

Schwab Center for Financial Research™

Strategic beta strategies: An evaluation of different approaches

A white paper by
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The last several years have seen a proliferation of strategic beta strategies. Strategic beta strategies are designed to provide market exposure based on non-price-weighted fundamentals or economic factors. Often referred to as “smart beta” or “alternative beta,” these strategies offer the potential for attractive risk-adjusted returns and can be used in conjunction with traditional market-cap and actively managed strategies to help create a diversified portfolio.



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Anthony Davidow is responsible for providing Schwab’s point of view on asset allocation and portfolio construction. He is also responsible for providing research and analysis on alternative beta strategies and how investors should incorporate them in their portfolios. Davidow is also a member of the firm’s Asset Allocation Council.

Before joining Schwab, Davidow was a managing director, portfolio strategist, and head of the ETF Knowledge Center for Guggenheim Investments. Before joining Guggenheim, Davidow was executive vice president and head of distribution for

IndexIQ. Previously, he spent 15 years at Morgan Stanley, where he served as managing director and head of sales and training for the Consulting Services Group. While at Morgan Stanley, he worked with many of the firm’s largest clients in developing and implementing asset allocation strategies, incorporating active and passive strategies, and using alternative investments as risk management tools.

Davidow has authored several white papers and strategy pieces and spoken at industry conferences on a range of topics, including “The Merits of Core-Satellite Investing,” “Asset Allocation and Manager Selection: Adaptive Allocation,”

“Alpha-Beta Separation,” “Democratizing Alternative Investments,” “The Role and Use of Alternative Investments,” “Currency as an Asset Class,” “An Evolutionary Approach to Portfolio Construction,” and “Strategic Beta Strategies,” among others.

Davidow holds a B.B.A. degree in finance and investments from Bernard M. Baruch College and has earned the Certified Investment Management Analyst (CIMA®) designation from the Investment Management Consultants Association (IMCA) and the Wharton School of the University of Pennsylvania. He served on the board of directors for IMCA from 2009 to 2014. He holds FINRA Series 7, 24, and 63 registrations.

In this paper, we will discuss several different types of strategic beta strategies available in the market today. We will provide a high-level comparison of their weighting methodologies and explore the biases or tilts introduced as a result of each methodology. In addition, we will cover the following topics:

- How strategic beta and market-cap strategies compare
- Examining the current landscape of strategic beta indexes
- What to consider when implementing strategic beta strategies in your portfolios

Market-cap indexes

Most of the major indexes (e.g., S&P 500® Index, Russell 1000® Index, Russell 2000® Index, MSCI EAFE® Index) are market-cap weighted, meaning that the largest companies by market cap (number of outstanding shares multiplied by share price) have the largest weight in the index, creating a large-cap bias (see *Fundamentally weighted indexing: Weighing the difference*). In addition to their larger-cap bias, market-cap indexes often have growth biases and, in our opinion, tend to overweight overpriced securities. Market-cap indexes tend to include companies that have been bid up by the market, and are often more expensive than other companies available in the market. The largest companies often exhibit momentum and have grown faster than the overall market. For example, as Apple became more popular with consumers and Wall Street analysts, its stock price rose dramatically, and it became the largest company by market capitalization.

Market-cap indexes serve valuable benchmarking roles: Active managers can tout their history of outperforming a benchmark as a gauge of their value, or the index can provide a barometer of a particular market's performance. Index-based mutual funds and most exchange-traded funds (ETFs) seek to mimic the various market indexes rather than depend on an individual manager's ability to pick stocks. The extraordinary growth of ETFs since their inception in 2001 has been fueled in part by many actively managed mutual fund managers' inability to consistently outperform their benchmarks.¹

Institutions were early adopters of index-based strategies. In fact, the first index-based strategy was developed in 1971 by Wells Fargo for the Samsonite Corporation.² As investing has evolved, institutions have been challenging the conventional wisdom that market-cap indexes are the only way to own the market. Institutional demand and academic research have led to the development of strategic beta strategies. More recently, individual investors have also begun using strategic beta strategies in their portfolios as more of these strategies are being made available in the market.

