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Smart Beta is the Gateway
Drug to Risk Factor Investing

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Asset owners slowly moving to adopt risk factor asset allocation frameworks find that factor-based alternative index, or *smart beta*, strategies ease the transition between the traditional asset class paradigm and one based on risk factors (Podkaminer [2013]). From 2012 to 2016, we witnessed the coming of age of long/short risk premia strategies and the gradual acceptance by institutional and retail investors of smart beta approaches. Many investors have begun to include simple alternative index strategies—which thematically tilt toward factors such as value, momentum, quality, or volatility—within their equity and fixed income allocations. In doing so, they have adopted new terminology to characterize these strategies’ inclusion in their portfolios and explain performance. Coincidentally—but unsurprisingly—this lexicon is identical to that used to describe risk factor strategies.

Ang [2014] aptly describes this terminology and provides a clear explanation of so-called macro factors and style factors that I follow in this article:

- **Macro factors** are drivers of return *across* asset classes; they are nondiversifiable risks that have exhibited a positive expected return over longer periods. Examples include exposure to equity markets and the yield curve.

- **Style factors** are drivers of return *within* an asset class; they have historically delivered a return premium over the long term—capturing a specific risk premium, behavioral anomaly, or structural market impediment. Examples include the well-known value, size, and momentum equity tilts.

Alternative index strategies are powered by such risk factors (typically style factors), meaning that the thematic stories for which they are known can be decomposed into a handful of robust risk premia—typically single asset class, primarily equity-based, and long-only—that are then implemented in a constrained manner. The inclusion of alternative index strategies within traditional portfolios has prepared investors, committees, and boards for higher-level discussions of risk factors implemented with long/short strategies that capture premia employing *leverage*, *shorting*, and *derivatives*—which Asness et al. [2015] call the “three dirty words in finance.”

The shift from traditional active and cap-weighted passive management to alternative indexes represented by smart beta has been well documented (Podkaminer [2015]). On the other end of the spectrum lie risk premia approaches that are multiasset class, long/short, and often employ leverage and derivatives. The space between cap-weighted

EXHIBIT 1 Spectrum from Cap Weights to Risk Premia



index replication and traditional active management has been filled in by strategies that aim to use transparent, rules-based approaches to capture a thematic return stream which is, in turn, composed of underlying factor tilts. The next gap, between alternative index and risk premia, is just now starting to be filled in, as shown in Exhibit 1.

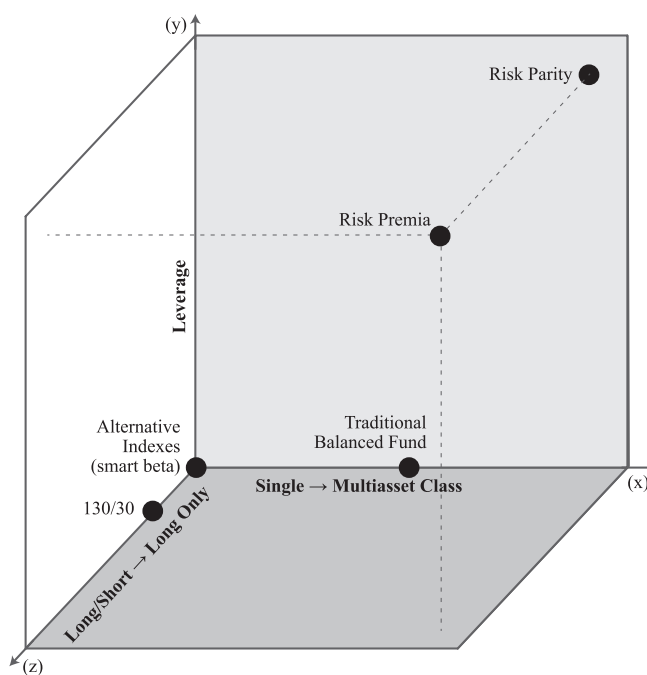
Thus, the distinction between a full-fledged multiasset class, long/short levered risk premia approach and the first crop of alternative index strategies can be found along a spectrum, and we expect to see an evolution of today's relatively simplistic methods.

Exhibit 2 unfolds the spectrum discussed above by illustrating three key characteristics that define the approaches mentioned earlier. A strategy can be single asset or multiasset class, can employ leverage (or not), and can be long-only or long/short. Alternative index (and traditional active) strategies would plot at the origin—they are single asset class, long-only, and unlevered. Risk premia strategies would load on all three characteristics—they are multiasset class, actively short, and levered. Risk parity is cross-asset class and uses leverage, but typically does not short. Long-extension, or 130/30, strategies plot as single asset class, partially long/short, and with no leverage. This framework can be used to classify and examine many disparate strategies, and investors can specify their comfort level with each of the axes to identify appropriate strategies for their portfolios.

