

# From Smart Beta to Hard Reality

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## EXECUTIVE SUMMARY

Concerns about the limitations of capitalization-weighted indexes have led to a proliferation of investment strategies that seek to improve upon traditional index investing. This growth has been accompanied by a flood of sometimes conflicting information about these strategies’ purposes, processes and even nomenclature. These “smart beta” strategies may also be called “new beta,” “systematic beta,” “scientific investing,” “fundamental indexation” or “advanced beta” and opinions about their usefulness and their proper roles in investment portfolios are equally plentiful. BNY Mellon’s ISSG Strategist Chris Harris sees a significant role for these new kinds of beta approaches for sovereign institutions that are looking to move beyond traditional investment models. In this viewpoint, he surveys the current range of smart beta strategies, describes what he considers their valid uses for sovereign institutions, and presents what he sees as some frequently overlooked facts about smart beta. Future research briefs will focus on issues surrounding the implementation of these strategies.

## INTRODUCTION

The growth and potential future growth of “smart beta” has been widely publicized over the past few years, with recent adopters stretching beyond adventurous corporate pension schemes to include institutions as highly regarded as the UK’s Pension Protection Fund<sup>1</sup>, and Japan’s public pension giant Government Pension Investment Fund.<sup>2</sup> Despite this, there is little consensus over either the definition of smart beta,

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1 <http://www.ipe.com/news/uk-pension-protection-fund-shifts-from-active-management-to-smart-beta/10001351.fullarticle>

2 [http://www.gpif.go.jp/topics/2014/pdf/gpifs\\_selection\\_en.pdf](http://www.gpif.go.jp/topics/2014/pdf/gpifs_selection_en.pdf)

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or its usefulness as a strategy. We also see that extraordinary claims are frequently made for it, in the financial media as well as individual products' marketing materials; it is often said that it offers consistently improved returns or reduced risks relative to a capitalization-weighted approach. In this brief, we hope to establish a common ground for defining smart beta, and for understanding its uses and limitations.

We believe that smart beta has particular value for larger clients. A recent Russell survey<sup>3</sup> showed that investors holding more assets are more likely to be interested in smart beta. According to the study, almost 90% of investors with more than \$10bn are either already using or evaluating smart beta, or intending to in the next 18 months. In our dealings with clients, we have a strong impression that large investors have experienced some degree of disillusionment with active management, and feel that they have the expertise to understand and intelligently employ smart beta approaches in its place. However, (as we shall discuss later in this article) we do not mean to imply that smart beta is simply a half-way house between active and passive management. As we later show, the substantial factor bets that are implicit in smart beta strategies mean that, unlike most actively managed strategies, they are likely to show long-term performance divergences, at least relative to traditional benchmarks.

When it comes to the implementation of smart beta, we believe that investors may suffer as a result of trying to apply the same methods that they would use to judge or select conventional actively managed strategies, to Smart Beta strategies. Examples of these methods would include relying on historical track records or back-tests (these are not necessarily predictive). Similarly, by making simple fund-for-fund switches from active long-only funds to their smart beta equivalents, investors are failing to realize the potential of smart beta as an alternative source of market exposure.

### **A SERIES OF RESEARCH ARTICLES**

We therefore put forward a series of research briefs. In this piece, we will dissect the range of strategies that currently go under the name of smart beta, clarify how we believe they fit with existing asset allocation theories such as the Capital Asset Pricing Model, and present what we think are some under-appreciated ideas in the Smart Beta debate. Other areas we plan to explore in future output include:

- How smart beta clarifies the relationship between asset owner and asset manager,
- Guidance on how smart beta strategies should be used and implemented, and
- A series of smart beta implementation case studies.

