

EXECUTIVE SUMMARY

Active Investing: The Cyclicity of Performance in the U.S. Large-Cap Equity Market

Historically, there have been distinctive, multiyear periods when actively managed strategies on average have generated superior performance relative to their respective benchmarks in the U.S. large-cap equity category—commonly viewed as the most challenging in the global equity market due to its greater degree of efficiency¹ (see full-length *Leadership Series* paper “Active Investing: The Cyclicity of Performance in the U.S. Large-Cap Equity Market,” June 2014). On the heels of one of the most difficult market environments for active U.S. large-cap equity managers (2009-2013), some investors may wonder whether it’s still possible to generate consistent excess returns in this category. Our analysis of the historical performance of actively managed, U.S. large-cap equity mutual funds and the influential factors driving performance illustrates three key points:

1. The performance of active strategies relative to their benchmarks has been cyclical, and market conditions significantly influenced the performance of active strategies.
2. The “sweet spot” for active strategies has been a backdrop of high stock return dispersion and lower stock return correlations.
3. Following a difficult period during and after the global financial crisis, the market conditions for active strategies may be poised to improve.

The cyclicity of performance among actively managed, U.S. large-cap equity strategies

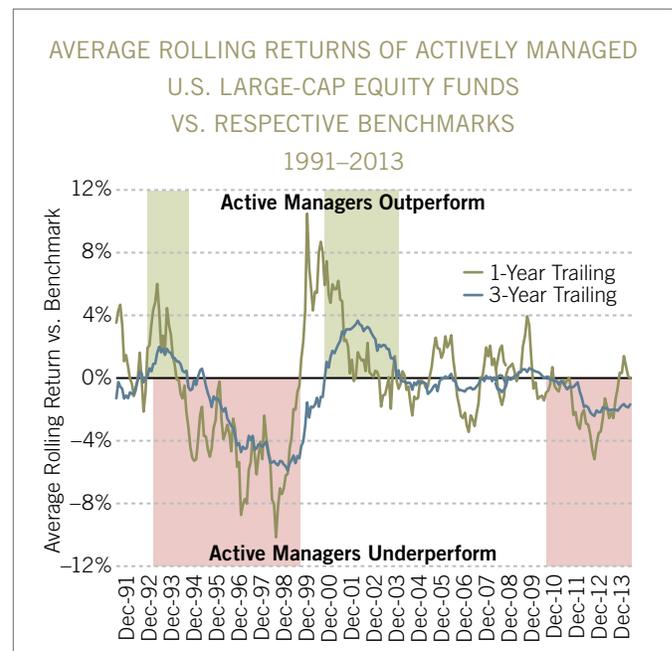
Since 1991, there have been four distinctive multiyear cycles of performance² for active mutual fund managers in the U.S. large-cap equity segment: two cycles in which the average active manager consistently outperformed a passive benchmark, and two cycles when these managers consistently underperformed (the remainder of the period was inconclusive—see Exhibit 1, right).

Market conditions influence performance results

The opportunity set for active managers can be significantly influenced by certain market conditions, and the dynamic nature of the market environment has contributed to the historical cyclicity of their relative performance. Specifically, there are both quantita-

tive market factors and qualitative macroeconomic factors that have ebbed and flowed over time. From a quantitative standpoint, there has been one performance driver—stock return dispersion—which has been a major contributor to active management returns (see Exhibit 2, page 2), along with three other factors:

EXHIBIT 1: Looking back across more than 20 years, there have been distinctive multiyear periods when active managers of U.S. large-cap equity strategies have either out- or underperformed their respective passive benchmarks, on average.



Fund performance reflects three-year and one-year rolling returns on average for the universe of actively managed funds in Morningstar’s large-cap categorization relative to each fund’s primary benchmark. Fund performance is net of total operating expenses charged by the respective investment management companies. Shaded areas identify cycles by three-year returns: Green areas indicate active manager outperformance; red areas indicate underperformance. Past performance is no guarantee of future results. This chart does not represent actual or future performance of any individual investment option. See the complete methodology on page 4. Source: Morningstar, as of Dec. 31, 2013.

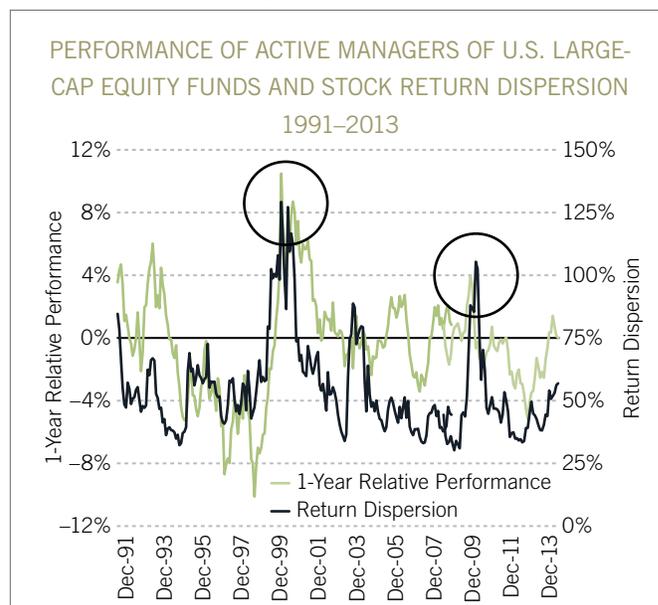
stock return correlations, earnings growth dispersion, and price-to-earnings multiple dispersion.³

Evaluating the four distinctive multiyear performance cycles and corresponding drivers

Recognizing the key factors involved in the performance cyclicity of active, U.S. large-cap equity managers, let's take a closer look at what drove the opportunity set and relative performance within each of the distinctive cycles over the past two decades (see Exhibit 3, below). As the analysis shows, the presence of above- or below-average stock return dispersion was the most significant differentiating factor in the average performance of active managers.

- Cycle 1: Active Strategies Outperform (Jun. 1991–Jun. 1993)**
 In the early 1990s, active managers of U.S. large-cap equity funds had many market factors on their side, which not surprisingly created a favorable period of relative performance. Specifically, the combination of higher-than-average stock return dispersion and lower-than-average stock correlation—the historically favorable environment for active managers—set the stage for a two-year period of excess returns for the average active manager. Meanwhile, the environment featured above-average dispersion of earnings growth, which also provided a supportive backdrop for active managers.
- Cycle 2: Active Strategies Underperform (Jul. 1993–May 1999)**
 The mid- to late-1990s building of the Internet/technology bubble was perhaps the most challenging period for active managers during the past two decades. Gains were concentrated in fewer and fewer large stocks over time, driving the index higher and causing lower-than-average levels of stock return dispersion in the U.S. large-cap equity category. Although stock return correlations remained below average during the cycle (which typically is favorable for active managers), it's important to keep in mind that return correlations trended higher throughout the duration of the cycle. Lower-than-average dispersion of earnings growth and P/E

EXHIBIT 2: During periods when active managers of U.S. large-cap equity strategies on average have outperformed their respective benchmarks, there has often been an above-average level of dispersion among stock returns.



Stock return dispersion calculated by the standard deviation of trailing one-year returns of the constituents in the following large-cap indices: Russell 3000® Index and S&P 500® Index. Fund performance reflects one-year rolling returns on average for the universe of actively managed funds in Morningstar's large-cap categorization relative to each fund's primary benchmark. Fund performance is net of total operating expenses charged by the respective investment companies. Past performance is no guarantee of future results. This chart does not represent actual or future performance of any individual investment option. Source: Morningstar Direct, FactSet, as of Dec. 31, 2013.

multiples also contributed to the difficult environment for active managers, restricting their opportunity to differentiate between cheap and expensively priced stocks, as well as the stocks of faster-growing companies. Amid these challenging market

EXHIBIT 3: Multiyear periods of outperformance for active, U.S. large-cap equity managers have coincided with high stock return dispersion, low stock return correlation, and typically high dispersion of earnings growth and P/E multiples relative to historical averages.

| Performance Cycles of Actively Managed U.S. Large-Cap Equity Funds vs. Benchmarks and Key Factors (1991–2013) | | | | | | | | | |
|---|-------------|-----------|------------------|----------------------------|--------------------------|----------------------------|----------------------------------|-----------------------------|--------------------------|
| | Cycle Start | Cycle End | Duration (years) | 1-Year Relative Return (%) | Stock Return Dispersion* | Stock Return Correlations* | # of Factors Explaining Returns* | Earnings Growth Dispersion* | P/E Multiple Dispersion* |
| Cycle 1 | Jun-91 | Jun-93 | 2.1 | 1.40 | 0.30 | (0.88) | 0.84 | 0.38 | (0.00) |
| Cycle 2 | Jul-93 | May-99 | 5.9 | (3.17) | (0.13) | (0.81) | 0.84 | (0.40) | (0.75) |
| Cycle 3 | Jun-99 | Jan-04 | 4.7 | 2.34 | 1.09 | (0.25) | (0.42) | 0.98 | 0.90 |
| Cycle 4 | Apr-09 | Dec-13 | 4.8 | (0.94) | (0.21) | 1.42 | (1.03) | (0.06) | 0.68 |

*Unless otherwise noted, the table above contains the historical z-score and is calculated by taking the average for the period, subtracting the full historical average (1991-2013), and dividing by the full historical standard deviation. The z-score values for each metric represent a comparable scale for each period shown; positive values = above-average impact relative to the factor's historical average; negative values = below-average impact relative to the factor's historical average. One-year relative return: average rolling one-year net return of funds relative to their benchmarks in each cycle. Cycles: see complete methodology on page 4. Source: See full-length article for all data sources on fund performance, stock return dispersion, stock return correlations, principal component analysis, earnings growth dispersion, and P/E multiple dispersion. Past performance is no guarantee of future results. Fidelity Investments, as of Jun. 19, 2014.

conditions, the average return for active managers relative to their benchmarks was the lowest in this cycle.

- *Cycle 3: Active Strategies Outperform (Jun. 1999–Jan. 2004)*
In the aftermath of the technology bubble, opportunities for active management improved as market breadth broadened during the worst of the bear market and the subsequent rebound. Market factors were on the side of active managers during this period, creating a favorable opportunity set. Stock return dispersion was well above the historical norm. Stock return correlations were below average during the period, and there was significant dispersion in earnings growth and P/E multiples. During this cycle, the average one-year return for active managers relative to their benchmarks reached the highest level during the entire period (1991–2013).
- *Cycle 4: Active Strategies Underperform (Apr. 2009–Dec. 2013)*
The post-financial-crisis period was one of the most challenging periods for active managers, as systemic risk concerns overwhelmed differentiating factors among individual stocks. Below-average stock return dispersion hindered the opportunity set for active managers. In addition, stock return correlations rose to the highest level during the entire period under study, reaching well above historical average levels. Earnings growth dispersion also was unfavorable. P/E multiple dispersion was favorable, but this factor was overwhelmed by the low dispersion of stock returns, and particularly by the extreme correlation conditions in the market that created scarce distinct opportunities for active managers. Qualitative factors also played a role. Asset markets fluctuated violently between “risk-on” and “risk-off” markets from 2008 to 2011, driven by perceptions of systemic risk tied to the outbreak of the global financial crisis in 2008, the synchronized policy-driven rebound from 2009 to 2010, and the policy-driven uncertainty surrounding the eurozone crisis and U.S. debt downgrade in 2011–2012. These “systemic risk” factors overwhelmed any individual differences among companies or stocks, making it extremely difficult for active managers to outperform in such conditions.

The market environment may be poised to improve for active managers

Since the worst of the 2011–2012 poor market conditions for active managers, there have been indications that this extraordinary period of systemic risk and record-high stock return correlations has begun to ebb. Today, systemic risk concerns such as a breakup of the eurozone or a U.S. debt crisis are no longer front-burner issues. Replacing them are a greater dispersion of risks around the world, with global economic conditions and monetary policies increasingly diverging among various countries. The combination of different phases of the business cycle and a variety of monetary policy directions among various countries indicates there are more divergences, less global synchronization, and thus more likely to be a greater range of outcomes for equity markets and individual stocks.

Amid the decline in systemic risks and global synchronization, some U.S. large-cap equity market factors have improved. Stock return correlations have declined dramatically since their 2012 peak as the number of factors explaining the movements in stock returns has broadened considerably. This suggests that more varied, idiosyncratic drivers of performance are in play, which should result in greater active investment opportunities. Meanwhile, stock return dispersion remains at a low level relative to history. If there is a reversion to the mean with this and with other factors that historically coincide with periods of strong returns for active managers, such conditions would provide a more attractive market environment for active managers.

Investment implications

Our analysis illustrates that there have been distinct multiyear periods when active managers in the U.S. large-cap equity category, on average, have outperformed their respective benchmarks after incorporating total operating expenses. Periods of outperformance for active, U.S. large-cap equity managers have tended to occur during a market environment featuring high stock return dispersion. At the same time, periods when active managers underperform their benchmarks on average have tended to occur when those market factors have moved in the opposite direction. Given the historical cyclicity of performance for active managers, investors looking to maximize the return potential of their equity allocation may want to consider maintaining a structural exposure to actively managed strategies, even within the highly efficient U.S. large-cap equity category.

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This article is an executive summary of a full-length *Leadership Series* paper “Active Investing: The Cyclicity of Performance in the U.S. Large-Cap Equity Market,” Jun. 2014.

Investment decisions should be based on an individual's own goals, time horizon, and tolerance for risk.

Past performance is no guarantee of future results.

Neither asset allocation nor diversification ensures a profit or guarantees against loss.

All indices are unmanaged. An investment cannot be made in an index. Securities indices are not subject to fees and expenses typically associated with investment funds.

Investing involves risk, including risk of loss.

Stock markets, especially foreign markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments.

The securities of smaller, less well known companies can be more volatile than those of larger companies.

Endnotes

¹ Market efficiency: Our analysis showed that the large-cap segment of the U.S. equity market has been the most efficient when compared with U.S. small-cap stocks, international developed large-cap stocks, and emerging-market stocks, which makes it very difficult for active managers to generate excess returns over a passive benchmark. We collected data on trading volume, the amount of Wall Street analyst coverage, and the number of published news articles, as these factors should provide an indication of how quickly information is disseminated and priced into stocks.

² We evaluated the average return (after including total operating expenses) of all actively managed, U.S. large-cap equity mutual funds relative to each fund's respective benchmark since 1991, a period chosen because it represents a time horizon extensive enough to capture multiple cycles of distinctive performance. Our identification of cycles focused on three-year rolling returns, which reflects a reasonable time period to determine a consistent performance trend; rolling returns also make observations and conclusions less sensitive to any one specific date or time period.

³ Stock return dispersion: The variability among stock returns, or dispersion, in a given stock universe. Stock return correlation: Return correlations measure the degree to which stock prices are moving together in the same direction. Dispersion of earnings growth: The variability of earnings growth in a stock universe. Dispersion of price-to-earnings (P/E) multiples: The variability of P/E multiples in a stock universe.

Definitions

Excess return: the amount by which a portfolio's performance exceeds the benchmark, net (in the case of the analysis in this article) or gross of operating expenses, in percentage points.

Standard deviation: measures the dispersion of a set of data from its mean; calculated as the square root of the variance.

Methodology

Data and sources: Morningstar (Morningstar Direct)—full list of actively managed funds with fund absolute and excess returns (monthly and net of total operating expenses) in the U.S. large-cap growth, U.S. large-cap blend, and U.S. large-cap value categories, along with the funds' associated primary large-cap benchmarks if they were one of the following large-cap indexes: Standard & Poor's 500 Index, Russell 1000 Index, Russell 1000 Value Index, Russell 1000 Growth Index, Russell 3000 Index, Russell 3000 Growth Index, Russell 3000 Value Index. **Morningstar explanation of net total return calculated for actively managed U.S. large-cap equity funds:** Expressed in percentage terms, Morningstar's calculation of total return is determined by taking the change in price, reinvesting, if applicable, all income and capital-gains distributions during that month, and dividing by the starting price. Reinvestments are made using the actual reinvestment price, and daily payoffs are reinvested monthly. Unless otherwise noted, Morningstar does not adjust total returns for sales charges (such as front-end loads, deferred loads, and redemption fees), preferring to give a clearer picture of performance. The total returns do account for management, administrative, 12b-1 fees, and other costs taken out of assets (i.e., total operating expenses). The data set ranged monthly from Jan. 1991 to Dec. 2013. Funds that stopped reporting returns between those dates are included in the dataset, to reduce survivorship bias. Rolling three-year and one-year returns of the large-cap categorized funds in the above-mentioned universe were calculated by taking a simple average of all the funds' net returns relative to their benchmarks (net of total operating expenses). **Active manager performance cycle start dates:** given the overlapping nature of three-year rolling return calculations, the cycle start dates were determined to be 18 months (half the three-year period) prior to when a cycle moved from a positive value to a negative value, or vice versa. See cycle start and end dates in Exhibit 3.

Index definitions

The Russell 3000 Index is an unmanaged market capitalization-weighted index of those stocks of the 3,000 largest U.S.-domiciled companies.

The S&P 500® Index, is a market capitalization-weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation to represent U.S. equity performance. S&P 500® is a registered service mark of Standard & Poor's Financial Services LLC.

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EXECUTIVE SUMMARY

Active Share: A Misunderstood Measure in Manager Selection

This Executive Summary should be reviewed with the accompanying paper, "Active Share: A Misunderstood Measure in Manager Selection," by Tim Cohen, Brian Leite, Darby Nielson, and Andy Browder.

In recent years, the investment community has embraced the concept of "active share." Simply stated, active share measures how much an equity portfolio's holdings differ from the constituents of its passive benchmark index. Investors have been using this measure as a gauge of active management inherent in an investment portfolio and, increasingly, as an indicator of potential future excess return, based on empirical work by Martijn Cremers and Antti Petajisto.¹

This article argues that although active share may help investors compare active managers within a particular category, or track the level of active management in a single portfolio over time, there may be important limitations to its usefulness. For example, active share may not be a consistent metric across different market-cap size mandates and benchmarks. Also, although often-cited research suggests that active share has been positively correlated with excess return, our empirical analysis reveals that higher levels of active share are also associated with greater levels of return dispersion, and higher downside risk.

The most striking result of our analysis, however, may be that for large-cap managers in the 15-year period observed, the relationship between higher levels of active share and excess return appears to have been driven primarily by smaller-cap portfolio exposures. Consequently, we believe investors should be wary of formulating conclusions about manager skill or portfolio return potential using active share alone.

Uses of active share

Although similar metrics were already in use within the investment industry, the name "active share" was coined and the concept widely popularized in a 2006 working paper by Cremers and Petajisto. In their formulation, a portfolio with no holdings in common with the benchmark would have 100% active share, while a portfolio that is identical to the benchmark (in both holdings and weights) would have 0% active share.

Historically, the investment industry has used tracking error as the best measure of active risk in a portfolio. Tracking error quantifies the volatility of a portfolio's relative returns (returns different from the benchmark's). Cremers and Petajisto's work argues that tracking error alone is not the best indicator of active stock selection by a manager, and that active share (which focuses on the composition of the portfolio itself and not on returns) can help to quantify a manager's degree of active management.

Cremers and Petajisto's work also found a positive historical correlation between higher active share and higher excess return (returns above those of the benchmark). As a result, some institutional clients and consultants use active share as a tool not just to help determine whether an equity strategy justifies active management fees, but also as a proxy for potential excess return.

We would argue that active share is not easily comparable across different fund categories, and that other measures of risk should be an important consideration alongside active share. To support our argument empirically, we studied data on more than 2,000 U.S. funds, looking at quarterly returns, active share, fund benchmarks, and holdings over the period from Dec. 1997 to Mar. 2013. Additionally, we segmented the data into large-cap and small-cap subsets to examine the effects of benchmark selection (see the methodology section below for more information). Importantly, the results of our study call the correlation of active share and excess return into question, at least for large-cap portfolios.

Important considerations in using active share

In our analysis of historical data on fund categories, active share levels, and returns, we noted several important qualities of active share:

- **The distribution of active share levels may be implicitly related to the size mandate of a portfolio.** We found that small-cap funds disproportionately had very high active share, in the 95% to 100% range, while large-cap funds showed a more normal distribution, with a median and mean both near 75%. Comparing active share levels across different size mandates may not be straightforward.

- **The capitalization-weighting structure of the benchmark index may also influence typical levels of active share.** The subsets of funds that are benchmarked against more “top-heavy” indices (more steeply cap-weighted, with higher concentration in the top constituents) tend to have lower median active share than sets of funds benchmarked against “flatter” indices in which holdings are more equally dispersed. As such, comparing active share across funds with different benchmarks may also not be straightforward.
- **Active share by itself does not fully incorporate risk considerations.** Our analysis showed that excess return displayed a positive correlation with active share over the period analyzed. However, information ratio, which measures excess return per unit of active risk, showed a less convincing relationship with active share, due to the higher tracking error typically produced by funds with higher active share levels. There was also a discernible positive correlation between active share and a portfolio’s “worst case scenario”—in other words, higher active share has been accompanied at the fund level by greater levels of downside risk (or negative “fat tail” events), and this relationship has been largely linear. In addition, our empirical study showed that, overall, the dispersion of excess returns widened with higher active share. Investors who are concerned with managing portfolio risk may need to compare funds using a fuller set of risk metrics.
- **High active share may indicate style drift.** Because out-of-benchmark holdings are a source of active share, a high active share

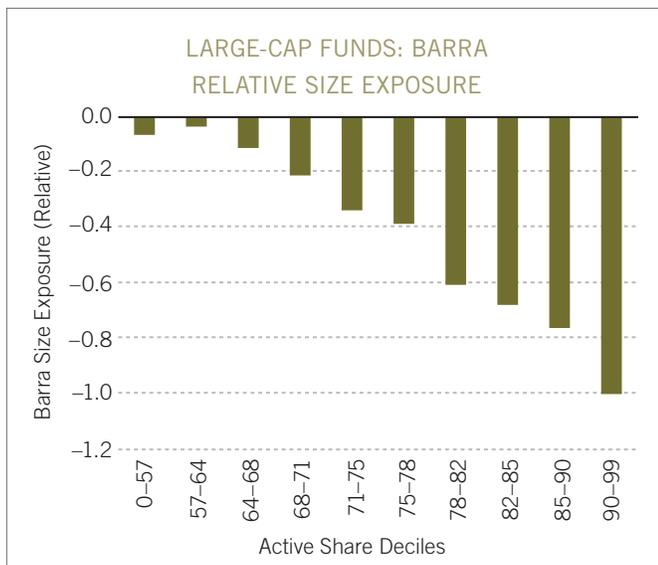
may in fact reveal style drift (e.g., a large-cap core fund buying small-cap equities; a growth fund buying value equities). Investors seeking to diversify exposures by using multiple managers should be careful to evaluate the sources of each manager’s active share.

Large-cap portfolios, excess return, and smaller-cap bias

Historically, an important source of active share for managers of funds classified as large-cap (and benchmarked to a large-cap index) seems to have been holdings in smaller-cap stocks. We studied MSCI Barra data on relative size exposures for all of the funds in our study, comparing this measure across deciles of active share. The average Barra relative size exposure becomes increasingly negative as active share increases, indicating greater exposure to smaller capitalizations (see Exhibit 1, below left).

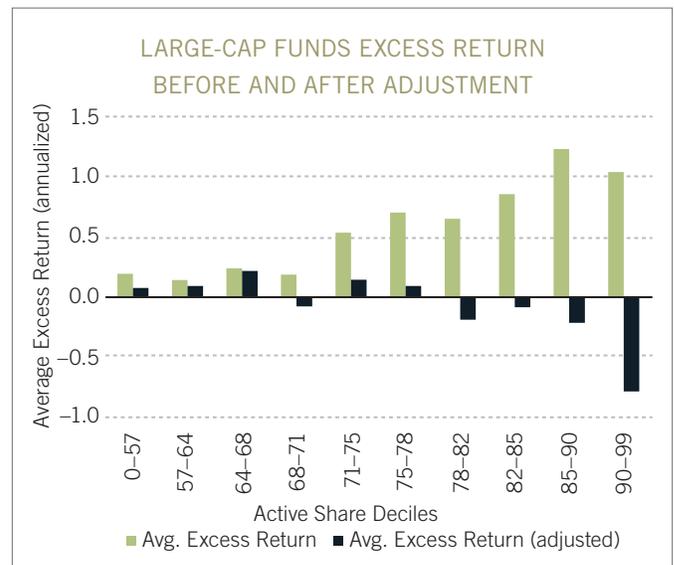
Moreover, when we adjusted for this smaller-cap effect on the returns of large-cap managers over the period of our analysis, the apparent positive correlation between active share and excess return seems to vanish. We calculated the excess return for each decile of active share for the large-cap fund universe. We then used the Barra factor returns and relative size exposures to estimate each portfolio’s returns associated with the factor itself. By subtracting those returns, we were able to estimate the excess return within each decile of active share after adjustment for smaller-cap exposures (see Exhibit 2, below right).

EXHIBIT 1: Large-cap managers have shown a correlation between active share and exposure to smaller-cap holdings.



MSCI Barra USE3L model used for relative size exposure; see methodology for definition. Large-cap: subset of funds in study classified as large-cap and benchmarked to a large-cap index. Fund data used is quarterly from Dec. 1997 to Mar. 2013. Source: MSCI Barra (size factors), FactSet (benchmark constituents), Morningstar Direct (fund data), Thomson Reuters (holdings), Fidelity Investments.

EXHIBIT 2: When large-cap funds’ returns are adjusted for the effect of smaller-cap exposure, the apparent correlation between active share deciles and excess return disappears.



Past performance is no guarantee of future results. See methodology for description of adjustment. Large-cap: subset of funds in study classified as large-cap and benchmarked to a large-cap index. Fund data used is quarterly from Dec. 1997 to Mar. 2013. Source: MSCI Barra (size factors and size returns), FactSet (benchmark constituents), Morningstar Direct (fund data), Thomson Reuters (holdings), Fidelity Investments.

As the results of this adjustment suggest, the apparent historical correlation between active share and excess return for large-cap funds as a group may arise mainly from smaller-cap exposure, during the relatively persistent outperformance for smaller-cap stocks over the past 15 years. This effect may in fact have contributed to the similar correlation observed for all funds in aggregate, as well.

Implications for investors

Active share is a remarkably simple concept that holds a great deal of practical utility for assessing active managers—but only when it is employed as part of a broader analytical framework. Investors

should be aware that active share may vary structurally according to market-cap mandate and benchmark, and may not speak to possible concerns about downside risk or style drift. Moreover, large-cap investors who focus solely on the potential for excess return implied by historical active share data may be, in essence, seeing the effects of smaller-cap exposure in a large-cap portfolio—effects which may not persist. Given the limitations of active share as a measure, investors should be cautious about making comparisons between funds based solely on active share, and should not assume that active share is intrinsically predictive of excess returns.

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Diversification/asset allocation does not ensure a profit or guarantee against a loss.

Investing involves risk, including risk of loss.

Stock markets, especially foreign markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments.

The securities of smaller, less well known companies can be more volatile than those of larger companies.

Endnotes

¹ See, for example: Cremers, K.J.M., and A. Petajisto, "How Active Is Your Fund Manager? A New Measure That Predicts Performance." *The Review of Financial Studies*, Vol. 22, No. 9 (2009).

Definitions

Excess return: The amount by which a portfolio's performance exceeded the benchmark, gross of fees, in percentage points. **Tracking error:** The standard deviation of the difference between a portfolio's performance and that of its benchmark. **Information ratio:** Portfolio excess return divided by the volatility of those returns (i.e., tracking error); a higher IR corresponds to higher excess return per unit of risk. **Downside risk:** Average of the bottom 5% of returns for each fund over the full sample period, represented relative to benchmark returns, in percentage points.

Methodology—general active share analysis

Data and sources: Thomson Reuters – fund-level holdings data; Morningstar (Morningstar Direct) – full list of funds with fund absolute and excess returns (quarterly and gross of fees), funds' associated benchmarks; FactSet – benchmark holdings. The dataset ranged quarterly from Dec. 1997 (the earliest period for which we could get complete information) to Mar. 2013. Funds that stopped reporting returns between those dates are included in the dataset, to reduce survivorship bias.

Fund selection: We started out with all 3,233 funds that have Morningstar benchmark data and that exist in Thomson Reuters's database. We removed all funds that lack sufficient holdings data, bringing the list to 2,329 funds. We manually excluded funds-of-funds, derivative-based funds, international funds, and index funds mistakenly classified as actively managed. Funds with holdings data that did not line up with quarter-end dates were not used. Funds holding fewer than 10 equity positions on average were excluded to try to eliminate funds using futures contracts or other index funds to track an index (which would cause miscalculation of active share). We also eliminated S&P 500-benchmarked funds with a non-Large Cap Morningstar categorization. Exclusions reduced the list to 2,079 funds.

All funds in study: 2,079 (average active share decile size: 208). Large-cap funds in study: 1,288 (average active share decile size: 128). Small-cap funds in study: 445 (average active share decile size: 44).

"All funds" category is made up of all funds remaining in the dataset after the exclusions noted above. "Large-cap funds" category is made up of funds that are classified by Morningstar as large-cap growth, value, or blend, and are also benchmarked to generally large-cap indices; funds categorized as large-cap by Morningstar but benchmarked to explicitly small-cap indices were excluded from this category. "Small-cap funds" category is made up of funds classified as small-cap growth, value, or blend by Morningstar.

Dataset benchmarks: S&P 500, Russell 2000, Russell 2000 Growth, Russell 2000 Value, Russell Midcap, Russell Midcap Growth, Russell Midcap Value, Russell 3000, Russell 3000 Growth, Russell 3000 Value, Russell 1000, Russell 1000 Growth, Russell 1000 Value.

Fund active share is defined as the average active share over the full sample period, or full portion of the sample period for which the fund existed in the case of funds that began reporting after Dec. 1997 or stopped before Mar. 2013. Active share calculations were made quarterly.

Average Excess Return (annualized) is defined as the difference between the annualized cumulative absolute return of the fund and the annualized cumulative return of the benchmark over the full span of the fund's existence within the study period. All fund returns were quarterly and gross of fees.

The information ratio was calculated as the annualized excess return of the fund divided by the annualized standard deviation of the quarterly return (tracking error).

Methodology—adjustment for smaller-cap exposure

We used the MSCI Barra USE3L equity risk model for smaller-cap exposures.

The Barra size exposure is the weighted average of the holdings for each fund exposure to the Barra size factor (which is based upon the market capitalization of each individual security). The exposure is then made relative by subtracting the relevant benchmark's Barra size exposure.

To adjust for the smaller-cap effect, we multiplied each fund's relative size exposure by the Barra size return for each quarter and then subtracted that figure from the realized return. The Barra size factor is negative when smaller-cap outperforms larger-cap.

Please note two important considerations: 1. The Barra hit rate is the percentage of the portfolio that is matched from the Thomson Reuters data to the Barra holdings in the USE3L model. It varies based on fund type and tends to be lower (i.e., more missing securities) with higher average active share levels of the fund. Average hit rate across all funds was 96.2%. 2. Mutual funds often reported holdings semiannually in the first part of the dataset (1998–2003), which results in gaps in the data. Because it is not possible to determine Barra smaller-cap exposure for those quarters, we estimate the Barra smaller-cap exposures over single-quarter gaps by using the average of the previous and following quarters.

Index definitions

The Russell 1000 Index is an unmanaged market capitalization-weighted index of the 1,000 largest U.S.-domiciled companies. The Russell 1000 Growth (Value) Index is an unmanaged market capitalization-weighted index of those stocks of the Russell 1000 that exhibit growth-oriented (value-oriented) characteristics. The Russell 2000 Index is an unmanaged market capitalization-weighted index of the stocks of the 2,000 smallest companies included in the 3,000 largest U.S.-domiciled companies. The Russell 2000 Growth (Value) Index is an unmanaged market capitalization-weighted index of the stocks of the Russell 2000 that exhibit growth-oriented (value-oriented) characteristics. The Russell 3000 Index is an unmanaged market capitalization-weighted index of those stocks of the 3,000 largest U.S.-domiciled companies. The Russell 3000 Growth (Value) Index is an unmanaged market capitalization-weighted index of those stocks of the Russell 3000 that exhibit growth-oriented (value-oriented) characteristics. The Russell Midcap Index is an unmanaged market capitalization-weighted index of the smallest 800 companies included in the Russell 1000 Index. The Russell Midcap Growth (Value) Index is an unmanaged market capitalization-weighted index of the stocks of the Russell Midcap Index that exhibit growth-oriented (value-oriented) characteristics.

The S&P 500® Index is a market capitalization-weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation to represent U.S. equity performance. S&P 500 is a registered service mark of Standard & Poor's Financial Services LLC.

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Can Switching to Index Funds Reduce Risk?

Know the realities to help align investments to your goals

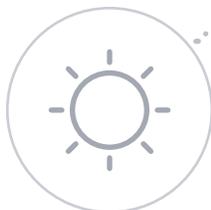
Everyone knows that investing involves risk. But "risk" is difficult to pin down, even though we encounter various measures of risk every day and make decisions based on our perception of that risk. When the weather report predicts a 50% chance of rain, you likely weigh the risk of getting wet and decide if you want to carry an umbrella.



When selecting mutual funds, **risk may be a consideration** in choosing between active and index funds.



A recent survey of mutual fund buyers found that **more than half think active funds carry more risk** than passive index funds.¹



Given this belief, some have **mistakenly assumed** that holding **index funds can dramatically reduce risk**, especially during uncertain market environments.



But in fact, switching from actively managed funds to index investments is **not likely to be an effective plan** to manage the overall risk of an investment portfolio.

For Investors.

Index funds cannot avoid market volatility

Index funds seek to track a benchmark index. Because of this approach, index funds tend to have returns very close to the benchmark index minus fees, and index funds with the same benchmark tend to show very similar performance to each other. In contrast, active funds may return more or less than their benchmark indexes (after fees) and may differ from each other in performance.

Recent research showed that one in five mutual fund buyers believed that stock index funds can protect them from market ups and downs.¹ However, index funds cannot eliminate market volatility – in fact, they are fully exposed to market volatility, by design. The average U.S. large-cap index fund, for example, moves with the market itself, experiencing big swings in one-year performance numbers. Since 1996, the average annual swing in one-year performance has been 17%, and the maximum annual change, from -41% in Feb. 2009 to 52% in Feb. 2010, has been nearly 93%.

INDEX FUNDS, BY DESIGN, EXPERIENCE VOLATILITY SIMILAR TO THE MARKET THEY TRACK

Average One-Year Return for U.S. Large-Cap Equity Index Funds



Chart shows equal-weighted averages of rolling one-year returns for all index mutual funds in the Morningstar database listing the S&P 500 as the fund's primary benchmark, including closed and merged funds. It does not represent actual or future performance of any individual investment option. Source: Morningstar Direct. Past performance is no guarantee of future results. It is not possible to invest directly in an index. Index performance is not meant to represent that of any Fidelity mutual fund.