The opportunity set for smart beta strategies can be expanded by the three dimensions shown in Exhibit 2—using multiple asset classes, shorting, and leverage. Each of these dimensions can be examined through the Fundamental Law of Active Management (Grinold and Kahn [2000a]). We find that these three approaches to increase the information ratio are consistent with the Fundamental Law, which states that

$$IR = IC \times \sqrt{Breadth}$$

EXHIBIT 2 Dimensions of Factor Approaches



where *IR* is the information ratio, *IC* is the information coefficient, and *Breadth* is the number of independent bets. The information ratio can be raised by the following actions:

1. Increase *Breadth* by extending the strategy to a new universe (i.e., additional asset classes).
2. Increase *Breadth* by allowing shorting (Grinold and Kahn [2000b]).
3. Magnify *IC* by using leverage to amplify both return and risk.

It follows that by increasing *Breadth*—either by extending a strategy or insight to another asset class or by relaxing the long-only constraint—*IR* should increase.

THE SUPPLY AND DEMAND FOR RISK FACTOR APPROACHES

We have observed both demand from asset owners and supply from asset managers to extend the reach of alternative index strategies across all three dimensions. One of the simplest new approaches is to invest in multiple asset classes: Consider a value or carry strategy

EXHIBIT 3

Efficacy of Factor Approaches across Asset Classes

	Factor/Asset Class	Equity	Credit	Treasury	Commodities	Currency
Macro	Econ. Growth	✓✓	✓			
	Rates		✓	✓✓		
	Inflation			✓	✓✓	✓
Style	Value	✓✓	✓		✓	✓
	Size	✓✓				
	Momentum	✓✓	✓✓	✓✓	✓✓	✓✓
	Carry	✓	✓✓	✓✓	✓✓	✓✓
	Low-Vol.	✓✓	✓			

applied across both global public equity and fixed income, while still refraining from leveraging or shorting. Another path would be to relax the shorting constraint: consider a minimum-variance strategy where shorting was allowed. Such a strategy is already an optimized combination of high- and low-standard deviation equities, so relaxing the no-shorting constraint is a logical extension of the current process. And the application of leverage could readily be applied to today's crop of alternative index strategies as well.

For institutional asset owners, the opportunity is clear. Once a toe has been dipped into the water with alternative index approaches, the next step can be to further move out on the x, y, and z axes from Exhibit 2. For asset managers interested in extending their capabilities and extracting higher revenues, such product shifts can be lucrative. Depending on the specialty and focus of the asset manager, some will extend alternative indexes into other asset classes, others will introduce shorting, whereas another group may apply leverage to magnify risk and return characteristics.

UNRAVELLING A MULTIASET CLASS APPROACH

Many common macro and style factors are applicable across asset classes with various degrees of efficacy. Most were developed, back tested, and heavily researched using primarily U.S. equity data but are also useful when extended to the credit universe and beyond. For instance, momentum effects have been found to exist in many asset classes (Asness, Moskowitz, and Pedersen [2013]), but the size effect is typically confined to only equities, and even then its existence

has continued to be hotly debated in academic and practitioner circles.

Although most alternative index strategies focus exclusively on style factors, other multiasset strategies make full use of macro factors. The best known of these, risk parity, is frequently distilled into a trade-off between economic growth and interest rates/inflation, and constructed by leveraging fixed income, equities, and commodities so that each building block contributes an equal amount of risk to the portfolio. Similarly, multiasset class, long/short risk premia strategies employ both macro and style factors.

Exhibit 3 lists a brief collection of factors and illustrates where they are effective. The exhibit is meant to be representative, not necessarily to catalog every possible relationship.

Many risk premia approaches use all or most of the asset class columns in Exhibit 3 to implement factor loadings, whereas some more specialized strategies may focus on a subset. Certain factors are more concentrated in some asset classes than others, and the plentitude of equity approaches may be an unintended byproduct of research conducted primarily with equity data series.

Exhibit 3 can be viewed as a simplistic Rosetta Stone, casting a dim light on the link between asset classes and macro/style factors. Reading by column, we find intuitive translations; for instance, equities afford exposure to many factors—such as the Fama–French–Carhart group, which includes value, size, and momentum (Fama and French [1993] and Carhart [1997]). Additionally, low-volatility portfolios are popularly constructed from the equity universe. From a macro factor perspective, stocks can also be used as a proxy for economic growth.

Credit, sometimes referred to as “equity-lite,” has a shadow equity profile with somewhat weaker exposure to many of the same factors as equity. Similarly, Treasuries excel at focusing on the rates factor and, like credit, can be used to provide exposure to both momentum and carry. Commodities promise exposure to the real economy (as opposed to the financial economy) and can be used to gain exposure to inflation alongside the classic momentum and carry trades for which commodities are well known. Likewise, foreign exchange is best known for momentum and carry, though it can also provide weaker exposure to inflation and value.

