



Smart Beta: You Can't Repeat the Past

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"Can't repeat the past?" he cried incredulously. 'Why of course you can.'" – The Great Gatsby, F. Scott Fitzgerald

Against the backdrop of a low expected return environment, smart beta is gaining heavy popularity as investors search for excess return from their passive investments or move away from higher cost active managers to enhance net returns. According to BlackRock, a leading ETF provider, there are \$282 billion invested in smart beta ETFs. BlackRock estimates that these funds will reach \$1 trillion by 2020 ¹.

An Introduction to ETFs

Exchange Traded Funds, as the name implies, are pooled investment vehicles with shares that can be bought or sold throughout the day on a stock exchange at a market determined price. The underlying portfolio can own baskets of securities and provide access to a wide variety of financial markets - including US and international equities, bonds, commodities, currencies and alternative strategies. The vehicle combines features of both a mutual fund and a stock. An ETF is similar to a mutual fund in that it provides broad exposure to a group of securities through a single transaction. However, unlike a mutual fund, investors do not purchase or redeem shares from the mutual fund company but rather shares of an ETF are bought or sold on an exchange similar to a stock, meaning that ETFs provide intra-day liquidity. For a more detailed look at the structure of ETFs as well as the advantages and disadvantages please refer to Craig Sullivan's whitepaper "An Introduction to Exchange Traded Funds" from June 2015 which is available upon request.

What makes smart beta "smart"?

Smart beta ETFs are "smart" in the sense that they screen stocks for certain traits, or "factors", that have outperformed in the past, rather than blindly buying them based on market capitalization as traditional capitalization weighted index ETFs do. However, smart beta does not necessarily need to have different holdings than a typical market-weighted index; in addition to screening for certain factors, smart beta is unique in the method by which it weights its holdings. Market capitalization weighted indexes, such as the S&P 500, will increase a holding's weight if it rises relative to the other constituents of the index. For example, if XYZ stock is currently 3% of the S&P 500, and XYZ doubles in price (and market capitalization as a result) while other constituents remain flat, XYZ will then be 6% of the index. Many view this as a flaw of market weighted indexes, as they increase holdings based on their

¹ BlackRock. (2016). *BlackRock projects smart beta ETF assets will reach \$1 trillion globally by 2020, and \$2.4 trillion by 2035* [Press Release] Retrieved from blackrock.com/corporate/en-us/newsroom/press-releases/article/corporate-one/press-releases/blackrock-smartbeta-research_US

size alone, regardless of fundamentals. Smart beta ETFs generally equal-weight or fundamentally weight their holdings. If XYZ was held in a value-tilted, fundamentally-weighted Smart Beta ETF, and it were to double in price, the ETF would likely trim its position if the price increase was not supported by increased earnings or increased book value.

What is beta?

To understand the premise of smart beta, it is important to understand what “beta” is, and how it has shaped portfolio theory through the years. Modern Portfolio Theory, developed by Harry Markowitz in 1952, asserted that there are two types of risk inherent in stocks: systematic and unsystematic risk. Systematic risk, also known as market risk, is undiversifiable. It is the risk that is attributable to forces that a business cannot control. For example, during a recession, a construction stock will likely suffer due to decreased building demand. There may not be anything fundamentally wrong with the construction company, but its profits will decline due to market conditions. Unsystematic risk, also known as business risk, can be diversified. To use the previous example, that construction company could also perform poorly in an economic boom due to a poor business model or fraudulent accounting practices.

In 1964, William Sharpe developed the Capital Asset Pricing Model (CAPM), which states that because unsystematic risk can be diversified away, investors should only be compensated for systematic risk. Therefore, an investor can only beat market returns by taking more systematic risk. CAPM refers to systematic risk as beta, as demonstrated in the following formula.

$$r_a = r_{rf} + B_a (r_m - r_{rf})$$

Where:

r_{rf} = the risk free rate of return (the three month U.S. Treasury bill yield is often used for this)

r_m = expected return of the market

B_a = beta of the asset (systematic risk)

For example, if we assume that: 1) XYZ has a beta of 1.4 (market beta is 1, meaning that XYZ moves 40% greater than the market’s swings), 2) an expected market return of 6%, and 3) a 3 month Treasury bill yield of 0.50%, we can determine that XYZ has an expected return of 8.2%.

$$8.2\% = 0.5 + 1.4 (6\% - 0.5\%)$$

In 1992, Eugene Fama and Kenneth French challenged CAPM with their three factor model. By back-testing market performance, they found that in addition to beta, capitalization size and price-to-book ratio also determined a stock’s return. In short, their research proved that small cap and value stocks historically received an additional premium. Since then, academics have been trying to uncover additional factors that outperform.

So, the basis for smart beta investing has been around for some time, but has only recently gained popularity in the ETF industry. Smart beta ETFs are simply an attempt to beat the market by investing in factors that have outperformed on a historically back-tested basis, within the structure of an ETF. Common factors touted as outperformers are value, momentum, size, and low volatility.

Value

Value investing seeks to outperform the market by investing in stocks that are cheap: typically those that have low price to earnings and/or price to book ratios. It is important to remember that stocks can be cheap for a reason. Value stocks may be priced lower than peers to reflect poor fundamentals. Value strategies outperformed after the financial crisis because they were very overweight financial stocks, which were cheap due to their broad sell-off and subsequent low PE ratios. While the financial sector may have been cheap on a relative basis at the time, it was certainly one of the riskiest sectors.

Momentum

Momentum investing seeks to outperform by buying and selling based on trends. This strategy trades like the emotional, undisciplined investor: it buys stocks that have strong recent performance and sells stocks that have poor recent performance, with the assumption that these trends will continue.

