



SMART BETA: DEFINING THE OPPORTUNITY
AND SOLUTIONS

BLACKROCK®

FEBRUARY 2015

Smart Beta: Defining the Opportunity and Solutions



“Smart beta is not simply a fund or strategy—it’s a different way of thinking about investing beyond traditional active and passive management.”

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BlackRock**

Smart beta has experienced an epic rise in assets and attention in recent years. As of December 2014, there are estimated to be more than 700 smart beta exchange traded products (ETPs) listed around the globe, comprising of \$529 billion in assets.¹ Smart beta ETPs accounted for 31% and 33% of equity ETP flows globally in 2013 and 2014, respectively.² Flows for institutional versions of smart beta strategies, often delivered via pooled funds and separate accounts, are more difficult to capture but BlackRock estimates a significant footprint among institutional investors as well. Like any nascent category, discussions of smart beta often involve conflicting opinions about its efficacy merit, and even its very definition. But, the concepts of smart beta are not new at all—the notion of capturing systematic sources of returns is one that dates back decades. Among the earlier works examining the role of systematic factors in driving returns are Fama and French, noting the explanatory power of two simple variables—a security’s market capitalization and its Book-to-Market ratio in their seminal white paper in 1992,³ and Mark Carhart, explaining momentum as a persistent investment driver of returns⁴ in 1997. So if these concepts have been understood by investors for decades, why the sudden rise of smart beta?

The emergence of Smart Beta as a defined asset class comes as a result of several trends impacting the investment management industry over the last several years. First, we have witnessed a decade long rise in index investing as investors increasingly embrace the transparency, consistency and low fees offered by passively managed strategies. Second, with the underfunded status of many pension funds and personal retirement accounts, many of the investors drawn to the benefits of passive investing are not ready to give up on the allure of incremental returns offered by active management. Third, advances in communications and technology mean that fundamental data is now available on a wide universe of securities with speed and accuracy. Many insights that historically might have required the subjective evaluation of investment analysts can increasingly be captured in a more systematic fashion. The intersection of these trends has driven the rapid innovation and adoption of smart beta strategies.

1 Source: Morningstar Direct, as of December 31, 2014. Includes all ETPs included within the Strategic Beta category.

2 Source: Morningstar Direct, as of December 31, 2014. Includes all ETPs included within the Strategic Beta category.

3 The Cross Section of Expected Stock Returns, Eugene Fama and Kenneth French, The Journal of Finance June 1992.

4 On Persistence in Mutual Fund Performance, Mark Carhart, The Journal of Finance March 1997.

SO WHAT IS SMART BETA?

Smart beta seeks to improve returns, reduce risks and enhance diversification for investors by delivering exposure to systematic investment factors. By combining characteristics of both passive and active investing, smart beta strategies allow investors to retain many benefits of passive strategies while seeking improved returns or reduced risk. Smart beta is not simply a fund or strategy—it’s a different way of thinking about investing beyond traditional active and passive management.

Many of the concepts behind smart beta are not new—themes like value and quality have long been a part of the stock selection framework for active managers. What is new is the growing recognition that investors can access these sources of potential return in a passively managed strategy. In many ways, it’s simply an evolution in what we think of as passive investing. For the last 40 years, investors have thought of “index funds”—beta—as cap-weighted by definition. But why limit ourselves to the combination of stocks or bonds that happen to be a part of the S&P 500 or the Barclays US Aggregate Bond Index? What is “smart” about smart beta is the notion of reconfiguring the complexion of an index-like portfolio in ways that may enhance returns, reduce risks or capture desirable investment themes.

