Across the Great Divide

Introduction

Does using active managers still make sense when implementing a prescribed asset allocation? Simply put, are the higher fees often associated with active management justified by better performance over time?

Our view is that an asset allocation implemented via the use of both active and passive investment vehicles makes sense, but there are complex considerations worth analyzing. Below we try to bridge the "great divide" between active and passive management.

A Brief Look Back

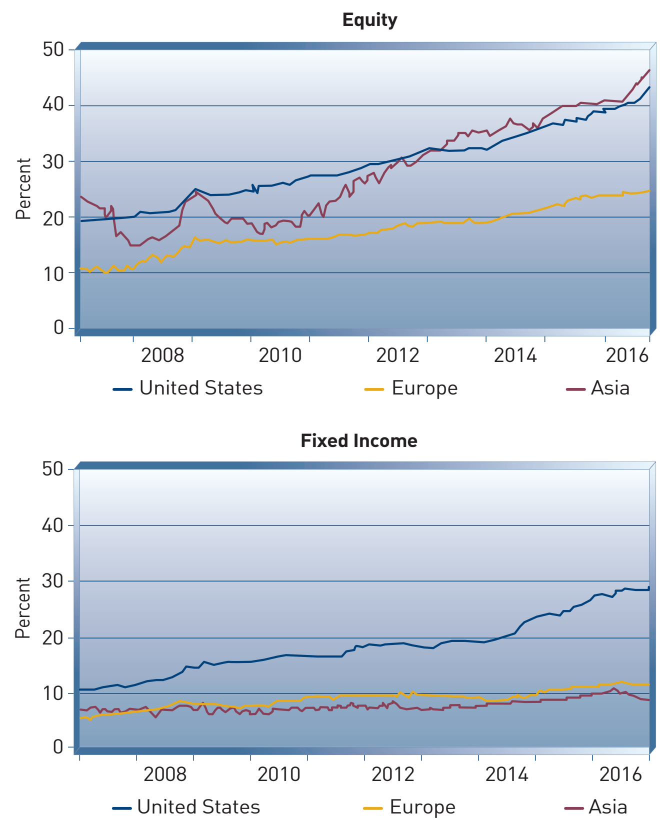
Before the adoption of passive index funds, most investors gained access to the market by either purchasing individual stocks or bonds on their own or using some version of a mutual fund managed by a professional investment firm. Over the years, there have been numerous so-called "star" performers that attracted large amounts of capital to their funds. For example, Peter Lynch's Magellan Fund at Fidelity averaged a 29.2% annual return from 1977 to 1990 and was one of the best performing mutual funds in the world. The question is, with the availability of so many cheap alternatives, can one identify managers like Mr. Lynch in advance with any degree of reliability? Active manager performance has struggled to keep pace with the broad market in recent years, and the popularity of active funds has waned as a result (Chart 1). Passive funds remain a minority, but their popularity is growing.

Tackling Some Big Questions

Are Markets Perfectly Efficient?

For investors who believe active management can add value to portfolios, one must first believe markets can, at times, be inefficient. The Efficient Market Hypothesis states all prices reflect all relevant information at all times. Market prices follow a "random walk" and cannot be predicted. We believe this is true much of the time; however, if markets were completely efficient, investors would have no incentive to trade on their information. In that case, who is making the market efficient? Or is there a market at all?[1] We have identified numerous drivers of what we believe to be periodic market inefficiency:

Chart 1
Percentage of Mutual Fund and Exchange-Traded Fund Assets in Passive Funds
January 2007–December 2016



Note: Morningstar Global Asset Flows Report, April 2017. The chart above uses all worldwide open-end mutual funds and ETFs as categorized in Morningstar. Regional allocations reflect the fund domicile; cross-border funds are excluded.

Source: Morningstar Global Asset Flows Report, April 2017

[1] S. J. Grossman and J. E. Stiglitz, "On the Impossibility of Informationally Efficient Markets," *The American Economic Review* 70, no. 3 (June 1980): pp. 393–408.

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- Humans make errors—they herd, panic, and get greedy.[2]
- Human behavior is hard-wired in our brains and hard to change.[3]
- Demand pressures and institutional frictions play a role.[4]
- Humans can interpret the same set of information differently.[5]

Without detailing each of the above, "The Curious Case of Palm and 3Com" is a good example of how inefficient markets can be:

> Most examples of apparent market mispricings fall short of being an undisputable mathematical proof. This is NOT one of those examples. In March 2000, 3Com sold approximately 5% of its holdings of Palm via initial public offering (IPO). Palm shares were issued at $38 and closed the trading day at $95. Since 3Com still owned 95% of Palm, 3Com shareholders indirectly owned 1.5 Palm shares for each 3Com share based on the respective outstanding shares in each company. Despite the buying frenzy in Palm, 3Com shares fell 21% on the day of the Palm IPO to $81. Based on the implicit embedded holding of Palm shares, 3Com shares should have closed at $142 based solely on the value of Palm shares at their closing price (1.5 X $95 = $142). In effect, the market was valuing the stub portion of 3Com (the rest of the company excluding Palm) at -$61. Ultimately, Palm shares steadily lost ground relative to 3Com, and the implied value of the 3Com stub rose steadily from deeply negative territory. Arbitrageurs who were able to short Palm and buy 3Com (which was hard to do since Palm shares were expensive to borrow) profited handsomely. Palm investors who bought shares indirectly by buying 3Com also fared far better than those who bought Palm directly. Gaining advantage through obvious mispricings for a high profile IPO is something that should be impossible if the efficient market hypothesis is correct.[6]

This provides clear evidence to us that the preconditions exist for the possibility of market outperformance.

Do Managers Exist that Can Consistently Take Advantage of Periodic Inefficiencies?

We believe we have made the case that markets aren't always efficient, but is it possible for an active manager to reliably exploit opportunities over long time periods? We think the answer is yes. There are many track records that simply defy explanations of luck or randomness. Mr. Lynch is a good example, but perhaps an even better one is the Renaissance Medallion Fund. This fund, managed by quantitative investor James Simons, realized an average monthly gross return of 4.8% from 1990 to 2009, with 90% of months positive. What is the probability this track record happened by chance? The answer is 10^{-48}. For context, scientists estimate there are 10^{50} atoms on earth.[7]

If we believe the market can be inefficient and there are managers that can capitalize on that inefficiency, can these managers be reliably identified in advance? If it is impossible to identify skilled managers in advance, we are back to a game of chance when implementing asset allocations. In that case, an all-passive allocation would be the most sensible given the lower cost. Maybe one shouldn't expect to identify the next Renaissance Medallion Fund (track records like that are rare), but can investors reliably find active managers that add value? We believe the answer is yes, but this is where the analysis becomes more complex.

When Do Active Managers Tend to Perform Best?

A logical starting point is to address whether there are identifiable environments that tend to be more conducive to active management. Is the recent underperformance

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2 Robert J. Shiller, *Irrational Exuberance* (Princeton, NJ: Princeton University Press, 2000).

3 Andrew Lo, *Adaptive Markets: Financial Evolution at the Speed of Thought* (Princeton, NJ: Princeton University Press, 2017).

4 Lasse H. Pedersen, *Efficiently Inefficient: How Smart Money Invests and Market Prices Are Determined* (Princeton, NJ: Princeton University Press, 2015).

