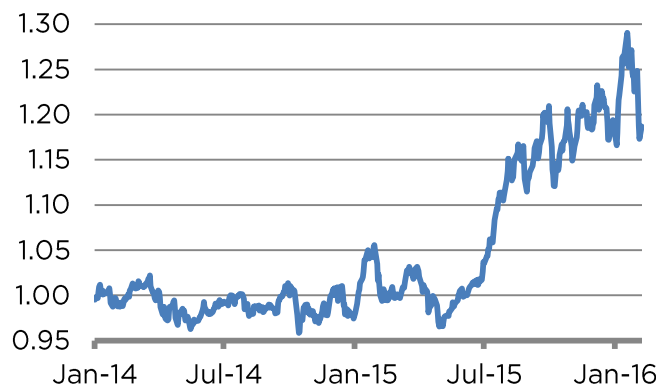


Source: Weiss, Bloomberg.

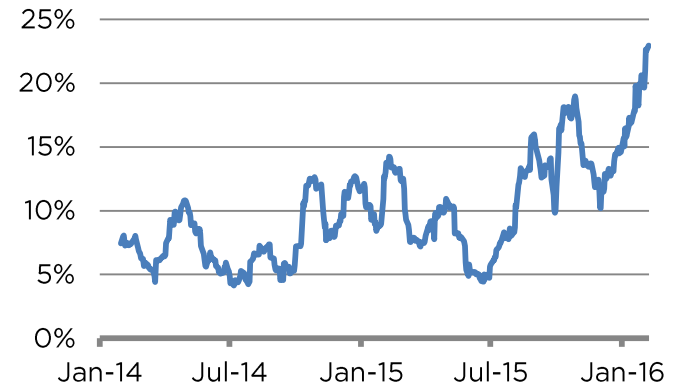
Exhibit 17 shows that Momentum's short-term (20d) risk-adjusted performance remained in positive territory for much of 2H15, but reversed sharply in early 2016.

### Exhibit 17: 12-Mth Price Momentum

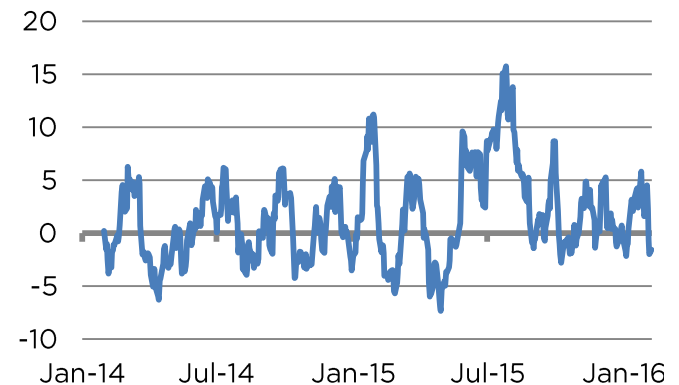
*Cumulative Return*



### *Rolling 20d Volatility (Ann.)*



### *Rolling 20d Information Ratio (Ann.)*



Source: Weiss.

As seen above, cross-sectional Momentum and Quality trades worked brilliantly in 2015 (predominately isolated to 2H15), and frustrated Value investors as relative underperformers turned into “falling knives”. In early 2016 however, the Momentum trade had a sharp sell-off, and many managers that benefitted from Momentum were caught off-guard by the unwind. We believe these violent Momentum reversals may be partly foreseeable. At the very least, it is possible to identify periods when the probability of a reversal is high enough to reevaluate the expected risk/return trade-off for positions with material Momentum exposure. A collapse in market breadth, coupled with persistent outperformance of the Momentum factor