### **THE SMART BETA DIASPORA**

As momentum for smart beta strategies has built, we have seen widespread disagreement over what the term should really mean. Some providers now seek to distance themselves from the label and employ a confusing range of terms such as "new beta", "advanced beta", or "scientific investing". Older concepts such as "fundamental indexation" also fit under the smart beta umbrella. We are aware that research pieces have already been published by asset managers that attempt to clarify this situation. However, we feel that many of these view the smart beta strategy type with an uncritical eye, and fail to give a balanced assessment of the situations where smart beta is (or is not) an appropriate strategy type to meet investor needs.

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3 Russell Investments, 2014: *Smart Beta: A Deeper Look at Asset Owner Perceptions*

**Broadly speaking, smart beta strategies tend to have the following characteristics:**

1. **Systematic:** they have a pre-defined, mostly mechanical weighting system that is something other than market capitalization-weighted
2. **Transparent:** the weighting system is to some extent exposed to the investor
3. **High-capacity:** though this depends upon the strategy employed, often significant capital can be placed into these strategies before returns diminish significantly
4. **Low-turnover:** they often aim to have low turnover (though not as low as cap weighting)
5. **Low-fee:** compared to traditional active approaches, they have relatively low fees

**With this in mind, we see that the following types of smart beta are generally popular:**

- A. **Risk allocation systems**, which are often constructed around the volatility, correlation or return characteristics of the underlying securities. These include risk parity, minimum volatility, and maximum diversification, and can have varying degrees of complexity. When looking at the current range of smart beta offerings, a useful division is between:
  - i. Those which do not incorporate correlation matrices (such as risk parity or maximum de-concentration). Depending on the estimation methods used, these can sometimes be easily constructed from public information.
  - ii. Those which do incorporate correlation matrices. These are harder to replicate from public information, and may employ elements of manager judgement or proprietary management systems.
- B. **Fundamental weighting systems**, such as earnings-weighting for stocks or GDP-weighting for government bonds
- C. **Simple tilt strategies**, such as value weighting, or an income tilt

Although these primarily cover equities, the logic of many of these concepts may be applied to many different asset classes, as well as across asset classes. Risk parity, one of the most well-known risk-weighting systems, is more often used for asset allocation than security selection; though strategies which re-weight factors differently from capitalization-weighting (whether they call themselves smart beta or not), can be considered a move towards the risk-parity approach.

Superficially, smart beta has some disadvantages relative to the traditional approach; it usually involves slightly higher fees, slightly higher turnover and slightly lower transparency than a passive capitalization-weighted fund. Investors therefore need to understand what they are getting when they take on a smart beta strategy, so they can decide whether these relatively minor drawbacks (relative to other approaches) are worthwhile.

## **ALL-WEATHER OUTPERFORMANCE? THERE'S AN ALTERNATIVE WEIGHTING SYSTEM FOR THAT**

A rational investor might greet many of these strategies with some degree of skepticism. Investment has long been perceived by many as a zero-sum game, where outperforming the market requires specialized skills and is difficult to consistently achieve. Smart beta may be presented as a revolution in investment technology that overturns existing paradigms by allowing investors access to previously unseen levels of risk-adjusted return, purportedly in the same way that introduction of the jet engine sixty years ago doubled aircraft speeds.

Whilst these claims are exaggerated, there is some factual basis to them. Many smart beta strategies have excellent track records or historical back-tests. Some alternative weighting systems even have academic support. Low-volatility or

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min-variance weighting systems, for example, are the focus of numerous academic papers, and the research community has tended to support assertions that certain types of smart beta strategy can systematically outperform a cap-weighted benchmark.

This situation may feel surprising. How can it be the case that a diverse range of alternative weighting strategies – many of which have only really appeared in the last five years, and have little apparent relation to one another – all have the potential to outperform a capitalization-weighted benchmark?

