Active Management: Past, Present, and Future

“Things are not always as they seem; the first appearance deceives many.” —Phaedrus

Gaius Julius Phaedrus (15 BC–50 AD), was an early Roman fabulist (writer of fables) and author. Phaedrus’s birthplace is unknown, but text alludes to him being a Thracian slave. He is notable in his translation of Aesop’s Fables into Latin and for authoring only five books.

Actively managed funds have long been, and continue to be, favored over passive funds by investors. Even so, it is no secret that active managers have had a tougher time as of late, enduring over the past five years perhaps the most difficult environment for achieving outperformance relative to benchmarks. After a particularly rough start to 2016, the macro environment for active managers ended on a mixed note in the fourth quarter of 2016.

Passive funds have been growing in share of assets under management (AUM) in the industry for a number of reasons, not solely limited to performance. Dramatic fund outflows from active into passive have left investors wondering if this is really the beginning of the end of active management.

One of our themes for 2017 is life or death of active management, in which we acknowledge the precarious situation currently facing active management. We expand upon the theme in this Investment Outlook, highlighting a study we conducted as well as the research of others to develop a framework for understanding the past, current, and potential future environment for active management. This focus on investment manager selection and termination by looking at our own empirical work and the empirical work of others may help investors to make more informed decisions. Further, we believe that investors should focus on the total portfolio when measuring progress toward an investment goal.

In this Investment Outlook we discuss:
- active management and passive management;
- fourth-quarter 2016 performance review;
- total portfolio considerations; and
- life or death of active management.

PNC expects the economic expansion to continue throughout 2017 and into 2018, forecasting 2.4% growth this year and 2.7% for next. The job market should be close to full employment later this year; job and wage gains are helping boost personal incomes; consumer spending should continue to lead economic growth; and the housing market will probably continue to gradually recover. Expansionary fiscal policy will also likely add to economic growth in the latter half of 2017 and 2018.

We expect markets to continue to watch the Federal Reserve (Fed) for signals of additional interest-rate increases while tracking policy actions from central banks worldwide. Movements in inflation and currencies are key factors to watch this year. We believe unforeseen outcomes in global politics could continue to surprise.

While we acknowledge the difficulty for us, or anyone, to predict with great accuracy the short-term behavior of stocks, we feel investors should continue to focus on their long-term goals, working with their PNC advisors to develop an asset allocation that matches their risk and return objectives.

PNC’s six traditional asset allocation profiles are shown on the back page of this outlook.
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By definition, an active investment strategy involves a manager using his or her insights to make investment choices to meet a client’s objectives. Typically, such strategies employ the use of a set of index benchmarks against which the strategy’s returns can be measured. But active strategies do not necessarily target return maximization; instead, they may focus on risk mitigation, income generation, or social causes, among other alternatives.

Investors have differing goals and access to a variety of paths to help them achieve those goals. However, no matter the investment goals or restrictions, the very core of the investment process does not seem to change: assets need to be allocated among the appropriate classes and styles, and money managers are often hired to help reach these goals.

Actively managed funds are often used as a means to fulfill an investor’s desired asset allocation mix. These managers provide exposure to a specific asset class, with returns achieved by taking market risk (beta) and exposure to a fund manager’s positions within the investment style (the colloquial definition of alpha return).

Alternatively, investors can choose passive management to meet a desired asset allocation mix. A passive strategy is a fund that attempts to track a specific index, such as an exchange-traded fund (ETF). Using this type of investment vehicle usually limits the opportunity for alpha return on both the upside and downside.

It is no secret that active managers have had a few tough years. In particular, first-quarter 2016 marks the lowest quarterly outperformance rate ever of large cap funds versus the Russell 1000® according to Bank of America Merrill Lynch, whose database goes back to 1998. Furthermore, an October 2016 report from Citi Global Investor Sales shows that very few actively managed funds have outperformed their indexes after costs over different periods. As shown in Table 1, it is striking to see that over 80% of various groups of active managers underperformed their respective indexes over the past 10-year period.

Investors do, however, continue to favor active funds over passive funds, with data from December 2015 showing flows almost double towards active. However, as money chases performance as well as a few other factors, passive funds have been growing in share of AUM in the industry, noted by the same Citi report mentioned above—while passive accounted for 20% of AUM in the five years

### Table 1

<table>
<thead>
<tr>
<th>Fund Category</th>
<th>1-Yr</th>
<th>3-Yr</th>
<th>5-Yr</th>
<th>10-Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Domestic U.S. Equity Funds</td>
<td>90.20%</td>
<td>87.41%</td>
<td>94.58%</td>
<td>87.47%</td>
</tr>
<tr>
<td>Global Equity Funds</td>
<td>75.35%</td>
<td>76.96%</td>
<td>82.45%</td>
<td>81.19%</td>
</tr>
<tr>
<td>Emerging Market Equity Funds</td>
<td>42.22%</td>
<td>77.42%</td>
<td>67.63%</td>
<td>81.94%</td>
</tr>
<tr>
<td>Investment Grade Long Funds</td>
<td>94.39%</td>
<td>97.32%</td>
<td>98.41%</td>
<td>98.21%</td>
</tr>
<tr>
<td>High Yield Funds</td>
<td>75.00%</td>
<td>80.47%</td>
<td>88.78%</td>
<td>96.62%</td>
</tr>
<tr>
<td>Emerging Market Debt Funds</td>
<td>74.65%</td>
<td>88.89%</td>
<td>92.31%</td>
<td>81.82%</td>
</tr>
</tbody>
</table>

Source: Citi Global Investor Sales, Standard & Poor’s, PNC

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1 Cornell, Bradford, Hsu, Jason C., and Nanigian, David, The Harm in Selecting Funds that Have Recently Underperformed (February 25, 2016).
ending in 2008, it accounted for 30% of AUM in the five years ending in 2015. Moreover, between 2007 and 2015, investors withdrew $835 billion from actively managed U.S. equity mutual funds and put $1.2 trillion into equity passive funds. Such dramatic fund outflows from active into passive have left many investors wondering if this is really the beginning of the end of active management.

