

## AFTER SMART BETA – BREAKING DOWN FACTORS

*Part 2 in a Series*

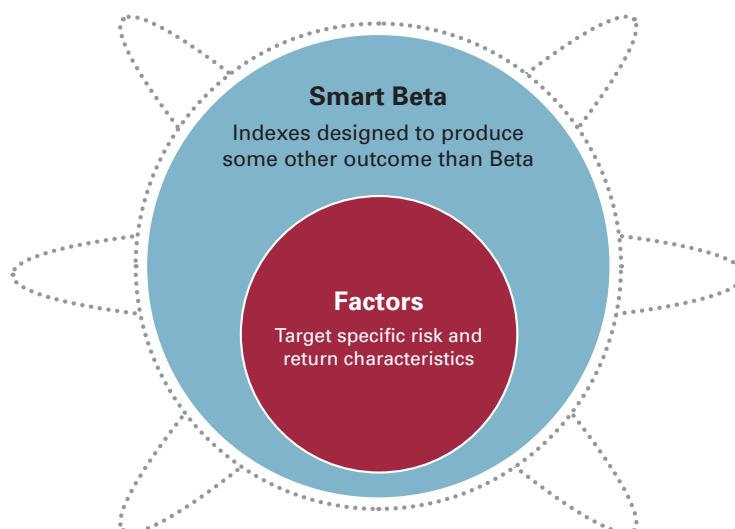
### EXECUTIVE SUMMARY

- The proliferation of Smart Beta and factor investing has made it considerably more important to understand the differences (and similarities) between the two.
- Investors need to understand that factor investing has a long history rooted in academic research, supported by real-world results.
- All factors are not the same and they can work together, or within a broader portfolio, to support long-term investment goals.
- Symmetry works closely with investors to help demystify factors and clarify how they can potentially benefit from them.

In Part 1 of this series on Factor Investing: The Conundrum of Smart Beta ETFs, the topic of moving beyond simple passive investment in market-cap-weighted indices to Smart Beta was explored. In addition to addressing the complexity of the ETF landscape in light of recent fund closures, we discussed:

1. What is Smart Beta?
2. How does an investor utilize it to invest?
3. How is it implemented?

A basic summary is that the term Smart Beta refers to a reshuffling of Beta (simple exposure to a market index like the S&P 500) in a manner that allows investors to pursue a different objective, such as income generation, risk reduction, return enhancement, or some combination of those. One may apply some intellectual capacity to a simple market-cap-weighted index such that the index is re-ordered, and potentially narrowed, using the same stocks (or bonds or currencies, etc.), weighted differently, based upon the selected characteristics or criteria.



An academically and intellectually rigorous progression from active to passive investing, beyond a simple market-cap-weighted index, is to use factor-based strategies. In Part 2 of this series we will discuss factors in more detail, including:

1. What is a factor?
2. Identification of specific factors
3. How factors work together
4. How factors have been used historically

**FACTOR**, as defined by Merriam-Webster: Noun; something that helps produce or influence a result; one of the things that cause something to happen.

## CAUSE IS TO EFFECT AS RISK IS TO RETURN

For the purposes of this paper, factors are simply the basic elements that influence one's investment outcome. One way to think about this is to liken factors to the foods you eat. One recognizes that different foods have different nutrients that will cause different effects on one's health.

For example, lean meat is one way to deliver protein to the body and will therefore have the effect of helping it build and maintain muscle. However, building muscle is not the only thing a body needs. The body also has a digestive system. In order to help maintain it, one can get probiotics by eating yogurt. Of course, one should never forget to keep up cardiovascular health, which benefits from foods such as fish and nuts.

Similar to foods having different effects on health, factors will have varying effects on investment outcomes. For example, value stocks can have the effect of enhancing returns relative to a market-cap-weighted index. Low volatility stocks, on the other hand, may produce market-like returns over time, but may reduce equity portfolio risk.

Regardless of the potential investment benefit delivered by factors, there's a catch. Like eating certain foods, they come with risks.

The overarching risk associated with investing in stocks is market risk. Within market risk there are specific features which have been identified and studied that can be used to the benefit of the investor. Some of these risks are accessible through quantifiable methods, and others result from the acts of taking specific risks themselves.

