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OUTLOOK & OPPORTUNITIES

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IN BRIEF

- Traditional indices that weight securities according to their market capitalization have inherent biases that expose investors to certain risks and potentially reduce their returns by systematically exposing them to overvalued stocks or high-risk concentrations.
- Strategic beta, sometimes referred to as “smart beta,” is a different approach to structuring index-based portfolios that aims to balance perceived deficiencies in cap-weighted indices. Strategic beta strategies follow strict rules in a controlled, repeatable process—just like a traditional index—but the rules are often more sophisticated and can resemble investment management techniques more commonly found in active management.
- Strategic beta strategies generally aim to improve investor returns or reduce risks relative to cap-weighted benchmarks. The latest generation of strategic beta strategies combines multiple factor exposures to deliver convenient institutional-quality investment solutions.
- Investors can choose to hold strategic beta within diversified global multi-asset portfolios as a replacement for cap-weighted indices, or as a complement to cap-weighted, single-factor or actively managed strategies.

For decades, active managers have attempted to beat the market, yet little attention has been paid to the market index they are trying to beat. The traditional indexing approach is to buy all of the securities in a market or market segment and to weight those holdings based on market capitalization (i.e., the stocks with the biggest market value make up a larger portion of the index). This approach to passive investing has become increasingly popular for investors looking for “cheap beta” (average market returns with low fees), but it has significant shortcomings that are only just starting to be recognized beyond the academic literature. Numerous studies have demonstrated that there are different investment approaches than cap-weighting that can provide investors with equity exposures in a more risk/reward-aligned manner (see “Beyond equity beta: A closer look at factor-based approaches,” on page 4).

While these approaches go by a number of names, most commonly “smart beta,” we prefer the term *strategic beta* because the strategies are built around specialized indices that have a strategic investment objective in mind.¹ These objectives include attempting to improve returns or reduce risk relative to a traditional cap-weighted index.

In this paper, we explain the concept of strategic beta, recap its evolution, compare its approach to traditional cap-weighted methodologies and explore its application within portfolios.

AUTHOR



Ogden H. Hammond
Head of ETF Strategy &
Business Development

¹ Ben Johnson, “The Strategic Factor of Smart Beta,” *Morningstar Advisor*, April 10, 2014.

A closer look at the drawbacks of cap-weighted indexing

Since the first index fund was launched in 1976,² cap-weighted indexing has become the prevailing form of equity index investing due to the ease with which managers could implement investment strategies. Indexing also grew in popularity as the efficient-market hypothesis emerged as a prominent theory in the 1960s and 1970s, which implies that every dollar invested is equally well informed and that security prices at any time “fully reflect” all available information.³

While CAPM was widely embraced in the 1970s when index funds were launched, market theory has long since moved on. This means investors in traditional cap-weighted indices are not taking advantage of several decades’ worth of advanced financial research. In addition, the construction methodology behind traditional cap-weighted indices creates implicit biases that could potentially increase certain risks and reduce returns:

