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Beyond Beta

Systematic alternative risk premia-based strategies can offer exposure to return sources that can be strongly diversifying and to factors that have historically been rewarded over the long-term.

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Investors facing low expected return and higher risk from traditional asset classes, and the perennial challenge of finding and maintaining sources of pure alpha in their portfolios, are increasingly turning to Alternative Risk Premia strategies to meet their goals. By systematically capturing the returns associated with different investing styles or strategies, such as Value and Momentum, these strategies can potentially provide reliable long-term returns that are very weakly-correlated to traditional asset classes, and cheaper and easier to find than genuine alpha. This paper describes the qualities of Alternative Risk Premia, where they might sit in a portfolio, and the implementation challenges they pose, among other topics pertinent to long-term investors who are considering these strategies.

Over the long term, strategic allocations to the traditional investment categories of stocks and bonds have been expected to be the key return driver for investment portfolios. Looking across the global economic landscape, however, low interest rates, low inflation, and low-to-moderate economic growth have led to reduced expectations for returns from traditional investment categories. At the same time, risks in the investing landscape have become increasingly complex and interconnected.

Given this environment, investors seek solutions that can both improve expected returns and increase diversification in their portfolios. If traditional betas (market risk premia) are not the answer, perhaps they could turn instead to uncorrelated and idiosyncratic skill-based returns, or "alpha"? Adding allocations to active managers to provide alpha can certainly help with this problem. Pure alpha, however, can be hard to find, difficult to access, capacity constrained, expensive, or even (according to the most skeptical investors) nonexistent.

Neither traditional beta nor elusive alpha is likely to provide the complete solution. However, the new category of Alternative Risk Premia strategies—which straddle the line between beta and alpha—could help investors meet their goals during these challenging times.

> "Neither traditional beta nor elusive alpha is likely to provide the complete solution in these challenging times."

Alternative Risk Premia strategies can provide investors with a straightforward way to harvest diversifying sources of return that are not typically separated out from traditional investment strategies or asset classes. Although this overly simplistic description may appear akin to alpha, and may even be "alpha" to many investors, Alternative Risk Premia typically can be captured in a rules-based or disciplined systematic approach, and can be accessed via liquid and relatively low cost strategies. Thus, manager or portfolio performance can be broken down into beta (market exposure), alternative beta (other systematic market or factor exposures), and alpha (the portion of returns not captured by betas and alternative betas).

"Most Alternative Risk Premia have been employed by practitioners for decades, but have not been offered as stand-alone investment strategies until recently."

For investors looking to diversify their traditional beta exposures, and bridge the gap towards alpha strategies, Alternative Risk Premia strategies can be important tools to gain access to unique exposures that have the potential to improve both the diversification and the performance of their portfolios in an efficient, cost-effective fashion.

WHAT ARE ALTERNATIVE RISK PREMIA?

The theory behind Alternative Risk Premia is that there are persistent and intuitive sources of return available to investors that are not derived from pure market exposure. These sources of return are thought to be compensation for bearing specific risks; importantly, while the magnitudes of the benefits of the risk premia have varied over time, they have neither disappeared nor been arbitraged away. Most have been thoroughly researched by academics and employed by practitioners (in one form or another) for decades, but have not been offered as stand-alone investment strategies until recently.

Alternative Risk Premia strategies seek to provide investors with exposure to these sources of positive long-term returns using an efficient and systematic process. Traditional beta, or market exposure, can easily be captured in low cost and straightforward ways, through vehicles such as index funds or other passive investments. Neither Alternative Risk Premia nor alpha is so readily available. Alternative Risk Premia, however, can generally be captured more reliably and less expensively than alpha.

Researchers have identified many different types of Alternative Risk Premia, ranging from investing "styles" to hedge fund strategies and even beyond, to more niche and idiosyncratic investments. The most familiar, exhaustively researched, and widely utilized Alternative Risk Premium is likely the Value premium. Other familiar styles or factors, such as Momentum (both cross-sectional and directional) and Carry, can be characterized as Alternative Risk Premia, as can less prominent styles such as Low Beta, Quality, and Size. Other Alternative Risk Premia can include Volatility, Correlation, Illiquidity, Arbitrage (convertible bond, merger, capitalization structure), and even that associated with Insurance-Linked Securities (catastrophe risk premia).