#### **A VERY USEFUL SIMPLIFICATION OF HISTORICAL BACK-TESTS**

The single key insight that may help investors to better understand many (though not all) smart beta strategies is that they have factor exposures to well-recognized and documented investment anomalies. These anomalies – which have, over the long-term, provided risk-adjusted returns higher than would be predicted by classical market theory, or by the Single Factor Capital Asset Pricing Model (CAPM), include:

- a. **The small cap anomaly**, or Small Minus Big (capitalization)<sup>4</sup>
- b. **The value anomaly**, or High Minus Low (book value)
- c. **The volatility anomaly**, or the superior performance stock with a prior history of lower volatility
- d. **Momentum**, or the tendency of asset prices to follow trends
- e. **Contrarian/mean reversion**, or the tendency of poorly performing assets to subsequently outperform; also known as anti-momentum, though occurring over a longer time frame than the momentum anomaly.

These anomalies are the subject of much academic debate, so we do not regard this as a comprehensive list. We have merely listed what we believe are the five most prominent.

#### **FACTORS GO A LONG WAY TO EXPLAINING SMART BETA OUTPERFORMANCE**

Traditional ways of viewing portfolio expected returns – encapsulated in the CAPM model – emphasize the trade-off between market risk taken on and the return that investors expect to receive. This concept is closely related to ideas of market efficiency – the belief that ultimately, the systematic return you receive has to be related to the systematic risk you take. These conventional views of how financial markets work are the theoretical basis for capitalization-weighting.

Smart beta strategies challenge this orthodoxy, by using alternative weighting systems that often seem to offer superior risk-adjusted returns to capitalization-weighted approaches. If investors are considering switching from a capitalization-weighted approach to a smart beta approach, they need a means of identifying the differences between these two. The anomaly factors shown above are some of the important differentiators between capitalization-weighting and smart beta. Smart beta strategies generally take larger exposures to these anomaly factors than a capitalization-weighted approach. We believe this explains a significant part of the outperformance of smart beta over capitalization-weighting, since exposure to these anomaly factors has, historically, provided positive performance.

Extending this logic, we argue that, to some extent, the alternative weighting systems employed by smart beta strategies are less important than the factor exposures taken on as a result of those weighting systems. When examining smart beta strategies, investors may be as interested in which factor exposures are taken on, as they are

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<sup>4</sup> For those not familiar, the small cap and value anomalies refer to the superior risk-adjusted performance of small-cap stocks over large-cap stocks, and value stocks versus growth stocks.

in how the alternative weighting system works. A full understanding of the role that factors play is crucial to understanding the historical and prospective performance of smart beta strategies. Also, it is worth noting that some weighting systems achieve these factor exposures in a well-engineered fashion, and some do not.

#### **“THAT MAY WORK IN PRACTISE BUT IT’LL NEVER WORK IN THEORY”**

This argument – that one usage of smart beta is as a means of achieving factor exposures – is not in any sense a criticism of smart beta. Much of financial market theory has been wedded to the logical, orthodox dogma of CAPM and EMH for many decades. The factor anomalies – though, historically, sources of excess returns – are a contradiction to classical market theory, and so have been tended to be overlooked by fund providers or investors. Smart beta strategies are, conversely to many traditional approaches, placing their faith in empirical data over abstract theory. They go against the grain of the asset management industry by taking advantage of these significant and under-exploited market inefficiencies.

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There are two strains of thought which explain the market anomalies that underpin smart beta strategies.

#### **SMART BETA IN A BEHAVIOURAL CONTEXT**

There are two strains of thought which explain the market anomalies that underpin smart beta strategies: that they are the result of perverse market mechanics, or that they are the result of behavioural biases. Of these two, we believe that the behavioural explanations more strongly support the continued, if not uninterrupted, excess returns of these factors. Experimental results as far back as 1961 (Ellsberg) support the value anomaly. Multiple strands of academic research, such as Tversky & Kahneman, 1983 and Hong & Stein, 1998, to name just two, support the momentum effect. Though these factors have, by themselves, historically been a source of above-market returns, active management of them can still be used to add value. Dynamic weighting of multiple factors has the potential to smooth out the periods when particular factors are underperforming.