To help answer this question, we begin by focusing on investment manager selection and termination by looking at our own empirical work and the empirical work of others, which we believe could help investors make more informed decisions. Our emphasis is on detailing the environment faced by active managers and explaining the drivers of their performance. Next we discuss how active managers are created differently. Last but not least, we outline the new options in the marketplace beyond simply passive versus active, choices which expand the horizon to exploit active returns.

Following, we consider:

- timing creates difficulty in decision making;
- short-term versus long-term performance;
- differences amongst active managers; and
- growing opportunity set for investors.

Timing Isn’t Everything

The difficulty in assessing the performance of active managers begins with one fundamental observation: performance varies across time. Performance of active managers does bounce from quarter to quarter due to the market environment. For example, fourth-quarter 2016 saw over 68% of large cap managers outperforming their benchmarks (Chart 1), even though managers suffered in earlier quarters of the year.

Further, one- and three-year performance data illustrate the difficulty active managers have had in outperforming their respective benchmarks in the most recent one- and three-year time periods (Chart 2).

Performance of active managers changes from quarter to quarter and is linked to the macro environment. In our quarterly *Active Management Performance Update*, we present various measurements of the conditions of the macro environment that would reflect on active managers. Noticeably, those factors change from time to time and can be used to understand active managers’ relative performance. For example, we have a so-called “homerun/strike-out” chart that captures the ratio of the numbers of stocks which significantly outperform their group mean over the number of stocks which significantly underperform.
their group mean. A ratio greater than one usually signals an easier environment for active managers because it means diversifications of stock returns are likely greater and, among stocks that performed significantly differently from their peers, it is more likely that they outperform rather than underperform. As discussed later in this outlook, performance in fourth-quarter 2016 was mixed. Overall, we believe active managers would do better should the macro environment be more favorable.

**Short-Term versus Long-Term Performance of Top Managers**

Most active funds tend to be chosen based on three-year historical performance—not quite what we might call long-term performance. This is not unusual or unreasonable in our opinion; one could assume the most recent performance is the most up-to-date indication of manager performance.

Using this recent performance leads to the question of whether the outperformance can continue along the same trajectory. We conducted our own empirical research to help answer this question.

In our study, we focus on large-cap managers, given the better availability of data for these investments; the data set consists of more than 850 large-cap managers with at least 10 years of returns data. Because we believe the investment process should be focused on longer-term goals, our analysis begins with sorting the data by the best performance based on 10-year annualized returns. To clarify, these are the funds that we believe would have been the best to own over the 10 years ended June 2016. Looking at these same top managers over shorter performance periods yields interesting results, including the following.

- About one-third of the top performers fell into the last performance quartile based on three-year rolling returns while an overwhelming majority of managers disappointed in any given year (Table 2).
- When the data set is broken into deciles, underperformance is not modest. In fact, long-run top performers are also prone to bad years relative to peers; approximately 50% of managers spend some time in the ninth or tenth decile (Table 3).
- Short-term performance has not been an accurate predictor of the long-term success of a manager, which suggests to us that other factors should be considered when making a hiring or firing decision.

Several empirical studies are available that test how individual fund managers perform leading up to and after a hiring or firing. One such study,

<table>
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<tr>
<th>Table 2</th>
<th>Top Quartile Managers: 10 Years Ended June 30, 2016</th>
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<tbody>
<tr>
<td></td>
<td>Percentage of Funds that Fell for at Least One Rolling 3-Year Period into:</td>
</tr>
<tr>
<td></td>
<td>Fourth Quartile</td>
</tr>
<tr>
<td>Large-Cap Blend</td>
<td>30.7%</td>
</tr>
<tr>
<td>Large-Cap Value</td>
<td>35.7</td>
</tr>
<tr>
<td>Large-Cap Growth</td>
<td>31.5</td>
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</tbody>
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<thead>
<tr>
<th>Table 3</th>
<th>Top Decile Managers for 10 Years Ended June 30, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>For at Least One Rolling 3-Year Period</td>
<td>For at Least One Rolling 1-Year Period</td>
</tr>
<tr>
<td>Tenth Decile</td>
<td>Ninth or Tenth Decile</td>
</tr>
<tr>
<td>Large-Cap Blend</td>
<td>11.9%</td>
</tr>
<tr>
<td>Large-Cap Value</td>
<td>16.1</td>
</tr>
<tr>
<td>Large-Cap Growth</td>
<td>9.8</td>
</tr>
</tbody>
</table>

| Note: Represents the percentage of funds that fell into each decile. |
| Source: Morningstar Direct, PNC |

**Source:** Morningstar, PNC
conducted by Amit Goyal and Sunil Wahal, found that hired managers outperformed fired managers in the three years leading up to the hiring/firing but failed to outperform in the next three years relative to their benchmark and the fired firm. Specifically, in each of the three years before being hired, soon-to-be hired managers outperformed their benchmarks by 400–1200 basis points (bps) in each of the three years leading up to hiring. However, for the following three years, the evidence shows that the fired managers actually outperformed relative to the newly hired firms.

Using the same data set, the Goyal and Wahal study also looks at headline risk of an institutional manager. Headline risk refers to a manager’s sensitivity to scrutiny (public or client) in the face of underperformance. Managers with high headline risk face more scrutiny than managers with low headline risk. This study finds that institutional managers with high headline risk chase investment styles that have performed well over the previous three years and are more likely to terminate an investment fund manager based on poor performance. However, these institutional managers also have lower posthiring returns than those institutions with less headline risk.

The recent study by Cornell, Hsu, and Nanigian suggests that the mean reversion for an investment manager is, coincidentally, three years. What this means is a much longer time horizon is likely more optimal in deciding whether to hire or fire a professional money manager. Using just three years of performance to make either decision would be shortsighted, in our view.

This chasing of performance, meaning recent performance, has long been argued against in numerous academic and industry-leading papers, maintaining that short-term performance is often followed by a long-term reversal. This suggests that in the short term, performance may have been influenced by factors outside of the skill level of the manager, possibly including sector-specific allocation or other momentum wave riding. Over time, performance reverts back to the mean. We believe it also must be recognized that performance alone, although perhaps the largest decision maker, is not the only variable used in hiring a manager. The due diligence process does include other factors such as fees, governance, and portfolio manager tenure.

