Managing risk in turbulent times

Four practical steps DB pension schemes can take to help them navigate volatile markets.

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2018 will probably be remembered as the year volatility returned to the market. As highlighted in our CIO's investment outlook, (**Brace for a credit squeeze**) there are a number of tail risks on the horizon that could cause this to continue. This paper summarises some of the simple, low governance tools defined benefit pension schemes have at their disposal to assist in navigating through volatile times.

Predicting the timing and return impact of episodes of volatility with any great certainty remains the panacea for investors. Pension schemes that are large enough can employ protection strategies (**Is it a good time to buy equity protection?**) to reduce the impact of these volatile periods on their portfolio, however their long-term success often remains a function of good market timing and pricing. Investing can be like an endless game of 'whack-a-mole', as one risk is removed, another can come to light.

Many pension schemes which require returns from growth assets to reduce deficits also face the challenge of shortening time horizons. We believe that we are now late in the economic cycle and many market participants are predicting a challenging outlook for growth assets over the coming years. Removing all exposure to growth assets would go a long way to immunising a portfolio against short-term market volatility. However, this would likely lead to an increase in the long-term risk that the scheme doesn't meet its liability payments as they fall due (**Covenant risk - modelling, managing and mitigating a key risk**). In this paper, we bring together a number of our recent thought-pieces and apply the principles to an example scheme. This culminates in four simple steps pension schemes can take to reduce the impact of market volatility without damaging the long-term goal of meeting pensioner payments.

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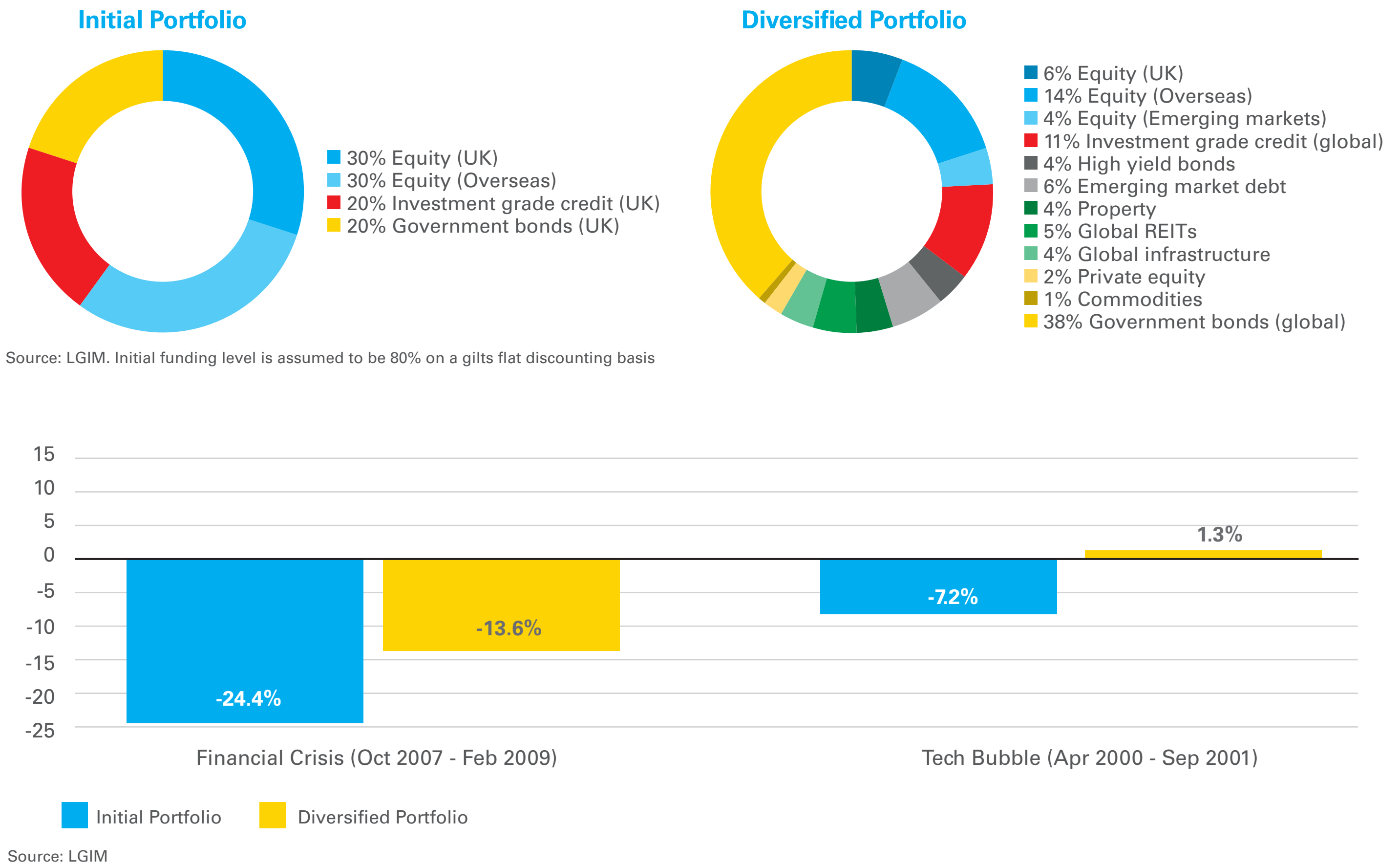
Figure 1: Risk reduced while maintaining expected return