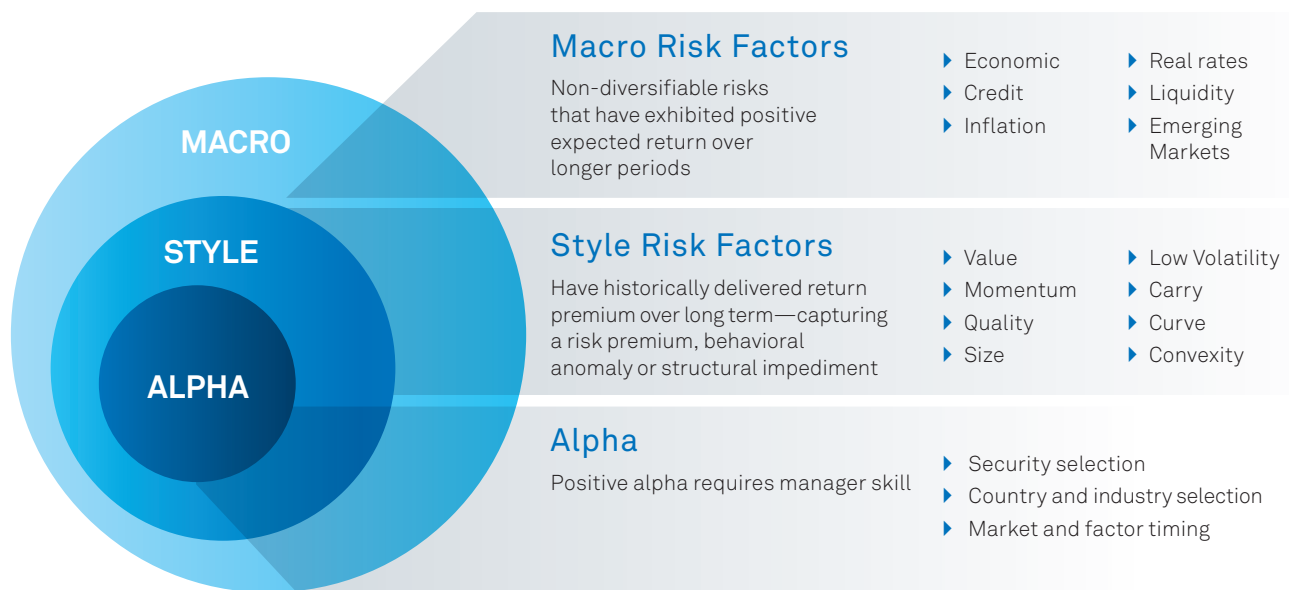
Once we’ve accepted the notion that passive investing need not be cap-weighted, it opens up a new world of possibilities. Recognizing the dominant drivers of risk and return in any asset class provides us with a powerful lens to redefine the exposure we can deliver in passive form. Is there a better way to deliver that exposure, one that improves diversification and risk adjusted return, or takes advantage of known anomalies in the asset class? *This* is smart beta.

EMBRACING FACTORS

The recognition of key drivers of risk and return—or factors—is at the heart of smart beta investing. Factors are investment characteristics that help explain the risk and return behavior of a security. Every asset class has a unique set of factors that influence its returns, and every portfolio is composed of a collection of these factors. For example, stocks in the same industry tend to move together, and stocks with low valuations tend to move together. The commonalities among securities explain a large portion of their total performance.

Certain factors have positive expected total returns over the long run, driven by the powerful forces that shape risk preferences, investor behavior and market structure. Macro-economic risk factors capture non-diversifiable risks that have exhibited positive expected return over longer periods, compensating investors for bearing those risks.⁵ For example, holding nominal bonds exposes the investor to the risk of inflation and the risk of real rates rising.

FIGURE 1: SOURCES OF PORTFOLIO RISK AND RETURN



⁵ Source: Siegel, Jeremy, *Future for Investors* (2005, with updates to 2012)

Within asset classes, there are also commonalities among securities which we refer to as style factors. Certain (not all) style factors have historically delivered a positive expected return over the long term, as a result of a structural or behavioral anomaly that shapes the preferences of investors.⁶ For example, the return-chasing and lottery seeking behavior of investors is believed to drive the over-buying of high volatility and growth oriented names, thereby fueling the out-performance of low volatility and value oriented securities in comparison. Risk factors—both macro and style—can be well captured in transparent, rules-based portfolios. Only active managers can successfully deliver true alpha, and alpha is only (persistently) positive for managers with skill.

