The limitations of factor investing: factor diversification is not enough to protect investors against market shocks

In 2014, EDHEC Risk Institute researchers had shown in an article published in the Journal of Portfolio Management (Amenc, N., F. Goltz, A. Lodh and L. Martellini, Summer 2014, Towards Smart Equity Factor Indices: Harvesting Risk Premia without Taking Unrewarded Risks, Vol. 40, No. 4) that over the long term good diversification of the specific risk of factor indices led to much better risk-adjusted performance than the traditional approaches to constructing these indices.

In a new EDHEC Risk Institute working paper entitled “The Limitations of Factor Investing: Impact of the Volkswagen Scandal on Concentrated versus Diversified Factor Indices,” Noël Amenc, Professor of Finance, EDHEC Risk Institute and CEO, ERI Scientific Beta, and his co-authors Sivagaminathan Sivasubramanian, Quantitative Analyst, ERI Scientific Beta, and Jakub Ulahel, Quantitative Research Analyst, ERI Scientific Beta, have shown that in the short term this good diversification enabled one to cope with the consequences of risks that affected a stock or a sector of activity. As such, the Scientific Beta Extended Europe Multi-Beta Multi-Strategy EW index outperformed the Stoxx Europe 600 index by 18% in the week from September 18 to September 25, 2015. Over the same period, a score-weighted index allocated to the same risk factors, but with a construction method that led to excessive concentration, and therefore to poor diversification of the specific risk, underperformed the Stoxx Europe 600 index by 3%.

In their concern to maximise factor exposures, multi-factor index providers have favoured concentration of the indices to the detriment of their diversification. Even though the excessive concentration of cap-weighted indices was one of the motivations for creating smart beta indices, solely taking the factor dimension into account ultimately leads to the indices exposing investors to considerable specific risks. We observe for example that the J.P. Morgan Europe Multi-Factor index was very strongly exposed to the risk of the Volkswagen AG stock, as was the MSCI Europe Diversified Multi Factor index. As such, these indices respectively contained almost 1.5 and more than 2 times more Volkswagen AG stock than the Stoxx Europe 600, and almost 10 times and 16 times more Volkswagen AG stock than the Scientific Beta Extended Europe Multi-Beta Multi-Strategy EW index.

Ultimately, and going beyond the stocks, the excessive concentration of these indices meant that they considerably underperformed the SciBeta Extended Europe Multi-Beta Multi-Strategy EW index, with -30% for the MSCI Europe Diversified Multi Factor index and -66% for the J.P. Morgan Europe Multi-Factor index over the period from August 31, 2015, to September 30, 2015.

With the Volkswagen scandal, the EDHEC Risk Institute and ERI Scientific Beta research teams wish to stress that the robustness of multi-factor indices depends on both the balance of factor exposures and good diversification of specific risks. It is only on this double condition that an index can be qualified as smart.
A copy of “The Limitations of Factor Investing: Impact of the Volkswagen Scandal on Concentrated versus Diversified Factor Indices” can be downloaded via the following link:

ERI Working Paper Limitations of Factor Investing

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About ERI Scientific Beta

ERI Scientific Beta aims to be the first provider of a smart beta indices platform to help investors understand and invest in advanced beta equity strategies. It has three principles:

- **Choice**: A multitude of strategies are available allowing users to build their own benchmark, choosing the risks to which they wish, or do not wish, to be exposed. This approach, which makes investors responsible for their own risk choices, referred to as Smart Beta 2.0, is the core component of the index offerings proposed by ERI Scientific Beta.

- **Transparency**: The rules for all of the Scientific Beta series are replicable and transparent. The track records of the Scientific Beta indices can be checked and justified through unrestricted access to historical compositions.

- **Clarity**: Exhaustive explanations of construction methodologies are provided, as well as detailed performance and risk analytics.

Established by EDHEC-Risk Institute, one of the very top academic institutions in the field of fundamental and applied research for the investment industry, ERI Scientific Beta shares the same concern for scientific rigour and veracity, which it applies to all the services that it offers investors and asset managers.

Part of EDHEC Business School, a not-for-profit organisation, EDHEC-Risk Institute has sought to provide the ERI Scientific Beta services in the best possible economic conditions.

The ERI Scientific Beta offering covers three major services:

- **Scientific Beta Indices**
  Scientific Beta Indices are smart beta indices that aim to be the reference for the investment and analysis of alternative beta strategies. Scientific Beta Indices reflect the state-of-the-art in the construction of different alternative beta strategies and allow for a flexible choice among a wide range of options at each stage of their construction process. This choice enables users of the platform to construct their own benchmark, thus controlling the risks of investing in this new type of beta (Smart Beta 2.0). The Scientific Beta platform is currently offering 2,997 smart beta indices.