Source: LGIM

1. DIVERSIFY BY GEOGRAPHY AND ASSET CLASS

Diversification has always been considered a cornerstone for reducing investment risk. To understand why this is the case, Figure 1 introduces our example pension scheme and shows the effect of diversification on risk.

The scheme's initial portfolio (on the left) is a classic 60:40 split of equity and bonds which we would expect to achieve 2.7% yield per annum over its gilt-based liabilities over the long term. The scheme is exposed to significant downside risk with the funding level expected to drop by around 24% when simulated through the global financial crisis (2007-2009) or by around 7% through the tech bubble (2000-2001).

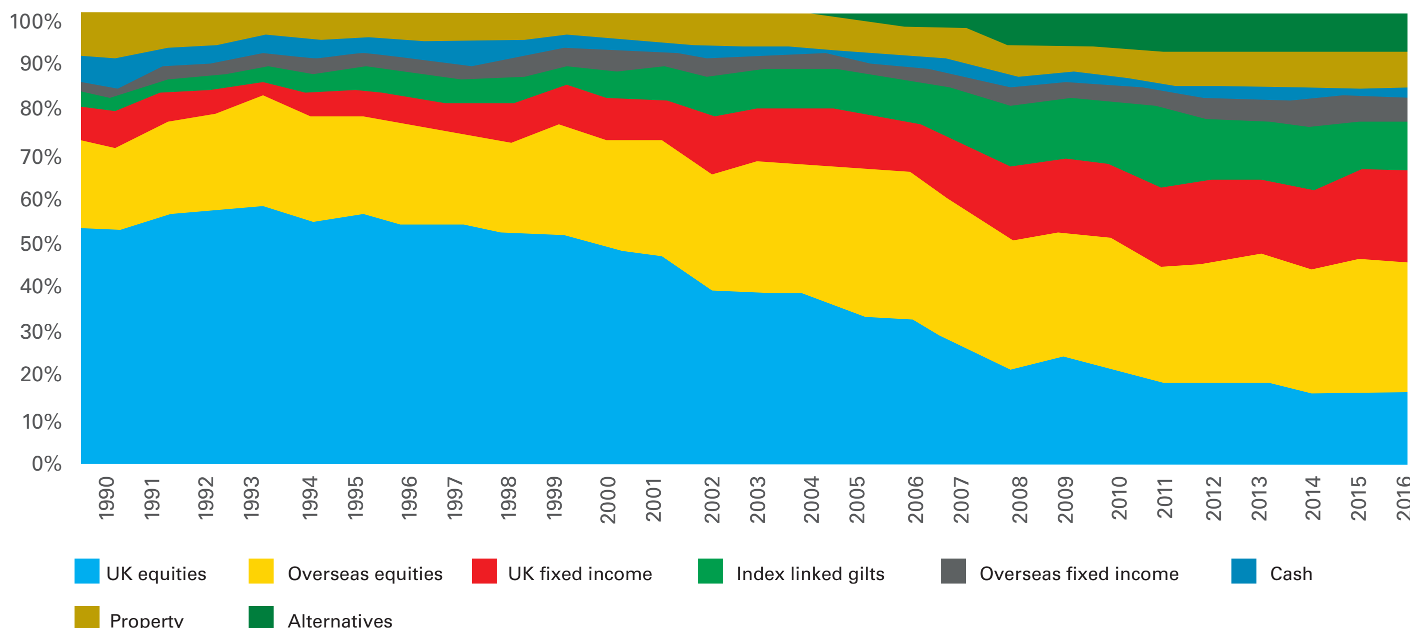
In the diversified portfolio (right hand side), we have introduced a number of additional asset classes such as emerging market debt and equity, property and high yield. The expected rate of return is unchanged at 2.7% per annum over gilts but the risk (measured by impact during the global financial crisis simulation) has been reduced by around 44%. Simply diversifying has significantly improved the risk/return efficiency of the portfolio. So much so that funding levels actually increase by 1.3% through our tech bubble simulation. On a practical point, governance burden and investment size may make individually allocating to all the asset classes listed in Figure 1 a challenge for all but the largest schemes. However, schemes can achieve a similar effect through investing in a trimmed down sub-set of the asset classes or by investing in a diversified fund to make the allocations on their behalf.

