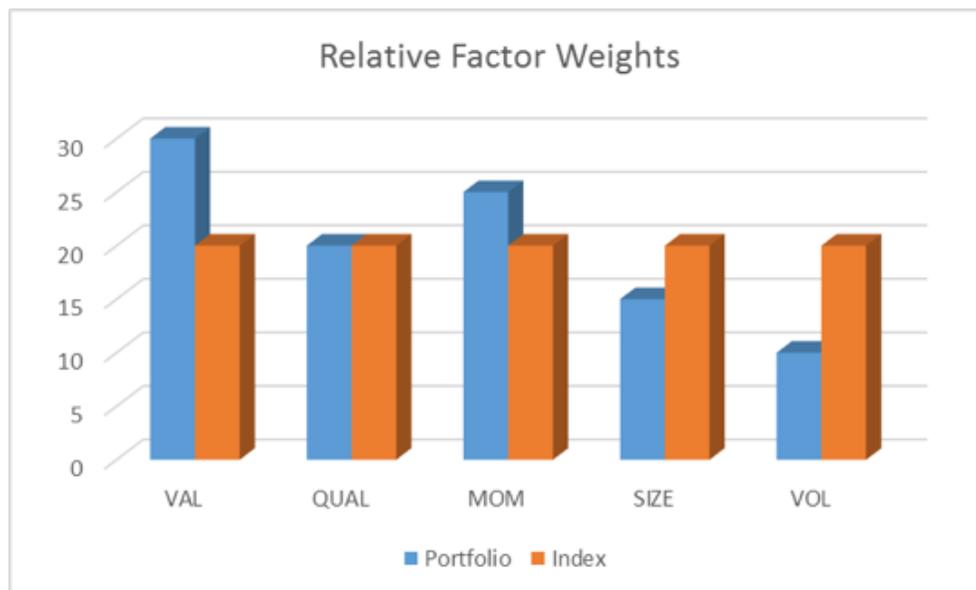


SMART BETA AND FACTORS: UNDERSTANDING WHAT YOUR PORTFOLIO IS DOING Part 3 in a Series

In previous papers in this series, we have explored Smart Beta and how factors fit into that framework. We went on to take a more in-depth look at what factors are and which have academic and empirical support. In this paper, we seek to evaluate how factors can be applied to the evaluation of portfolio performance. Specifically, we will look at attribution, historically focused on things like sector/industry exposures and security selection, in the light of factor allocations. In short, how do one's factor exposures impact returns, particularly relative to a broader market index?

To summarize, Smart Beta is a relatively new term that describes the process of taking an index with stocks ranked by their market capitalizations (number of shares outstanding multiplied by stock price) and re-weighting those stocks by some other desired characteristic or trait. These can include things like dividends or revenues, or more importantly here, factors. As explained in part 2 of this series, factors have been around much longer and are simply those characteristics of companies or stocks that are academically and empirically proven to provide a premium over a market cap weighted index.* While there are hundreds that have been researched, there are a handful that are supported. They include, among others: value, quality, momentum, size, volatility (minimum), yield**, illiquidity**, and investment**. These factors can be used to reweight an index to capture those premia.

With that in mind, while we can look at research and return evidence to prove that these factors generate excess returns over time, they can perform differently in the short-term.* This makes it important to understand how one's portfolio is allocated to factors, how those factors performed in a given period, and how that impacted the portfolio's returns. To illustrate, we look at a hypothetical portfolio with the following factor exposures:



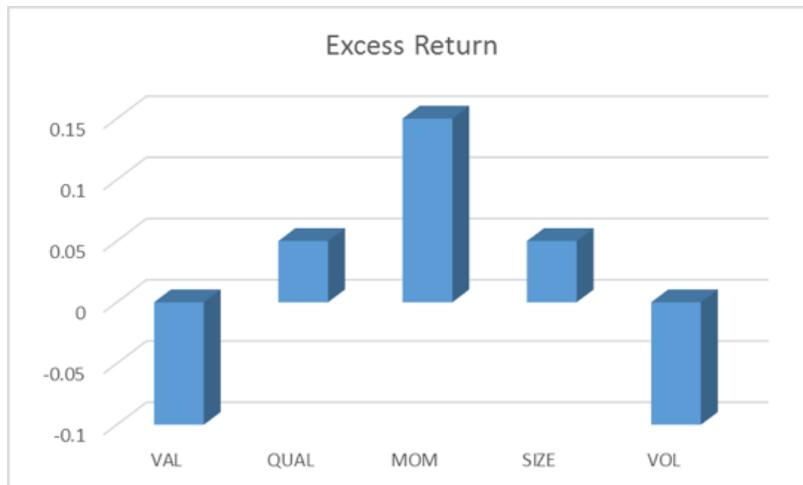
This chart is provided to you solely for information and educational purposes. The illustration does not represent any particular investment, and is not based on any historical performance data.

*Symmetry Partners' investment approach seeks enhanced returns by overweighting assets that exhibit characteristics that tend to be in accordance with one or more "factors" identified in academic research as historically associated with higher returns. Please be advised that adding these factors may not ensure increased return over a market-weighted investment and may lead to underperformance relative to the benchmark over the investor's time horizon.