  Within the framework of Smart Beta 2.0 offerings, ERI Scientific Beta provides access to smart factor indices, which give exposure to risk factors that are well rewarded over the long term while at the same time diversifying away unrewarded specific risks. By combining these smart factor indices, one can design very high performance passive investment solutions.

- **Scientific Beta Analytics**
  Scientific Beta Analytics are detailed analytics and exhaustive information on its smart beta indices to allow investors to evaluate the advanced beta strategies in terms of risk and performance. The analytics capabilities include risk and performance assessments, factor and sector attribution, and relative risk assessment. Scientific Beta Analytics also allow the liquidity, turnover and diversification quality of the indices offered to be analysed. In the same way, analytics provide an evaluation of the probability of out-of-sample outperformance of the various strategies present on the platform.
We believe that it is important for investors to be able to conduct their own analyses, select their preferred time period and choose among a wide range of analytics in order to produce their own picture of strategy performance and risk.

- **Scientific Beta Fully-Customised Benchmarks and EDHEC-Risk Smart Beta Solutions**
  
  _Scientific Beta Fully Customised Benchmarks_ is a service proposed by ERI Scientific Beta, and its partners, in the context of an advisory relationship for the construction and implementation of benchmarks specially designed to meet the specific objectives and constraints of investors and asset managers. This service notably offers the possibility of determining specific combinations of factors, considering optimal combinations of smart beta strategies, defining a stock universe specific to the investor, and taking account of specific risk constraints during the benchmark construction process.

  In 2015, ERI Scientific Beta established an offering based on EDHEC-Risk Institute’s applied research expertise in the field of risk management. This offering, referred to as "**EDHEC-Risk Smart Beta Solutions**," enables tailored solutions for multi smart beta allocation to be defined for institutional investors and asset managers, allowing specific objectives with regard to relative or absolute risks in an asset management only or an asset-liability management dimension to be taken into account.

With a concern to provide worldwide client servicing, ERI Scientific Beta is present in Boston, London, Nice, Singapore and Tokyo.

ERI Scientific Beta has a dedicated team of 45 people who cover not only client support from Nice, Singapore and Boston, but also the development, production and promotion of its index offering.

### About EDHEC-Risk Institute

Since 2001, EDHEC Business School has been pursuing an ambitious policy in terms of practically relevant academic research. This policy, known as “Research for Business”, aims to make EDHEC an academic institution of reference for the industry in a small number of areas in which the school has reached critical mass in terms of expertise and research results. Among these areas, asset and risk management have occupied privileged positions, leading to the creation in 2001 of EDHEC-Risk Institute, which has developed an ambitious portfolio of research and educational initiatives in the domain of investment solutions for institutional and individual investors.

This institute now boasts a team of close to 50 permanent professors, engineers and support staff, as well as 36 research associates from the financial industry and affiliate professors. EDHEC-Risk Institute is located at campuses in Singapore, which was established at the invitation of the Monetary Authority of Singapore (MAS); the City of London in the United Kingdom; Nice and Paris in France. The philosophy of the institute is to validate its work by publication in prestigious academic journals, but also to make it available to professionals and to participate in industry debate through its position papers, published studies and global conferences.
To ensure the distribution of its research to the industry, EDHEC-Risk also provides professionals with access to its website, www.edhec-risk.com, which is entirely devoted to international risk and asset management research. The website, which has more than 70,000 regular visitors, is aimed at professionals who wish to benefit from EDHEC-Risk’s analysis and expertise in the area of applied portfolio management research. Its quarterly newsletter is distributed to more than 1.5 million readers.

EDHEC-Risk Institute also has highly significant executive education activities for professionals. In partnership with CFA Institute, it has developed advanced seminars based on its research which are available to CFA charterholders and have been taking place since 2008 in New York, Singapore and London.

In 2012, EDHEC-Risk Institute signed two strategic partnership agreements, with the Operations Research and Financial Engineering department of Princeton University to set up a joint research programme in the area of asset-liability management for institutions and individuals, and with Yale School of Management to set up joint certified executive training courses in North America and Europe in the area of risk and investment management.

As part of its policy of transferring know-how to the industry, EDHEC-Risk Institute has set up ERI Scientific Beta. ERI Scientific Beta is an original initiative which aims to favour the adoption of the latest advances in smart beta design and implementation by the whole investment industry. Its academic origin provides the foundation for its strategy: offer, in the best economic conditions possible, the smart beta solutions that are most proven scientifically with full transparency of both the methods and the associated risks.

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