



# High conviction: Creating multi-asset portfolios designed to achieve investors' objectives

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The Invesco Global Solutions Development and Implementation team (Invesco Global Solutions) is dedicated to designing outcome-oriented, multi-asset portfolios that meet the specific goals of investors. In doing so, we employ a variety of investment vehicles including high-conviction fundamental active and factor-based strategies, as well as passive investments. We believe the portfolios have the potential to offer investors a more rewarding investment experience that can help achieve specific objectives while seeking diversification in pursuit of improved risk-adjusted returns.

In this paper, we will:

- Discuss the characteristics of fundamental active, factor-based and passive strategies.
- Explain how we combine different vehicles in pursuit of better investment outcomes.
- Look at three different case studies that illustrate specific ways in which fundamental active and factor-based strategies can be combined.

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## Types of vehicles we consider for our portfolios

In constructing high-conviction, multi-asset portfolios, we consider and evaluate the following investment vehicles:

- **Strategies that choose investments based on a benchmark (passive).** These strategies seek to replicate a benchmark's performance by holding its constituents, which are weighted by their market capitalization (market cap). Because little proprietary research and analysis are involved, these strategies are considered transparent and rules-based and are generally accessible at a lower price due to low turnover and trading costs.
- **Strategies that choose investments based on the fundamental merits of a company and its stock or bond (fundamental active).** These strategies seek to add value through proprietary expert research and security selection to deliver outperformance versus a market-cap-weighted benchmark. Securities are weighted opportunistically, based on fundamental characteristics. Because these strategies are professionally managed, they tend to incur higher fees.
- **Strategies that select investments based on factors – or the underlying characteristics of a security (factor-based).** These strategies are rules-based, providing systematic exposure to one or more factors, which are characteristics, such as low volatility or high quality, that account for an asset's risk and return. Securities are typically weighted by factor exposure with the goal of outperforming and providing differentiated exposure relative to their market-cap-weighted counterparts.

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## Active vs. passive: The wrong question?

With flows often chasing performance, investor sentiment has shifted away from active strategies, which have largely underperformed their passive counterparts, especially over the past decade (Figure 1). The additional recognition of the performance drag created by higher fees associated with active funds has also pushed investors toward passive strategies.

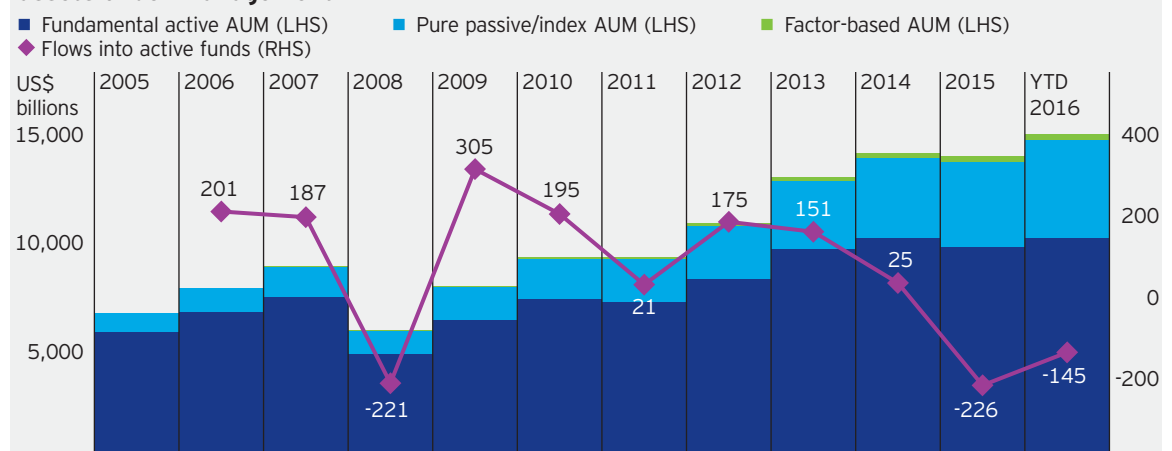
**Figure 1: The percentage of active funds that have outperformed their passive counterparts remains low**

Category	1-year	3-year	5-year	10-year
US Large Blend	27.7	27.8	16.3	16.6
US Large Value	36.5	34.6	19.6	33.7
US Large Growth	49.3	18.9	11.9	12.2
US Mid-Blend	42.1	34.6	27.7	11.0
US Mid-Value	53.5	28.6	22.7	42.3
US Mid-Growth	41.4	32.6	26.1	32.5
US Small Blend	50.2	34.9	32.8	24.7
US Small Value	66.7	54.1	38.0	38.3
US Small Growth	22.3	28.6	20.6	23.2
Foreign Large Blend	63.6	47.6	44.7	33.9
Diversified Emerging Markets	63.0	55.9	61.2	42.3
Intermediate-Term Bonds	28.5	45.4	57.3	39.7

Source: "Morningstar's Active/Passive Barometer, A new yardstick for an old debate." April 2016. Data and calculations as of Dec. 31, 2015. Past performance is no guarantee of future results.