The expected positive returns to smart beta factors are not a free lunch. Smart beta investors recognize that there are certain risk premia that have been categorically rewarded, and that there are forces—often powerful ones—that can drive market prices away from fair value in a predictable way. It's worth noting however that even the most powerful forces are not immune to market cycles. The return to the momentum factor or to the credit factor might be positive or negative in a particular month or year. But over a sufficiently long period of time, patient investors can be rewarded for bearing the risk and the discomfort of market cycles. That's the catch: you must be sufficiently patient, or sufficiently diversified.

The good news is that many smart beta factors are generally not well correlated with each other—they are driven by different market anomalies and therefore tend to pay off at different times of the economic cycle.⁷

The low correlations among factors are also consistently stable, even in times of crisis when asset class correlations often converge toward one.⁸ As a result, a factor-based investment lens can provide a unique way to implement investment views, and provide powerful sources of diversification in a portfolio context.⁹ Smart beta allows

investors to capture these themes in a passive package, at a fraction of the cost of traditional active strategies.

The distinct cyclicity of factor returns provides great temptation for timing exposures. Indeed, factor strategies can provide a useful tool for tactically minded investors to get the right exposure at the right time. Like market timing, factor timing can be challenging. For investors that lack the conviction or governance structure to embark upon factor timing, the low correlation among smart beta factors means that diversification across multiple factor strategies can ameliorate the need for timing as one factor may perform well just as another is struggling.

DIAGNOSING PORTFOLIOS

How does this collection of factor exposures come together in a portfolio? Strategies will vary by design, but we make some generalizations in Figure 2 on page 3. We compare the exposures and characteristics of long-only cap-weighted index, smart beta and actively managed portfolios. Long-only smart beta strategies may replicate a published benchmark (most ETF versions do so), while others are simply systematic and transparent in their investment process without necessarily following a published index. Any long-only strategy will include sizable exposure to related macro factors—without the ability to short, the macro risks associated with those securities is non diversifiable by definition. Traditional cap-weighted index strategies also include some incidental style factor exposures, but those exposures are neither deliberate nor pronounced (and can include large exposures to less desirable factors as well.) In contrast, smart beta portfolios can provide more deliberate and focused exposure to those desirable factors [for more on the notion of tactical and completion strategies, see the portfolio analysis on page 8]. Traditional active portfolios will contain (again, by virtue of the long-only constraint) exposure to macro factors and generally some amount of exposure to style factors.

6 Published research showing the historical outperformance of these factors includes:

- Value: J. Lakonishok, A. Shleifer, R. Vishny, "Contrarian Investment, Extrapolation, and Risk." *Journal of Finance*, 1994.
- Momentum: N. Jegadeesh and S. Titman, "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance*, 1993.
- Quality: R. Sloan, "Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings." *Accounting Review*, 1996.
- Low volatility: R. Clarke, H. Silva and S. Thorley, "Minimum-Variance Portfolios in the U. S. Equity Market," *Journal of Portfolio Management*, 2006.

7 Based on MSCI Factor Index Returns. Source: MSCI, as of 12/31/14.

8 Based on MSCI Factor Index Returns. Source: MSCI, as of 12/31/14.

9 Diversification may not protect against market risk or loss of principal.

FIGURE 2: COMPARING CHARACTERISTICS ACROSS PASSIVE, ACTIVE AND SMART BETA STRATEGIES

	Long Only			Long/Short	
	Cap-Weighted Index	Smart Beta	Actively managed	Smart Beta	Actively managed
Exposure to macro factors	High	High	High	Low	Varies by design
Exposure to style factors	Low	Moderate	Moderate	Highest	Varies by design
Potential for out-performance	None	Moderate	Moderate to high	High	High
Turnover and trading costs	Low	Low	Moderate to high	Low	High
Liquidity and capacity	High	High	Low to moderate	High	Low
Transparency	High	High	Low	High	Low
Leverage and shorting	None	None	None	Yes	Yes

For example, in a sample of the 138 global equity managers in the eVestment Alliance database, on average 35% of active risk can be explained by style factors. For a third of global equity managers, more than half of their risk can be explained by style factors.¹⁰ Combining multiple active managers results in even larger average exposure to factors as security specific risk is reduced by diversification. Smart beta strategies generally have turnover, trading costs, liquidity and capacity levels that fall between that of a cap-weighted index and traditional active strategies.

