One of the key drivers of the mass adoption of hedge funds was that they provided a source of uncorrelated returns. With asset class valuations increasingly stretched, this need to diversify risk has remained as pressing as ever, but the net of fee results from hedge funds in general have been mixed. In this context, our view is that multi-asset portfolios may provide a cheaper and simpler way of seeking risk-adjusted returns, leaving risk and fee budget for those hedge fund strategies which may genuinely offer uncorrelated returns.

Whither diversification?

We all know the big picture; after eight years of good returns and rates pinned close to 0%, valuations are stretched across asset classes. The prospective returns on government bonds, given starting yields, are particularly concerning, especially since bonds have performed a dual role in our portfolios, providing return and diversification. Indeed, correlation between global equities and bonds has been historically low, even negative when currency effects are excluded. A pick-up in inflation and possible normalising of interest rates may lead to a less appealing correlation environment going forward and yields at current levels may mean that the risk for bond markets is skewed to the downside. As a result, many investors could be forgiven for being concerned that they may have seen the last of the “sweet spot” of declining yields and low correlation between equities and bonds.

Given this backdrop, while it would be foolish for investors to shun bond markets altogether, it makes sense for them to look to other sources of diversification and, for many, the answer has been hedge funds. Clearly this strategy is not new and several types of investors have been utilizing hedge funds for many years in the search for diversifying return streams. At this crucial juncture for investors considering how best to diversify, we provide an analysis of potential consequences of the changing dynamics of the hedge fund industry, as well as the return and risk characteristics of hedge funds in the context of portfolio diversification.

Figure 1: Valuations across asset classes

Figure 2: Rolling three-year correlations between equities and bonds (local currency terms)
When comparing strategies across asset classes, we also like to use a framework which breaks investment approaches into their major contributing risk factors, providing an assessment in both absolute and relative terms as to what’s driving these strategies and what investors should look for and need to understand. The factors that we employ in this framework are equity beta, bond beta, factor risk, alpha risk, leverage risk¹ and complexity risk². Below we compare an illustrative risk loading of a 60% equity/40% bond (60/40) portfolio with hedge funds; hedge funds have provided a source of uncorrelated returns through a combination of alpha, leverage and more exotic risk premia (e.g. convertible arbitrage), with a concomitant rise in complexity. The impact of complexity is hard to quantify, but it should not be ignored in that it may lead to a loss of transparency and often comes hand in hand with higher fees. Interestingly, the decision by the California Public Employees’ Retirement System in 2014 to divest its allocation to hedge funds was attributed to their cost and complexity.³

### Figure 3: 60% equities / 40% bonds

- **Equity beta risk**
- **Bond beta risk**
- **Factor risk**
- **Alpha risk**
- **Leverage risk**
- **Complexity risk**

Source: Schroders. For illustration only.

### Figure 4: Hedge funds

- **Equity beta risk**
- **Bond beta risk**
- **Factor risk**
- **Alpha risk**
- **Leverage risk**
- **Complexity risk**

Source: Schroders. For illustration only.

¹ This is the risk associated with either creating market exposure greater than the underlying value of the portfolio or creating gross exposure by going long and short different assets. This exposure is usually created via the use of derivatives. The former creates a net long, potentially directional market exposure whilst the latter may rely on relationships such as estimated correlation being maintained ‘out of sample’ for risk to be managed effectively.

² Complexity risk might include counterparty credit risk and liquidity risk. In this sense, aspects of complexity risk are not necessarily independent from leverage risk as they are sometimes incorporated within portfolios as a result of employing leverage. Complexity risk might also be described as encompassing exposure to operational and reputational risk. The more a fund employs more ‘esoteric’ strategies the more complex it becomes in terms of its risk profile.

Given the shift in ownership structure, it is interesting to examine the expectations that investors have and the reasons for their allocations to hedge funds. The chart below shows the results of a survey of institutional investors as to the factors determining their allocations to hedge funds.

**Figure 7: Global institutional investors: reasons for investing in hedge funds, 2016**

The overriding motivation for an investment in hedge funds, in this survey at least, is a requirement for uncorrelated returns and portfolio diversification. Risk-adjusted returns and market-beating performance are cited as essentially secondary concerns. This combination of requirements is probably fine as long as returns stand up, but as more institutional performance and risk comparisons become the norm it might be that performance-related considerations come more to the fore if hedge funds disappoint.

This survey suggests that, at least in the US, rate of return and funding issues were institutional investors’ top concerns for 2016 and we believe that is likely to continue to be the case going forward. If that is so, it is interesting to note that a recent survey of institutional investors, ranging from pension funds to family offices, revealed the expectations for their hedge funds in terms of expected return and volatility outlined in Figure 8.