#### **FIVE FURTHER IDEAS ABOUT SMART BETA STRATEGIES**

Below we present five further ideas that we think investors or potential investors in smart beta should be aware of. Our purpose here is not to disparage smart beta strategies – we actually think that there is a huge role to be played for non-capitalization-weighted semi-passive strategies in investors’ portfolios going forward – but to try to define some boundaries around what are or are not valid uses of the smart beta concept, and what outcomes can be expected from it.

##### **1. You’re not going to beat the market forever with smart beta**

The factor anomalies that we referred to earlier have had a long-term history of generating excess returns. However, these anomalies have valuations, just like any other trade, and depending on economic circumstances and how richly or cheaply the market has priced them, their returns will vary. We think that the historical periods in which these factors had strong performance were ones when investors were less aware of these anomalies, and ones in which few tools existed to take advantage of these anomalies intelligently. One consequence of the new-found popularity of smart beta is that we could see these factors being over-allocated to by investors. If this is so then these excess returns could become hunted to the point of extinction. With that said, so far we see little evidence of that occurring.

##### **2. Smart beta has very high volatility relative to a capitalization-weighted benchmark**

Smart beta is sometimes positioned as being something similar to an enhanced form of active management. We believe this does not accurately reflect its volatility relative to a capitalization-weighted approach. Active managers will try to limit their risk relative to a capitalization-weighted benchmark. Smart beta, as a result of its entirely different weighting system, can – over a long time frame

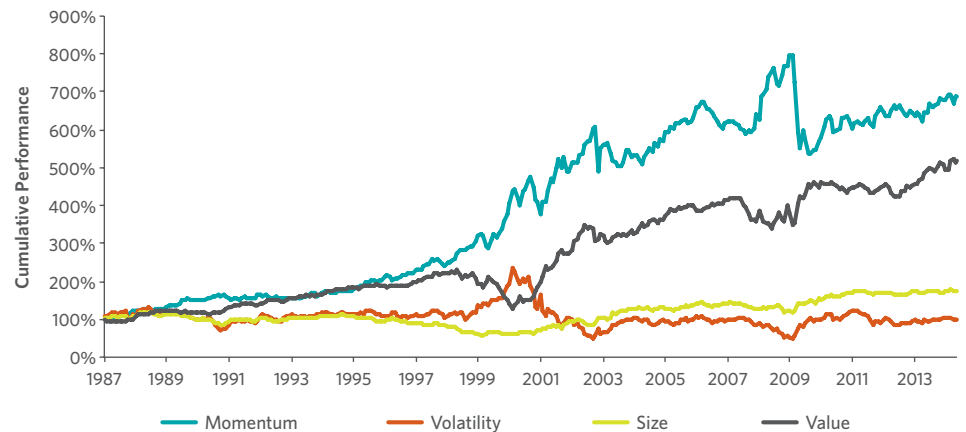
Many smart beta strategies are transparent, often working by mechanical rule, with little human input.

– take positions that are significantly different from a capitalization-weighted approach. If you believe in the flaws of capitalization-weighting and the merits of the smart beta concept, this is by no means a bad thing. However, if you intend to compare your smart beta strategy to a capitalization-weighted benchmark, you are likely to see an unusually high degree of tracking error.

### 3. Smart beta can under-perform cap-weighted for long time periods

Smart beta strategies primarily distinguish themselves from cap-weighted approaches by introducing factor exposures and additional idiosyncratic risk. Whilst the idiosyncratic risk introduced may simply be noise, and therefore has no underlying direction, the different factor exposures taken on will create performance deviations (from a cap-weighted approach) that may last a number of years. The historical performance of the momentum, volatility, size and value factors are shown below. This shows the returns that have been generated by these anomalies alone; for example, the 'Volatility' series shows the returns achieved by the least volatile 20% of stocks in the S&P 500 index, minus the returns achieved by the most volatile 20% of stocks in the index.