We also include long/short strategies in our exhibit. It may seem like a contradiction in terms to take the beta out of smart beta—but investors that can accept leverage and shorting can better access the full potential of smart beta investing. As we discussed above, any long only smart beta portfolio includes a hefty amount of exposure to macro factors—in other words, the strategy's *relative* returns may be skewed to the desired factor(s), but the total return will remain largely determined by market moves. Long/short forms of smart beta allow investors to access a more pure form of the desired factor(s), aiming to hedge out incidental exposures to other macro or style factors and providing a truly diversifying source of potential returns.

ENSURING IT'S ACTUALLY SMART

As we discussed, smart beta portfolios lie in a spectrum between traditional index and active portfolios. By definition, smart beta portfolios must be rules-based and transparent. This transparency is a necessary but insufficient criteria—to merit the “smart” moniker, the strategy must also demonstrate the ability to create value for investors, have a strong sense of economic intuition, provide a source of diversification and be efficiently implemented.

Value Creation

The notion of value creation is one that is often left out of the smart beta discussion. A simplifying generalization would be to say that the category can include any index strategy that's not cap-weighted. However that temptingly simple definition would include a wide variety of ill-formed strategies that have no place in the long term holdings of investors. BlackRock seeks to develop smart beta strategies that capture *value-creating* ideas, isolating factors that have historically exhibited positive expected risk-adjusted returns. For example, we could create a non-cap weighted index portfolio that emphasizes low volatility names, or one that emphasizes high volatility names. A high volatility portfolio may generally outperform in upward trending markets like 2013, but over the longer term there is vast evidence that low volatility securities have had a higher risk-adjusted return than their high volatility peers (contrary to what efficient market theory would suggest.¹¹) The high vol strategy might be a good trade in certain environments—potentially a useful tool for investors that want to time the market—but we believe it's a value *eroding* strategy over the long term.¹²

Economic Intuition

Smart beta strategies are often maligned as data mining exercises, and indeed it may be tempting to “snoop” amongst the data to find the definition that yields the most attractive backtest. Trendy trading strategies that are over-fit to historical data may quickly vanish and fail to deliver returns in the future. One way to ensure that yesterday's data is helpful in forecasting tomorrow's returns is to rely upon well-understood ideas that are based on strong economic intuition and a wide body of academic evidence. This provides us with an understanding of what is driving performance, when it may perform well or poorly, and under what conditions it might stop working altogether. There are many academic theories that evaporate in practice, so strong empirical evidence must confirm that the theory is borne out in the data—but a good rule of thumb is not to look at the data without an understanding of the intuition.

10 BlackRock, *Making Smart Decisions about Smart Beta*, October 2014.

11 Source: MSCI, BlackRock.

12 Does it ever make sense to consider strategies with a negative expected return? Certain strategies have an insurance-like payout, with small negative returns in most months and an occasional very large return, often in times of crisis. This kind of left-tail protection can be attractive to investors particularly in the context of a well-diversified multi-factor strategy. Certain investors may also be interested in exposures that help them hedge risk in their portfolios, even if the exposure in isolation has a negative expected return over the long term.

Diversification

Diversification is an important criteria for smart beta portfolios along several dimensions. First, smart beta strategies should help isolate factors or themes that are not well captured in core asset classes, providing a source of diversification for investors. Similarly, when identifying potential smart beta factors we look for ideas we have not already captured: for example, a value strategy tends to favor securities with higher dividend yields. A combination of Value and Yield is therefore not particularly diversifying.