Index funds don't cushion bear markets

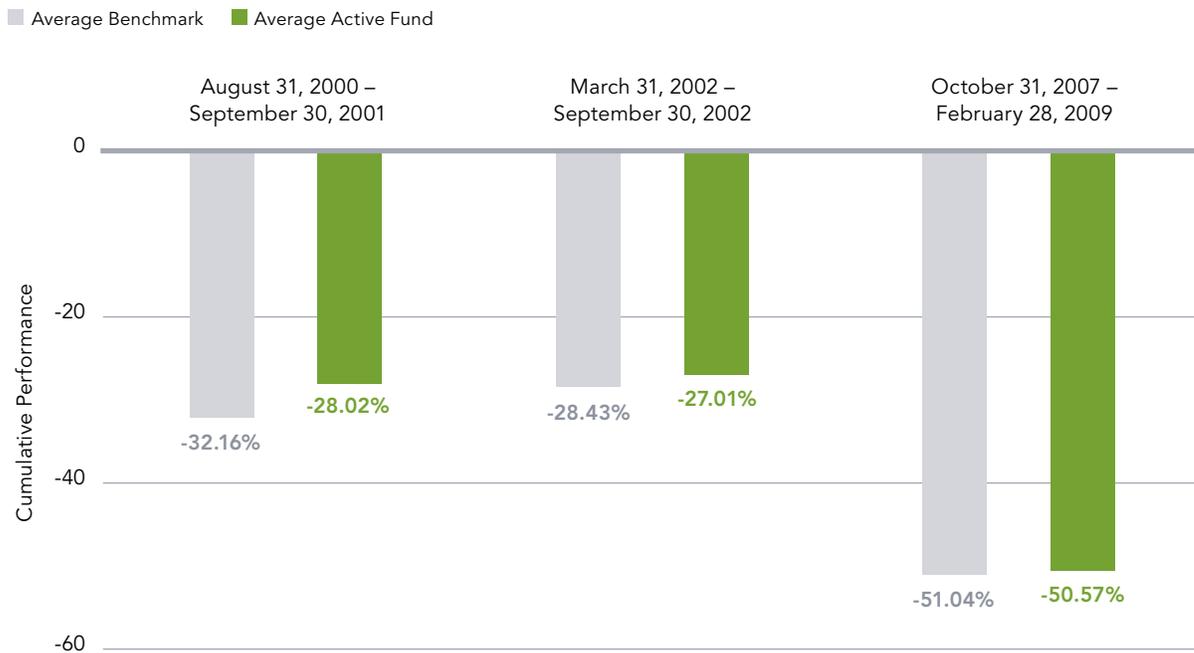
For many, risk and volatility only matter when movement is in one direction: down. Avoiding major losses can be an important part of preserving assets. Index funds are designed to track market returns even when the market is going down, while active funds can attempt to outperform the market. Even so, eight out of nine survey respondents didn't believe that active equity funds have performed better than index funds in bear markets.

However, the actual data tell a different story. In each of the three most recent bear markets for U.S. large-cap equity, active funds outperformed their benchmark indexes on average and after fees, while index funds underperformed on average after fees. Average active outperformance ranged from 0.5% during the global financial crisis to more than 4% during the early dot-com bust.* Active funds may be able to select securities that outperform a bear market, or may reduce exposure to a market before a sell-off.

Of course, not all active funds exactly matched the average, while index funds tended to be relatively consistent across funds. However, owners of an actively managed fund that they believe will outperform over time might want to talk to their advisor before switching to index funds, particularly if they are considering a change in their portfolio simply because they are concerned about future bear markets.

ACTIVE U.S. LARGE-CAP MUTUAL FUNDS BEAT THEIR BENCHMARKS DURING RECENT BEAR MARKETS, WHILE INDEX FUNDS CLOSELY TRACKED THEIR BENCHMARKS (BEFORE FEES)

Average Period Return for Active U.S. Large-Cap Mutual Funds and Benchmarks



Bear market: a period of 20% or greater loss in the S&P 500 that follows a gain of 10% or more from the previous low. Table reports average cumulative performance for all U.S. large-cap equity funds in the Morningstar database, from August 31, 2000, to September 30, 2001; March 31, 2002, to September 30, 2002; and October 31, 2007, to February 28, 2009. Fund performance is an equal-weighted average based on monthly returns, using all U.S. large-cap equity (including value, growth, and blend) mutual funds. It includes funds that did not exist for the full period. Each fund was compared to the primary prospectus benchmark. Source: Morningstar Direct. Past performance is no guarantee of future results.

*Analysis measures returns for each period from the beginning of the bear market to the end.

Aligning your investment approach to your goals

Understanding your own perceptions around risk is an important part of building a wealth management plan. Index funds can provide low-cost exposure to various markets with performance that stays close to the benchmark, but they can't eliminate market volatility or potential losses. Switching from active funds to index investments may not reduce risk in the ways some may expect. Talk to your advisor about the role that actively managed funds (for potential outperformance and a wider range of exposures) and index funds (for low-cost market tracking) can play in an overall portfolio strategy.

Working with your financial advisor may help lower the possibility of making emotionally driven financial decisions, especially during periods of market volatility. By considering your financial goals, investment time horizon, and tolerance for risk, your advisor can tailor an investment plan designed to help manage portfolio risk.

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¹ Fidelity Active/Passive Quantitative Study, 2016, which surveyed 3,483 Fidelity customers who are mutual fund buyers.

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Capitalizing on Inefficiencies in Mega-Cap Equities

After a decade and a half of unremarkable performance from mega-capitalization (mega-cap) equities, it may be reasonable for investors to question whether they need exposure to the asset class, and whether their exposure to mega caps should be through active strategies. By comparing mega caps with mid caps, represented respectively by the 200 largest and the 800 smallest companies in the Russell 1000 Index, this paper seeks to lay out the case for owning mega caps now, and for taking an active approach to mega-cap investing.

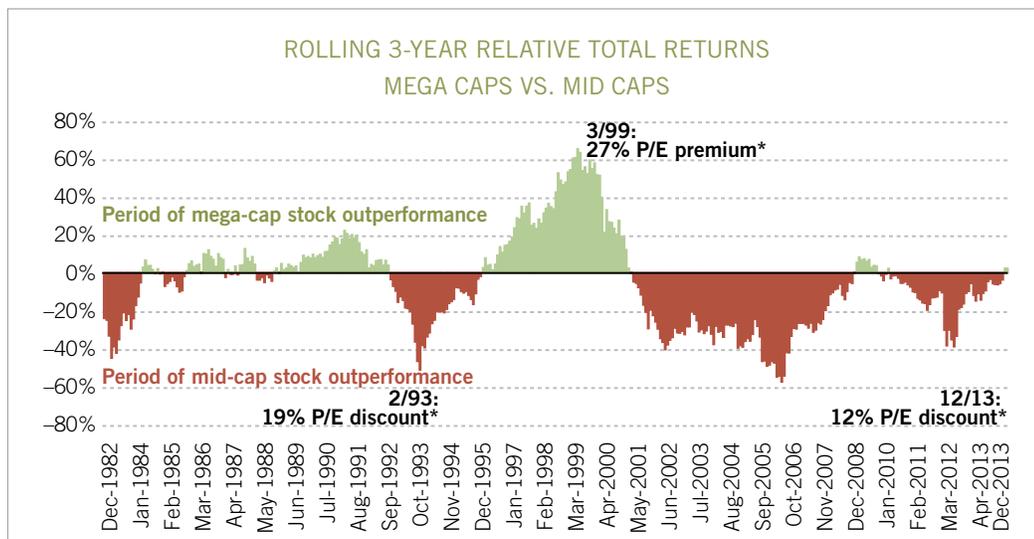
Why consider mega caps now?

Mega caps have been market leaders over extended periods

Over a short- to medium-term time horizon, the casual observer could easily conclude that mega-cap securities have a justified reputation as the most predictable and least interesting part of the equity market.¹ After all, mega-cap equities have underperformed mid-cap equities for most of the past 15 years²—which for many investors has been their entire investing lives. Looking back further to capture multiple market cycles, though, we see that mega caps have exchanged market leadership with mid caps several times during the past three decades (see Exhibit 1, below). For example, mega caps outperformed mid caps through much of the late 1980s and for a lengthy stretch in the 1990s.

In most instances, these prolonged periods of market leadership were preceded by extreme relative valuations—and with mega-cap price-to-earnings (P/E) valuations currently at a low point, their recent

EXHIBIT 1: Mega-cap stocks have exchanged market leadership with mid-cap stocks.



*Mega cap relative to mid cap trailing P/E. Total returns include price returns and dividends. Please see endnotes 1 and 2 for index information. Source: FactSet, Fidelity Investments, through Dec. 2013.

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Alex Devereaux
Portfolio Manager

KEY TAKEAWAYS

- Mega caps have been equity market leaders over extended periods, though recent performance has lagged.
- Mega-cap valuations are attractive relative to historical experience and to other market-cap segments.
- Compared with mid caps, mega caps deliver earnings growth that skews positive, as well as higher operating margins, stronger credit ratings, and less-volatile returns.
- Despite their compelling valuations and high quality, mega caps are consistently underowned by most active managers.
- With widespread dispersion of earnings growth and inaccuracy of earnings estimates, mega caps can offer just as many opportunities for alpha from active management as other market-cap segments.

EXHIBIT 2: Mega Caps vs. Mid Caps: EPS Growth, Dividend Yield, Change in PE

| 2000–2013 | Mega Caps | Mid Caps |
|------------------------------------|-------------|-------------|
| Annual EPS Growth (%) | 11.3 | 10.9 |
| Dividend Yield (%) | 1.5 | 0.7 |
| EPS Growth + Dividend Yield | 12.8 | 11.6 |
| Annual Change in P/E (%) | (1.5) | 2.5 |
| Total Shareholder Return | 11.3 | 14.2 |

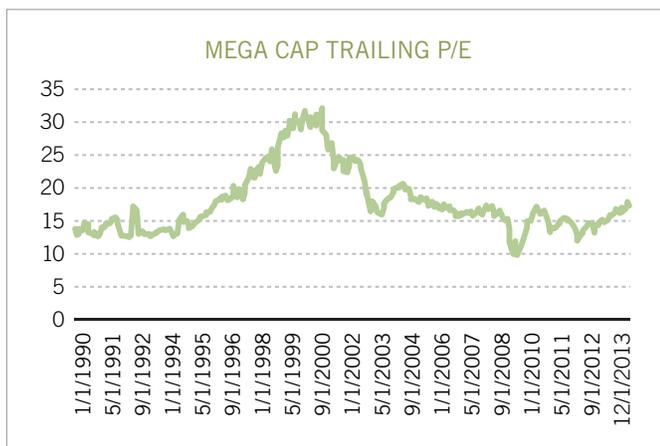
The statistics above represent average values observed from 2000 to 2013 of the median stock in each index. Source: FactSet, Fidelity Investments.

extended underperformance against mid caps may suggest that the equity market might be poised for another shift in leadership toward mega caps. In fact, if we momentarily set aside valuation and look only at the two main fundamental factors that drive long-term returns (earnings growth and dividend yield), we observe that the median mega-cap security delivered better results than the median mid-cap stock. The combination of earnings growth and dividends, when considered along with the change in valuation, gives a complete picture of total return. Mega caps delivered superior annualized earnings growth plus dividend yield compared with mid caps over the past decade (12.8% vs. 11.6%; see Exhibit 2, above).³ However, while mega caps became cheaper and absorbed an annual 1.5% valuation headwind, mid caps became more expensive and benefited from a 2.5% annual valuation tailwind. **The past decade has been marked by superior mega-cap fundamentals, which were trumped by very favorable mid-cap valuation expansion.**

Mega-cap valuations are historically and relatively attractive

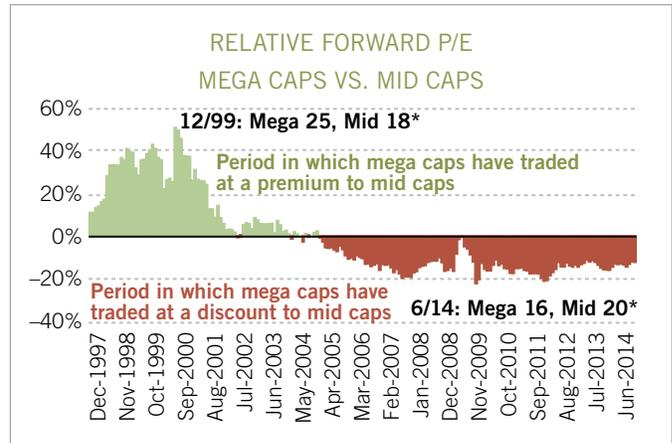
Mega caps have traded at an average trailing P/E ratio of 19 during the past two decades (see Exhibit 3, below).

EXHIBIT 3: Mega-cap valuations are the lowest in 20 years.



Rolling 12-month averages. Source: FactSet, Fidelity Investments, through Dec. 2013.

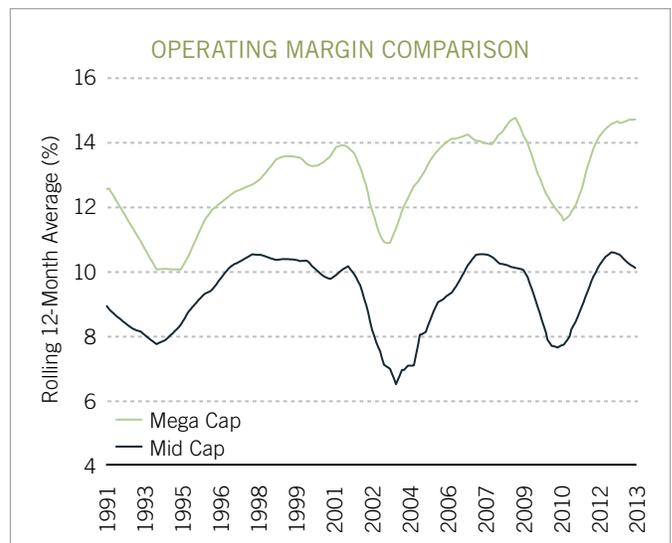
EXHIBIT 4: Mega caps surrendered their valuation premium to mid caps almost 15 years ago.



*Mega cap, mid cap forward P/Es. Source: FactSet, Fidelity Investments, through Dec. 2013.

With their current trailing P/E at a below-average 17, mega caps have room to run, simply to return to historical averages. Mega caps surrendered their valuation premium relative to mid-cap equities almost 15 years ago. Since then, mega caps have consistently traded at a discount to mid caps, with a current valuation discount of almost 12% (see Exhibit 4, above).⁴ Market participants tend to justify this mid-cap valuation premium largely based on the argument that mid caps have faster earnings growth. As shown in Exhibit 2, this has not been the case for more than a decade.

EXHIBIT 5: Mega caps have consistently maintained higher operating margins than mid caps.



Operating margin = operating income divided by revenues. Rolling 12-month averages. Source: FactSet, Fidelity Investments, through Dec. 2013.

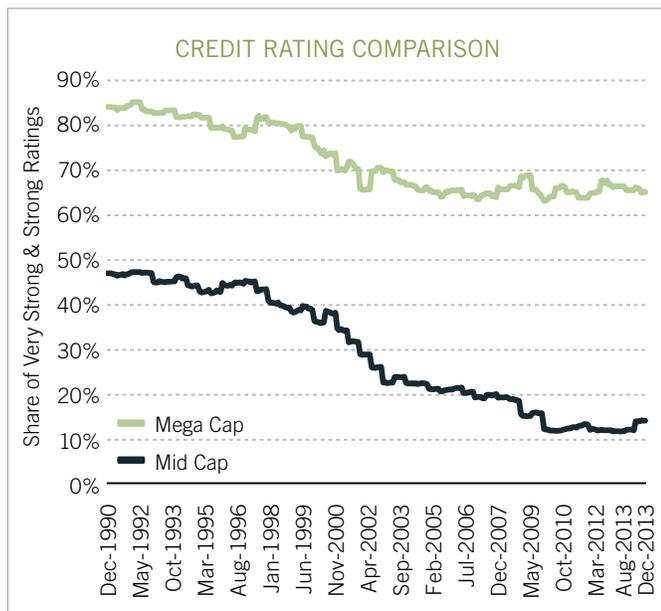
The mean-reverting nature of equity markets, combined with the increasingly vocal presence of activist investors among attractively valued mega-cap companies, could narrow the current P/E valuation discount going forward.

Mega caps have high quality and stable business models

While earnings growth tends to be higher for mid-cap equities than for their larger counterparts, mega-cap earnings have a number of distinguishing characteristics that set them apart. The operating margin—a fundamental measure of the profitability of an enterprise—tells a powerful story about mega caps.⁵ During the past 30 years, through multiple up and down economic cycles, mega-cap equities have delivered an average operating margin of about 13% (see Exhibit 5, page 2). Even more important, mega caps have consistently maintained an operating margin that is almost 4% higher than that for mid-cap equities during that period.

Mega caps also distinguish themselves from the rest of the market based on the strength of their balance sheets. Though declining modestly during the 2008 financial crisis, the proportion of mega-cap companies that are considered “very strong” or “strong” by the credit rating agencies remains above two-thirds.⁶ In contrast, the proportion of mid-cap equities with the same credit ratings has declined from almost 50% to 12% since 1990 (see Exhibit 6, below left). Mega caps receive stronger endorsements from the rating agencies thanks to their more stable and diversified profiles, as well as their increasingly strong cash positions, among other reasons.

EXHIBIT 6: Historically, mega caps have provided consistently higher credit ratings than mid caps.



Source: FactSet, Fidelity Investments, through Dec. 2013.

As a result of these higher operating margins and healthier balance sheets, mega caps have also provided less volatile returns than mid caps over multiple decades, especially so during more recent periods of elevated volatility (see Exhibit 7, below right).

Can active management strategies add value in mega caps?

Traditional arguments against mega cap active management are questionable

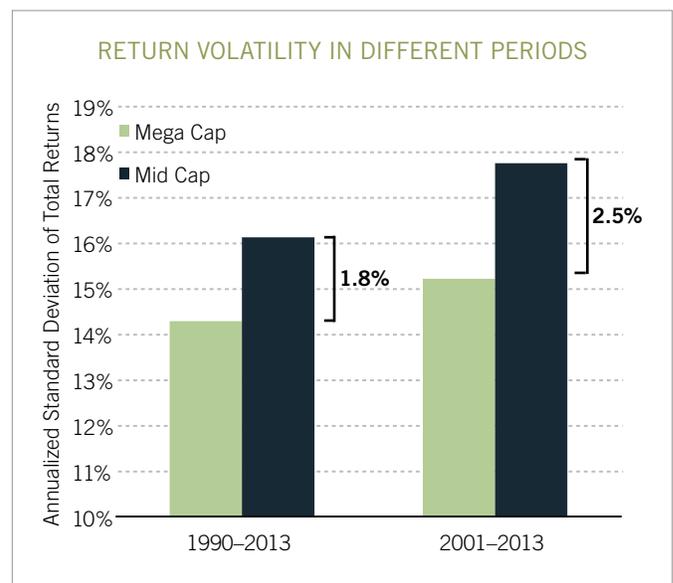
The conventional wisdom around active management in mega caps can be summarized in two words: Why bother? We will address this point of view using Fidelity’s analysis of three key metrics—earnings per share (EPS) estimates, actual EPS, and returns—for every stock followed by sell-side analysts since 1991. All stocks across the entire time period are classified into categories by each metric.

The conventional view can be decomposed into two separate arguments:

1. Lack of earnings-growth dispersion among mega caps

Perception: Mega caps lack earnings-growth dispersion as well as opportunities to find companies with fast earnings growth given their size, diversification, and breadth of product offerings. This misperception leads most investors to assume that smaller-cap equities offer greater opportunities to distinguish performance from active management and to capture more alpha from fundamental research.⁷

EXHIBIT 7: Mega caps have provided less volatile returns than mid caps, historically.



Please see endnotes 1 and 2 for index information.

Source: FactSet, Fidelity Investments, through Dec. 2013.

Reality: Contrary to this perception, 12-month forward earnings-growth dispersion is substantial among mega caps, with 45% of Russell Top 200 Index constituents posting growth rates exceeding positive or negative 20% (see Exhibit 8, below). To be fair, positive or negative 50% growth rates in the extreme tails are less common among mega caps than mid caps. It is also worth noting that, contrary to popular belief, the median 12-month forward earnings-growth rate has been modestly higher for mega caps than for mid caps.⁸

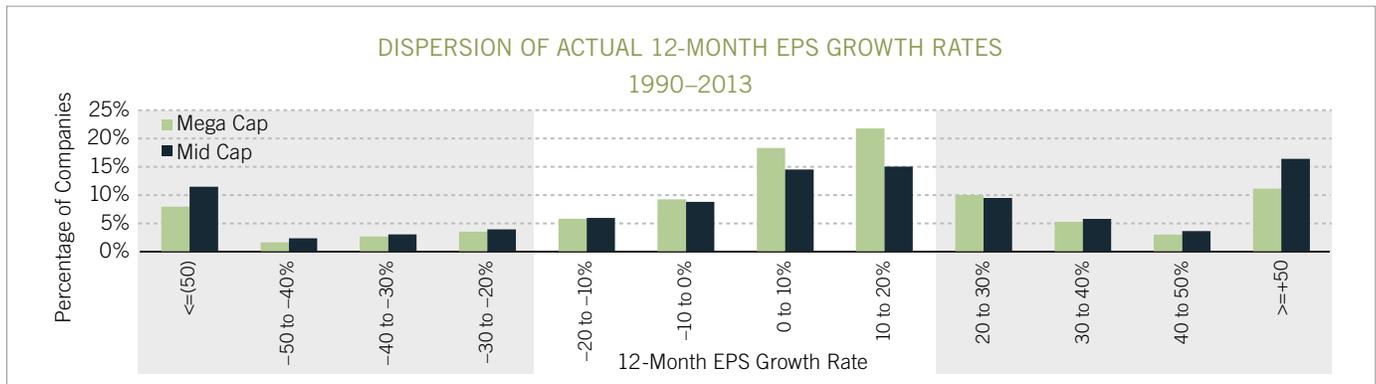
Given that earnings-growth dispersion is fairly similar among both mega-cap and mid-cap stocks, one might question how return dispersions compare—over 41% of mega caps generated 12-month forward relative returns exceeding positive or negative 20% (as compared with 50% of mid caps), demonstrating that there is ample opportunity for active mega-cap managers to differentiate performance (see Exhibit 9, below). While mid caps offered slightly greater dispersion in the extreme tails of positive or negative 50% relative returns, mega caps provided positively skewed relative returns and hence better downside protection than mid caps.

2. Accuracy of sell-side earnings estimates for mega caps

Perception: Wall Street has broader and deeper coverage of mega caps than other parts of the market-cap spectrum. As a result, opportunities for significant earnings surprises are less frequent, leaving only narrow opportunity to generate alpha from fundamental research within the mega-cap space.

Reality: If conventional wisdom around the efficiency of fundamental mega-cap analysis holds true, then the frequency of errors in estimating earnings and the magnitude of these errors should be lower for mega caps than for mid caps. We use a standardized unexpected earnings (SUE) analysis to compare sell-side analysts' 18-month forward estimates with actual reported earnings, and classify all observations from 1991 to 2013 into seven bins of SUE.⁹ This method of measuring earnings accuracy looks at the difference between expected and actual earnings, divided by the standard deviation of earnings estimates.¹⁰ This method adjusts for the inherent volatility in different business models—for example, a 1% earnings miss by a consumer-staples company could be just as infrequent as a 10% earnings miss for a more volatile oil refiner or biotech company.

EXHIBIT 8: Forward earnings-growth dispersion is just as substantial among mega caps as mid caps.



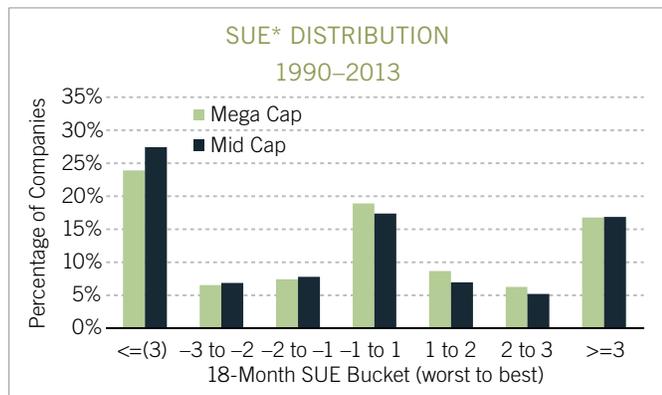
Source: FactSet, Fidelity Investments, through Dec. 2013.

EXHIBIT 9: Return dispersion is just as significant among mega caps as mid caps.



Source: FactSet, Fidelity Investments, through Dec. 2013.

EXHIBIT 10: Mega caps are as likely to report earnings surprises as mid caps.

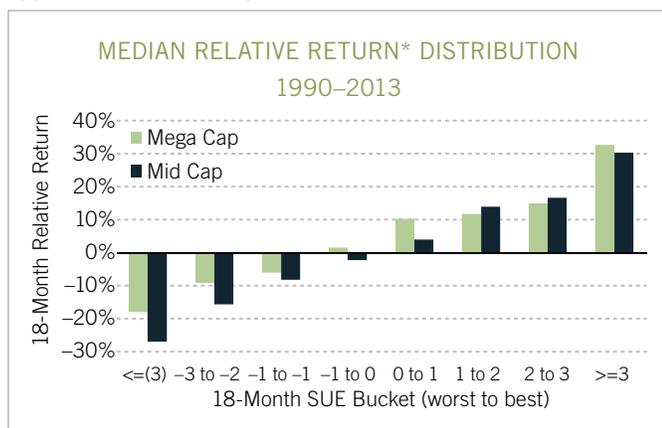


*Standardized unexpected earnings defined in text below and endnote 9. Source: FactSet, Fidelity Investments, through Dec. 2013.

The SUE analysis highlights the challenges in estimating the earnings power of companies, no matter what their market capitalizations (see Exhibit 10, above). Simply put, the market’s ability to forecast earnings is nearly as inefficient for mega-cap companies as it is for mid-cap companies. For investors who can accurately estimate earnings revisions, the alpha opportunities are arguably as significant among mega caps. The relative returns by different SUE buckets demonstrate that there are as many opportunities for relative return in the mega-cap space as in the mid-cap space (see Exhibit 11, below, left).

A look back at a couple of examples of large SUEs and their relative returns helps to illustrate this concept more tangibly (see Exhibit 12, below right). Fundamental bottom-up research

EXHIBIT 11: Mega caps have as many relative return opportunities as mid caps.



*Based on total returns including price returns and dividends. Source: FactSet, Fidelity Investments, through Dec. 2013.

provides the ability to add alpha through active management, helping to avoid situations such as Hewlett-Packard in July 2010 or to overweight positive earnings surprises like Coca-Cola in December 2007. Furthermore, the analysis shows that the mega-cap space may provide opportunities to anticipate positive earnings surprises and avoid earnings misses.

Investment implications

Mega caps are attractive and persistently underowned

Within equities, the mega-cap space is attractively valued on an absolute basis, as well as relative to its smaller-cap peers. Yet, despite their compelling valuation and quality characteristics, mega caps are consistently underowned by most active managers, so many investors in large-cap mutual funds are not positioned to capture this mega-cap opportunity. This is apparent in the holdings of the top 50 mutual funds.

In the late 1990s—when mega-cap valuations were at their peak—these funds were underweight mega caps by a more than 1,000 basis-point average. Today—when mega caps are as cheap as they have ever been—the top 50 funds are still almost 900 basis points underweight.¹¹ The potential for behavioral bias toward mega caps by a generation of investors who have yet to see mega caps outperform in their investing lives is substantial.

Case for active management of mega caps is compelling

We believe that there is a compelling case to be made for active management among mega caps. Earnings growth dispersion is prevalent, and earnings estimates inaccuracy is widespread. Correctly identifying where earnings estimates are the most inaccurate can offer significant alpha opportunity for active management, as demonstrated by the wide dispersion of returns in the mega-cap space.

EXHIBIT 12: Fundamental research helps to avoid earning misses (Hewlett-Packard) and anticipate positive surprises (Coca-Cola).

| Hewlett-Packard, July 2010 | | Coca-Cola, December 2007 | |
|----------------------------|-----------|--|-------------------------|
| \$5.09/share | A = | 18-month forward mean* earnings per share (EPS) estimate | \$2.49/share |
| \$4.43/share | B = | Actual EPS at 18-month forward date | \$2.70/share |
| \$0.10 | C = | Standard deviation of EPS | \$0.04 |
| -6.8 standard deviations | (B-A)/C = | Standard unexpected earnings (SUE) | 5.7 standard deviations |
| -60.95% | | Relative total return over 18 months | 28.24% |

*Mean: average or expected value. Source: FactSet, Fidelity Investments.

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Fidelity Thought Leadership Vice President and Senior Investment Writer Maggie Stenman provided editorial direction for this article.



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Stock markets, especially foreign markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments. Foreign securities are subject to interest rate, currency exchange rate, economic, and political risks.

Endnotes

¹ Mega-cap securities are the 200 largest capitalization securities as defined by the Russell Top 200[®] Index, a subset of the Russell 3000[®] Index.

² Mid-cap equities are the middle capitalization segment as defined by the Russell Midcap[®] Index, which includes the roughly 800 smallest securities in the Russell 1000[®] Index.

³ Earnings-growth analysis reflects the median of annual year-over-year aggregate index earnings growth from 1991 to 2013.

⁴ Differing time periods for trailing P/Es (1991–2013) and forward P/Es (1997–2013) are due to data availability of aggregate valuation information for the underlying indices.

⁵ Operating margin defined as operating income divided by revenues.

⁶ S&P ratings for corporate senior debt.

⁷ Alpha defined as the excess return over the benchmark, accounting for the risk taken to obtain that return. Source: Fidelity Investments.

⁸ Median defined as the middle value in a ranked series of numbers.

⁹ Standardized unexpected earnings (SUE) defined as the earnings surprise in any given period divided by the standard deviation of earnings estimates measured over a series of historic periods.

¹⁰ Standard deviation defined as the measure of the variation in a series from the average (mean or expected value).

¹¹ Underweight to mega cap securities determined by analyzing holdings of top 50 managers as of December 1999 and December 2013, and comparing active positions to stocks over \$50B in market capitalization. Source: FactSet, Fidelity Investments.

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Consider Active Management in the Idiosyncratic High-Yield Bond Market

Maurice FitzMaurice | Managing Director of Research

Scott Mensi | Director, Investment Product

Michael Cheng, CFA | Quantitative Analyst

KEY TAKEAWAYS

- Some investors have turned to passive ETFs to get exposure to the high-yield bond market.
- The market structure and liquidity of the high-yield bond sector makes replicating the return of a high-yield index difficult. This may have contributed to the relative underperformance of the two largest high-yield ETFs.
- Flows generated by investors seeking short-term exposure to high-yield ETFs have resulted in exceptional asset-flow volatility.
- Investors seeking long-term high-yield exposure may be better served by an actively managed mutual fund that uses research and trading insights to thoughtfully allocate capital to the most attractive sectors and issuers, with the goal of superior risk-adjusted performance.

In an earlier paper, we outlined why the addition of high-yield (HY) bonds to a diversified portfolio has the potential to enhance its risk-and-return prospects (see *Leadership Series* article, “High-Yield Bond Funds in a Diversified Portfolio,” Mar.

2016).¹ In this paper, we address why we think exposure to the HY market can be more effectively achieved through an active mutual fund versus a passive exchange traded fund (ETF).

For investors looking for an intermediate- to long-term allocation to HY, we believe active mutual funds are an appropriate vehicle because credit selection—the overwhelming source of risk in a HY bond portfolio—is best managed with a flexible strategy incorporating intensive research to help identify and value credit risk. While the goal of passive ETFs is to match the performance of their benchmarks, active mutual funds attempt to outperform their benchmarks, and with this approach comes the risk that they may underperform.

In certain liquid, transparent asset classes, such as large-cap equities and investment-grade bonds, ETFs may be effective investment vehicles. Passive HY products, however, may not offer investors a similar experience, because such products attempt to replicate the return of a HY index that is constructed purely by using a rules-based methodology. The cost of managing a HY portfolio that evolves in step with a rules-based index can lead to underperformance (Exhibit 1).

Passive HY ETFs constrained in navigating market

Passive ETFs are constructed to deliver returns in line with a stated benchmark, and to accomplish this, a portfolio manager attempts to replicate the benchmark’s characteristics. However, within such a distinct segment of the bond market,

¹ HY bonds are not appropriate for all investors. While they generally offer higher yields compared to investment-grade bonds, HY bonds can also have increased risks including credit and default risk. As with all investments, investors should carefully balance all potential benefits and risks before investing.

elements of the benchmark replication process can weigh on HY ETF performance and risk characteristics (Exhibit 2).

Replication

- In an attempt to replicate its benchmark, a HY ETF strives to maintain similar issue and industry allocations. Without having the flexibility to reduce positions relative to the benchmark, a passive HY ETF can end up maintaining exposure to companies while their fundamentals deteriorate. On the other hand, passive ETFs can also miss opportunities to overweight improving credits before they reach full valuation.
- Passive ETFs may be forced sellers of defaulted securities that are removed from benchmarks at the worst possible time. ETFs may also suffer underperformance due to the cost of buying securities as they are added to a benchmark. Active managers, on the other hand, can institute a variety of trading and portfolio management strategies. For example, managers may hold defaulted securities to maximize recovery through a restructuring, or choose whether to participate in the new issue market to take advantage of relative value opportunities as they arise.
- HY ETFs typically rebalance monthly in an effort to adhere to benchmark rules. This can mean buying and selling securities in markets with unfavorable technicals, which can generate implementation costs for the portfolio.

- Investors in the two largest passive HY ETFs² are not getting exposure to the broad HY market. Instead, the ETFs are replicating custom-designed indexes containing fewer than 50% of the issues in the more commonly cited Bank of America Merrill Lynch U.S. High Yield Index.³ These indexes have parameters in place to enhance portfolio liquidity. While on the surface, a focus on liquidity appears judicious, it is not “free” and is reflected in a bond’s yield. For example, since 1996, the Bank of America Merrill Lynch U.S. High Yield 100 Index, a proxy for a liquidity-sensitive benchmark, has historically averaged 74 basis points less yield than the broader Bank of America Merrill Lynch U.S. High Yield Index.⁴
- Like other fixed income indexes, HY benchmarks are capitalization weighted. Therefore, they are predisposed to having

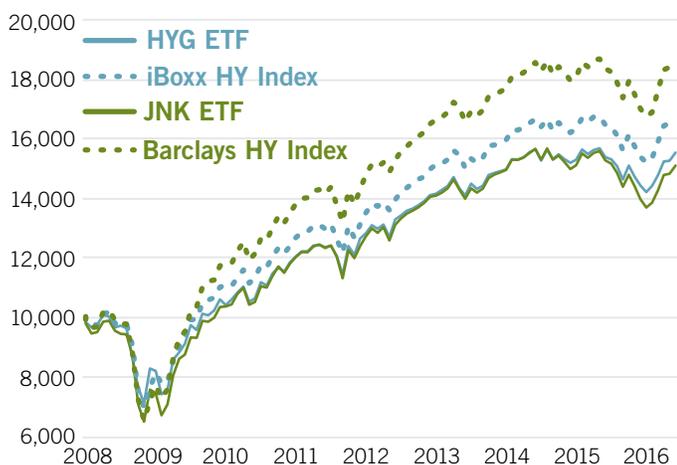
2 As of June 30, 2016, the largest HY ETFs were BlackRock Fund Advisors’ iShares iBoxx U.S. Dollar High Yield ETF and SPDR Barclays High Yield Bond ETF. They accounted for approximately 70% of total HY ETF assets. These ETFs did not represent the entire HY ETF asset class and other products may have performed differently during the same timeframes. Source: Bloomberg Finance, L.P.

3 Markit iBoxx USD Liquid High Yield Index and the Barclays High Yield Very Liquid Index.

4 Bloomberg, Bank of America Merrill Lynch, Fidelity Investments, as of Jun. 30, 2016.

Exhibit 1 The performance of the largest HY ETFs has lagged benchmarks

Growth of \$10,000, Jan. 2008–Jun. 2016



BlackRock Fund Advisors’ iShares iBoxx U.S. Dollar High Yield ETF (HYG –inception Apr. 4, 2007) vs. Markit iBoxx High Yield Index. SPDR Barclays High Yield Bond ETF (JNK–inception Nov. 28, 2007) vs. Barclays High Yield Very Liquid Index. Source: Bloomberg Finance L.P., as of Jun. 30, 2016. Standard performance data can be found on page 4.

Exhibit 2 The largest HY ETFs have lagged benchmarks and experienced significant tracking error

Risk-Adjusted Annualized Returns and Tracking Error

| Jan. 2008–Jun. 2016 | Return | Standard Deviation | Sharpe Ratio | Tracking Error |
|----------------------------------|--------|--------------------|--------------|----------------|
| iShares iBoxx \$ HY ETF (HYG) | 5.31 | 12.80 | 0.39 | 5.56 |
| Markit iBoxx USD Liquid HY Index | 6.18 | 11.53 | 0.51 | – |
| SPDR® Barclays HY Bond ETF (JNK) | 5.15 | 14.21 | 0.32 | 4.68 |
| Barclays HY Very Liquid Index | 7.52 | 13.41 | 0.54 | – |

Data based on price returns. Benchmarks used in tracking error calculations: HYG vs. Markit iBoxx USD Liquid High Yield Index, JNK vs. Barclays High Yield Very Liquid Index. Source: Morningstar, as of Jun. 30, 2016.

significant weightings of the largest HY debt issuers, which may not be optimal and may weigh on index and ETF results.

