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BlackRock

UK defined benefit pension schemes - After the storm

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Executive summary

35 years after the storm of 1987 battered the country, the UK pensions market faced its own “Great Storm” in the autumn of 2022. Whilst this storm has passed – at least for now – how schemes navigated it, and how they are now placed for the future, varies significantly across the industry.

In general, this storm has, ironically, improved funding levels of UK Defined Benefit (DB) schemes, prompting many sponsoring companies and scheme trustees to assess how they should be mitigating pension scheme risk.

However, the course schemes will set and follow will be very different. Whilst each scheme has its own unique set of circumstances, it is possible to categorise the UK DB market into three broad groups.

1. Stay the course: Schemes which are well funded and who intend to operate on a self-sufficiency / low dependency basis.

2. Credible path to risk transfer: Schemes which are well funded but who are seeking a path to buy-in or eventual buy-out.

3. Difficult path ahead: Schemes who have a significant deficit and who are a long way from self-sufficiency or buy-in, and who may have covenant or governance challenges as well.

For schemes at or near their endgame, buy-out has been the north-star most have navigated by. Whilst improved funding levels will seemingly make this route more attractive and insurers are increasing capacity, competition will be fierce and not every scheme will have the ability to transfer risk.

There are limited other options available to schemes, particularly those who have a difficult path ahead. With regulatory requirements such as the new funding code for DB pension schemes potentially adding to the cost burden, more economical and efficient solutions need to be found.

Such solutions might include reshaping scheme portfolios to achieve risk and cash flow profiles consistent with self-sufficiency and low dependency, whilst providing the optionality of buy-ins or buy-out; increasing schemes’ physical readiness to buy-out; innovating with insurers and pension schemes to make portfolios more transferable and reduce frictional costs; considering how to strengthen governance and reduce costs; considering consolidation; and providing greater capabilities for scheme governance through technology, data and training, liaising with regulators to ensure that the regulatory framework supports these objectives.

What is now required is a clear assessment by the industry of the journey to endgame that takes account of the very different characteristics of schemes, with innovation in the solutions available providing greater optionality to scheme trustees and sponsors and a better outcome for members.

Introduction

The mini-budget of September 2022 set off a chain of events which radically changed the funding position of UK DB pension schemes. Whilst much of the focus has been on the events themselves there is a danger that we fail to prepare for the next challenge which will be detrimental to the outcomes of pension scheme members. The aggregate funding level of UK DB Schemes improved by 1.7% between August 2022 and the end of September 2022¹, but when we look beneath the surface there is a great dispersion in the funding positions of different schemes.

Pension schemes with strong governance regimes exemplified through efficient decision making and a clear strategy between trustees, executive and sponsor and robust investment strategies will have locked in funding gains and reduced interest rate and inflation risk. This will have accelerated the need to consider their endgame. Buy-out has been the benchmark for transferring risk from the sponsor, which also mitigates longevity risk. However, alternative solutions may include opting for a self-sufficiency / low dependency strategy or taking a longer-term path to prepare for buy-out.

Pension schemes who have weaker governance budgets may have also seen their funding positions improve but much of this may have stemmed from them being under-hedged. The regulatory environment through The Pensions Regulator and the Financial Conduct Authority require greater liquidity buffers whilst the new macro-economic regime brings increased asset class volatility, higher inflation and interest rates. Many schemes will be entering uncharted waters. This paper will explore the range of solutions pension scheme trustees have at their disposal and assess the impact on governance, asset allocation and portfolio construction.



¹ Source: Pension Protection Fund, PPF 7800 Index, 30 September 2022.

The storm

On 23rd September 2022 the UK Chancellor of the Exchequer unveiled an ambitious spending package of £200 billion which accounted for 7% of UK GDP. This was an attempt to combat increasing inflation following labour shortages and supply chain challenges following the global pandemic.

The outbreak of war in Ukraine heightened an emerging energy crisis and only increased the inflationary environment. The package was designed to combat these challenges and also boost UK productivity which the Chancellor believed had been in long-term decline. The package included a range of unfunded tax cuts intended to stimulate the economy, amounting to £45bn per year. The theory behind this was 'trickle-down' economics, the extra supply of money in the economy leading to increased spending, therefore stimulating demand.

