The diversification trap, and how to avoid it

In brief

- Risk management is central to the long-term strategies of practically all defined benefit pension schemes
- But risk is not one dimensional and in some cases too narrow an approach can lead to over reliance on diversification, thereby hampering effective risk management

Next steps

- Pension Schemes can benefit from assessing their portfolio from different angles, to ensure they are not unnecessarily exposed to any particular risk factor

In this note we consider the role and shortcomings of diversification and highlight some different perspectives on risk, so as to inform action that you can take to best manage it.

Pension schemes often focus on maximising diversification within a scheme's governance constraints. However, if this pursuit of diversification goes too far, at best this can lead to greater cost drag on returns but at worst this can lead to risk levels being significantly greater than planned.

It is therefore important to correctly gauge the extent to which each of the assets and exposures in your portfolio contribute to overall risk.

When and when not to diversify

There are numerous types of risks that can impact schemes. Grouping risk factors into rewarded and unrewarded risks is a simplistic approach, yet is not necessarily inappropriate as it helps frame possible action:

- **Rewarded risks** are a fundamental means to generate investment returns e.g. equity risk or credit risk. They are risks that are associated with the expectation that overtime they will lead to profit to the investor. Diversification is a key tool in the effective use of rewarded risks as it allows the reward to be retained whilst reducing risk.
- **Unrewarded risks** are different. These are risks that might lead to a profit or a loss, but are not expected to deliver a profit on average. Interest rate risk is widely regarded to be an unrewarded risk. Where a risk is considered to be unrewarded it is important to seek to remove the risk as far as possible from the portfolio. Diversification is not the right answer in this instance because ultimately the exposure will still contribute some risk to the portfolio but for no expected reward.

There are nuances though – some risks sit somewhere in between the definition of a rewarded risk and an unrewarded risk. These can be risks that are inherent within running a pension scheme, but are expensive to remove or hedge. An example of this is longevity risk – the risk that your membership lives longer than the Actuary is assuming, increasing the cost of paying pensions. In this case longevity might be considered a rewarded risk, and therefore beneficial to retain in part, if it can be expensive to insure.

Additional risk factors such as Environment, Social and Governance, operational and counterparty risks can be difficult to quantify. However, direct management and mitigation of these risks at a granular level is often required, rather than simply hoping they'll be 'diversified away' in the wash.

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Risk measurement – keeping a clear line of sight

It can be useful to estimate risk using Monte Carlo simulation which provides the now ubiquitous 'Value at Risk' metric, i.e. the 1 in 20 downside risk. However, Value at Risk is not a panacea for risk management. The reality is that risk is not black and white – how many things in life can be summed up in one number?

Pension scheme portfolio construction has evolved considerably over the last 20 years. Across the industry an initial (and somewhat flawed) focus on manager diversification alone has progressed to a more robust focus on asset class diversification. But still some elements of the recipe are misunderstood.

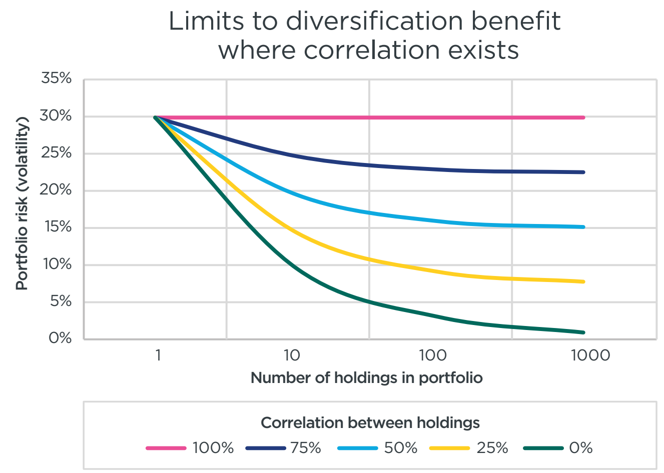
For instance asset class diversification in itself is not necessarily beneficial in all circumstances. For example, holding a combination of equities and bonds issued by the same company does not diversify this source of risk – it just changes the return you'll earn in good and bad scenarios for that company. True diversification comes from gaining access to other drivers of return – in this case introducing exposure to more companies.