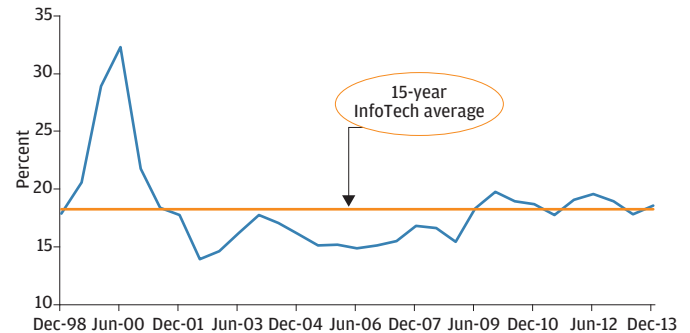
- Excessive risk concentrations.** Traditional cap-weighted indices may expose investors to unintended risk concentrations as asset price bubbles form. Consider that cap-weighted indices, by definition, concentrate assets in the largest companies. The S&P 500 index is a perfect illustration: More than 65% of its assets were invested in just the top 100 largest securities (and roughly 18% in just the top 10 securities) as of May 2014. This concentration challenge inherent to cap-weighted indices gets worse in certain market cycles, particularly as asset bubbles form. As **Exhibit 1A** illustrates, the information technology sector made up 32.3% of the S&P 500’s market capitalization in June 2000 during the technology bubble, compared with its 15-year average of 18.2%. Similarly, during the 1980s to mid-1995, Japan represented 44.1% of the MSCI World Index in December 1988, compared with its 15-year average of 26.8% (**Exhibit 1B**). Such sector or geographic concentrations may result in even higher risk concentrations. These high-risk concentrations could make sense if the investor has an explicit bullish view on specific sectors or geographies.
- Systematic exposure to overvalued securities.** Another shortcoming of cap-weighted indices is their inherent bias toward overvaluation. Cap-weighted solutions assign a greater index weight to the more “expensive” company.

² John C. Bogle, “The First Index Mutual Fund: A History of Vanguard Index Trust and the Vanguard Index Strategy.” (Speech, Bogle Financial Markets Research Center, April 1997).

³ Eugene F. Fama, “Efficient capital markets: A review of theory and empirical work,” *The Journal of Finance*. Vol. 25, No. 2 (1970): 383-417.

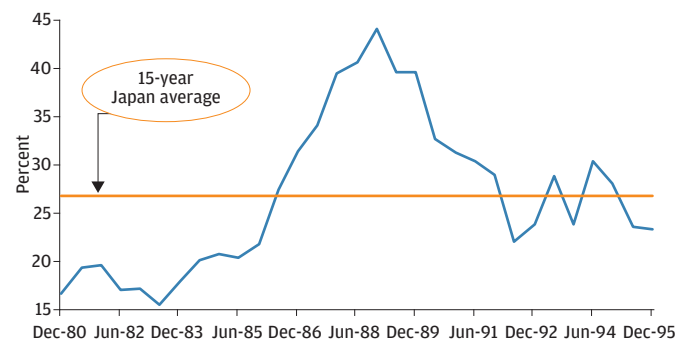
Traditional cap-weighted indices can expose investors to unintended risk concentrations

EXHIBIT 1A: INFORMATION TECHNOLOGY’S CAP-WEIGHTED ALLOCATION IN THE S&P 500 DURING THE TECHNOLOGY BUBBLE (1999 TO 2013)



Source: Bloomberg; data of December 31, 2013. Shown for illustrative purposes only.

EXHIBIT 1B: JAPAN’S CAP-WEIGHTED ALLOCATION IN THE MSCI WORLD INDEX (1981 TO 1995)



Source: FactSet and MSCI; data of December 31, 2013. Shown for illustrative purposes only.

This, at times, can lead to a correspondingly high proportion of funds invested in potentially overvalued stocks.

In a hypothetical example, consider the two companies shown in **Exhibit 2** (next page). Each company has the same fundamentals, but Company A has a higher stock price and, hence, a higher market cap. A fund tracking a cap-weighted index would have double the representation of Company A compared with Company B (0.40% versus 0.20%), regardless of the fact that Company A trades at a higher multiple to fundamentals. Holding other variables constant and in the absence of specific stock-return forecasts, Company B appears more economically attractive than Company A given its lower stock price.

Cap-weighted indices have an inherent preference for overvalued stocks

EXHIBIT 2: A HYPOTHETICAL EXAMPLE COMPARING COMPANIES WITH IDENTICAL FUNDAMENTALS BUT DIFFERENT STOCK PRICES

| | Company A | Company B |
|-----------------------|--------------|--------------|
| Earnings | \$1 billion | \$1 billion |
| Book value | \$10 billion | \$10 billion |
| Market capitalization | \$20 billion | \$10 billion |
| Price/earnings ratio | 20x | 10x |
| Price/book ratio | 2x | 1x |
| Index weight | 0.40% | 0.20% |

Source: J.P. Morgan; for illustrative purposes only.