Consequently, flows into actively managed mutual funds have slowed considerably in recent years, finally turning negative in 2015 for the first time since the Great Recession in 2008 (Figure 2). At the same time, low-cost<sup>1</sup> passively managed exchange-traded funds have been experiencing record inflows. And while their share of industry assets under management is growing, passive strategies still represent just over a quarter of that total.

**Figure 2: Flows into active funds have slowed, but they still constitute the lion's share of assets under management**



Source: Simfund MF (long-term, open-ended mutual funds and exchange-traded funds, excluding funds of funds), as of Sept. 30, 2016.

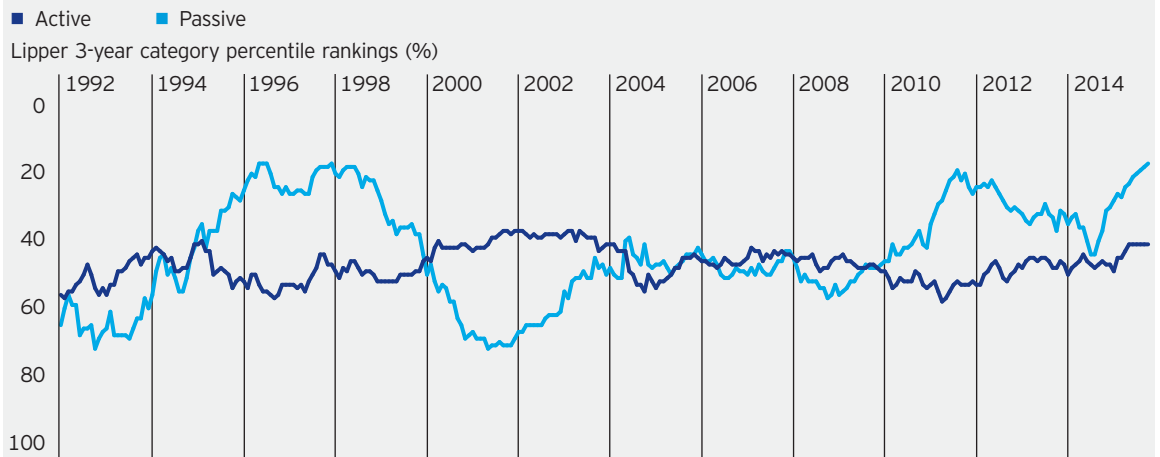
So, is it "game over" for active funds? Not quite so fast. Although a lot has been made of the active versus passive debate, proponents of either investment style have certainly been able to find evidence of outperformance for their strategy of choice over a sustained time horizon by slicing and dicing the start and end dates as needed to make their case.

The fact remains that numerous academic and practitioner studies<sup>2</sup> have already supported the observation that different market conditions lend themselves to the outperformance of different investment vehicles. Specifically, traced across a longer time horizon, passive outperformance has been shown to be cyclical (Figure 3). In other words, while active or passive strategies might outperform some of the time, they do not outperform all the time.

1 Since ordinary brokerage commissions apply for each buy and sell transaction, frequent trading activity may increase the cost of ETFs.

2 Sources: Including but not limited to Abbot Downing 2012; O'Shaughnessy Asset Management 2013; Fidelity 2015; Russell Investments 2015; Hartford Funds 2016; Leuthold Group 2016; Morgan Stanley 2016; State Street Global Advisors 2016.

**Figure 3: Active and passive strategies have taken turns in outperformance**



Source: Lipper, Invesco as of Sept. 30, 2016. Active category represented by Lipper Large-Cap Core, Lipper Multi-Cap Core and S&P Objective Funds. Passive is defined as funds designated as Index Based, Pure Index and Enhanced Index by Lipper. Lipper percentile rankings based on total returns. Past performance is not a guarantee of future results.

With this in mind, and given recent economic and market conditions that have clearly favored passive investing, investors need to ask themselves if they believe current conditions will continue to prevail going forward. And if investors do not believe that current conditions will continue, are they confident they know whether the future market environment will benefit active or passive investments?

Given this uncertainty, we believe investors can achieve better long-term outcomes through high-conviction, multi-asset portfolios that combine different investment vehicles, offering investors the potential to access different return and risk profiles and achieve greater diversification.<sup>3</sup>

### **About the study: Constructing high-conviction, multi-asset portfolios that combine different investment vehicles**

For the purposes of our study, in order to evaluate the potential benefits of creating high-conviction, multi-asset, multi-vehicle portfolios, we gathered performance data, net of fees,<sup>4</sup> for fundamental active strategies, passive strategies and factor-based strategies. The data covers monthly returns from January 2001 through June 2016.