The Cornell, Hsu, and Nanigian study attempted to look at the decision-making process for hiring an active manager and, more specifically, if using recent positive performance to make said decision yielded the best outcome. What they found was that the best long-term performance was yielded when the investor chose an active manager whose recent performance was near their long-term median over the manager who had the highest most recent performance (Table 4). They drew the conclusion that performance mean-reverts. Interestingly, the authors also noted in their data analysis that investors who chose the fund which underperformed in the most recent past actually produced a superior return to those who decided to buy the most recent outperforming fund. This goes against what often happens in the investment industry—firing managers who have had recent underperformance.

<table>
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<tr>
<th>Winner Strategy</th>
<th>Median Strategy</th>
<th>Loser Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Return</td>
<td>8.04%</td>
<td>9.77%</td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.29</td>
<td>0.48</td>
</tr>
<tr>
<td>CAPM Alpha</td>
<td>-2.87</td>
<td>0.10</td>
</tr>
<tr>
<td>CAPM Alpha t-stat</td>
<td>-1.7</td>
<td>0.17</td>
</tr>
<tr>
<td>Carhart Four-Factor Model Alpha</td>
<td>-2.74</td>
<td>-0.44</td>
</tr>
<tr>
<td>Carhart Four-Factor Model Alpha t-stat</td>
<td>-2.96</td>
<td>-0.89</td>
</tr>
</tbody>
</table>

Source: Cornell, Hsu, and Nanigian; Morningstar Direct; PNC
The results of these studies, combined with the evidence from our empirical work, support our view that chasing performance is usually a hindrance to reaching an investment goal. We note that it may feel good to terminate a recent underperformer and hire a recent outperformer. It may feel as though holding a recent winner and selling a recent loser is a step toward doing something to get an investment objective back on track. However, the data suggest that more harm may be done through switching than by staying with the original underperformer.

Our point here is not to suggest that a manager hired to fulfill an asset allocation should never be fired. Rather, it is to assure these decisions are made deliberately with the client’s investment strategy and goals in mind. After all, we believe the goal of any investment portfolio is to produce the most satisfactory outcome for the investor over a specific investment holding period. Achieving this requires a thorough understanding of the return and risk parameters best suited to the investor’s goals.

Once an investment strategy is developed, we believe it should be reevaluated regularly for changes in investor goals and risk budget, unexpected macroeconomic events, and unanticipated deficiencies in the way an asset allocation is expressed (active or passive asset managers).

**Don’t Throw Out the Baby with the Bathwater**

Active managers were not created equally; those that do have an edge are likely to stay and grow stronger. In its July 2016 report, Moody’s Investors Service argued that the fundamental driver of the poor performance of active managers is the massive size of the industry, with currently over 9,000 mutual funds and 10,000 hedge funds in the United States alone. Therefore, according to Moody’s, “overcapacity leads to investment mediocrity, since true talent is limited and size works against the investor in the form of increased transaction costs and difficulty in identifying scalable investment opportunities.”

Indeed, we believe that unsustainable active funds may be eliminated in the ongoing dramatic outflow of funds, while the truly active funds that do provide an edge are likely to stay. More specifically, funds that have low tracking errors and low active shares against their benchmarks (closet indexing), and those that rely solely on static factor investing are more likely to be wiped out. They can be easily replaced by the much cheaper indexing funds and smart beta funds. On the other hand, actively managed funds that deviate from benchmarks strategically, are capable of delivering specific outcomes based on client needs, dynamically manage factors, and excel in their multi-asset class solutions are likely to stay and grow, in our view.

Finally, recent innovations in the marketplace can provide investors with new ways to exploit active returns. Most notable is the growing popularity of smart beta funds. According to Empirical Research Partners, smart beta ETFs have about $440 billion in assets, or roughly one-quarter of the total assets in ETFs, as of April 2015. Furthermore, Chart 3 shows that the percentage of funds (measured by ending total net asset values) that use smart beta strategies has seen a clear pickup since 2010.

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2 “From Diversified Asset Classes to Factor-Driven Index Portfolios & the Re-Packaging of Active Investment Skills—Overview of Key Findings from the 2016 Industry Evolution Survey,” October 2016, Citi Global Investor Sales.
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Many of the theories behind smart beta—also known as capturing systematic sources of returns via factor investing—are not new. What is new is the recognition that sources of active returns from factors can be accessed via passive-like implementations. In our opinion, smart beta should be used to replace active managers that do not provide active returns above factor returns due to smart beta’s cheaper prices, but it also can be used in an attempt to outperform market-capitalization-based indexing in terms of performance or risk management.

Fourth-Quarter 2016

Overall, full-year 2016 was dominated by still-low energy prices, the strengthening dollar, geopolitical surprises, and global central banks’ testing of the limits of monetary policy.

Crude oil ended its longest downtrend in history in April 2016, where it stayed below its 200-day moving average for 427 trading days, according to Pension Partners LLC. Its most recent maximum drawdown of 77%—going from $113.93 per barrel in April 2011 to $26.21 in February 2016—was one of the largest drawdowns in history. However, energy prices recovered modestly since August and ended the year at $53.77.

The real trade-weighted dollar has been up since August and was up about 4.3% year over year in December. According to Cornerstone Macro, the dollar had been experiencing its third secular rally in the past 45 years. They believe this move was initially driven by the strengthening U.S. economy but later boosted by postelection anticipations of structural and tax reforms. The stronger dollar may be beneficial to U.S. consumer spending and companies levered to the U.S. consumer, but is a headwind for multinational companies.

Some of the biggest surprises in 2016 were political events which were highly charged and difficult for markets to predict. The outcome of the Brexit vote in the United Kingdom and the presidential election in the United States had global markets reacting. In December, the surprising constitutional referendum vote in Italy resulted in the resignation of Prime Minister Matteo Renzi. Indeed, the political environment globally is highly charged for change. Growing populism is moving the needle in some cases, but not in all.