Blurring the lines between active and passive strategies

In recent years, the line between active and passive investing has blurred and given rise to a host of non-traditional indices that attempt to capture the best of both worlds. Strategic beta strategies are squarely located between active and passive approaches. In other words, many strategic beta strategies attempt to marry active management insights with the discipline of a rules-based investment approach (Exhibit 3). While still transparent and rules-based, the strategies can differ from passive cap-weighted index strategies in two important dimensions:

1. They employ different securities-weighting methodologies that typically aim to offer superior diversification for the index compared with cap weighting. These weighting mechanisms range from simple (e.g., equal stock weights) to progressively more sophisticated (e.g., minimum volatility, risk parity, maximum Sharpe Ratio).
2. They select individual securities for the index in a similar manner to many active managers. Strategic beta strategies often focus on providing exposure to specific systematic risk factors, behavioral anomalies or structural inefficiencies that may exist in the market, instead of simply broad market exposure.

J.P. Morgan's strategic beta strategies combine a transparent rules-based index approach with investment techniques similar to those underlying some of our most sophisticated actively managed strategies. Specific investment rules are defined to achieve specific exposures (e.g., size, value, momentum, low volatility) that the manager believes will outperform comparable cap-weighted indices over time. The strategies follow those rules in a controlled, repeatable process, resulting in institutional-quality investment solution.

Combining active management insights with a rules-based investment approach

EXHIBIT 3: STRATEGIC BETA INCORPORATES FEATURES OF BOTH PASSIVE AND ACTIVE MANAGEMENT



Source: J.P. Morgan; for illustrative purposes only.

The evolution of strategic beta

Strategic beta strategies have a long and storied history, but for years they have been relatively inaccessible to all but the largest and most sophisticated institutional investors. Using investment structures such as exchange-traded funds (ETFs), these strategies are becoming available to more investors, ranging from smaller institutions to wealth management advisors and retail investors.

The academic research underpinning strategic beta was first published in the late 1970s and early 1980s, then steadily advanced and expanded through the 1990s and 2000s. Among the most widely recognized and acclaimed studies are those by Sanjoy Basu (1977),⁴ Rolf W. Banz (1981),⁵ Eugene F. Fama and Kenneth R. French (1993)⁶ and Mark M. Carhart (1997).⁷ These studies and many others have identified a range of “factors” or specific portfolio exposures that have historically delivered excess returns over long time periods.

Most strategic beta strategies available today are single-factor strategies, such as low volatility or momentum-based strategies. Each individual factor is subject to its own performance cycle, however, which means that a given factor might outperform a cap-weighted index in one period but underperform it in another. For example, a strategic beta strategy designed to minimize volatility may outperform cap-weighted indices in periods when market bubbles are correcting—such as the dot-com crash—but underperform in the run-up to a crash as risk concentrations build.

⁴ Sanjoy Basu, “Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis,” *The Journal of Finance*. Vol. 32, Issue 3 (1977): 663–682.

⁵ Rolf W. Banz, “The relationship between return and market value of common stocks,” *Journal of Financial Economics*. Vol. 9, Issue 1 (1981): 3–18.

⁶ Eugene F. Fama and Kenneth R. French, “Common risk factors in the returns on stocks and bonds,” *Journal of Financial Economics*. Vol. 33, Issue 1 (1993): 3–56.

⁷ Mark M. Carhart, “On persistence in mutual fund performance,” *The Journal of Finance*. 1997. Vol. 52, Issue 1 (1997): 57–82.