**Figure 1: Historical Performance of the Momentum, Volatility, Size and Value factors**



Source: S&P Capital IQ

Additionally, few smart beta strategies target a defined level of factor exposure, so the degree of exposure will also drift over time. Factor anomaly exposures aside, merely taking on a different level of market beta exposure may cause significant performance deviations in a rising or falling market. Many smart beta strategies do not aim to control their market beta exposure, and allow it to be set somewhat arbitrarily, as a consequence of the weighing system used. This by itself can cause smart beta strategies to outperform or underperform their cap-weighted peers in cycles that may last a number of years. Understanding and managing anomaly risk exposures and market risk exposure are what sets a well-constructed smart beta strategy apart from its peers.

### 4. As the asset owner, you own the risks of smart beta

Following on from points 1, 2 and 3, we believe that some asset owners who choose to take on smart beta strategies may expose themselves to more risk than they intended. The factor loadings inherent in smart beta mean that the strategy can have large performance deviations from a capitalization-weighted approach, more so than conventional active management. Furthermore, many smart beta strategies are transparent, often working by mechanical rule, with little human input. There is therefore a sense in which the asset owner “owns” the risks of a smart beta strategy, and cannot simply blame any losses on poor

manager judgement, because the methodology behind the strategy was exposed from the start. We feel that some asset owners invested in smart beta strategies may not understand that these performance deviations can occur, and may be without the tools or the framework for understanding the valuation of the factors that drive smart beta performance. Picking outperforming smart beta strategies, or picking outperforming anomaly factor exposures, is in theory no easier or harder than picking outperforming asset classes. However, the asset owner generally has some experience in selecting asset classes, and there is abundant information to hand to assist in this. Furthermore, the asset owner has a better understanding of the risks his or her asset class allocation decisions. The asset owner may not have the same degree of experience and information when it comes to selecting smart beta strategies.

#### **5. Fundamental indexation systems can seem intuitive, but may not actually be so at all**

Though most smart beta approaches relate to equities, a prominent fundamental indexation system that does not is the GDP-weighting of government bond portfolios. This concept is often presented as something like a common-sense solution to an obvious problem. Whilst the story behind it – that bond investors should avoid allocating to the most indebted issuers – who often also have some of the lowest bond yields – is intuitively appealing, investors should consider why this apparently simple inefficiency has not been recognized and exploited by the market before. A fundamental indexation sceptic could argue that GDP is not necessarily a proxy for governments' ability to repay their debt, and high government debt levels are far from synonymous with rising bond yields. A believer might fire back by arguing that government bond prices are kept high by banks and pension funds buying in a value-insensitive fashion. These are the kind of debates that need to be had to break through the superficial veneer of good sense in which fundamental indexation systems are sometimes coated.

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### **SMART BETA AND ASSET ALLOCATION**

In this article we caution that, as ever, there is no panacea for investors. Smart beta is another way of managing a pool of assets, designed to accomplish an objective and avoid unnecessary downside risks. It results in portfolios which aim to benefit from potentially durable sources of excess return. However, investors should ask the same questions of smart beta strategies that they ask of any other investment strategy. Smart beta or not, it is the case that:

- i. Skill and experience still matter
- ii. Factor and asset allocation still matter
- iii. Risk control still matters
- iv. Every position has an associated valuation

### **FIRST, DO NO HARM**

Over the past two years, we have seen numerous investors leaping feet-first into smart beta strategies. Because of this, we feel the need to raise awareness and, at least at first, to focus on the shortfalls of the current smart beta product set. However, we do not want to end on a down note. We believe that intelligently designed, non-capitalization-weighted, semi-passive strategies have a multitude of uses to investors, and particularly to larger investors. They meaningfully increase the toolkit and opportunity set available to asset owners when trying to achieve their objectives and implement their market views. We believe that a time will come when investors cannot imagine that they ever managed without them. But, like real-life power tools, they can be dangerous to their users. The first part of any practical lesson is the safety briefing. In future output we will move on to how to use the tools themselves.

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