The Fed raised its interest rates target in December by 25 bps after its initial raise a year earlier (since zero interest rate policy began in 2008). This marks the Fed’s continued effort to usher in a new era by ushering out extraordinary measures aimed at supporting the economy following the financial crisis and Great Recession. With the economy on firmer ground, we feel the Fed’s decision to cease extraordinary measures is in concert with this view.

Economic growth in China was solid at year end: the CFLP Manufacturing PMI edged down to 51.4 from 51.7 a month earlier, which was the strongest since July 2014. The CFLP Nonmanufacturing PMI slightly decreased to 54.5 in December from 54.7 in November, which was the strongest since June 2014. The Caixin China General Manufacturing PMI™ rose to 51.9, the highest since January 2013.

In Japan, Bank of Japan (BOJ) Governor Haruhiko Kuroda shifted the direction of the bank’s policy in September by allowing the yen to weaken and Japanese stocks to strengthen. The December Nikkei Japan Manufacturing PMI™ for Japan rose to 54.4, the strongest reading in 2016. Meanwhile, inflation appears to be absent as the Consumer Price Index (CPI) was 0.5% in year-earlier terms in November while core inflation dropped to 0.1%. Incomes of workers’ households rose 1.6% in nominal terms and 1.0% in real terms in November; retail sales grew a solid 1.7% in year-earlier nominal terms. In this context, PNC Economics forecast no change in the BOJ’s short-term and long-term interest rates targets and private asset purchase targets in 2017.

From an economic perspective, the Eurozone appears to be on much more stable ground than in recent years. The European Central Bank has

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3 https://pensionpartners.com/the-longest-downtrend-in-crude-oil-history-is-over/.
reiterated its intention to intervene when necessary, and continues to provide quantitative easing. However, the slow rise in populism across the Eurozone, which has seen its share of difficulties over the past decade including the financial crisis, recessions, sovereign debt crisis, and influx of refugees, will not likely subside any time soon, in our view.

U.S. equities fared well in fourth-quarter 2016 while the overall developed and emerging markets struggled to keep up. The S&P 500® gained 3.82% in the fourth quarter, helped especially by the equity rally since the November U.S. presidential election. On the contrary, the MSCI Emerging Markets (EM) Index returned -4.16%, unable to keep up with its 9.03% return in the third quarter, and the MSCI EAFE Index returned -0.71%, also a huge decline from its 6.43% return of the previous quarter. Overall in 2016, the S&P 500 was up by 11.96%, MSCI EM rose by 11.19% (mostly driven by a stunning third quarter), and MSCI EAFE returned 1%.

In the United States, small-cap firms continued to outperform mid- and large-cap firms in the fourth quarter and year to date, while mid-cap firms outperformed large-cap firms in both periods. Growth underperformed value across all market capitalization groups in the fourth quarter and for the year.

On the data front, the U.S. economy continued to strengthen in the fourth quarter. According to the Bureau of Labor Statistics (BLS), total nonfarm payroll employment increased by 156,000 in December, ending the year with an average monthly payroll job growth of 180,000. Meanwhile, the December unemployment rate rose 0.1 percentage point to 4.7% as expected; wages accelerated, rising 2.9% versus a year earlier. The Institute for Supply Management™ (ISM) Manufacturing Index for December expanded to 54.7 from 53.2 and vehicle sales skyrocketed to a high of 18.3 million annualized units. The Atlanta Fed’s estimate of fourth-quarter GDP rose to 2.8%. On the other hand, the 30-year mortgage rate was up 73 bps in the past three months, rounding up to about 10% increase in the mortgage payment on an average house. Cornerstone Macro predicts a decline in house sales in 2017. All in all, PNC expects continued expansion in the U.S. economy and now predicts an economic growth rate of 2.4% in 2017. (For more information about our outlook for the economy, please refer to our December 2016 and January 2017 Investment Outlooks.)

Active Equity Managers in Fourth-Quarter 2016

As noted by AQR’s Cliff Asness⁴, 2016 was not a very volatile year overall: S&P 500’s annualized daily volatility was at 13.1%, which falls at the forty-seventh percentile of yearly volatilities since 1929. Our data also show that the S&P 500 volatility was tamed in most of 2016 despite a few spikes—mid-February due to market turmoil, late June after the Brexit vote, and early November before the presidential election (Chart 4). Volatility is often a sign of uncertainty, typically to the downside.

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Correlations among S&P 500 stocks continued their descent, going from 0.67 on September 20 to 0.39 on December 30, falling by almost half (Chart 5). Return dispersion among Russell 3000* stocks had dramatic shifts in the span of three months, going from one standard deviation below the five-year average in October to three standard deviations above the average in November, and then back to one standard deviation lower again (Chart 6). When correlations among stocks are higher or dispersion of stock returns is lower, it tends to be harder for active managers to outperform because there is less room for managers to differentiate their views using security selections. Therefore, the two macro indicators depict a mixed environment for active managers in the fourth quarter of 2016.

As seen in Chart 7, the ratios of the number of significantly outperforming stocks over that of significantly underperforming stocks (we call it the homerun/strike-out ratio) were greater than one for most large- and mid-cap indexes in the fourth quarter. This points to stocks having better chances of outperforming than underperforming if they were significantly different from their peers in the fourth quarter. However, our data also show that over 70% of the stocks had returns within one standard deviation of their peer means among these indexes, thus the total outperformance ratio wasn’t helped much by the homerun/strike-out ratios. Overall, our macro indicators (Charts 4–7, pages 8 and 9) point to a mixed environment for active equity managers in fourth-quarter 2016.

Sector Performance
As noted by Strategas Research, the prospect of tax reform and rising interest rates may have given the Financials sector a boost in fourth-quarter 2016.
resulting in the sector being the best performer in the quarter (Chart 8). Meanwhile, the pickup in expected and realized growth may have benefited the Industrials sector and helped it to stay in the top three list for two consequent quarters.

However, sector positioning was still not helping active managers to outperform in 2016: according to Bank of America Merrill Lynch, managers tend to underweight the year’s best-performing sectors of Energy, Financials, and Telecommunication Services and overweight the year’s worst-performing sector, Health Care, which was the only sector that ended 2016 in the red. They also noted that Consumer Discretionary was still the most crowded sector by active managers as of the end of 2016; Information Technology, Utilities, and Telecommunication Services were among the most overweight relative to their own history. In addition, managers had just increased their overweight to cyclical sectors relative to defensive sectors to the highest level since 2011, as of year end.