One example of risk that comes from being in the market is volatility – markets go up and markets go down, it is the nature of the beast – investors should stick to their stated objective and not act reflexively. Another risk comes from the actual act of making investment decisions; that is, by not simply investing passively into a market index, you will experience some form of a discrepancy between your holdings and the index itself – this is called tracking error.

**Factor investing** is the acceptance of identifiable elements of risk that can be identified across various assets, and have been shown over time to have a meaningful impact on returns and/or risk reduction.<sup>1</sup>

The first academically accepted factor, the Market Risk Premium ('MRP'), was introduced to the investment community in the 1960s by Sharpe, Markowitz and Miller, by way of the Capital Asset Pricing Model ('CAPM'). CAPM identifies a MRP for taking risk in a volatile stock market, as the anticipated rate of return minus a risk free rate (commonly a U.S. Treasury).

<sup>1</sup> Ang, Andrew, Factors Really Matter: What is a Factor?, Asset Management, Ch. 14, Oxford University Press, 2014.

In the early 90's, now-Nobel laureate Eugene Fama and Ken French further identified two additional factors. These factors improved the predictability of expected returns for a stock portfolio over a long-term investment period. They found small company stocks outperformed large company stocks (the size factor) and value stocks outperformed growth stocks (the value factor). Their belief is small cap and value stocks have more risk associated with them, and as such, outperform over time.

Because investors are actively seeking an outcome, they are willing to take on some risk. By identifying and embracing specific areas of risk, investors may be able to increase their probability of: (1) achieving better than average market returns over a long-term investment period, and (2) reducing overall risk. These two outcomes are not guaranteed, nor are they mutually exclusive.

## FACTORS IDENTIFIED THROUGH ACADEMIC RESEARCH

While gaining a wider audience and following, the adoption of factor investing strategies is still in a stage of relative infancy. The first factors that gained acceptance, Market, Size, and Value were the tip of the iceberg for data/statistical gurus. Since Fama and French developed their Three-Factor Model, there has been a rise in the utilization of additional factors to systematically identify areas of risk which can be used to further help predict the expected returns of equities. Currently, the most widely adopted factors include: Market, Size, Value, Momentum, Volatility, Quality, and Yield\*.

Through rigorous academic study and peer review, the Fama/French Three-Factor Model came to be recognized as able to identify approximately 94% of returns in a diversified stock portfolio. These fundamental factors now share the academic research landscape with factors from the statistical and macroeconomic camps as well.

**Fundamental Factors** are used to screen a company by looking at its core financial metrics, as identified in their financial statements – Balance Sheet, Income Statement, Statement of Cash Flows, etc. Value factors include variations of Book Value to Price, Earnings to Price, etc. Quality factors seek companies with stable fundamentals and higher profitability.

**Macroeconomic Factors** can include the user's interpretation of GDP growth, inflation, sector prospects, etc. These are generally less frequently used in the current marketplace.

**Statistical Factors** seek to leverage the explanatory power of data by analyzing security returns<sup>2</sup> – factors such as Momentum are determined in this manner.

## HOW DO FACTORS WORK TOGETHER / WHY USE THEM?

It is important to remember that factors identify specific components of risk, and one on its own may not be able to provide enough value to be an effective tool in investment management, unless one is using it to diversify an existing portfolio, or to express some specific market view, which is beyond the scope of this paper. Fama and French's three factor model had to incorporate three factors to achieve a high level of predictive value to be useful. Factors are meant to be used together to increase an investor's likelihood of achieving the outcome they are seeking. Some factors complement each other, while others may partially balance each other out, such as Value and Momentum – when a stock rises with Momentum its position as a Value stock tends to decrease.

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

<sup>2</sup> Connor, Gregory, 'The Three Types of Factor Models: A Comparison of Their Explanatory Power', MSCI.

For additional information about Symmetry Partners, LLC, factor investing, index definitions, and exchange trade funds ("ETFs"), and the charts and limitations to the performance information, please see disclosure in back labeled Important Information.

