



## Smart Beta Series Part 2: When Smart Is Not That Smart

### Key Ideas

For years, the efficacy of capitalization-weighted portfolios has been questioned by academics, asset owners, investment consultants, asset managers and others. Most recently, the discussion has migrated to a new series of portfolio solutions that have been collectively referred to as “smart beta.” These portfolios generally weight stocks based on factors such as size, value, momentum and volatility, and are often claimed to be more efficient than cap-weighted indexes. Additionally, a basic tenet of smart beta is that these portfolios can be constructed systematically and simply at a reduced cost. Often overlooked are the embedded risks associated with these strategies, and the potential for unexpected results that can be generated by naively implementing them without appropriate evaluation.

### Can beta become smarter?

Nobel Prize-winning economist William Sharpe introduced the notions of “beta” and “alpha” decades ago. Put simply, Sharpe defined beta as a measure of a portfolio’s sensitivity relative to the market. Under this definition, it is difficult to fathom how beta can become “smarter.”

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There is really only one true beta. On the other hand, there are various portfolio methodologies that lie on a spectrum between the classical definitions of beta and alpha proposed by Sharpe and the Capital Asset Pricing Model (CAPM). While we are not interested in a semantic debate on “dumb vs. smart” we do want to look at some of the common alternatives that are being discussed currently. More importantly, we believe that identifying and outlining the risks and potential pitfalls of these portfolios is more important than futile attempts to answer the question of who has smarter beta.

## So what is it all about?

Recent industry estimates suggest that upwards of \$6tn in institutional assets will enter this asset category within the next five years.<sup>1</sup> Regardless of the moniker assigned to the category (smart beta, systematic portfolios, scientific beta, alternative beta, beta prime, etc.), institutional investors are now recognizing the potential benefits of investing in portfolios employing weighting schemes that differ from cap weighting. This is not surprising. Intuitively, most investors realize that constructing a portfolio around a cap-weighted index is unlikely to be optimal. Simply allocating portfolio weights to securities in proportion to their size leads to concentration in mega-cap companies and various other drawbacks that have been well-documented. Less well-appreciated is that cap-weighted indexation forgoes a potential return premium arising from rebalancing that will be examined in more detail in the third paper in this series. These intuitions, however, bolstered by numerous academic studies, have driven an increasingly large number of investors to seek alternatives to the cap-weighting approach, many of which fall under the label of smart beta.

Typically, smart beta classifications fall under three distinct categories:

- Factor portfolios (size, value, momentum)
- Fundamentally weighted portfolios
- Low-volatility/minimum variance portfolios

Adherents to each of these approaches believe that “tilting” the portfolio towards certain characteristics will result in a risk premium that will generate higher returns. Consequently, each has a potential risk impact that needs to be identified and addressed.

<sup>1</sup> Financial Times, September 6, 2013.

### 1. Factor indices

As the name suggests, these indices focus on providing systematic exposure to certain risk factors, typically size, value and momentum, which are expected to provide better than cap-weighted returns.

#### The size factor

There is a widespread belief that smaller stocks have higher returns than larger stocks in the long run. The most simplistic index designed to exploit this belief is the equal-weighted portfolio, which allocates equal amounts to all stocks regardless of their capitalization. Not surprisingly, this leads to significantly reduced allocations to large stocks and much higher allocations to smaller stocks than a cap-weighted index. Most investors that subscribe to equal-weighted portfolios are consciously targeting the return premium commonly associated with smaller companies. Unfortunately, the small cap allocations can lead to illiquidity

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and capacity constraints, which make maintenance of the equal-weighted structure difficult and expensive. Furthermore, such an approach also leaves the portfolio at risk of substantial long-term underperformance during those possibly extended periods when large-cap stocks outperform small.