**Symmetry Partners does not currently seek exposure to this factor.

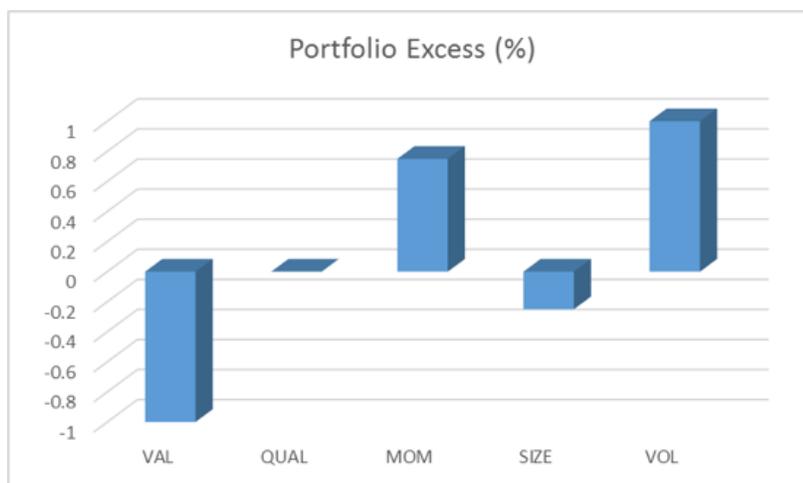
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As can be seen, this hypothetical portfolio has a greater allocation to value and momentum, while quality is the same weight as the market index. Because the idea of size and volatility is that large and high volatility companies and stocks tend to underperform, they have lower weightings in the portfolio. This is good to know from an awareness perspective, but it becomes more important when one looks at returns for a given performance period, let's say for a quarter.



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During this hypothetical quarter, because factors behave differently than market indexes and due to varying correlations (how factors perform relative to one another), they provided excess returns, some positive and some negative. In this case, value and high volatility stocks underperformed while quality, stocks with positive momentum, and large company stocks all outperformed. Putting performance together with relative weights, we can understand attribution – how weights to the factors multiplied by their relative performance impacts the actual portfolio excess return.



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As seen earlier, the hypothetical portfolio had a higher weighting to value and momentum. Value performed poorly, but momentum performed well. On balance, the overweight to value detracted from relative returns, but the overweight to momentum contributed. Conversely, the portfolio had a lower weight to large companies and more volatile stocks. Because large companies outperformed, lower exposure to them detracted, but higher volatility stocks underperformed, so lower exposure to them contributed. The exposure to quality had no impact. Even though those companies did better, the portfolio and the index had the same weight, resulting in a wash. The net result of all of this was the portfolio would have done better than the index thanks to the overweight to stocks with momentum and those with lower volatility. Of course, as noted, this is not an actual portfolio, but rather a hypothetical one to help illustrate how to evaluate factor exposures in the context of performance evaluation.

It is worth noting that, even if a portfolio is not specifically targeting factors, ALL portfolios have exposure to them. Therefore, this type of analysis can be valuable to any investor.

While some of these considerations can seem complex, attribution is a valuable tool to understand what is truly impacting a portfolio's performance. It has value because, as stated at the outset, these factors are academically and empirically proven to outperform a market index over time.¹ Bearing that in mind and understanding that they are doing what they are supposed to do at any given point in time can help an investor stay invested.

¹ The major factors in equity markets used by Symmetry and some associated academic research are: the market risk premium (Sharpe, William F. "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk." *The Journal of Finance*, Vol. 19, No. 3 (Sept. 1964), 425-442.), value (Fama, Eugene and Ken French. "Common risk factors in the returns on stocks and bonds." *Journal of Financial Economics*, 33, (1993), 3-56.), small (Banz, Rolf W. "The Relationship Between Return and Market Value of Common Stocks." *Journal of Financial Economics*, 9 (1981), 3-18.), profitability (Novy-Marx, Robert. "The Other Side of Value: The Gross Profitability Premium." *Journal of Financial Economics*, 108(1), (2013), 1-28.) quality (Asness, Clifford S.; Andrea Frazzini; and Lasse H. Pedersen. "Quality Minus Junk." Working Paper.), momentum (Jegadeesh, Narasimhan and Sheridan Titman. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *The Journal of Finance*, Vol. 48, No. 1, (March 1993), 65-91.), and minimum volatility (Ang, Andrew, Robert J. Hodrick, Yuhang Xing and Xiaoyan Zhang. "The Cross-Section of Volatility and Expected Returns." *The Journal of Finance*, Vol. 61, No. 1 (Feb. 2006), pp. 259-299.). On the bond side, Symmetry primarily seeks to capture maturity and credit risk premiums (Ilmanen, Antti. *Expected Returns: An Investor's Guide to Harvesting Market Rewards*. WileyFinance, 2011, p157-158 and 183-185.). All data is from sources believed to be reliable but cannot be guaranteed or warranted.

Important Information

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