The chart below is another example of the importance of diversification when investing. There are a couple of key takeaways<sup>3</sup>:

1. The market is volatile and cyclical, so it is important to be diversified and maintain a balanced strategy when investing – chasing returns often leads to suboptimal performance (as is commonly cited and typically referenced in the annual Dalbar study). It is critical to understand that the success of an investment strategy depends on the ability to stay with it over time and not abandon it in the face of volatility.
2. The black line represents the overall market return. If a factor is above the line, it outperformed the market; if it is below, it underperformed the market. Factors do not always outperform; just like any investment they don't all work every year. But more often than not, over time, they do outperform. From 1999 through 2015, when combining the outperformance of long-only factor-tilted indices below, the average annual outperformance of the factors is greater than 2%. It is also important to note, when tilting toward any one of the factors, an investor will experience tracking error, which will vary by the factor's return relative to the market.

### Excess MSCI Factor Index Returns (1999-2016)\*\*

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Positive Excess Return		Dividend Yield 21.49																	
		Small Cap 21.23	Small Cap 28.99	Momentum 10.56			Multi-Factor 10.36												
		Low Volatility 15.37	Dividend Yield 7.41	Dividend Yield 9.45			Small Cap 8.61	Momentum 13.59			Low Volatility 11.48								
		Value 15.33	Low Volatility 4.21	Multi-Factor 8.28			Momentum 6.14	Multi-Factor 9.94			Dividend Yield 9.53		Small Cap 12.52	Dividend Yield 12.29					
		Momentum 18.25	Multi-Factor 10.41	Multi-Factor 3.25	Low Volatility 7.40	Small Cap 24.99	Value 3.85	Low Volatility 0.90	Value 6.65		Quality 6.95	Small Cap 12.59	Multi-Factor 2.86	Quality 6.41			Small Cap 5.65	Low Volatility 3.17	Small Cap 8.20
		Small Cap 10.95	Quality 3.12	Quality 2.61	Quality 3.24	Value 4.25	Low Volatility 3.80	Value 0.27	Dividend Yield 5.74	Momentum 11.78	Value 1.75	Quality 4.90	Momentum 2.76	Multi-Factor 5.34		Multi-Factor 4.79	Dividend Yield 1.55	Momentum 7.98	Dividend Yield 5.26
		Multi-Factor 1.69	Momentum 3.07	Value 0.27	Value 0.15	Multi-Factor 2.44	Dividend Yield 1.12	Small Cap 0.01	Multi-Factor 1.28	Quality 4.61	Small Cap 1.26	Multi-Factor 2.64	Dividend Yield 0.43	Momentum 4.10	Small Cap 2.09	Quality 0.90	Momentum 1.32	Low Volatility 4.33	Multi-Factor 2.06
	Negative Excess Return	Quality -2.23		Momentum -5.18	Small Cap -0.34	Momentum -2.94	Quality -0.53	Dividend Yield -2.02	Low Volatility -0.36	Multi-Factor -0.54	Multi-Factor -2.21	Dividend Yield -8.75	Low Volatility -0.75	Value -0.50	Multi-Factor -0.39	Value -0.29	Quality -1.08	Value -0.61	Low Volatility -0.94
		Value -11.54				Dividend Yield -4.82		Quality -3.20	Small Cap -0.65	Low Volatility -1.72	Momentum -3.75	Low Volatility -8.79	Value -1.08	Small Cap -5.02	Momentum -1.04	Dividend Yield -3.73	Quality -1.55	Multi-Factor -0.88	Quality -3.64
		Low Volatility -14.58				Quality -8.93			Quality -3.30	Value -5.54		Value -9.10	Quality -2.80		Value -1.14	Low Volatility -7.28	Small Cap -5.81	Value -3.26	Momentum -6.48
Dividend Yield -27.01					Low Volatility -9.13			Momentum -4.57	Dividend Yield -6.06		Momentum -9.50			Quality -2.16			Small Cap -4.96		
									Small Cap -9.02					Low Volatility -4.95					
MSCI US		22.38	-12.54	-12.03	-22.71	29.11	10.71	5.72	15.22	6.03	-27.14	27.14	15.45	1.99	16.13	32.61	13.36	1.32	11.61

Source: All returns from Morningstar Direct and derived from MSCI USA GR Indices. For a description of the indexes and the limitations to the performance information please see disclosure in back.