#### The value factor

There is a similar broad-based belief in the notion that stocks with a low market value relative to their fundamentals deliver higher long-term returns. One unfortunate by-product of cap-weighted

indices is their concentration in often-mispriced stocks at the higher capitalization levels. As the cap-weighted index allocates weightings in proportion to the size of the company and not based on the intrinsic values of the underlying stocks, there is a tendency for the largest holdings to be overvalued. Thus, one smart beta solution to exploit this is to create a portfolio with a definitive 'value' tilt that focuses on the individual stock valuation metrics (e.g. price/book or price/earnings). While the value premium has been identified as a potential source of long-term enhanced return for many years, it is not without risks. Some companies may have low valuations with good reason, specifically poor and possibly deteriorating fundamentals that are unlikely to improve. A systematic tilt to low-value stocks may lead to an overexposure to distressed businesses. Furthermore it is well documented that there have been extended periods when value stocks have historically underperformed their growth counterparts, especially during stock bubbles. Value-tilted portfolios could be susceptible to prolonged periods of substantial underperformance during such periods. We will look further at the value premium in our review of Fundamental Indices in the next section.

#### **The momentum factor**

A third common belief is the notion that stocks that have outperformed in the recent past (for example the last 12 months) will continue to do so in the near future. In other words, good performance tends to persist. This performance 'momentum' is another factor targeted in some smart beta strategies. Although such strategies are less common, some investors do consider them for diversification purposes: they tend to do well when size, value and low volatility underperform. Favorable correlations notwithstanding, and despite impressive long-term returns, dramatic underperformance in shorter periods is not uncommon as markets correct (e.g. tech bubble, global financial crisis). Momentum indices can also be subject to extensive turnover. By definition, these indices are considered higher risk and may not be appropriate for investors seeking to manage surplus funding volatility.

## **2. Fundamental indices**

Fundamental indexation has emerged as the generic term for portfolios constructed systematically based on a rules-based combination of fundamental metrics. In this approach, a portfolio of stocks is created by comparing and weighing fundamental accounting data (e.g. sales, earnings, book value, dividends, cash flow) to create a portfolio that differs from the cap-weighted index. Not surprisingly, by weighting stocks in a manner that more closely reflects their intrinsic value, rather than their market value, the portfolio tends to end up with a definite value tilt. As such, the success of this strategy is dependent on the presence, and successful exploitation, of the previously discussed value premium. A further side-effect of this weighting methodology is a tendency to underweight the very largest stocks, as they are often the most overvalued. As a result, most fundamentally weighted portfolios also exhibit an exposure to the size factor. Given these two risk-factor exposures that result from the fundamental weighting methodology, it is clear that there will be periods when these factors are out of favor and, as a consequence, such portfolios can undergo extended periods of underperformance relative to their cap-weighted counterparts. Unlike pure value funds that are actively monitoring the fundamentals of their targeted/held stocks, these indices are very diverse (in many instances holding upwards of 1000+ stocks). Ironically, this diversity can potentially diminish the impact of their value premium by holding stocks that normally would not be held due to little or no intrinsic value.

## **3. Low-volatility or minimum variance indices**

The empirical evidence that less volatile equity portfolios outperform their more volatile counterparts in the long run first appeared in the academic literature many decades ago. Interest in this phenomenon has increased dramatically in the past 15 years as equity markets have exhibited poor long-term returns with high volatility. The observation has spawned the increasingly widely held belief that less volatile stocks, therefore, must have higher average returns than more volatile stocks. This has become known in recent years as the 'low volatility anomaly' due to the fact that financial theory predicts less risky assets should have lower, not higher,

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returns. Numerous 'smart beta' offerings have emerged to provide exposure to this claimed anomaly. Some of these low-volatility offerings are branded as indices, and a variety of approaches can be used to achieve the desired low-volatility portfolio characteristics. The simplest approach is merely to select a certain number of the least volatile stocks from the relevant universe based on recent history, and allocate to them in inverse proportion to their volatility. Other, more sophisticated approaches also consider stocks' correlations (a crucial component of portfolio volatility) as well as volatilities and apply optimization techniques to portfolio construction order to achieve the desired effect. To claim index status, many such approaches artificially constrain portfolio turnover, thereby limiting the potential for volatility reduction. Those which do employ optimization typically use proprietary techniques and risk estimates. As such, transparency into the portfolio is limited and it is questionable whether such approaches can truly be considered indices. In fact, it is questionable whether or not low-volatility portfolios should really be included in the 'smart beta' category at all, particularly when considering that these offerings typically exhibit traditional 'betas' of substantially less than 1.0. This generally leads to an expected return pattern that can be very different to a cap-weighted index, with potentially very large outperformance or underperformance relative to the cap-weighted index over short- and even medium-term periods, especially during periods of extreme market movements.