The market reacted negatively to the package, the prevailing view was that the package would fail to boost growth, instead the view was that the tax cuts would have to be funded by an increase in borrowing through the issuance of government bonds or gilts. The spectre of increasing inflation had already raised expectations of future interest rate rises. But this concern saw bond prices plummet and the cost of borrowing rise. The

outcome was a sharp rise in gilt yields with the yield on the 10-year gilt rising rapidly to 3.7 per cent up from 2.6 per cent just a month before¹ and the 30-year gilt peaking at 4.98%, the highest level for 20 years.²

The impact on DB pension schemes was significant. The purpose of a pension scheme is to pay members their benefits through retirement. This is achieved through the returns on assets generating enough income to meet liabilities as they fall due. Ideally the value of the pension scheme assets will be equal to the value of its liabilities. The ability of a pension scheme to meet its liabilities is calculated as a ratio or the difference between a scheme's assets and liabilities. This is referred to as the scheme funding level. If a pension scheme experiences a shortfall between the value of their liabilities and the value of their assets it has a deficit.

The funding level is determined by a range of factors and the management of risk. These risks can stem from the returns on expected assets. An investor can however be rewarded for these risks which can help drive returns and repair the scheme deficit. However, pension schemes are also faced with risks which impact their liabilities, or the payments to scheme members, and, unlike asset risks, these are uncompensated.



1 Source: FT Adviser, 23rd September 2022.

2 Source: Reuters, 27th September 2022.

There are three risks which can impact pension scheme liabilities:

Interest rate risk

To understand the funding position of a pension scheme, we need to understand the present value of a scheme's liabilities. This is calculated by a discount rate. The discount rate is a measure of the interest a pension scheme can be expected to earn by the time the schemes liabilities fall due. The most common method to calculate a pension scheme's discount rate is through government bonds or gilts as these are typically considered to provide long term predictable cash flows.

For example, if a scheme is required to make a payment of £5,000 in 10 years' time the value of the schemes liability today is calculated by the 10-year interest rate. If the 10-year interest rate is 1.5% then the present value of the schemes liability is £4,308.

Another way to look at this is if the pension scheme has assets valued at £4,308 then and the expected return is 1.5% per annum for the next ten years then the scheme will be able to meet its liability of £5,000 due in ten years' time.

A higher interest rate however means the schemes liability would be less as the expected return would be greater. So, if the interest rate is 3% over the ten year period, then the liability falls to £3,720.

Longevity risk

DB pension schemes are required to pay their members benefits for as long as they live. Increasing life expectancy can mean the liabilities increase.

Inflation risk

Pension scheme benefits can be linked to inflation to prevent the value of their purchasing power decreasing. A higher cost of living can also increase scheme liabilities.

Historically low gilt yields and increasing longevity have seen many pension schemes in deficit. This has required trustees to assess how they construct their portfolios. Many consider the characteristics of different asset classes and assign them a role in their portfolios. Return seeking or growth assets can encompass equities, credit, liquid alternatives or private market

assets. The compensation for risk in these assets, or premia, can help schemes repair a deficit or maintain a funding level.

Matching assets are those which broadly match pension scheme liabilities. For example, both interest rates and inflation also impact the cash flows and values of the bonds.

Matching scheme liabilities through physical bonds alone has proved challenging for scheme trustees. The low interest rate environment has meant the present value of liabilities has remained high. There has also been a historical shortage of longer dated bonds in the UK gilt market.¹

To meet scheme liabilities pension schemes can choose to increase the return on assets, but this requires taking greater risk. They can choose to use other instruments such as derivatives that can also be excellent matching assets. Derivatives such as swaps are agreements between two parties, in this case the pension scheme and an investment bank, where an arrangement for a fixed rate of interest is agreed. Unlike bonds, the maturity can be flexible and there is much greater supply.

The creation of Liability Driven Investment (LDI) strategies was designed to lessen the risk of this shortfall through managing the impact of these risks on portfolios. These strategies utilise physical bonds and derivatives such as swaps to manage interest rate and inflation risk. To protect against fluctuations in values, pension schemes are required to post collateral. Collateral is utilised as a guarantee against implicit loans often utilising long-dated gilts.

Trustees may also decide how much of a pension scheme's liabilities to hedge against interest rate risk; some schemes may leave their liabilities open to the vagaries of the interest rate and inflationary environment. Others will hedge a proportion, for example 50, 80 or 100%, the latter meaning changes in the interest rates will have little impact on the value of the scheme liabilities. Note that this can, however, work against the pension scheme. A fully hedged scheme that has a deficit may well see the scheme funding level decline in a rising interest rate environment.