Beyond equity beta to systematic factors**EXHIBIT 4: COMMON FACTORS USED IN STRATEGIC BETA APPROACHES**

| Factors | Definition | Example metrics |
|-------------------|---|--|
| Value | Targets stocks with prices that appear undervalued relative to their fundamentals | Price-to-book, price-to-earnings, sales, cash flow |
| Momentum | Seeks to identify stocks with high positive price momentum | Relative returns (3-month, 6-month, 12-month) |
| Size | Focuses on smaller market-capitalization companies that have historically outperformed the market over time | Market capitalization |
| Volatility | Seeks to identify low-volatility stocks that offer the potential for higher risk-adjusted returns than the overall market | Standard deviation of returns, beta |
| Quality | Seeks companies that exhibit financial stability | Return-on-equity, earnings stability, debt ratios, dividend growth, dividend stability |
| Dividend | Targets stocks that pay above-average dividends | Dividend yield |

Source: J.P. Morgan; for illustrative purposes only.

Multi-factor strategic beta strategies, which combine several factors to achieve a strategic objective (e.g., better risk-adjusted returns), represent another step in the evolution of factor-based investing. Academic research has shown that combining individual factors (e.g., value, size, volatility and momentum) in a single integrated strategy can result in long-term outperformance versus the broader market on a risk-adjusted basis.⁸ One of the benefits of combining factors is diversification, which can help mitigate some of the risks associated with cyclical underperformance of any single factor. **Exhibit 4** defines some of the systematic factors widely recognized by academics as well as practitioners, while the following section, “Beyond equity beta: A closer look at factor-based approaches,” explains in more detail some of the academic research behind particular factors.

Beyond equity beta: A closer look at factor-based approaches

In this section, we discuss non-traditional equity risk premia, or “factors,” that have been linked to investment returns in the academic literature. These include the premiums investors get from investing in value or small-cap stocks, or equities with low volatility or high momentum. These return factors and others can be used individually or in combination to construct a strategy designed to better align risks with expected rewards. The footnotes in this paper provide details on the academic literature behind these factors.

⁸ Eugene F. Fama and Kenneth R. French, “The cross-section of expected stock returns.” *The Journal of Finance*, Vol. 47, Issue 2 (1992): 427-466; Fama and French (1993).

Value risk premia

First analyzed in 1977, the concept that inexpensive stocks tend to outperform expensive stocks over time has been well documented by academics.⁹⁻¹¹ The value factor was one of the first isolated in the original Fama and French asset pricing model, which corroborated the previously observed strong and positive relationship between low price-to-book stocks and returns. The authors argue that this value effect stems from the stocks’ capture of cross-sectional variation in returns that is related to relative distress.¹² Fama and French have subsequently studied the value effect in international stock markets, concluding that value stocks have historically had higher returns than growth stocks in markets around the world.¹³

Small-cap risk premia

Initially documented in 1981, the size effect describes the tendency of small firms to outperform large firms, on average and over long time horizons.^{14, 15} Smaller firms tend to be less liquid and suffer from greater uncertainty of information about their fundamentals than their larger competitors. Market forces will therefore decrease the price of small-firm stocks to provide

⁹ Basu (1977).

¹⁰ Donald B. Keim, “Size-related anomalies and stock return seasonality: Further empirical evidence,” *Journal of Financial Economics*. Vol. 12, Issue 1 (1983): 13-32.

¹¹ Sanjoy Basu, “The relationship between earnings’ yield, market value and return for NYSE common stocks: Further evidence,” *Journal of Financial Economics*. Vol. 12, Issue 1 (1983): 129-156.

¹² Fama and French (1993).

¹³ Eugene F. Fama and Kenneth R. French, “Value versus growth: The international evidence,” *The Journal of Finance*. Vol. 53, Issue 6 (1998): 1975-1999.

¹⁴ Banz (1981).