Past performance does indicate that over the long term, momentum does outperform the market. However, the volatility of the momentum strategy can be hard to stomach. Momentum performs worst during volatile times, such as recessions, adding insult to an already injured portfolio. Further, due to its high turnover nature, momentum generates high taxes and transactions costs.

Size

Small cap companies are less financially stable and have less predictable revenue than large cap companies and, as such, are riskier to invest in. Investors should therefore receive higher return to compensate for higher risk. While Fama and French found that small cap historically earned excess return over large cap, they did not find that small cap earned excess risk-adjusted return. The small cap premium is not a free lunch.

Low Volatility

Low volatility investing exploits the anomaly in which low volatility stocks earn higher returns than high volatility stocks. This contradicts the basis of Sharpe's CAPM: investors should be compensated for assuming risk. Academics attribute this anomaly to behavioral factors. Investors have a bias towards stocks that have the opportunity for high payouts and therefore pay too much for them, even though the probability of the high payout may be low. This is also known as the "lottery effect". Ironically, this causes stocks with low volatility to fall by the wayside, making them cheaper and giving them higher upside over the long term. Investing in low volatility stocks requires the discipline to wait out underperformance during bull markets, as high volatility stocks leave you in the dust. Low volatility stocks will have both low upside and downside capture in the short term.

Multifactor ETFs

A roadblock for successful factor investing is the volatility inherent in these factors. Factors will perform much differently than the market, tempting investors to jump ship during periods of underperformance. In addition to volatility, there is also the issue of timing the entry and exit of individual factors. The market as a whole is extremely difficult to time, and individual factors even more so. While in theory an investor could have historically earned a greater return than the market through factor investing, in practice, it would have been a difficult feat due to the volatility of the factors.

Comparison of factor and market annual returns 2006 - 2015

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Value 25.6%	Momentum 24.4%	Low Vol -27.3%	Small 48%	Small 24.4%	Low Vol 2.7%	Momentum 17.5%	Momentum 26.8%	Low Vol 12.9%	Low Vol 2.9%
Momentum 23%	Market 11.7%	Value -41.6%	Market 34.6%	Momentum 16%	Momentum 1.9%	Market 16.1%	Small 26.6%	Momentum 5.9%	Momentum 1.9%
Market 21%	Value 6.7%	Market -42.2%	Value 31.7%	Market 12.7%	Market -7.3%	Small 16%	Market 22.8%	Market 4.2%	Market -2.4%
Small 19.4%	Small 5.4%	Small -44.7%	Momentum 19.3%	Value 10.2%	Value -7.3%	Value 15.6%	Value 22.4%	Value 2.9%	Small -2.6%
Low Vol 17.5%	Low Vol 0.9%	Momentum -45.2%	Low Vol 11.5%	Low Vol 8.2%	Small -12.8%	Low Vol 8%	Low Vol 18.1%	Small 0.25%	Value -6.3%

Source: Bloomberg. Indices used are the MSCI ACWI, MSCI ACWI Minimum Volatility, MSCI ACWI Value, MSCI ACWI Small Cap, and MSCI ACWI Momentum.

The solution that the ETF industry has contrived is multifactor ETFs, which combine single factors into one ETF, providing a one-stop shop for factor investing. The industry standard is to equal-weight several factors into one ETF, thereby avoiding any bets that one factor will outperform another. What the investor ends up with, however, is something that looks and performs much like the market. While this is a less volatile alternative to single factor investing, it seems to only replicate the market, rather than outperform it. For example, one popular US large cap multifactor ETF combines value, quality, momentum, and low volatility, and has garnered over \$1 billion in assets since its inception in September 2015. Over that time it has had significant daily correlation to the S&P 500 at .987 (a correlation of 1.0 being perfectly correlated), and has actually underperformed the S&P 500 by 3.73% through November 21, 2016.

Is smart beta active or passive?

An investment does not necessarily need to track an index to be “passive”. By definition, a passive investment is one that applies a disciplined, rules-based strategy and does not deviate from that strategy. For example, a passive value-based strategy might invest in a stock if it has an attractive price to book ratio relative to other stocks, and would not sell until it became more expensive than the parameters of the strategy allowed. An active manager running a value strategy might invest in that same stock, but he could sell it due to his own outlook of the company, even if it were no more expensive than when he bought it. Smart beta ETFs do not incorporate human discretion; they adhere to predetermined rules and rebalance periodically based on those rules.

However, smart beta ETFs are viewed as active investments in that they do not “own the market” in the same manner that a market capitalization weighted index fund does. By weighting and screening stocks differently than a traditional index, smart beta ETFs place “active” bets that certain stocks will outperform the market. Additionally, similar to active investing, smart beta relies on the assumption that the market is inefficient: if the market were efficient, then there would be no risk-adjusted excess return for certain factors.

Conclusion

One must recognize that these factors have only been promoted because they have outperformed on a historically back-tested basis. There is no guarantee that these factors will outperform going forward. Furthermore, it is important to note the explanation for the excess returns for each of these factors: they are either a risk premium, meaning that the return over the market is only compensation for additional risk, or they are a behavioral phenomenon, meaning that investors have made suboptimal investment decisions due to their preferences or emotions. The latter, by the nature of markets, is an edge that can be competed away. Sophisticated investors will discover this opportunity and arbitrage it until there is no excess return. The proliferation of investors chasing factors that have historically outperformed will cause the excess returns to be competed away. Smart beta marketers are much like a wishful Jay Gatsby trying to rekindle an old flame. Neither in love, nor investing, can you repeat the past.

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