1 Source: HM Treasury, Debt management report 2022-2023.

The use of LDI strategies has been a net benefit to pension schemes, as the British Telecom (BT) Pension Scheme stated¹:

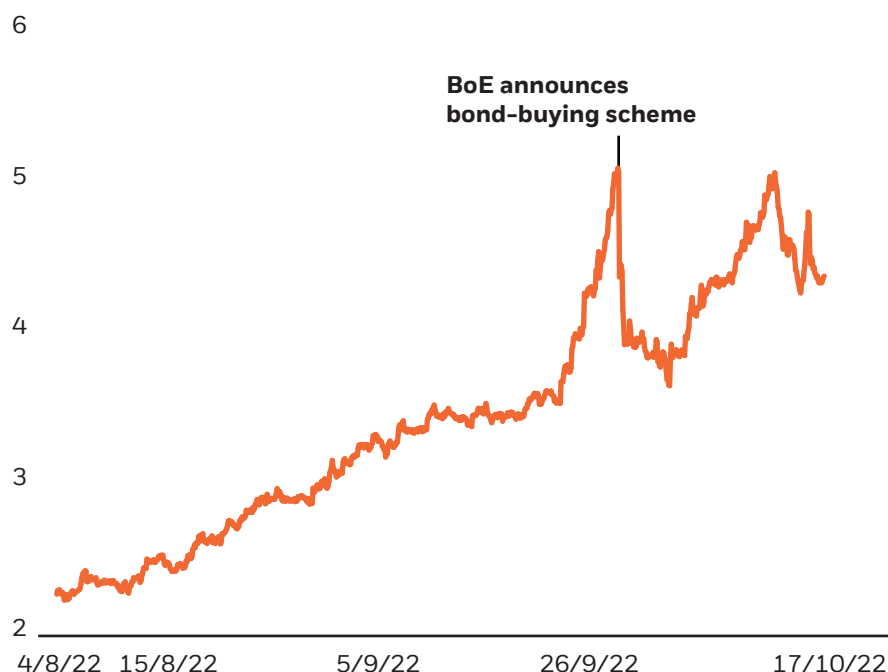
“At the Scheme’s last triennial valuation in 2020, the Scheme’s funding deficit was £8.0bn. We estimate that in the absence of the LDI hedging programme, the deficit would have been £7.6bn higher (i.e. £15bn or more) that would have required BT to pay significant additional contributions to repair the deficit. For context, at the date of the triennial valuation, June 2020, the market capitalisation of BT was £11bn. The Scheme’s most recently reported deficit was £4.4bn as at June 30th 2022. Since then, our hedges have performed as expected, and whilst the value of the Scheme’s assets has fallen over this period, there has been no worsening in our estimated funding position.”

The amount of collateral required increases as the value of the asset it is based against declines. However, the unparalleled rise in gilt yields following the ‘mini-budget’ saw the value of long-dated gilts decline as yields rose. This created a loop where schemes had to raise cash to meet collateral calls, many were forced to sell gilts to raise capital which pushed prices down even further and yields even higher, triggering further collateral calls.

The seriousness of the crisis should not be underestimated. The risk of pension schemes defaulting on their collateral calls meant the pensions of members were at risk, whilst left unabated there was also the risk of the crisis affecting the wider economy. The market only stabilised when the Bank of England began to purchase long-dated gilts, stopping the “doom loop” and easing pressure on the pension schemes.

UK borrowing costs shoot higher²

30-year gilt yield (%)



Source: Refinitiv.

1 Source: BT Pension Scheme Management, UK Parliament Work & Pensions Committee, 1st December 2022.

2Source: Financial Times, 10th October 2022.