5 Jack D. Schwager (Ed.), *Market Sense and Nonsense: How the Markets Really Work (and How They Don't)* (Hoboken, NJ: John Wiley & Sons, 2013).

6 James Pickford, "Mastering Investment," in Jack Schwager (Ed.), *Market Sense and Nonsense*.

7 J. Schwager, *Market Sense and Nonsense*.

shown in Chart 2 indicative of a secular shift in the ability of active managers to generate outperformance? Or are temporary, mean-reverting forces at play?

Active Lags in Strong Bull Markets

As of September 20, 2018, the average annual price return of the S&P 500® since 1928 is 7.6%. Since 2009, the S&P 500 has averaged an annual price return of 13.2%. Clearly, the last nine years have generated returns far above the historical average. Research shows that during high return (often momentum driven) market periods, active managers struggle to beat their benchmarks (Chart 3). Conversely, when returns are less robust or even negative, top quartile managers more often outperform.

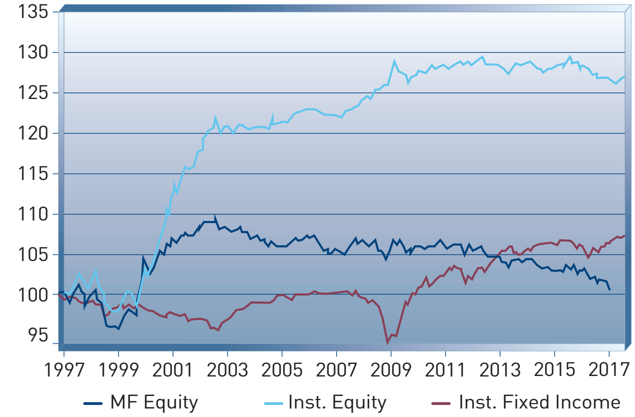
This pattern was generally consistent across style and capitalization categories and for international equity markets.[8] Intuitively we believe this makes sense—in stronger-than-average performance periods, performance dispersion within indexes generally falls, making it more difficult for active managers to differentiate their own performance. Academic research supports this belief, with many studies finding active stock pickers tend to outperform during periods of high dispersion between individual stock returns[9] and even more so during periods of differentiated declines, when higher dispersion coincides with weaker market performance.[10] The market is unlikely to generate an annual price return of 13.2% in perpetuity, so we believe the eventual shift in the market cycle has the potential to set the stage for better active manager performance.

Persistence of Certain Active Manager Tilts: A Cyclical Turning Point?

As the market cycle requires both the rise and fall of index values, along with the fluctuation of individual stock price dispersion, one may conclude that active manager performance is also cyclical in nature (Chart 4, page 4). Therefore, active investors can take comfort that we are not living in a new investing paradigm. We may just be enduring yet another period of performance cyclicality that may reverse as market conditions evolve.

Chart 2

Cumulative Outperformance of Mutual Funds and Institutional Funds

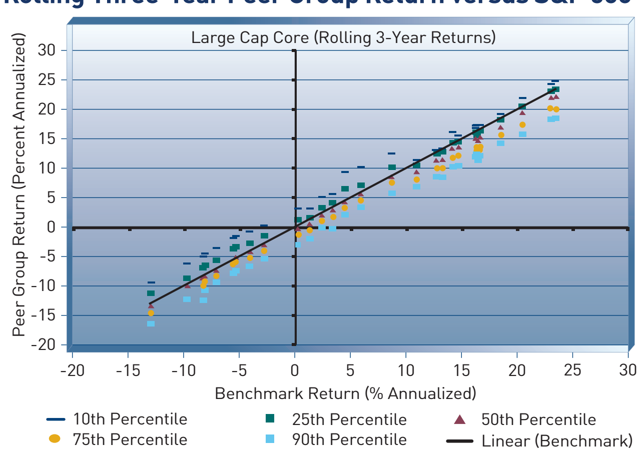


AQR, Morningstar, eVestment. Notes: "Institutional funds" are defined by Morningstar as any fund that meets one of the following qualifications—has the word "institutional" in its name; has a minimum initial purchase of $100,000; or states in its prospectus that it is designed for institutional investors or those purchasing on a fiduciary basis. All other funds would be defined as "mutual funds." All data are from January 1997 to June 2017, except for the mutual fund series, which ends in December 2016. All manager composites are equal weighted. Institutional manager returns are total returns net of fees. For illustrative purposes only. Past performance is not a guarantee of future performance.

Source: AQR Active and Passive Investing—the Long Run Evidence, Second Quarter 2018

Chart 3

Rolling Three-Year Peer Group Return versus S&P 500



Note: Returns are total return, net of fees. 10-year period ending December 2014. Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly. Past performance is not a guarantee of future results.

Source: DiMeo Schneider & Associates, L.L.C.

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[8] Dimeo Schneider & Associates, L.L.C., *The Next Chapter of the Active vs. Passive Debate* (October 2015).

[9] R. Kosowski, "Do Mutual Funds Perform When It Matters Most to Investors? US Mutual Fund Performance and Risk in Recessions and Expansions" (August 30, 2006). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=926971. This paper studies all nonsector, nonfund of funds U.S. equity mutual funds from the CRSP Survivorship Bias Free database from January 1962 to December 2005.

[10] H. Parikh, K. McQuiston, and S. Zhi, "The Impact of Market Conditions on Active Equity Management," *The Journal of Portfolio Management* 44, no. 3 (Winter 2018): 89-101.

Research shows the direction of interest rates can be a critical driver of active manager performance because rates meaningfully affect some common exposure biases in active strategies.[11] For example, there is a strong relationship between active manager performance and the relative performance of small-cap stocks (Chart 5). Using the SMB factor (Small Minus Big is one of three factors in the Fama-French stock pricing model),[12] we see active managers tend to do better when small caps outperform. This reflects the inherent bias toward smaller-cap equities within the average active strategy.

Rising interest rate environments often reflect expectations for improving economic growth (2017–18 is a good illustration). During such periods, small companies typically benefit more than large companies since small companies have a higher correlation with economic growth. As U.S. interest rates rise, small companies are typically insulated from factors such as a stronger dollar that may have a negative impact on the foreign-sourced earnings of larger companies. Therefore, one might expect that as the global interest rate environment slowly normalizes, many active managers will enjoy a tailwind from their inherent bias toward smaller companies (Chart 6, page 5).

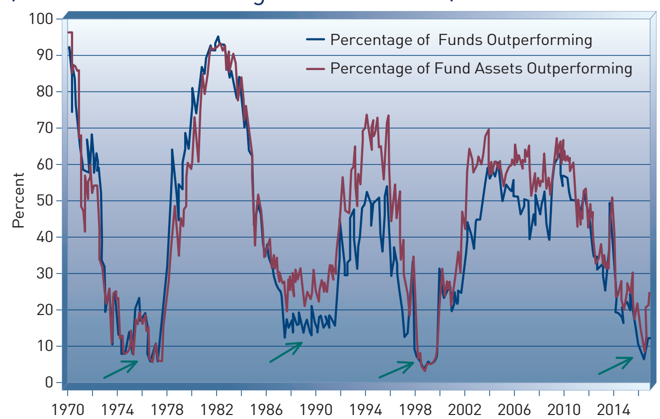
Large-cap fund managers also tend to have a bias against high-dividend-yielding companies. Especially since the Financial Crisis, as interest rates reached all-time lows, many investors sought income in high-yielding bond-proxy stocks, for example, utilities and real estate investment trusts. It is not surprising to us that the negative correlation between interest rates and high-dividend-paying stocks intensified over this period. As rates have slowly risen, we believe this negative correlation should be a net-positive given active management's factor-bias away from dividend yield.