Performance ranking oscillation continued among several sectors in the fourth quarter, most notably is still that of the Information Technology sector. As seen in Chart 8, the sector bounced up and down in the performance ranking since third-quarter 2015, and went from the worst performing sector in second-quarter 2016 to the best performing sector in third-quarter 2016, but was once again surpassed by others in the fourth quarter. Other sectors such as Telecommunication Services also had similar scale of change in the third quarter, though it moved in the opposite direction. Drastic shifts as such challenge managers’ quarterly relative performance if they express a view on those sectors.

**Total Portfolio Perspective**

We believe that investors should focus on the total portfolio when measuring progress toward an investment goal. Given this view, we have developed a thorough process for building a durable portfolio, given a set of investment constraints. This process combines PNC’s best thinking regarding asset allocation with a quantitative and qualitative process for manager selection.

Importantly, there are going to be time periods when a manager underperforms a benchmark and is a drag on absolute and relative performance. Sometimes this can be expected, given a manager’s mandate and the economic climate. However, sometimes the underperformance (or outperformance) can seem abnormal, which can be uncomfortable, often requiring additional analysis to confirm that the manager is still implementing the strategy he or she was hired for and that the manager remains the optimal choice for the total portfolio, given historical data and optimization constraints.

Although we understand it is important to understand and track the underlying performance of individual managers, it is the total portfolio that is used to achieve an investment goal. More clearly, we believe significant underperformance or outperformance relative to a benchmark does not necessarily warrant a change in the portfolio; rather, it largely depends on the selection criteria explained above.

**PNC’s Portfolio Construction Process**

PNC’s Portfolio Construction Committee (PCC) provides one layer of risk management to the
process of selecting specific managers from the platform to fulfill the recommended asset allocation profiles provided by the Investment Policy Committee. The PCC’s approach looks primarily at the interaction of managers and the impact this has on risk because it feeds directly into portfolio performance. The goal is to provide a holistic portfolio that allows clients to reach their goals while appropriately compensating for risk.

However, the process does not end once a manager is selected to express the recommended asset allocation. We view one key aspect of the process as the ongoing evaluation of the individual managers to assure that nothing has materially changed. Through this evaluation, there are several triggers that could result in a manager’s removal.

PNC’s Investment Advisor Research (IAR) group may place a manager on “hold” or “sell.” It is worth noting that performance is only one criterion analyzed. IAR has identified five areas of an organization to help in the process:

- the investment professionals involved;
- investment process;
- strategy performance;
- business and operational structure; and
- legal and compliance structure.

The PCC may vote to remove the manager. There could be several reasons that set this in motion, including:

- During the portfolio optimization process, which focuses on maximizing return per unit of risk for the portfolio as a whole, the manager falls out of favor as the most optimal given the asset allocation and investment constraints (the decision still rests with the committee to weigh all the facts).
- The committee no longer believes a particular manager is the best way to fulfill the recommended asset allocation. For example, one important input into the decision-making process is advanced returns-based style analysis. This allows the committee to look for clues that the manager might be deviating from the stated investment process between filings.

We believe this process appropriately balances both quantitative and qualitative factors, supporting decision making and creating a structure that can help clients reach their investment goals.

Life or Death of Active Management

All in all, actively managed funds still take up the majority of the fund space, while PNC uses both active and passive management in our platform of available investment options.

Overall, 2016 was one of the tougher years on record for active managers: merely 24.3% of the growth managers outperformed the S&P Growth index and 24.6% of the value managers outperformed the S&P 500 Value index. We believe performance of active managers could improve as the macro environment becomes more favorable and as the unsustainable funds fade out while the truly active funds grow stronger.

We noted in this outlook that performance among active managers varies from quarter to quarter. The macro environment for active managers was mixed in fourth-quarter 2016. Correlations among S&P 500 stocks continued to drop and ended at their lowest level in years. Dispersion among Russell 3000® stocks had dramatic shifts in the span of three months, with October and December seeing the lowest values since June 2014, while its November value was three standard deviations higher than its five-year average. High correlation or low dispersion are headwinds for active managers to differentiate their views to outperform, so those two measures may indicate a mixed and inconsistent environment for active managers in the fourth quarter.
Active manager performance over longer time horizons has shown itself to be cyclical. The performance of active managers over recent years at low levels may be due for a correction. Looking back over a longer time horizon, history has shown that the performance of active managers has varied over time. Active managers’ ability to outperform benchmarks has shown itself to be cyclical (Chart 9). The past few years from this perspective shows as some of the worst performance, relatively speaking, for active managers. However, we note that periods of underperformance often are followed by periods of outperformance.

Finally we note the diligence and commitment to providing research on this topic from our Investment Strategy team as well as Investment Advisor Research. We reference additional publications for further in depth insight, including but not limited to:

- January 2017 Market Update, Active Management Performance Update—4Q16;
- January 2017 Investment Outlook, Themes: 2017 Outlook Part II;
- December 2016 Investment Outlook, 2017 Outlook Part 1;
- October 2016 Investment Outlook, On the Trail with Smart Beta;
- September 2016 white paper, Introduction to the PNC Smart Beta Allocation;
- January 2016 white paper, Smart Beta: Strategies and Implementation; and

PNC Current Recommendations

PNC’s recommended allocations continue to reflect our positive view regarding the durability of the economic expansion while considering the continued downside risks inherent in the market and economic outlook:

- a baseline allocation of stocks relative to bonds;
- a preference for high-quality stocks;
- a tactical allocation of 52% value and 48% growth within U.S. large-cap stocks;
- a tactical allocation to smart beta/core strategies;
- a tactical allocation to real estate investment trusts (REITs);
- a tactical allocation to Europe focused equities—FX hedged within the international equity component;
- a tactical allocation to Japan focused equities—FX hedged within the international equity component;
- an allocation to emerging markets within the international equity component;
- a tactical allocation to global dividend-focused stocks;
- a tactical allocation to Treasury Inflation-Protected Securities (TIPS) within the bond allocation;
- a tactical allocation to leveraged loans within the bond allocation;
- a tactical allocation to absolute-return-oriented fixed-income strategies within the bond allocation;
- a tactical allocation to global bonds within the bond allocation; and
• an allocation to alternative investments for qualified investors.