- Within the HY market, portfolio liquidity is a factor that needs to be managed. An active portfolio manager has multiple levers to consider when managing fund liquidity. Beyond maintaining a cash balance, an active manager has the flexibility to pick and choose the most appropriate securities to enhance a portfolio’s liquidity profile. In contrast, passive HY ETFs are constrained by the rules of their benchmarks. This can mean creating portfolios with the largest issues of the largest debt issuers—not necessarily a favorable attribute.

Trading: ETF flexibility...at a cost

- For certain investors, intraday trading flexibility can be an attractive feature of ETFs. However unlike other asset classes with ETFs, the trading flexibility of HY ETFs may come at a cost to performance.

According to Lipper, from 2013 to 2015, HY ETFs experienced more than twice the volatility in asset flows as did HY mutual funds on an asset basis (Exhibit 3).

This flow volatility may cause Authorized Participants to drive up pricing of large ETF constituent bonds when net

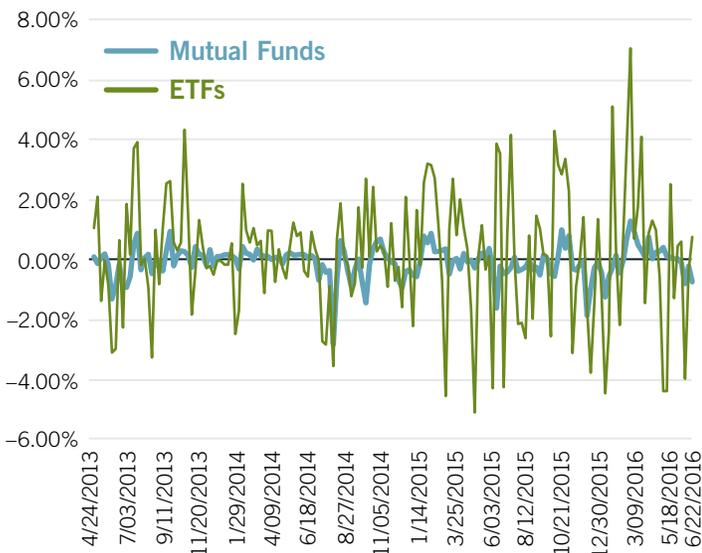
flows are positive and vice versa when net flows are negative. Also, ETFs trade at a discount or premium to NAV throughout the day. Investors buying ETFs above NAV or selling below NAV may be incurring additional costs.

- HY ETF management fees at 40 to 50 basis points are relatively high compared with other passive ETFs, such as investment-grade bond or large-cap equity, which often charge single-digit fees. In addition, this is not the only “cost” investors may incur. Consider that, in some instances, investors pay a brokerage commission to buy and then to sell an ETF. Lastly, similar to a mutual fund, an ETF’s performance is net of fees. However, an active fund has the potential for outperformance to offset fees.

Consider active management for exploiting the distinctive characteristics of the HY bond market

Investors whose risk tolerance and investment objectives align with high-yield investing could stand to benefit from HY bond attributes in their diversified portfolio over an entire credit cycle—i.e., the potential for diversification, capital appreciation, and income. Those investors should consider actively managed HY bond funds supported by substantial research and trading resources, sound portfolio construction, and disciplined risk management.

Exhibit 3 HY ETFs demonstrate significant flow volatility Mutual Fund and ETF Asset Flows



Source: Lipper, Fidelity Investments, as of Jun. 30, 2016.

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In general the bond market is volatile, and fixed-income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa. This effect is usually more pronounced for longer-term securities.) Fixed-income securities also carry inflation, credit, and default risks for both issuers and counterparties. (Unlike individual bonds, most bond funds do not have a maturity date, so holding them until maturity to avoid losses caused by price volatility is not possible.)

Stock markets, especially foreign markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments.

Lower-quality bonds can be more volatile and have greater risk of default than higher-quality bonds.

Foreign securities are subject to interest rate, currency exchange rate, economic, and political risks.

ETFs are subject to market fluctuation, the risks of their underlying investments, management fees, and other expenses.

Unlike mutual funds, ETF shares are bought and sold at market price, which may be higher or lower than their NAV, and are not individually redeemed from the fund.

Investing involves risk, including risk of loss.

Past performance is no guarantee of future results.

Diversification and asset allocation do not ensure a profit or guarantee against loss.

All indexes are unmanaged. You cannot invest directly in an index.

| | Average Annual Price Return (%) Periods ending Sep. 30, 2016 | | | |
|--|--|--------|--------|------|
| | 3Q | 1 Year | 5 Year | LOF |
| BlackRock Fund Advisors' iShares iBoxx U.S. Dollar High Yield ETF* | 4.42 | 12.44 | 7.30 | 5.68 |
| Markit iBoxx USD Liquid HY Index | 5.09 | 12.07 | 7.57 | 6.60 |
| SPDR Barclays High Yield Bond ETF** | 4.51 | 12.97 | 6.93 | 5.34 |
| Barclays HY Very Liquid Index | 5.42 | 12.38 | 8.16 | 7.94 |

*Expense ratio: 0.50%. Inception date: Apr. 4, 2007.

Source: Morningstar, as of Oct. 10, 2016.

**Expense ratio: 0.40%. Inception date: Nov. 28, 2007.

Source: Morningstar, as of Oct. 10, 2016.

Index definitions

Barclays U.S. High Yield Very Liquid Index (VLI) is a component of the Barclays U.S. Corp High Yield Index that is designed to track a more liquid component of U. S. dollar-denominated, high-yield, fixed-rate corporate bond market. The U.S. High Yield VLI uses the same eligibility criteria as the U.S. Corp High Yield Index but includes only the three largest bonds from each issuer that have a minimum amount outstanding of \$500 million (U.S. dollars) and are less than five years from issue date. **Markit iBoxx U.S. Dollar Liquid High Yield Index** This index comprises the most liquid U. S. dollar-denominated sub-investment-grade issues. **Bank of America Merrill Lynch U.S. High Yield Index** tracks the performance of U.S. dollar-denominated below-investment-grade corporate debt publicly issued in the U.S. domestic market. **BofA Merrill Lynch U.S. High Yield 100 Index** is designed to emulate, as closely as possible, the risk characteristics of the BofA Merrill Lynch U.S. High Yield Constrained Index with a comparatively small basket of securities. Rebalancing rules are geared toward selecting the most liquid HUCO constituents while minimizing turnover. Third-party marks are the property of their respective owners; all other marks are the property of FMR LLC.

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When Choosing a Managed Account Provider, Asset Allocation Is Important

1 Appropriate asset allocation is the key investment element
 “Asset allocation” is the process of determining an appropriate mix of investments for an individual investor’s portfolio. In a managed account, the provider’s investment team determines an appropriate mix of asset classes for each investor, based on an assessment of the investor’s risk tolerance and goals. The selected level of risk in the portfolio can make a big difference in the range of returns (see Exhibit 1 to compare results for different portfolio styles).

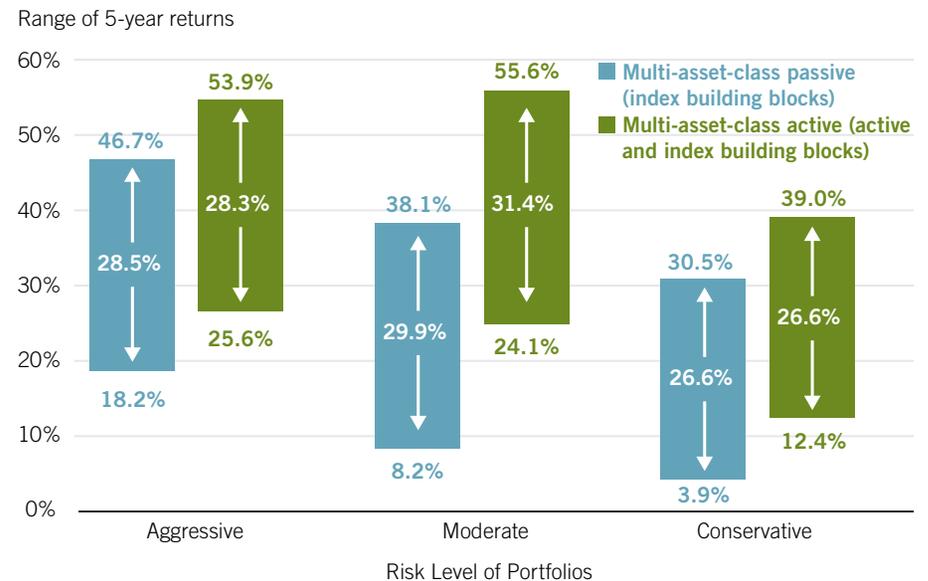
2 Asset allocation is never standardized or passive
 Even within each risk category, investors’ results can differ greatly. This variation of results is because no “industry-standard” approach to asset allocation exists. Finding the right mix of stocks, bonds, and other assets always requires active decision-making from the investment team, which also determines the investment “building blocks” that will represent those asset classes.

3 Selecting active and index building blocks may produce better outcomes
 Managed multi-asset-class mutual funds and ETFs, with readily available return data, are a reasonable proxy for managed account portfolios. For those investments, using a combination of active and index funds over the past five years led to similar ranges of net returns as index-only portfolios, but with the ranges shifted toward higher returns (see Exhibit 1 to compare results for building blocks used).

4 When evaluating a managed account service, investors should also consider investment expertise, personal service, and other features
 Investors comparing managed account services would benefit from understanding each service’s approach to asset allocation and the selection of building blocks. In addition, investors should assess how well a managed account service can address a variety of investment needs, and which other features (such as personal contact with a representative) may be important.

For more information, see the full-length *Leadership Series* paper **Managed Accounts and Active Portfolio Construction** (June 2016)

Exhibit 1 For multi-asset-class portfolios, active decisions matter
 Ranges of returns are shown for multi-asset-class managed mutual funds and ETFs, as a proxy for managed accounts. Note: retail managed accounts may perform differently than managed funds or ETFs.



Past performance is no guarantee of future results. Returns are shown for all multi-asset-class managed ETFs and mutual funds with the past five years of returns recorded in the Morningstar database, as a proxy for how managed accounts may perform. This chart is for illustrative purposes only and does not represent actual or future performance of any investment option. Range of 5-year returns: the difference between the 95th-percentile fund cumulative return and the 5th-percentile fund cumulative return (to eliminate outliers), after expense ratios, using returns from Jan. 1, 2011 to Dec. 31, 2015. See endnotes for methodology and category definitions. Source: Morningstar, Fidelity Investments, as of Apr. 21, 2016.





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Keep in mind that investing involves risk. The value of your investment will fluctuate over time, and you may gain or lose money.

Past performance is no guarantee of future results.

Diversification and asset allocation do not ensure a profit or guarantee against loss.

Indexes are unmanaged. It is not possible to invest directly in an index.

Endnotes

Methodology for Exhibit 1: Range of 5-year returns for aggressive, moderate, and conservative: the difference between the 95th-percentile fund cumulative return and the 5th-percentile fund cumulative return (to eliminate outliers), after expense ratios. Multi-asset-class managed account history is not currently aggregated in a database. As a proxy for multi-asset-class managed account performance,

this analysis used all multi-asset-class managed ETFs and all multi-asset-class mutual funds with the past five years of returns recorded in the Morningstar database as of Dec. 31, 2015. Results for managed ETFs and mutual funds were separated as a proxy for whether the account uses index building blocks only (managed ETFs) or a mix of active and passive building blocks (mutual funds). For this analysis, aggressive portfolios contained 70% to 90% stock, moderate contained 50% to 70% stock, and conservative contained 20% to 50% stock, as of Mar. 31, 2016. Counts for multi-asset-class managed ETFs: aggressive, 66; moderate, 65; conservative, 105. Counts for multi-asset-class mutual funds: aggressive, 492; moderate, 1407; conservative, 989. Five-year returns use all currently existing multi-asset-class ETF managed portfolios (passive, using index building blocks) and multi-asset-class mutual funds (active, using active and index building blocks) tracked by Morningstar, using returns from Jan. 1, 2011, to Dec. 31, 2015. All returns are net of underlying fund expense ratios; managed ETF returns shown before any advisory fees; mutual fund returns shown net of mutual fund fees and before any advisory fees.

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Managed Accounts and Active Portfolio Construction

For a personalized multi-asset-class portfolio in a managed account, there is no fully passive approach

Scott Kuldell, CFA | Senior Vice President, Investment Research and Development

KEY TAKEAWAYS

- Asset allocation for a managed account cannot be entirely passive, because it requires an active determination of a suitable risk level and an appropriate mix of asset classes.
- The investment “building blocks” within a multi-asset-class portfolio may focus on index funds or a mix of active and index.
- Index-focused portfolios may have lower fund expenses, while active/index mixes carry the potential for enhanced performance.
- Asset allocation influences the portfolio’s outcomes more strongly than the type of building blocks selected.
- Different managed accounts may vary greatly in the features they offer and the fees they charge; potential investors should consider all aspects of a managed account service.

Many individual investors enjoy the advantages of having a multi-asset-class managed account oversee their investments. In these accounts, a professional manager determines an appropriate and personalized risk level, develops a mix of asset classes for each portfolio, buys the specific investments needed to achieve those exposures, and continues to monitor, adjust, rebalance, and report on the portfolio. The investor typically pays an advisory fee for this ongoing service. Investors have a range of choices for managed accounts, from online robo-advisors to high-communication personal advisors offering customized account features.

In comparing managed account services, potential investors are sometimes confused about whether a service uses an active or passive approach. Investors may be familiar with the difference between the two in the context of mutual funds—for example, when comparing a U.S. large-cap index fund with an actively managed fund. However, the terms “active” and “passive” are less definitive when applied to multi-asset-class portfolios. Sometimes, they describe the preferred underlying funds (the “building blocks” of a multi-asset-class portfolio). Other times, the words may describe a multi-asset-class portfolio manager’s general approach to asset allocation.

As a result, the “active versus passive” debate for mutual funds simply does not apply to multi-asset-class accounts. Investors should recognize that personalizing the asset allocation in a multi-asset-class portfolio—one of the core services of a managed account—is an inherently active process. Whether the underlying components of that asset allocation are active

or index funds might be a consideration for investors, but it should be only one among many.

Asset allocation cannot be fully passive

For mutual fund investors, the label “passive” typically refers to index funds.¹ Index funds seek to match the exposures of a benchmark index closely, and to match that benchmark’s returns before fees. In contrast, active funds typically seek to outperform a benchmark index through intentional security selection. The additional research, monitoring, and trading required by an active fund typically incur higher costs than those of a similar index fund. Active funds may charge higher fees to pay those costs, but attempt to offset the fees through additional returns.² Generally, investors focus on these key

1 In this article, we use “index funds” to include index mutual funds and ETFs.

2 Note that some active mutual funds may focus on mitigating risk or volatility above enhancing returns.

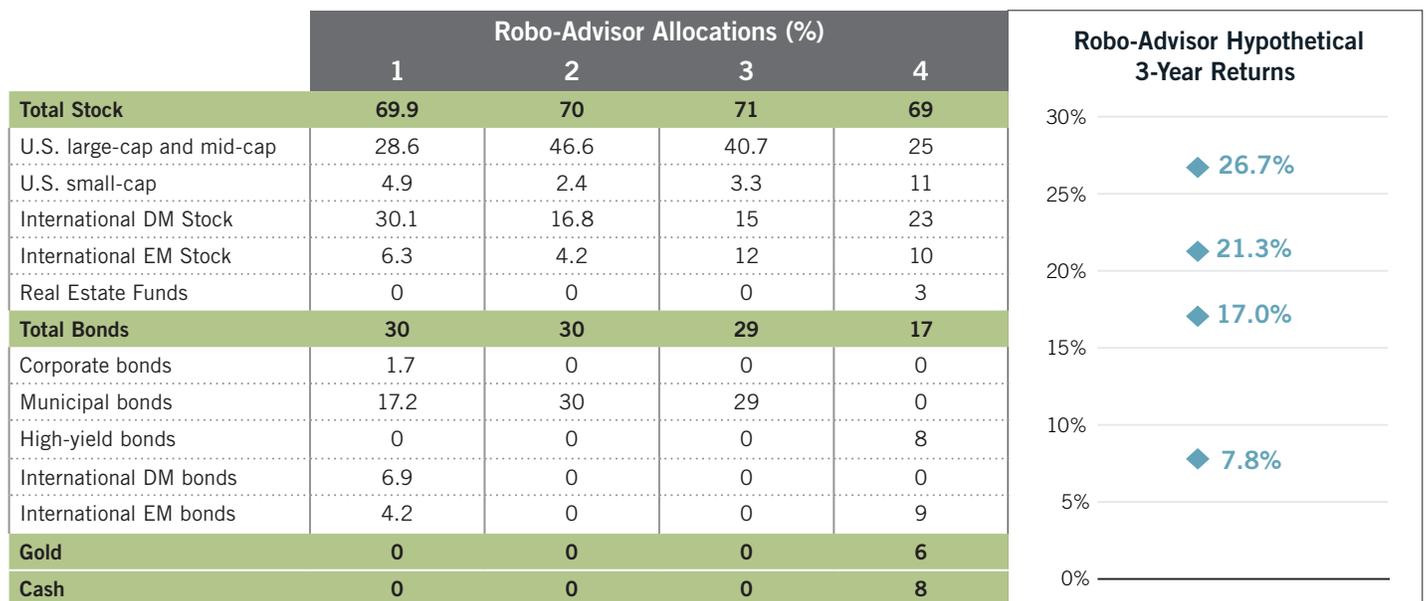
qualities in comparing the two: benchmark-like performance and typically lower fees for index funds, and a wider range of performance (including potential outperformance or underperformance) and higher fees for active funds.

Importantly, building a portfolio that incorporates multiple asset classes differs from building an active or index mutual fund with a single-asset-class benchmark, because no industry-standard performance benchmark exists. With no consensus benchmark, there is no appropriate index on which to build standardized multi-asset-class index funds.

As a result, the mix of asset classes can vary substantially from one multi-asset-class portfolio to another. For example, as shown in Exhibit 1 (below), digital managed accounts (sometimes called “robo-advisors”) can deviate greatly from each other in the recommendations they make to the same

Exhibit 1 Different robo-advisors may recommend different asset allocations for the same investor

For portfolios with a similar level of risk (as reflected by the percentage of stock), robo-advisors can recommend very different asset allocations, which may lead to different results for investors.



For illustrative purposes only. This analysis does not represent any investment option. Past performance is no guarantee of future returns. DM: developed market. EM: emerging market. Robo-advisor allocations were identified from the public websites supported by four independent financial entities offering a robo-advisor product, for portfolios with approximately 70% stock allocation, as accessed between Feb. 2016 and Apr. 2016. All account allocations shown are for taxable accounts, for comparability. Numbers may not sum due to rounding. Hypothetical cumulative three-year returns were generated for the described asset allocation from Jan. 1, 2013, to Dec. 31, 2015, using a static asset allocation and rebalancing monthly, using underlying investments as described in the endnotes; hypothetical returns shown are net of underlying fund expense ratios and gross of advisory fees. Source: Fidelity Investments, as of Apr. 21, 2016.

investor. Some investors may mistakenly assume that robo-advisors, as implied by their nickname, follow an automated and straightforward asset allocation process that does not include any discretionary decision-making. In fact, the best practice for all types of managed accounts (including robo-advisors) is to consider the suitability of an asset allocation for investors, and apply a portfolio manager’s judgment in determining a recommended asset mix. These discretionary components can lead to different services offering different recommended portfolios, even for similar investors.

Note especially that some robo-advisors may choose to include different asset categories (such as real estate funds, municipal bonds, and high-yield bonds) than others. These differences in asset allocation may contribute to different returns for investors.

Actively setting an appropriate portfolio risk level

Asset allocation is the process of determining a mix of asset classes intended to achieve a specific level of expected risk

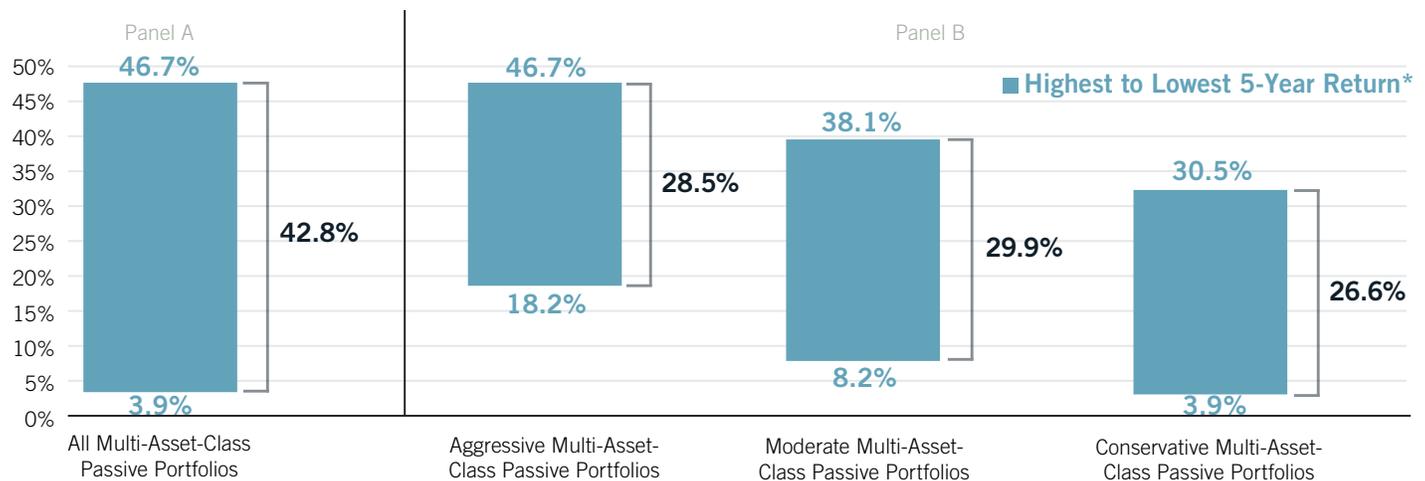
for an individual investor’s portfolio. The primary asset classes are stocks, bonds, and cash/short-term investments. There are also several extended asset classes and sub-categories within asset classes that a portfolio manager can consider. In general, the main goal of a multi-asset-class portfolio manager is to allocate assets in a way that leads to enhanced returns while maintaining an appropriate level of risk.

The selected mix of assets in a portfolio will have a significant impact on its performance. Because there are many different approaches to asset allocation, the range of potential outcomes is high. As shown in Panel A of Exhibit 2 (below), a set of widely available multi-asset-class portfolios³ has produced a range of returns for investors over the past five years of anywhere from 4% to 47%. This spread of outcomes,

³ For this article, multi-asset-class managed ETFs and mutual funds were used as a proxy for managed accounts, for fund and performance data availability. See endnotes for a fuller description.

Exhibit 2 For multi-asset-class portfolios, the risk level drives the range of returns

Panel A shows that the range of outcomes for multi-asset-class portfolios has been wide, due to asset allocation differences. Panel B suggests that one important contributor to this range has been the overall level of risk in a multi-asset-class portfolio, because each risk category has shown a narrower range of returns than the group as a whole.



Highest to Lowest 5-Year Return for aggressive, moderate, and conservative portfolios: the range between the 95th-percentile cumulative return and the 5th-percentile cumulative return (to eliminate outliers), after expense ratios but before any advisory fee. For this analysis, aggressive portfolios contained 70% to 90% stock, moderate contained 50% to 70% stock, and conservative contained 20% to 50% stock, as of Mar. 31, 2016. For simplicity, the high and low from these category measurements have been used for the range of the combined category (Panel A). Five-year returns use all currently existing multi-asset-class ETF managed portfolios tracked by Morningstar, using returns from Jan. 1, 2011, to Dec. 31, 2015. For illustrative purposes only. This analysis does not represent any investment option. Past performance is no guarantee of future returns. See endnotes for more detail. Source: Morningstar, Fidelity Investments, as of Apr. 21, 2016.

with a return difference of 43% from the best to the worst, is remarkable. Note that this wide dispersion of outcomes occurred even though the main underlying investments in each asset class were passive (i.e., index ETFs), suggesting that asset allocation was the primary source of the dispersion.

Most investors know that risk and return are connected: Higher-risk investments often have the potential for higher returns, at the cost of also having the potential for higher variation of returns (including loss). For this reason, multi-asset-class portfolios are typically categorized by a general risk level classified by the proportion of assets held in stock.

As shown in Panel B of Exhibit 2, dividing multi-asset-class portfolios by risk level narrowed the range of results modestly, and also shifted the range of returns. An aggressive portfolio will usually have more stock exposure than others, leading to higher expected return but higher risk, while a conservative portfolio will generally have less stock exposure.

For a managed account, finding the right risk level for each individual investor requires various inputs, sometimes collectively called the investor's "profile." These inputs typically include an estimation of the investor's risk tolerance, and sometimes include an assessment of the investor's complete financial circumstances. However, no industry-standard approach to creating a profile and estimating risk tolerance exists. As a result, an investor deemed as moderate by one managed account provider may be seen as aggressive by another, leading to a different mix of asset classes being recommended and a different range of returns.

Actively combining the asset classes

Notice that even within a narrower risk level, multi-asset-class portfolios have displayed a range of returns. This means that even if investors are assigned similar risk levels, outcomes can vary greatly from one investor to the next. For example, the set of "moderate" portfolios returned anywhere from 8% to 38% over the past five years, a significant difference in outcomes.

If the risk level of these multi-asset-class portfolios is similar, why would the historical returns be so different? The likely reason is the precise implementation of the asset allocation, which includes the selection of primary asset classes as well as the selection of extended asset classes and asset

sub-categories. Two portfolios with the same percentage of stock may have different mixes of U.S. and international stocks, and different mixes of large-, mid-, and small-cap stocks, for example (as shown in Exhibit 1).

Differences can arise because determining a precise asset allocation is a complex process, requiring many assumptions about the expected return and risk characteristics of the available asset classes, their expected correlations, and any constraints to put on the portfolio—including which extended asset classes and asset sub-categories to consider or ignore.

Investors should note, however, that after the initial portfolio mix is determined, some multi-asset-class portfolio managers may be more dynamic than others in making adjustments. Some may determine an asset allocation once and change it very rarely, while others may regularly adjust the asset allocation based on the latest historical data. Others still may evaluate current conditions and make proactive shifts designed to manage risk or enhance future returns (which is known as "active asset allocation" or "tactical asset allocation"). For many investors, the extent of these efforts may be an important consideration in assessing the value offered by a managed account.

Allowing active and index building blocks may produce better outcomes

In selecting underlying investments, a multi-asset-class portfolio manager has a wide universe of index and active funds to choose from. However, the use of active funds, which typically have a wider range of outcomes than index funds, does not necessarily add up to a much wider range of returns for multi-asset-class portfolios. As Exhibit 3 (page 5) shows, the five-year range of outcomes for multi-asset-class portfolios using active and index funds has been relatively similar to the range of returns for multi-asset-class portfolios using primarily index funds—using only index funds has not significantly narrowed the range from highest to lowest performance. In addition, the multi-asset-class portfolios that could choose active funds and index funds as building blocks showed ranges with higher absolute returns over this period.

Different managed account services can have different reasons for choosing index funds only or active and index funds as building blocks. Some will presume that index funds

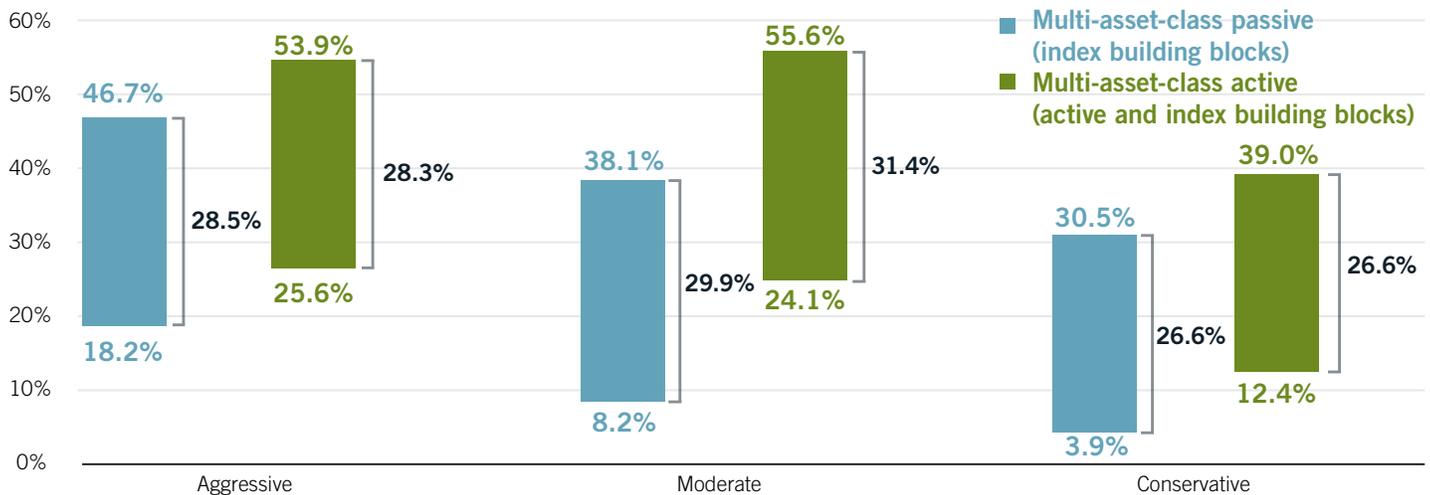
are the best option. In some asset categories, the median active fund typically underperforms available index funds, so portfolio managers who expect to achieve median results could benefit from selecting index funds. This approach may therefore be appropriate for multi-asset-class portfolio managers that choose to economize the selection of building blocks. It may also suit individual investors who favor a lower-cost approach, because they believe it will lead to higher after-fee returns or a lower advisory fee.

However, some multi-asset-class portfolio managers use a process for selecting active or index underlying investments they expect to outperform the average for a category. In fact, there are some asset categories for which the average active fund has tended to outperform index funds over time, and categories for which index funds have been inconsistent in matching benchmark exposures, benchmark returns, or both. Municipal bonds and high-yield bonds are examples

of categories for which index funds have had difficulty in replicating a benchmark. In those cases, a multi-asset-class portfolio manager using only index funds may have to either accept a history of underperformance or inconsistent representation of an asset category, or eliminate that asset category from consideration.

With a wider range of building blocks available, a multi-asset-class portfolio manager willing to use both active and index funds may therefore be able to produce better outcomes. These portfolios can include beneficial asset categories for which there is no appropriate index option, which may enhance returns. Moreover, if the portfolio manager can skillfully select funds that outperform their peers in the same asset class, investor returns will be higher. This intentional selection of building blocks may add to the portfolio manager’s costs, because a manager using active funds will likely need resources to research which ones

Exhibit 3 Multi-asset-class portfolio returns show similar ranges, whether index or active building blocks are used
When comparing the five-year returns of multi-asset-class portfolios, the range of outcomes within each risk level has been relatively similar, whether the portfolios used active funds as building blocks or not. Moreover, portfolios allowing the selection of both active and index building blocks have shown ranges with higher returns.



Range of 5-year returns for aggressive, moderate, and conservative: the difference between the 95th-percentile fund cumulative return and the 5th-percentile fund cumulative return (to eliminate outliers), after expense ratios. For this analysis, aggressive portfolios contained 70% to 90% stock, moderate contained 50% to 70% stock, and conservative contained 20% to 50% stock, as of Mar. 31, 2016. Five-year returns use all currently existing multi-asset-class ETF managed portfolios (passive, using index building blocks) and multi-asset-class mutual funds (active, using active and index building blocks) tracked by Morningstar, using returns from Jan. 1, 2011, to Dec. 31, 2015. All returns are net of underlying fund expense ratios; managed ETF returns shown before any advisory fees; mutual fund returns shown net of mutual fund fees and before any advisory fees. For illustrative purposes only. This analysis does not represent any investment option. Past performance is no guarantee of future returns. Source: Morningstar, Fidelity Investments, as of Apr. 21, 2016.

to choose. These higher costs may contribute to higher advisory fees for managed accounts using active and index building blocks. Some investors may prefer this approach with the expectation that over time, additional returns from broader asset categories and intentional fund selection will compensate for the higher fees.

Choosing a managed account

Investors selecting a managed account may benefit from thinking about many aspects of the service, rather than concentrating solely on whether the provider uses active or index funds in its multi-asset-class portfolio. Many investors may be accustomed to thinking about the difference between active and index approaches for single-asset-class mutual funds, based on the difference in fees and expected performance. For multi-asset-class portfolios, and for the personalized service of a managed account, individual investors may want to think differently.

Typically, investors using managed accounts pay an overall advisory fee, which covers several different elements. The advisory fee covers the costs of personal service, including any human representatives, branch offices, digital interfaces, and other communications. From an investment perspective, the advisory fee also covers the costs incurred by the portfolio manager to determine the appropriate asset allocation for each investor, the costs of trading investments to achieve that asset allocation, and the costs of ongoing portfolio monitoring and management.

Investors seeking to compare managed account services should consider the combination of several elements to find the greatest value for their needs. Exhibit 4 (below) lists some of the common considerations for individual investors. A managed account service may offer a lower advisory fee for any number of reasons. Some managed accounts may reduce costs by limiting interaction with investors, with no representatives or branch offices and no direct communication. Others may expend fewer resources

Exhibit 4 Common considerations for selecting a managed account

In attempting to find the best value in a managed account, investors should consider several different features and match them to their personal preferences.

| Consideration | Description | Implications |
|-----------------------------------|--|---|
| Asset allocation expertise | Experienced research team developing the recommended portfolio mix for each investor | <ul style="list-style-type: none"> • Thorough knowledge of multi-asset-class investing may lead to better results • May benefit from investment experience through more than one market environment |
| Greater personalization | Professional managers working at the account level to tailor a multi-asset-class portfolio to the individual's needs | <ul style="list-style-type: none"> • Can consider the investor's whole asset base, including assets outside the account • Can manage tax situations in a customized way |
| Index funds only | Constraint on the portfolio manager to use only index funds in asset allocation | <ul style="list-style-type: none"> • Fewer resources needed for fund selection • Wide set of options to choose from, but several extended asset classes and sub-categories not well represented • Lower fund expense ratios, and may have a lower advisory fee |
| Access to a representative | In-person, phone, and digital opportunities for individual investors to interact | <ul style="list-style-type: none"> • Can consult on additional financial planning needs • Can further personalize recommendations and respond to changes in the investor's circumstances • May help investors make more rational investing decisions |
| Dynamic asset allocation | Ongoing monitoring and adjustment of asset allocation | <ul style="list-style-type: none"> • Can adjust portfolio risk levels in response to market events • Can seek to enhance returns using analysis of economic conditions |

For illustrative purposes only.

in determining and maintaining the personalized asset allocation for each account. Investors would be well served to consider each element carefully, to make sure all of them are aligned to their own preferences. If the advisory fee is higher, what are investors paying for, and are those the most valued features? If the fee is lower, what may be sacrificed to achieve the lower cost?

Importantly, when considering the potential investment outcomes of the account, the asset allocation is the most significant component to examine, followed by the record of success in selecting underlying investments. As shown in Exhibit 1, different managed accounts may recommend very different asset allocations, with different potential outcomes. But because it can be challenging to evaluate the effectiveness of an asset allocation in the absence of a standard benchmark (and past performance is no indication of future returns), many investors focus instead on the process for reaching that asset allocation, considering whether there are meaningful research resources applied to the asset allocation, and whether it is monitored and adjusted over time. Investors may also want to consider how long the provider of the managed account has been in business, and whether the provider has a history of building actual portfolios for investors in different market environments. Finally, investors may want to consider the degree of personalization they can get from a managed account provider, the extent to which the portfolio can be tailored to their needs, and the level of service they will receive.