FIGURE 1: EXAMPLES OF ALTERNATIVE RISK PREMIA

Risk Premia	Type
Value	Style/Factor
Momentum	Style/Factor
Carry	Style/Factor
Size	Style/Factor
Quality	Style/Factor
Low Beta	Style/Factor
Volatility	Investment Strategy
Correlation	Investment Strategy
Illiquidity	Investment Strategy
Arbitrage (convertible bonds, mergers, capitalization structure, other corporate actions)	Investment Strategy
Insurance-Linked (catastrophe or event risk)	Investment Strategy

Source: Neuberger Berman.

We think it is useful to categorize these Alternative Risk Premia into two primary groups: style- or factor-based risk premia and investment strategy-based risk premia. Value investing, to take the best-known, is accessed simply through buying assets that are cheap (or undervalued) while selling assets that are expensive (or overvalued). By contrast, merger arbitrage, which is one of the best-known investment strategy-based risk premia and involves buying the targets of corporate acquisitions and selling the acquirers, is not as simple. That does not mean that merger arbitrage strategies cannot be implemented systematically: a rules-based strategy could be applied across a subset of all active merger announcements that meet certain expected risk-adjusted return characteristics, such as a minimum spread between the target's current price per share and the acquisition price per share.

For the purposes of this paper, we will focus on the aforementioned familiar style-based risk premia, Value and Momentum, for several reasons. These premia are among the most well recognized and widely researched of the known Alternative Risk Premia, and the reasons for their existence are intuitive. They are also relatively simple to measure and implement in a transparent and systematic framework, a point that, in our view, should not be overlooked or underemphasized. Furthermore, these premia have been pervasive across asset classes, markets, geographies, and time periods. We do not include the Size factor in this paper, even though it is very well-researched, as its existence as a risk premium is debated, it is not relevant across all asset classes and, in some instances, it may be interchangeable with an Illiquidity risk premium.

DEFINING ALTERNATIVE RISK PREMIA

"It is crucial to define risk premia, and understand why they might exist currently and prospectively."

In order to understand the efficacy of Alternative Risk Premia strategies, it is crucial to define the different risk premia, know how to measure them, and understand why they might exist currently and prospectively. Understanding the existence of a risk premium is particularly important in defining that premium as a potential investment category. Returns due to a suspected risk premium that does not have sufficient evidence or theory to support it may mean that the returns are the result of data-mining and are not representative of an actual risk premium.

There are several explanations for the existence of risk premia, most notably risk-based explanations, behavioral-based explanations, and structural-based explanations. Value and Momentum risk premia have multiple robust explanations for their existences.

Value investing involves buying assets that are cheap (or undervalued), and selling assets that are expensive (or overvalued), and can be extended beyond stocks to fixed income, currencies, and even commodities. The Value premium may exist as compensation for bearing default risk, or because investors tend to bid up growth stocks by over-extrapolating their potential.

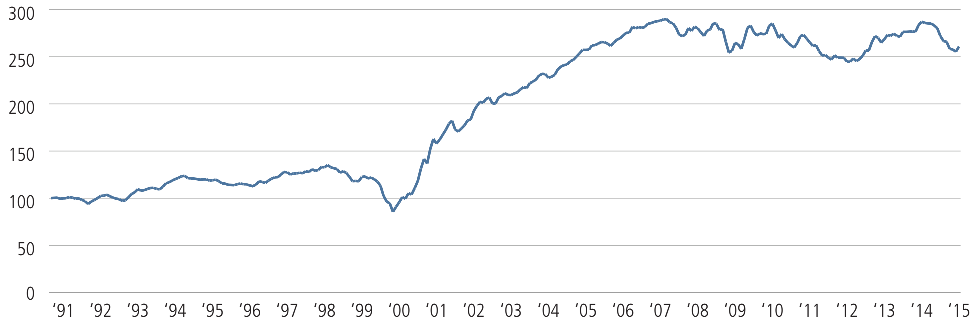
Momentum investing is simply buying assets that are improving (or outperforming) and selling assets that are deteriorating (or underperforming). The Momentum premium—which can also be applied to all asset classes in both its relative value and directional constructs—may exist because investors tend to follow trends and create positive feedback loops.