Bottom line: Active management has proven to be cyclical when looking at historical performance data. Interest rates seem to explain much of this cyclicality given their impact on typical active manager exposure biases toward smaller, lower-dividend-yielding stocks. Therefore, the most recent period of active manager underperformance is not reflective of a new

Chart 4

Percentage of Funds (Fund Assets) Outperforming S&P 500 on a Five-Year Basis*

(10-Year Period Ending December 2014)

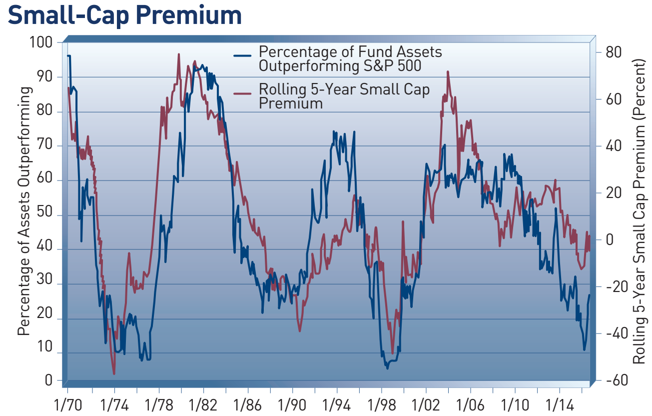


Note: Shows the percentage of U.S. active equity mutual funds (blue line) and fund assets (red line) outperforming the total return of S&P 500 based on trailing five-year performance total returns, net of fees. Funds are those in existence for five years or more and belong to U.S. growth, growth & income, and income funds (based on CRSP fund objective code). For percentage of fund outperformance, only funds with more than $10 million total net assets are considered. Percentage of fund assets outperformance is calculated as the ratio of total net assets of active equity funds outperforming S&P 500 over total net assets of all active equity funds. Period of analysis is from January 1970 through December 2016. Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly. Past performance is not a guarantee of future results.

Source: Nomura

Chart 5

Percentage of Fund Assets Outperforming versus Small-Cap Premium



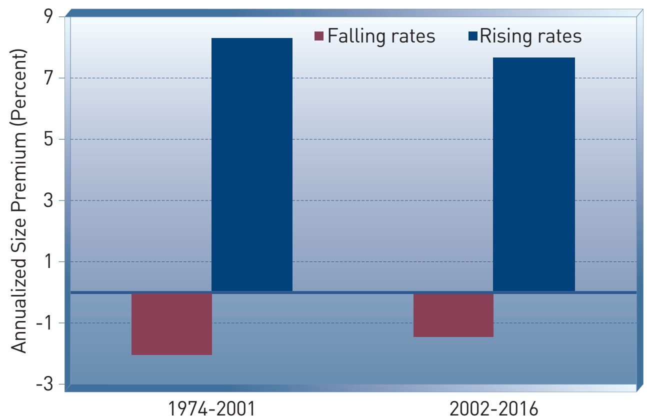
Note: Shows the percentage of fund assets outperforming the total return of S&P 500 based on trailing five-year performance after fees (blue line). Also shows the rolling five-year small-cap premium based on Kenneth French's SMB factor (red line). Funds belong to U.S. growth, growth & income, and income funds (CRSP fund objective code). Period of analysis is from January 1970 through November 2016. Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly. Past performance is not a guarantee of future results.

Source: Nomura

[11] Nomura Quant Strategy "Peak Passive" (January 5, 2017).

[12] SMB factor shows the performance of small-cap stocks relative to big-cap stocks with monthly rebalancing from Kenneth French's database. The detailed definition of SMB factor can be found at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/f-f_bench_factor.html.

Chart 6
Interest Rate Changes Influence Size Premium (Based on Monthly Changes in Rates)



Note: Shows annualized average of the small-cap premium (smaller stocks – larger stocks) in falling and rising 10-year Treasury yield environments based on monthly frequencies from 1974 through 2001 and from 2002 through 2016. Past performance is not a guarantee of future results.

Source: Nomura

investing paradigm but rather of a prolonged period of low interest rates encouraged by an unprecedented period of central bank intervention. The normalization of global monetary policy and, as a consequence, interest rates, might represent a cyclical turning point in active management. We believe the efficacy of active management changes with the business cycle, making it possible to help forecast environments that will likely be better suited for active managers. We think this type of insight can be useful when thinking about building portfolios at different times throughout the economic cycle. This does not mean being all passive or all active but rather leaning a bit more toward active or passive given what we believe to be the prevailing backdrop.

That said, we acknowledge that exact timing is always a challenge, and real world considerations such as taxes can be obstacles to more frequent trading for certain investors. Therefore, even if this type of insight is not used as a precise timing mechanism (dynamically moving from active to passive and vice versa), it is important in developing an understanding for why some managers may be underperforming or outperforming during different phases of the cycle, allowing investors to maintain a high-conviction strategy that will likely add value above the index over the longer term.

Best Strategy Is to Remain Patient—Even Good Strategies Don't Work All the Time

We believe the true way to take advantage of top-tier active managers is to be a long-term investor. Consequently, we go to great lengths to understand why we own the managers we do, when they are likely to perform well or poorly, and what persistent characteristics they have that may add outperformance over time. Having strong conviction in a manager's strategy is often required to ultimately reap the benefits of that manager's particular market advantage. For example, in a study ending December 2014, 92% of 10-year top quartile mutual funds were unable to avoid at least one three-year period in the bottom half of their peer group.[13]

Whether or not managers in your portfolio reflect the typical exposure biases outlined above, the key is to understand a manager's strategy, be clear about the exposures embedded within that strategy, and come to terms with the fact that not all environments will lend themselves to outperformance. However, a manager meeting the preconditions of skill and a durable edge should add value over time.

A Case Study in Long-Term Active Investing

We consider a specific example to bring these challenges and potential rewards to life. Over the 10-year period ending June 30, 2018, the Touchstone Sands Capital Select Growth Fund (CFSIX) was one of the top performing U.S. large-cap growth funds, beating 96% of its peers in the Morningstar large-cap growth universe over that period (Table 1, page 6). It was one of the few funds to beat the Russell 1000® Growth Index. And it beat the index by a little under two percentage points annualized over the period, which would translate into an additional $56,000 at the end of 10 years on an initial $100,000 investment.[14]

[13] Dimeo Schneider & Associates, L.L.C., *The Next Chapter of the Active vs. Passive Debate* (October 2015).

[14] This example is for illustrative purposes only and hypothetical in nature. Hypothetical results have inherent limitations because they are not based on actual transactions and may under or over compensate for the impact of certain economic and market factors, all of which can adversely affect results. Past performance is no guarantee of future results. This calculation (and the discussion that follows) is net of mutual fund fees, assumes reinvestment of all dividends, and does not take into account the impact of account-level fees and expenses or taxes on the investment.