Implications for investors

Understanding the difference between active and index mutual funds is not enough to distinguish between multi-asset-class portfolios in managed accounts. Some managed accounts may emphasize the use of index funds as building blocks, while others may use a mix of active and index funds. However, the implementation of a personalized asset allocation may be more consequential to an investor's outcomes than the type of building blocks used. As a result, the relationship between advisory fees and managed accounts is not as simple as the relationship between fees for index and active mutual funds. When comparing advisory fees and the value offered by a managed account, individual investors should consider factors in addition to the underlying investment selection, including the asset allocation process, the level of account personalization, and extent of personal service. These elements may greatly differ from one managed account to another.

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Before investing, consider the fund's investment objectives, risks, charges, and expenses.

Keep in mind that investing involves risk. The value of your investment will fluctuate over time, and you may gain or lose money.

Past performance is no guarantee of future results.

Diversification and asset allocation do not ensure a profit or guarantee against loss.

Indexes are unmanaged. It is not possible to invest directly in an index.

Endnotes

Methodology for Exhibit 1: To calculate hypothetical returns, returns were used for underlying funds or ETFs as specified by each managed account provider. All asset allocations were considered to be static over the three years (which may not match an actual investor's experience), and were rebalanced monthly. Returns are calculated after underlying fund expense ratios, before all advisory fees and taxes.

Methodology for Exhibits 2 and 3: Multi-asset-class managed account history is not currently aggregated in a database. As a proxy for multi-asset-class managed account performance, this analysis used all multi-asset-class managed ETFs and all multi-asset-class mutual funds with the past five years of returns recorded in the Morningstar database as of Dec. 31, 2015. Results for managed ETFs and mutual funds were separated as a proxy for whether the account uses primarily passive building blocks (managed ETFs) or a mix of active and passive building blocks (mutual funds). For this analysis, aggressive portfolios contained 70% to 90% stock, moderate contained 50% to 70% stock, and conservative contained 20% to 50% stock, as of Mar. 31, 2016. Counts for multi-asset-class managed ETFs: aggressive, 66; moderate, 65; conservative, 105. Counts for multi-asset-class mutual funds: aggressive, 492; moderate, 1407; conservative, 989.

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The Active Approach to Investing in International Demographic Trends

Analyzing a country’s demographics can be a powerful forecasting tool when investing internationally. Demographic research can reveal structural changes in a population and present compelling reasons to invest in countries that appear primed for economic improvement. It can also help investors know which countries to possibly avoid, like those with aging populations or declining wage growth.

In this research, we discuss demographic patterns related to income levels in non-U.S. countries, which help provide a blueprint for interpreting industry-specific investment potential. We also explain why an active approach to security selection may be a compelling approach to achieving favorable returns when investing in demographic trends.

Historical mapping: a blueprint for investing

To assess where new demographic-driven growth patterns may occur, we studied five countries whose economic trajectory had progressed to developed-market GDP-per-capita levels. We then analyzed the economic development of each country and divided them into various thresholds of per-capita gross domestic product (GDP)—a measure that takes the GDP of a nation and divides it by the number of people in the country.

This analysis led to five distinct groups, with GDP per-capita levels ranging from \$25K down to \$3K. We then evaluated which consumption-driven economic segments had the fastest growth at particular wealth levels. What we learned is that specific consumption trends were repeated across different markets as their economies passed various economic milestones. Exhibit 1 (below) shows the fastest-growing industry segments at each per-capita threshold in our study—a potential blueprint for investing.

EXHIBIT 1: Historical mapping can help uncover structural growth trends in developing economies and can be a blueprint for investing.

| PER-CAPITA THRESHOLDS | FASTEST-GROWING INDUSTRIES | COUNTRIES IN THRESHOLD TODAY |
|-----------------------|---|---|
| \$19K–\$25K | Insurance, Nursing Homes, Education, Life Insurance, Water Supply/Sanitation, Telecom | Hungary, Poland, Israel, South Korea |
| \$14K–\$19K | Water Supply/Sanitation, Education, Housing, Personal Care | Turkey, Mexico, Malaysia, Chile, Russia, Argentina |
| \$9K–\$14K | Insurance, Nursing Homes, Dental Services, Water Supply/Sanitation, Housing, Education | China, Thailand, Peru, Columbia, South Africa, Brazil |
| \$6K–\$9K | Water Supply/Sanitation, Accommodations | Egypt, Ukraine |
| \$3K–\$6K | Media, Processing Equipment, Telecom Services, Nursing Homes, Motor Vehicles, Insurance | Nigeria, India, Vietnam, Philippines, Indonesia |

*Per-capita thresholds are measured on a Purchasing Power Parity (PPP) basis, which considers inflation and currency differential effects on different countries historically. Source: Fidelity Investments, as of Sep. 30, 2014.

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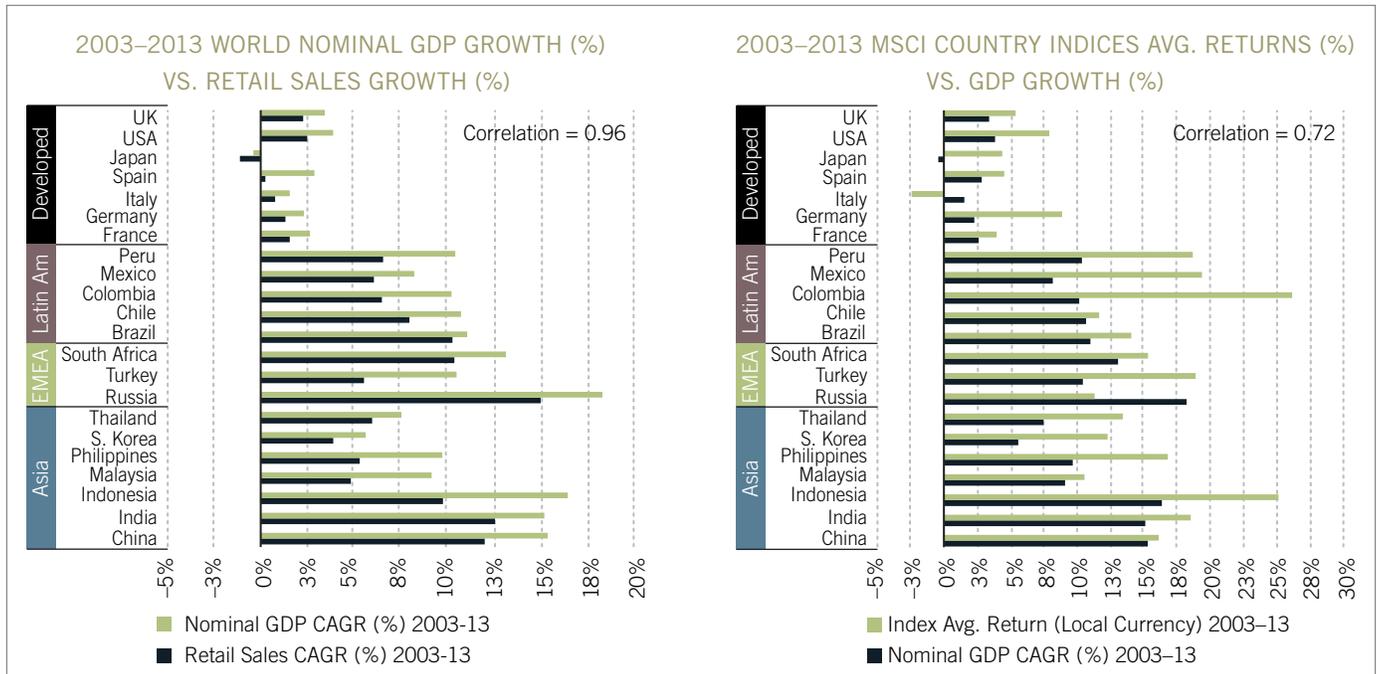
ACTION STEPS

- When considering international investments, demographic and industry analysis can provide helpful clues about the potential attractiveness of a particular country or region.
- The benefit of active management approach is that it has the potential to pinpoint specific investment opportunities with the highest likelihood of yielding strong investment results. Fidelity has the size, scale, and global research capabilities to access information across the world to identify these investment opportunities.
- Investors should be aware that some demographic analysis techniques, such as historical mapping, may provide a virtual blueprint for investing.

For more detailed analysis, see the full-length Leadership Series article, “The Active Approach to Demographic and Industry Analysis in Non-U.S. Investing” (Dec. 2014).



EXHIBIT 2: Strong GDP growth has historically been highly correlated with retail sales growth, but there is typically a lower correlation between GDP growth and stock market performance.



Past performance is no guarantee of future results. CAGR = compound annual growth rate. Source: Euromonitor International, FactSet, through Dec. 31, 2013.

Here are some other highlights of our findings:

- Water supply, waste disposal (sanitation), and education drew a disproportionate share of consumer spending at per-capita GDP levels above \$6,000.
- Health care, insurance, and telecom—which have historically enjoyed the status of “superior goods”—also captured a larger share of incremental consumer spending as incomes grew.
- On a relative basis and in general, food, clothing, footwear, and other so-called “inferior goods” captured fewer incremental dollars at most per-capita levels. However, these market segments can occasionally provide superior returns given an advantageous industry structure.

In essence, Exhibit 1 shows why it may be a good idea to avoid investing across all sectors, and to instead focus on industries where growth is superior and may be underestimated. That’s the power of using a historical study. It can pinpoint when certain industries grew most rapidly and when growth rates slowed. Additionally, knowing the historical magnitude and time horizon for growth may contribute to more-accurate growth forecasting.

Specific demographic examples

GDP growth and retail sales = high correlation

Historically, there’s been a strong correlation between a country’s GDP growth and its retail sales growth. In other words, countries

with the fastest-growing economies generally have the fastest retail sales growth. In the 2003 to 2013 period we studied, the correlation score between GDP growth and retail sales was 0.96, just shy of the perfect correlation score of 1.0. During that 10-year period, Russia had higher levels of GDP and retail sales growth than any other country (see Exhibit 2 left, above). China and India also were among the fastest growers. Generally, economies that showed significant improvement in their per-capita GDP were the best investment opportunities. Conversely, countries with weak economic growth tended to have the weakest retail growth (such as Japan).

GDP growth and equity returns = weaker correlation

Though it may seem counterintuitive, GDP growth and stock market performance in a country are not as correlated; for the 10 years ending 2013, the correlation was 0.72 (see Exhibit 2 right, above). Dichotomies like this can occur when the equity market composition of fast-growing countries does not reflect domestic trends. Some stock and/or country-specific issues may even conflict with positive demographic trends. Thus, a more granular approach to demographics may unearth better investment opportunities than basing investing decisions on a country’s GDP growth alone.

Demographic case studies

Demographics alone do not fully inform an investment decision; it’s better to complement such research with an evaluation of company-, industry-, and country-specific factors. The following case studies

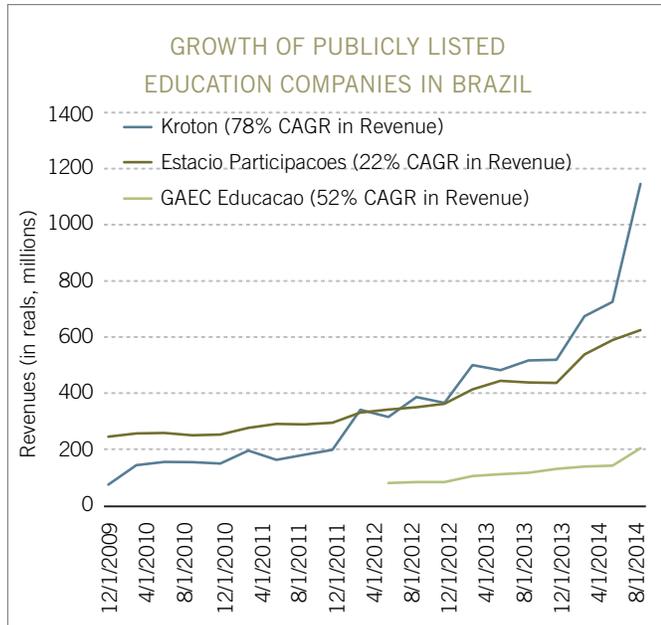
show how these different forms of analysis work hand in hand to form a more comprehensive picture of potential opportunities.

**Case study 1:
Investing in education in Brazil**

Historically, education is a fast-growing market segment among economies in the top three GDP brackets. As countries grow in wealth, the focus on education—and the dollars spent—increases. Consider Brazil, for instance. Its current GDP places Brazil in the \$9K to \$14K bracket of our historical mapping study (refer back to Exhibit 1, page 1). At this level, education historically becomes one of the fastest-growing industries. Outside of government universities and private religious institutions, the post-secondary education system in Brazil is largely led by for-profit colleges and university companies. At present, their growth rates are very high, consolidation is occurring, and the government has enacted supportive policies to help students attend higher-education classes in many important fields, such as health care.

The recent growth of Brazil's education industry is demonstrated in Exhibit 3 (below), which shows the five-year revenue increase

EXHIBIT 3: Government policies can help make or break an investment opportunity.



Source: Bloomberg Finance L.P., Fidelity Investments, as of Sep. 30, 2014. References to specific investment themes are for illustrative purposes only and should not be construed as recommendations or investment advice. Investment decisions should be based on an individual's own goals, time horizon, and tolerance for risk.

for the country's largest publicly listed education companies. While this trend alone is compelling, remember the importance of considering more than one variable when investing in a growth trend. For example, there are 2,300 institutions in Brazil; Kroton, one of the largest publicly listed education companies, is targeting 645 of those institutions for acquisition to help consolidate the industry.¹ Brazil's government put in place favorable lending terms for student loans and favorable tax rates for education companies, but that policy is always subject to change. So investors need to follow government factors as well industry dynamics in this fast growth industry.

**Case study 2:
From local to global—competitive dynamics in India**

As shown in our mapping study, the motor vehicle industry becomes a fast-growth segment of the market when GDP per capita reaches the \$3K to 6K level. That's where India finds itself today, and it provides a good example of how competition in a growth industry must be evaluated. From 2005 to 2009, the market share among Indian automobile manufacturers was dominated by only two players, Maruti Udyog and Tata Motors. But then the Indian government supported the entrance of such global companies as Volkswagen and Toyota, which completely changed the competitive dynamics. This doesn't mean an investment opportunity no longer exists; the auto industry should still offer strong growth based on demand. But the industry dynamics now merit additional research (e.g., whether the product lines are suited to the population's taste, distribution networks, operational abilities, etc.) in conjunction with the population's wealth profile in order to uncover growth potential.

Potential benefits of active management

Trying to tap into a compelling demographic trend via passive strategies can leave investors stuck with companies that may have little or no exposure to that trend. Conversely, experienced active equity managers backed by skilled research analysts and traders can take a more targeted approach. Part of that involves exploring and pinpointing specific investment opportunities with the highest likelihood of yielding strong investment results. Fidelity's historical mapping exercise is followed by a detailed analysis of the emerging patterns on a country-by-country basis, which includes studying history and other salient industry and country fundamentals that make an investment in a strong growth area a success or failure over time. The result of this work is a blueprint that can serve as a guide to help inform an active manager's decision making about demographic-driven opportunities in non-U.S. equity markets. Therefore, we believe adopting an active style for investment security selection can be a compelling approach to achieving favorable returns when investing in demographic trends.

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Investing involves risk, including risk of loss.

Stock markets, especially non-U.S. markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments. Foreign securities are subject to interest rate, currency exchange rate, economic, and political risks, all of which are magnified in emerging markets. Risks are particularly significant for investments that focus on a single country or region.

Endnote

¹ Kroton Educacional SA.

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Bring More to Your Clients

Active and passive investing: Uncover the power of "AND"

Today, advisors face many challenges in growing their business.

-  Cost-conscious investors
-  Market volatility
-  Fee pressures
-  Unrealistic expectations for returns
-  Popularity of passive funds
-  Evolving regulations
-  Servicing clients efficiently
-  Increased volume of investment choices



The strength of YOUR partnership

Thriving in this competitive marketplace is tough. Your clients are inundated with greater investment choices, and as an advisor, you're a vital asset to investors.

3%

The added value advisors can deliver to clients per year.¹

You're Why They Thrive



Expertise:

YOUR investing know-how uncovers opportunities.



Judgment:

YOU make prudent investment decisions aligned to clients' goals.



Endurance:

Time horizons matter, and clients count on YOUR guidance and long-term strategic planning.



Stability:

YOU remain client-centric when it comes to decision-making, and evaluate cost, risk tolerance, and market dynamics.

There's no one size fits all when building a portfolio.

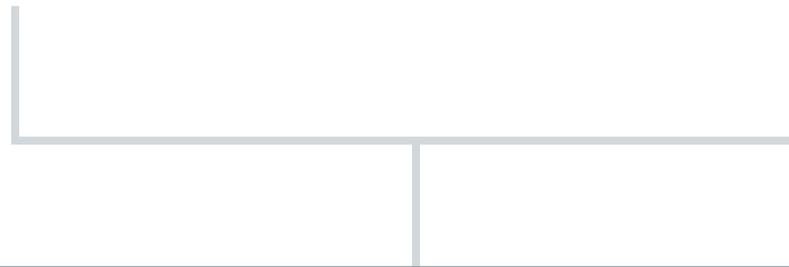
Intelligent combinations of active and passive funds can help capitalize on market inefficiencies and potentially result in improved performance.

Active Funds

Potential to outperform
market benchmarks

Passive Funds

Lower cost and consistent
market exposure



Together,
active and passive funds offer
portfolio choices tailored to clients' needs.



Let's take a deeper look into
the power of "AND"

Passive investing has many benefits.

Research has shown that it's difficult to consistently beat the market over the long term. Instead of trying, index funds and ETFs provide a low-cost way to invest in a particular market, attempting to match it before fees.

Index funds and ETFs:



Offer low-cost exposure to market segments.

Because they seek to replicate a benchmark, index investments tend to have lower expense ratios compared to actively managed funds.



Provide tax efficiency.

Index funds tend to have low portfolio turnover rates, so they are typically subject to fewer capital gains distributions.



Allow for broad exposure.

Mirroring the holdings and potentially the performance of a benchmark, such as the S&P 500® or Russell 1000, index funds may offer investors broad market exposure at a lower cost in relation to other products. However, this means index funds and ETFs will follow the market's ups and downs.

On the flip side, index investing hasn't changed everything. Your clients still need tailored strategies to outperform the market.

Periodic financial bubbles and market corrections often create market inefficiencies, and benchmarks do not always gauge the right security price. Active managers use research and analysis to seek out the market-beating bargains.

To deliver attractive returns, active managers:



Identify mispriced investments using in-depth analysis of a company, its products, industry, and competitors.



Hold investments in different proportions than the index, and perform analysis to overweight and underweight allocations.



Take advantage of temporary price fluctuations, attempting to “buy low, sell high.”

Finding the right investment approach.

So when it comes to active or passive funds, which might outperform, and when? Market conditions could set the stage for either approach to lead, at least in the short term. For example, in U.S. large cap equity:

Active management tends to generate better performance in broader markets—when more companies in the index are beating the average. Broader markets may provide more opportunity for active funds through the selection of outperforming stocks.

Passive funds tend to be more favorable in narrower markets—which is when fewer companies in the index are beating the average. In a more narrow market, overall market performance is being driven by the larger companies within the index.

Performance differences in broad and narrow U.S. large cap markets



In the years that the equal-weighted S&P 500 index beat its S&P 500 market-cap-weighted peer, it generally signals greater market breadth, with more companies in the index beating the average.

Although there are exceptions, actively managed U.S. large cap equity funds tended to perform better during extended periods of broad markets.

During this 24-year period, there were:

- **11 calendar years of broad markets**
Potentially more favorable for active management
- **7 calendar years of narrow markets**
Potentially more favorable for index approaches
- **6 calendar years with no strongly dominant trend**
- ✓ **Average 1-year U.S. large cap active fund excess return**

Source: Broad and narrow markets calculated based on data from the CRSP U.S. Stock database ©2017 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business. Past performance is no guarantee of future results.¹ See last page for important information.

Although no active fund can guarantee outperformance, active managers have historically done better in some market categories than others.

Over more than two decades (from 1992 to 2016), the average active equity fund has outperformed its benchmark in these markets:²

- International large cap
- U.S. small cap

Active bond funds tend to outperform indexes in:³

- Investment grade intermediate and short-term funds
- Municipal debt funds
- Government bond fund

On average, U.S. large cap passive index funds have outperformed active funds, perhaps due to greater market efficiency. However, the average U.S. large cap active fund with lower fees and higher fund-family assets under management outperformed its industry-average peer.⁴

Ready to determine your approach? Let's review...

Active funds



Provide the potential to beat market index benchmarks, but can underperform.



Focus on proven, research-based strategies.



Use human experience.

Passive funds



Are often cheaper, with lower expense ratios than comparable active funds.



Cannot avoid market volatility.



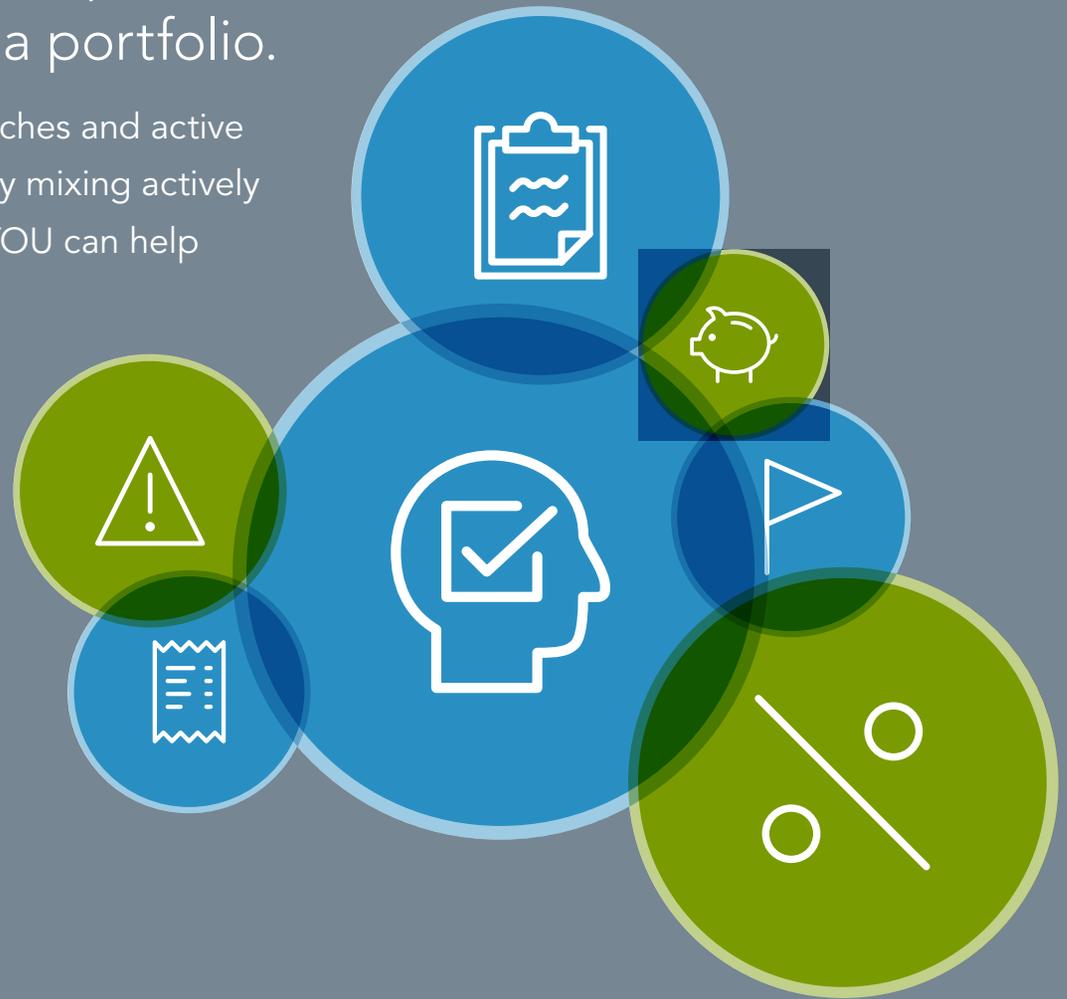
Offer consistent market exposure to a category or style.

It's time to consider a strategy that takes advantage of **both**.

The power of “AND”

Active and passive funds have the potential to complement one another in a portfolio.

You don't need to choose between index approaches and active strategies—it doesn't have to be all or nothing. By mixing actively managed funds with passive index approaches, YOU can help investors gain the best of both worlds.



As you build the appropriate active and passive mix, it's important to align investor goals, investment timelines, and risk tolerances.

Evaluate your portfolio mix

Active Funds

Offer more opportunities to add value through research and security selection.

Consider for:

- Less efficient or broader market categories
- Any market category, whenever you feel confident that those funds could outperform the benchmark index over an investor's time horizon

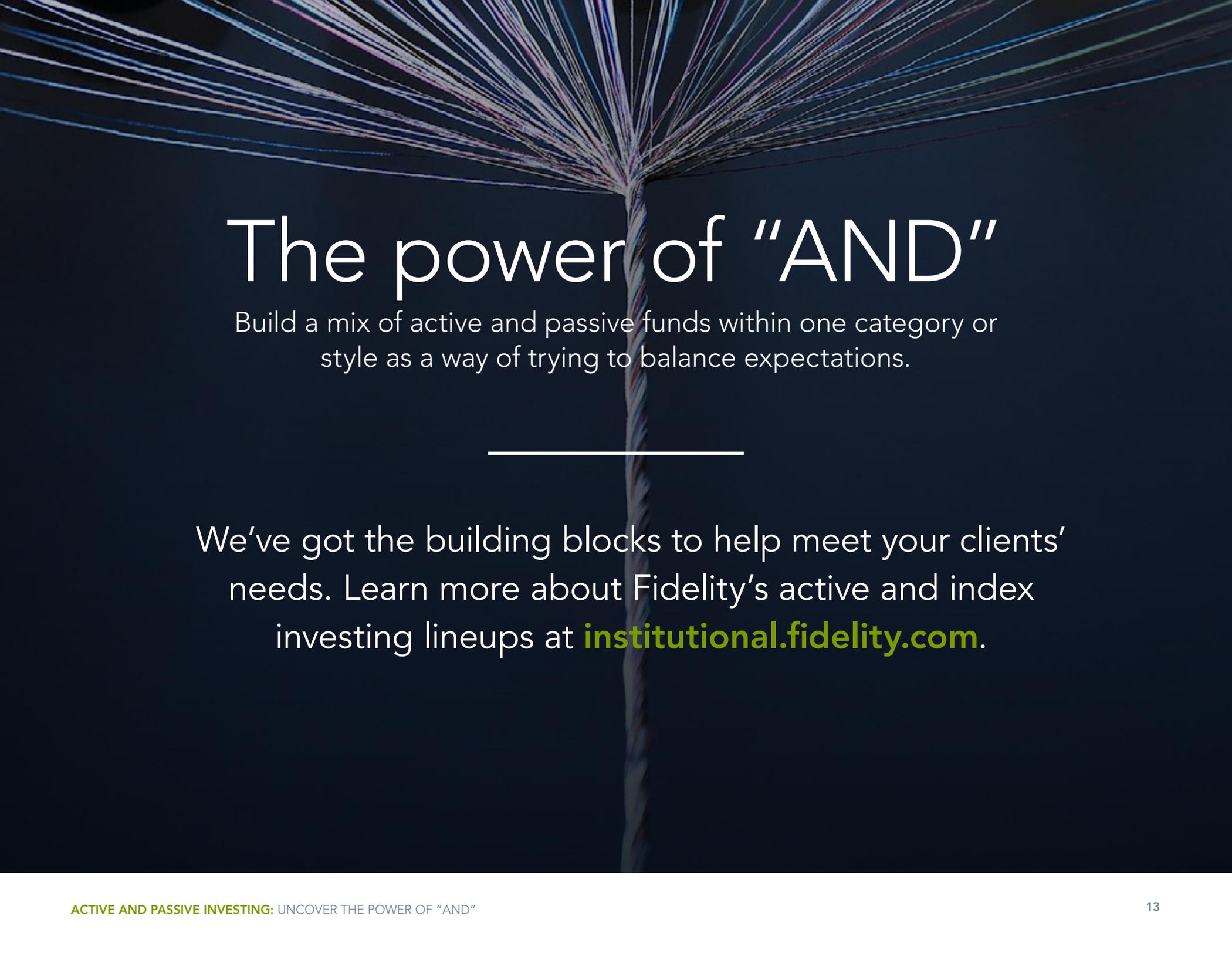
Passive Funds

Index funds and ETF strategies offer consistent market exposure at a typically lower cost.

Consider for:

- Investors who are satisfied with market performance
- Investors who prioritize lower fees and/or higher tax efficiency

Expect to hold a portfolio through market ups and downs if investors want to reap the potential benefits of well-selected funds and ETFs.



The power of “AND”

Build a mix of active and passive funds within one category or style as a way of trying to balance expectations.

We've got the building blocks to help meet your clients' needs. Learn more about Fidelity's active and index investing lineups at institutional.fidelity.com.

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Keep in mind that investing involves risk. The value of your investment will fluctuate over time and you may gain or lose money.

Page 8: Excess return: return exceeding a fund's primary prospectus benchmark. Average excess return: equal-weighted average of excess return for all U.S. large-cap actively managed funds that existed at the beginning of each rolling period, net of expense ratio. Source: Broad and narrow markets calculated based on data from the CRSP U.S. Stock database ©2017 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business. Active fund one-year performance calculated using fund data from Morningstar, including closed and merged funds. This chart does not represent actual or future performance of any individual investment option. Past performance is no guarantee of future results. The S&P 500® Index is a market capitalization-weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation to represent U.S. equity performance. The S&P 500 Equal Weight Index (EWI) is the equal-weight version of the S&P 500. S&P 500 is a registered service mark of Standard & Poor's Financial Services LLC.

1. Refers to the average excess return investors may receive, net of fees, by working with an advisor instead of investing on their own. Investnet, Capital Sigma: The Return on Advice, 2016. **2.** Results are averages and do not represent actual or future performance of any individual investment option. See Fidelity article "For Active and Passive, Low-Fee Funds with Size Advantages Continue to Lead," April 2017 available at institutional.fidelity.com. **3.** See "SPIVA® U.S. Scorecard, Mid-Year 2016," which reports the percentage of active funds that are outperformed by benchmark indexes selected by S&P Dow Jones Indices. **4.** Results are averages and do not represent actual or future performance of any individual investment option. See Fidelity article "For Active and Passive, Low-Fee Funds with Size Advantages Continue to Lead," April 2017.

It is not possible to invest directly in an index. All market indices are unmanaged.

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Selecting a Target Date Glide Path: A Framework for Active Decisions

The glide path, the strategic asset allocation of a target date strategy, is an essential driver of performance, and is itself an active decision.

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Executive Summary

- A target date strategy can be an effective approach for many retirement investors, and plan sponsors and investors should clearly understand the key differences among the glide paths of these strategies, which are a major driver of investor outcomes.
- The long-term performance of different strategic glide paths will lead to varying wealth outcomes; therefore, selecting and monitoring a target date strategy begins with selecting and monitoring a glide path.
- Glide paths vary widely among investment providers because they are based on each provider's view of a strategy's goal, assumptions, and risk management approach, among other factors—all of which are active decisions. Thus, selecting a target date strategy is an active decision.
- Beyond the significant importance of the glide path, target date strategists are faced with the decision of which type of glide path to employ, whether through index (passive) funds, actively managed funds, or a blend of both.
- While there may be periods of underperformance, fully active or blended implementation offers an opportunity for superior performance relative to a glide path benchmark, whereas a passive strategy's ability to outperform is limited given the associated fees and costs to implement against its stated objective.
- When evaluating the implementation of a glide path, key considerations should include the impact of asset class diversification and the potential for excess returns (or for below-benchmark returns) from active management.

Overview

The glide path—the mix of asset classes that changes as the portfolio gets closer to its target date and, for some, even beyond this date—is the heart of a target date strategy. It is an investment expression of the goals, realities, and beliefs about retirement investing. The concept of a “passive” glide path is a misnomer; the glide path for the target date strategy is inherently an active decision, because it is developed based on active decisions. Determining the goals, assumptions, expectations, and risks that lead to the glide path is foundational to understanding whether the target date family is appropriate for a retirement plan or an individual investor, and establishes an objective basis to evaluate the strategy over time. The investments within a target date portfolio should be viewed subsequent to an evaluation of how a glide path is invested—whether it is via actively managed portfolios, passive portfolios, or a blend of both—and the choice of glide path should also be considered an active decision. This paper is designed to help plan sponsors, consultants, advisers, and other key retirement investing decision makers evaluate a glide path, its appropriateness for a plan population today and in the future, and the various active and passive investment options for how a glide path is implemented.

The glide path—an active decision

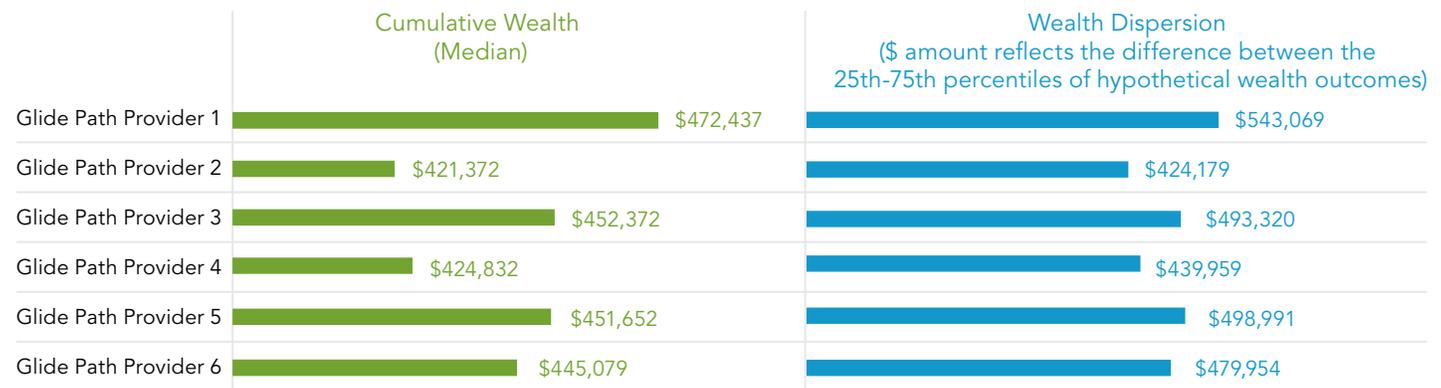
When evaluating a target date strategy, retirement investors often group strategies into “active” and “passive” categories, based on the types of underlying portfolios that are utilized in the target date strategy. Although this type of grouping is easy to understand, it overlooks the foundational importance of the asset allocation (i.e., glide path) on outcomes for investors in target date strategies. While representative, standardized indexes exist for portfolios in individual asset classes (e.g., the S&P 500 Index may be considered an unbiased allocation among U.S. large capitalization equities), there is no broadly accepted “passive” index for target date strategies in the financial services industry. In this section, we explore the active decisions that are involved in selecting and designing the asset allocation within target date strategies, including the goals, assumptions, expectations, and risks that must be considered and balanced.

Over one’s savings and retirement years, the glide path is an important determinant of a target date investor’s retirement wealth, along with individual savings and withdrawal behavior, among other factors. Glide paths can vary significantly among providers, and can result in different outcomes, particularly over an extended period (Exhibit 1).

As a key driver of retirement wealth, target date managers and plan sponsors (in conjunction with their consultants and advisers) together can make choices to determine the appropriateness of a glide path—in most cases with the target date manager being responsible for the glide path design and execution, and the plan sponsors by careful and suitable selection and monitoring. But what are the key criteria for building and assessing a glide path?

Exhibit 1: Simulated Wealth Accumulated among Various Glide Paths Over a 40-Year Period

A simulated comparison of various industry glide paths with different objectives showed very different levels of accumulated wealth (left), and different ranges of potential outcomes (right).