¹Aye M. Soe, "Does Past Performance Matter? The Persistence Scorecard," S&P Dow Jones Indices, Dec. 2014.

²Frank J. Fabozzi, *Perspectives on Equity Indexing*. Hoboken: Wiley, 2000, 41–42.

Strategic beta

If *beta* is defined as the market risk of a basket of stocks, then *strategic beta* represents a different way of constructing the basket. Popular strategic beta strategies include equal weighting, fundamental weighting, minimum variance, and low volatility. These strategies vary based on the underlying indexes, economic factors screened, and weighting methodologies.

With the strong growth of non-capitalization-weighted strategies, Morningstar has begun to track flows and assets under management (AUM) in strategic beta strategies. It has established a broad classification of strategic beta strategies, further breaking them down into subcategories of **return-oriented**, **risk-oriented**, and **other** (see Exhibit 1). “Return-oriented” includes such strategies as multi-factor, quality, momentum, and fundamentals. “Risk-oriented” includes low beta, high beta, and minimum variance. “Other” includes multi-asset and equal-weighted.

Exhibit 1: Morningstar’s strategic beta taxonomy

Return-oriented	Risk-oriented	Other
Dividend Screened/Weighted	Minimum Volatility/Variance	Non-Traditional Commodity
Value	Low/High Beta	Equal-Weighted
Growth	Risk-Weighted	Non-Traditional Fixed Income
Fundamentals		Multi-Asset
Multi-Factor		
Size		
Momentum		
Buyback/Shareholder Yield		
Earnings Weighted		
Quality		
Expected Returns		
Revenue Weighted		

Source: Morningstar.

Based on Morningstar’s research, there are now roughly 919 exchange-traded products (ETPs) with more than \$515 billion in AUM. Strategic beta strategies have grown at a rate of more than 25% over the last two years, nearly double that of non-strategic beta strategies. We believe that the appeal has come from strong performance results, new entrants to the marketplace, and a longer track record. As an example, in 2015, the RAFI Fundamental Index™ strategy celebrated its 10th anniversary.

Among strategic beta strategies, fundamental strategies have been a major focus of research studies. Rob Arnott and his colleagues at Research Affiliates, LLC have long championed the use of the Fundamental Index® methodology. Based on its research, Research Affiliates has shown that there is value in breaking the link between price and portfolio weight, and instead weighting a security based on fundamental measures of company size.

Fundamental strategies seek to track a fundamentally weighted index. Fundamentally weighted indexes screen and weight companies based on economic factors such as sales, cash flow, and dividends plus buybacks. These strategies are not “active” but in fact employ a rules-based discipline that removes the emotion that often hinders active management.

Gaining exposure to strategic beta strategies

As strategic beta strategies have been embraced by institutions and individual investors, the number of alternative weighting strategies and the flows into them have increased dramatically. Before investing in a strategic beta strategy, investors should understand the differences among the strategies, including how varying market conditions may affect their use within a given portfolio. In addition, certain strategies introduce biases through their weighting methodologies. Investors should evaluate both a strategy’s weighting methodology and the underlying index used, which may vary by security, sector, and market-capitalization exposures and could lead to dramatically different risks and returns over time.

Exhibit 2 on the next page compares a few of the largest strategic beta indexes. The goal of this analysis is to help investors better understand the differences across these non-market-cap-weighted indexes, which can help them make more informed decisions about the options available. Although they are often grouped together, there can be substantial differences among the various strategic beta types represented in Exhibit 2 on the next page.