Table 1

Touchstone Sands Capital Select Growth Fund Performance

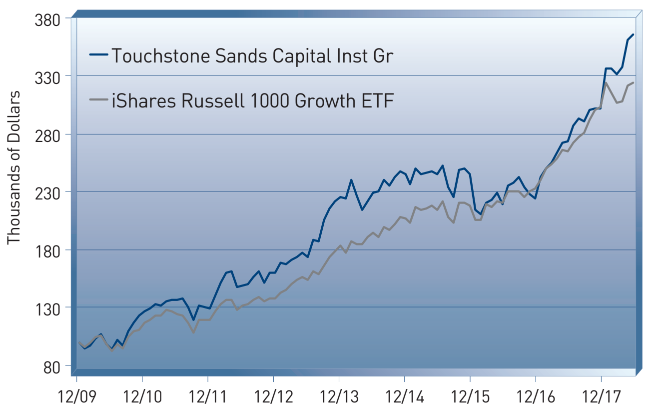
	2009		2010-2013		2014-2016		2017 - June 2018		July 2008 - June 2018	
	Return	Peer %	Return	Peer %	Return	Peer %	Return	Peer %	Return	Peer %
Touchstone Sands Capital Select Growth Fund (CFSIX)	70.7	1	22.1	1	-0.4	98	38.3	3	13.4	4
Russell 1000 Growth Index	37.2		16.5		8.6		24.9		11.8	

Note: Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly. Past performance is not a guarantee of future results.

Source: Morningstar Direct

Chart 7

Value of a $100,000 Investment from December 2009 to June 2018[15]



Note: Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly. Past performance is not a guarantee of future results.

Source: Morningstar Direct

That's an impressive track record, especially in a difficult period for active managers.

However, to achieve those results, an investor had to endure a three-year period (2014 through 2016) of very subpar results. Over that period, Sands trailed the index by nearly nine percentage points *annualized*, and the fund trailed nearly 98% of its peers over the same three-year period. Moreover, this was not the result of one short bad stretch—it was consistent poor performance for three straight years.

Imagine being at the end of 2009 and reviewing potential U.S. large-cap growth managers. Sands's 2009 performance—an astounding 71% gain in a year in which the Russell 1000 Growth Index gained an impressive 37%—would likely have caught the attention of many investors.

Consider an investor who thought this run would continue, deciding to invest $100,000 in her individual retirement account (IRA) with Sands on December 31, 2009. This investor would have finished 2010 very happy, with an investment worth more than $126,000 compared to a comparable investment in iShares Russell 1000 Growth Index exchange-traded fund (ETF) that would be worth a little under $117,000. (Chart 7 shows the value of the investment over time.) That was an impressive first year. By the end of 2013, the investor's holding in Sands would have been worth more than $225,000 versus a comparable $183,000 had she invested in the index ETF. In 2014 and 2015, the story started to turn, with Sands having two consecutive bad years, trailing the index by roughly 5 percentage points each year. Nevertheless, the investor would still have been ahead of the passive option by more than $27,000 on that initial $100,000 investment. By the end of 2016, the investor would have been far less pleased, with poor performance causing the value of her investment to be $224,000 compared to the nearly $233,000 she would have had if she had invested in the index ETF.

[15] This example is for illustrative purposes only and hypothetical in nature. Hypothetical results have inherent limitations because they are not based on actual transactions and may under or over compensate for the impact of certain economic and market factors, all of which can adversely affect results. Past performance is no guarantee of future results. This calculation (and the discussion that follows) is net of mutual fund fees, assumes reinvestment of all dividends, and does not take into account the impact of account-level fees and expenses or taxes on the investment.

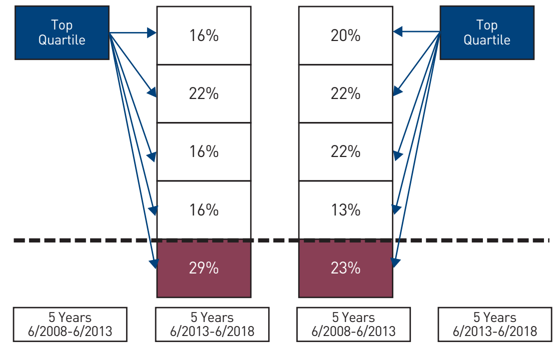
The investor now has to make a decision: Should she shift into a passive investment or continue with Sands? It is no doubt a difficult choice after three rough years. If the investor sold at the end of 2016, however, she would have missed out on another strong run by Sands that started in January 2017. By June 30, 2018, her investment in Sands would have been up to nearly $366,000 compared to $324,000 for the passive investment. If she had sold at the end of 2016 and switched to the passive option then, she would have missed out on the entire amount of Sands's material outperformance over an eight-and-a-half-year period.

We conclude this story with a few observations. While there may be opportunities to generate excess returns by investing with active managers, the ride can be bumpy. To access those higher returns, investors must be willing to commit for the long haul. Even considering the cyclicality of active manager performance, it is often difficult to predict precisely when specific active managers will outperform or underperform the related passive option. Therefore, significant work is required to identify strong managers and develop conviction that can withstand an extended period of material underperformance. Recent performance can be a poor predictor of what will come next. In this example, Sands had four strong years followed by three weak ones, which were in turn followed by another very strong period. Managers simply cannot be judged based on even several years' worth of performance data. Indeed, some large-cap growth managers who purposely avoid the most aggressive growth stocks have underperformed for a decade now, but might be a strong choice if the market turns and those aggressive growth stocks suffer. Choosing the right active manager for the next decade can provide ample rewards, but it is no simple exercise.

This raises an important question: Even if active management *can* lead to excess returns over time, does it make sense to try? We believe the answer is yes. In the next section we discuss how we can strive to identify the active managers most likely to outperform over time and how to build portfolios that can withstand the uncertainty and variability of active manager performance.

Chart 8

Past Performance not Likely to Be a Predictor of Future Returns



Note: The chart takes the top quartile of U.S. large-cap equity managers based on 6/2008-6/2013 performance and tracks their subsequent quartile rankings over the following five-year period (6/2013-6/2018). It also identifies where the top-quartile managers are over the most current five-year period (6/2013-6/2018) ranked in the previous five-year period (6/2018-6/2013). Past performance is not a guarantee of future results.

Source: eVestnet, PNC

Selecting Managers and Building a Portfolio—What We Do to Tilt the Odds in Our Favor

A large body of research on the active/passive debate published over the past several decades has resulted in a few conclusions. In his 1991 article "The Arithmetic of Active Management" in the *Financial Analysts Journal*, William Sharpe[16] posited two important theories:

- The *average* active manager is expected to underperform the benchmark after fees. "... the return on the average actively managed dollar *must* equal the market return. Why? Because the market return must equal a weighted average of the returns on the passive and active segments of the market. If the first two returns are the same, the third must be also."
- Not all managers are average, and it is possible to choose a set of active managers that outperform. "It is perfectly possible for *some* active managers to beat their passive brethren, even after costs."... "It is also possible for an investor (such as a pension fund) to choose a set of active managers that, collectively, provides a total return better than that of a passive alternative, even after costs."

Unfortunately, as we saw in the Sands example earlier, past performance is not likely to be a strong predictor of future returns. As shown in Chart 8, this was not

[16] William Sharpe, an architect of the capital asset pricing model, creator of the Sharpe ratio (perhaps the mostly commonly used metric to measure risk-adjusted performance), and winner of the 1990 Nobel Memorial Prize in Economic Studies is a giant in the investment industry.