¹⁵ Michael A. Crain, “A literature review of the size effect,” University of Manchester – Manchester Business School. (2011).

investors with potentially higher return for accepting lower liquidity and less transparency. While empirical research does support the notion that small-cap stocks have experienced, on average, higher returns than large-cap stocks over long time periods, it may be that the magnitude of this size effect changes over time.¹⁶ Nevertheless, a more recent examination highlighted the considerable support among researchers and practitioners that size remains an important variable in long-term stock returns.¹⁷

Momentum risk premia

Momentum describes the relationship between an asset's return and its recent, relevant performance history. In the early 1990s, Narasimhan Jegadeesh and Sheridan Titman studied price changes that occurred during three-to-12-month holding periods to determine if price momentum contributed to returns realized over the same period.¹⁸ Along with other studies conducted at later dates, they found that steady positive monthly stock returns predicted future positive returns and that, further, this momentum effect was more pronounced in cases where monthly stock returns were steadily positive as opposed to driven by a few extraordinary positive monthly returns.^{19,20} A pervasive momentum effect in equities across other countries and other equity indices has also been demonstrated.^{21,22} An explanation behind momentum is that stock prices initially underreact to information, causing momentum as prices rise toward their fundamental

value. Conversely, prices may overreact and continue to rise above their fundamental value, leading to reversals.²³ Research by Clifford S. Asness and others found that measures of momentum and value have historically shown negative correlation across stocks, implying that a tilt toward value stocks will leave an investor underweight toward momentum.^{24, 25}

Low-volatility anomaly

Efficient market theory dictates that an investor will have to take on greater risk to gain higher returns. But a 1972 study by Fischer Black, Michael C. Jensen and Myron Scholes found that a portfolio that shorted volatile stocks and was long on low-volatility stocks generated positive returns.²⁶ Another study found that the performance of low-volatility stocks not only provided high returns but also more downside protection.²⁷ The majority of explanations for this phenomenon are behavior-based, with most arguing that market participants are irrational in a very particular way. For example, it is thought that investor preference for lotteries (an underestimation of risk given the possibility of very high reward) and the biases of representativeness and overconfidence lead to a demand for higher-volatility stocks that is not warranted by stock fundamentals.²⁸

¹⁶ Joel L. Horowitz, Tim Loughran and N.E. Savin, "The disappearing size effect," *Research in Economics*. Vol. 54, Issue 1 (March 2000): 83-100.

¹⁷ Crain (2011).

¹⁸ Narasimhan Jegadeesh and Sheridan Titman, "Returns to buying winners and selling losers: Implications for stock market efficiency," *The Journal of Finance*. Vol. 48, No. 1, (1993): 65-91.

¹⁹ Mark Grinblatt and Tobias J. Moskowitz, "Predicting stock price movements from past returns: The role of consistency and tax-loss selling," *Journal of Financial Economics*. Vol. 71, Issue 3, (2004): 541-579.

²⁰ Jegadeesh and Titman (1993).

²¹ Clifford S. Asness, John M. Liew and Ross L. Stevens, "Parallels between the cross-sectional predictability of stock and country returns," *The Journal of Portfolio Management*. Vol. 23, No. 3 (1997): 79-87.

²² K. Geert Rouwenhorst, "International momentum strategies," *The Journal of Finance*. Vol. 53, No. 1 (1998): 267-284.

²³ Marco Ottaviani and Peter N. Sorensen, "Aggregation of information and beliefs: Asset pricing lessons from prediction markets," Working paper submitted to the *American Economic Review*. (2012).

²⁴ Clifford S. Asness, Tobias J. Moskowitz and Lasse Heje Pedersen, "Value and Momentum Everywhere," *The Journal of Finance*. Vol. 68, No. 3 (2013): 929-985.

²⁵ Asness (1997).

²⁶ Fischer Black, Michael C. Jensen and Myron Scholes, "The capital asset pricing model: Some empirical tests," In: Michael C. Jensen, ed. *Studies in the Theory of Capital Markets*. New York: Praeger, (1972), pp: 79-121.

²⁷ Malcolm Baker, Brendan Bradley and Jeffrey Wurgler, "Benchmarks as limits to arbitrage: Understanding the low-volatility anomaly," *Financial Analysts Journal*, Vol. 67, No. 1, (2011): 40-54.