The simplest application of Value in stock markets is to sort stocks based on fundamentals relative to price, such as book value to price, and buy cheap stocks and sell expensive stocks. Applying a Momentum strategy can be very straightforward. In a relative value or cross sectional framework, a momentum investor would buy outperforming stocks (winners) and sell underperforming stocks (losers) based on their price changes over a certain time horizon; in a directional framework, a momentum investor would buy positively performing stocks and sell negatively performing stocks.

The data used to illustrate the returns to the Value and Momentum risk premia in figures in this paper represent Fama/French[1] global factors for stocks from January 1991 – April 2015: high-minus-low (HML) is used for Value, and winners-minus-losers (WML) is used for Momentum. While these data series are not reflective of actual investment returns, they are simple factors constructed using a disciplined methodology and in our view can be used as proxies for Alternative Risk Premia.

FIGURE 2: PERFORMANCE OF VALUE IN GLOBAL STOCKS JANUARY 1991 – APRIL 2015

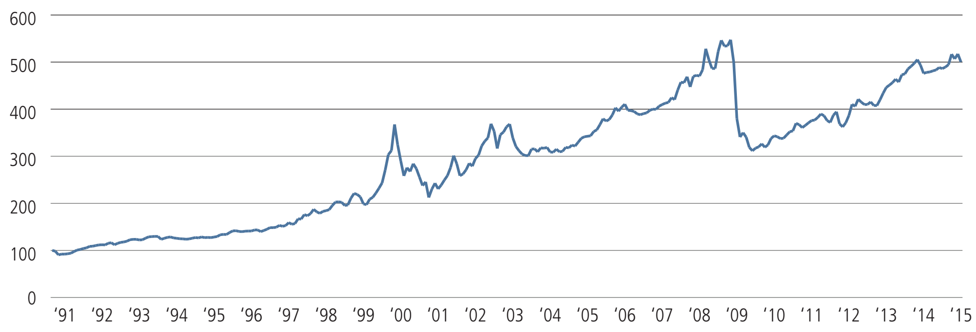
Returns to the high-minus-low (HML) Fama/French factor for global stocks, rebased to 100



Source: Kenneth R. French Data Library; Neuberger Berman.

FIGURE 3: PERFORMANCE OF MOMENTUM IN GLOBAL STOCKS JANUARY 1991 – APRIL 2015

Returns to the winners-minus-losers (WML) Fama/French factor for global stocks, rebased to 100



Source: Kenneth R. French Data Library; Neuberger Berman.

[1] Eugene Fama and Kenneth French posited their "three-factor" model of returns to stocks by adding the value and size factors to the single market factor used in the Capital Asset Pricing Model (CAPM). See Fama, E. F. and French, K. R., "Common Risk Factors in the Returns on Stocks and Bonds", *Journal of Financial Economics* 33.1 (February 1993). In 1997 Mark Carhart described a fourth factor, monthly momentum, in his paper, "On Persistence in Mutual Fund Performance", *The Journal of Finance* 52.1 (March 1997). This factor was later adopted by Fama and French.

"While identifying and capturing Alternative Risk Premia is uncomplicated, constructing a portfolio of Alternative Risk Premia is more challenging."

IMPLEMENTING ALTERNATIVE RISK PREMIA

While identifying Alternative Risk Premia and defining ways in which to capture them are uncomplicated, the actual construction of a portfolio of Alternative Risk Premia is a more challenging endeavor, as this process generally requires the three scariest words in finance: shorting, derivatives and leverage.