Past performance is no guarantee of future results. This chart is for illustrative purposes only and does not represent actual or future performance of any investment option. Industry glide paths (ranging from conservative to more aggressive allocations) were derived from prospectus filings. We used a quantitative bootstrap simulation¹ method informed by historical index returns for each of the four asset classes: U.S. stocks, Non-U.S. stocks, Investment-Grade Bonds, Short-Term Investments, to generate 100,000 market environments (40-year returns histories for each of the four asset classes). These four asset classes were used for consistency and ease of comparison; note that individual glide paths may incorporate additional asset classes that could lead to different results. While indexes can provide insight on how asset classes have performed during historical market cycles, they do not take into account key factors such as portfolio expenses or portfolio manager investment decisions, and should not be considered representative of how a portfolio has, or will, perform. See the Important Information section on p. 8 for further explanation of bootstrap simulation and asset class data sources used in this exhibit.² Our assumptions: an investor with a starting age of 25 and a retirement age 65 has \$2,000 of starting assets with a \$25,000 starting salary that increases by a real (inflation-adjusted) 1.0% each year, and contributes 10% annually. The outcome of the simulation exercise is to contrast the cumulative wealth distributions (40-year cumulative asset distributions) of the different glide paths using median cumulative wealth and a measure of variability in the wealth distributions (Inter-Quartile Range). In the bar chart showing wealth dispersions, the dollar amount is the difference (or range) between the 75th and 25th percentiles of the wealth distributions. Typically, as the glide path becomes more aggressive, while the cumulative wealth could get larger, so would the variability of that outcome. Source: Fidelity Investments.

A glide path is built on several active decisions, including:

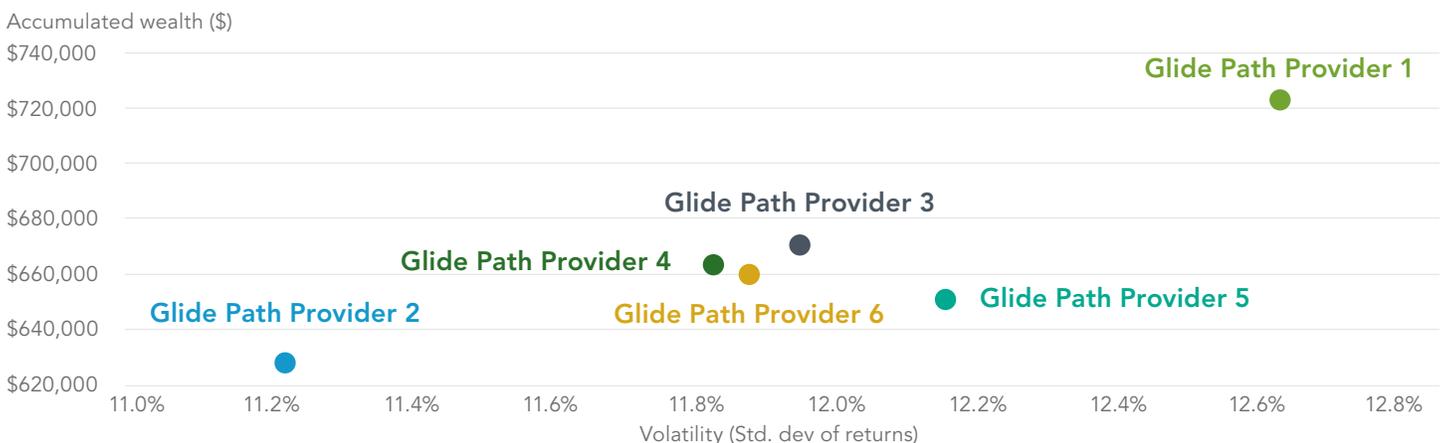
- A desired standard of living in retirement, usually expressed as an **income-replacement goal** for retirement (often stated as a percentage of one’s final preretirement salary). This goal determines the level of assets needed at retirement to provide an expected level of income (i.e., standard of living) in retirement, and should reflect assumptions on various potential sources of income (e.g. Social Security, defined benefit pension, personal savings, etc.) in addition to the defined contribution plan and, most specifically, the target date strategy. [Note: while target date strategies typically seek a desired income replacement rate, they do not guarantee it.]
- A set of assumptions for **investor behavior** (e.g., savings rate, starting age for saving, retirement age, terminal age, etc.), which help define what is essentially an “asset-liability” modeling exercise, similar to the analysis that may be evaluated in a defined benefit

plan. These assumptions quantify the dollars available for investment (the “assets”) and in combination with the income-replacement goal, the dollars needed for withdrawals in retirement (the “liabilities”). This analysis establishes the (real) return objective for the glide path as the return on the contributed assets “required” to match the accumulated assets with the retirement liability.

- **Asset class returns and expectations**, including risk, correlation, dispersion, and scenarios of the major assets classes to be included in the glide path. These expectations can be based on observed actual results over various time periods, or on forward-looking expectations. This information establishes the returns and risk that are “expected” from the asset classes available for investment.
- A set of **observations about retirement investing risks** captured in a methodology and process on how to identify, balance, and manage these risks.

Exhibit 2 Hypothetical Wealth Accumulation and Volatility of Industry Glide Paths (1975–2015)

Different glide paths among industry target date providers can have varying levels of accumulated wealth and volatility.



Past performance is no guarantee of future results. This chart is for illustrative purposes only and does not represent actual or future performance of any investment option. Industry glide paths were derived from prospectus filings. Wealth calculated for each glide path based on an initial investment of \$10,000 using historical returns during the 40-year period ending March 31, 2015, for each of the four asset classes: U.S. stocks, Non-U.S. stocks, Investment-Grade Bonds, Short-Term Investments, and allocations corresponding to the different industry glide paths. These four asset classes were used for consistency and ease of comparison; note that individual glide paths may incorporate additional asset classes that could lead to different results. While indexes can provide insight on how asset classes have performed during historical market cycles, they do not take into account key factors such as portfolio expenses or portfolio manager investment decisions, and should not be considered representative of how a portfolio has, or will, perform. See the Important Information section on p. 8 of this article for further explanation of asset class data sources used.³ No additional contributions are assumed. Standard deviation quantifies the magnitude of variation from the average (mean or expected value). A low standard deviation indicates that the data tend to be very close to the mean, whereas a high standard deviation indicates that the data points are spread out over a large range of values. A higher standard deviation represents greater relative risk. Source: Morningstar and Fidelity Investments, as of June 30, 2015.

This can include longevity risk (outliving one’s assets), market risk (the risk of permanent loss of assets from a market downturn), and other risks such as inflation risk or behavioral risk.

It is important to recognize that, unlike a benchmark that can reflect the performance of an entire asset class, there is no single broadly accepted industry benchmark for glide paths; each glide path represents the goals, assumptions, expectations, and risks that underlie its design. Moreover, this set of criteria and beliefs can differ from glide path to glide path. As an example, surveying available income-replacement assumptions among target date strategies in the marketplace today reveals a range of objectives from 32% to 50% of an investor’s final salary, with an average of 42%.⁴

Therefore, the process by which a target date provider evaluates and determines each of these active decisions can be subjective and variable in nature, which makes the development of every glide path an active decision.

Exhibit 3: Impact of Various Active Decisions on Glide Path Design

Differences among the various factors involved in developing a glide path can influence its design.

| Glide Path Inputs | Glide Path Implication | |
|-------------------------|---|--|
| | Active Decision: Higher | Active Decision: Lower |
| Income-Replacement Goal | Higher exposure to risk assets (ex. equities) over the investor’s horizon | Lower exposure to risk assets (ex. equities) over the investor’s horizon |
| Terminal Age | Higher exposure to risk assets over the investor’s horizon | Lower exposure to risk assets over the investor’s horizon |
| Contribution Rate | Lower exposure to risk assets over the investor’s horizon | Higher exposure to risk assets over the investor’s horizon |

Across the industry, the significant variation in glide paths among target date providers attests to this observation, and can result in different levels of volatility and retirement wealth (Exhibit 2). As shown in Exhibit 2, higher wealth levels may reflect higher levels of volatility and variability in outcomes, so the balance between these factors should be considered by plan sponsors.

Glide path considerations for plan sponsors

Investors and plan sponsors may be well served in taking the time to seek out, question, and understand the research, reasoning, and rationale behind each of these key active decisions, and how they affect a provider’s glide path design. Specifically:

1. Does the target date provider have a clear and well-informed view on income replacement or savings behavior?
2. Is the view backed by comprehensive research and analysis?
3. How do these factors play a role in the resulting glide path, and how do they compare with the sponsor’s plan design and plan participants (see Exhibit 3)?

Since their inception in the mid 1990s, target date portfolios have proven to be an effective strategy for many investors. Given the importance of a target date strategy’s glide path in determining an investor’s retirement savings success, we recommend that the goals, assumptions, expectations, risks, and beliefs that underlie the glide path design be evaluated, documented, and monitored for the plan, and be used to select and monitor the plan’s target date provider. This framework and resulting glide path knowledge can help to align the outcomes of the investment strategy with the needs of investors.

Source: Fidelity Investments.

Complementing the glide path: Active management offers the potential to improve retirement outcomes

While the glide path will be a key determinant for a target date investor's retirement wealth, the implementation or investment of the glide path can also meaningfully affect retirement success. The implementation is generally done with passively managed portfolios, actively managed portfolios, or a blend of both. Passively managed portfolios attempt to closely mirror the holdings, risk characteristics, and performance of a stated benchmark index, less fees and expenses. Active managers believe they can capitalize on asset prices and asset classes that diverge from their inherent or historical long-term value—due to shifts in the macroeconomic backdrop, business conditions, investor sentiment, and geopolitical events. These inefficiencies can create opportunities for active managers with skill to achieve higher returns among and within asset classes, but could also result in lower returns relative to a benchmark or passive portfolio. At a high level, the following are three factors that plan sponsors should consider when evaluating their retirement plan lineup, and that investors should consider when choosing a target date strategy's implementation.

1. Actively implemented funds can offer a broader opportunity set, including extended asset classes

Extended asset classes are generally viewed as a subset of a major asset class (e.g., floating-rate notes/fixed income) or as a completely separate asset class (e.g., commodities) with distinct risk and return characteristics. Certain extended asset classes, such as high-yield debt, real estate debt, and emerging-market debt, may not have sufficient breadth and liquidity to be implemented efficiently in a passively managed strategy (i.e., a strategy that seeks to closely track the performance of a stated market index). While some passive target date strategies do provide exposure to extended asset classes, actively managed target date strategies tend to provide access to a broader, more complete set of asset classes.

2. Extended asset classes can improve diversification

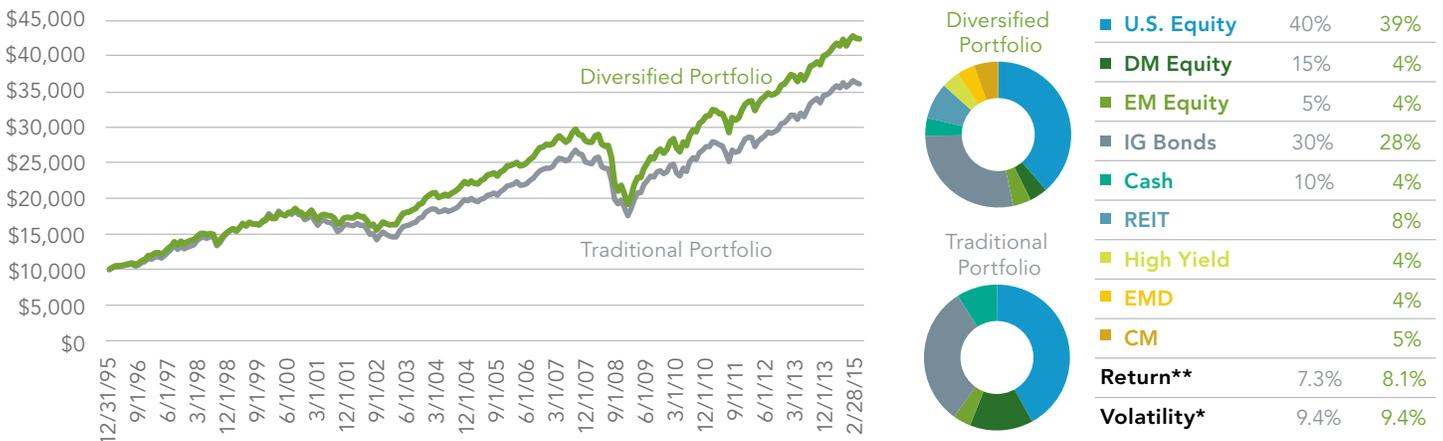
As a standalone investment, extended asset classes often have demonstrated a higher level of risk than primary asset classes. However, combining extended asset classes that have more varied investment characteristics and performance relative to primary asset classes⁵ can provide diversification benefits to a portfolio, such as the potential for higher returns with a similar level of risk over longer time periods. To demonstrate this concept, we created two hypothetical portfolios—a traditional portfolio of the primary asset classes and a more diversified portfolio with primary and extended asset classes—and applied the historical returns (past 20 years) for each of the asset classes. By including the extended asset classes, the diversified portfolio exhibited both a

higher absolute return and a higher risk-adjusted return (Exhibit 4).

We also found that the additional returns from the more diversified portfolio provided a meaningful improvement on wealth accumulation. Using historical returns, the growth of a \$10,000 initial investment in each portfolio would have resulted in wealth accumulation of \$43,305 for the diversified portfolio, and \$37,082 in the traditional portfolio, over the past 20 years—an increase of nearly 17% while maintaining similar volatility (Exhibit 4). Keep in mind: a larger investment over a similar time period has the potential to result in a greater difference in wealth accumulation, and thus a more significant retirement cushion.

Exhibit 4: Hypothetical Portfolio Wealth Accumulation: Traditional Portfolio (Primary Asset Classes) and Diversified Portfolio (Primary and Extended Asset Classes), 1995–2015

Adding extended assets to increase the diversification of a portfolio led to higher returns with the same level of volatility, and higher wealth over an extended period.



Past performance is no guarantee of future results. This chart is for illustrative purposes only and does not represent actual or future performance of any investment option. Diversification and asset allocation do not ensure a profit or guarantee against loss. Portfolio return reflects a \$10,000 initial investment (no additional contributions) calculated by holding the respective asset mixes constant over the stated historical time period (20-year period ending Feb. 2015). See the Important Information section on p. 8 of this article for further explanation of asset class data sources used.⁶ Asset class labels in chart: DM Equity: Developed-market equities; EM Equity: Emerging-market equities; IG Bonds: Investment-grade bonds; REIT: Real estate investment trust; High Yield: High-yield bonds; EMD: Emerging-market debt; CM: Commodities. Both portfolios were selected to reflect a mix of 60% equities/40% bonds, a widely accepted diversified portfolio; the Traditional Portfolio reflects a standard 60/40 portfolio; in the Diversified Portfolio, high yield and emerging-market debt are drawn from 40% bond allocation, while REITs and commodities are drawn from 60% equities allocation. Note: the extended asset classes shown were chosen because data was available for each going back to 1995. Other asset classes may lead to different results. The asset allocation of the Diversified Portfolio is the optimal mix of assets on an efficient frontier analysis targeting a 9.4% standard deviation (the portfolio with the greatest return potential at a 9.4% level of volatility). **Return: Average annual total return. *Volatility: Expressed as standard deviation. Standard deviation quantifies the magnitude of variation from the average (mean or expected value). A low standard deviation indicates that the data points tend to be very close to the mean, whereas a high standard deviation indicates that the data points are spread out over a large range of values. A higher standard deviation represents greater relative risk. Source: Bloomberg L.P., and Fidelity Investments, as of April 30, 2015.

Active managers have the potential to add value

Proponents of active management believe that excess returns over a stated benchmark index—through the power of compounding returns—can help shareholders increase their ability to achieve their financial goals. New Fidelity research indicates the following:

Investors can use simple, straightforward filters (those with lower fees and greater resources) to help them select actively managed large-cap U.S. equity mutual funds that on average have outperformed passive benchmark indexes over time. Many equity investors are unsure about how to find superior actively managed funds; as a consequence, some investors choose passive index funds instead (see Leadership Series paper “For Active and Passive, Low-Fee Funds with Size Advantages Continue to Lead” April 2017).

Historically, there have been distinctive, multiyear periods when actively managed, U.S. large-cap equity strategies on average have outperformed their passive benchmarks, and vice versa. Some market participants have claimed that passive management is inherently superior to active, implying that active management is a waste of time. But the fact is that active and passive management tend to work well in cycles: sometimes active outperforms passive; sometimes it is the other way around—and it often depends on certain market factors, such as dispersion and return correlations. Most people

assume that U.S. large cap stocks are the most efficient segment of the market. But there have been significant periods of time in which actively managed U.S. large cap funds have outperformed their benchmarks (see Leadership Series paper “Active Investing: The Cyclicity of Performance in the U.S. Large-cap Equity Market,” June 2014).

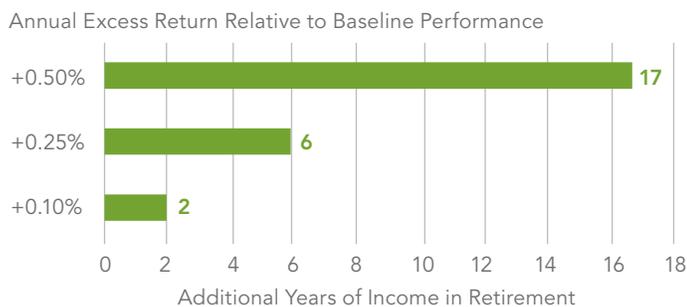
Active bond fund managers can choose bonds from a wider “opportunity set” (i.e., range of potential investments) than a passive index fund can, and may employ other investing strategies that may contribute to improved overall performance. Passive investment strategies seek only to match a benchmark index, by attempting to mirror the characteristics of the underlying index and by generally limiting the field of potential investments to securities that meet the index’s inclusion criteria. Active managers can consider a much broader spectrum of potential investments, and can act on informed assessments and market outlooks, constructing a portfolio that may differ from that of a passive strategy. During the 1-, 3-, and 5-year periods ending Oct. 31, 2014, these advantages allowed a majority of active managers in various bond fund categories to outperform their fixed-income benchmarks (see Leadership Series paper “Why Bond Investors May Benefit from Actively Managed Mutual Funds and ETFs,” December 2014). [Note: a majority of actively managed funds did not outperform in two of the four categories over a 10-year period.]

3. Successful active managers can potentially improve retirement outcomes

Active target date managers who can consistently achieve excess returns can also favorably influence retirement wealth for target date investors. Even a modest level of excess returns achieved on a consistent basis can lead to meaningful long-term results. Our research shows that adding as little as 25 basis points per year to a target date strategy's performance could provide an additional six years of retirement income in comparison with the result from investing in index strategies (Exhibit 5). Keep in mind that active managers can potentially underperform benchmarks as well.

Exhibit 5: Hypothetical Impact of Excess Returns in Terms of Years of Retirement Income

A small amount of excess return per year could deliver a material increase in retirement wealth.



This chart is for illustrative purposes only and does not represent actual or future performance of any investment option. Figures above represent additional years of retirement income replacement beyond the baseline retirement horizon. Baseline assumption calculated by using a set of cash flow assumptions to determine a baseline (hypothetical) investment return (i.e., cash flow invested = amount of retirement income in years after retirement). We then compared this to the additional years of retirement income that could be generated by each incremental active return scenario. See Important Information on p. 8 for more on the methodology.⁷ Source: Fidelity Investments, as of June 30, 2015.

Final thoughts

Investors and plan sponsors evaluating target date strategies in the marketplace should recognize the primary importance of a fund's glide path and its influence on retirement outcomes. Investors should seek transparency from target date providers on the key factors—glide path goal, demographic and capital markets assumptions, and risk management framework—as well as the supporting research and process involved in the development of a glide path. Further, it is important to obtain clarity on how these goals, assumptions, expectations, and risk management approaches compare with the plan participant characteristics and the plan's goals and beliefs. A glide path is an active decision, and careful consideration and alignment of these factors is central to improving retirement success for investors.

Beyond the glide path, investors and plan sponsors must weigh the potential benefits, risks, and costs related to the implementation of a glide path. While actively managed strategies may not consistently deliver excess returns, both actively managed and blended portfolios offer the potential for improved outcomes, diversification, and performance for investors relative to a glide path that is implemented using passive portfolios.

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Target date portfolios are designed for investors expecting to retire around the year indicated in each portfolio's name. Each portfolio is managed to gradually become more conservative over time as it approaches its target date. The investment risk of each target date portfolio changes over time as the portfolio's asset allocation changes. The portfolios are subject to the volatility of the financial markets, including that of equity and fixed income investments in the U.S. and abroad, and may be subject to risks associated with investing in high-yield, small-cap, commodity-linked, and foreign securities. Principal invested is not guaranteed at any time, including at or after the portfolios' target dates.

Target date portfolios are designed to help achieve the retirement objectives of a large percentage of individuals, but the stated objectives may not be entirely applicable to all investors due to varying individual circumstances, including retirement savings plan contribution limitations.

Stock markets are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments.

In general the bond market is volatile, and fixed income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa. This effect is usually more pronounced for longer-term securities.) Fixed income securities also carry inflation risk, liquidity risk, call risk, and credit and default risks for both issuers and counterparties. Unlike individual bonds, most bond funds do not have a maturity date, so holding them until maturity to avoid losses caused by price volatility is not possible.

Index performance includes the reinvestment of dividends and interest income. Securities indices are not subject to fees and expenses typically associated with investment funds. An investment cannot be made in an index.

Endnotes

1. Fidelity bootstrap simulation method: "Bootstrapping" is a simulation procedure that uses historical data to generate thousands of non-overlapping working phase periods. It is a statistical method for creating a very large number of possible scenarios from a finite sample set of observations while preserving the statistical properties of the underlying empirical distribution. We classified each year from 1900 to 2013 into one of four macroeconomic states, depending on how current real GDP growth and inflation compare with their secular trends (e.g., high/low growth and high/low inflation). We used this history of macroeconomic states to estimate a transition matrix that at each point in time provides the probability of transitioning to each of the four states over the next year, given the macroeconomic state in the current year. We then used the transition matrix to simulate 100,000 asset return time series of 40 years in length. For a given time series, the asset returns over a year associated with a macroeconomic state are randomly drawn with replacement from the historical asset return distribution for that macroeconomic state. Within a time series, the state of the economy transitions from year to year according to the empirical transition matrix. In this way, the simulation uses the underlying structure of the U.S. economy to generate a large number of non-overlapping 40-year periods that have historically plausible asset return distributions. **2.** U.S. stocks data: for the period 1900-1926, total return series calculated by Global Financial Data (GFD), for the U.S. Common Stock Indexes published by the Cowles Commission (<http://cowles.econ.yale.edu/P/cm/m03/m03-intro.pdf>); after 1926, U.S. Stock data is based on the value-weighted total return, obtained from CRSP, for all U.S. firms listed on the NYSE, AMEX, or NASDAQ. Non U.S. stocks data: UK FTSE All-Share Return Index (with GFD extension) for the period 1900-1949. For the period 1950-1969, World ex-USA Return Index (in U.S. Dollars) from GFD. After 1970, MSCI EAFE Return Index (in U.S. Dollars). U.S. investment-grade bonds data: Bloomberg Barclays U.S. Aggregate Bond Index since 1976 and the 10-year U.S. Treasury Bond prior to that date. U.S. Short-term Investments: 3-month U.S. Treasury Bill returns (GFD), entire time period (1900-2012). **3.** Historical asset class returns are represented by the following indices: U.S. Stocks: Dow Jones Total Stock Market Total Return Index; Non-U.S. stocks: MSCI EAFE (Net MA) (1975-2000) and MSCI ACWI Ex USA (Net MA) (2001-2015); Investment-Grade Bonds: IA SBBI U.S. Intermediate-Term-Government Total Return (1975) and Bloomberg Barclays U.S. Aggregate Bond Total Return Index (1976-2015); Short-Term Investments: IA SBBI U.S. 30 day T-Bill Total Return Index (1975-1980) and Bloomberg Barclays U.S. 3-Month Treasury Bellwether Index (1981-2015). **4.** Source: Published industry reports, Fidelity Investments. **5.** Primary asset classes: Generally considered as the major asset categories: stocks, bonds, and cash-equivalent investments. Extended asset classes are generally viewed as being either subcategories within those primary asset classes (e.g., high-yield bonds, emerging-market bonds), or different from those asset classes (e.g., commodities). **6.** Historical asset class returns are represented by the following indices (Dec. 31, 1995 to Feb. 28, 2015) - U.S. Equities (U.S.): S&P 500 Index; Developed-Market Equities: MSCI EAFE Index (Net MA) (EAFE); Emerging-Market Equities (EM): MSCI EM Total Return Index (USD); Investment-Grade Bonds (IG): Bloomberg Barclays U.S. Aggregate Bond Total Return Index; Cash: Bloomberg Barclays 3-Month T-Bill; REITs: FTSE NAREIT Total Return Index (USD); High Yield (HY): Bloomberg Barclays US Corporate High Yield Total Return Unhedged Index (USD); Emerging-Market Debt (EMD): JPM EMBI Global Index; Commodities (CM): Bloomberg Commodity Total Return Index. **7.** Chart is a hypothetical example based on a set of assumptions to illustrate the additional years of retirement income that could be obtained based on annual excess returns achieved above an amount of investor contributions and a calculated internal rate of return (IRR) necessary to obtain a level of income replacement through an expected lifecycle age in retirement. For the purposes of this chart, the following assumptions are presumed: investor starts contributing at age 25 through age 64, and receives annual salary increases equal to 1.5% over this period. Investor contributions increased from 8% to 13% of salary from age 25 through age 64 (includes company matching funds). Income replacement equal to approximately 50% of one's final preretirement salary through age 93. A hypothetical IRR equal to approximately 4.5% in real terms is assumed (required investment return to have savings equal income replacement needs). This hypothetical illustration is not intended to predict or project the investment performance of any security or product. The IRR is a rate of return used in capital budgeting to measure and compare the profitability of investments. Past performance is no guarantee of future results. Your performance will vary, and you may have a gain or loss when you sell your shares. For many investors, these assets will be combined with other complementary sources of income (e.g., Social Security, defined benefit plan benefits, and personal savings). Source: Fidelity Investments.



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The CRSP U.S. Stock databases contain daily and monthly market and corporate action data for securities with primary listings on the NYSE, AMEX, NASDAQ, or ARCA. CRSP refers to the Center for Research in Security Prices, located at the University of Chicago. The CRSP data is calculated based on data from its U.S. Stock database ©2013 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business.

Bloomberg Barclays U.S. Aggregate Bond Index is an unmanaged, market value-weighted performance benchmark for investment-grade fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities with maturities of at least one year. The Bloomberg Barclays U.S. 3-Month Treasury Bellwether Index (1981-2015) measures the performance of Treasury bills with a maturity of less than three months. Bloomberg Barclays U.S. Corporate High Yield Total Return Unhedged Index is a market value-weighted index that covers the universe of dollar-denominated, fixed-rate, non-investment-grade debt.

Bloomberg Commodity Index measures the performance of the commodities market. It consists of exchange-traded futures contracts on physical commodities that are weighted to account for the economic significance and market liquidity of each commodity.

Dow Jones Total Stock Market Total Return Index measures all U.S. equity securities that have readily available prices.

FTSE All-Share Index represents 98-99% of U.K. market capitalization; it is the aggregation of the FTSE 100 and the FTSE 250. FTSE NAREIT Total Return Index is an unmanaged market value-weighted index based on the last closing price of the month for tax-qualified REITs listed on the New York Stock Exchange (NYSE).

IA SBBI U.S. Intermediate-Term Government Total Return Index is an unweighted index that measures the performance of five-year maturity U.S. Treasury bonds. Each year, a one-bond portfolio containing the shortest non-callable bond having a maturity of not less than five years is constructed. The IA SBBI U.S. 30-Day Treasury Bill Total Return Index is an unweighted index that measures the performance of 30-day maturity U.S. Treasury bills.

JPM® EMBI Global Index, and its country sub-indices, total returns for the U.S. dollar-denominated debt instruments issued by Emerging Market sovereign and quasi-sovereign entities, such as Brady bonds, loans, and Eurobonds.

MSCI Europe, Australasia, Far East Index (EAFE) is a market capitalization-weighted index that is designed to measure the investable equity market performance for global investors in developed markets, excluding the U.S. & Canada. MSCI All Country World (ACWI) Ex USA Index (Net MA) is a market capitalization-weighted index that is designed to measure the investable equity market performance for global investors of developed and emerging markets, excluding the U.S. MSCI Emerging Markets (EM) Total Return Index is a market capitalization-weighted index that is designed to measure the investable equity market performance for global investors in emerging markets.

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EXECUTIVE SUMMARY

Active and Passive Investing: Both Are Essential to Long-Term Financial Market Health

This Executive Summary should be reviewed with the accompanying paper, "Active and Passive Investing: Both Are Essential to Long-Term Financial Market Health," authored by Ren Cheng.

While many financial market participants continue to debate the merits of either active or passive investing approaches, the reality is that both may warrant a place in a diversified portfolio given their respective risk characteristics and cyclical performance leadership.¹ This article evaluates the growth of passive strategies in the context of risk, with a particular emphasis on systemic risk created by passive strategies.

In today's financial system, the presence of active and passive strategies contributes two necessary functions that help provide operational stability in the financial markets:

- **Information discovery.** In a free-market economy, financial markets play a key role in generating and distributing information about corporate, private, and sovereign issuers through active management, the in-depth analysis of companies—their financial conditions, products, industries, and competitors—to identify securities that may be mispriced and thus undervalued. This fosters independent decision-making and the effective allocation of financial capital. The prevalence of information influences security prices.
- **Liquidity.** A liquid asset is one that can be traded easily in a reasonable quantity without incurring large transaction costs. For financial markets to operate effectively, there has to be sufficient liquidity. Passive strategies, such as index funds and exchange-traded funds that automatically purchase baskets of securities representative of an index's holdings near current market prices, provide significant liquidity to financial markets.

Growth of passive investing and equity market dynamics

During the past decade, two trends within the U.S. equity market—rising stock correlations and increased volatility—coincided with the rising popularity of passive strategies.

- **Growth of passive strategies.** Since 1995, assets in U.S. equity index mutual funds and index ETFs have grown from 4% to 27% of total U.S. equity fund assets.²
- **Higher correlations and increased volatility.** Since 2007, average stock correlations have risen to 0.42, up from a 0.24 average from 1995 to 2007.³ The number of trading days in which the broader equity market moved up or down by more than 2% was significantly higher during the past five years, reaching nearly a third (29%) of all trading days in 2011—the highest percentage since the 1930s.⁴

The Millennium Bridge effect

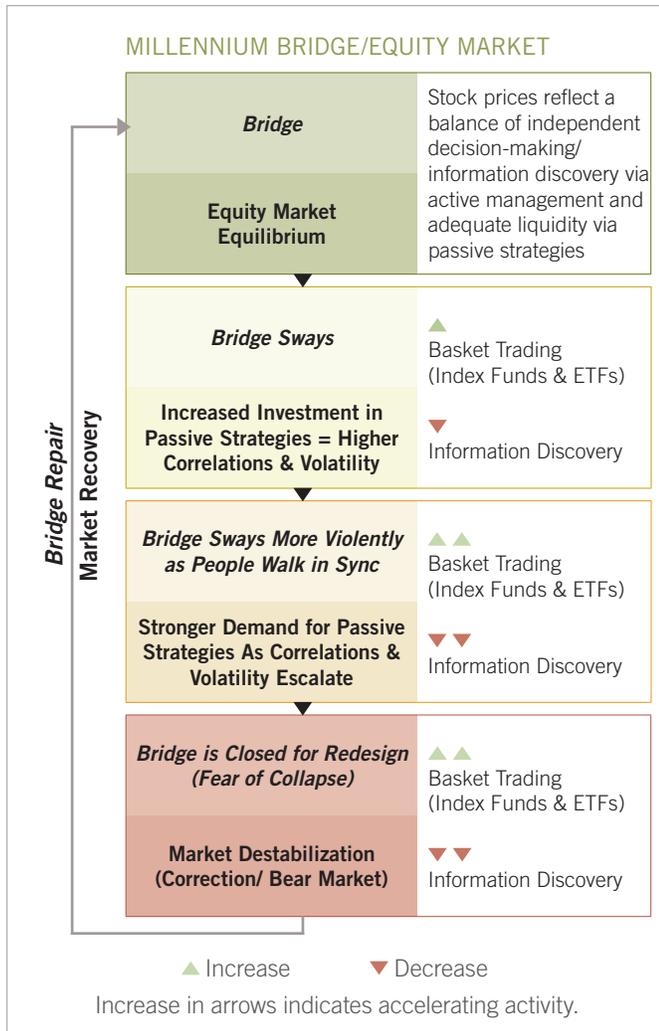
To understand the link between these recent trends of higher correlations and volatility and the surge in flows to passive equity investment vehicles, consider the following:

In June 2000 in London, England, a new steel suspension bridge—the London Millennium Footbridge—opened to provide a pathway for pedestrians across the River Thames from the Bankside district to the city of London.⁵ After two days of limited use, the bridge was closed for almost two years while modifications were made to eliminate what many pedestrians felt was an uncomfortable, unexpectedly large swaying motion that occurred when the number of people walking on the bridge reached a certain level. The lateral vibration, or "wobble," as it was called by many Londoners, was attributed to a "positive feedback phenomenon,"⁶ whereby pedestrians crossing a bridge that has a lateral sway have an unconscious tendency to match their footsteps to the sway, thereby exacerbating it.

The Millennium Bridge example is analogous to the increased flows to passive strategies and the unwanted side effects of higher correlations and volatility (see Exhibit 1, page 2).

Passive strategies reflect the independent investment decisions of many people, but in reality all passive investors are making the same investments (or steps)—just like the pedestrians walking independently on the bridge. Eventually, the bridge (i.e., equity market) starts to sway in the same direction (i.e., higher correlations), and then more violently in the same direction (i.e., heightened volatility) as more people walk (or invest) the same way.

EXHIBIT 1: Healthy markets require a balance of information discovery and liquidity.



Source: Fidelity Investments.

Information discovery and overall market health

As the Millennium Bridge analogy helps illustrate, when a greater number of investors are choosing the same investments via passive strategies, there is less independent decision-making, and therefore less information discovery driving market prices.

The increased equity market correlations seen during the past several years corroborate this point. Markets have greater potential to remain more stable when there is a sufficient number of investors making diverse, independent investment decisions (i.e., information discovery), as opposed to an overabundance of investors acting in unison via passive strategies (i.e., no information produced).

Investment implications

Investors should recognize how both active and passive strategies influence financial markets, In particular:

- Healthy markets need a sufficient amount of information discovery provided by active management. Increased equity market share among passive strategies could lead to even further increases in correlations and volatility. At some level of share, the widespread adoption of passive strategies could create a degree of systemic risk that leads to an undesirable outcome.
- Investors should not view the decision to invest solely in passive strategies as a way to minimize their risk exposure. Many investors may be choosing passive strategies independently, but in aggregate they are all investing in the same basket of securities in a respective index. In essence, passive-only investors may be attempting to minimize idiosyncratic risk while being unaware of the increased systemic risk being created.⁷ If too many investors seek diversification by investing the same way via passive strategies, then is anyone really diversified?
- For certain markets to remain healthy and allow investors to achieve diversification benefits, some combination of market share among both active and passive approaches is ideal.
- Passive and active strategies each has its own advantages and disadvantages that should be carefully evaluated by an investor when constructing a diversified portfolio to meet his or her investment objectives.

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Endnotes

¹ The annual relative performance among actively managed strategies and passive strategies has varied over time due to a number of factors, such as market breadth or stock performance dispersion. Actively managed equity mutual funds have tended to outperform indexes during broad markets (those featuring a high dispersion of stock returns, where active strategies have greater potential to exploit mispricing), and passive strategies have performed relatively better in narrow markets (low stock return dispersion and fewer opportunities to identify mispricing). In a comparison of relative performance among broad and narrow large-cap U.S. stock markets from 1990-2009, there were 10 calendar years that could be classified as broad markets, eight classified as narrow, and two that featured no dominant trend. Across this 20-year period, the average return was 10% for the S&P 500 Equal Weight Index and 8.2% for the market cap-weighted S&P 500 Index. During periods when the equal-weighted index outperformed, this generally signaled significant market breadth and stronger performance among smaller companies in the index. During periods when the market-cap-weighted index outperformed, this generally signaled that stock market performance is being driven by the larger companies in the index. Source: Morningstar, Inc.; Standard & Poor's (August 2010), Fidelity Investments as of May 14, 2012.