Diversification is not a new concept and UK pension schemes have certainly made improvements in this area. This can be seen in Figure 2, which highlights the notable increase in allocations to alternatives, overseas assets and property since 1990.

We believe there is still room for further improvement and it is important not to just look at the headline changes. For example, pension schemes in 1990 were very UK focused, with nearly 50% of their total assets in UK equities. At a high level, this overweight (relative to a market benchmark[1]) has reduced notably, with allocations becoming more global in nature. However, this varies significantly by scheme size.

1. For example the MSCI ACWI allocates just over 5% to the UK. Source: MSCI ACWI Index Factsheet, 31 January 2019

Figure 2: UK pension scheme asset allocation 1990 – 2016



Source: UBS, Broadridge analysis

Schemes with an AUM of under £10m still on average have 40% of their equity exposure in UK equities[2]. This compares to just 15% for schemes that are over £1bn[2]. This leaves smaller schemes in a higher risk position where they are more susceptible to UK centric shocks that could also impact the health of a scheme's sponsor if their business is UK-focussed.

2. TARGET AN APPROPRIATE LIABILITY HEDGING LEVEL

For many pension schemes, liability risk can be a major contributor to overall risk. Trustees face a balancing act of maintaining enough growth exposure to make up funding shortfalls whilst keeping risks under control so that the funding position doesn't worsen further. Most schemes maintain an allocation to government bonds that act to hedge a scheme's exposure to inflation and interest rate risk. This allocation is often small relative to the total interest rate and inflation exposure in a scheme's liabilities. Incorporating leverage, through swaps of synthetic bonds, can be a vital risk reduction tool (**Trustee education**).

To illustrate the impact we return to our example scheme. Figure 3 shows the funding level at risk 95th (FLaR$_{95}$) in 1 year of the example scheme decomposed by asset class. This shows how much the funding level is expected to drop by over a 1 year period, in a 1-in-20 event. The red and the blue bars show the effect of moving from the initial portfolio to the diversified portfolio (Figure 1). While this is a significant improvement, it can be seen that the liability risk remains high. This is because the hedge ratio in the diversified portfolio is only 35% owing to the low government bond allocation. In the diversified + leverage portfolio (yellow bars on the chart), the asset allocation is the same as the diversified portfolio but, through utilising leverage, we have increased the hedge ratio to 80%. This has led to total FLaR$_{95}$ reducing by a further 10%, whilst still maintaining a similar expected return.