Baseline Allocation of Stocks Relative to Bonds
Since one cannot accurately determine the short-term movement of stocks, we believe investors should focus on what is knowable and controllable. The one thing investors can truly control is asset allocation reflective of their needs and risk tolerance. PNC’s six baseline asset allocation models are shown on the back page of this Outlook.

Preference for High-Quality Stocks
Any relapse to stressed capital markets or to another credit crunch from a financial crisis likely poses a higher threat to lower-quality and highly leveraged companies. Companies with weak balance sheets and less-robust business models have a much higher risk to their survival. Unfortunately, the economic outlook continues to be subject to continued downside risks in the wake of the financial crisis.

We favor a preference for high-quality stocks as a method of risk control against unexpected shocks to the economic system. This is also consistent with our explicit allocation to dividend-focused stocks.

Overweight of U.S. Large-Cap Value Stocks Relative to Growth
We believe the majority of the seven components of our decision framework—
• earnings growth;
• interest-rate level;
• inflation;
• volatility;
• foreign growth;
• valuation; and
• yield-curve slope—continue to support an overweight to U.S. large-cap value style relative to growth.

We focus on the yield-curve slope because results of our analysis show that a steep curve is supportive of value style outperformance relative to growth. It is not a concrete rule that value always outperforms growth in a steep yield curve, but it is an indication of higher probability. Though recent Fed activities have flattened them to a degree, both the 2- to 10-year (Chart 10) and 10- to 30-year (Chart 11) Treasury slopes remain historically steep and supportive of a value overweight.

5 The March 2011 Investment Outlook, Quest for Value, provides details about the value style recommendation.
We continue to monitor the possibility that the typical impact of the steep yield curve might be derailed by:

- the credit cycle;
- capital constraints; or
- lack of loan demand.

Bank loan data seem to be past their worst levels, and we believe there are reasons for cautious optimism.

- Banks are showing a greater willingness to extend consumer loans (Chart 12).
- Bank loan quality has continued to improve, implying a tailwind to bank earnings and a possible turn in the deleveraging cycle (Chart 13).
- Bank capital ratios have more than recovered, which should allow for loan growth and likely help prevent relapse of financial crisis within the banking industry (Chart 14).

Our value allocation has underperformed in the market downturn, given its more cyclical exposure. We believe it will perform better as global growth concerns fade.

Allocation to Smart Beta/Core Strategies
See the contents of this Investment Outlook for full discussion of the smart beta/core strategies.

Within the smart beta strategies, there is the option to utilize the PNC STAR strategy, which uses exchange-traded funds to systemically apply momentum exposure to industries, size, and international factors. The PNC STAR strategy may help a portfolio increase return without increasing...
risk and, with small allocations, marginally reduce risk (Chart 15).

In backtests, PNC STAR has produced excess returns with a volatility level similar to the benchmark S&P 500, resulting in a higher Sharpe ratio. In addition, the analysis has shown that the strategy has handled periods of crisis better than the S&P 500 and was generally quicker to recover. While past performance is not indicative of future results, historically this model has produced outperformance of just under 0.40% per month. In addition, the drawdown analysis has shown that the strategy has handled periods of crisis better than the S&P 500 did and was generally quicker to recover.

Momentum performance has dipped since the financial crisis, but appears to be regaining some momentum (to turn a phrase). If momentum continues to work in the future as it has historically, the strategy may lead to excess returns that should help improve the tactical allocation portfolios.

 Allocation to REITs
The strategic rationale for including REITs in the portfolio rests on expanding the opportunity set for income investors. REITs are required to distribute at least 90% of income to shareholders in the form of dividends. Given the nature of the dividend model, we believe REITs fare better with investors not aiming for quick capital gains but for dividend income and modest price appreciation. Over a long investment holding period, REITs have tended to outperform the S&P 500 on a total-return basis (Chart 16). The total-return perspective is unique for REITs in that it has historically kept pace with or exceeded the broader market, with the additional benefits of:

- modest correlation with stocks;
- less market price volatility; and
higher current returns.

REITs provide steady current-income-producing dividend yields competitive with investment-grade bonds, with the potential for increases in dividend and share price.

REITs allow shareholders to invest in commercial real estate while remaining liquid and leaving the management to professionals. REITs historically have had lower correlations versus other stocks, providing diversification benefits. Given the complex nature of the interrelated economics and industry fundamentals, leaving the investment in real estate to the professionals and buying for the long term into strong companies is a standing argument for long-term investing versus market timing. We believe the asset class should bring some diversification benefits in spite of the correlation tightening with the S&P 500.

REITs are not so much interest-rate sensitive as dependent on economic growth. Dividend growth rates have outpaced inflation over the past decade (Chart 17, page 15).

**International Equities**

International equities offer geographic diversification and open the opportunity set to invest in firms worldwide. Beyond the benefits of diversification and exposure to many of the world’s leading companies, there are other potential benefits to investing outside U.S. borders, including unique opportunities in Asia and Europe. Within the international equity component we recommend an allocation to emerging markets.

It is reasonable to assume that the United States and other developed markets have similar long-term expected returns. Much of the difference is likely to come from currency gains or losses. We remain mindful of the currency risk inherent in international investing. While at times the weaker dollar makes international investing look more attractive than underlying fundamentals might dictate, the reverse is true when the strong dollar punishes U.S. investors’ international returns.

**Allocations to Europe- and Japan-Focused Foreign-Exchange-Hedged Equities**

Our tactical allocation within the international allocation focuses on Europe-based and Japan-based holdings. Stabilizing recoveries in both Europe and Japan, relative valuations, improving corporate earnings, and low energy prices are a few of the dynamics that support strength of equities in the regions. Equities in both regions have underperformed in recent years, but we believe the aggressive monetary policy actions by both the Bank of Japan and European Central Bank are supportive of financial assets (Chart 18). Our view is these asset purchases should support their economies and function to continue to make equities in their respective countries more attractive relative to fixed-income assets and to bolster equity valuations.