> Value at Risk can be useful but is not a panacea for risk management – how many things in life can be summed up in one number?

Diversification – know your limits

The belief that you can make a portfolio better by continually adding assets that are less than fully correlated to the portfolio is overly simplistic. If this was true you could always add something to improve a portfolio – which you can't. This is partly because diversification usually involves cost but also because correlation between assets means there are limits to diversification.

The chart below illustrates with a simple example that correlation between assets is a significant factor in the limit of diversification. Increasing the number of holdings does not necessarily lead to a meaningful reduction in risk, particularly when there is a high level of correlation between assets.



Source: XPS calculations

Notes: This simple model assumes that all holdings have the same volatility of 30% and uniform correlation with all other holdings.

The Credit Crunch in 2008 was a living memory example of where underlying correlation between systemic risks was overlooked by many investors. Within equities, correlations rose above 50% relative to average historic levels of around 25%. The chart illustrates the extent that this can compromise diversification benefit – almost doubling the modelled risk.

The example highlights that:

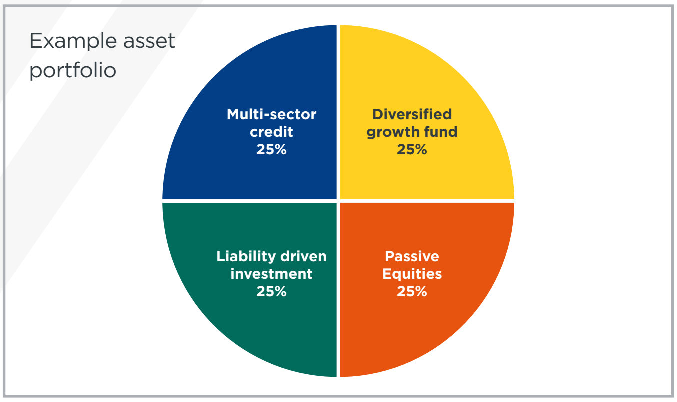
- **Diversification by numbers** alone can lead to the false impression that risk is being adequately managed.
- **Diversification by label** – which is where a risk is given a label and then diversified with lots of other risk labels. This can distract from the true level of risk where the labelled risks are in fact driven by similar underlying risk drivers and are therefore highly correlated. Such as companies whose revenues are closely linked to commodity prices.

We are not advising that diversification should be abandoned, but the focus for schemes should be on genuine diversification.

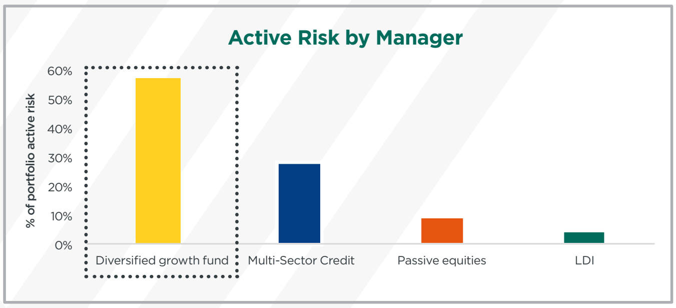
How to pursue genuine diversification?

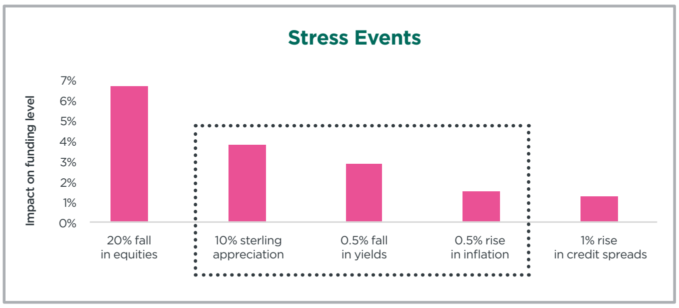
Risk has many dimensions. Therefore the most reliable way to measure and manage it is to assess it from as many different angles as possible. Ultimately we are looking to avoid any concentrations of risk within any particular dimension.

Consider the example scheme shown opposite. The strategy employs a number of managers and asset classes which might not raise any red flags at first glance. It is only on closer inspection that we identify the key issues that can be improved.



