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# Investment Publications Highlights

## Exotic Beta Revisited

Mark Carhart et al., *Financial Analysts Journal*, vol 70, no. 3 (September/October 2014): 24–52

**Today's competitive and dynamic investment environment continues to challenge investors to source consistent returns. The authors suggest investors respond to this challenge by developing a better understanding of a portfolio's risk and return drivers beyond the traditional equity market beta. Moreover, investors should seek to include exposures to diverse risk factors, or exotic betas, in their portfolios to achieve better risk-adjusted returns.**

The authors define exotic betas as exposures to risk factors that earn a premium and are uncorrelated with global equity markets. Using these criteria, they identify nine exotic betas, with each risk premium linked to a corner of the market such as catastrophe bonds, commodities, or volatility. The compensated risk factors neither rely on short-term market inefficiencies nor require unique investor skills.

By reviewing historical data, the authors show that an equal-risk portfolio of exotic betas has a higher Sharpe ratio and a reduced maximum drawdown than a portfolio with passive exposure to global equities. They further evaluate the inclusion of an exotic beta strategy in the context of two asset classes (global equities and bonds) and two alternative risk premium strategies (risk parity and hedge funds). The authors find that a portfolio with 37% in global bonds, 26% in

exotic beta, and 37% in hedge funds maximized the return per unit of risk, highlighting that an exotic beta strategy should be considered in investor portfolios.

However, there is no clear roadmap for how to incorporate an exotic beta strategy in a portfolio. At the very least, investors should understand the source and size of portfolio risk exposures and understand that because compensated risk factors may vary over time, allocations to specific exotic betas should also vary. Ideally, managers would implement a dynamic exotic beta strategy that incorporates empirical forecasting models to determine changes in risks and returns.

The authors acknowledge multiple hurdles—including transaction costs, management fees, and investability concerns—associated with the real-world implementation of their recommendations. Regardless, they find exposures to exotic betas attractive in a portfolio context, and they believe that increased knowledge of risk factors can help investors better manage portfolio risks and returns.

## A Framework for Assessing Factors and Implementing Smart Beta Strategies

Jason Hsu et al., *The Journal of Index Investing*, vol 6, no. 1 (Summer 2015): 89–97

**The popularity of smart beta strategies has dramatically increased over the past 20 years. The authors analyze the robustness of some of the factors that underpin these strategies and determine that many do not lead to reliable excess returns. With this in mind, investors should look to factors that have been scrutinized in well-respected journals, persist across time and regions, and hold up to slight changes in definition.**

Researchers often identify factors through backtesting, but without careful checks to guard against potential data-mining biases, a factor may look attractive when, in fact, it is statistical noise. More exotic factors can be particularly deceptive given low correlations to other factors in the portfolio. Investors need to be sure they select sound factors out of the hundreds that have been discussed in academic journals.

According to the authors, investors should choose factors that have been vigorously debated and validated in numerous top-tier journals. When a factor is discussed in literature over extended periods of time, economists have explored its rationale and persistence. A factor should also provide a premium return in different regions and time periods. If excess returns are only found in a specific country or time period, the factor is likely an artifact of the dataset. Similarly, if a factor cannot hold up to small changes in definition, investors should be wary of a potential data-mining bias.

As most of the research on factors is based on reviewing historical data, results often do not take costs, investability, and risk into account. Regarding costs, turnover rates vary widely between factors. For instance, a momentum strategy would likely need to be rebalanced more often than a value strategy. Those strategies with high turnover rates have the potential to consume the entire factor premium. Carefully scrutinizing potential transaction costs, as well as understanding the strategy's capacity limitations and risks, will better help investors capture risk premiums.

## ... and the Cross-Section of Expected Returns

Campbell R. Harvey et al., White Paper, April 2014

**Academics have identified hundreds of factors that explain portfolio returns in recent years, from the often-referenced momentum factor to the lesser-known consumption volatility factor. However, a new study published by Duke University researchers argues that most of these factors are not statistically significant and advocates for the establishment of greater statistical hurdles in asset pricing tests.**

The authors note that tests of significance for factors can vary—for instance, a lower hurdle could be used for theoretical factors versus those empirically developed—but they argue that it makes little sense to use the usual significance criteria (e.g., t-ratio > 2.0) for newly discovered factors. The study uses three conventional multiple testing frameworks plus a new framework to evaluate the significance of factors, and, in all, finds that many factors such as momentum and market beta are statistically significant.

However, of the 295 supposedly influential factors, the article finds that nearly a third to over half are not statistically significant, depending on which framework is used. The authors believe that most recent research findings in financial economics have been false discoveries, arguing that investors would be reaping in returns by the buckets if the existence of so many factors were true. So what's behind the high number of factors that fail to pass simple significance tests? Extensive data mining is the culprit according to the authors.

Going forward, the authors believe newly discovered factors should have t-ratios of at least 3.0 to be considered legitimate. Further, when considering exposures to factors in a portfolio context, they suggest investors rely on factors that have more than surpassed statistically significant thresholds. ■

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