These aggregate expectations, although they vary among different types of investor, are fairly ambitious given that they target equity-like growth (at a time when prospective returns may be challenged) with bond-like volatility. Taken in conjunction with the requirement for uncorrelated returns, this leads to a demanding set of expectations for hedge fund managers, and an almost inevitable pull towards more complex and expensive solutions, with a high degree of potential for disappointment.

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**Figure 8: Global institutional investors’ return and volatility targets for hedge fund portfolios**

Given the expectations outlined above, we examined historical return characteristics of hedge funds over long-term and recent time periods. We used the HFRI fund-weighted composite. We recognize that there is no perfect choice of index to measure the performance of hedge funds and each has its own set of characteristics. The HFRI index is widely used, however, and is a popular measure for studies of this kind. The chart below shows hedge fund returns over rolling three-year periods.

**Figure 9: Rolling three-year hedge fund returns (annualised*, USD terms)**

During the early period covered by the graph, hedge fund returns were relatively healthy, showing positive, double-digit growth. This has declined through time, however, to the extent that over recent periods returns have been relatively disappointing, with low single-digit growth.

If returns have disappointed (at least recently), a natural question to ask, given investors’ aspirations for these kinds of strategies, is: have hedge funds at least provided investors with diversification benefits?

On the basis of correlation, the answer varies depending upon the strategy – see Figure 10.
In terms of the dynamics, at least for the overall hedge fund composite, correlation has been increasing over time, as shown by Figure 11.

One of the issues with correlation as a measure of diversification is that it treats “upside” returns with equal importance to “downside” returns, whereas in reality investors are mainly concerned with diversification benefits in “down” markets or conditions of stress. Figure 12 shows average performance of hedge fund strategies in equity down markets and during selected stress periods commonly employed by risk management divisions. On this basis, it does seem that selected hedge fund strategies have shown some potential for downside protection.

All in all, however, the lacklustre returns of recent years and the correlation to equities do not appear to justify the elevated fees charged by many hedge funds.
Define alpha...

Hedge fund managers will presumably point to their ability to generate alpha as part of the justification for charging higher fees than the typical asset manager. While there may be other factors that contribute to higher fee levels in the industry, the expectation of positive alpha should be one of the most important. The problem is that defining alpha is difficult enough at the best of times. In its simplest form, alpha is sometimes defined as the excess return of a portfolio relative to its benchmark. However, this doesn't take into account any differing risk levels assumed by the manager relative to the benchmark. This has led investors to define alpha in a risk-adjusted fashion, initially by calling upon the Capital Asset Pricing Model (CAPM) framework and adjusting risk using the portfolio's beta relative to the overall market.

Further innovations in asset pricing theory gave credence to the idea that there may be more than one “factor” that is relevant for explaining, and hence risk adjusting, the performance of a portfolio. This has led to the use of multi-factor models as a tool for measuring risk and hence also for measuring alpha as the risk-adjusted returns of a portfolio once its exposures to risk factors have been taken into account. This multi-factor framework is appealing as a tool for measuring the performance of hedge fund, especially as there may not be agreement as to the natural benchmark for a hedge fund strategy. We attempt to analyse the alpha of hedge funds using a combination of traditional and alternative risk premia by employing a factor analysis approach.

Our approach is to take the broad hedge fund index (HFRI fund-weighted composite) and regress the returns of this index against the risk premia factors. The factors used are equity, bond and commodity beta factors, cross sectional equity size, value, and momentum as well as FX carry and time series momentum⁵. The regression coefficients are essentially the “betas” of the strategy to the factors, which can then be multiplied by the returns to the factors in order to calculate a performance attribution of the hedge fund index to the factors. The intercept of the regression can be interpreted as the “alpha” of the hedge fund index.

Figure 13 shows the results of the performance attribution using this methodology, decomposing the overall average return into contributions from the various factors.

Over the long term, hedge fund managers will no doubt be pleased to learn that, based upon this methodology at least, they have generated a positive alpha contribution. While the long-term picture is interesting, we always find it instructive to look at shorter-term dynamics at the same time in order to identify emerging trends and changing relationships. To this end, we repeated our factor return decomposition using a rolling three-year window. Figure 14 depicts the rolling three-year annualized alpha contribution on this basis.

Figure 13: Global hedge fund (HFRI) factor-based return attribution, February 1991 – July 2017

For the risk premia factors used in the regression analysis, see footnote 5. Factor-based attribution shown is for illustrative purposes only. Actual risk attribution would vary from those shown for the HFRI Index. Past return attribution is no guarantee of future results. Source: Datastream, Hedge Fund Research and Schroders.

Figure 14: Rolling three-year alpha contribution for the hedge fund composite (annualised)

There has been a clear decline in the alpha of hedge funds on this basis to the extent that it has become almost negligible over the last couple of years. So if alpha has declined, what has been the most important factor explaining returns?