The hedged currency recommendations reduce currency risk for our U.S.-based investors who have most, if not all, of their liabilities denominated in dollars.

**Allocation to Global Dividend-Focused Stocks**

A global dividend-focused allocation expands the opportunity set to invest in high-quality dividend-paying stocks, where in some cases companies

![Chart 18](image-url)
have exhibited faster dividend growth, essentially opening up the opportunity to invest in firms outside the United States, including emerging markets. In addition, focusing on the combination of dividends and dividend growth has historically been a winning combination.

The reinvestment of dividends greatly enhances an investor’s return and is a large component of the dividend-focused strategy. Over time, the compounding of dividends drives the total return. As an investor’s investment holding period increases, dividends typically comprise a larger portion of return. As a reference point, from 1926 to 1959 dividends contributed more than 50% to total returns for the S&P 500.

We believe the global dividend-focused allocation is positioned to take advantage of global opportunities and diversify across countries and sectors (Chart 19). A globally generated income stream is inherently more diverse than one from a single country or region. This can help to avoid concentration in terms of end markets, which may drive sales and revenues. A global dividend allocation may also allow an investor to invest in sectors perhaps underrepresented by a particular country.

**Allocation to Treasury Inflation-Protected Securities**

The Treasury yield curve is anchored at the short end due to continued accommodative U.S. monetary policy, while longer-maturity yields are being pulled lower largely by the term premium in light of global concerns and ongoing central bank easing. We think inflation expectations will rise as survey-based measures used by the Fed have remained relatively flat, commodity prices have stabilized, and wages have trended higher as the United States moves closer to full employment.

Treasury Inflation-Protected Securities (TIPS) can be a favorable alternative to conventional Treasuries; TIPS provide both a comparable yield and the credit quality of Treasury notes, while also furnishing protection against the risk of higher inflation. In addition, since TIPS return the greater of the face value or the inflation-adjusted principal at maturity, these securities would increase in real value even during a deflationary period. With commodity prices finally finding some footing following a volatile period recently, TIPS are indirect beneficiaries due to the CPI adjustment. While not our base case in the near term, we think TIPS are likely the best defense against stagflation because high inflation coupled with low growth provide the optimal environment for TIPS performance.

From both a valuation and goal-based methodology, TIPS are likely a good addition to many portfolios.
particular, tax-deferred and tax-exempt accounts are likely beneficiaries of TIPS allocations. In our opinion, TIPS provide some measure of insurance against the risk of inflation and reduced real purchasing power, while protecting against severe deflation. This seems especially true for investors holding excess cash or nominal Treasuries.

Allocation to Leveraged Loans within Bonds

We believe an allocation to leveraged loans within the bond portion of a portfolio should help defend against higher interest rates. Since leveraged loans are adjustable-rate instruments tied to short-term interest rates (typically the 3-month LIBOR), we believe holders should benefit from rising rates (Chart 20, page 17). If longer-term interest rates rise, we expect the shorter duration of leveraged loans should result in much better performance relative to longer-duration fixed income, such as the Barclays U.S. Aggregate Bond Index.

This allocation could be characterized as lowering the portfolios’ interest-rate risk while raising their credit risk and correlation with equities. We believe it accomplishes this without a large impact on portfolio income. In our opinion, this correlation with equities, which we have noted since recommending the allocation, has become more apparent in the recent stock market downturn, allowing investors an attractive entry point.

Allocation to Absolute-Return-Oriented Fixed Income within Bonds

We believe an allocation to an absolute-return-oriented fixed-income strategy within the bond portion of a portfolio has several benefits, including:

- defending against higher interest rates;
- further expanding the opportunity set for fixed income; and
- increasing exposure to credit.

Given our belief that the economy will continue to improve, strategies that help protect against the risk of rising rates will become increasingly important. While we do not believe interest rates will necessarily move markedly higher in the near term, rate volatility has certainly increased, and we expect that the downside risk to holding excessive duration will increase the longer rates remain low. We believe it makes sense to further hedge against this risk while maintaining the ability to participate in upside credit potential. This is also consistent with our current tactical allocations to global bonds and leveraged loans.

We believe the Fed will continue to support the economy as necessary until the economy can grow and function without additional monetary policy accommodation. This should lend itself to further credit spread tightening over the short to intermediate term. Even with spreads at relatively attractive levels compared with historical standards, we admit the absolute low level of yields increases the difficulty of adding alpha within spread sectors. This is one aspect in which we believe an absolute-return long-short approach can add value. Absolute-return strategies have the ability to exploit mispricing via both long and short positions and also expand the opportunity set of strategies typically not accessible to traditional long-only managers. Typical trading strategies include, but are not limited to, capital structure

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6 The March 2010 Investment Outlook, Shakespeare for Primates, provides details about leveraged loans.
7 The July 2013 Investment Outlook, Breaking the Bonds, provides details about absolute-return-oriented fixed income.
arbitrage, convertible arbitrage, event driven, and pairs trading.

**Allocation to Global Bonds within Bonds**

The strategic rationale for including global bonds in the portfolio rests on expanding the opportunity set within the investible bond universe. The Barclays Capital Global Aggregate Index, our proxy for high-quality global bonds, contains less than 40% U.S. issues (Chart 21, page 18). (For further details of our view on global bonds, see the July 2011 Investment Outlook, Pulling the Fourth Lever.) We believe investors who decline to look outside the United States may be missing opportunities for diversification and enhanced returns.

A primary motivation for allocating to global bonds is to introduce currency exposure to a portfolio. Although currency adds another level of volatility to a portfolio’s fixed-income allocation, it provides for investors a natural hedge against devaluation of the dollar, which traditional domestic fixed-income asset classes cannot offer (Chart 22).

The prospect of higher global economic growth outside the United States is another motive for allocating fixed income globally. As world economies grow more quickly, international bond investors may have the opportunity to reap the benefits of tightening global credit spreads relative to the United States. More importantly, currently investors can take advantage of higher interest rates abroad to gain higher yields. The addition of the currency exposure that comes with an unhedged global bond can act to help lower the correlation with U.S. bond returns (Chart 23).