²⁸ Gong-meng Chen, Kenneth A. Kim, John R. Nofsinger and Oliver M. Rui, "Trading performance, disposition effect, overconfidence, representativeness bias, and experience of emerging market investors," *Journal of Behavioral Decision Making*. Vol. 20, Issue 4 (2007): 425-451.

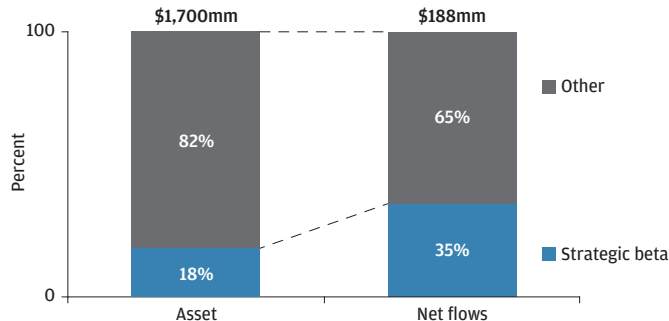
Strategic beta and ETFs: A natural fit

Strategic beta strategies are well-suited to implementation within an ETF structure, with their transparent, rules-based investment approach. The ETF structure also provides unique features that can enhance the effectiveness of a strategic beta strategy, including potential tax efficiency and lower operating expenses. ETFs also offer flexibility for investors and advisors looking to add or adjust strategic beta exposures within their portfolios.

Assets flowing into strategic beta ETFs have exploded in recent years, and the growth shows no sign of abating. Out of the approximately \$1.7 trillion of assets in all exchange-traded products (ETPs),²⁹ there were 342 strategic beta ETFs, with collective assets under management of about \$291 billion, or 18% of that total, according to Morningstar, Inc.³⁰ The strategic beta category, however, pulled in more than its share of flows, representing 35% of total net inflows into all ETPs for the year, with demand coming from both retail and institutional investors, as shown by a wide range of industry surveys (Exhibit 5).^{31, 32, 33}

Strategic beta ETFs are pulling more than their weight in flows

EXHIBIT 5: STRATEGIC BETA ETFs BY ASSETS AND FLOWS



Source: Morningstar, Inc.; data as of December 2013. Shown for illustrative purposes only.

²⁹ Includes funds, notes and certificates. ETFs make up the majority of ETPs, with exchange-traded notes comprising about 1% of the market.

³⁰ Johnson, *Morningstar Advisor*, April 10, 2014.

³¹ “The evolution of smart beta etfs: Smart beta etfs poised for growth among institutions,” Cogent Research, January 2014.

³² “ETFs: An evolving toolset for U.S. institutions,” Greenwich Associates, LLC, 2014.

³³ “2014 trends in investing survey,” Financial Planning Association, May 2014.

Putting multi-factor strategic beta to work in portfolios

Multi-factor strategic beta strategies could improve risk-adjusted returns within a well-diversified, global multi-asset portfolio. They may be appropriate for long-term investors seeking:

- Better risk-adjusted returns compared with cap-weighted indices
- A core allocation (i.e., core replacement) around which satellite positions can be added
- A complement to core cap-weighted and single-factor approaches

Two potential portfolio construction approaches for multi-factor strategic beta include incorporating strategic beta as a *core replacement* or as a *core complement* to cap-weighted investments and actively managed strategies. In a *core replacement* approach, multi-factor strategic beta is simply substituted for similar cap-weighted allocations in the portfolio (Exhibit 6, next page). In a *core complement* approach, a portion of similar active and cap-weighted index strategies are replaced with strategic beta in an effort to better diversify a portfolio and enhance risk-adjusted returns (Exhibit 7, next page).