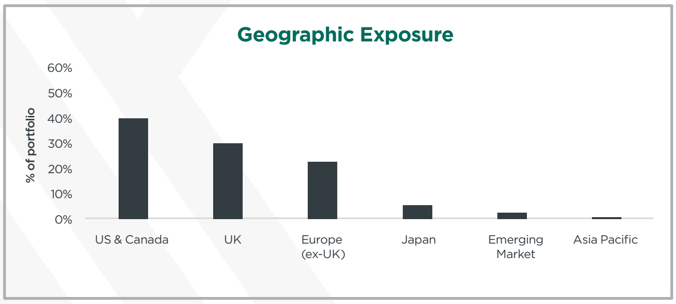
Multi-dimensional risk management

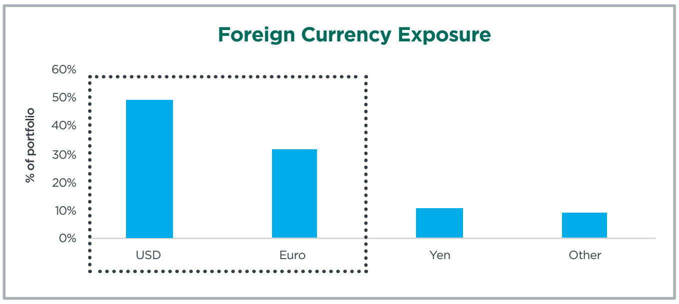


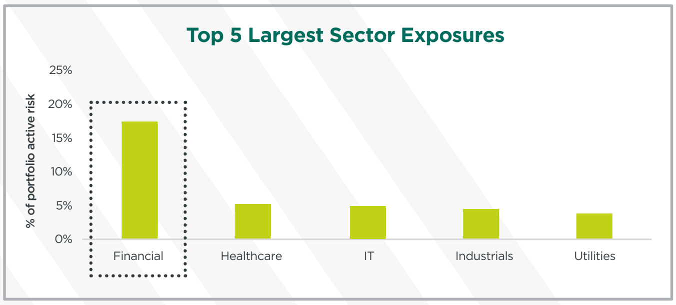


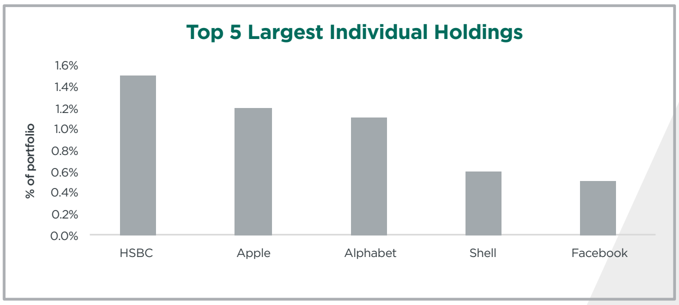
Active manager concentration: Whilst the asset allocation is evenly split across 4 managers, the diversified growth fund contributes more than half of the overall manager risk. This could be addressed by splitting that allocation with an additional manager for that portion of the portfolio.

Unrewarded risks: There are also meaningful unrewarded risks that could be further reduced in relation to currency, interest rate and inflation. The foreign currency risk could be reduced cost effectively through hedging of dollar and euro currency in particular (see below).









Sector concentration: There is also a strong leaning towards financials within the portfolio. Not necessarily a problem on its own, but suppose this pension scheme's sponsor operated in the financial sector, this could prove an undesirable doubling up of sector exposure.

Individual holdings: No individual holdings are excessive at a portfolio level.

> In the case above, the analysis improved transparency and highlighted several undesirable features that could be addressed without having a detrimental impact on the targeted level of returns.

Conclusion

A truly diversified strategy, across multiple levels, should be a goal for all schemes, large and small.

Identifying the potential pitfalls within a strategy enables Trustees to make informed decisions regarding the level and type of risks that the scheme is exposed to.

We believe all schemes should have a clear understanding of how their scheme looks from these different angles, giving you confidence in your portfolio's resilience to any particular risk driver.

To discuss any of the issues covered in this edition, please get in touch with Alan Greenlees or Simeon Willis:

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