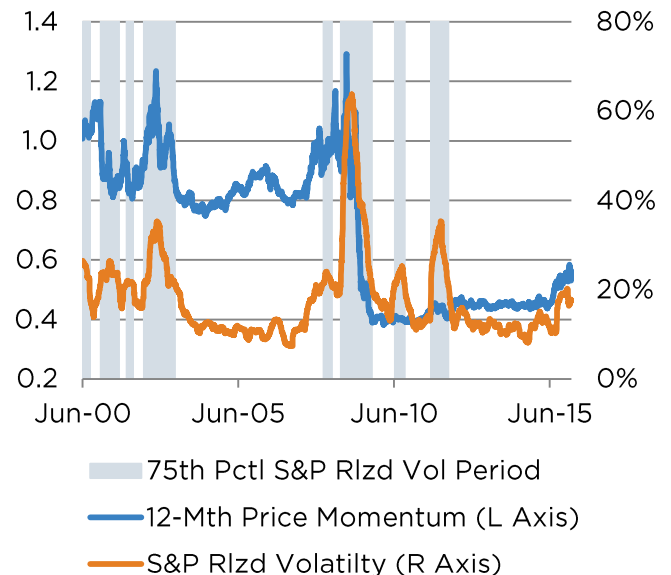
suggests that alternative beta exposure may be becoming increasingly pervasive, and thus Momentum may be susceptible to an unwind.

Historically, the most violent moves in Momentum have occurred in “risk-on, risk-off” environments, when few systematic sources of risk drive market dynamics. The strategy often works in the market capitulation phase when realized volatility elevates (January 2016 is a good example), but reverses contemporaneously with a market rebound. **Exhibit 18** illustrates this point showing Momentum performance against realized volatility regimes of the S&P 500. This behavior can be partly explained by the net beta of the factor. **Momentum laggards by their very nature are often deep value names, and tend to suffer during a stressed market period.** However, when risk appetite returns to the market, these names may be available at a relative discount and often experience strong outperformance. This effect drives Momentum down and is often described as an “unwind”. **The unwind has the potential to be violent, given that a rally in laggards may result in a self-reinforcing short squeeze.**

The unwind in early 2016 was likely exacerbated by reduced liquidity, and crowding in defensive trades. As the trade started to unwind, it created a self-reinforcing vicious cycle that caught many managers off guard. This highlights the need for a forward looking investment process that can help anticipate these crowded factor positions so managers are not caught off-guard when the unwind occurs.

### Exhibit 18

*12-Mth Price Momentum vs. Index Realized Vol.*



Source: Weiss.

This is not to suggest that Momentum investing does not have its merits – in many years Momentum strategies have generated attractive risk adjusted returns (see **Exhibit 8**) and deserve their place in diversified portfolios<sup>14</sup>. However, it is important for managers to recognize the strategy is known to experience infrequent but strong and persistent bouts of negative returns (i.e., the returns to Momentum strategies are negatively skewed). A material exposure to the Momentum factor could well be part of an alpha strategy. The challenge is successfully rotating out of this factor before it goes out of favor.

**Exhibit 19** calculates Momentum drawdown characteristics since the significant unwind that occurred in wake of the Financial Crisis. Despite Momentum’s strong risk-adjusted performance in 2H15, the

<sup>14</sup> At a reasonable cost.

## Exhibit 19

## 12-Mth Price Momentum Drawdowns Since 2010

From	Trough	To	Depth	Length	To Trough	Recovery
Jan 20, 2016	Feb 05, 2016	?	-9.1%	16	13	?
Jan 30, 2015	Apr 30, 2015	Jul 10, 2015	-8.6%	112	63	49
Oct 02, 2015	Oct 09, 2015	Nov 17, 2015	-7.4%	33	6	27
Mar 21, 2014	Oct 15, 2014	Jan 14, 2015	-6.2%	207	145	62
Dec 09, 2015	Jan 04, 2016	Jan 11, 2016	-5.4%	22	17	5
Aug 20, 2015	Aug 31, 2015	Sep 14, 2015	-4.5%	17	8	9
Jan 10, 2014	Jan 27, 2014	Feb 24, 2014	-2.4%	30	11	19
Nov 18, 2015	Nov 30, 2015	Dec 07, 2015	-2.3%	13	8	5
Aug 06, 2015	Aug 10, 2015	Aug 17, 2015	-2.1%	8	3	5
Sep 15, 2015	Sep 16, 2015	Sep 21, 2015	-1.6%	5	2	3

Source: Weiss.

factor was not immune to quick reversals. The impact of these reversals varies across investors and is a function of risk tolerances and leverage. Strategies that are forward looking and liquidity-providing by design can benefit greatly from factor reversals, making most of their P&L in unwinds. Doing so may be critical to producing alpha returns, rather than alternative beta. Given the size and frequency of momentum reversals, it is important to ask: who's in the Momentum trade?