Table 2

Notable Findings from Working Papers

Author(s)	Notable Findings
Amihud/Goyenko (2012)	More "active" funds, measured by lower R2 to their benchmark, tend to outperform.
Baks/Busse/Green (2006)	Focused [concentrated] managers outperform their more broadly diversified counterparts... investors may enhance performance by diversifying across focused managers rather than by investing in highly diversified funds.
Brands/Brown/Gallagher (2004)	Documents a positive relationship between performance and portfolio concentration - focused managers outperform.
Cremers/Petajisto (2009)	Introduced Active Share, which "represents the share of portfolio holdings that differ from the benchmark holdings...funds with the highest Active Share significantly outperform their benchmarks, both before and after expenses, and they exhibit strong performance persistence."
Jian/Verbeek/Wang (2011)	Stocks heavily overweighted by active funds outperform...active mutual funds invest only small portion of fund assets in high alpha stocks. Fund managers' high-conviction ideas outperform.
Massa/Zhang (2009)	Organizational structure affects performance and flat structures tend to lead to outperformance. "More vertical structures are characterized by worse performance."
Petajisto (2010)	The most active stock pickers have outperformed their benchmark indexes even after fees and transaction costs.
Cremers (2016)	Funds with high active share and long holding duration outperform.
Kosowski (2006)	The average active manager underperforms in expansionary periods but outperforms in recessionary periods when investors "marginal utility of wealth is high" (that is, when performance matters most to investors').
Khorana/Servaes/Wedge (2007)	Managers who invest in their own funds tend to outperform.
Wei/Wermers/Tong (2012)	Contrarian fund managers tend to outperform.
Ding/Wermers (2012)	Governance structure matters - having more independent directors on mutual fund board is a characteristic of outperforming funds.

Source: Hotchkis & Wiley, PNC

an isolated case. On the left-hand side of the chart, we took the top 25% of performers of U.S. large-cap core managers in the eVestnet universe for the five-year period ending June 30, 2013, and looked at how they performed over the following five years. That subsequent performance was nearly evenly distributed among quartiles of the surviving universe, with 29% of funds no longer existing by June 2018. On the right-hand side, we reversed the exercise. In this case, we looked at the top quartile of funds for the five-year period ending June 30, 2018, to see how they performed in the prior five years. Again, funds were nearly equally likely to come from any quartile in the first five-year period to become a top performer in the second five-year period, with 23% of top quartile funds having started investing less than five years prior to the test period. Simply put, looking among only top quartile performers over the past five years offers nearly no advantage in selecting an active manager. Picking a manager at random from the entire universe of managers would be essentially no worse than looking solely at top quartile performers!

If not all managers are average, and past performance is not an indicator of the likelihood of future success, do successful active managers share common traits that can be identified in advance? In a word, yes. Table 2 lists a series of academic studies and the key findings on traits of outperforming equity managers. The results of these academic studies show managers that outperformed were truly active, by which we mean materially different from the benchmark. To be clear, we do not think of “active” as a description of trading frequency. In fact, successful active equity managers tend to have a long-term orientation toward their highest conviction ideas. In addition, successful managers tend to concentrate their portfolios in these ideas.

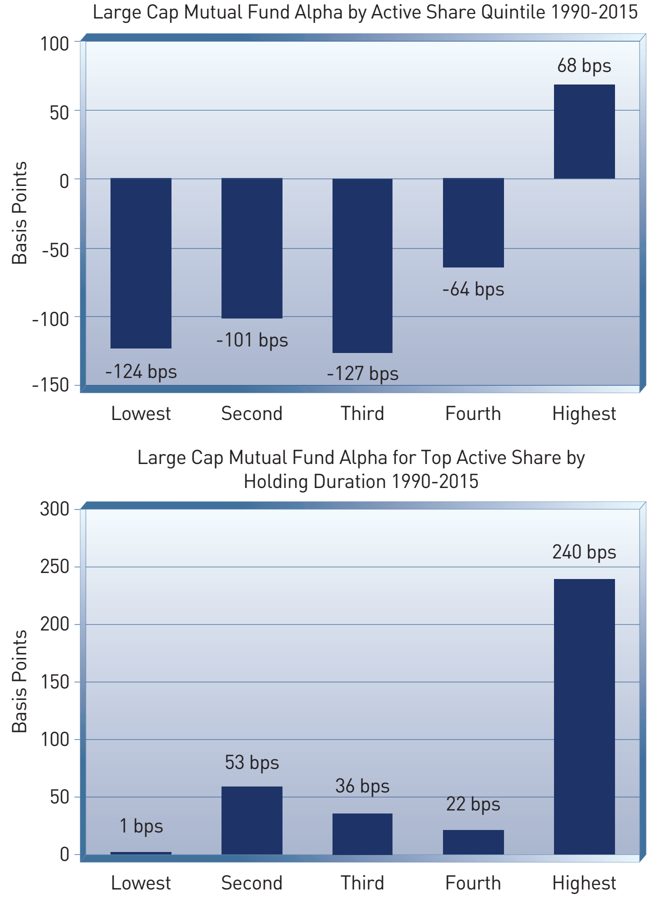
Our Approach

In our view, one measure particularly useful is the so-called "active share," a metric introduced by Cremers and Petajisto in their 2009 paper that quantifies the proportion of the holdings of a mutual fund that are different from the benchmark.[17] They found mutual funds with the highest active share outperformed after fees while those with the lowest active share underperformed. A pure index fund would mirror its benchmark and have an active share of zero. A fund that held none of the securities found in its benchmark would have an active share of 100. These results seem logical: The more a portfolio mirrors the index, the less opportunity it has to outperform. What we found surprising, and what is seldom mentioned when discussing underperformance of the average active manager, is how few active managers seem to be trying; most active managers are not truly active. The study found up to one-third of U.S. mutual funds had low enough active share to be considered closet indexers, or funds that effectively mimic their benchmarks to help protect relative performance in a volatile and competitive marketplace.

Cremers updated his research in 2016 to cover the 1990–2015 period. Across all U.S. equity retail mutual funds, the study found the mutual funds with the highest active share, as a group, outperformed net of fees. Within that group of the most active mutual funds, there was still significant return dispersion. Some funds did very well while others did not. When an additional layer of analysis is applied, holding duration (a measure of how long stocks are held in the portfolio), we can narrow our focus to a set of managers who have historically outperformed. Cremers found that those with high conviction, as measured by holding duration, tended to outperform those with low conviction. In other words, investors who were patient and invested with a long-term view outperformed impatient investors. Chart 9 illustrates these results for large-cap U.S. equities, typically thought to be efficient and therefore difficult for active management.[18] These data demonstrate that even here the highest active share managers outperformed during the 1990-2015 period. When we take the highest active share group and look further for the funds with the lowest turnover in that group as measured by holding duration, we see patient managers further outperform.

Chart 9

Large-Cap Mutual Fund Alpha



Note: Past performance is not a guarantee of future results.

Source: Morningstar Direct

Conviction to look different than the index, as measured by active share, and the courage of those convictions are measurable characteristics we can use to put the odds in our favor by selecting from a pool of above-average active managers. The findings from several academic studies provide the starting point in our manager selection process so that we may tilt the odds in our favor by starting with a pool of managers more likely to outperform than the average active manager.

While we can increase the odds of selecting a manager that will outperform by focusing on funds with these traits, it is important to remember active

[17] M. Cremers and A. Petajisto, How Active is Your Fund Manager? A New Measure that Predicts Performance, Yale School of Management (2009) (white paper).