## Smart Beta is neither smart nor passive

As can be seen from the above summaries, while the various popular smart beta offerings purport and appear to outperform in the long run, all are subject, to a varying degree, to certain risk exposures that can lead to substantial short- to medium-term variation in relative return with respect to a cap-weighted benchmark. Some smart beta purists might argue that it is not appropriate to judge the performance of these approaches by comparison with a cap-weighted benchmark, as the approaches themselves represent a new benchmark. However for many investors this is a step too far, and the cap-weighted index, at least as the context if not as a formal benchmark for judging performance, is still too ingrained in the institutional investor psyche. Assessing the embedded risks in any of the above indices is a critical endeavor for any investor. More importantly, it is incumbent on asset managers to clearly identify and address any risk mitigation techniques that are being deployed on behalf of their investors. Most providers of smart beta strategies, however,

do not employ risk controls relative to the cap-weighted index to limit potential underperformance when the relevant risk factor to which exposure is being provided may be out of favor.

In addition, we must address one of the most promulgated fallacies around these indices: they are passive. Just as smart beta is not necessarily all that smart, and most certainly does not represent a panacea, these indices are not truly beta or passive. Cap-weighted indexation, 'traditional' beta, is the only truly passive, buy-and-hold strategy. As noted for each of the above categories, their success is dependent on identifying and systematically harvesting a targeted fundamental factor. This can only be achieved by active trading. Without active trading, the efficacy (and impact) of these indices is diminished. Over time, without systematic maintenance of the desired factor tilts through trading, the targeted benefit is missed and/or eliminated as the portfolio succumbs to style drift due to market action.

Not surprisingly, each smart beta provider regards trading differently. The timing and frequency of trading varies by strategy as the providers look to balance capturing the factor premium with the erosive effects of excessive trading costs. Each provider should be expected to clearly articulate their trading strategy (timing, frequency, etc.) as well as effectively measure and monitor the trading cost impact. Proprietary algorithms or not, the increased demands on institutional investors to find better, more cost effective investment alternatives necessitate better disclosure and most cost effective trading. While this may cause difficulties for some, it really *is* a smart thing to do.

Most smart beta strategies lie on a spectrum of passivity ranging from highly rules-based, transparent strategies at one end, to optimized, high-maintenance strategies at the other end. The former have perhaps the greater claim to index status, but their very transparency leaves them vulnerable to exploitation and front-running around any systematic reconstitution points. This could be especially problematic if such strategies are popular and attract very large volumes of assets to what are quite capacity-constrained approaches. The optimized strategies are sometimes less transparent and therefore less susceptible (but by no means immune) to such dangers, but it is even more questionable whether such approaches are suitable and usable by investors and even managers as true indices, if they are based on proprietary optimization techniques, which are by definition opaque.

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## Conclusion

The smart beta phenomenon is real and expected to grow over the foreseeable future. While the growth trends are real, the expectation of creating “smarter” beta is not. Changing the naming methodology, often done in the name of investment innovation, does not change the fact these solutions are based on age-old fundamental factors. Not surprisingly, most plan sponsors still subscribe to the cap-weighted indices as benchmarks for their money managers, even when subscribing to a “smarter” alternative. Why? There is only one true beta. In this context, the third and final paper in this series will examine the underlying common return driver of most popular smart beta strategies and introduce the notion of a strategy designed specifically to exploit this phenomenon: smart alpha.

Intech is a global quantitative asset manager investing on behalf of pension funds, governments, endowments, foundations, and other institutional investors worldwide. Having pioneered the application of Stochastic Portfolio Theory in 1987, Intech continues to seek distinctive alpha sources for clients in five continents. Today, Intech provides investment solutions encompassing ESG, absolute return, defensive equity, and traditional long-only strategies.

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