Exhibit 2: Sample strategic beta indexes

Index Name	Type of Strategy	Tilt or Bias	Weighting Methodology
Russell Fundamental U.S. Large Company Index	Fundamental	Value	Retained operating cash flow, adjusted sales, and dividends + buybacks
S&P 500® Equal Weight Index	Equal Weight	Value & mid	Equal-weight index constituents
FTSE RAFI® US 1000 Index	Fundamental	Value	Book value, cash flow, sales, and dividends
iShares MSCI USA Momentum Factor	Momentum	Growth	Risk-adjusted momentum characteristics
PowerShares S&P 500 Low Volatility Index	Low Volatility	Value (may have sector over/underweights)	Lowest realized volatility over preceding 12 months
WisdomTree LargeCap Dividend Index	Fundamental	Value/dividend	Dividend weighted

A sampling of the largest strategic beta indexes, as measured by assets that follow the indexes as of 12/31/2015. Indexes are unmanaged, do not incur management fees, costs, and expenses, and cannot be invested in directly. Examples shown are for illustrative purposes only and are not a recommendation of a specific strategy or investment type. Investors should consider their own particular situations before investing. See the appendix for a complete description of weighting methodologies.

Exhibit 3 provides a sector analysis of five alternative weighting indexes and two market-cap indexes. These allocations differ because of their weighting methodologies. For example, the PowerShares S&P Low Volatility Index has an 11.46% allocation to utilities, a 21.43% allocation to consumer staples, and a 27.91% allocation to financials. This is in stark contrast to the other strategic beta indexes and the market-cap indexes. The low-volatility index has a greater emphasis on utilities and consumer staples because they have historically exhibited lower volatility than other stocks. The difference in sector allocations may lead to dramatically different results over time—which could either help or hinder performance.

Exhibit 3: Sector allocations (%)

Name	Materials	Cons. Disc.	Financials	Cons. Staples	Health Care	Utilities	Telecom Services	Energy	Industrials	Info Tech
Russell Fundamental U.S. Large Company Index	3.52	12.53	13.84	12.00	10.96	4.38	4.11	13.93	10.33	14.41
S&P 500® Equal Weight Index	5.31	16.59	17.49	7.65	11.37	5.96	1.01	7.97	13.15	13.49
FTSE RAFI® U.S. 1000 Index	3.36	11.36	22.30	10.01	10.70	5.06	3.88	10.26	10.62	12.45
iShares MSCI USA Momentum Factor	1.05	29.79	8.64	16.34	12.03	0.18	0.22	0.53	5.85	25.37
PowerShares S&P Low Volatility Index	2.14	3.03	27.91	21.43	12.48	11.46	2.27	0.00	16.47	2.82
WisdomTree LargeCap Dividend Fund	2.51	8.73	15.99	14.81	11.34	4.98	5.99	10.83	10.16	14.67
Russell 1000® Index	3.05	13.47	17.53	9.23	14.62	3.02	2.29	6.19	10.56	20.05
S&P 500 Index	2.76	12.89	16.47	10.06	15.16	2.99	2.43	6.50	10.05	20.69

Source: Morningstar Direct. Data as of December 31, 2015. Sector allocations are subject to change without notice.

Other differences across these indexes and relative to the broad market indexes (S&P 500 Index and Russell 1000 Index) are byproducts of the weighting methodologies rather than any intended bets on the markets. Investors should carefully consider the underlying portfolios and be mindful of the potential overweights and underweights vs. the broad market indexes that may occur. These significant variations could lead to performance differences.

Market capitalization is another important consideration when evaluating these strategies. Exhibit 4 provides a market-capitalization breakdown across the strategic beta indexes and the two market-cap indexes.

Exhibit 4: Market capitalization and style comparison (%)

Name	Mega Cap	Large Cap	Mid Cap	Small Cap	Micro Cap	Value	Core	Growth
Russell Fundamental U.S. Large Company Index	46.07	33.33	17.68	2.69	0.23	51.56	30.27	18.18
S&P 500® Equal Weight Index	11.37	39.40	46.58	2.65	0.00	36.37	34.69	28.94
FTSE RAFI® U.S. 1000 Index	42.66	33.32	18.79	4.65	0.58	50.76	31.55	17.70
iShares MSCI USA Momentum Factor	44.91	37.61	17.49	0.00	0.00	6.74	25.34	67.92
PowerShares S&P 500 Low Volatility Portfolio	16.81	47.01	36.19	0.00	0.00	36.50	36.50	27.00
WisdomTree LargeCap Dividend Fund (DLN)	56.07	35.66	8.25	0.02	0.01	51.64	32.92	15.44
Russell 1000® Index	44.41	33.02	20.26	2.27	0.05	32.54	33.14	34.31
S&P 500 Index	50.28	36.34	13.18	0.19	0.00	33.56	33.14	33.31

Source: Morningstar Direct. Data as of December 31, 2015. Data is subject to change without notice. Market-capitalization breakpoints, determined by Morningstar Direct: Mega cap, over \$78.3 billion; Large cap, between \$17.3 billion and \$78.3 billion; Mid cap, between \$3.6 billion and \$17.3 billion; Small cap, between \$1.1 billion and \$3.6 billion.