For simplicity, we limited the scope of the analysis to US large-cap equities, although we believe the study can be replicated and extended to additional asset classes. The investment vehicles are represented as follows:

- **Pure passive.** We used the returns of the S&P 500 Index as a proxy for the returns of pure passive strategies.
- **Fundamental active funds.** Our initial universe included 1,241 mutual funds represented by US Large Blend, US Large Growth and US Large Value Morningstar categories. We narrowed the universe to create what we believe is a more accurate representation of "active" strategies, by:
  - Selecting funds with an available track record of at least three years to account for fund mortality.
  - Filtering out top-decile funds (based on three-year performance) to remove performance-chasing, highly risky funds.
  - Filtering out bottom-decile funds (based on three-year tracking error) to remove potential benchmark-hugging funds, and including only the most active (top-quintile) of the remaining funds in our sample.
- **Factor-based strategies.** To represent the returns of factor-based strategies, we used data based on the Fama and French asset pricing model for factors including size, value, quality, investment, momentum and low volatility.<sup>5</sup>

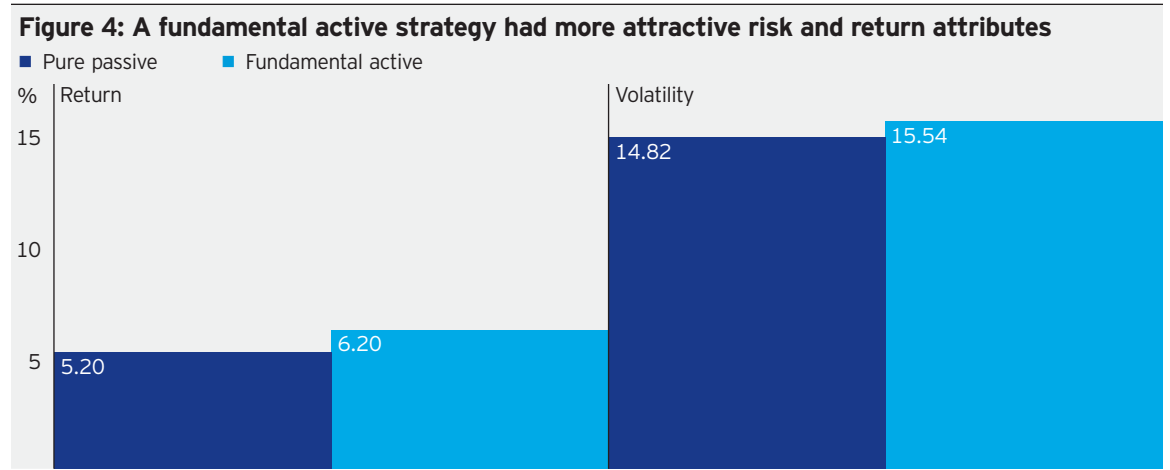
<sup>3</sup> Diversification does not ensure a profit or eliminate the risk of loss.

<sup>4</sup> For the purposes of comparison, returns are analyzed net of fees for the representative active funds, net of nine basis points to represent passive strategies, and net of 30 basis points to represent US factor-based strategies. Information gathered for indexes from FactSet Research Systems Inc., active funds from Morningstar Direct, used with permission, and factor-based strategies from [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html#Research](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research)

<sup>5</sup> See Fama and French, 1993, "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics*, and Fama and French, 2014, "A Five-Factor Asset Pricing Model" for a complete description of the factor returns. [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html#Research](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research)

Using this comprehensive data set we calculated historical total returns, excess returns (outperformance over the benchmark), volatility (as measured by standard deviation), and risk-adjusted returns (the amount of returns adjusted for the level of risk) across different investment vehicles.

We begin our analysis by establishing a baseline that evaluates the risk and return profiles of pure passive and fundamental active portfolios independently. The data suggests (Figures 4 and 5) that over the study's time period, a fundamental active strategy provided higher average returns (6.20%) at the cost of higher volatility (15.54%), resulting in higher risk-adjusted returns (0.40) relative to a pure passive strategy (0.36).



Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. Past performance is not a guarantee of future results.

On its face, this finding would seem to corroborate the benefits of active investing. But as we have mentioned previously, we are not trying to pick a winner between active and passive, as we have already recognized that outperformance is a product of specific market and economic conditions over a defined time period.

Rather, our goal is to establish a point of departure for our analysis, and metrics by which to measure the investment outcomes for different portfolios. We will therefore revisit these risk and return metrics for an equally weighted portfolio of passive and active strategies and then analyze the potential for generating additional diversification benefits by combining fundamental active and factor-based investing.

**1. Combining fundamental active and passive strategies**

To evaluate the potential benefits of combining active and passive strategies, we analyze the return and risk attributes of an equally weighted active/passive portfolio relative to pure passive and fundamental active portfolios, respectively (Figure 5):

**Figure 5: An equally weighted active/passive portfolio generated less active risk**

Portfolio	Return	Excess return	Volatility	Active risk	Risk/return ratio
Pure passive (100%)	5.20%	-	14.82%	-	0.36
<b>Active/passive (50%/50%)</b>	5.72%	0.43%	15.06%	1.93%	0.38
Fundamental active (100%)	6.20%	0.91%	15.54%	3.85%	0.40

Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. Past performance is no guarantee of future results.