In general, we suggest that active management makes the most sense in this allocation. Global bond index construction usually focuses on allocating more assets to countries with more outstanding debt. This may or may not be a good thing. Larger and more stable economies are likely to be able to support higher debt levels, but some fundamental analysis is likely helpful. We also believe that the current state of the global economy, with the large dichotomy between most developed and emerging economies, provides a possible opportunity for active managers for exposure to credit and foreign exchange.

In our opinion, it is likely that many managers’ allocations will differ greatly from the index. This also affects risk metrics, typically to the upside in terms of volatility, index tracking error, and historical drawdowns. This was explicitly taken into consideration by the PNC IPC when it sized the recommended allocation to global bonds.
Given the concerns regarding how the United States will handle upcoming monetary and fiscal policy decisions, as well as what effects those decisions might have on the value of the dollar, we believe an allocation outside traditional fixed-income bond sectors is prudent. We believe the advantage of higher global growth and diversification benefits, along with the ability to benefit from currency exposure outside the dollar, make investing in the global bond sector a viable complement to traditional dollar-based fixed-income assets. This allocation can be seen as adding to PNC’s defensive posture on U.S. interest rates, with 10-year Treasury rates now above 2% and our view that yields will rise over time as the current economic soft patch and the flight to safety fade (Chart 24). We also see this as an opportunity to benefit from higher bond yields elsewhere in the world.

Table 5 illustrates the behavior of various products on the PNC platform consistent with the absolute-return-oriented fixed-income strategies during periods of rising interest rates. The strong relative performance in rising-rate environments is notable and is consistent with our expectation.

### Allocation to Alternative Investments

We also believe alternative asset classes should be considered for qualified investors because they may provide an effective risk management tool for portfolios. Our argument is that if alternative and traditional investments are put on even footing with regard to expected returns, then solely by virtue of the two investments being different, the risk of the overall portfolio is reduced without altering the portfolio’s expected return. The risks may not be

<table>
<thead>
<tr>
<th>Periods of Rising Rates</th>
<th>Begin</th>
<th>End</th>
<th>10-Yr Yield Begin</th>
<th>10-Yr Yield End</th>
<th>Change in 10-Yr Treasury (bps)</th>
<th>BAA Yield Begin</th>
<th>BAA Yield End</th>
<th>Change in BAA Yield (bps)</th>
<th>Change in BAA Spread (bps)</th>
<th>Total Return during Period:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/30/08</td>
<td>6/10/09</td>
<td>10/8/10</td>
<td>9/22/11</td>
<td>1/31/12</td>
<td>7/25/12</td>
<td>12/6/12</td>
<td>5/2/13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-Year Treasury</td>
<td>2.05%</td>
<td>2.39%</td>
<td>1.72%</td>
<td>1.80%</td>
<td>1.40%</td>
<td>1.59%</td>
<td>1.63%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Change (bps)</td>
<td>190</td>
<td>135</td>
<td>68</td>
<td>58</td>
<td>44</td>
<td>47</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAA Yield</td>
<td>7.97%</td>
<td>5.62%</td>
<td>5.04%</td>
<td>5.07%</td>
<td>4.73%</td>
<td>4.55%</td>
<td>4.47%</td>
<td></td>
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<tr>
<td>Change (bps)</td>
<td>-22</td>
<td>63</td>
<td>42</td>
<td>35</td>
<td>36</td>
<td>39</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total Return during Period:</td>
<td>-212</td>
<td>-72</td>
<td>-26</td>
<td>-23</td>
<td>-8</td>
<td>-8</td>
<td>-50</td>
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</tbody>
</table>

### Total Return during Period:

- BarCap U.S. Aggregate: -0.47% -3.09% -1.68% -1.18% -1.21% -1.01% -3.04%
- Driehaus Active Inc (LCMAX): 13.08% 4.65% 2.26% 3.29% 0.48% 2.42% 1.27%
- Blackrock SIO (BSIIX): 10.77% 0.55% -0.20% 1.22% 0.31% 1.73% 0.63%
- MetWest Unconstrained (MWCIX): N/A N/A N/A 3.71% 1.75% 2.23% 0.70%
- Western Asset: Unconstrained (WAARX): 12.01% 1.13% 0.14% 1.08% 0.32% 1.13% -0.76%

*Source: Bloomberg L.P., PNC*
less, but they are in some ways different, so we believe this diversification may help manage overall portfolio risk.

Every action (or inaction) involves risk, and we believe investors should think about risk when they consider alternative investments. However, our research suggests that adding carefully selected alternative investments to a diversified portfolio of traditional investments may reduce the overall risk (as defined by the volatility of returns) of that portfolio without affecting expected returns. We believe that, for qualified investors, alternative investments should be considered as a tool for managing portfolio risk, not for adding risk to increase returns.

As an example of the possible value alternatives, in particular hedge funds, can bring to a portfolio in the current environment, look at the correlation between the S&P 500 and the HFRX™ Macro Index (Chart 25). Low correlation with stocks at times when they are falling would be a distinct positive in terms of reducing the downside. While at times these two very different assets move nearly in unison, the hedge funds do have exposure to other factors than solely stocks and also might adapt to the environment by changing exposures. In fact, the HFRX Macro Index had significantly outperformed the S&P 500 during previous downturns since late April 2013 (Chart 26).

Given the current market environment, including a number of factors (such as low returns on cash and occasional spikes in macroeconomic concerns) that could continue to result in increased volatility, we believe alternative investments are worthy of consideration for qualified investors.8

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8 For more details, see our October 2009 Investment Outlook, Alternative Medicine, and our August 2009 white paper The Science of Alternative Investments.
Bill Stone, CFA®, CMT
Managing Director, Investment and Portfolio Strategy
Chief Investment Strategist

Chen He, CFA®
Senior Portfolio Strategist

Marsella Martino
Senior Investment Strategist

Rebekah M. McCahan
Investment Strategist

Katie S. Sheehan, CFA®
Fixed Income Strategist

Michael Zoller
Investment Strategist
For qualified investors, we recommend an allotment to alternative assets of 20% of a balanced allocation to complement the traditional allocation.