The S&P Equal Weight Index has the highest allocation to mid-cap stocks and the lowest allocation to mega-cap stocks. Equal-weight indexes, like the S&P 500 Equal Weight Index, provide the same weight to every company in an index. Equal-weight strategies generally have a smaller capitalization overall than their market-cap equivalents due to the smaller companies receiving a larger allocation than their market-cap equivalents.

Exhibit 4 also provides a breakdown of allocations across value, core, and growth. The FTSE RAFI U.S. 1000, the WisdomTree LargeCap Dividend, and the Russell Fundamental U.S. Large Company indexes have the highest allocations to value (50.76%, 51.64%, and 51.56%, respectively), and the S&P 500 Equal Weight is the closest alternative weighting strategy to a neutral weight between value and growth (36.37% vs. 28.94%). The iShares Momentum strategy has a nearly 68% weighting to growth. This shouldn't be surprising since momentum and growth are related characteristics. The broad market indexes—S&P 500 Index and Russell 1000 Index—are close to neutral weighting across value, core, and growth. It's important to point out that while many strategic beta strategies exhibit a value-tilt, they are not value indexes. As the data shows, these strategies have exposure to value, core, and growth stocks.

The information contained in Exhibits 3 and 4 helps explain the differences in returns over time. The portfolio characteristics may vary, but the difference in the underlying index and construction methodologies likely means that the differences will persist. Investors should seek to better understand an underlying index and its weighting methodology, which ultimately leads to differences in the underlying portfolio. The sector allocations, market capitalization, and value-growth bias of an underlying index will culminate in different returns and risks over time.

Implementing strategic beta strategies

Schwab believes in the value of strategic beta strategies. As noted in Exhibits 3 and 4, however, we see a high degree of variability across the underlying indexes that these types of strategies track. Investors should understand the weighting methodologies, underlying indexes, sector allocations, market capitalizations, and value-growth tilts before investing in a strategic beta strategy, and should keep in mind that portfolio characteristics will change over time.

The Schwab Center for Financial Research™ has done extensive research on Fundamental Index® strategies. Schwab believes that fundamental strategies may serve as a nice complement to both market-cap and active management options. Examining some of the characteristics of market-cap, fundamental, and actively managed solutions will help in determining the allocations to each type of strategy when it comes to portfolio construction.

Market cap provides little or no tracking error (fees could provide a small drag on performance), no downside protection potential, and no alpha. **Fundamental** strategies have historically delivered alpha and have a relatively high tracking error compared with market cap. **Active** managers seek to deliver alpha and may provide some downside protection. Although there are merits to index-based strategies, such strategies are unable to deviate from their rules-based discipline. Active managers have greater flexibility and can adapt to changing market dynamics.

As shown in Exhibit 5, the Schwab Center for Financial Research believes that there are four key levers that can help determine weightings among these types of strategies: tracking error, loss aversion, alpha, and cost. Depending on an investor's sensitivity to those levers, he or she could choose to overweight or underweight each of these types of strategies.

- **Market cap:** Investors who seek a cost-effective way of owning the market and want to limit tracking error may want to consider an overweight to market-cap strategies.
- **Fundamental:** Investors who are seeking alpha and have little concern about tracking error may choose to overweight fundamental strategies.
- **Active:** Investors who are concerned about the ever-changing market environment and want an active manager to be able to alter their strategy over time may want to consider a larger allocation to active management. Advisors should seek to identify managers that have historically delivered better relative performance in down markets, although a manager's past performance does not guarantee future results.