### Who's in this Trade?

#### It's No Longer Just the Quants

Factors have become increasingly popular and institutionalized in recent years. Equity long/short quants, fundamental PMs using new sell-side smart beta products, retail investors in fundamentally-weighted or tilted indices, all add to the assets under management ("AUM") tracking similar investment themes (typically Momentum, Quality, Value and Size).

Alternative beta strategies have become so popular in recent years, *The Economist* reports that nearly \$330bn USD is now invested in these strategies<sup>15</sup>. The simplistic binary classification of strategies into active or passive buckets has been disrupted by the formal arrival of alternative betas. For many of these investable products<sup>16</sup>, portfolio construction is transparent, rules-based, and offered at reasonable fees. Most products (particularly the long-only alt beta variants) offer greater capacity relative to traditional active strategies.

We see this as a natural and welcome progression for many institutional and retail investors, although it does create new risks that need to be considered, one of which is the risk of crowded positions and reduced

<sup>15</sup> "Will Invest for Food", *The Economist*, May 3, 2014.

<sup>16</sup> Smart beta exposure is available through many different investment vehicles, including mutual funds, swaps, structured products, ETFs and traditional institutional portfolios (e.g., separate accounts and commingled funds)

market breadth<sup>17</sup>. A diversified set of strategies that can harvest breadth across time (long and short alpha horizons) and space (asset classes) helps mitigate this risk.

Fundamental active managers may also contribute to crowding in the Momentum trade. As previously mentioned, fundamental bottoms-up analysis may result in a concentrated factor bet if steps are not taken to isolate the idiosyncratic stock selection risk.

Quants have long been explicitly invested in factors. They are both fairly<sup>18</sup> and unfairly<sup>19</sup> blamed by non-quant investors for various market dynamics. Style timing quant strategies have existed since the 1990s, possibly earlier. These strategies are often predicated on positive autocorrelation of styles (proxied by factor baskets<sup>20</sup>) and dynamically allocate across styles based on past factor returns, volatility and covariances.

There are many exceptional quant models in existence right now. They are also fairly simplistic models in use – using similar

alpha models, risk models and portfolio construction methods. A quant model only knows what it is given directly as input and any inferences about the investment landscape it can extract from it (typically supplied by a proprietary machine learning algorithm). Capital market dynamics are so noisy, non-normal and non-stationary that long-term prediction is nearly a lost cause. Shorter-term systems that evolve quickly offer some forecasting accuracy hope.

Simplistic models often predict the future using the recent past and are “driving looking in the rearview mirror.” If the road is straight (e.g., Momentum and Quality continue to be rewarded) the model will deliver alpha. If there is a bend ahead, the model is in trouble. **The primary concern of a naïve trend-following style rotation strategy is that it will remain unaware of the increasing “unwind” risk in a low breadth landscape, and may actually increase exposure to Momentum and Quality as the styles become crowded and exhibit attractive risk-adjusted returns.** This scenario would increase crowding in the trade, and would likely exacerbate an unwind/deleveraging event in a low liquidity environment impacting all investors (knowingly or unknowingly) in the trade.

To help illustrate the risks of converging trades amplifying a common theme, we consider the physical phenomenon known as constructive interference. Constructive interference is observed when two waves with the same frequency traveling in the same direction add together, amplifying the underlying effect. Albeit simplistic, this might be a reasonable

<sup>17</sup> We leave the discussion of whether smart beta strategies can become victims of their own success (as they have only limited capacity to create market-beating returns) to another note.

<sup>18</sup> [The Quant Liquidity Crisis of August 2007](#) was characterized by a quick, crowded factor unwind that underscored the commonality among quant equity market-neutral strategies and the importance of liquidity in determining market dynamics. (Khandani, 2007)

<sup>19</sup> We believe quant strategies are far more heterogeneous than they are often given credit – particularly post-Aug 2007. Strategies differ greatly in terms of alpha horizons and liquidity taking/providing characterization. Some explicitly bet on fundamental factors and their alpha is style timing. Others explicitly neutralize any portfolio exposure to the factors discussed in this note using an optimizer and are theoretically not influenced by these factor dynamics. Time series Momentum strategies (e.g., CTAs) can perform very differently from systematic equity market-neutral strategies.