Many investors look to capture some of these premia, such as Value, with allocations to long-only, benchmark-relative equity portfolios. This type of approach, known as "Smart Beta", has become increasingly popular in the investment community. However, this implementation provides, at best, a slight style or factor tilt. In a long-only construct, investors can only express their negative view on an asset by underweighting it or not holding it. In this manner, they capture just a portion of the available risk premium while also retaining the directional or beta exposure of the market. In being able to go both long and short, an investor can fully express negative views and capture the majority of the available risk premium. Being hedged in this manner also provides significant diversification from the traditional market risk premium available in that asset class.

The evidence for this can be seen by comparing the performance of long-only smart beta factor indices with the relevant market index. As shown below in Figure 4, the majority of the variation in returns for the MSCI World Value, Momentum, Quality, and High Dividend Yield factor indices can be explained by the MSCI World Index itself. This does not mean that long-only smart beta or factor tilted strategies are poor investments; however, due to the long-only constraint imposed on these strategies, they are unable fully to capture the unique risk premia associated with their factors in the way that a long/short construct can.

FIGURE 4: BETA OF MSCI WORLD FACTOR INDICES TO THE MSCI WORLD JANUARY 1991 – APRIL 2015

Beta coefficient, monthly returns

	Beta to the MSCI World
MSCI World Value Weighted	1.01
MSCI World Momentum	0.93
MSCI World Quality	0.87
MSCI World High Dividend Yield	0.85

Source: FactSet; Neuberger Berman.

> "As well as shorting, effective Alternative Risk Premia investing also requires the use of derivatives and leverage."

In addition to short selling, we believe that efficient and liquid implementation of Alternative Risk Premia investing generally requires the use of derivatives and leverage. Given the low correlation to traditional asset classes and the hedged nature of Alternative Risk Premia strategies, a certain level of risk must be attained in order to make them matter within the context of a larger portfolio. In our view, derivatives are a requirement for gaining meaningful exposures and maximizing the risk premia captured because they can enable investors to take economic leverage in a relatively prudent manner.

Constructing a portfolio that uses shorting, derivatives, and leverage adds significant complexity that may be a potential obstacle for some investors. It requires stringent risk management practices and significant experience with managing complex risk-controlled portfolios. Further, the sophisticated infrastructure needed to execute these investments properly is often unavailable outside of experienced global multi-strategy, multi-asset class investment managers. An additional consideration is determining a weighting scheme for employing multiple cross-asset risk premia within a portfolio. Given the characteristics of Alternative Risk Premia strategies, traditional optimizations may result in impractical portfolios. Balances must be struck between risk contribution, return potential, breadth, liquidity, and a host of other factors, making the portfolio construction for these strategies potentially intricate.

WHAT BENEFITS CAN ALTERNATIVE RISK PREMIA BRING TO A PORTFOLIO?

In our view the majority of investors are likely under-exposed to Alternative Risk Premia, and surprisingly so with regard to the two simple and well known risk factors mentioned previously: Value and Momentum.

Long-only investors often employ biases towards these factors in their investment processes, but, as we saw with the Smart Beta products, factor tilts have not captured the available risk premia in a meaningful way. Many of these risk premia are found in hedge fund investments, entangled with and even indistinguishable from traditional (especially equity) beta exposures as well as pure alpha. Dedicated exposure to Alternative Risk Premia rarely has its own allocation within portfolios.

We have seen that Alternative Risk Premia can generate returns—in theory, and empirically in Figures 2 and 3. But what other benefits might they bring to a diversified portfolio?

A key feature of Alternative Risk Premia strategies is that they may have lower sensitivity to macroeconomic risk factors than traditional asset classes. This should make intuitive sense given that these strategies invest both long and short, not taking directional bets on macroeconomic factors such as growth, inflation or interest rates, which can be return drivers of traditional asset categories. Therefore, Alternative Risk Premia strategies may help mitigate these risks and act as a hedge against potential shocks.

This characteristic also helps explain why Alternative Risk Premia strategies generally demonstrate low correlation to traditional asset classes, such as stocks and bonds, as well as other "alternative" asset classes. As such, they can be powerful portfolio diversifiers. Not only can these strategies be additive to a portfolio's long-term returns, but they can also reduce a portfolio's overall risk profile (particularly in volatile market environments), leading to an improved Sharpe ratio and smaller drawdowns. Figure 5 shows what happens to long-term risk and return when Value and Momentum are mixed together, and then mixed with a global equity portfolio.