One of them is the global equity factor that we used.

Figure 15: Rolling three-year equity contribution for the hedge fund composite (annualised)

For the risk premia factors used in the regression analysis, see footnote 5. Source: Datastream, Hedge Fund Research and Schroders, 31 January 1994 to 31 July 2017.

5 Risk premia factors used in regression analysis: equity – MSCI World Index (local currency terms); bond – Citibank Government Bond Index (local currency terms); commodities – BBG Commodity Index; equity size, value, momentum – Fama-French global factors (Source: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html); carry – Schroders-calculated global FX carry index, and time series momentum – AQR Capital Management, LLC TSMOM factor.

For the risk premia factors used in the regression analysis, see footnote 5. Source: Datastream, Hedge Fund Research and Schroders, 31 January 1994 to 31 July 2017.
Another interesting by-product of this analysis is that we can calculate the overall "explanatory power" of the regressions to gauge how much of hedge fund return variation can be explained by movements in the risk premia factors that we have used. The graph below shows this for the rolling three-year regressions and reveals a steady increase in the explanatory power of the risk factors.

Figure 16: Rolling three-year percentage of hedge fund return variation explained by risk premia factors

For the risk premia factors used in the regression analysis, see footnote 5.

All in all, this analysis suggests that hedge fund alpha is on the decline and more of the return fluctuations can be explained by risk premia. It is also important to note that, to the extent a hedge fund is delivering true sustainable alpha, the existence of this alpha is difficult to identify a priori.

An alternative to the Alternatives?

As we have seen, there are specific hedge fund strategies that can offer benefits, such as diversification potential, but our analysis suggests that, at an aggregate level, hedge fund returns are becoming more reliant on risk premia factors these days at the expense of alpha. If that is the case, a natural question to ask is whether there is a cheaper, potentially more transparent, alternative to using hedge funds. One possibility is multi-asset funds.

Traditionally, multi-asset funds have been fairly static, balanced funds, combining equities and bonds. The multi-asset landscape has exploded in recent years, however, with a wide range of strategies and approaches now available to investors. On the face of it, these more flexible multi-asset strategies have similarities to some types of hedge funds in the sense that they generate returns through investing their portfolios across different asset classes and strategies, eschew the use of benchmarks in portfolio construction in favour of outcome-oriented objectives, and are focused on generating strong risk-adjusted returns, with a lower reliance on traditional equity beta. To highlight the potential difference between hedge funds and multi-asset strategies, we return to our risk-based framework, using 60/40 as a simple comparator. Not surprisingly, a standard 60/40 strategy is primarily exposed to equity beta risk, and has the lowest reliance upon factor, alpha, leverage or complexity risks.

Flexible multi-asset strategies may reduce the reliance on equity beta by casting their net as widely as possible across a range of return sources and then dynamically managing the exposures on a one- to three-year time horizon to take account of valuation and cyclical risks. The case for hedge funds is that they can generate more alpha and/or provide access to more exotic risk premia, which reduces the reliance on equity beta at the expense of greater leverage and complexity.

Risk exposures are one part of the comparison process, but they need to be looked at in terms of performance. A natural question to ask, for instance, is: has the universe of multi-asset funds recently delivered on the kinds of performance expectations that institutional investors are demanding? And, if so, at what level of risk? Our comparison of these types of strategies over the last five years suggests that, while delivering a higher level of risk than the typical hedge fund, selected multi-asset managers have achieved returns more consistent with the requirements of investors outlined earlier.

So, in our view, multi-asset and hedge funds should increasingly be compared against each other. Their aims are increasingly converging. Both typically use active management and diversification to achieve stable, cash-plus, returns with modest downside. But big divergences remain. Fees tend to be higher, with hedge funds typically charging flat and performance-related fees that can skim off some of the best performance. Moreover, performance often comes at the expense of higher leverage and complexity than their multi-asset equivalents.
**Conclusion**

The ownership structure of hedge funds is changing towards a more institutional investor base. This could lead to different demands upon hedge fund managers in terms of performance expectations which go beyond simple return-seeking behaviour. Our concern is that the expectation of equity-like returns with bond-like volatility and low correlations with existing asset classes may be too much of a stretch and almost inevitably leads to more complex and expensive solutions.

Taken with our observation that, at an aggregate level, hedge fund correlations with equities have increased, hedge funds are finding alpha to be more elusive, and risk premia factors explain more of their returns, we believe that hedge fund fees are increasingly hard to justify. In this context, multi-asset portfolios may provide a cheaper and simpler way of pursuing an improvement in risk-adjusted returns with less reliance on equity beta, leaving risk and fee budget to be focused on those hedge fund strategies which may genuinely offer uncorrelated returns.