Reading Exhibit 3 from a factor perspective illustrates which asset classes provide natural factor exposure: Economic growth through equities, rates through Treasuries, inflation through commodities, and many style factors through equities. Some factors have only a single translation; others have many.

SMART BETA, POWERED BY RISK FACTORS

Alternative index strategies may purport to adhere to a theme, such as low-volatility, but they actually rely on well-known risk (style) factors such as the classic value, size, and momentum of Fama, French, and Carhart (Fama and French [1993] and Carhart [1997]). An exhaustive study can be found in Podkaminer [2015]. For asset owners who have not yet fully embraced risk premia strategies, which loudly advertise their factor-based credentials, introducing alternative index strategies into their otherwise traditional portfolios provides a crucial entry point for a broader organizational awareness of factors. Once asset owners start thinking—and measuring—in terms of non-cap-weighted constructs, this philosophy can be applied to many other parts of the portfolio.

The embrace of factors is also catalyzed by the availability and use of risk measurement systems from various providers. These complex systems break down investments across key statistical and economic factors, presenting disparate investments across the full spectrum of asset classes in a single, cohesive view (in theory, at least). And although most of the industry is not allocating capital—or risk—by factors, the use of approaches that do use factors as their underlying return generators allows for a more sophisticated conversation about the sources of risk and return within and across asset classes.

Risk factor concepts are encircling both flanks of asset owner portfolios: the readily available and

somewhat easily understandable single asset class, with long-only implementation found within alternative indexes, and more sophisticated and esoteric risk premia strategies, often housed within the hedge fund category. And in turn, two distinct audiences are discovering how risk factor strategies have broader applications to their portfolios: the trickle down from risk premia strategies to more constrained forms and the elevation to mass appeal of alternative index approaches. For instance, investors whose first exposure to risk factors occurs through alternative index approaches are on the left-hand side of the spectrum in Exhibit 1. But those moving down from high-octane risk premia strategies are approaching from the right-hand side in that exhibit. Each meets somewhere in the middle when exploring these new strategies.

BENCHMARKS

The insights provided by pairing factor-based benchmarks with macro factor, style-factor, and traditional active strategies expose the inadequacy of typical cap-weighted benchmarks. This represents another fundamental shift brought about by a more granular risk factor approach within active management attribution. The established divide between what was once defined as beta and alpha has been expanded to include factor returns, and these are exceedingly useful for understanding the behaviors of active strategies, as well as providing a better assessment of opportunity cost (of investing with a different approach).

On one end of the spectrum outlined in Exhibit 1, traditional factor-based equity long-only alternative indexes are often benchmarked against standard cap-weighted benchmarks. But a more thoughtful approach involves using those same indexes that underlie today’s alternative index strategies to benchmark their *implementation* and also as a more refined performance benchmark for traditional long-only management, which regularly features systematic exposure to a number of factors, often masquerading as “alpha.” This is an extension of the “normal portfolio” concept much discussed a decade ago but rarely implemented. Constructing a normal portfolio made up of risk factors is in many ways much more intuitive than doing so with capitalization and style slivers of traditional equity benchmarks.

Extending this line of reasoning, we can see how rules-based multifactor, multiasset class indexes could

provide the basis for evaluating a wide range of investment approaches, including hedge funds and risk premia strategies. Practitioners can better separate beta and factor tilts from “pure alpha” (Waring and Siegel [2003]) by using the modern tools at our disposal. One (of many) implications is the further elevation of risk factors to a central role in return and risk attribution. From there, only a short jump leads to increasing reliance on risk factors for forward-looking portfolio construction in addition to backward-looking attribution.

CONCLUSION

When laid out on the spectrum of factor-based approaches, the connection between alternative indexes and more sophisticated risk premia strategies becomes clear. Investors can gauge their comfort with each option along that continuum—including which asset classes their preferred factors cover and whether shorting or leverage are permitted—in order to identify approaches appropriate to their unique situations. Governance and the clear communication of responsibilities to stakeholders are key elements of adopting any factor-based approach, from the naively simple to the overly complex. Which parties “own” decisions around which factors to employ, in what vehicle they are housed, and whether they measure up to expectations are just the first few questions to be answered by investors as they embark on the journey from alternative indexes to other factor-based strategies.

The interplay among macro and style factors can form a bright line between alternative indexes and risk premia approaches, in which today’s alternative indexes almost exclusively employ style factors but more sophisticated multiasset class, long/short strategies use macro factors alongside style factors. This may start to change as the distinctions along the spectrum discussed above begin to blur.

Alternative index strategies are just the latest approach that increasingly relies on risk factors for attribution and portfolio construction. We should expect many more to be developed as the terminology becomes more universal and the tools more familiar.

ENDNOTE

The views expressed here are those of the author alone and not of Callan Associates Inc.

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