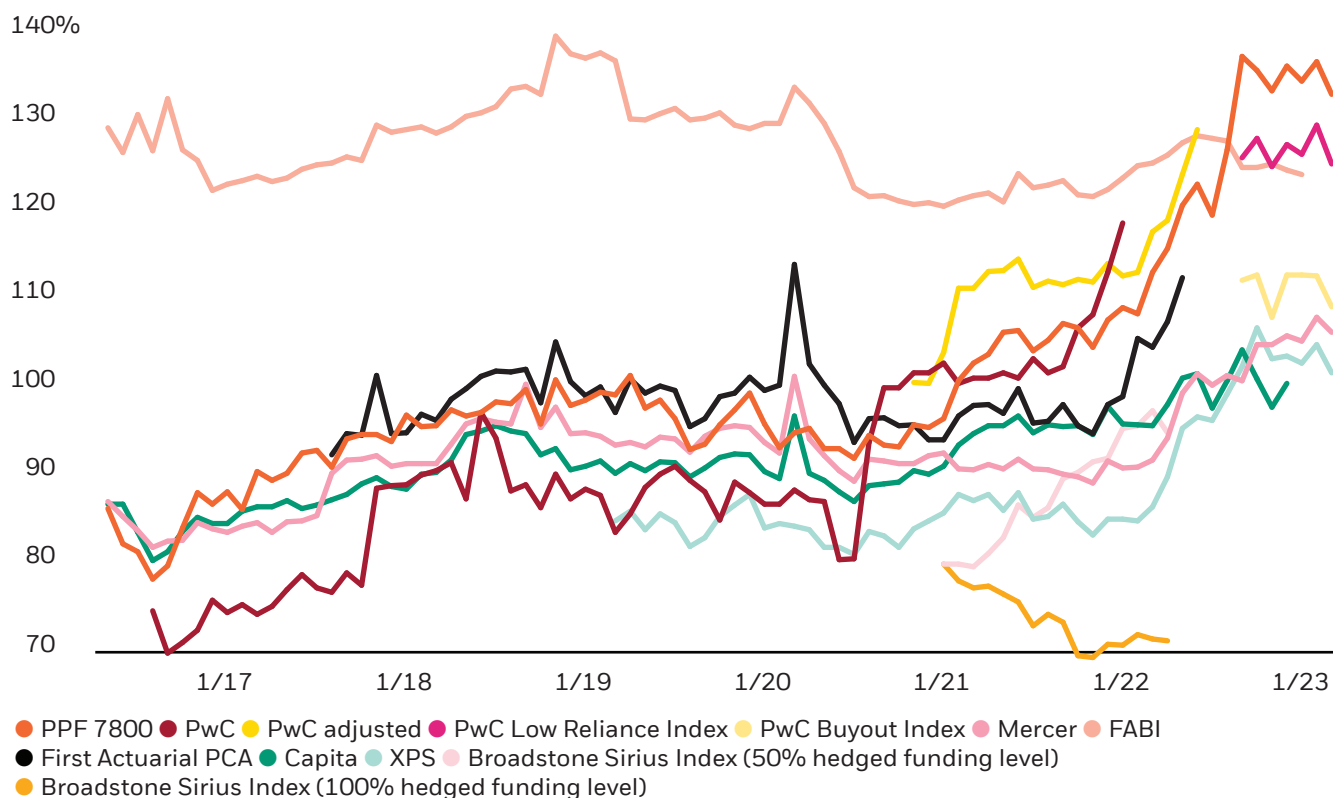
The aftermath

Following the crisis, most attention has focused on the events themselves, and the role of LDI strategies and the utilisation of collateral and leverage. Whilst there are some very important technical lessons to be learned in these areas, pension scheme trustees now find themselves facing new challenges.

If pension schemes are to meet the needs of their members, assessing the new landscape is critical. To do this we need to understand the position of pension schemes both before and after the crisis.

Firstly, the events in September have significantly changed the position of UK DB Schemes. The aggregate surplus of the 5,215 schemes in the Pension Protection Fund in the PPF 7800 index increased by £60.7bn to £374.5bn at the end of September 2022, from £313.8bn at the end of August 2022. The funding ratio increased from 125.1% at the end of August 2022 to 134.8% at end September. Much of this can be attributed to the increase in interest rates which has lessened the value of pension scheme liabilities, but there are a range of other factors before the crisis which influenced schemes outcomes.

Funding levels of UK defined benefit pension schemes¹



Sources and explanations: **PPF 7800:** S179, all schemes; **PwC:** Scheme-specific, all schemes. Discontinued in June 2022. **PwC adjusted:** Alternative assets and assumptions. Discontinued in June 2022. **PwC Low-Reliance:** Discount rate assumption of gilt yields plus 0.5%. **PwC Buyout:** All schemes based on PwC's indicative market pricing. **Mercer:** Accounting, FTSE 350; **FABI:** Best-estimate, all schemes; **First Actuarial PCA:** Accounting, all schemes. Discontinued May 2022; **Capita:** Accounting, FTSE 350; **XPS:** Gilts+0.5% for all schemes; **Broadstone Sirius** indices monitor how various pension scheme strategies are performing on their journeys to "low-dependency" or self-sufficiency and is based on Broadstone clients using its Sirius platform.