We observe that, relative to these portfolios, the combined portfolio has risk/return ratio of 0.38, which lies between the ratios for fundamental active (0.40) and pure passive (0.36).

To understand the impact of adding a passive strategy to an active strategy, let's take a closer look at the dynamics of risk in a combined portfolio. As expected, as a result of bringing the strategies together, active risk – or the extent to which a portfolio's returns diverge from its benchmark – falls by half, from 3.85% in a fundamental active portfolio to 1.93% in an equally weighted active/passive portfolio. However, the overall risk of the portfolio – the volatility – falls by less than 50 basis points, from 15.54% to 15.06%. In other words, adding a passive strategy has the effect of diluting active risk while keeping the overall market bets of the benchmark unchanged.

It would appear then that adding a passive strategy to an active strategy can “reduce risk” in that it brings the level of volatility closer to that of the benchmark, especially – as in our case – when adding a passive strategy to an active strategy with volatility already in excess of the benchmark. However, passive strategies can also be used to increase total portfolio volatility, for example, by adding a pure passive strategy to an active strategy that tends to have lower volatility, such as a dividend-oriented strategy. In doing so, we are seeking lower active risk, but we are also adding to absolute risk (volatility).

We should also consider that while risk-adjusted returns and volatility are intuitive ways for investors to think about and analyze risk, these measures take into account performance on both the upside and the downside. We believe that investors are normally more concerned about the performance of their portfolios on the downside. For such investors, down-market capture is a measure that is used to evaluate how well or poorly an investment manager performed relative to an index during periods when that index has dropped. Our analysis suggests (Figure 6) that a combined portfolio could benefit investors by participating less on the downside than a fundamental active portfolio, and more on the upside than a pure passive portfolio.

**Figure 6: An active/passive portfolio has participated less on the downside than a fundamental-active portfolio**

	Participating in down market (%)	Participating in up market (%)
Pure passive	100	100
Fundamental active	102.57	106.11
Active/passive	101.39	102.93

Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. Past performance is no guarantee of future results.

These results are largely consistent with the observation that adding passive strategies to a portfolio has the benefit of addressing investor concerns about active risk, but it keeps intended and unintended market biases (portfolio volatility) in place.

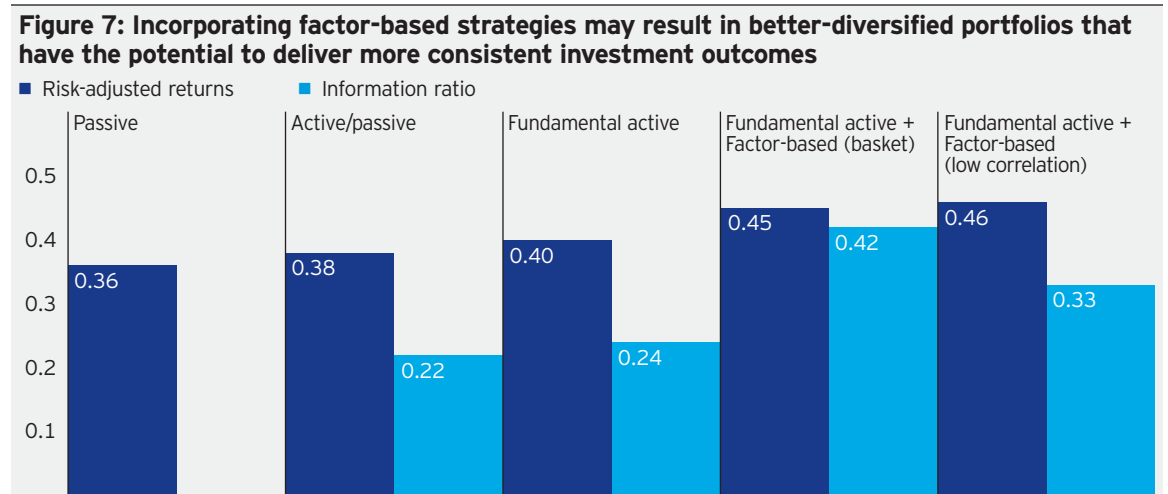
We think about it this way: Sometimes a blunt instrument, like a passive strategy, is needed to address broad investor concerns. But if investors are looking to address specific issues – sensitivity to volatility, to quality, to duration, to credit, to geographic exposure – why use a blunt instrument when a precise tool is readily available?