Exhibit 5: Portfolio construction levers

Key lever	Market cap	Fundamental	Active
Tracking error	Little or no tracking error	Higher tracking error	Varies by manager
Loss aversion	No downside protection	No downside protection	May provide a level of downside protection
Alpha	No	Potential alpha	Varies
Cost	Lowest cost	Low cost	Varies by manager and vehicle

Conclusion

In recent years, strategic beta strategies have evolved significantly, providing a range of strategies that offer different return and risk characteristics. These strategies provide different ways of accessing the various market segments.

Strategic beta strategies, or smart beta strategies, are considered sophisticated ways of building index-based portfolios. These solutions apply alternative logic and academic research to the weighting methodologies used in index construction, leading to a different client experience.

Caveat emptor: Let the buyer beware. Not all strategic beta strategies are created equal, and there are important differences among the strategies available in the market. Before investing in a strategic beta strategy, individual investors should gain an understanding of the weighting methodology and any tilts or biases that may be introduced by the underlying index.

Appendix

Name	Methodology
Russell Fundamental U.S. Large Company Index	The Russell Fundamental U.S. Large Company Index measures the performance of the large company size segment by fundamental overall company scores, which are created using as the universe the companies in the Russell 3000® Index. The Russell Fundamental methodology utilizes three fundamental metrics of company scale and success: retained operating cash flow, adjusted sales, and dividends plus buybacks. Influence: Rob Arnott and Research Affiliates.
S&P 500® Equal Weight Index	The S&P 500 Equal Weight Index is an index developed by Standard & Poor's in collaboration with Guggenheim Investments. In the S&P 500 Equal Weight Index, each of the stocks that make up the index is "equally weighted." To maintain composition, the S&P 500 Equal Weight Index rebalances quarterly.
FTSE RAFI® U.S. 1000 Index	The FTSE RAFI U.S. 1000 Index was launched in association with Research Affiliates® LLC. As part of FTSE Group's range of alternative weighted indexes, the FTSE RAFI Index Series selects and weights index constituents using four fundamental factors, rather than market capitalization. The factors are dividends, cash flows, sales, and book value. The FTSE RAFI U.S. 1000 Index comprises the 1,000 U.S.-listed companies with the largest RAFI fundamental scores selected from the constituents of the FTSE USA All Cap Index, part of the FTSE Global Equity Index Series. The index is reconstituted annually. Influence: Rob Arnott and Research Affiliates.
iShares MSCI USA Momentum Factor (MTUM)	The portfolio tracks the MSCI USA Momentum Index, which consists of stocks that exhibit relatively higher momentum characteristics than traditional market cap weighted indexes. The risk-adjusted price momentum is calculated for each security in the MSCI USA Momentum Index over six and twelve month time periods then with the standardized z-scores translated into an average momentum score. Approximately 100-350 securities that have the highest momentum scores get selected for inclusion.
PowerShares S&P 500 Low Volatility Portfolio	The PowerShares S&P 500 Low Volatility Index is compiled, maintained, and calculated by Standard & Poor's and consists of the 100 stocks from the S&P 500 Index with the lowest realized volatility over the past 12 months. Volatility is a statistical measurement of the magnitude of up and down asset price fluctuations over time. The index is rebalanced and reconstituted quarterly in February, May, August, and November.
WisdomTree LargeCap Dividend Index	The WisdomTree LargeCap Dividend Index is a fundamentally weighted index that measures the performance of the large-capitalization segment of the U.S. dividend-paying market. The index is composed of the 300 largest companies ranked by market capitalization from the WisdomTree Dividend Index. The index is dividend weighted annually to reflect the proportionate share of the aggregate cash dividends each component is projected to pay in the coming year, based on the most recently declared dividend per share. Influence: Jeremy Siegel.
Russell 1000® Index	The Russell 1000 Index measures the performance of the large-cap segment of the U.S. equity universe. It is a subset of the Russell 3000 Index and includes approximately 1,000 of the largest securities based on a combination of their market cap and current index membership. The Russell 1000 represents approximately 92% of the U.S. market. The Russell 1000 Index is constructed to provide a comprehensive and unbiased barometer for the large-cap segment and is completely reconstituted annually to ensure that new and growing equities are reflected.
S&P 500 Index	The S&P 500 Index includes 500 leading companies and captures approximately 80% coverage of available market capitalization. The S&P 500 focuses on the large-cap sector of the market; however, since it includes a significant portion of the total value of the market, it also represents the market. There is over USD 5.14 trillion benchmarked to the index, with index assets comprising approximately USD 1.6 trillion of this total.