FIGURE 5: PORTFOLIO STATISTICS: JANUARY 1991 – APRIL 2015

Fund	Value (HML)	Momentum (WML)	50% Value/ 50% Momentum	MSCI World	70% MSCI World/ 15% Value/ 15% Momentum
Annualized Returns	4.0%	6.8%	5.8%	8.1%	7.8%
Annualized Vol	8.0%	13.7%	7.0%	14.7%	9.9%
Return/ Risk Ratio	0.50	0.50	0.83	0.55	0.79
Maximum Drawdown	-36.8%	-43.1%	-22.9%	-53.7%	-39.8%

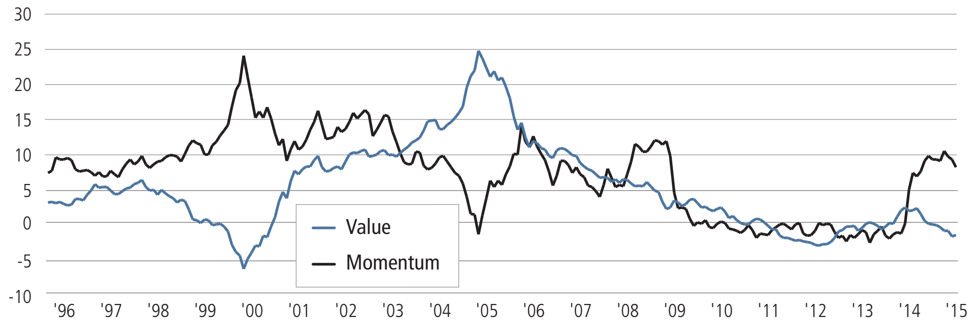
Source: Kenneth R. French Data Library; FactSet; Neuberger Berman.

"One of the essential characteristics of Alternative Risk Premia is that each not only diversifies against most asset classes, but also against other Alternative Risk Premia."

One of the essential characteristics of Alternative Risk Premia is that each individual premium is not only diversifying against most asset classes, but also against other Alternative Risk Premia. To continue using our two simple Alternative Risk Premia examples, Value and Momentum in global stocks have tended to perform well at different times: they are weakly, or even negatively, correlated to each other, both within and across asset classes, as well as to the broader global equity market (Figures 6a and 6b).

FIGURE 6A: WEAK CORRELATION OF VALUE AND MOMENTUM IN GLOBAL STOCKS, JANUARY 1991 – APRIL 2015

Rolling five-year returns to the HML and WML Fama/French factors for global stocks



Sources: Kenneth R. French Data Library; Neuberger Berman.

FIGURE 6B: CORRELATIONS OF VALUE AND MOMENTUM IN GLOBAL STOCKS, AND THE MSCI WORLD INDEX, JANUARY 1991 – APRIL 2015

Correlations of monthly returns

	Value (HML)	Momentum (WML)	MSCI World
Value (HML)	1.00		
Momentum (WML)	-0.26	1.00	
MSCI World	-0.10	-0.25	1.00

Source: Kenneth R. French Data Library; FactSet, Neuberger Berman.

> "Alternative Risk Premia sometimes exhibit long periods of weak performance, but the periodic weak performance of one has tended to be offset by strong performance by others."

It is important to emphasize how Figure 6a shows very clearly that both Alternative Risk Premia sometimes exhibit long periods of weak performance. This does not mean that the premium has disappeared or has been arbitraged away: as with other risk premia, or asset classes in general, we believe it is the long-term return potential that counts. However, this does not make it any easier to stomach underperformance.