## 2. Combining fundamental active and factor-based strategies

Factor-based strategies offer investors an additional, transparent, rules-based vehicle that, compared with market-cap-weighted passive instruments, can help mitigate investment biases by adding lesser-correlated sources of return that help manage underlying risk exposures. To evaluate the impact of incorporating factor-based strategies on investment outcomes, we constructed two equally weighted portfolios:

- **Active funds with a basket of factor-based strategies**, pairing each fundamental active mutual fund with a basket of equally weighted factor strategies (i.e., size, value, quality, investment, momentum and low volatility).
- **Active funds with the lowest-correlated factor-based strategies**, pairing each fundamental active mutual fund with a factor strategy with which it has the lowest correlation, seeking to maximize the benefits of diversification.

Our analysis suggests that combining fundamental active and factor-based strategies can meaningfully improve investment outcomes: In addition to providing increased investment capacity and liquidity, as well as cost-conscious portfolio construction, this approach could potentially result in increased diversification, which could benefit risk-adjusted returns (Figure 7).



Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. The Fama-French data source is Kenneth French's website at Dartmouth. [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html#Research](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research). Past performance is no guarantee of future results.

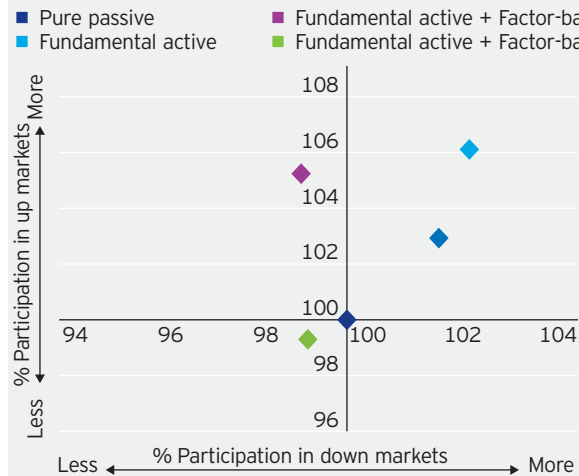
Specifically, combining fundamental active and factor-based strategies in a single portfolio resulted in a **higher information ratio**, which measures excess return relative to active risk and represents how efficiently active risk is being allocated. In other words, for the factor-based combinations, excess returns increased by more than active risk.

Adding uncorrelated sources of return in the form of factor-based strategies allows investors to diversify away some of the market biases inherent in their portfolios, potentially resulting in lower portfolio volatility, without compromising returns. The relationship between increased diversification and lower volatility is significant for investors because, as mentioned in our paper on managed volatility,<sup>6</sup> " ... while volatility can produce higher-than-expected returns during a moment in time, greater portfolio volatility over time lowers the potential return due to the effect of compounding – positive returns are made on less money – which is a drag on long-term performance."

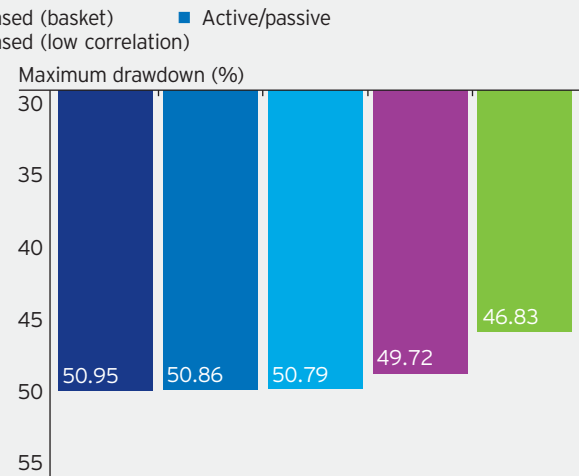
We can see this to some extent in the response of the combined portfolios to negative market events, as they tend to participate less on the downside, both on average (Figure 8) and in terms of potential magnitude (Figure 9).

<sup>6</sup> "Seeking better investment outcomes by managing volatility," Duy Nguyen, Jacob Borbidge and Michelle Shwarzman Invesco white paper. June 2016.

**Figure 8: Combinations with factor-based strategies participate less in down markets on average**



**Figure 9: Combinations with factor-based strategies reduce the magnitude of downside participation**



Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. The Fama-French data source is Kenneth French's website at Dartmouth. [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html#Research](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research). Past performance is no guarantee of future results.

### High-conviction case studies: A focus on process and investment outcomes

Our comprehensive approach to high-conviction investing is predicated on the objective of creating a portfolio that not only seeks to deliver better investment outcomes, but also incorporates a more flexible investment process that reflects individual client needs and objectives. The ability to combine fundamental active and factor-based strategies offers the possibility of increased portfolio diversification by broadening the investment opportunity set. It also allows us to incorporate cost considerations into portfolio design and construction.