### Excess Return Correlations for MSCI Factor Indexes\*\*

January 1, 2001 – December 31, 2016

	US Small Cap	US Value	US Dividend Yield*	US Momentum	US Quality	US Low Volatility
US Small Cap	1.00					
US Value	0.03	1.00				
US Dividend Yield	-0.37	0.55	1.00			
US Momentum	0.08	-0.36	-0.07	1.00		
US Quality	-0.49	-0.38	0.15	0.14	1.00	
US Low Volatility	-0.30	0.17	0.72	0.27	0.37	1.00

Source: Morningstar

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

\*\*Please note that the charts above are not limited to the factors that Symmetry Partners seeks exposure to.

<sup>3</sup> Concepts from: Vanneman, Rusty, CIO CLS Investments, 'No This Is Not An Ugly Chart on Factor Investing', EFTrends.com, 2006.06.07.

Diversification seeks to reduce the volatility of a portfolio by investing in a variety of asset classes. Neither asset allocation nor diversification guarantee against market loss or greater or more consistent returns.

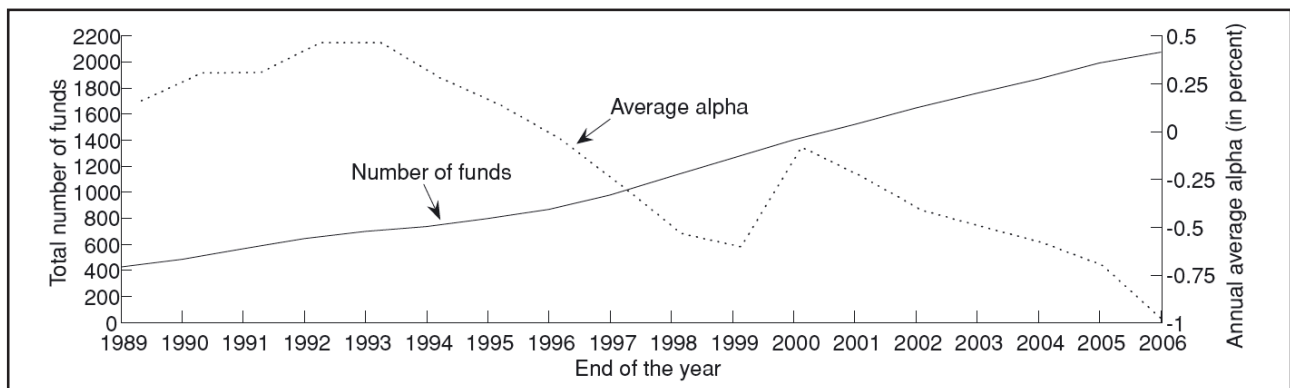
For additional information about Symmetry Partners, LLC, factor investing, index definitions, and exchange trade funds ("ETFs"), and the charts and limitations to the performance information, please see disclosure in back labeled Important Information.

The equity risk factors, all of which are derivative of the same market risk, have significantly reduced overlap and will generally produce results independent of one another. The table above highlights some of the prominent factors in use today and the correlation of their movements. The strongest relationships among the factors are a positive correlation between Dividend Yield\* and Value as well as Low Volatility. Furthermore, it is important to note that these relationships can change over time. These two charts show why it is prudent to combine factors in a portfolio allocation. An investor can achieve diversification of risk and return, while also minimizing redundancy in one's portfolio, thus potentially allowing an investor to passively extract the maximum return possible over a long-term time horizon.

## MARKET USE OF FACTORS

It is now a common understanding that some form of factor investing has always existed, primarily in the active fund management space. Active managers would, and still do, package their returns as 'alpha' – excess returns above the chosen market benchmark. Over time, as factors came into prominence, investors have recognized that many of these managers simply employed elements of factor investing, with portfolios moderately or heavily tilted toward value, small cap stocks, momentum, etc. With this knowledge, the ability of managers to actively generate alpha has decreased substantially as indicated in the graph below. After subtracting fees from active manager returns, the alpha generated is considerably lower, if it exists at all.