Glossary of terms

Alpha. A performance measure on a risk-adjusted basis. Alpha takes the volatility (risk) of a mutual fund, or other type of investment, and compares its risk-adjusted performance with a benchmark index. The excess return of the fund relative to the return of the benchmark index is a fund's alpha.

Beta. A measure of the volatility, or systematic risk, of a security or a portfolio in comparison with the market as a whole. Beta is used in the capital asset pricing model (CAPM), which calculates the expected return of an asset based on its beta and expected market returns.

Core stocks. A stock that exhibits both value and growth characteristics or when neither value nor growth characteristics are dominant in a stock.

Correlation. Correlation measures the relationship and movement of two or more securities, ranging between -1 and +1. Perfect positive correlation (a correlation of +1) implies that as one security moves, either up or down, the other security will move in lockstep in the same direction. Alternatively, perfect negative correlation means that if one security moves in either direction, the security that is perfectly negatively correlated will move in the opposite direction. If the correlation is 0, the movements of the securities are said to have no correlation; they are completely random.

Fundamentally weighted index. A type of equity index in which components are chosen based on fundamental criteria as opposed to market capitalization. Fundamentally weighted indexes may be based on fundamental metrics such as sales, cash flow, and dividends. Proponents of these indexes claim that they are a more accurate aggregate measure of the market because market-capitalization figures tend to overweight companies that are richly valued while underweighting companies with low valuations. Fundamentally weighted indexes are sometimes referred to as strategic beta, alternative beta, or smart beta.

Growth stocks. Stocks of companies whose revenues and earnings are expected to increase at a faster rate than the average company within the same industry. Growth stocks usually pay little to no dividends because the company typically reinvests retained earnings in capital projects.

Market-cap weighting. Most of the broadly used market indexes today are “cap-weighted” indexes, such as the S&P 500®, Russell, and MSCI indexes. In a cap-weighted index, large price moves in the largest components can have a dramatic effect on the value of the index. Some investors feel that this overweighting toward the larger companies gives a distorted view of the market.

Momentum Investing. This strategy looks to capture gains by investing in “hot” stocks in the belief that they will continue to rise. There are mutual funds and ETFs that buy or overweight securities that have exhibited momentum over some predetermined time period (3, 6, or 12 months). The basic idea is that once a trend is established, it is more likely to continue in that direction than to move against the trend.

Sharpe ratio. A ratio developed by Nobel laureate William F. Sharpe to measure risk-adjusted performance. The Sharpe ratio measures the excess return (or risk premium) per unit of deviation (risk) in an investment. The Sharpe ratio characterizes how well the return of an asset compensates the investor for the risk taken. When comparing two assets vs. a common benchmark, the one with a higher Sharpe ratio provides better return for the same risk (or, equivalently, the same return for lower risk).

Standard deviation. Standard deviation is a statistical measurement that sheds light on historical volatility. For example, a volatile portfolio will have a higher standard deviation than a less volatile portfolio. A large dispersion tells us how much the return on the fund is deviating from the expected normal returns.

Strategic beta. Also known as *alternative beta* and *smart beta*. Strategic beta strategies attempt to deliver a better risk and return trade-off than conventional market-cap-weighted indexes by using alternative weighting schemes based on measures such as volatility. Strategic beta strategies include a range of alternative weighting methods: fundamentally weighted, equal weighting, minimum variance, and low volatility, among others.

Value stocks. Stocks that tend to trade at lower prices relative to their fundamentals (dividends, earnings, sales, etc.) and are considered undervalued by a value investor. Value stocks tend to have a high dividend yield, low price-to-book ratio, and/or low price-to-earnings ratio.

Important Disclosures

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