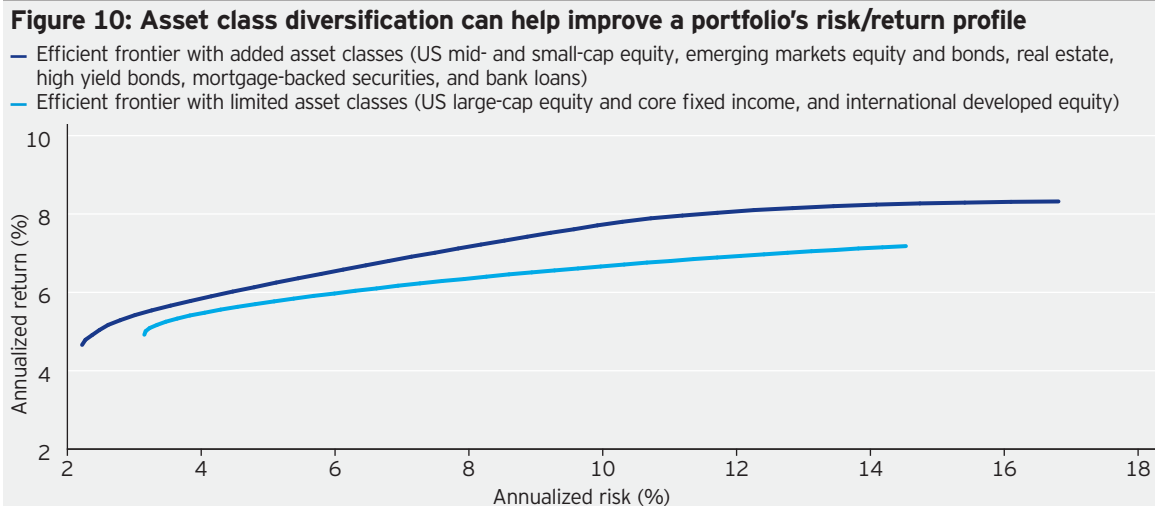
In terms of process, our high-conviction approach means that we do not believe investing is a "one-size-fits-all" proposition. While investing in funds that mirror the benchmark might work for some investors, it would not work for all investors, particularly those who have a lower tolerance for volatility (absolute or relative). Our investment process is also able to accommodate differences in investor needs and objectives with regard to investment criteria, risk, quality concerns and even tax efficiency. It also introduces an element of investment flexibility, facilitating low-cost tactical positioning (should an investor so desire) that is more cumbersome to implement with fundamental active funds.

In terms of outcomes, the potential to achieve higher risk-adjusted returns suggests that there is a higher probability of delivering on investors' expectations. We explore the potential for better investment outcomes by looking at specific ways in which fundamental active and factor-based strategies can be combined and paired.

#### Case study 1: Asset class diversification

As multi-asset investors, we recognize that strategic asset class diversification, achieved by adding less-correlated returns, offers the potential benefit of improving risk-adjusted results. Fundamental active funds can be used to access these additional asset classes – ones that require manager investment skill and knowledge to uncover opportunity – by exploiting market inefficiencies, thereby allowing for potential higher active returns.

However, because the supply of skilled managers is finite and outperformance may not come at all times in the market cycle, factor-based strategies can help facilitate access to both efficient and inefficient markets more cost effectively. Combining fundamental active and factor-based strategies allows us to expand our access to broad asset classes in order to achieve diversification in a way that balances active expertise with cost-effective approaches. This allows for a broader set of asset class exposures, essentially expanding the risk/return efficient frontier (Figure 10), which moves up and to the left.



Source: Invesco, as of Sept. 30, 2016. For illustrative purposes only.

### Case study 2: Controlling for manager risk

Fundamental active managers have the potential to deliver higher return. We want to gain access to highly skilled active managers, but a concentrated active portfolio could carry a disproportional amount of active risk.

Pairing fundamental active managers with a factor-based or market-cap-weighted strategy in a high-conviction portfolio could allow for increased control over the allocation of risk without diluting potential return (Figure 11).

**Figure 11: Pairing active strategies with factor-based and passive strategies could reduce risk**

	Active risk (%)	Volatility (%)	Return (%)
Fundamental active	3.85	15.54	6.20
Fundamental active + Factor-based (low correlation)	3.45	14.10	6.43
Fundamental active + Passive (market cap weighted)	1.93	15.06	5.76

Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. The Fama-French data source is Kenneth French's website at Dartmouth. Past performance is no guarantee of future results.

Our analysis suggests that pairing a fundamental active fund with either a factor-based or a passive market-cap-weighted strategy can help reduce active risk (tracking error), as well as total volatility. Pairing with a low correlation factor-based strategy, in particular, offered the potential for more diversification – with a larger reduction in overall volatility, as well as higher returns.