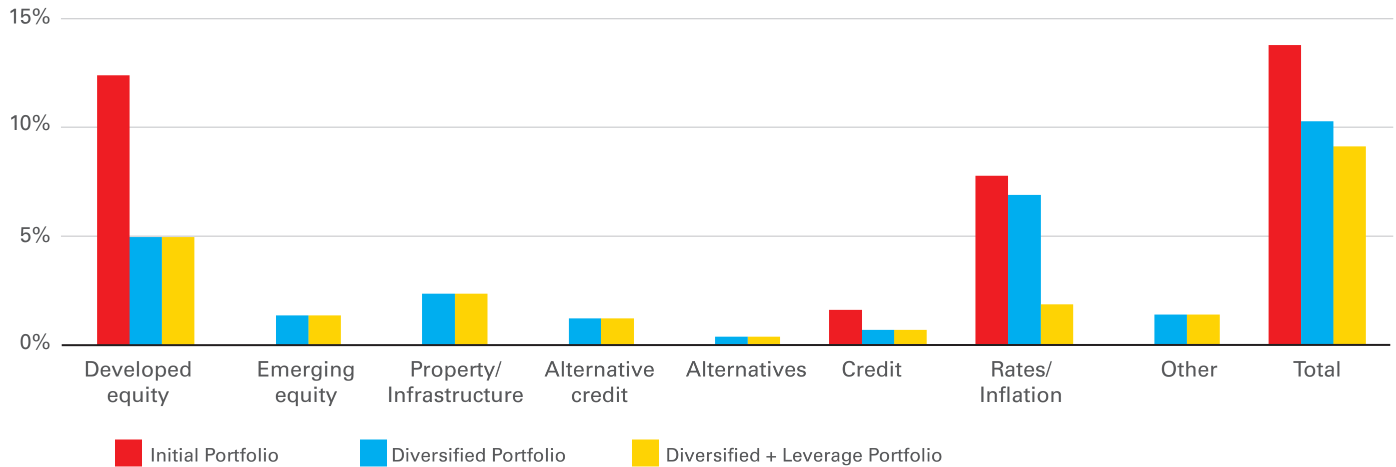
3. COLLATERAL AND CASHFLOW MANAGEMENT

As alluded to earlier, as one risk reduces, new ones can arise. The drawback of leverage is it requires the scheme to maintain sufficient collateral (often UK government bonds or cash). This requirement for cash has been exacerbated by more and more pension schemes needing cash to meet outflows. Mercer report[3] that over half of UK DB pension schemes are cashflow negative[4] or soon will be, with the number expected to rise to over 90% within 10 years.

It goes without saying that ensuring good and efficient collateral management is a key part of the solution. Additionally employing a cashflow aware approach can help schemes mitigate this risk. Cashflow negative schemes can be adversely affected during periods of heightened volatility where they need to liquidate assets to pay pensions.

2. Figure 7.7, The Purple Book, PPF, December 2018
3. Mercer European Asset Allocation Survey 2018
4. Cashflow negative schemes are paying more out in benefits than they are receiving in contributions.

Figure 3: Funding level risk attribution



This can be at prices that may have strayed significantly from 'fair value' and so losses are crystallised. Moving towards a cashflow matched portfolio not only reduces this early sale risk but also reduces re-investment risk. Using cashflow-generative assets such as corporate bonds to meet pension payments are a good place to start (**Raising cashflow awareness**) but the universe can be widened further.

Allocating a portion of the portfolio to real assets can provide both diversification as well as income. This is similarly true for alternative credit (**Broadening the universe: The strategic case for alternative credit**) Even equity dividends can be used as another natural source of income that, if not reinvested, can provide cashflows. A cashflow matched portfolio is advantageous as re-investment risk is reduced.

4. CURRENCY EXPOSURE CAN MITIGATE RISK

A bonus of diversifying assets globally is this leads to foreign currency exposure. This naturally begs the question of what level of currency hedge one should employ? There answer is not an exact science and is a function of total asset exposure, risk appetite and investment beliefs. We believe maintaining some exposure to foreign currency in an important risk mitigation tool.

This is because of the exposure to safe haven currencies. The US dollar, Japanese yen and Swiss franc have historically been known for rallying when there are market downturns. We discuss in more detail in this blog (**Do safe haven currencies protect you in a downturn?**) but in summary, we believe that investors shouldn't fully hedge their overseas currency exposure as it can provide diversification and act as a tail risk hedge.

THERE IS NO PANACEA… BUT THESE SIMPLE STEPS CAN HELP

If you were reading this hoping to find the panacea to avoiding volatility, you may have been disappointed. However, we believe the simple steps we have laid out above can help pension schemes manage their risk through future periods of volatility. While growth assets all tend to do poorly in a downturn, there are often relative winners and losers and here diversification is key. Diversifying can also assist in providing natural risk hedges, such as currency exposure. It is also important to prepare for cashflow requirements that can arise to avoid being a forced seller of assets. Last, but by no means least, the impact of changes in interest rate and inflation expectations on a schemes funding level can be greatly reduced through using leverage in the LDI portfolio to target a higher hedge ratio (**Broadening the universe: The strategic case for alternative credit**)

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