Smart beta strategies should also themselves be sufficiently diversified, that is, not overly concentrated in any individual security, sector or country. Straightforward heuristic methodologies—like equal weighting—may be attractive in their simplicity but can often lead to concentrated sector positions and unintended risks. Additional portfolio constraints may be useful to ensure strategies are well diversified across countries, sectors and individual positions.

Efficient Implementation

Lastly, potentially most importantly, is the issue of implementation. Smart beta strategies should be

formulated to ensure reasonable levels of turnover and transactions costs. There may be attractive sources of return that are simply too “fast” to efficiently capture in an index-like portfolio. We believe those higher-frequency ideas are likely best left to active managers that have more discretion around trade timing and execution.

Nonetheless, skilled portfolio management is critical for any index strategy. That importance is magnified for smart beta strategies as a result of their higher turnover and generally less advantageous liquidity profile compared to cap-weighted index strategies. Further, many smart beta strategies are new and have not been road tested by investors. It is therefore critically important that smart beta strategies are implemented by portfolio managers with a rich understanding of the minutia of benchmark methodology and the context of global capital markets. It’s this nuanced balancing of return, risk and cost that helps ensure the investor’s total performance experience matches the strategy’s intended outcome. The portfolio manager should act as an extra line of defense for smart beta investors—managing liquidity challenges and minimizing transactions costs, and advocating the best interest of investors to ensure smart beta indices are accurate, diversified and replicable.

FIGURE 3: A SMART BETA CHECKLIST

Value Creation	Does the factor generate positive expected returns over the long term?	
Economic Intuition	Is the factor based upon strong economic intuition and academic evidence?	Is the theory backed by strong empirical evidence?
Diversification	Does the factor have a low correlation with core asset classes?	Does the factor have a low correlation with other smart beta factors?
Efficient Implementation	Can the factor be efficiently captured in a transparent and rules based manner?	Can the factor be implemented with reasonable trading costs and a high degree of capacity?

WHAT ARE BLACKROCK'S SMART BETA FACTORS?

Equity	Fixed Income	Currency	Commodities
<ul style="list-style-type: none">▶ Value▶ Momentum▶ Size▶ Quality▶ Low Vol	<ul style="list-style-type: none">▶ Carry▶ Curve▶ Convexity▶ Momentum	<ul style="list-style-type: none">▶ Carry▶ Value▶ Momentum	<ul style="list-style-type: none">▶ Carry▶ Momentum

What are the factors that meet the criteria we've laid out? There is a fair bit of agreement across the industry that the attractive drivers of equity returns include value, momentum, size, quality and low volatility. Equities also have the benefit of being significantly more transparent and liquid than many other asset classes, such as investment grade credit. There are a wide variety of strategies—both exchange traded and privately offered, that target the equity factors mentioned here, either in single factor form or packaged as multi-factor strategies.

It's not surprising that concepts like value and momentum work in other asset classes—if under-valued equities tend to out-perform their expensive peers, why wouldn't the same be true for bonds, or currencies? However, the world of smart beta is far more nascent outside of equities with less agreement on relevant systematic sources of return. Identifying and capturing potential factors can be far more challenging in other asset classes. Many non-equity

markets trade OTC, making pricing and historical data less transparent. The estimation of even straightforward factors is often predicated on important assumptions—for example, curve strategies in fixed income require an estimate of the yield curve. Finally, often a hefty amount of turnover and leverage may be required to effectively capture non equity factors, potentially limiting their efficacy in long only exchange traded vehicles. The graphic is by no means exhaustive of every potential factor in every asset class, but illustrative of the style factors that are attractive in equities, fixed income, currencies and commodities.

While many smart beta discussions focus on the kind of style factors we have summarized here, there may be other return drivers that are unique to certain asset classes and provide a useful tool for rethinking how we deliver exposure to certain asset classes.