Conclusion

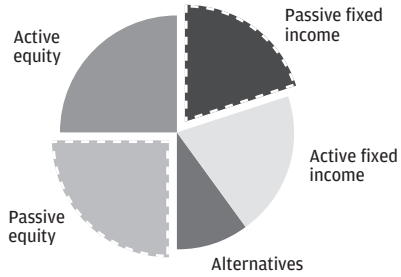
Investors have plenty of choices and flexibility when designing a portfolio that incorporates strategic beta. With so many choices, however, careful due diligence—of both the underlying strategy and the firms offering them—is an absolute requirement.

To select an appropriate strategic beta strategy, investors must be clear on their portfolio objectives and on which types of exposure are aligned with those objectives. Next, investors must understand the strategy’s objective and how it fits with their views and investment goals, as well as the provider’s investment expertise. Finally, investors should ensure they understand how the strategic beta index is constructed and how the strategy might behave in different market environments. A financial advisor can help investors define their individual investment objectives and select the strategic beta strategy best aligned with their goals.

Strategic beta can be used as a core replacement...

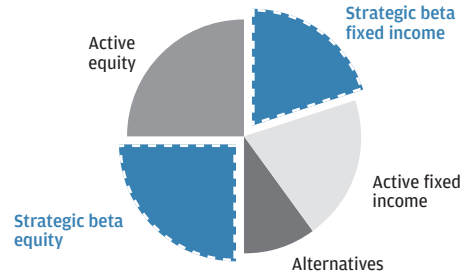
EXHIBIT 6: EXAMPLE OF A CORE REPLACEMENT IMPLEMENTATION

Example of a starting portfolio



Source: J.P. Morgan; for illustrative purposes only.

Example of a portfolio after using strategic beta as a core replacement for passive strategies

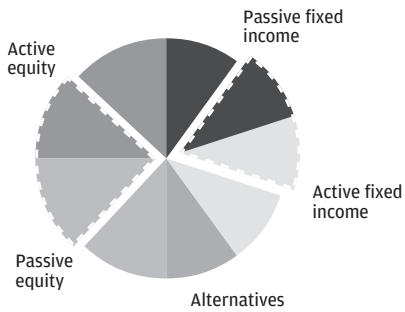


Source: J.P. Morgan; for illustrative purposes only.

...or as a core complement

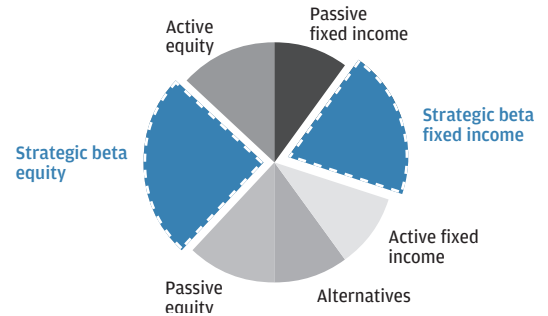
EXHIBIT 7: EXAMPLE OF A CORE COMPLEMENT IMPLEMENTATION

Example of a starting portfolio



Source: J.P. Morgan; for illustrative purposes only.

Example of a portfolio after using strategic beta to complement active and passive strategies



Source: J.P. Morgan; for illustrative purposes only.

Definitions

Capital Asset Pricing Model (CAPM): The Capital Asset Pricing Model is a financial model that describes the relationship between expected risk and expected return. The model is grounded in the theory that investors demand higher returns for higher risks. It says that the return on an asset or a security is equal to the risk-free return—such as the return on a short-term Treasury security—plus a risk premium.

Exchange-traded funds: Exchange-traded funds (ETFs) are a type of investment fund combining features of both individual securities and traditional mutual funds. Like a fund, ETFs may hold a broad range of securities—including stocks, bonds, commodities, or combinations. Like a stock, ETFs are typically listed on a securities exchange (i.e., NYSE), which provides investors the ability to trade ETF shares throughout the day.