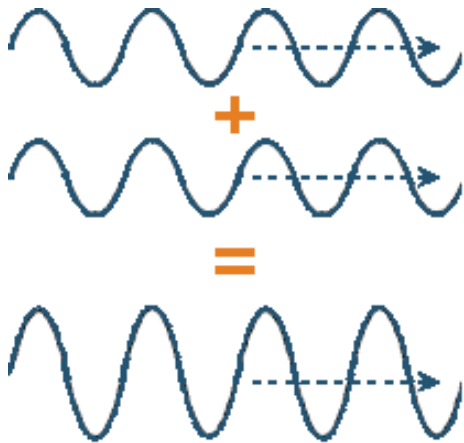
<sup>20</sup> Spanning crude quintile sorted long/short factor baskets to sophisticated statistical factors. The pros and cons of the different approaches are left for another article.

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representation of the current Momentum trade, and how it became increasingly crowded in late 2015 into early 2016.

### Exhibit 20: Seemingly Independent Trades Amplifying the same Underlying Theme

*A lurking risk for active managers?*



Source: Weiss,<sup>21</sup>

The concern is the Momentum trade may currently be a confluence of AUM independently chasing defensive themes. Examples include:

- Traditional Momentum strategies (e.g., a fraction of equity market-neutral quant and smart beta AUM) targeting “working” defensive themes.
- Macro managers using equity baskets to express views that weak oil, strong dollar trends will persist.
- Active managers using inter-sector pairs trades (such as utilities vs. financials) to express a defensive view. Discretionary managers with defensive, Quality positioning who have fared well.

<sup>21</sup> This schematic is for illustrative purposes, and is not based on proprietary Weiss models or other such data.

- Managers that that suffered greatly in 2H15, fighting the defensive trade, that “threw in the towel” with little appetite for risk due to drawdown constraints.

This amplification and crowding into “working” themes is due in part to shrinking alpha. In a low growth, low breadth environment, generating alpha becomes increasingly difficult and many alpha providers find themselves trapped within a factor trade. A better approach may be one that has a forward looking component that seeks to identify crowded themes, and rotate out when the *ex-ante* risk/return profile becomes unfavorable.

### What to do? Expect Volatility and Hedge As Needed

Given the amount of AUM with alternative beta exposure, it is important to keep a close eye on factor exposures within a portfolio. Some hedge fund managers use factor returns to help quantify the magnitude and direction of themes playing out in the equity marketplace. These themes present alpha opportunities as well as sources of systematic risk. It is critically important for active managers to monitor and manage their exposures to factors. As portfolio managers add non-perfectly correlated single-name positions to a portfolio, they (knowingly or unknowingly) shift the portfolio’s idiosyncratic risk to systematic (factor) risk. Without rigorous monitoring, the aggregate portfolio might implicitly represent a handful of factor bets – driving the portfolio’s overall risk/return characteristics<sup>22</sup>.

<sup>22</sup> We believe this effect is typically not intended if it’s a fundamental bottoms-up book.



Forecasting the trigger which starts an unwind in a crowded macro-driven trade is often not the comparative advantage of the traditional fundamental manager. In fact, an unforeseeable non-market related event is a very realistic trigger (e.g., an exogenous shock from an external manager hitting a drawdown limit and being liquidated within a private fund). Fortunately, identifying single-name exposures to Momentum *is* more straightforward<sup>23</sup>. Active investors have options. They can explicitly play a trend reversal using names with high and low factor exposure. More likely, most fundamental bottom-up managers could instead simply limit exposures to Momentum itself (particularly the high Volatility/Beta laggards). This means scaling back Momentum positions (long winners and short losers) and shifting notional into trade ideas that have less Momentum exposure (and likely better risk/reward profiles).

An attractive approach may be one that not only measures factor exposures on an ongoing basis, but also incorporates a forward looking element to identify periods when the ex-ante risk adjusted returns for a given factor become favorable. By taking such an approach, managers can not only avoid crowded and potentially dangerous factor positions, but can also tailor their portfolio to more attractive factors and intelligently manage gross portfolio leverage. Doing so may enable the manager to protect its portfolio during tumultuous

periods, and capitalize when conditions become more favorable. The end result is a portfolio that may afford attractive risk adjusted returns with fewer and less violent drawdowns.

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<sup>23</sup> The calculation of rolling robust betas to publically available tickers, such as DJTMNMO Index, can provide a crude estimate of names with high/low exposure. A more fundamental risk model that assigns single names normalized cross-sectional exposure scores may be even more accurate.



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