

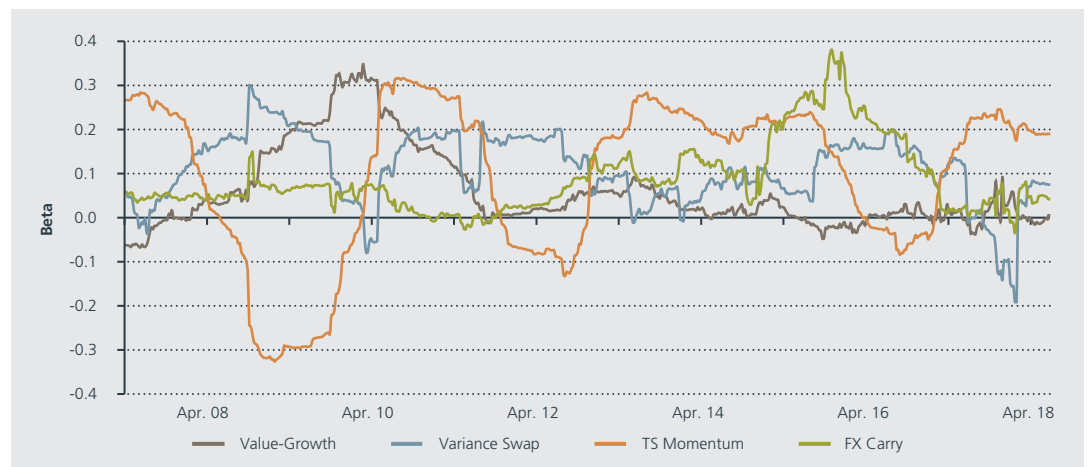
# UNCOVERING THE HIDDEN BETA IN RISK PREMIA STRATEGIES

The long period of low interest rates made risk premia strategies popular, especially because of their promise of uncorrelated returns. February 2018 was a first stress test as equity markets lost up to 10% in a few days. The majority of strategies showed a strong link to equities and generated significant negative returns. This was a reminder that picking the right risk premia strategy is crucial.

The majority of risk premia strategies were launched during a calm market period beginning in 2016. February was the first stress test for those funds, challenging their correlation attributes when equity markets lost 8%-10%. During these days risk premia strategies showed a large dispersion in returns and the performance of the majority suffered considerably. How did this beta exposure get into the portfolios despite most of them not having any explicit long equity exposure? The sources can be manifold and investors have to be aware of them.

## Recognise different types of beta

To illustrate this, we calculated the sensitivity to equities for a variety of individual risk premia, all constructed with a target volatility of 5% to make them comparable. First of all, it is important to consider *implicit beta*. Most strategies use a long/short exposure in equities to implement the prominent value, size and momentum risk premia. Taking the value premia as an example, a standard dollar-neutral long/short portfolio can often leave a significant residual beta. This is because value stocks often have



This chart documents the 1-year beta to the MSCI USA for selected risk premia. Data source: Thompson Reuters Datastream, Calculation: Quoniam

ance swaps. The blue line in the chart below shows the beta of a short variance swap on the S&P 500: implementing a short volatility strategy yields a high beta level which spiked to a maximum of 0.30 after the Lehman crisis.

## Strong beta dispersion possible

Another prominent investment strategy is time-series momentum, otherwise known as buying winners and selling losers. In this context the analysis of *time-varying beta* is important. Typically the strategy is implemented with derivatives based on holding long positions in assets with positive past returns, combined with short positions in assets with negative past returns. However, applied to equity markets, a positive economic regime tends to mean long positions in the majority of equity indices and vice versa for a negative economic regime. To show this effect we have created a momentum strategy based on an equal-weighted signal over 4 different time periods between one and six months on the 20 most liquid global equity indices. The result shows strong beta dispersions from -0.33 to +0.32. Therefore, during these high beta periods portfolio returns are strongly sensitive to the equity market.

Fourthly, another way of being exposed to equity beta is via an investment in assets which are linked to the equity markets in one way or another and therefore potentially contain significant *hidden beta*. The most prominent example is an investment in credit spreads. Other premia like FX Carry have a link to equities, too. This can easily be seen from the green line in the chart showing the beta

of a dollar-neutral FX Carry strategy based on 8 developed market and 8 emerging market currencies which has a maximum beta of 0.38. The reason for this is that countries with high interest rates are more sensitive to the global economy than countries with low interest rates. Long positions in high-yielding currencies combined with short positions in low yielding currencies show this relationship and link the premia with equity markets – which are sensitive to the global economy by nature.

## The combination is decisive

To summarise, there are many ways for beta exposure to get into a risk premia portfolio as many of the premia share common sources of risk with equity markets. Combining several beta exposed premia in a strategy can easily sum up to a heavily exposed portfolio. The sharp sell off in equity markets in February has highlighted the importance of understanding how premia are implemented. This also implies that the choice of strategy should always be made in context of the investor's existing asset allocation.

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For the success of risk premia strategies, it is important to understand which risks are taken!

a beta greater than one because of their additional cyclical risk. In contrast to this, short positions in growth stocks often show a beta below one. This effect can be seen on the chart below (beige line), documenting a net beta range between -0.07 and +0.35 for a U.S. value vs. growth equity portfolio.

Secondly the so-called *conditional beta* is relevant. Short-volatility strategies on equity indices typically show a long history of strong positive returns, combined with short periods of sharp drawdowns. From an economic perspective selling volatility is equivalent to acting as an insurer in capital markets. Doing this is attractive because taking the risk of negative returns during times when no one would like to have them, such as market crashes, is well rewarded in the long run. One of the most prominent short-volatility strategies is selling vari-

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