² Source: Strategic Insight: Simfund, ICI, Fidelity Investments.

³ Correlation: a measure of how the prices of two securities (or average price levels of two securities) have moved in relation to one another. 1 = perfectly correlated; 0 = no correlation; -1 = perfect negative (inverse) correlation.

⁴ Source: Haver Analytics, FactSet, Fidelity Investments.

⁵ See YouTube video summary on London Millennium Bridge: http://www.youtube.com/watch?v=eAXVa__XWZ8&feature=related.

⁶ "Positive feedback phenomenon" is known as synchronous lateral excitation: The natural sway motion of people walking caused small sideways oscillations in the bridge, which in turn caused people on the bridge to sway in step, increasing the amplitude of the bridge oscillations and continually reinforcing the effect.

⁷ Idiosyncratic risk: the risk tied to unique circumstances or fundamentals of a specific company or its security. Systemic risk: the collapse of an entire financial system or financial market based on interdependencies.

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Why Bond Investors May Benefit from Actively Managed Mutual Funds and ETFs

Historically, most lower-fee share classes of active fixed income funds have outperformed in several bond market categories.

Ford O'Neil | Portfolio Manager

Key Takeaways

- Passive index investment strategies are designed to mirror the composition and performance of a benchmark index. In contrast, active strategies can differ from the index in the pursuit of better returns.
- Active bond funds and ETFs have the potential to outperform passive index funds, using intentional approaches for selecting bonds or setting sector weights.
- Investment firms with deep resources can support the efforts of fundamental research, quantitative analysis, and expert trading, all of which may help actively managed funds outperform their benchmarks.
- Several additional active strategies for bonds may also increase opportunities for total return in excess of the benchmark, in a variety of interest-rate, volatility, and credit environments.

Bond funds can offer income, diversification, and liquidity to an overall portfolio—important features when investors are considering the right mix of assets for achieving their investment objectives. This article describes how experienced managers of active bond mutual funds and active exchange-traded funds (ETFs), drawing on expert research and trading support, can add value by discovering attractive investment opportunities caused by bond market inefficiencies. Moreover, active bond fund managers can choose bonds from a broader “opportunity set” (i.e., range of potential investments) than a passive index fund can, and may employ other investing strategies that may contribute to improved overall performance. These advantages exist in a variety of market environments, including periods of rising interest rates.

Experienced active managers, supported by research and trading experts, seek to earn “excess returns” (returns greater than those of the benchmark index). In contrast, passive investment strategies seek only to match the return and risk of a benchmark index, by attempting to mirror the characteristics (sector, issuer, credit quality,

and yield-curve exposure) of the underlying index and are limited to securities that meet the index’s inclusion criteria. Active managers can consider a much broader spectrum of potential investments, and can act on informed assessments and market outlooks, to construct a portfolio that may differ from the benchmark-driven exposures of a passive strategy. Over the past five years, these advantages have allowed the majority of active managers in various bond fund categories to outperform fixed income benchmarks in their lower-fee share classes (Exhibit 1). Because passive strategies also charge a fee, the performance differential of actively managed bond funds and active ETFs relative to passive may be even greater than the differential between an active strategy and the benchmark. Also, passive fixed income ETFs

benchmarked to broad fixed income indexes, such as the Bloomberg Barclays U.S. Aggregate Bond Index, do not have a consistent track record of delivering returns that match the index.¹ Investors need to understand that tendency as they make allocations to various fixed income strategies and vehicles.

A large and diverse bond market is inefficient, offering active managers the opportunity to add value

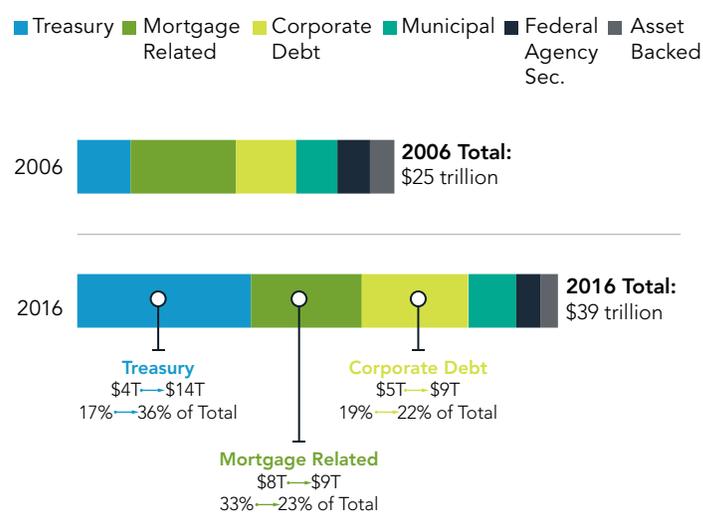
Pricing inefficiency refers to the possibility that the prevailing market price of a security may not match its intrinsic value. Active managers may seek to capitalize on market inefficiency by buying bonds that they view as underpriced and selling bonds they deem overpriced—

EXHIBIT 1: Historically, a majority of the lower-fee share classes of active fixed-income funds have outperformed benchmark indexes in several categories.

| % OF LOWER-FEE ACTIVELY MANAGED FUND SHARE CLASSES BEATING BENCHMARK (AFTER EXPENSES) | | | | |
|---|--------|---------|---------|----------|
| Morningstar Category | 1 Year | 3 Years | 5 Years | 10 Years |
| Short-Term Bond | 86% | 65% | 72% | 55% |
| Intermediate-Term Bond | 90% | 55% | 83% | 66% |
| Multisector Bond | 94% | 65% | 95% | 87% |

Data as of Feb. 28, 2017, considers only the two lowest-fee share classes of each actively managed fund within each respective Morningstar Category. Share classes of funds with less than \$50 million in net assets are excluded from the analysis. Not all share classes used may be available to retail investors. May include some degree of survivorship bias, in that closed and merged funds existing for partial periods are not included. Past performance is no guarantee of future results. See appendix for important index definitions. All indexes are unmanaged. It is not possible to invest directly in an index. Source: Morningstar, Fidelity Investments.

EXHIBIT 2: The bond market’s size, complexity, and variable sector composition contribute to its inefficiency.



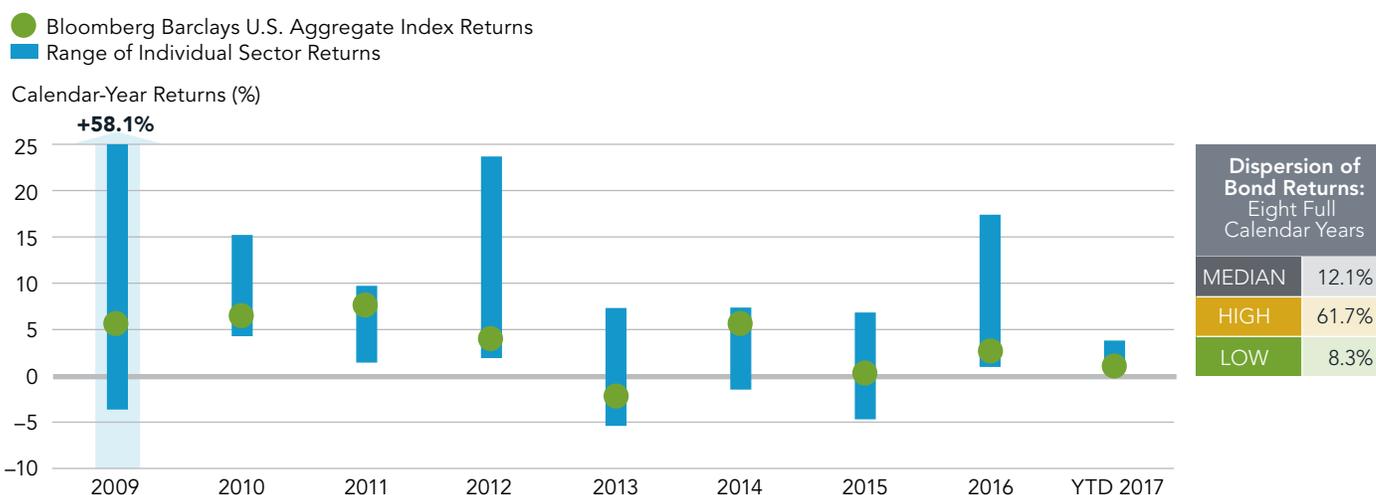
Money market securities excluded from calculation. 2006 data as of Dec. 31, 2006. 2016 data as of Dec. 31, 2016 (most recent available). Percentages may not agree due to rounding. Source: Securities Industry and Financial Markets Association (SIFMA), Fidelity Investments.

in other words, buying low and selling high. Index managers frequently disregard valuation; instead, they seek to replicate index exposures with little regard to fundamentals.

Another potential source of inefficiency stems from the bond market’s size and complexity. According to the Securities Industry and Financial Markets Association (SIFMA), the U.S. bond market had an aggregate value of \$39 trillion as of December 31, 2016, a notable increase from \$25 trillion 10 years earlier (Exhibit 2). Note also that the proportions of various sectors within the bond market have changed significantly over the past 10 years. For example, U.S. Treasury bonds have grown from 17% of the market to 36%.

In such a large market, a wide variety of borrowers issue bonds, and these securities can differ by sector, sub-sector, credit quality, seniority, collateralization, payment structure, coupon, coupon type, maturity, optionality, and expected secondary market liquidity—each of which can affect the market price of a bond. Indeed, the market values of many of these factors are not pre-determined; they are subject to the market’s evaluation, and can change over time. Experienced active portfolio managers can use fundamental and quantitative research to make qualitative assessments about security selection, which may lead to outperforming the benchmark index. Passive managers seek to structure a portfolio to match a benchmark’s composition and are typically not influenced by research. (See “How do equity and bond indices differ?” page 3.)

EXHIBIT 3: With a wide dispersion among bond sector returns, active managers have the potential to generate excess returns by overweighting particular sectors and underweighting others relative to the benchmark index.



Calendar-year performance from 2009 to 2016. 2017 data are through Mar. 31, 2017. Various indexes are used as proxies for the different sectors. Not all sectors shown are components of the Bloomberg Barclays U.S. Aggregate Bond Index. Ranges represent returns for: Bloomberg Barclays U.S. Aggregate Bond Index, Bloomberg Barclays U.S. Treasury Index, Bloomberg Barclays U.S. Agency, Bloomberg Barclays Emerging Markets USD Aggregate-Investment Grade Index, Bloomberg Barclays Emerging Markets USD Aggregate-High Yield Index, Bloomberg Barclays U.S. Corporate Investment Grade Index, Bloomberg Barclays U.S. Mortgage Backed Securities Index, S&P/LSTA Leveraged Loans Index, and BofA ML High Yield Constrained Index. All indexes are unmanaged. It is not possible to invest directly in an index. Past performance is no guarantee of future results. Source: Bloomberg Barclays, Fidelity Investments, as of Mar. 31, 2017.

An active bond strategy's holdings are informed and intentional

One important quality of active bond funds and ETFs is that the composition of investments is intentional. In contrast, the composition of a passively managed portfolio is intended to replicate the exposures and the performance of a benchmark index and evolve with that benchmark in line with bond market issuance trends, which may not reflect an active fund manager's assessment of intrinsic value.

How important might this intentional composition be? As an illustration, consider the sector-level dispersion of

returns in Exhibit 3 (page 3), shown as a range around the annual return of a generally representative and widely used index, the Bloomberg Barclays U.S. Aggregate Bond Index. Over each one-year span, different sectors of the bond market have had a range of returns relative to the aggregate market overall. An active portfolio manager may seek to generate excess return by overweighting (buying more of) sectors the manager perceives to be likely to generate better returns, while underweighting (buying less of) the remaining sectors.²

In contrast, a passively managed portfolio would be expected to maintain sector allocations that closely

How do equity and bond indexes differ?

Proponents of passive approaches for equity investors often argue that the index itself reflects an efficient measurement of the market's valuation of the stocks in the index. Because the most commonly used equity indexes are weighted by market capitalization and maintain a finite list of constituents, a company increasing its market cap faster than its peers will be represented in increasing proportion in the index. This occurs when investors bid up the price of a company's stock. Passive strategies based on an index will therefore own more of the higher capitalization securities within the index, and will increase or decrease exposure to a stock as the market increases or decreases the stock's price—thereby reflecting, at least in part, the market's current sense of a company's value.

Indexes for fixed income have some important differences from their equity counterparts, which may make them less efficient as reflections of the overall market's views. For example, although bond indices are also weighted by the market cap of the underlying securities, the pricing of

individual bonds is "over the counter," making price movements less driven by the transactions of a wide population of investors trading on a public exchange.

Additionally, in a broad-based index such as the Bloomberg Barclays U.S. Aggregate Bond Index (which includes more than 9,000 securities in total), many individual securities might not trade on any given day. As a result, the market capitalization for some bonds is estimated through pricing models that use actively traded similar securities for guidance. This approach can create market uncertainty about an accurate value for the index.

Further, while an equity index will reference only one security per issuer (the company's common stock), a bond index incorporates all of an issuer's debt securities that meet the inclusion criteria. For example, as of March 30, 2017, the Bloomberg Barclays U.S. Aggregate Bond Index included more than 250 different notes and bonds issued by the U.S. Treasury.

mimic that of its benchmark index. In other words, the sector allocations of a passive index fund are based on the current proportions of various sectors within the benchmark—which is related primarily to which sectors have issued the most index-eligible securities—rather than on an active assessment of the fundamental characteristics and value of any one sector relative to another.

Like that of the overall bond market itself, an index’s composition by sector may change over time, which can have a meaningful impact on the performance and characteristics of the index. A comparison of the 10-year change in sector proportions of the Bloomberg Barclays U.S. Aggregate Bond Index, an index intended to be broadly representative of taxable U.S. investment-grade bonds, shows U.S. Treasury bonds expanded from 25% of the index in 2006 to 37% in 2017. This significant shift in sector weighting was directly related to federal-deficit financing rather than compelling values versus other bond types. A passive index strategy would move in lockstep with bond market issuance trends, likely changing the return and risk expectations of the portfolio over time. In contrast, an actively managed fund or ETF can draw on research and trading insights to determine which sectors are most likely to maintain an optimal balance of risk and return.

An active manager has a much larger opportunity set

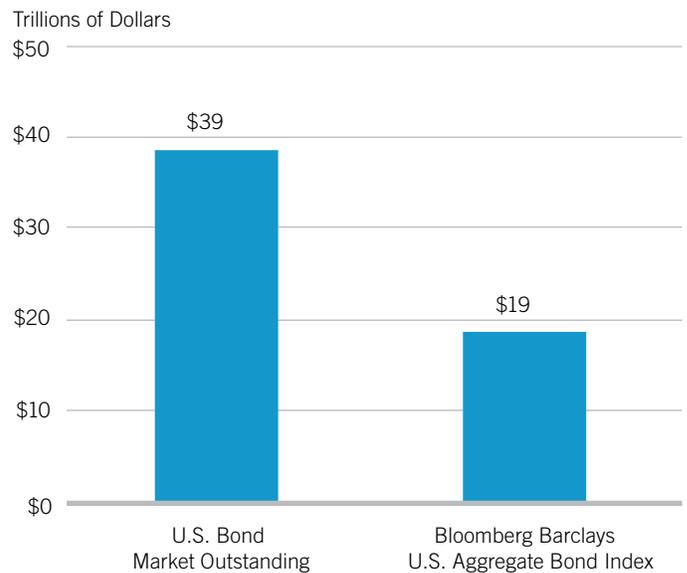
Even though the Bloomberg Barclays U.S. Aggregate Bond Index contains more than 9,000 securities, it represents just a subset of the broader bond market. As noted earlier, SIFMA estimates that the U.S. bond market had an aggregate market cap of \$39 trillion as of December 31, 2016. In contrast, the comparable value for the Bloomberg Barclays U.S. Aggregate Bond Index was \$19 trillion (Exhibit 4). Therefore, an actively

“Active managers have the flexibility to deviate from the index to structure a portfolio that seeks to maximize returns by focusing on the most promising sector, issuer, and yield curve positioning.”

managed portfolio could have an opportunity set that is much larger than that of a passively managed portfolio benchmarked against the Bloomberg Barclays U.S. Aggregate Bond Index.

This difference in opportunity sets arises from Bloomberg Barclays inclusion criteria (see Exhibit 5, page 8). These criteria are firmly (and appropriately) adhered to by the

EXHIBIT 4: An actively managed portfolio may have a much larger opportunity set than that of a passively managed portfolio.



Data as of Dec. 30, 2016 (most recent available). Source: SIFMA (U.S. bond market), Bloomberg Barclays (index), Fidelity Investments, as of May 2, 2017.

passive portfolios that attempt to mirror it. Maintaining clear criteria supports the transparency and usefulness of the index, contributing to its popularity as a benchmark. Active managers are not bound by these criteria and can access a wider opportunity set, which allows active bond funds and ETFs to hold index- and non-index-eligible investments similar to those within the benchmark but, due to higher yields or pricing inefficiency, have greater potential for return.³

The benefit of fundamental research, quantitative analysis, and trading expertise

Because the opportunity set is so wide, an active bond strategy can benefit from broad and deep expertise. We have discussed how the size of the bond market and its complexity can present an advantage to active managers who can identify and invest in bonds that the market may have undervalued. However, the extent of this advantage is partly determined by the quality and quantity of fundamental research and quantitative analysis used to find investment opportunities, and by the trading

Why some investors choose passive bond funds

Passively managed bond funds and ETFs have seen dramatic inflows since they were first introduced in the 1970s and in 2002, respectively. For certain investors, some passive index funds may be more appropriate than actively managed funds for their objectives.

Index funds offer constrained sets of portfolio holdings, making them good building blocks for investors seeking precise exposures to different sectors or different maturity ranges within the bond market. Also, the volatility of the monthly returns experienced by a passive strategy should closely match that of its benchmark; active strategies, in the pursuit of higher returns, may experience higher or lower volatility.

Given that index funds seek to match their benchmarks rather than outperform them, they might employ fewer analytical resources, which may lead to lower operating expenses and lower fees. Moreover, because many index funds do not buy and sell securities as frequently as do actively managed funds, they may incur lower trading costs. In addition, limited trading activity might make index funds more tax efficient for some investors.

Overall, passive bond strategies allow investors to realize returns that closely approximate those of a benchmark index (minus fees) in all market environments, with risk profiles very similar to those of the benchmark.

Choosing the right active bond fund or ETF

For conscientious investors, choosing the right bond mutual fund or ETF involves some research. Past performance is no guarantee of future results, but investors have several other aspects to consider in addition to previous returns and the expense ratio. Some key considerations in choosing an active bond fund or ETF include:

- **The choice of vehicle:** mutual fund or ETF. Each has its own advantages, and may not be equally suitable for every investor.
- **The research and trading resources of the manager.** Does the manager have sufficient credible resources to analyze the credit risk of various bonds, find and take advantage of market inefficiencies, and achieve lower trading costs through expert trading?
- **The benchmark of the strategy.** Does the return and risk profile of the benchmark index—and of the active strategy measured against it—align with the investor’s objectives? For example, if the primary objective for investing in a bond fund is to diversify a portfolio that is heavy in equities, an investor might prefer a strategy that has shown lower correlations to equity returns.
- **The overall level of risk within the strategy.** How much risk is an active manager taking relative to the fund’s return? Is the risk similar to that of the benchmark index? If not, is risk consistent with investors’ expectations about the fund, as formalized in the fund’s prospectus? If an active manager is earning higher returns than the benchmark by investing in much riskier bonds or sectors, it may be appropriate to consider whether the additional returns are worth the extra risk.
- **The sources of risk within the strategy.** Two of the primary sources of risk in a bond fund or ETF include credit risk (the possibility that bonds will default or lose value due to credit deterioration) and duration (sensitivity to interest-rate changes). A benchmark index, and passive approaches tied to it, will have a certain credit risk and duration that is determined purely by the set of available bonds that fit within the index guidelines. For an active bond fund or ETF, however, the level of credit risk and a duration target can be intentionally determined by the manager. Therefore, investors may want to understand how and why an active fund’s sources of risk differ from those of the benchmark index.
- **Other elements of the fund or ETF mandate, including any guidelines or restrictions.** How much flexibility does the manager have in choosing the sector exposure, credit-quality exposure, and interest-rate sensitivity of the holdings? An investor primarily seeking diversification may benefit from different guidelines than an investor mainly seeking income.
- **The structural risk controls.** How are investment decisions made and monitored at the firm managing the fund or ETF? What incentives are put in place to maintain appropriate risk levels?

It may seem counterintuitive, but because passive bond strategies can be challenging to implement, investors in passively managed bond funds or ETFs may also be well served by performing similar due diligence. In particular, investors should always be careful to select bond strategies that are well matched to their specific investment objectives, risk tolerance, and time horizons, whether they are choosing passive or active approaches.

EXHIBIT 5: When adhering to their mandates, some passive strategies based on an index might exclude many opportunities that active strategies may find attractive.

| CATEGORY | BLOOMBERG BARCLAYS U.S. AGGREGATE-BOND INDEX REQUIREMENT |
|--------------------------------------|---|
| Sectors | Allows U.S. Treasuries, government-related bonds, corporate bonds, certain securitized instruments. Does not allow other sectors, and sector weights are determined by issuance and redemption activity. |
| New Issues, Additions, and Deletions | Addition of qualifying new bonds, other additions, and deletions can occur only at month-end. Market composition may be reflected with a lag. |
| Security Format | Allows SEC-registered securities, or those which qualify for certain exemptions. Excludes a significant percentage of bonds brought to market for sale only to qualified institutional buyers (i.e., without registration rights). |
| Ratings | If there is only one rating, it must be investment grade; if there are two ratings, they both must be investment grade; if three ratings, at least two must be investment grade. Excludes some bonds with conflicting ratings and all bonds without any investment-grade ratings. Also does not account for advance outlooks from ratings agencies, and must rebalance holdings only at month-end following a rating change. |
| Ratings Agencies | Securities must be rated by at least one of Moody's, S&P, or Fitch. Excludes bonds rated by other agencies. |
| Size of Bond Issue | Generally includes securities with at least \$250 million of par value outstanding (rules differ for securitized instruments). Excludes smaller issues. |
| Coupon Type | Fixed-rate only. Excludes bonds with floating-rate coupon payments. |
| Maturity | Must have a remaining term to maturity (or a remaining weighted-average maturity) greater than one year. Excludes bonds with shorter remaining terms. |
| Currency | U.S. dollar-denominated only. Excludes bonds denominated in other currencies. |

Source: Bloomberg Barclays, Fidelity Investments, as of Dec. 31, 2016.

expertise a fund can bring to bear. The fees that active managers charge are typically higher than those of passive index funds, which is often necessary to build and maintain the research, analysis, and trading capabilities intended to augment returns.⁴

The Role of Research Analysts

Fundamental analysts are charged with developing informed views of the issuers, industries, and sectors that they follow. This fundamental research can help assess whether a bond is undervalued or overvalued by the market. Quantitative analysts develop sophisticated models that help assess risk relative to potential return and to manage risk in an overall portfolio. With input from both types of analysts, an active portfolio manager can assess how to invest fund assets to try to increase returns while maintaining an intentional level of risk.

The Role of Bond Traders

Experienced and well-resourced bond traders may also play an important role, because the majority of the bond market trades "over the counter" (i.e., pricing is determined on a case-by-case basis), often requiring that buyers and sellers negotiate. Specialized trading experts covering all sectors of the bond market can help an active fund manager stay informed about up-to-the-minute market valuations and trends, and can help ensure that the quality of trade execution remains high. Also, expert traders can monitor the flow of trading and find occasions for purchasing specific bonds opportunistically (such as when, for various reasons, other investors may be required to sell).

Active strategies have additional tools to generate excess returns and manage risk

In the current bond market environment, many investors see low yields and the specter of higher rates as a threat to returns from bond allocations. However, active bond managers can use many strategies to help investors generate returns and manage risks, even within a rising-rate environment. The key concept is that active managers have the flexibility to change some important characteristics of the portfolios they manage, and can also benefit from trading opportunities.

Because of the dynamic nature of the holdings of an active bond fund or ETF, active managers can use a toolbox of strategies with the potential to enhance total return (the return generated from both interest income and capital appreciation), in a variety of different market environments. In particular:

- As a bond approaches maturity, it changes position on the “yield curve” (which is the curve generated by plotting time-to-maturity on the x-axis with the market’s required yield on the y-axis). The change is called rolldown because, in general, investors require higher yields to lend money for longer periods of time—as a bond moves closer to maturity, it tends to “roll down” the yield curve as the required yield for that bond tends to fall. For bonds, a falling yield means a rising price. An active manager can generate returns by selling bonds that have appreciated in price due to rolldown.
- Changes in the overall level of interest rates or in the shape of the yield curve can also contribute to total return. Because bond prices fluctuate as interest rates change, an active manager can use various strategies to take advantage of shifts in rates, or hedge against the potential adverse effects of these moves. Interest-rate changes can be very volatile at times, and often require substantial research and trading resources to help position a portfolio appropriately.
- Some bond yields include a credit spread, which is a yield premium relative to U.S. Treasury bonds, intended to reflect a higher level of risk associated with the bond issuer. For example, the market almost always requires a higher yield from corporate bonds, mortgage-backed securities, and asset-backed securities than it does from Treasury bonds with comparable terms to maturity. But because this spread reflects subjective assessments that can change over time, active fund managers have the opportunity to generate returns from various effects, including rolldown in relation to the credit spread, absolute and relative spread changes, and reshaping of the overall spread curve. These “spread returns” can be volatile, and active managers may utilize substantial fundamental and quantitative research support in managing risk while seeking excess return through these strategies.

The general point, however, is that active bond funds have many ways to help generate excess returns, even in an environment of rising interest rates that some bond investors might consider unfavorable.

Investment implications

Many investors seek exposure to bonds for three key characteristics: income, portfolio diversification, and liquidity. How they achieve this exposure should be consistent with their overall objectives. Passive index funds offer the ability to invest in a set of bonds chosen to be representative of the benchmark index—both the risk and the return of a passive fund are expected to be congruent with that of the benchmark. In contrast, active bond funds offer investors the potential for returns exceeding those of the index. Active managers can take advantage of pricing inefficiency, a wider opportunity set of possible investments, and the flexibility to make qualitative judgments about the weighting of various bond sectors within a fund’s holdings. For well-resourced

active bond funds, fundamental research and quantitative analysis may help to identify undervalued and overvalued bonds, while expert traders may help to negotiate better prices. In addition, various active strategies can augment total returns for active bond funds and ETFs, even in a rising-rate environment. Overall, many different types of investors may benefit from including active bond funds and ETFs in their portfolios.

Author

Ford O'Neil | Portfolio Manager

Ford O'Neil has been a portfolio manager in the Fixed Income division at Fidelity Investments since 1992, and is responsible for managing multiple retail and institutional investment-grade bond portfolios. Mr. O'Neil joined Fidelity in 1990.

Fidelity Thought Leadership Vice President Geri Sheehan, CFA, provided editorial direction. Vice President Vic Tulli, CFA, contributed to this article.

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Past performance is no guarantee of future results. Investing involves risk, including risk of loss. Neither asset allocation nor diversification ensures a profit or guarantees against a loss. Investment decisions should be based on an individual's own goals, time horizon, and tolerance for risk. All indices are unmanaged, and performance of the indices includes reinvestment of dividends and interest income and, unless otherwise noted, is not illustrative of any particular investment. An investment cannot be made in any index.

In general, the bond market is volatile, and fixed-income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa. This effect is usually more pronounced for longer-term securities.) Fixed-income securities also carry inflation risk, liquidity risk, call risk and credit and default risks for both issuers and counterparties. Any fixed-income security sold or redeemed prior to maturity may be subject to loss. Unlike individual bonds, most bond funds do not have a maturity date, so avoiding losses caused by price volatility by holding them until maturity is not possible.

Lower-quality debt securities generally offer higher yields but also involve greater risk of default or price changes due to potential changes in the credit quality of the issuer. Any fixed-income security sold or redeemed prior to maturity may be subject to loss.

Endnotes

¹ Broad-based fixed income indexes can be difficult to replicate. As a result, passive ETFs frequently utilize a stratified sampling methodology to approximate index exposures, and exposures that don't exactly mirror the index can lead to performance differences. Also, other frictions during implementation in addition to fees can impact performance. Past performance is no guarantee of future results.

² Manager flexibility is always assumed to be within the specific constraints of the mandate of the fund or ETF, which allows investors to understand the general investment characteristics and the target levels of risk undertaken by the fund.

³ There are many different bond indices in existence. In this article, we focus on the Bloomberg Barclays U.S. Aggregate Bond Index because of its wide adoption as a benchmark. As of December 31, 2016, data compiled by Morningstar indicate that more than \$1 trillion of actively managed mutual funds or ETFs, and more than \$250 billion of passively managed mutual funds or ETFs, used this index (or its closely related float-adjusted version) as their benchmark. Other indices may have selection criteria that are more or less inclusive than those described in Exhibit 5.

⁴ Passively managed portfolios may also benefit from the expertise of fundamental research, quantitative analysis, and dedicated sector traders, because constructing an appropriately representative bond portfolio can be a complex task. However, the driving focus of a passive index fund is matching the index in both risk profile and return, rather than the maximization of risk-adjusted total return.

Index Definitions

Bank of America Merrill Lynch U.S. High Yield Constrained Index is a market capitalization-weighted index of U.S. dollar-denominated below investment grade corporate debt securities publicly issued in the U.S. domestic market. **Bloomberg Barclays Emerging Markets (EM) USD Aggregate Index** is a flagship hard currency emerging markets debt benchmark that includes USD-denominated debt from sovereign, quasi-sovereign, and corporate EM issuers; **Bloomberg Barclays EM USD Aggregate Investment Grade (High Yield) Index** includes the subset of securities within the Bloomberg Barclays EM USD Aggregate Index with considered to be investment grade (high yield). **Bloomberg Barclays U.S. Agency Bond Index** is a market value-weighted index of U.S. Agency government and investment-grade corporate fixed-rate debt issues; to be included in this index, debt issues must have maturities of one year or more and, as a portion of the index, total a minimum amount outstanding of 150 million U.S. dollars. **Bloomberg Barclays U.S. Aggregate Bond** is a broad-based, market-value-weighted benchmark that measures the performance of the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market; sectors in the index include Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS, and CMBS. **Bloomberg Barclays U.S. Credit Index** comprises the U.S. Corporate Index and a non-corporate component that includes foreign agencies, sovereigns, supranationals and local authorities. **Bloomberg Barclays U.S. Corporate Investment Grade Bond Index** is a broad-based benchmark that measures the investment grade, fixed-rate, taxable, corporate bond market; it includes USD-denominated securities publicly issued by U.S. and non-U.S. industrial, utility, and financial issuers that meet specified maturity, liquidity, and quality requirements. **Bloomberg Barclays U.S. 1-3 Year Government/Credit Index** is a market value-weighted index of investment-grade fixed-rate debt securities with maturities from one to three years from the U.S. Treasury, U.S. Government-Related, and U.S. Corporate Indices. **Bloomberg Barclays U.S. Mortgage Backed Securities Index** is a market value-weighted index of fixed-rate securities that represent interests in pools of mortgage loans, including balloon mortgages, with original terms of 15 and 30 years that are issued by the Government National Mortgage Association (GNMA), the Federal National Mortgage Association (FNMA), and the Federal Home Loan Mortgage Corp. (FHLMC). **Bloomberg Barclays U.S. Treasury Bond Index** is a market value-weighted index of public obligations of the U.S. Treasury with maturities of one year or more. Standard & Poor's/Loan Syndications and Trading Association (S&P/LSTA) Leveraged Performing Loan Index is a market value-weighted index designed to represent the performance of U.S. dollar-denominated institutional leveraged performing loan portfolios (excluding loans in payment default) using current market weightings, spreads, and interest payments.

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Before Considering ETFs for International Exposure, Consider This

Actively managed international funds have a long history of outperforming ETFs, even after fees

KEY TAKEAWAYS

- Many advisors have turned to passive ETFs for international equity exposure, expecting benchmark-like returns and low costs.
- However, non-U.S. ETFs can sometimes trail their benchmark by a wide margin, primarily due to index tracking difference.
- Expense ratios are the most prominent cause of tracking difference, and international equity ETFs typically have higher expense ratios than most other asset categories.
- Data show that the average actively managed large-cap international fund has historically beaten passive investments in the same category, even after fees.

Overview

Passive equity ETFs can be an affordable and efficient way to access the returns of a particular asset class. However, these benefits are not always as clear-cut in some segments of the investment universe. Take international and emerging-market equity ETFs, for example. Relative to other categories, non-U.S. ETFs tend to have higher levels of tracking error and higher fees, which can negatively affect their relative returns. As a result, some investors may overestimate the expected performance of international ETFs,¹ underestimate their costs,

and miss the historical performance advantage of actively managed international funds relative to overseas benchmarks.

ETF tracking difference can hurt returns

Most ETFs closely track their benchmark indexes. But some categories can be skewed by tracking difference, or the absolute difference in return between an ETF and its index. Tracking difference can be a positive or negative number, but it's typically negative for passive ETFs because they almost always trail their indexes by at least the amount of the funds' expense ratios. In other words, if an ETF has an expense ratio of 0.50% (for example), it has an immediate tracking difference of -0.50% before anything else is considered (e.g., security sampling, cash drag, and other costs and fees).

Many industry observers agree that expense ratios are the primary cause of tracking difference. And since non-U.S. ETFs tend to have higher-than-average expense ratios, their tracking difference tends to be higher as well. The table below illustrates the disparity between U.S. and international ETF expense ratios.

| Expense Ratios are Typically Higher for International Equity ETFs than for U.S. Equity ETFs | |
|---|------------------------|
| Morningstar ETF Category | Average Expense Ratio* |
| U.S. Large Blend | 0.33% |
| Foreign Large Blend | 0.41% |
| Diversified Emerging Markets | 0.59% |

*Based on prospectus net expense ratio. Source: Morningstar, as of Sep. 16, 2016.

To be fair, the expense ratios of actively managed funds generally are higher than those of passive funds. In its “2015 Fee Study: Investors Are Driving Expense Ratios Down,” Morningstar reported that the average asset-weighted expense ratio for passive funds was 0.20%, compared with 0.79% for active funds.² However, actively managed funds have the potential to significantly outperform their indexes, even after fees; passive funds do not.

Other causes of international ETF tracking difference include **bid-ask spreads**—the price difference between what a trader will sell and what a buyer will pay. This expense can be minor for ETFs with large, liquid indexes, but it can be much higher for smaller, less-liquid indexes. In addition, most brokerage firms still charge **commissions** when buying or selling ETFs. Since frequent sales charges could erode an investor’s overall return, ETFs are not ideal for incremental investing strategies such as dollar-cost averaging. There’s also **sampling** to consider. ETFs that track indexes in less liquid parts of the world (such as emerging markets) may choose not to hold every security in a given index, but rather, a representative sample, which increases tracking risk.

The active management opportunity in international equity

Historical data show that actively managed international equity mutual funds have significantly outperformed passive non-U.S. index funds (ETF data was not included due to a lack of long-term performance history). Since 1992, the average actively managed large-cap international fund has beaten its benchmark index by 85 basis points annually, even after fees (Exhibit 1). In comparison, the average passive large-cap international index fund has *trailed* its benchmark by 32 basis points. That’s a performance difference of 1.17% per year in favor of actively managed international strategies. And when you factor in the power of compounding, the growth potential of actively managed foreign investments is even more compelling.