PUTTING SMART BETA TO WORK

The proliferation of smart beta strategies can make it challenging to understand the potential role smart beta can play in investor portfolios. Some strategies are focused on delivering exposure to a single smart beta factor, and others provide exposure to several factors (intended or otherwise!). Some forms of smart beta are not explicitly anchored to factor investing, instead focusing on using the smart beta toolkit to seek specific outcomes or more efficient versions of exposure to a particular asset class. At the risk of over-simplifying, we divide the world of smart beta into two types of strategies: precision tools and solutions. Some investors are more tactical by nature and prefer to build custom portfolios for themselves. Single factor funds, for example, provide a toolkit to express an investment view. Other investors are more interested in well diversified strategies that have been devised by an asset manager or index provider that seeks to perform well in a variety of market environments. Multi-factor strategies or credit screened fixed income strategies are examples of smart beta solutions that are designed to be a part of investors' long term core holdings.

Regardless of the strategy, the goal of smart beta portfolios is to seek incremental returns or reduce risk. Summarized below are the most common use cases for smart beta:

- ▶ **Complementing traditional passive strategies:** As more investors embrace the benefits of passive investing (and that part of the portfolio grows), it's not surprising that many investors are interested in using smart beta as a way to make that part of the portfolio more efficient—often seeking to improve returns, reduce risk or enhanced diversification relative to cap-weighted index strategies. Many investors use index-based smart beta solutions as a complement to existing cap-weighted index strategies, often replacing 25 – 50% of existing index allocations with smart beta allocations.¹³
- ▶ **Complementing traditional active strategies:** As investors further scrutinize their allocations to active management, many consider reducing the number of active strategies employed to simplify the manager line up, reduce costs and improve the consistency of performance. A combination of high conviction active strategies and traditional passive strategies is increasingly complimented

with smart beta. Often smart beta strategies act as a substitute for low-risk active strategies, retaining the potential for incremental returns while increasing transparency and lowering costs.

Many readers will note that our first two use cases are really two sides of the same coin—in complementing existing active and passive strategies, most investors seek well-diversified (often multi-factor) smart beta solutions that offer the potential for higher risk adjusted returns and may perform well in a variety of market conditions.

- ▶ **Implementing investment views:** For investors that are more tactical in nature, smart beta strategies can provide a novel tool to implement investment views. Just as many investors make tactical adjustment to country or sector allocations, factor-focused strategies provide another tool to express a market view.

Certain factors are naturally pro-cyclical, such as value, size and momentum, while others are naturally counter-cyclical, such as minimum volatility and quality. For example, if we look over the last two years when the standard MSCI World advanced by nearly 33% (as of December 31, 2014),¹⁴ it's no surprise that momentum oriented strategies have been the best performing, and low volatility have been the worst performing over the full two year period. However, low volatility strategies provided some much needed downside protection during market corrections—the MSCI World Minimum Volatility Index out-performed the standard MSCI World by just over 5% between Sept 19 and Oct 17 of 2014, with Min Vol being the strongest performing equity factor for the calendar year.¹⁵

Factor strategies can therefore be a useful tool to express market views. For example, after three years of double-digit equity market returns, investors may consider an allocation to Minimum Volatility strategies in 2015 as a way to maintain an equity over-weight while seeking to reduce the total risk of the equity portfolio.

- ▶ **Forming completion strategies:** Many investors seek to understand their aggregate exposure to risk factors, including smart beta factors. Often the accumulation of multiple managers (either active or passive) can result in aggregate exposures that don't reflect the investor's desired positioning or current investment view.

¹³ Source: BlackRock.

¹⁴ Source: MSCI, based upon MSCI World performance.

¹⁵ Source, MSCI, Factset, based upon MSCI Factor Index performance.

For example, Figure 4 below illustrates a completion case study for a US equity portfolio. In this example, the investor has a large cap US equity portfolio comprised of several actively managed strategies. In aggregate, the active portfolio has a significant bias to large cap, high quality and value oriented companies, and a bias towards less momentum oriented companies relative to the standard MSCI US Index. Our investor would like to round out their aggregate US equity position by adding additional exposures to Quality and to Momentum. In the combined model portfolio, we add a 20% allocation to each of the MSCI Quality Index and the MSCI Momentum Index to implement the desired factor exposure.