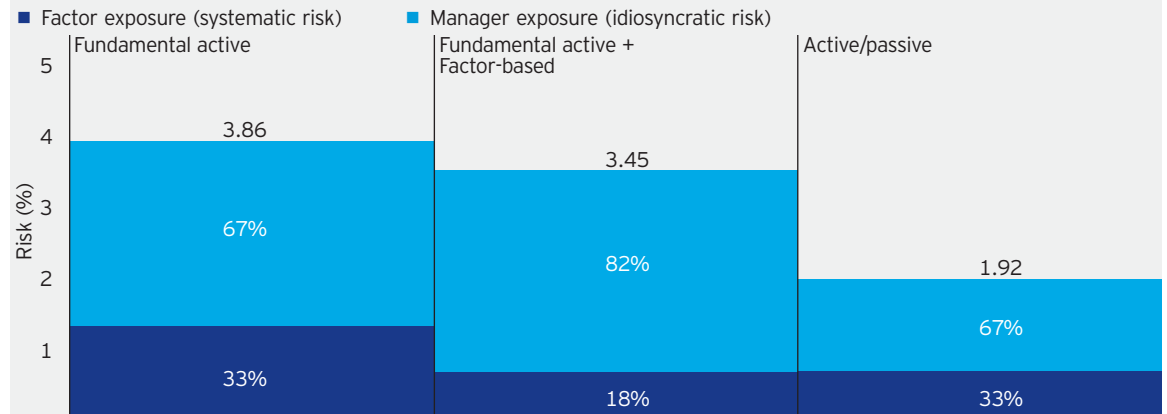
### Case study 3: Managing factor exposures

Investors may unintentionally or unknowingly already have certain factor exposures in their portfolios, even from strategies that are driven by bottom-up stock selection (e.g., a quality bias in a growth portfolio). Our concern is that unintended factor exposure could result in unintended risk. Factor-based strategies can be selected and paired with fundamental strategies to manage the factor exposures and correctly align the portfolio with investor needs and goals.

Figure 12 illustrates the factor exposure of fundamental active managers before and after pairing with the lowest-correlation factor-based strategy.



**Figure 12: Factor-based strategies help address unintended investing biases**



Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. The Fama-French data source is Kenneth French's website at Dartmouth.

To determine the factor exposures, we regressed active returns on the different factors described above, which identified the percentage of the variance that is explained by those factors (i.e., systematic risk). The residual was manager-specific risk contribution (idiosyncratic risk). The analysis suggests that adding factor-based strategies allows investors to continue to benefit from the bottom-up stock-selection skills of active managers, but reduces unintended market exposures. It also reiterates our previous point – that adding a pure passive strategy is akin to using a blunt tool in that it reduces risk indiscriminately, across both the factor exposures and the manager exposures. Factor-based strategies, on the other hand, act more like fine instruments that allow investors to tilt and manage portfolios to their needs and objectives.

Factor-based strategies can also be used to intentionally remove unwanted factor bets while maintaining others. Consider, for example, a skilled active manager that is both overweight market beta and tilted toward value. We may want to retain the value exposure but shed the beta exposure. Introducing a low volatility factor strategy to the portfolio could help mitigate the beta bet while preserving the value orientation.

## Conclusion

Recency bias is the tendency to give a larger weight to recent experiences because they are easier to remember. This bias could lull investors into the belief that what has been will continue to be. That includes the expectation that recent market conditions – including relatively low volatility and low yield – that have been conducive to the outperformance of passive, market-cap-weighted funds may persist.

Our approach to high-conviction investing recognizes that investors need to be prepared for changes in the market by diversifying across asset classes and investment vehicles, while meeting their specific needs and objectives. We acknowledge the benefits of investing in strategies that seek to replicate benchmark returns to gain low-cost, broad access to equity and fixed income markets. At the same time, the universe of transparent and rules-based strategies has expanded to include factor-based strategies, and we believe that there are potential benefits to combining these strategies with fundamental active funds. Consistent with client-specific objectives, this approach offers investors the potential benefits of higher risk-adjusted returns through increased diversification, greater investment capacity and liquidity, and lower fees, which could reduce the drag on long-term performance.

The Invesco Global Solutions team has extensive experience drawing on Invesco's deep pool of potential investments – which covers the full spectrum of fundamental-based active funds and factor-based approaches – to create global, outcome-oriented multi-asset strategies. High-conviction investing is not only a core skill of the team, which is applied consistently across our investment platform, but an integral part of our investment philosophy which seeks to help investors meet their specific objectives and realize the full potential of their investment experience.