[18] Cremers and Petajisto.

share is not a measure of skill. Rather, it is simply a measure of difference from the index, which can lead to very strong or very weak performance relative to a benchmark. Thus, these metrics are just a starting point for a strong manager selection process.

This discussion has so far primarily focused on equity managers. The story is similar in fixed income markets, but in this case we believe there are additional benefits that can be accessed through active management. This is due to some structural advantages available to active fixed income managers. While we do not explicitly use an indicator similar to active share in assessing fixed income managers, our approach remains similar to equities. For example, among multisector fixed income managers, often referred to as “core” or “core plus” managers, we focus on managers with scale and off-benchmark experience. Scale is a key focus since the economics of trading costs and retaining top talent favor large asset bases. Off-benchmark experience allows for the use of fixed income sectors in the portfolio not easily accessible to most investors and for greater diversification.

Across asset classes, we believe skilled active managers exist and can be identified. However, it requires a rigorous process, talented people, and deep resources aimed at a holistic assessment of the manager and strategy to determine the future probability of outperformance and risk control. The key areas we assess are:

- Organization: Is the manager stable with a culture and incentives aligned with investors?
- Investment philosophy: What is the market inefficiency the manager seeks to exploit?
- Investment process: How does the manager execute to exploit market inefficiency, and is it repeatable?
- Investment team: Does the team have the appropriate knowledge and structure?
- Portfolio and risk management: How is the process implemented and risk managed?
- Performance: Has the manager been successful in the context of expectations and historical market environments?

The aim of this paper, both quantitative and qualitative, is to identify true active managers with a clearly articulated investment philosophy and process that leads to a differentiated portfolio. We believe this increases the likelihood past success is repeatable and is the product of actual skill. A deep understanding of the factors contributing to manager success, which go well beyond portfolio metrics, is critical for the conviction necessary to successfully invest with an active manager program. In essence, a core component of our investment process is to know what we own and why we own it. In our view, this not only helps us to identify the managers most likely to outperform but also allows us to be patient and benefit from an active manager rather than reacting emotionally to short-term performance. During times of stress, we can respond and evaluate performance based on a deep understanding of how the manager invests in the context of the market environment. Hiring and firing simply based on performance, as seen in the Sands example, will likely lead to poor investment decisions.

Implementation—Combining Managers

Academic research and our experience indicate the managers most likely to outperform are also likely to have performance that can vary dramatically from their benchmarks over time. This variation from benchmark performance can cause investors much pain on a manager-by-manager basis. Fortunately, building a portfolio typically involves selecting more than one manager. We can use the impact of diversification to help build a portfolio of high-tracking-error managers that, when combined, takes on much less variability from the portfolio benchmark. The basic idea is that if we pair managers that outperform and underperform at different times, the overall portfolio will offer a smoother ride for investors to stick with over time.

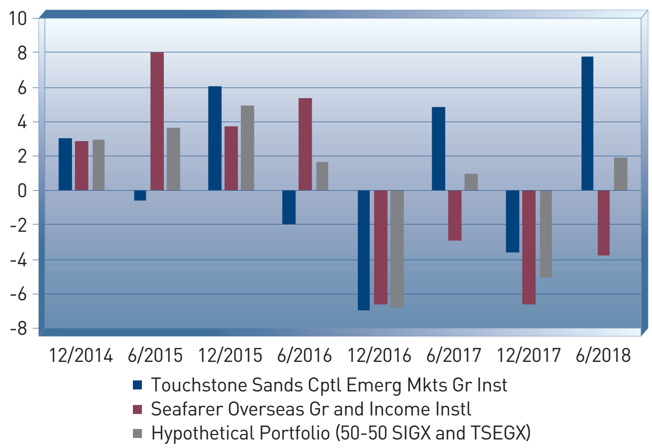
Moreover, the discussion of active versus passive investing often focuses primarily on returns, but active management can also reduce potential risk. The goal can be to generate competitive returns while preserving capital during periods of stress. Such managers will often underperform during periods of strong benchmark performance, often leading to difficult decisions for investors, not unlike what was described in the Sands example. However, combining a manager that performs better in a rising market with one that performs better during times of stress can help ease this challenge. It can also lead to a portfolio that generates strong returns with less risk over the long term while helping to mitigate periods of underperformance.

Table 3
Metrics for Seafarer Overseas Growth and Income Fund and Touchstone Sands Capital Emerging Markets Growth Fund
Four-Year Period Ending June 2018

	Return	Volatility	Excess Return	Max Drawdown	Tracking Error
Touchstone Sands Capital Emerging Markets Growth Fund - Inst	5.37	14.06	2.56	-22.99	7.48
Seafarer Overseas Growth and Income Fund - Instl	2.99	13.07	0.18	-19.68	5.84
Hypothetical Portfolio	4.27	13.02	1.46	-19.57	5.51
MSCI EM NR USD	2.81	15.48	0.00	-29.77	0.00

Note: This example is for illustrative purposes only and is hypothetical in nature. Hypothetical results have inherent limitations because they are not based on actual transactions and may under or over compensate for the impact of certain economic and market factors, all of which can adversely affect results. Past performance is no guarantee of future results. Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly.
Source: Morningstar Direct

Chart 10
Excess Return versus MSCI Emerging Markets Net Return Index



Note: Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly. Past performance is not a guarantee of future results.
Source: Morningstar Direct

To illustrate both points, we turn to a hypothetical portfolio of emerging market equities, one split evenly between the Seafarer Overseas Growth and Income Fund (SIGIX) and the Touchstone Sands Capital Emerging Markets Growth Fund (TSEGX) (the hypothetical portfolio). The past four years have been a turbulent period in emerging markets, with returns on the MSCI Emerging Markets Index varying from a 15% loss in 2015 to a 37% gain in 2017. Table 3 shows some metrics for the two funds, the hypothetical portfolio, and the index over the four years ending June 30, 2018. Both funds and the hypothetical portfolio outperformed the index on a return basis, but more importantly this combination meaningfully reduced risk.

Also, the effect of having these two funds in combination was even more powerful than having either fund on its own. Note that the volatility of the combined hypothetical portfolio is lower than either fund on its own, and the return is higher than the lower-returning fund, Seafarer. Both funds can differ significantly from the index as measured by the tracking error, defined as the standard deviation of the excess return over the index. Again, the hypothetical portfolio's tracking error is slightly lower than either fund despite Sands EM's large variation. The best measure, though, is the maximum drawdown, that is, the largest peak-to-trough loss. The hypothetical portfolio's largest loss was meaningfully less than the index during this period.

Another way to see the benefit of combining these two managers in the hypothetical portfolio is shown in Chart 10. Here we show performance for the two funds and the hypothetical portfolio combining them relative to the index for six-month periods starting in first-half 2014. It is clear each fund on its own underperformed the index in four of the eight periods, but the combination only underperformed in two of those periods, both of which were relatively strong periods for emerging markets. There is no perfect solution that will help prevent underperformance, but it can be mitigated by combining active managers with differing strategies. Embracing a similar approach across an entire portfolio, bringing together active managers with differing approaches and low correlations to each other, may reduce the likelihood of long periods of meaningful underperformance at the portfolio level. We believe this, in turn, helps enhance the ability of investors to hold a portfolio of active managers for the long term and achieve the higher return potential, possibly with lower risk, available from an actively managed portfolio compared with a fully passive implementation.