## TOTAL NUMBER OF FUNDS AND AVERAGE ALPHA



**Source:** Barras, L., Scaillet, O., & Wermers, R. (2010). False discoveries in mutual fund performance: Measuring luck in estimated alphas. *The Journal of Finance*, 65(1), 179-216.

Over time, the ability of active managers to achieve alpha has decreased as the number of funds/capital has increased in the market.

## CONCLUSION

Factors are an important influence in our everyday decision making process. At Symmetry Partners, we believe it is no different in the investment world. Through extensive research, the academic world has concluded that there is a way to identify and approach the greatest challenge a prudent investor faces – how to manage portfolio risk and return. By identifying the various components of risk, and the return characteristics that each provides, investors can increase their probability of achieving better than average market returns over time. Factor-based investing can potentially replicate the returns, and in some cases reduce the risk of active management, provide investors with a powerful tool to approach risk management, and potentially provide downside protection of capital.

## Important Information

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Factors are sources of expected returns. Symmetry searches for factors that have been shown historically to deliver higher returns over time. 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. The factors Symmetry seeks to capture may change over time at its discretion. Currently, 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.

ETFs do not sell individual shares directly to investors and only issue their shares in large blocks. Exchange traded funds are subject to risks similar to those of stocks. Investment returns will fluctuate and are subject to market volatility, so that an investor's shares, when redeemed or sold, may be worth more or less than their original cost. ETF shares are bought and sold at market price (not NAV) and are not individually redeemed from the fund. Brokerage commissions will reduce returns. Exchange-traded funds tend to distribute fewer capital gains than traditional open-end mutual funds due to the in-kind redemption process, which allows the ETF to swap out low cost-basis securities. Be advised that this process defers taxes, but does not eliminate them. Investors will owe capital gains taxes on gains made in their own ETF shares.

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**S&P 500 Index** represents the 500 leading U.S. companies, approximately 80% of the total U.S. market capitalization.

**MSCI USA Small Cap** is designed to measure the performance of the small cap segment of the US equity market. With 1,864 constituents, the index represents approximately 14% of the free float-adjusted market capitalization in the US.

**MSCI USA Momentum GR USD** is based on MSCI USA Index, its parent index, which captures large and mid cap stocks of the US market. It is designed to reflect the performance of an equity momentum strategy by emphasizing stocks with high price momentum, while maintaining reasonably high trading liquidity, investment capacity and moderate index turnover.

**MSCI USA Quality GR** is based on the MSCI USA Index, its parent index, which includes large and mid cap stocks in the US equity market. The index aims to capture the performance of quality growth stocks by identifying stocks with high quality scores based on three main fundamental variables: high return on equity (ROE), stable year-over-year earnings growth and low financial leverage.

**MSCI USA Diversified Multifactor GR USD** is based on a traditional market cap weighted parent index, the MSCI USA Index, which includes US large and mid cap stocks. The index aims to maximize exposure to four factors – Value, Momentum, Quality and Low Size -- while maintaining a risk profile similar to that of the underlying parent index.

**MSCI USA High Dividend Yield GR USD** based on the MSCI USA Index, its parent index, and includes large and mid cap stocks. The index is designed to reflect the performance of equities in the parent index (excluding REITs) with higher dividend income and quality characteristics than average dividend yields that are both sustainable and persistent. The index also applies quality screens and reviews 12-month past performance to omit stocks with potentially deteriorating fundamentals that could force them to cut or reduce dividends.

**MSCI USA Minimum Volatility GR USD** aims to reflect the performance characteristics of a minimum variance strategy applied to the large and mid cap USA equity universe. The index is calculated by optimizing the MSCI USA Index, its parent index, in USD for the lowest absolute risk (within a given set of constraints). Historically, the index has shown lower beta and volatility characteristics relative to the MSCI USA Index.

**MSCI USA Value GR USD** captures large and mid cap US securities exhibiting overall value style characteristics. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield. With 315 constituents, the index targets 50% coverage of the free float-adjusted market capitalization of the MSCI USA Index.

**MSCI USA GR USD** is designed to measure the performance of the large and mid cap segments of the US market. With 622 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in the US.

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