## Appendix

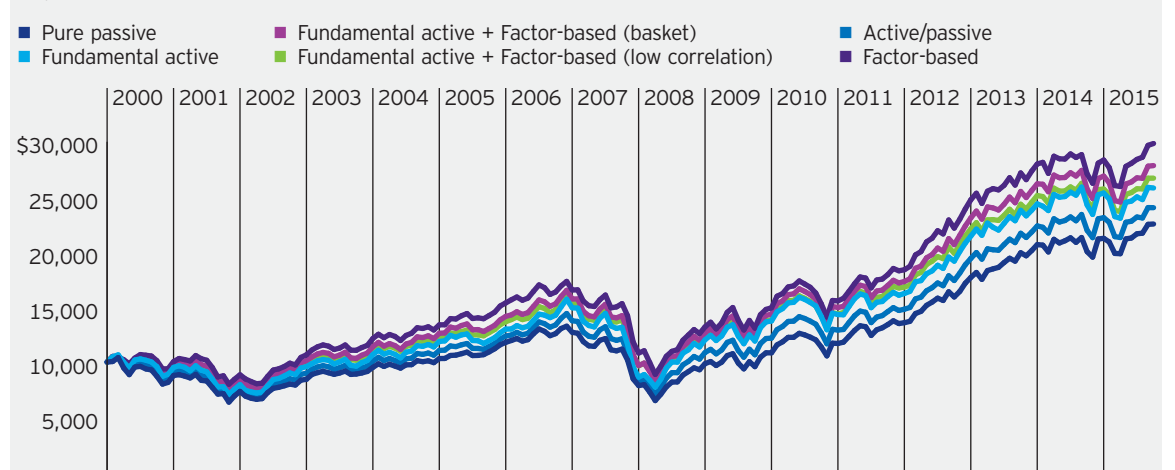
**Figure 13: Summary of risk and return metrics across investment vehicles**

(January 2001 - September 2016)

	Return (%)	Excess return (%)	Tracking error (%)	Volatility (%)	Risk/return ratio	Information ratio	Up capture (%)	Down capture (%)	Max drawdown (%)
Pure passive	5.29	–	–	14.82	0.36	–	100.00	100.00	50.95
Fundamental active	6.20	0.91	3.85	15.54	0.40	0.24	106.11	102.57	50.79
Factor-based (basket)	7.19	1.90	3.89	14.52	0.50	0.48	104.36	95.51	48.73
Active/passive	5.72	0.43	1.93	15.06	0.38	0.22	102.93	101.39	50.86
Fundamental active + Factor-based (basket)	6.71	1.42	3.35	14.91	0.45	0.42	105.24	99.04	49.72
Fundamental active + Factor-based (low correlation)	6.43	1.14	3.45	14.10	0.46	0.33	99.30	93.18	46.83

Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. Past performance is no guarantee of future results.

**Figure 14: Performance of a \$10,000 investment**



Sources: Morningstar Direct, used with permission, FactSet and Invesco, as of Sept. 30, 2016. Used with permission. Past performance is no guarantee of future results.

**Figure 15: Historical factor returns (%)**

	<b>S&amp;P 500 Index</b>	<b>Size</b>	<b>Value</b>	<b>Quality</b>	<b>Investment</b>	<b>Momentum</b>	<b>Low volatility</b>
1991	30.47	46.91	27.16	42.49	25.42	43.55	27.92
1992	7.62	20.34	24.11	9.32	11.04	6.61	9.36
1993	10.08	19.13	22.22	3.10	18.56	25.22	11.37
1994	1.32	-2.01	-6.72	1.52	1.11	-1.45	0.07
1995	37.58	29.92	42.96	42.50	38.47	39.12	42.56
1996	22.96	18.51	20.63	26.58	21.66	23.61	17.92
1997	33.36	26.12	35.66	35.01	31.61	32.81	36.64
1998	28.58	-3.15	22.30	32.19	22.39	38.99	11.84
1999	21.04	25.84	1.89	18.21	6.30	36.93	1.07
2000	-9.10	4.53	17.08	-2.71	14.23	-14.65	12.49
2001	-11.89	13.48	1.44	-5.25	-4.59	-9.58	-5.82
2002	-22.10	-18.13	-31.05	-19.04	-13.08	-13.10	-13.06
2003	28.68	56.47	27.63	21.45	38.77	27.07	19.81
2004	10.88	18.89	19.89	11.75	7.09	10.71	10.73
2005	4.91	5.69	12.20	4.54	2.32	15.85	2.69
2006	15.79	17.99	23.52	15.50	20.12	9.91	16.28
2007	5.49	-2.81	-0.12	12.15	2.61	19.14	6.59
2008	-37.00	-34.68	-39.53	-29.02	-35.08	-36.73	-24.61
2009	26.46	34.26	19.12	27.12	25.60	15.77	18.40
2010	15.06	28.66	7.92	15.52	15.98	26.34	11.99
2011	2.11	-6.41	-10.23	5.16	0.24	-4.32	10.61
2012	16.00	17.81	29.71	13.00	22.98	15.48	13.75
2013	32.39	42.67	40.15	31.06	35.03	37.09	29.45
2014	13.69	4.62	11.71	13.64	11.45	12.44	13.94
2015	1.38	-5.08	-7.87	-0.42	-0.35	5.22	0.05
YTD 2016	7.82	10.72	7.58	8.36	9.88	3.94	7.78

Source: See Fama and French, 1993, "Common Risk Factors in the Returns on Stocks and Bonds," Journal of Financial Economics, and Fama and French, 2014, "A Five-Factor Asset Pricing Model" for a complete description of the factor returns. [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html#Research](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research)

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**About risk**

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