Active management: Active management refers to an investment management style in which portfolio managers participate in the decision-making process of selecting individual securities held within a portfolio with the goal of achieving a strategic objective (e.g., generating excess returns over a benchmark, reducing portfolio risk, etc.). Actively managed strategies are not required to track an index.

Passive investing: Passive investing typically applies a rules-based approach to securities selection within an investment portfolio. Once rules are established, security selection is determined by said rules and is not based on managers' discretion. The most popular method of passive investing is to mimic the performance of an externally specified index. Historically, the majority of passively managed strategies have weighted their securities by market capitalization. However, more recent launches have applied more sophisticated approaches.

Due diligence: Due diligence refers to the general process by which an investment is audited and assessed prior to potential purchase.

Market capitalization: Market capitalization is the value of a corporation as determined by the market price of its issued and outstanding common stock. It is calculated by multiplying the number of outstanding shares by the current market price of a share.

Risk-adjusted returns: Risk-adjusted return considers the performance of individual securities, investment funds and portfolios relative to the risk of said investment. A number of measures—among them beta, standard deviation, information ratio and Sharpe ratio—can be used to quantify risk-adjusted returns.

Momentum: Momentum is the tendency for assets with rising or falling values to continue to rise or fall, respectively.

Volatility: Volatility reflects the tendency of a security, investment fund or portfolio to vary in value. Though there are numerous ways in which volatility is quantified (i.e., beta and standard deviation), in general, the value of a more volatile investment will change more frequently and/or more broadly than one that is less volatile.

Risk premia: Risk premia are characteristics among securities within financial markets that may correlate with excess returns—or less frequently, underperformance—relative to a risk-free rate. Also referred to as “factors,” some investors may adjust their exposure to various risk premia within their portfolios to seek improved investment performance or risk/return profiles.

Risk parity: Risk parity refers to a portfolio allocation strategy that aims to improve investment returns and reduce volatility by balancing risks among various asset classes within said portfolio.

Beta: Beta is a measure of a portfolio or security's sensitivity to market movements. The beta of the market is 1.00 by definition. Beta is calculated by comparing the return generated on an investment relative to Treasury bills to the return of its benchmark relative to Treasury bills. A beta of 1.10 indicates that a portfolio has performed 10% better than its benchmark in up markets and 10% worse in down markets, assuming all other factors remain constant. Conversely, a beta of 0.85 indicates that a portfolio's excess return is expected to be 15% lower than the benchmark's excess return during up markets and 15% higher during down markets. It is important to note that a low beta does not necessarily imply a low level of volatility; low beta signifies that benchmark-related risk is low.

Standard deviation of returns: Standard deviation is a gauge of the variance of a manager's return over its average or mean performance. Because standard deviation measures the total variation of an investment's return, standard deviation is a measure of total risk, unlike beta, which measures only market risk. Investors use the standard deviation to try to predict the range of returns that is most likely for a given investment. When a portfolio has a high standard deviation, the predicted range of performance is wide, implying greater volatility. In contrast, a low standard deviation implies that the portfolio will exhibit lower volatility.

Sharpe ratio: Sharpe ratio measures a manager's excess return over the risk-free rate of return (normally the return on cash), divided by the standard deviation of returns. It is a statistical measure that incorporates return and risk into a single number. The ratio describes how much excess return you are receiving for the extra volatility that is experienced when holding a riskier asset. The higher the Sharpe ratio, the better the portfolio's historical risk-adjusted performance.

MSCI World Index: The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed countries. The MSCI World consists of securities from 23 developed countries.

Price-to-earnings: Price-to-earnings is price divided by earnings per share over a 12-month period.

Price-to-book: Price-to-book value compares a stock's market value to its book value.

S&P 500 Index: The S&P 500 Index is the most widely used gauge of the U.S. equities market. This world-renowned index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. Although the S&P 500 Index focuses on the large-cap segment of the market, with approximately 75% coverage of U.S. equities, it is also an ideal proxy for the total market.

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