Bringing It All Together—the Combination of Active and Passive

In the previous sections, we made the case that active managers can play an important role in an investor's portfolio:

- Active manager performance is cyclical. Our view is that such cyclicality can be used to identify better environments for active managers, or at least understand why certain strategies are doing well or poorly given the prevailing backdrop.
- Skilled managers do exist, and a thoughtful screening process can help tilt the odds in our favor when identifying them.
- A clear understanding of manager exposures will not only help us remain with them during inevitable periods of underperformance but also allow us to carefully combine them within portfolios to maximize risk-adjusted returns.

The final piece of this complex puzzle is how investors should think about the use of passive vehicles in combination with active managers. There is no simple or right answer to this question. With that in mind, we highlight some key considerations below.

Even Passive Investing Can Be an Active Decision

It's important to remember not all indexes are created equal. In some cases, the design of a benchmark can matter more than an active investing choice. Therefore, purchasing an ETF that tracks an index can also be an active decision. Even when implementing an asset allocation via passive vehicles, it is necessary to understand the imbedded exposures. For example, ETFs that track the S&P Small Cap 600 Index, Russell 2000® Index, and CRSP Small Cap Index are very different from an exposure standpoint. Simply looking at the distribution of capitalization exposure within the indexes makes this obvious to us (Table 4). The CRSP Index, which is used in the Vanguard Small Cap ETF, has a meaningful allocation to mid-cap stocks. There are notable sector differences as well, and in combination the various index constructions may have a material impact on performance depending on the prevailing market environment.

Table 4
Market Cap Weightings

Quintile	S&P 600	Russell 2000	Vanguard/CRSP
Mega Cap (Over $200 Billion)	0.00	0.00	0.00
Large Cap ($25-200 Billion)	0.00	0.01	0.00
Mid Cap ($5-25 Billion)	1.53	9.71	39.87
Small Cap ($1-5 Billion)	81.81	73.00	55.21
Micro Cap (Under $5 Billion)	16.24	16.95	2.77
[Cash]	0.00	0.01	1.59
[N/A]	0.42	0.32	0.55

Note: Indexes are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that an account may incur. Actual returns may vary significantly.

Source: Morningstar Direct

We believe this underlines a key point often reserved for active investing; that is, know your exposures and develop an understanding for how those exposures are likely to behave in different markets relative to other choices. Remember, the definition between active and passive is not always as simple as it may seem—how low of a tracking error to a stated index qualifies as passive? Even the use of passive funds in an active way in a portfolio (having home country bias, for example) should be considered some form of active investing, in our view.

Deciding Whether to Go Active or Passive

A common narrative is certain corners of the market with less analyst coverage and fewer active managers are often less efficiently priced. In general, we believe this to be true, but it is not always the case. As an example, we think active managers often have a better opportunity set in international markets. Simply because international markets are more heterogeneous, active managers can often capitalize on shifting market conditions in different geographies far better than a static passive index. The developed international asset class, as defined by the MSCI World Ex USA Index, contains 22 countries that do not all share similar economies, political challenges, and financial market performance. The idiosyncratic nature of the exposures within the asset class means active investors can not only identify potential opportunities more readily but also manage risk more effectively.

This point is further underlined when thinking about emerging international markets. Since 2006, on a rolling three-year basis, at no time has the MSCI EM Index ranked in the top quartile of the emerging market peer universe. It is clear to us managers in emerging markets can add value above the index given some of the extreme performance differences that can occur between emerging market regions. Further analysis by William W. Jennings and Brian C. Payne in the *Financial Analysts Journal* suggests even higher fee emerging market investments remain attractive from a return and diversification perspective.[19]

AQR also conducted an analysis of Morningstar and eVestment databases, coming to a similar conclusion that both small-cap and non-U.S. market mandates have had higher active returns and information ratios than U.S. large-cap mandates.[20] However, in our own research, we have observed that while this statement holds true when comparing U.S. small-cap managers to the Russell 2000® Index, the S&P Small Cap 600 Index has proven harder for active managers to beat than the large-cap S&P 500 frequently over the past 20 years. Thus, one has to be careful in applying this general framework.

Depending on the objective, however, a passive implementation may also be the preferred course of action:

- If we have a particular view on a sector, industry, or region, it is usually most efficient to implement that via a passive vehicle. Passive funds that target these exposures are often the cheapest and most direct way to a targeted exposure. Active manager exposures may shift, and regional and sector exposures may simply be an outcome of more company-specific stories within their portfolios.
- Smart beta: In certain cases, active manager alpha or outperformance may just be the result of exposure to certain factors that command a return premium over time. For example, the small-cap premium, value premium, and momentum factor, as captured in the Carhart four-factor model,[21] are thought to be a more accurate way to measure returns. If most of a manager's returns are explained via certain well-known factors, their true ability to generate alpha may be limited. Therefore, if simply seeking exposure to a factor that may help increase returns over time, lower-cost ETFs targeting such exposures are available. When choosing active, we hope to acquire exposures outside of these systematic factors that can now be accessed via cheaper alternatives.[22]
- Taxes: Although not applicable for all client types, passive vehicles can be used to maximize tax efficiencies within portfolios. For example, implementing a core equity exposure with a systematic tax-harvesting passive index can be a cost-effective way to gain index exposure while also maximizing after-tax gains. Further, passive funds are often more tax effective by nature because their turnover is generally far less than the average active manager. That said, we tend to target active managers with below-average turnover.
- Controlling costs: Paying more for something that generates a similar return compared to a lower cost option will negatively affect an investor's wealth over time.[23] Simply put, fees matter. Some academics have even suggested fees be measured as a percentage of risk-adjusted returns above the market, not as a percent of total returns. In essence, are you getting what you pay for, which in this case is differentiated performance? Although we believe in the value

[19] William W. Jennings and Brian C. Payne, "Fees Eat Diversification's Lunch," *Financial Analysts Journal*, vol. 72, no. 2 (2016).

[20] AQR, "Active and Passive Investing – The Long-Run Evidence," Second Quarter 2018 (May 21, 2018).

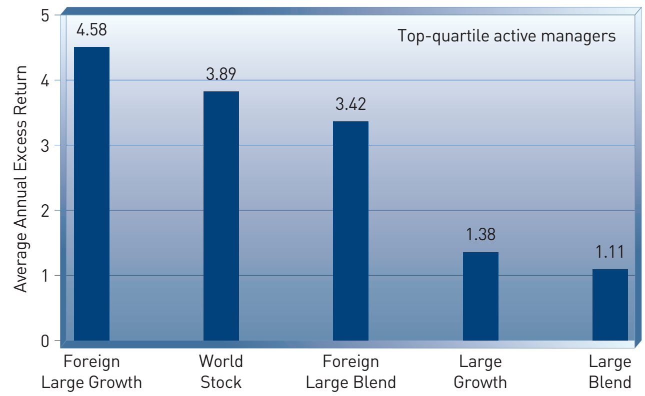
[21] The Carhart four-factor model (which adds momentum) is an extension of the Fama-French model.

[22] Often called smart beta products; smart beta is an attempt to capture persistent investment factors in a rules-based and transparent way.

