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A Premium is a Factor—but a Factor is Not Always a Premium

Factors, premia, and risks are the magic words in modern finance. Smart beta strategies apply this concept and have attracted considerable attention in recent years. Several factors have been shown to influence the risk-return profile of financial assets and portfolios. But not all factor exposures compensate through higher returns all the time. Risk premiums are time varying, because of economic cycles and changing market integration. In global asset allocation, it is vital to consider such aspects and to extract information from a large number of individual stocks, as this enables one to target diversification benefits in particular in emerging markets.

Historical price variations for a set of assets are actually nothing more but a multidimensional cloud in dimension n -securities \times t -periods of time. Such a large volume of data necessarily requires isolating the «principal components», namely criteria that best separate price movements from each other. We therefore find that the size or the economic sector in which a business operates better characterize its historical returns than do its logo or its founder's first name. For 60 years, in financial theory the first of these axes has been referred to as the market effect («beta»), and the subsequent ones as «factors». In asset management, identifying these factorial exposures makes it possible to understand and allocate the risks of a portfolio. As far as these factors remain independent of each other, they diversify the portfolio and improve its risk-return ratio.

Yet not all of these factors are «premia», since they are not all necessarily remunerated over a complete cycle. To create value with non-remunerated factors, it is necessary to understand their behavior in order to tactically allocate risk to them. Exposures to premia, on the other hand, produce an excess return over a complete cycle, in a quasi-static manner. The premia therefore primarily determine a long-term strategic allocation, whereas active management may integrate a wider set of factors. When analyzing active management—that is to say, when isolating the individual talent of a manager («alpha»)—one must first identify whether performance results from factors and premia. In this respect, the discovery of a new premium might then reduce the measured alpha. However, only «pure alpha» merits a high price, precisely because the emphasis on premia re-

veals that this unique and non-diversifiable, independent talent is indeed rarer than one might think.

Both practice and academic studies suggest that premia and factors are unstable over time. They evolve during crises and also as a result of their discovery. Like the famous Schrödinger's cat, observing factors disrupts their nature, since rational investors try to take advantage of them once this is made possible by financial technology. The following applies to beta: because of its success, index management is only passive by name, since the mere fact of an asset belonging to a popular index sometimes has more influence on its performance than the market factor itself. Ironically then, market premia are altered by the very development of indices whose sole purpose is to measure them. This has two consequences:

1. Since all factors are susceptible to this irony, the choice of indices is never neutral. It never has been, and any serious study must take into account the widest possible set of individual securities since the scope of the study probably has an influence on its result. In this respect it seems inevitable that the international dimension, and therefore the cross-integration of markets, should be taken into account.
2. For a premium to remain a premium—that is to say, to remain paid over a complete cycle—it is necessary to have an economic rationale, and not just statistical or historical evidence. For decades this has been the case for robust «size» or «value» factors; is this also the case for the «market integration» effect?

In any case, it is economically plausible that an «integration» effect exists in common-currency areas, proximate time zones, and fungible marketplaces. It is also plausible that this effect is less pronounced in emerging economies, where exchange rates are subject to local rules and regulation, and stock market connections are less developed. This reinforces the natural interest of investors in these emerging markets: they structurally provide a better diversification effect, and preserve their risk premia in the face of the irony of index management.





Swiss Finance Institute Practitioner Roundups



Prof. Ines Chaieb

Ines Chaieb is Associate Professor of Finance at the University of Geneva and an SFI faculty member. She obtained her PhD in Finance from McGill University. Her research interests lie in asset pricing, international finance, and emerging markets.



Prof. Olivier Scaillet

Olivier Scaillet is Professor of Probability and Statistics at the University of Geneva and holds an SFI Senior Chair. He holds a PhD in Applied Mathematics. His research interests include the application of statistical methods to finance topics.

Integration and Risk Premia in International Equity Markets

Pricing risk factor premia accurately is the cornerstone of asset selection and optimal portfolio creation. Several factors—such as market, size, value, momentum, investment, and profitability—have been shown to influence the risk and return profile of financial assets and portfolios. When investing in an international setting two additional factors—market integration and currency risk—must also be accounted for in the overall asset selection process. SFI professors Ines Chaieb and Olivier Scaillet, along with fellow researcher Professor Hugues Langlois from HEC Paris, contribute to the asset pricing literature with their research paper *Time-Varying Risk Premia in Large International Equity Markets* by using individual stock level data instead of aggregated measures such as portfolios or indices to estimate world-, regional-, and country-specific factors. Such an approach avoids the loss of information caused by aggregation biases. They further allow the risk premia factors to vary over time instead of being static through economic and financial cycles. Data shows that market, size, value, momentum, investment, and profitability factors delivered positive average returns in almost all regions during the considered period.

What are the implications of your methodology?

Quantifying risk factor premia accurately in today's global capital market has significant implications due to the sheer size of the market itself. A recent survey shows that more than a third of all asset managers questioned already use smart beta allocations and that a further third is currently evaluating the benefits of such allocations.¹ Among those that use smart beta allocations, nearly half have more than 20 percent of their overall portfolio invested in smart beta strategies. Any better understanding of the mechanisms at work brings with it benefits in terms of both return and risk.

What are the pros and cons of market integration?

Imperfect market integration allows financial actors to benefit from investment diversification and reduce their overall portfolio risk for a given level of expected financial return. In the extreme case in which all financial markets are fully integrated, there is no advantage in investing in different stock markets as they would

¹ FTSE Russell. (2016). "Smart beta: 2016 global survey findings from asset owners".

all move perfectly in sync. With imperfectly integrated markets, overall portfolio risk can be reduced and specific risks can be exploited. One could, for example, capitalize on value factors in emerging markets and momentum factors in developed ones.

What does the data reveal regarding market integration and its time-varying effect?

Results obtained using 58,674 stocks across 46 countries from 1985 to 2017 show that different factors are at work. The analysis focuses on the world-, regional-, and country-specific pricing impact of these factors. For developed markets, results show that country market premia are smaller than world or regional market premia. Diversification benefits are thus limited. Results differ for emerging markets and suggest that the country factor risk premia are large relative to the world or regional factor risk premia and that investors can further benefit from diversification within such regions. Estimations reveal that factor risk premia change over time. In developed markets, market and value premia spiked during the global financial crisis. Value and momentum premia show more variability across countries and over time than profitability and investment. Moreover, momentum premia are more volatile in emerging markets.

What are the implications of this research for market participants?

The understanding and promotion of international equity market integration contributes to economic growth and the overall global stability of the financial markets, and provides more stable long-term saving and investment opportunities. At the investor level, asset managers are aware of the theoretical benefits of portfolio diversification but there is still potential to fully exploit them. This research highlights the benefits of employing a time-varying individual stock market methodology to estimate risk factor premia and reduce portfolio volatility, and further provides the framework needed to implement such strategies. Finally, firms can benefit from these findings by better estimating the cost of their equity by using risk factor premia estimated from individual stocks instead of portfolios or indices.

These insights draw on the academic paper by Prof. Ines Chaieb, Prof. Hugues Langlois, and Prof. Olivier Scaillet. The full academic paper can be accessed at: <http://bit.ly/2mngKp8>