Armed with an understanding of the portfolio's aggregate exposures, smart beta factor strategies allow investors to fine tune their exposures, reducing unintended risks and resulting in a more deliberate allocation to potential sources of risk and return.

Of course, the world is rarely black and white. Many investors use smart beta as a partial replacement for both active *and* passive strategies, or for both long-term strategic allocations and as a tool to implement tactical views. Those that embrace a factor-based view of the world and consider completion strategies are also very likely to use those tools to over- and under-weight factors on a more tactical basis. In other words, the role of smart beta is very much determined by the circumstance and goals of each investor.

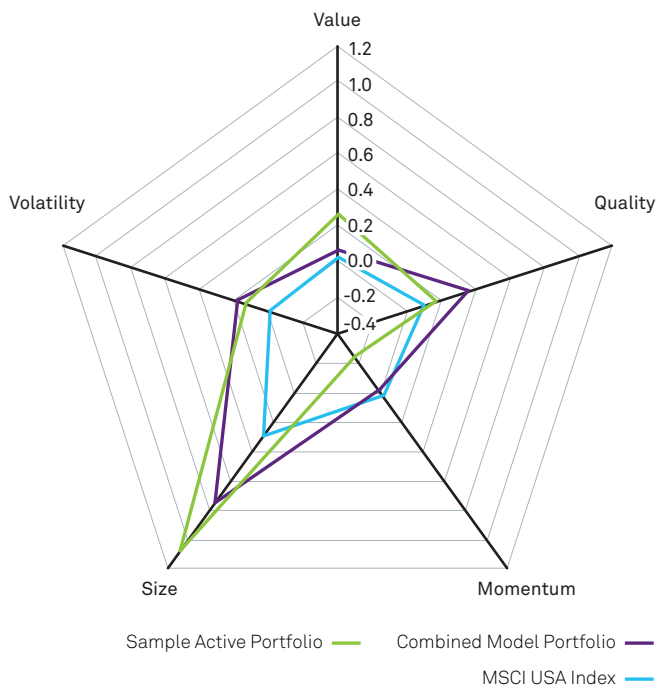
LOOKING TO THE FUTURE

What's next in the world of smart beta? There is now a proliferation of equity smart beta strategies for investors to consider. Asset managers, index providers and consultants will increasingly be called upon to help sort the wheat from the chaff, and to help clients understand how to use smart beta strategies in the context of their own investment goals. Bridging the gap from traditional asset allocation to a more factor-based mindset is likely to be a multi-year process.

Beyond equities, the category of smart beta remains in its infancy. The next generation of smart beta will likely include more in fixed income, multi-asset solutions and alternatives smart beta, as well as intelligently combining smart beta factors to seek outcome-oriented goals. While most smart beta strategies today are long-only, long-short versions may harness the true power of factor-based investing.

We firmly believe that smart beta can potentially improve investment results—as a tool to seek incremental returns or reduce risk, and as a means to enhance transparency and lower costs. Smart beta provides investors with a blend of active and passive investing, often delivering many of the themes present in active portfolios at a fraction of the cost, with consistency and transparency. All investors may benefit from including smart beta in their portfolios—we should consider seeking returns from all available sources: from passive management, from active management, and from smart beta.

FIGURE 4: SAMPLE PORTFOLIO FACTOR ANALYSIS



Source: Bloomberg PORT as of 1/22/2014. Quality is proxied by the Bloomberg Profitability factor.



Index returns are for illustrative purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index. Past performance does not guarantee future results.

There can be no assurance that performance will be enhanced for funds that seek to provide exposure to certain quantitative investment characteristics ("factors"). Exposure to such investment factors may detract from performance in some market environments, perhaps for extended periods. In such circumstances, a fund may seek to maintain exposure to the targeted investment factors and not adjust to target different factors, which could result in losses.

The strategies discussed are strictly for illustrative and educational purposes and should not be construed as a recommendation to purchase or sell, or an offer to sell or a solicitation of an offer to buy any security. There is no guarantee that any strategies discussed will be effective.

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