[23] William F. Sharpe, "The Arithmetic of Investment Expenses," *Financial Analysts Journal* (March 2013). Sharpe demonstrates that seemingly small differences in fees compound to dramatic effect.

of active investing across asset classes, it may be sensible to favor passive in areas of the market where it has proven more difficult for even top-tier managers to generate significant excess return (Chart 11). However, one again needs to be careful applying this general framework within a given portfolio. A small amount of excess return on a large allocation can add up to a larger benefit in the overall portfolio than better performance in an asset class that has a small allocation. In addition, the costs associated with active equity delivered via separately managed accounts can be quite low, so choosing passive in an asset class that can only be accessed via mutual funds with higher fees might be the right choice even in an asset class, such as emerging market equities, that is otherwise thought to offer stronger opportunities for active managers.

Chart 11
Active Managers Add Value Across the Board



Average Excess Returns for Largest Five Categories, 1990-2015 (5-Year Incremental Periods)

Source: Morningstar, PNC

What Is the Right Mix?

Even a rigorous process does not *guarantee* the selection of a skilled manager that will add value over time. Although certainly ruling out the possibility of outperformance, a low-cost index fund removes the possibility of paying a higher fee for something that ultimately underperforms. The right mix of active and passive is ultimately a personal decision.

- How likely are you to be patient with a high-conviction yet underperforming manager?
- What is your tolerance for deviation from a stated benchmark?
- Will the potentially temporary combination of higher fees and underperformance cause behavior that is likely to erode performance over time?

These questions should be discussed when implementing an asset allocation, and expectations must be clear from the beginning. Although the agreed-upon mix should never change dramatically, we believe it can shift with the cycle, leaning more into active as the cycle ages (like in today's current market environment) and more into passive following the next contraction.

Ultimately, there is no easy answer for the right active/passive mix. It depends on the composition of the overall portfolio, the market environment, and the preferences of each individual investor. We laid out the key issues we consider in evaluating the active/passive mix in portfolios. In the end, we believe active management is likely to add value to portfolios, especially in the current environment. But the final decision should come from careful discussion between an investor and a knowledgeable advisor.

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Hawthorn Chief Investment Strategist

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Director, Investment Advisor Research

Hawthorn Asset Allocation Playbook
As of 9/30/2018

Asset Class	Sub Asset Class	Favorability -			Neutral			+	Points of View
Equities									
U.S.	Large Cap					●			Relative valuation causes us to narrowly favor large over small. Small caps have outperformed year to date, with investors' concerns related to trade and, more recently, a stronger dollar driving them to seek protection from less-exposed small-cap stocks. Smaller companies may also benefit from positive tax-reform-related forward guidance; however, valuations remain quite expensive at 22.5x on a forward earnings basis. 30% of small-cap indexes such as the Russell 2000® still have no earnings, so we advise investors be selective when investing in the asset class. Mid cap has features that may benefit from some of the currently attractive elements of both large and small.
	Mid Cap					●			
	Small Cap				●				
Non-U.S.	Intl. Large/Mid Cap				●				Valuations appear relatively more attractive versus domestic equities, potentially creating attractive long-term opportunities in many international markets. Still largely accommodative monetary policy by global central banks and solid earnings momentum should also provide additional support. However, political risk is again elevated and economic momentum has weakened versus what we are seeing in the United States. Our relative preference for these markets would be greater if it were not for the potential benefit U.S. markets may receive via recent fiscal stimulus.
	Intl. Small Cap				●				
	Emerging Markets (EMs)		●						Although we like EMs for the long term given current valuations, we believe recent weakness could persist. The shorter-term bear case for EM equities rests mainly on tightening liquidity in China and the newfound strength in the dollar. Year to date, EMs have underperformed both developed international and U.S. markets.
Fixed Income									
U.S.	Short Muni Fixed Income			●					Although interest rates may drift higher given solid economic momentum, we believe we may have already seen the bulk of the move higher in rates for this business cycle. Therefore, we favor positioning fixed income portfolios in the intermediate part of the curve.
	Core Muni Fixed Income					●			The credit cycle is aging, and valuations should become an increasing headwind for below-investment-grade bonds. Leveraged loans, although more senior in the capital structure, have seen issuance balloon in recent years while covenants have weakened. Given our view on interest rates, credit risk may be starting to outweigh the protection from higher rates.
	U.S. High Yield			●					
	U.S. Leveraged Loans			●					
	U.S. TIPS			●					There is less value in Treasury Inflation-Protected Securities (TIPS), with breakeven inflation rates now around 2.20%. We prefer to hedge inflation over the long term via our equity exposure.
Non-U.S.	Global Bond			●					Although we are not overly negative on credit given the strength of the economy, we do believe slowly shifting to higher quality areas of fixed income is sensible given the level of spreads. Unconstrained funds have reached for yield in lower-rated credits.
	Unconstrained Bond				●				
	Emerging Market Bond			●					
Alternatives									
Private	Private Real Estate				●				Key drivers include a still relatively constrained supply backdrop, modest leverage levels, and the fact that capital flows into the asset class are becoming increasingly global (that is, investor demand is quite robust).
	Private Debt				●				Middle market lending in the corporate sector is still quite constrained, continuing to create opportunities for private debt investors. Some banking deregulation may open this space up to more traditional bank lending, however.
	Private Equity				●				There may be opportunity in new/less efficient markets, and a more diverse investable opportunity set, for example, via secondaries and "co-investment" options. That said, as with public markets, valuations are extended.
Hedge Funds	Equity Long/Short					●			A transition from a primarily macro-driven market environment to a more fundamentally driven one will be positive for these alpha-generating strategies. Central banks now appear more committed to a steady normalization of interest rates than they have been in the past. We believe differentiated return streams can add value in today's market versus a traditional equity/bond portfolio.
	Event Driven					●			
	Relative Value					●			
	Directional					●			
Cash					●				

Tactical Allocations									
Tactical	**Master Limited Partnerships**					●			Performance has rebounded after a choppy start to the year. Markets penalized the sector after a potentially unfavorable tax ruling; however, the ultimate outcome was far less severe than many investors feared. Stronger fundamentals and rising energy prices could spur investor interest given currently depressed valuations and underweight energy positioning among equity portfolio managers.
	Infrastructure					●			Defensive qualities and income potential that we like in this market.
	Currency Hedged Europe				●				Stable economic conditions, improving earnings growth, and relatively attractive valuations put European equities in a good position despite recent political volatility. The currency hedge has been additive to 2018 performance, but our conviction regarding a materially weaker euro has diminished after significant weakness in the currency since April.
	Currency Hedged Japan					●			Valuations are attractive, earnings growth is strong, and consumer confidence is high. We still like the currency hedge since the BOJ remains easy relative to the Fed, and yen positioning (now net long) is no longer supportive of a move higher.
	Energy						●		With higher and more stable oil prices, better capital discipline, and attractive relative valuations, we believe Energy sector equities can outperform the broad market on a tactical basis despite recent weakness.
	U.S. Banks						●		We think valuations, the regulatory backdrop, and the continuation of this business cycle are compelling reasons to tilt toward U.S. banks within value allocations. Banks are historically correlated with increases in capital expenditures, which we believe will continue this year.
	Structured Note (Drawdown)				●				Ability to earn a coupon while waiting for a better entry point into equities can be an attractive strategy. However, cash has become more palatable given the rise in short-term interest rates.

For definitions of indexes used in this publication, please refer to pnc.com/indexdefinitions.