Exploiting inefficiency

Research suggests the benefits from active management are highest in the least-efficient markets—those where potential deviations from fundamental values are likely to be the largest, and where competition from other sophisticated investors is likely to be the lowest.³ Skilled, experienced active managers with dedicated global research resources can capitalize

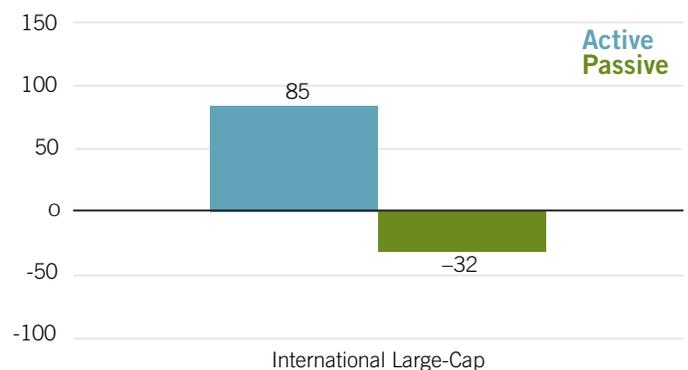
on these inefficiencies and make educated security selection decisions in an effort to provide optimal risk-adjusted performance. Active managers are able to more quickly respond to potential market downturns and avoid a company that is experiencing fundamental weakness, which provides a greater opportunity to maximize investors’ return potential.

Here are several characteristics of international markets that make it such a fertile hunting ground for active managers.

- **The importance of company over country:** Many investors in passive international strategies seek exposure to a specific country or region. However, company selection is the biggest driver of stock returns. In fact, 54% of the average source of return for global stocks is driven by company selection, and only 26% is driven by country selection (Exhibit 2). Unlike passive strategies, active managers have the opportunity, experience and resources to select their best ideas and choose specific companies they believe will beat the index average.
- **Larger opportunity set:** Investors who limit their investable universe exclusively to the United States can miss

Exhibit 1 Active non-U.S. funds have soundly beaten their passive cohorts over time

Average Yearly Excess Returns (in Basis Points) for International Equity Funds, 1992–2015



Fund data from Morningstar, including closed and merged funds. International funds labeled as “foreign large growth/value/blend” by Morningstar. Average excess returns: the average of all monthly one-year rolling excess returns for all funds in the set under analysis, using overlapping one-year periods and data from Jan. 1, 1992, to Dec. 31, 2015. Excess returns are returns relative to the primary prospectus benchmark of each fund, net of fees. Basis point: 1/100th of a percentage point. Past performance is no guarantee of future results. This chart does not represent actual or future performance of any individual investment option. See endnotes for important information. Source: Morningstar, Fidelity Investments, as of Mar. 3, 2016.

substantial profit opportunities throughout the world. Only 26% of the world’s publicly traded companies are based in the U.S.⁴ Meanwhile, 78% of global GDP growth comes from foreign countries,⁵ and in every one of the past 30 years, the world’s top-performing stock market has been outside the U.S.⁶

- **Dispersion of returns:** The number of international investment opportunities significantly outnumber those in U.S. markets. So there’s often a wide dispersion of returns in foreign markets, which can be positive for stock selection and for generating excess returns. It can also mean significant diversification benefits for investors with international equity exposure.
- **Information inefficiency:** “Informationally” inefficient markets are often classified as countries and securities that aren’t followed closely by Wall Street, and international/emerging markets are prime examples. Due to less research coverage, many international and emerging markets may be less efficient, offering active managers the opportunity to gain an information edge in seeking to outperform their benchmarks.

Why Fidelity for international active management?

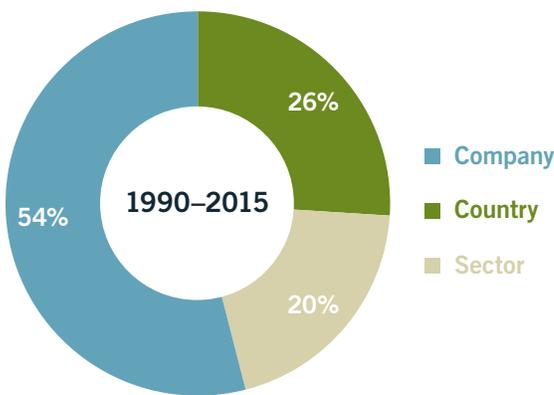
Fidelity has managed international strategies for more than half a century, and has nearly 100 international investment professionals situated around the world. Its long-term presence and considerable research resources based in international markets provide a competitive edge, which is illustrated in its historical relative performance. At least 85% of Fidelity’s actively managed international equity funds have beaten their benchmarks over the past 1-, 3-, and 5-year periods (Exhibit 3), and 75% of Fidelity international funds have topped their index on a 10-year basis.

Investment implications

While passive strategies aim to mimic the performance of an index, active investing allows a manager to invest with a goal of outperforming an index. Even seemingly small amounts of excess return can lead to better outcomes for shareholders, and prolonged periods of outperformance can lead to even better results thanks to the power of compounding. So before defaulting to a passive approach for non-U.S. equity exposure, consider the time-tested results of Fidelity’s actively managed international strategies.

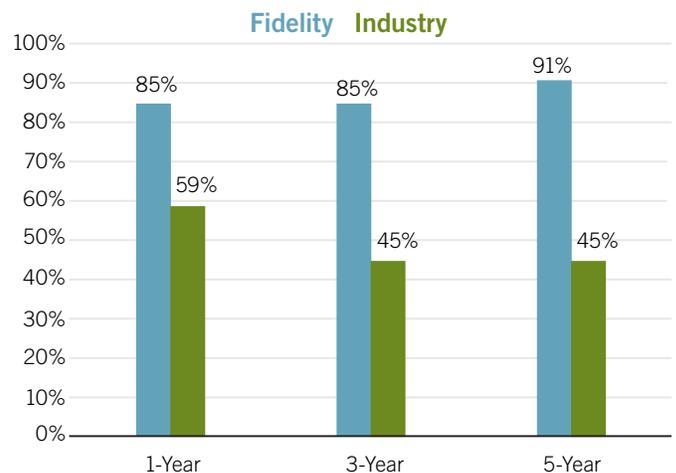
Exhibit 2 Company selection is by far the biggest contributor to equity returns

Average Source of Return for Global Stocks



Source: MSCI All Country World Index, Fidelity Investments, as of Aug. 31, 2015.

Exhibit 3 Fidelity actively managed international funds have significantly outperformed the industry average
Percentage of Fidelity Actively Managed International Equity Funds Beating their Benchmarks*



*Returns are net of fees. Source: Morningstar, as of Jun. 30, 2016. Figures reflect industry and Fidelity-managed funds categorized as “international” by each fund’s primary benchmark. My include funds unavailable to individual investors. Past performance is no guarantee of future results. You cannot invest directly in an index. See endnotes for important information.

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ETFs are subject to market fluctuation and the risks of their underlying investments. ETFs are subject to management fees and other expenses. Unlike mutual funds, ETF shares are bought and sold at market price, which may be higher or lower than their NAV, and are not individually redeemed from the fund.

Investment decisions should be based on an individual's own goals, time horizon, and tolerance for risk. Nothing in this content should be considered to be legal or tax advice and you are encouraged to consult your own lawyer, accountant, or other advisor before making any financial decision.

Past performance is no guarantee of future results.

Diversification and asset allocation do not ensure a profit or guarantee against loss.

Investing involves risk, including risk of loss.

Stock markets, especially non-U.S. markets, are volatile and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments. Foreign securities are subject to interest rate, currency exchange rate, economic, and political risks, all of which are magnified in emerging markets. Risks are particularly significant for investments that focus on a single country or region.

Exhibit 1 Methodology:

Fund selection: Our analysis focused on all foreign large-cap equity mutual funds tracked by Morningstar between Jan. 1, 1992, and Dec. 31, 2015,

Exhibit 3 Methodology:

| Morningstar Category | Abbreviation | # of Funds 2008 | # of Funds 2009 | # of Funds 2010 | # of Funds 2011 | # of Funds 2012 | # of Funds 2013 | # of Funds 2014 | # of Funds 2015 |
|---------------------------------|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| US OE China Region | CH | 66 | 81 | 86 | 99 | 111 | 96 | 88 | 81 |
| US OE Diversified Emerging Mkts | EM | 312 | 367 | 386 | 458 | 552 | 614 | 749 | 840 |
| US OE Diversified Pacific/Asia | DP | 32 | 47 | 45 | 50 | 44 | 38 | 36 | 36 |
| US OE Europe Stock | ES | 113 | 116 | 118 | 123 | 127 | 103 | 96 | 113 |
| US OE Foreign Large Blend | FB | 778 | 823 | 829 | 817 | 786 | 791 | 750 | 788 |
| US OE Foreign Large Growth | FG | 251 | 266 | 261 | 251 | 250 | 278 | 341 | 361 |
| US OE Foreign Large Value | FV | 307 | 340 | 364 | 376 | 369 | 338 | 348 | 358 |
| US OE Foreign Small/Mid Blend | FQ | 45 | 54 | 59 | 64 | 68 | 79 | 87 | 85 |
| US OE Foreign Small/Mid Growth | FR | 135 | 130 | 135 | 164 | 148 | 144 | 140 | 142 |
| US OE Japan Stock | JS | 46 | 40 | 31 | 39 | 35 | 31 | 26 | 28 |
| US OE Latin America Stock | LA | 26 | 26 | 23 | 38 | 35 | 37 | 36 | 32 |
| US OE Pacific/Asia ex-Japan Stk | PJ | 138 | 160 | 83 | 110 | 98 | 108 | 85 | 95 |
| US OE World Stock | WS | 647 | 755 | 865 | 893 | 936 | 1,040 | 1,158 | 1,208 |

including all blend, value, and growth funds within actively managed and passive index funds. We included funds that did not exist for the entire period (closed or merged funds), to reduce survivorship bias. We eliminated funds identified as passive that were labeled as "enhanced index." We also eliminated funds benchmarked to a price index, for greater comparability. Our analysis began with the entire set of funds with available data from Morningstar at any point over the full period. We selected the oldest share class for each fund as representative; where more than one share class was the oldest available, we chose the class labeled as "retail." Total fund counts for international large-cap equity funds: active 432, passive 29; average fund counts for performance calculation: active 218, passive 11.

Averaging excess returns: We used Morningstar data on returns from Jan. 1, 1992, through Dec. 31, 2015. We calculated each fund's excess returns on a one-year rolling basis, relative to each fund's primary prospectus index and net of reported expense ratio, for each month. We used an equal-weighted average to calculate overall industry one-year returns for each month. We chose equal weighting for the averages in order to represent the average performance of the range of individual funds available to investors, rather than asset weighting, which may introduce bias into an analysis.

Indexes and index definitions: Funds in the study included active and passive funds tracked by Morningstar and benchmarked to the following international large-cap equity indexes (all in USD):

MSCI All Country World ex USA Index is a market-capitalization-weighted index designed to measure the investable equity market performance for investors of large and mid-cap stocks in developed and emerging markets, excluding the U.S.

MSCI All Country World ex USA Growth (Value) Index is a market-cap-weighted index designed to measure the investable equity market performance of growth (value) stocks for investors in large- and mid-cap stocks in developed and emerging markets, excluding the U.S.

MSCI EAFE Index is a market-cap-weighted index designed to measure the investable equity market performance for investors in developed markets, excluding the U.S. and Canada.

MSCI EAFE Growth (Value) Index is a market-cap-weighted index designed to measure the investable equity market performance of growth (value) stocks for investors in developed markets, excluding the U.S. and Canada.

MSCI World ex USA Index is a market-cap-weighted index designed to measure the investable equity market performance for investors in developed markets, excluding the U.S.

MSCI World ex USA Growth (Value) Index is a market-cap-weighted index designed to measure the investable equity market performance of growth (value) stocks for investors in developed markets, excluding the U.S.

BEFORE CONSIDERING ETFS FOR INTERNATIONAL EXPOSURE, CONSIDER THIS

| Fund Name | Inception Date | 1 Year Rtn | 1 Year % Rank | 3 Year Rtn | 3 Year % Rank | 5 Year Rtn | 5 Year % Rank | 10 Year/LOF Rtn | 10 Year % Rank | Morningstar Category | Overall Rating | Rating 3 YR | Rating 5 YR | Rating 10 YR/LOF | # of Funds 3 YR/Overall | # of Funds 5 YR | # of Funds 10 YR | Prospectus Gross Ratio |
|-----------------------------|----------------|------------|---------------|------------|---------------|------------|---------------|-----------------|----------------|----------------------|----------------|-------------|-------------|------------------|-------------------------|-----------------|------------------|------------------------|
| International Equity | | | | | | | | | | | | | | | | | | |
| Canada◆ | 11/17/1987 | -3.1 | - | 2.18 | - | -0.88 | - | 3.49 | - | MQ | - | - | - | - | - | - | - | 1.15 |
| China Region◆ | 11/1/1995 | -25.81 | 94 | 3.55 | 43 | 2.34 | 6 | 7.52 | 18 | CH | 4 | 3 | 4 | 4 | 76 | 69 | 40 | 0.99 |
| Diversified International | 12/27/1991 | -9.98 | 68 | 4.16 | 25 | 3.4 | 26 | 2.41 | 67 | FG | 3 | 4 | 4 | 3 | 320 | 275 | 189 | 1 |
| EM Discovery○ | 11/1/2011 | -7 | 23 | -0.26 | 29 | - | - | 3.88 | - | EM | 4 | 4 | - | - | 590 | 416 | 186 | 1.56 |
| Emerging Asia◆ | 4/19/1993 | -10.75 | 44 | 4.22 | 13 | 0.94 | 42 | 5.66 | 68 | PJ | 3 | 4 | 3 | 3 | 74 | 58 | 20 | 1.09 |
| Emerging EMEA Fund◆ | 5/8/2008 | -6.64 | 20 | -1.33 | 50 | -2.6 | 37 | -1.69 | - | EM | 3 | 3 | 3 | - | 590 | 416 | 186 | 1.39 |
| Emerging Markets◆ | 11/1/1990 | -5.2 | 12 | 1.82 | 10 | -1.74 | 22 | 2.9 | 55 | EM | 3 | 5 | 4 | 2 | 590 | 416 | 186 | 1.05 |
| Europe■ | 10/1/1986 | -10.11 | 41 | 2.98 | 30 | 2.6 | 42 | 2.46 | 47 | ES | 3 | 3 | 3 | 3 | 92 | 77 | 63 | 1.03 |
| FA Diversified Intl■† | 12/17/1998 | -9.63 | 63 | 4.57 | 17 | 3.85 | 21 | 1.74 | 81 | FG | 3 | 3 | 3 | 2 | 320 | 275 | 189 | 1.22 |
| FA Emerging Asia◆† | 3/25/1994 | -11.08 | 51 | 3.8 | 21 | 0.67 | 49 | 7.89 | 37 | PJ | 3 | 2 | 2 | 3 | 74 | 58 | 20 | 1.37 |
| FA Emerging Mkts◆† | 3/29/2004 | -5.71 | 14 | 1.35 | 14 | -2.15 | 29 | 2.85 | 56 | EM | 3 | 4 | 3 | 2 | 590 | 416 | 186 | 1.52 |
| FA Global Cptl Apr◆† | 12/17/1998 | -7.31 | 69 | 9.51 | 5 | 8.53 | 5 | 3.98 | 62 | WS | 3 | 4 | 4 | 2 | 940 | 731 | 409 | 1.57 |
| FA Global Equity Income† | 5/2/2012 | -2.68 | 34 | 7.62 | 19 | - | - | 8.6 | - | WS | 3 | 3 | - | - | 940 | 731 | 409 | 2.42 |
| FA Intl Capital Apr■† | 11/3/1997 | -0.6 | 6 | 7.9 | 4 | 6.45 | 6 | 3.97 | 22 | FG | 3 | 5 | 4 | 2 | 320 | 275 | 189 | 1.58 |
| FA Overseas ■† | 9/3/1996 | -11.75 | 86 | 2.91 | 52 | 1.69 | 68 | 1.96 | 76 | FG | 1 | 1 | 1 | 2 | 320 | 275 | 189 | 1.35 |
| Global Commodity Stock■ | 3/25/2009 | -13.46 | 77 | -4.2 | 48 | -8.51 | 67 | 1.63 | - | SN | 3 | 3 | 3 | - | 127 | 109 | 60 | 1.12 |
| Glb Equity Income■ | 5/2/2012 | -2.63 | 33 | 7.9 | 16 | - | - | 8.78 | - | WS | 4 | 4 | - | - | 940 | 731 | 409 | 1.15 |
| International Capital Apr ■ | 11/1/1994 | -0.23 | 5 | 8.28 | 3 | 6.78 | 4 | 4.22 | 18 | FG | 4 | 5 | 5 | 3 | 320 | 275 | 189 | 1.13 |
| International Discovery■ | 12/31/1986 | -9.34 | 60 | 3.39 | 40 | 3.17 | 32 | 2.81 | 55 | FG | 3 | 3 | 3 | 3 | 320 | 275 | 189 | 0.99 |
| International Growth■ | 11/1/2007 | -3.85 | 21 | 5.36 | 13 | 5.04 | 11 | 2.05 | - | FG | 4 | 4 | 4 | - | 320 | 275 | 189 | 0.97 |
| International Small Cap○ | 9/18/2002 | -1.6 | 2 | 7.92 | 9 | 5.92 | 10 | 5.13 | 8 | FQ | 5 | 5 | 5 | 4 | 73 | 61 | 27 | 1.32 |
| International Sm Cap Opp○ | 8/2/2005 | -4.5 | 46 | 7.27 | 19 | 7.22 | 10 | 2.59 | 88 | FR | 3 | 4 | 4 | 2 | 122 | 105 | 63 | 1.23 |
| International Value■ | 5/18/2006 | -10.54 | 31 | 1.13 | 41 | 0.51 | 42 | 0.25 | 64 | FV | 3 | 3 | 3 | 2 | 281 | 235 | 137 | 1.02 |
| Japan Fund◆ | 9/15/1992 | -3.42 | 52 | 1.78 | 69 | 3.64 | 80 | -0.85 | 85 | JS | 1 | 2 | 1 | 1 | 24 | 21 | 8 | 0.8 |
| Japan Smaller Companies◆ | 11/1/1995 | 6.48 | 8 | 8.48 | 22 | 12.08 | 5 | 2.04 | 57 | JS | 3 | 3 | 4 | 2 | 24 | 21 | 8 | 1 |
| Latin America Fund◆ | 4/19/1993 | -6.82 | 63 | -10.71 | 85 | -12.08 | 79 | -0.29 | 100 | LA | 2 | 1 | 2 | - | 28 | 20 | 11 | 1.13 |
| Nordic◆ | 11/1/1995 | 4.48 | - | 12.25 | - | 7.84 | - | 6.19 | - | MQ | - | - | - | - | - | - | - | 1 |
| Overseas■ | 12/4/1984 | -5.68 | 12 | 6.51 | 3 | 5.11 | 4 | 2.69 | 23 | FB | 5 | 5 | 5 | 4 | 720 | 631 | 380 | 1.04 |
| Pacific Basin◆ | 10/1/1986 | 1.36 | 1 | 8.9 | 1 | 7.22 | 1 | 6.52 | 7 | DP | 4 | 5 | 4 | 3 | 35 | 32 | 16 | 1.17 |
| Series Emerging Markets~ | 12/9/2008 | -9.69 | 47 | 0.43 | 22 | -2.23 | 31 | 9.06 | - | EM | 3 | 4 | 3 | - | 590 | 416 | 186 | 1.04 |
| Series Intl Growth~ | 12/3/2009 | -3.71 | 20 | 5.47 | 11 | 4.93 | 12 | 6.38 | - | FG | 4 | 4 | 4 | - | 320 | 275 | 189 | 0.92 |
| Series Intl Small Cap~ | 12/3/2009 | -6.09 | 61 | 6.32 | 28 | 6.39 | 20 | 8.55 | - | FR | 4 | 3 | 4 | - | 122 | 105 | 63 | 1.1 |
| Series International Value~ | 12/3/2009 | -10.63 | 32 | 1.16 | 40 | 0.64 | 38 | 1.36 | - | FV | 3 | 3 | 3 | - | 281 | 235 | 137 | 0.89 |
| Total EM◆ | 11/1/2011 | -2.47 | 5 | 2.85 | 4 | - | - | 2.91 | - | EM | 5 | 5 | - | - | 590 | 416 | 186 | 1.72 |
| Total Intl Equity■ | 11/1/2007 | -6.37 | 15 | 2.95 | 24 | 2.2 | 21 | -1.03 | - | FB | 4 | 4 | 4 | - | 720 | 631 | 380 | 1.07 |
| Worldwide■ | 5/30/1990 | -5.28 | 52 | 7.09 | 25 | 6.92 | 22 | 5.91 | 14 | WS | 4 | 4 | 4 | 4 | 940 | 731 | 409 | 0.96 |

Short-term Trading Fee (STF), as of Jun. 30, 2016. Source: Morningstar, Fidelity Investments, as of Jun. 30, 2016. Net of fees.

STF Key: □ = 0.75% < 30 days, ■ = 1.00% < 30 days, ● = 1.00% < 60 days, ◆ = 1.50% < 90 days, ◻ = 0.75% < 90 days, ❖ = 1.00% < 90 days, ○ = 2.00% < 90 days.

~Closed to new investors. *Morningstar no longer ranks funds in this category.

Performance data shown represents past performance and is no guarantee of future results. Investment return and principal value will fluctuate, so you may have a gain or loss when shares are sold. Current performance may be higher or lower than that quoted. Visit fidelity.com or advisor.fidelity.com for most recent month-end performance.

†Class A at NAV shares have a maximum front-end sales charge of 5.75% and a 12b-1 fee. POP (public offering price) returns include the effect of the maximum sales charge. NAV (net asset value) returns do not.



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Endnotes

¹ References to "international ETFs" denotes both foreign developed and emerging-market ETFs (i.e., non-U.S.), unless otherwise noted.

² Morningstar, "2015 Fee Study: Investors Are Driving Expense Ratios Down."

³ Alexander Dyck, Karl V. Lins, Lukasz Pomorski, *The Review of Asset Pricing Studies*, "Does Active Management Pay? New International Evidence," Aug. 11, 2015.

⁴ FactSet, as of Aug 31, 2016. Data presented for the MSCI World Index, which represents 23 developed and 23 emerging-market countries, covering approximately 85% of the global investable equity opportunity set.

⁵ Nominal GDP in current U.S. dollars via the IMF World Economic Outlook Database, as of Apr. 2016.

⁶ MSCI All Country benchmark returns, 1986-2015.

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For Active and Passive, Low-Fee Funds with Size Advantages Continue to Lead

In U.S. large-cap, the average lower-cost stock funds from the largest fund shops continued to outperform their industry peers.

Tim Cohen | Head of Global Equity Research

Darby Nielson, CFA | Managing Director of Research, Equity and High Income

Brian Leite, CFA | Head of Institutional Portfolio Management

Andy Browder | Quantitative Analyst

Key Takeaways

- Many equity investors are unsure how or where to find superior actively managed funds.
- Despite a tough year in 2016, the average international large-cap and U.S. small-cap funds continue to beat their benchmarks over the long term (1992 to 2016).
- The average actively managed U.S. large-cap fund lagged its benchmark (1992 to 2016); however, when applying straightforward filters (selecting funds with lower fees from larger fund families), the average fund beat its industry peers and its benchmark.
- Similarly, the average larger and lower-fee passive index fund outperformed its passive peer group (1992 to 2016).
- Investors may want to think twice before accepting industry-average results as representative.

Undeniably, 2016 was a tough year for active stock fund managers. For international, U.S. small-cap, and U.S. large-cap stock funds, the average active fund underperformed its benchmark for the year. However, the average international and small-cap active funds are still ahead of their benchmarks over the long term, while the average U.S. large-cap fund lags (Exhibit 1, next page).

But these overall averages are not really representative of the active funds investors tend to favor. In 2015, Fidelity published a research article addressing the performance of actively managed U.S. large-cap funds.¹ The research examined the results of using lower fees and larger fund companies as two objective “filters” in selecting funds. These filters succeeded in narrowing the wide range of U.S. large-cap stock funds down to a smaller group that, on average, outperformed the industry as a whole and outperformed their benchmarks.

Likewise, applying similar filters to passive index funds also found a set of funds that, on average, beat their peers. Although the performance of any individual fund

is not guaranteed, these results suggest that investors may benefit from using these simple filters to help select a set of appropriate funds for further consideration. (These filters were chosen by Fidelity; had other filters or filter parameters been used, results would have been different.)

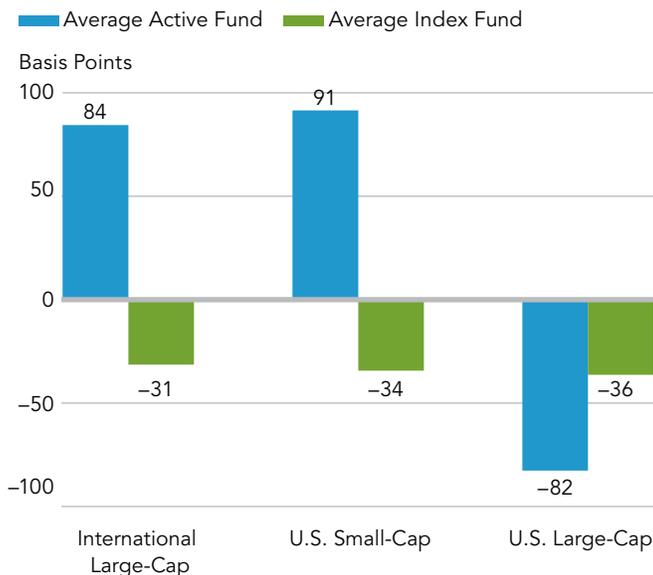
Exhibit 2 shows the long-term averages and the effect of using our two filters. By looking only at funds with the lowest fees, the average active fund improved to trailing its benchmark by 59 basis points (0.59%) per year.² Even better, by only selecting funds from the five largest

fund families (those with presumably greater scale and resources), the average active fund trailed its benchmark by only seven basis points (0.07%). And by choosing funds using both filters together, the average fund outperformed over the long run, beating its benchmark by eight basis points.

The filters improve the average for passive index funds as well. Over the long term, the average U.S. large-cap index fund trailed its benchmark by 36 basis points, but that average performance improves to trailing by four basis

EXHIBIT 1: In some categories, the average active fund has outperformed its index over time.

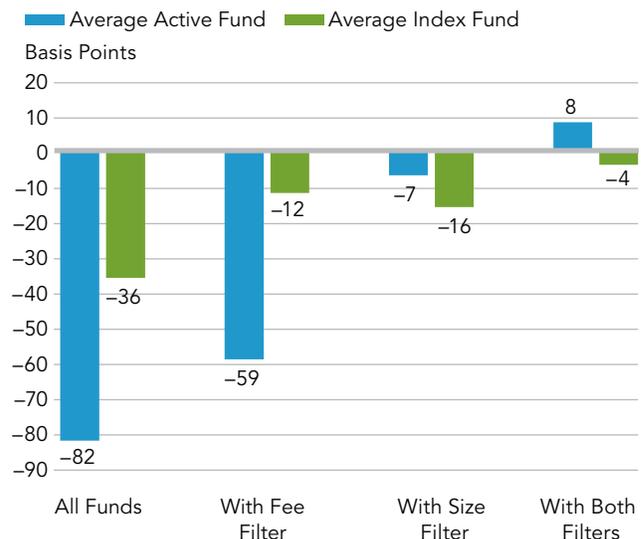
Average yearly excess returns for equity mutual funds, 1992–2016



Fund data from Morningstar, including closed and merged funds. International funds labeled as “foreign large growth/value/blend” by Morningstar. Average excess returns: the average of all monthly one-year rolling excess returns for all funds in the set under analysis, using overlapping one-year periods and data from Jan. 1, 1992, to Dec. 31, 2016. Excess returns are returns relative to the primary prospectus benchmark of each fund, net of fees. Basis point: 1/100th of a percentage point. Past performance is no guarantee of future results. This chart does not represent actual or future performance of any individual investment option. See endnotes for important information. Source: Morningstar, Fidelity Investments, as of Mar. 15, 2017.

EXHIBIT 2: Using filters for lower fees and larger fund families selects funds with higher average performance.

Average yearly excess returns for U.S. large-cap equity mutual funds



Fund data from Morningstar, including closed and merged funds. Excess returns are returns relative to the primary prospectus benchmark of each fund, net of fees. Average excess returns: the average of all monthly one-year rolling excess returns for all funds in the set under analysis, using overlapping one-year periods and data from Jan. 1, 1992, to Dec. 31, 2016. The fee filter selects only funds in the lowest quartile of expense ratio. The size filter selects by assets under management in U.S. large-cap equity funds; for active, the filter selects from the top five fund families by assets under management (AUM); for passive, selects for top 10% of funds by AUM, for comparable selectivity. Filtered sets are rebalanced monthly, using reported AUM and expense ratio; forward one-year returns are used for each filtered set. Basis point: 1/100th of a percentage point. Past performance is no guarantee of future results. This chart does not represent actual or future performance of any individual investment option. See endnotes for important information. Filters were selected by Fidelity; other filters or filter parameters may produce different results. Source: Morningstar, Fidelity Investments, as of Mar. 15, 2017.

points when the fee and size filters are both applied (as one would expect from passive index funds, which seek only to match a benchmark performance before fees).

Understanding the filters

The fee and fund-family size filters were chosen to be objective, straightforward, and intuitive.

The fee filter selects funds in the lowest 25% of reported expense ratios for each fund type (active or passive).³

Funds with lower total expense ratios are able to deliver more of their gross returns to investors after fees.

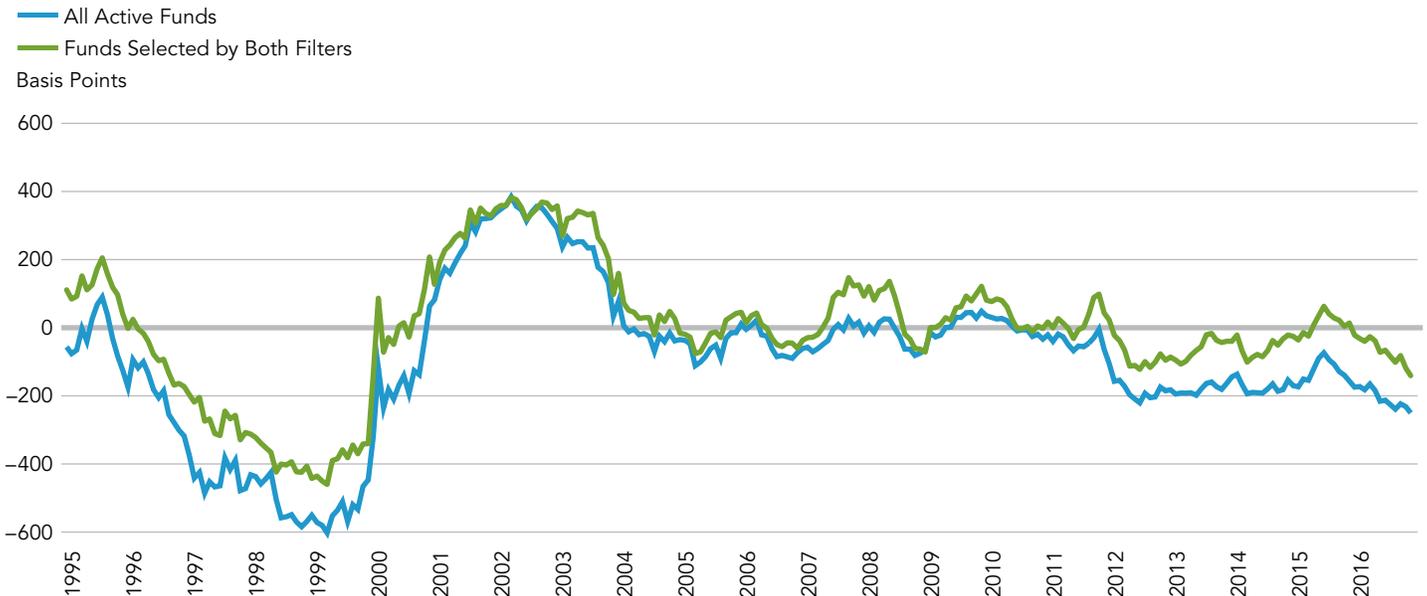
Because fees are clearly disclosed, investors can use this information to help them select funds. For 2016, the average filter cutoff for the lowest-fee U.S. large-cap

funds was 80 basis points for actively managed funds, and 12 basis points for passive funds.

The size filter focuses on assets under management (AUM), considering AUM to be a reasonable proxy for scale. For active funds, the filter selected funds from the five mutual fund families with the most combined assets in all of their active U.S. large-cap equity funds. Larger fund companies could use size to their advantage by committing more resources to research and trading, and the benefits of those resources can be shared across all the companies' active U.S. large-cap funds. For passive index funds, the filter selected the top 10% of funds by size, in order to confer a similar selectivity and potential advantage (see endnotes for more information).

EXHIBIT 3: The average U.S. large-cap active fund with lower fees and higher fund-family AUM outperformed its industry-average peer 98% of the time.

Average rolling three-year excess returns for active U.S. large-cap equity mutual funds



Fund data from Morningstar, including closed and merged funds. Average excess returns: the average of all three-year rolling excess returns for all funds in the set under analysis, calculated monthly using data from Jan. 1, 1992, to Dec. 31, 2016. Excess returns are returns relative to the primary prospectus benchmark of each fund, net of fees. Basis point: 1/100th of a percentage point. Past performance is no guarantee of future results. This chart does not represent actual or future performance of any individual investment option. See endnotes for important information. Filters were selected by Fidelity; other filters or filter parameters may produce different results. Source: Morningstar, Fidelity Investments, as of Mar. 15, 2017.

In the mutual fund industry, differences in fund-family size can be quite large. At the end of 2016, the median AUM for actively managed U.S. large-cap for all fund families was around \$235 million, while the median for the top five fund families was more than \$200 billion—more than 850 times larger.⁴ The largest five fund families held approximately 50% of the industry's assets, while the smallest 50% of fund families (169 of 337) held less than 0.5% of AUM. As a result, any average analysis of the entire industry will include a high proportion of active fund families that may lack comparable resources to compete.

Better average performance is consistent with filters

Although past performance is no guarantee of future results, these filters have been remarkably consistent in identifying sets of funds with above-average relative performance over time. For rolling three-year returns, the average actively managed fund selected by both filters beat the industry average a full 98% of the time. Exhibit 3 shows how consistent this outperformance has been, and by how much. In addition, a statistical test indicates one can be 99% certain that the historical long-term outperformance of the filtered average fund relative to the industry is significant, not just random chance.⁵

Implications for investors

Although these filters are not the only way to search for better-performing U.S. large-cap stock funds,

active fund investors may find them useful. These simple objective criteria succeeded in identifying a subset of actively managed funds that have consistently outperformed the industry average, and outperformed their benchmarks on average (while a comparably selected subset of passive index funds still underperformed). General active fund investors who wonder about returns may also find it helpful to know that the average active international large-cap and U.S. small-cap funds have beaten their benchmarks over the long term, even without any filters applied (Exhibit 1).

Passive index fund investors may also find it helpful to know that low-fee funds from larger managers have done better than the overall industry, on average. Although they all strive to match the benchmark index before fees, not all index funds provide the same returns to investors after fees.

Of course, averages never tell the whole story, and any one particular fund may do better or worse than the average, particularly over short time horizons. Prudent, informed research is always an important part of identifying funds that fit an investor's objectives. However, we believe the results of applying these objective filters continue to suggest that searching for low-cost funds from large fund managers can be a helpful starting point for investors seeking to identify above-average U.S. large-cap funds.

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Quantitative Analyst Richard Biagini also contributed to this article. Fidelity Thought Leadership Vice President Vic Tulli, CFA, provided editorial direction.



Endnotes

1. See Leadership Series article "U.S. Large-Cap Equity: Can Simple Filters Help Investors Find Better-Performing Actively Managed Funds?" (May 2015). **2.** A basis point is 1/100th of a percentage point. **3.** Expense ratio is the total annual fund operating expense ratio as reported in the fund's most recent prospectus. **4.** Data as of December 31, 2016. Source: Morningstar, Fidelity Investments. **5.** After making an adjustment for overlapping data, the statistical significance of this outperformance was evaluated in a two-tailed test, and resulted in a test-statistic of 4.43. A two-tailed test is a method for computing the statistical significance of a parameter inferred from a data set, in terms of a test statistic. In this case, the test statistic of 4.43 indicates a 99% likelihood that the results are significant and not random.