What can help is the fact that the periodic weak performance of one premium has tended to be offset by strong performance by the other. For that reason, rather than selecting individual Alternative Risk Premia—especially after periods of strong relative performance—we favor building a portfolio that is broadly diversified across both asset classes and risk premia. This multi-strategy approach is likely to provide the greatest benefits to a portfolio with regard to diversification properties, return potential, and risk mitigation—recall how Figure 5 shows that combining Value and Momentum results in an improvement in the Sharpe ratio relative to either one on its own. Furthermore, investing in individual risk premia can be extremely difficult to time. Casting a wide net at all times by investing in a diversified portfolio of Alternative Risk Premia makes it more likely that an investor will not miss an opportunity.

HOW TO INCLUDE ALTERNATIVE RISK PREMIA IN A TRADITIONAL PORTFOLIO

While we have described the benefits and importance of Alternative Risk Premia, we have not yet touched on how these strategies can fit into investor portfolios more broadly. This can be a challenging consideration because Alternative Risk Premia strategies are unique: they do not fit cleanly into an equity allocation or a fixed income allocation because they are typically long-short and multi-asset. Being neither traditional beta nor alpha, they sit in somewhat of an investment strategy "no man's land". They do not fit cleanly into a traditional strategy "bucket."

We believe that the best place for them within a portfolio may be in a "diversifiers" or uncorrelated strategies bucket, or even an existing alternatives or hedge funds allocation.

Although not truly hedge funds, Alternative Risk Premia strategies do bring many of the benefits of hedge funds, such as portfolio diversification and uncorrelated return streams discussed previously in this paper. They also exhibit many hedge fund-like characteristics in their construction, namely the use of shorting, derivatives and leverage.

Investors with little or no dedicated Alternative Risk Premia exposures in their portfolios may view these as "alpha" strategies because they provide returns not captured elsewhere. We do not believe that these strategies are designed to capture alpha, but they do capture the Alternative Risk Premia often embedded in hedge fund returns, without the market beta that so often comes with them.

> "These strategies are typically liquid, have low fees and offer significant transparency."

In our view, Alternative Risk Premia strategies can be used to replace or bolster hedge fund exposure in a portfolio. On the plus side these strategies are typically liquid, have low fees and offer significant transparency by virtue of their essential simplicity and systematic, rules-based implementation. However, replacing hedge fund exposure with Alternative Risk Premia means foregoing the opportunity to find genuine alpha. As such, rather than replacing all hedge fund exposures, we think investors may want to consider either trimming them in favor of some Alternative Risk Premia exposures, or using Alternative Risk Premia strategies to increase the total hedge fund portfolio allocation.

Furthermore, Alternative Risk Premia strategies can be used as a benchmark for a hedge fund portfolio. For those investors not comfortable with hedge funds and other alternative investments (or those that have not before allocated to them), Alternative Risk Premia strategies may provide a good stepping stone in that direction given many of the properties discussed above.

Regardless of investor type, portfolio categorization system, or other such considerations, we believe Alternative Risk Premia strategies are deserving of consideration for a strategic allocation within a long-term investor's framework. A diversified portfolio of Alternative Risk Premia strategies could provide a core around which to build an alternatives portfolio, or with which to tilt towards tactical opportunities. Furthermore, they can be used to diversify exposure from traditional betas or other alternative strategies.

CONCLUSION

A combination of low interest rates, low inflation, low-to-moderate economic growth and elevated valuations across many traditional asset markets is inspiring investors to look for alternative sources of robust returns and diversification to meet their goals.

Among the many solutions being explored, Alternative Risk Premia strategies have attracted a lot of attention. These approaches attempt systematically, efficiently, and transparently to capture the returns associated with different investing styles or strategies (rather than asset classes), such as Value and Momentum, among others. They represent neither exposure to traditional betas, nor exposure to pure alpha sources, but they can provide investors with exposure to alternative betas that are often underrepresented and underutilized in portfolios, despite being both well documented and prevalent across asset classes, geographies, and time periods.

The potential benefits of investing in Alternative Risk Premia strategies can be manifold, from diversification to return improvement to risk mitigation, as long as the strategies are implemented in a risk-controlled structure. There are modest hurdles to adapting these strategies, including categorization issues, complexity, and the necessity of shorting, derivatives and leverage, but ultimately we believe they can be additive to portfolios and represent a meaningful step forward in understanding and elucidating risk factors and return drivers.

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