General Methodology

Fund selection: Our main analysis focused on all U.S. large-cap, foreign large-cap ("international large-cap"), and U.S. small-cap equity mutual funds tracked by Morningstar between Jan. 1, 1992, and Dec. 31, 2016, including all blend, value, and growth funds within each category and including actively managed and passive index funds. We included funds that did not exist for the entire period (closed or merged funds), to reduce survivorship bias. We eliminated funds identified as passive that were labeled as "enhanced index," and eliminated funds with tracking error greater than 1% (which are unlikely to be actual passive index strategies despite their identification in the database). For international large-cap funds, we eliminated funds benchmarked to a price index, for greater comparability. See below for benchmark indexes included and definitions. • Our analysis began with the entire set of funds with available data from Morningstar at any point over the full period. We selected the oldest share class for each fund as representative; where more than one share class was the oldest available, we chose the class labeled as "retail." • For U.S. large-cap equity, there were 2,016 actively managed mutual funds and 120 passive index mutual funds over the whole period, and average fund counts for each subset of selected funds are as follows: Unfiltered (full set of funds available): active 836, passive 50. Fee filter only: active 221, passive 13. Size filter only: active 79, passive 5. Both filters applied: active 46, passive 3. Total fund counts for international large-cap equity funds: active 454, passive 29; average fund counts for performance calculation: active 222, passive 12. Total fund counts for U.S. small-cap equity funds: active 728, passive 43; average fund counts for performance calculation: active 302, passive 20.

Averaging excess returns: We used Morningstar data on returns from Jan. 1, 1992, through Dec. 31, 2016. We calculated each fund's excess returns on a one-year rolling basis, relative to each fund's primary prospectus benchmark and net of reported expense ratio, for each month. We used an equal-weighted average to calculate overall industry one-year returns for each month. (We chose equal weighting for the averages in order to represent the average performance of the range of individual funds available to investors, rather than asset weighting, which may introduce bias into an analysis.) For filtered subsets of funds, average excess returns ascribed were the one-year forward rolling returns, calculated monthly. All filtered subsets were rebalanced monthly. If a fund closed or was merged during a one-year rolling period, its returns were recorded for the months that it was in existence, and the weighting of the remaining funds in the subset was increased proportionally for the remainder of the year. **Filters:** We used Morningstar data on fund expense ratios to represent fees. The fee filter is rebalanced monthly; over the full period, the average cutoff for lowest quartile of fees was 85 basis points (bps) for active, 19 bps for passive. The size filter is rebalanced monthly. The size filter used a different methodology for active and passive in order to generate comparable selectivity; for passive funds, using the same filter as for active funds produced an average annual excess return of -36 bps for the filtered subset in the initial research (using data from Jan. 1, 1992, through Dec. 31, 2014, for the previously published study), while using a filter that selected for the top 10% of passive index funds by AUM (approximating the selectivity of the top five fund family filter for actively managed funds) produced a better average annual excess return of -16 bps. **Indexes:** Funds in the study included active and passive funds tracked by Morningstar and benchmarked to the following indexes: U.S. large-cap equity (all in USD): Russell 1000; Russell 1000 Growth; Russell 1000 Value; Russell 3000; Russell 3000 Growth; Russell 3000 Value; S&P 500. Foreign (international) large-cap equity (all in USD): MSCI ACWI Ex USA; MSCI ACWI Ex USA Growth; MSCI ACWI Ex USA Value; MSCI EAFE; MSCI EAFE Growth; MSCI EAFE Value; MSCI World Ex USA; MSCI World Ex USA Growth; MSCI World Ex USA Value. U.S. small-cap equity (all in USD): Russell 2000; Russell 2000 Growth; Russell 2000 Value; S&P SmallCap 600.

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Definitions

Excess return: the amount by which a portfolio's performance exceeds its benchmark, net (in the case of the analysis in this article) or gross of operating expenses, in percentage points.

Index definitions:

MSCI ACWI (All Country World Index) ex USA Index is a market-capitalization-weighted index designed to measure the investable equity market performance for global investors of large and mid-cap stocks in developed and emerging markets, excluding the United States. **MSCI ACWI (All Country World Index) ex USA Growth (Value) Index** is a market capitalization-weighted index designed to measure the investable equity market performance of growth (value) stocks for global investors of large and mid-cap stocks in developed and emerging markets, excluding the United States. **MSCI EAFE Index** is a market capitalization-weighted index that is designed to measure the investable equity market performance for global investors in developed markets, excluding the U.S. & Canada. **MSCI EAFE Growth (Value) Index** is a market capitalization-weighted index that is designed to measure the investable equity market performance of growth (value) stocks for global investors in developed markets, excluding the U.S. & Canada. **MSCI World ex USA Index** is a market capitalization weighted index that is designed to measure the investable equity market performance for global investors of developed markets, excluding the United States. **MSCI World ex USA Growth (Value) Index** is a market capitalization weighted index that is designed to measure the investable equity market performance of growth (value) stocks for global investors of developed markets, excluding the United States. **Russell 1000 Index** is a market capitalization-weighted index designed to measure the performance of the large-cap segment of the U.S. equity market. **Russell 1000 Growth Index** is a market capitalization-weighted index designed to measure the performance of the large-cap growth segment of the U.S. equity market. It includes those Russell 1000 Index companies with higher price-to-book ratios and higher forecasted growth rates. **Russell 1000 Value Index** is a market capitalization-weighted index designed to measure the performance of the large-cap value segment of the U.S. equity market. It includes those Russell 1000 Index companies with lower price-to-book ratios and lower expected growth rates. **Russell 2000 Index** is a market capitalization-weighted index designed to measure the performance of the small-cap segment of the U.S. equity market. It includes approximately 2,000 of the smallest securities in the Russell 3000 Index. **Russell 2000 Growth Index** is a market capitalization-weighted index designed to measure the performance of the small-cap growth segment of the U.S. equity market. It includes those Russell 2000 Index companies with higher price-to-book ratios and higher forecasted growth rates. **Russell 2000 Value Index** is a market capitalization-weighted index designed to measure the performance of the small-cap value segment of the U.S. equity market. It includes those Russell 2000 Index companies with lower price-to-book ratios and lower forecasted growth rates. **Russell 3000 Index** is a market capitalization-weighted index designed to measure the performance of the 3,000 largest companies in the U.S. equity market. **Russell 3000 Growth Index** is a market capitalization-weighted index designed to measure the performance of the broad growth segment of the U.S. equity market. It includes those Russell 3000 Index companies with higher price-to-book ratios and higher forecasted growth rates. **Russell 3000 Value Index** is a market capitalization-weighted index designed to measure the performance of the broad value segment of the U.S. equity market. It includes those Russell 3000 Index companies with lower price-to-book ratios and lower forecasted growth rates. **S&P 500 Index** is a market capitalization-weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation to represent U.S. equity performance. **S&P SmallCap 600 Index** is a market capitalization-weighted index of 600 small-capitalization stocks.

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Why Active Now in U.S. Large-Cap Equity

With changing economic and market conditions, the time may be right for actively managed U.S. large-cap funds to take the lead.

Darby Nielson, CFA | Managing Director of Research

Brian Hogan, CFA | President, Equity Group

Tim Cohen | Head of Global Equity Research

Key Takeaways:

- For actively managed U.S. large-cap equity funds, market and economic conditions can help or hinder outperformance, sometimes for years at a time.
- The past few years have been an environment favoring passive index investing in U.S. large-cap mutual funds.
- Going forward, higher dispersion of stock returns and rising interest rates may provide more opportunities for active stock selection to outperform.
- In particular, higher returns and return dispersion in U.S. mid-caps and the deflation of valuations in defensive sectors may favor actively managed funds.

U.S. large-cap equity is the largest equity holding in many investors' portfolios. It is also the most hotly contested ground in the "active vs. passive" debate, perhaps because the category includes all the large, well-known U.S. companies and is tracked by familiar benchmark indexes.

Money has been flowing rapidly into passive index mutual funds and exchange-traded funds (ETFs). Looking at one-year excess returns after fees, the average active U.S. large-cap fund has generally underperformed the average passive index fund over the past six years (Exhibit 1, next page). These results have likely contributed to a shift toward favoring passive index funds, as an estimated \$237 billion flowed into U.S. passive index mutual funds in 2016, while \$264 billion flowed out of actively managed funds.¹

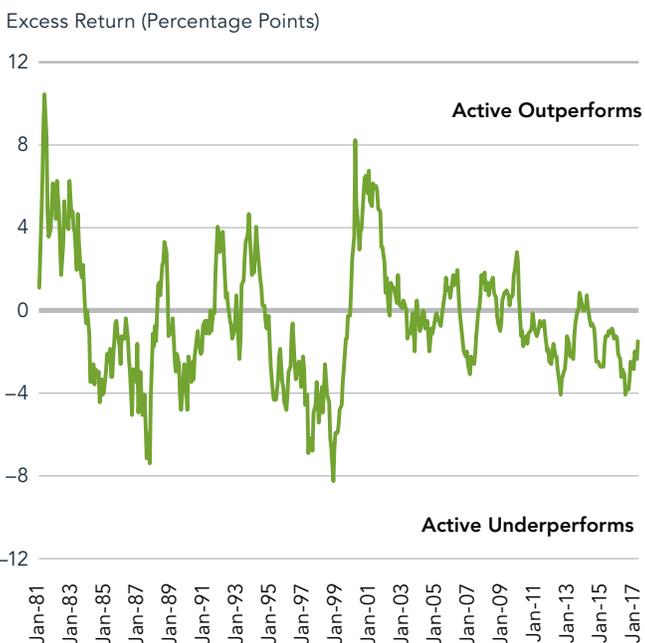
However, investors should be aware that over the past few decades, performance leadership has been cyclical, and there have been multiyear periods when the average

actively managed U.S. large-cap fund outperformed its benchmark index, as evident in Exhibit 1. A switch in the cycle can begin rapidly—particularly when market conditions change fast—and a new phase can last for several years. We believe the time may be right for the cycle to change again, with a shift to actively managed U.S. large-cap funds taking the lead as a group.

Prediction is an inexact science, and no single factor has been definitive in determining past cycles. We believe a combination of influences may create conditions that favor actively managed U.S. large-cap funds for a new multiyear cycle, as described in this article.

EXHIBIT 1: Although U.S. large-cap active funds have lagged recently, they have earned more favorable returns during many periods.

Average U.S. Large-Cap Mutual Fund One-Year Excess Return



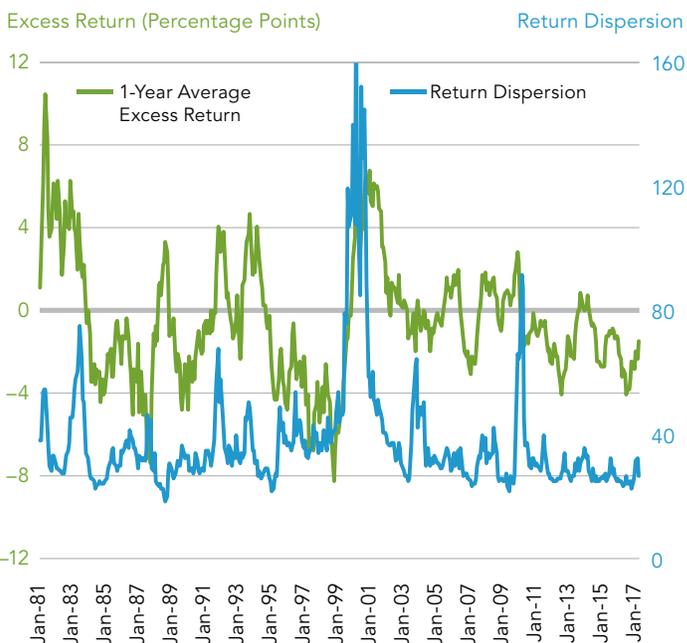
Excess return: return relative to the primary prospectus benchmark of each fund, net of fees. Chart shows the monthly equal-weighted average rolling one-year excess return for the oldest share class of all mutual funds in the Morningstar database classified as active U.S. large-cap, including growth, value, and blend, and including closed or merged funds, Jan. 31, 1980, to Apr. 30, 2017. If multiple share classes were oldest, the current largest by assets was used. Total fund count was 2030; average monthly fund count was 741. Past performance is no guarantee of future results. This chart shows an average and does not represent actual or future performance of any individual investment option. Source: Morningstar, Fidelity Investments, as of May 30, 2017.

Higher dispersion may create more opportunities for active

Actively managed funds attempt to generate excess returns (returns above that of the fund’s designated benchmark index) by selecting a portfolio of securities that differs from the benchmark. Because this intentional security selection is the key, skilled active managers should perform better when the market gives more rewards for buying the winners and avoiding the losers in the benchmark index. This market condition can be quantified by “dispersion of returns,” which measures the difference of all the individual stock returns from the overall index.

EXHIBIT 2: Higher return dispersion has been a tailwind for active outperformance in the past.

Average U.S. Large-Cap Mutual Fund One-Year Excess Return and Market Return Dispersion



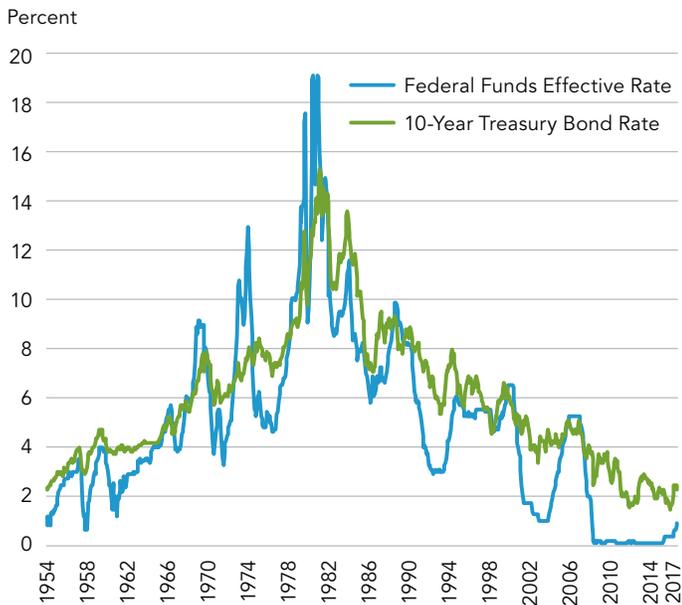
Excess return: return relative to the primary prospectus benchmark of each fund, net of fees; see additional disclosure in Exhibit 1. Return dispersion: standard deviation of rolling one-year stock returns within the Russell 1000 Index (R1), Jan. 31, 1980 to Mar. 31, 2017. Standard deviation: a measure of the dispersion of a set of data from its mean. Past performance is no guarantee of future results. This chart shows an average and does not represent actual or future performance of any individual investment option. Source: Morningstar (excess return), Compustat (return dispersion), Fidelity Investments, as of May 30, 2017.

On average, active managers have generated better excess returns when market dispersion was higher (Exhibit 2, previous page), although other factors have contributed as well. However, in the years since the end of the Global Financial Crisis (GFC), dispersion has remained at the low end of the historical range for an extended period.

The economic cycle following the GFC has been influenced by the U.S. Federal Reserve (Fed) maintaining extremely low interest rates. A change to that environment could stimulate higher return dispersion, and may help set the stage for actively managed funds to outperform once again.

EXHIBIT 3: Since the GFC, interest rates have been historically low.

U.S. Interest Rates



Source: Federal Reserve Economic Data, Fidelity Investments, as of May 5, 2017.

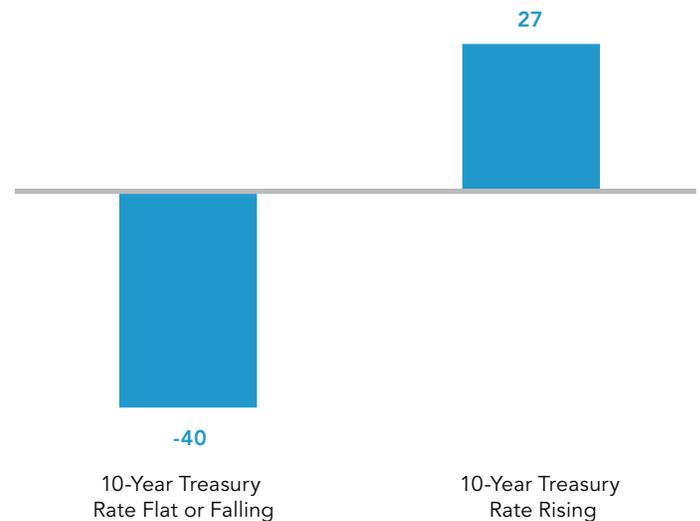
Rising interest rates could spur tailwinds for active

We believe that the next several years will likely be a period of rising interest rates. In particular, the Fed’s intention to keep interest rates at a historically low level following the Global Financial Crisis of 2007 to 2008 (Exhibit 3) seems to have come to an end.

Over the past few decades, actively managed U.S. large-cap funds have tended to outperform in months when interest rates were rising, and tended to underperform when rates were falling or flat (Exhibit 4). But with the long-term trend of falling rates over the past 36 years, the period has featured fewer months with rising rates.

EXHIBIT 4: Active management has performed better when longer-term rates are rising.

Average Excess Return of Active U.S. Large-Cap Funds, 1980 to 2016 (basis points)



Excess return: average actively managed fund’s return relative to the primary prospectus benchmark of each fund, net of fees. Positive numbers indicate outperformance. Basis point: 1/100th of a percentage point. Chart shows the average excess returns for all mutual funds in the Morningstar database classified as active U.S. large-cap, including growth, value, and blend, and including closed or merged funds, Jan. 31, 1980 to Apr. 30, 2016, measured monthly and rescaled in annual terms. Rising: months when the 10-year Treasury bond rate has risen by 2% of the previous month’s rate or more (216 months). Flat or Falling: all other months (446 months). Past performance is no guarantee of future results. This chart shows averages and does not represent actual or future performance of any individual investment option. Source: Morningstar, Bloomberg Finance L.P., Fidelity Investments, as of May 30, 2017.

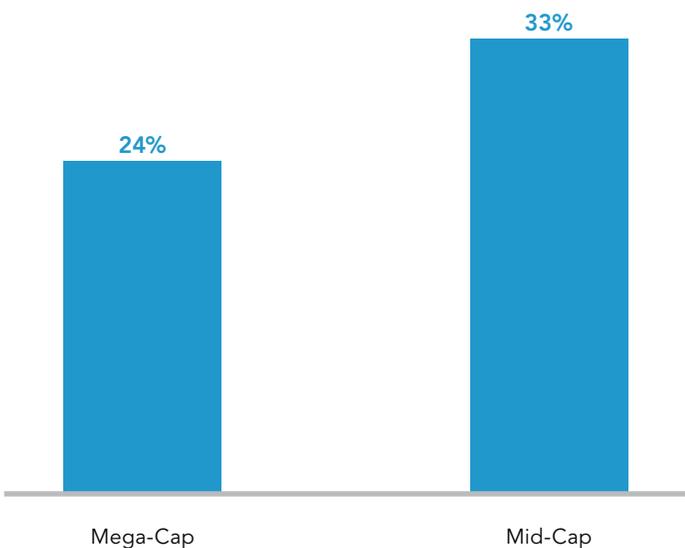
Why would actively managed funds benefit from rising rates? Every market cycle is different in the exact details, and many factors may make a difference. However, we believe the coming cycle may be characterized by a return to higher active opportunity in two key areas detailed in the sections below: smaller-capitalization stocks within U.S. large-cap, and non-defensive equity sectors.

Going smaller for more opportunity

In the U.S. large-cap market, there are companies that represent a broad range of market capitalizations. The

EXHIBIT 5: Mid-caps tend to offer greater stock-selection opportunity than mega-caps.

Dispersion of Stock Returns, 1980 to 2017



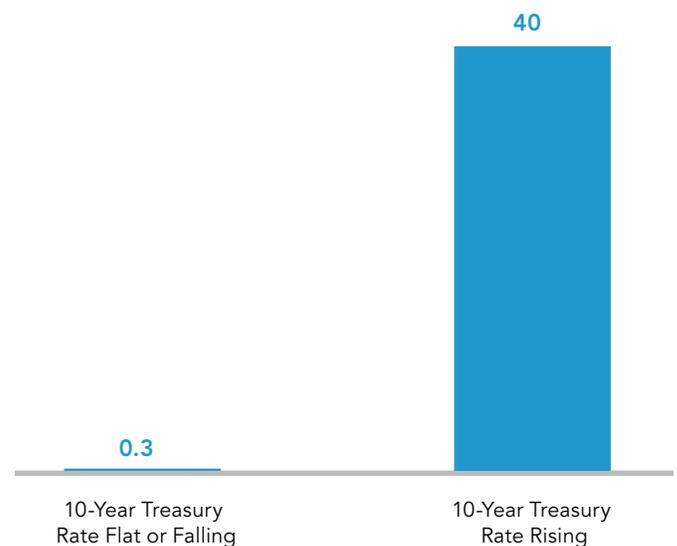
Dispersion: monthly standard deviation of stock returns within the R1, Jan. 31, 1980 to Mar. 31, 2017, annualized. Standard deviation: a measure of the dispersion of a set of data from its mean. Mega-cap: the largest 200 companies in the R1 by market capitalization. Mid-cap: the next largest 800 companies in the R1 by market capitalization. Source: Compustat, Fidelity Investments, as of May 30, 2017.

largest 200 companies in the Russell 1000 Index (R1), the “mega-caps,” have market capitalizations in the hundreds of billions, while the smaller “mid-cap” companies have capitalizations from the tens of billions down to \$1 to \$2 billion.

Over the past few decades, mid-cap stocks have had higher dispersion of returns than mega-caps (Exhibit 5). Remember, higher dispersion in a group of stocks suggests potentially greater opportunity for skillful stock selection to earn higher excess returns. Perhaps as a result, the average actively managed U.S. large-cap fund

EXHIBIT 6: Mid-cap stocks have averaged better returns during periods of rising rates.

Average Mid-Cap Stock Return Relative to Overall Market Return, 1980 to 2017 (basis points)

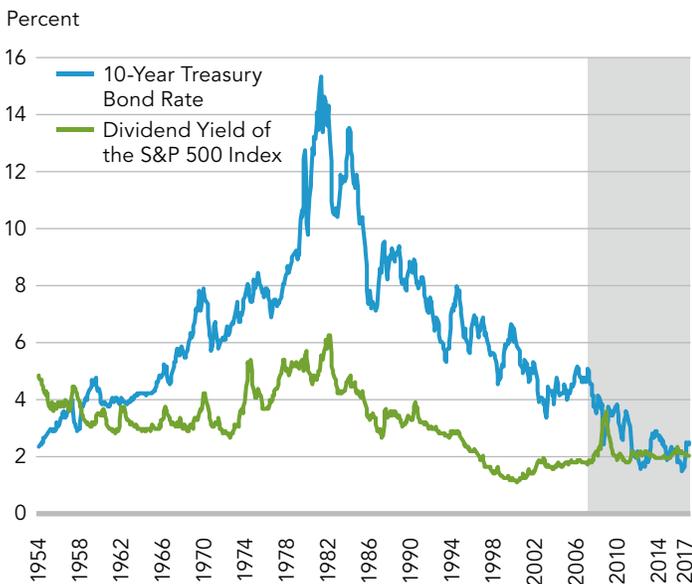


Average relative return calculated as the average return of mid-cap stocks minus the return of the R1, measured monthly and rescaled in annual terms, using data from Jan 31, 1980 to Mar. 31, 2017. Positive numbers indicate outperformance of mid-caps over the R1. Basis point: 1/100th of a percentage point. Mid-cap: the smallest 800 companies in the R1 by market capitalization. Rising: months when the 10-year Treasury bond rate has risen by 2% of the previous month's rate or more (216 months). Flat or Falling: all other months (446 months). Past performance is no guarantee of future results. This chart shows averages and does not represent actual or future performance of any individual investment option. Source: Compustat, Bloomberg Finance L.P., Fidelity Investments, as of May 30, 2017.

tends to hold relatively more mid-cap exposure than its benchmark index.² It makes intuitive sense that when active portfolio managers search for outperforming companies, they would focus on the smaller companies within the index, searching for the faster growers that will become the mega-caps of tomorrow.

Historically, mid-cap companies have outperformed the overall index during periods of rising rates (Exhibit 6, previous page). A change in the trend for interest rates may therefore benefit active managers who skillfully distinguish between mid-cap winners and losers.

EXHIBIT 7: The gap between equity dividend yield and longer-term Treasury rates is smaller than it has been in decades.



Dividend Yield of the S&P 500 Index: aggregate dividend divided by price. Past performance is no guarantee of future results. Source: Federal Reserve Economic Data (bond rate), Robert J. Shiller / "U.S. Stock Markets 1871–Present and CAPE Ratio" (dividend yield), Fidelity Investments, as of May 5, 2017.

Unusually high valuations for dividend-stocks may deflate

Over the long term, stock prices have generally correlated to the earnings potential of the underlying companies. But in the short term, that relationship can sometimes fade. For example, during the "dot-com" bubble of the late 1990s and early 2000s, the price of technology companies increased out of proportion to traditional metrics based on earnings or revenue. When the bubble popped, actively managed funds that avoided buying overpriced tech companies generally earned better returns than the index.

A different sort of valuation dynamic may be occurring in the current market. With the Federal Reserve holding the federal funds rate historically low for the past several years, the yield on 10-year Treasury bonds has been comparable to the dividend yield of U.S. large-cap stocks for the first time since the 1960s (Exhibit 7, shaded area). As a result, many income-seeking investors have replaced bonds with high-dividend stocks in their portfolios. High-dividend stocks tend to be in the "defensive" market sectors (consumer staples, real estate, telecommunication services, and utilities). These sectors also tend to have slower growth, but have been more resilient to changes in economic cycles.

The increased demand has inflated the prices of stocks in defensive sectors, pushing their price-to-earnings (P/E) ratios (a measure of how much stock investors pay for each dollar of earnings) to a twenty-year high relative to the rest of the market (Exhibit 8, next page). Many actively managed funds try to avoid overweighting stocks that are priced much higher than typical valuations. In addition, actively managed funds that focus on earnings

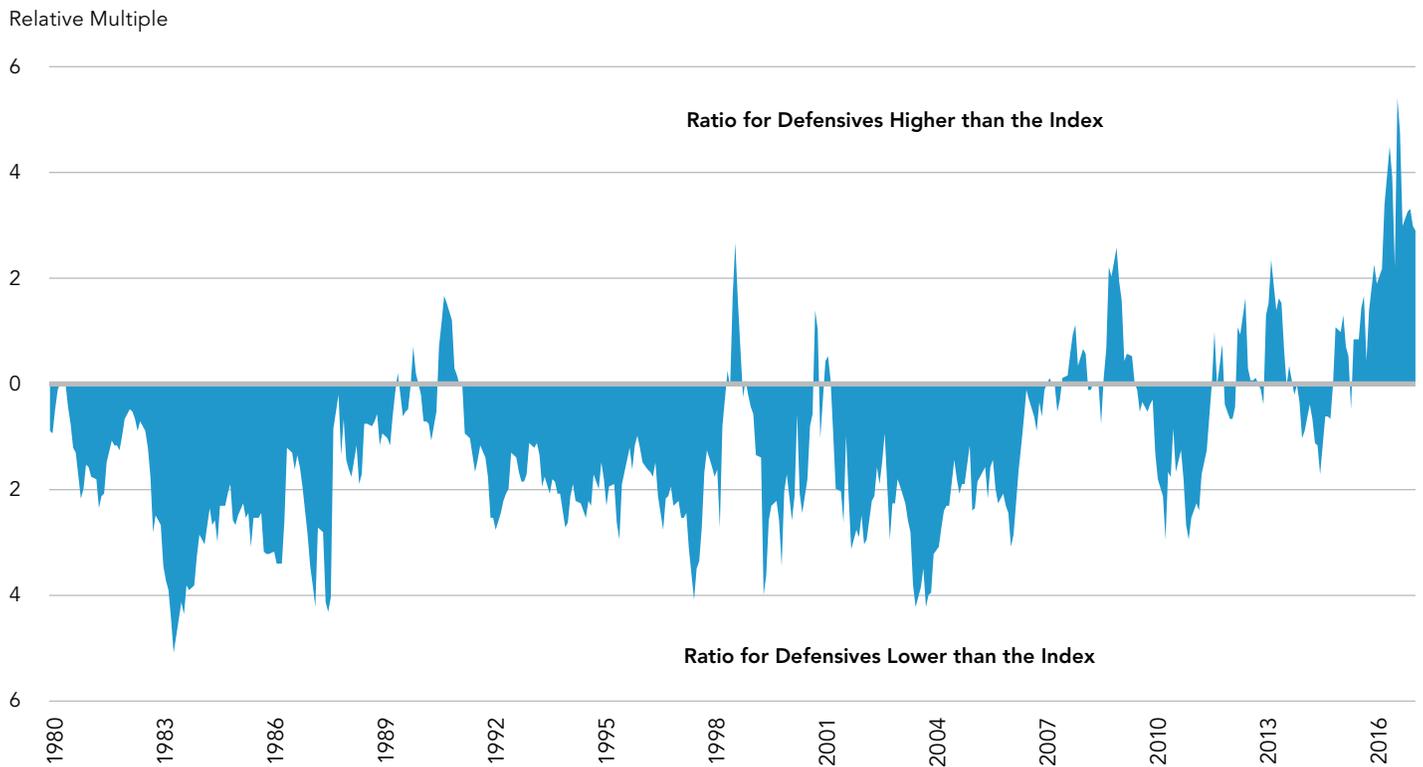
growth tend to underweight the defensive sectors, in part because those defensive companies have grown their earnings more slowly than other U.S. large-cap sectors (Exhibit 9, next page).

If returns for defensive sectors revert to more typical levels, actively managed funds may have more opportunity to outperform. In particular, if Treasury bond yields rise, demand for high-dividend stocks in defensive

sectors may go back to more customary levels, the price-to-earnings ratio of those stocks may drop, and returns may deflate. We have already seen P/E ratios come down from their peak, and this trend may continue. Over the longer term, the non-defensive sectors have tended to beat the index when rates rise—another potential benefit for actively managed funds that maintain greater exposure to those sectors (Exhibit 10, next page).

EXHIBIT 8: The relative P/E ratio for defensive stocks recently hit a 20-year peak.

Median P/E ratio for defensive stocks minus median index ratio



P/E ratio: stock price divided by earnings; here, trailing-12-month GAAP diluted earnings are used. Median index ratio: P/E ratio for the median stock in the R1. Defensive stocks: stocks in the R1 in the consumer consumer staples, real estate, telecommunication services, and utilities sectors. Source: Compustat (earnings), FactSet (prices), Standard & Poor's (sector classifications), Fidelity Investments, as of May 30, 2017.

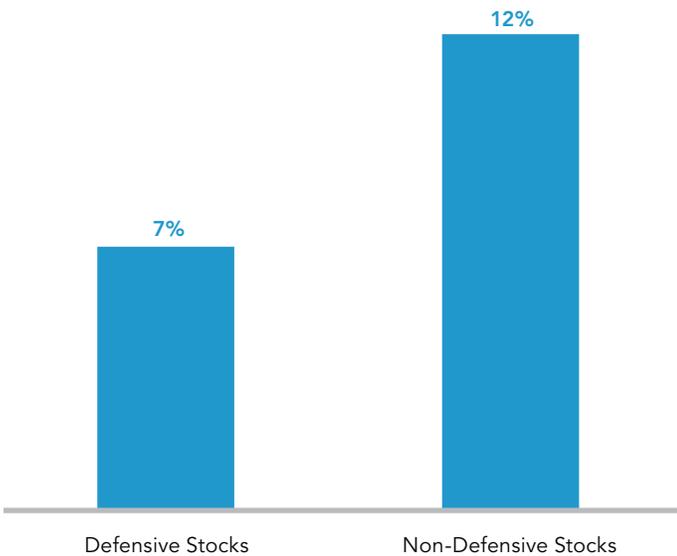
Implications: A change in the cycle

Many proponents of passive index investing for U.S. large-cap equity believe the future will always resemble the recent past. However, we prefer to take a longer-term view of market opportunity, knowing that outperformance for active or passive has historically come in cycles, and believing that skillfully managed

active funds can still add tremendous value for investors. Economic conditions are always in flux, and this time is no different. With return dispersion and the interest-rate environment due for a change, we believe the potential for a new period of active outperformance is on the rise.

EXHIBIT 9: Defensive stocks tend to grow earnings more slowly than non-defensive stocks, which may be why active portfolio managers tend to underweight them.

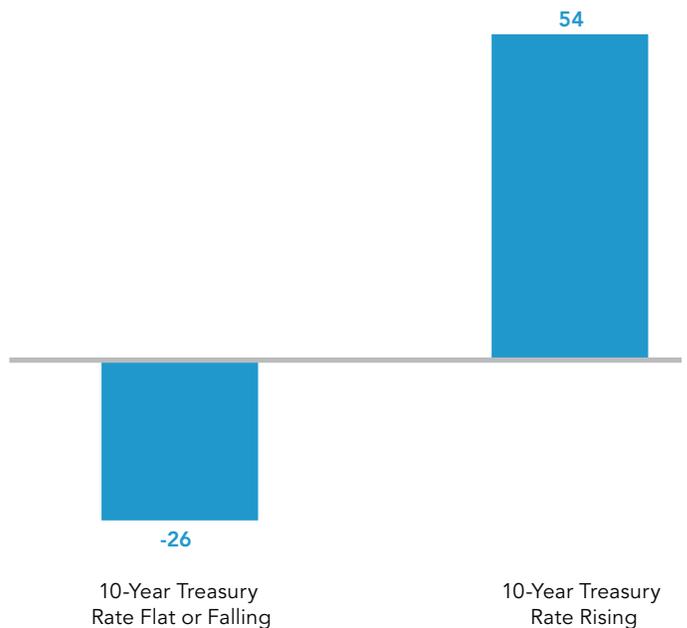
Average Year-over-Year Earnings Growth of the Median Stock, 1980 to 2016



Defensive stocks: stocks in the R1 in the consumer staples, real estate, telecommunication services, and utilities sectors. Non-defensive stocks: all other stocks in the R1. Uses median year-over-year earnings per share at year-end, 1980 to 2016. Source: Compustat (earnings), Standard & Poor's (sector classifications), Fidelity Investments, as of May 30, 2017.

EXHIBIT 10: Non-defensive stocks have averaged higher returns when interest rates rise.

Average Non-Defensive Stock Return Relative to Overall Market Return, 1980 to 2017 (basis points)



Average return calculated as the average return of non-defensive stocks in the R1 minus the return of the R1, calculated monthly then rescaled in annual terms, using data from Jan 31, 1980 to Mar 31, 2017. Positive numbers indicate outperformance of non-defensive stocks over the overall market. Basis point: 1/100th of a percentage point. Defensive stocks: stocks in the consumer staples, real estate, telecommunication services, and utilities sectors. Non-defensive stocks: all other stocks. Rising: months when the 10-year Treasury bond rate has risen by 2% of the previous month's rate or more (216 months). Flat or Falling: all other months (446 months). Past performance is no guarantee of future results. This chart shows averages and does not represent actual or future performance of any individual investment option. Source: Bloomberg Finance L.P., Compustat, FactSet, Standard & Poor's, Fidelity Investments, as of May 30, 2017.

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Endnotes

¹Source: "Morningstar DirectSM Asset Flows Commentary: United States," Jan. 11, 2017.

²In analysis of actively managed U.S. large-cap funds benchmarked to the S&P 500 Index from Dec. 31, 1997 to Dec. 31, 2016 (total count: 436), the average fund's average monthly overweight to mid-cap stocks (the 800 lowest-market-cap stocks in the R1 index) over the period was 8.6% percentage points. Source: Morningstar, Fidelity, as of Jul. 5, 2017.

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Index definitions: Russell 1000[®] Index is a market capitalization-weighted index designed to measure the performance of the large-cap segment of the U.S. equity market. **S&P 500[®] Index** is a market capitalization-weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation to represent U.S. equity performance. S&P 500 is a registered service mark of Standard & Poor's Financial Services LLC.

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