¹ Source: Professional Pensions, 11 October 2022.

Secondly, the investment strategy of pension schemes had a significant influence on how they fared during the crisis. We can see from the analysis that schemes who had a 50% hedge ratio experienced an increase in funding levels whilst those with a 100% hedge saw little change in their funding level, depending on their other assets.

Thirdly, we see a correlation between schemes who demonstrate a robust governance framework and access to investment expertise and an emergence from the storm in a strong position.

The pension schemes that managed the crisis well did so because of the following factors:

- A prudent view of the amount they needed to set aside to be used as collateral, significantly more than the pre-crisis stress tests suggested they would need;

- A clearly set out liquidity waterfall of the order in which assets were to be sold in order to meet or top up collateral requirements;

- A clear and strong delegated governance structure with executives empowered to take quick action – often immediate action – rather than having to seek approvals from investment committees or the trustee board;

- Strong investment expertise and training on the trustee board and investment committees pre-crisis, so that trustees were not spooked by media stories and understood the issues and what needed to be done; and;

- Clear stakeholder management and communication at all levels of governance – between LDI managers and trustee executives, between the trustee executives and the trustee board and committees, between the trustees and their employers, between the trustees and members. One observation made from the clients we manage LDI mandates for, is that trustees with segregated LDI mandates tended to do better than those with pooled LDI mandates. This is perhaps understandable given the multiple participants in pooled mandates, but presents a particular challenge for providers of pooled mandates and their clients.

The need to sell liquid assets, and fast, caused additional problems. The crisis came in two peaks, and while many managed to deal with the first peak, they were unable to top up their collateral buffers in time to deal with the second peak.

A more long term legacy of the crisis is that trustees are left with more illiquid assets in their portfolios than they would like, as a hefty part of the liquid assets were sold to meet collateral needs. This overweight illiquid position will take a while to be digested by the pensions industry as a whole: a large majority of pension schemes are now actively looking to sell some or all of their illiquid assets and their dilemma is whether to put up with the overweight position for longer than they would like, or to sell at a discount. This problem is exacerbated by the fact that they may be much closer to their endgame as a result of the crisis. Illiquids sit somewhat uncomfortably with a buy-in ready investment strategy.

Another longer term challenge is whether the residual assets of the scheme are able to deliver the performance targets the schemes need in order to reach endgame. This is an acute issue for those schemes whose investment strategy has some work to do in order to reach endgame.

We believe most trustees and pension schemes feel that they have managed the crisis better than average. However, complacency is always dangerous. Every pension scheme, if it has not already done so, needs to undertake an evaluation of what worked well, what worked badly, and any lessons learned. They could also review the criteria for successful management we set out in the points on the left and consider what improvements they can make in that area so that they would be better placed if a similar crisis occurs. And, equally importantly, they should revisit their investment strategy to ensure that it still meets the trustees' objectives.

UK DB schemes after the storm

Following the events in September 2022 we now see UK DB pension schemes falling into three categories which all display different characteristics. We outline these below:

| | Typical characteristics |
|-----------------------------------|--|
| 'Stay the course' | <ul style="list-style-type: none"> • Well-funded (>100%) • Specialist in-house investment teams • Less reliant on investment consultants |
| | <ul style="list-style-type: none"> • Well-funded (>100%) • Greater reliance on investment consultants |
| 'Credible path to buy-out' | <ul style="list-style-type: none"> • Very well-funded (>110%) • Seeking buy-out in next 3 years • Data in good shape/motivated sponsor • Timeframe for funding (buy-out basis) 0-5 years |
| | <ul style="list-style-type: none"> • Well-funded (>100%) • Seeking buy-out in 3+ years • Data quality work required |
| 'Difficult path forward' | <ul style="list-style-type: none"> • Underfunded • Buy-out or self-sufficiency not attainable in the near term • Focussed on improving funding levels • Other issues present (employer covenant risk, lack of investment expertise, conflicting incentives between trustees and employers) |

Navigating uncharted territory

In this new landscape pension schemes trustees are now faced with three questions:

- 1 Now that the scheme is fully funded what is the endgame for the pension fund?
- 2 What options are at a scheme's disposal to realise this endgame?
- 3 How to prepare for the endgame whilst recovering the scheme's deficit?

Pension scheme trustees and scheme sponsors have a number of options at their disposal when considering how to manage a fully funded pension scheme.

Endgame options

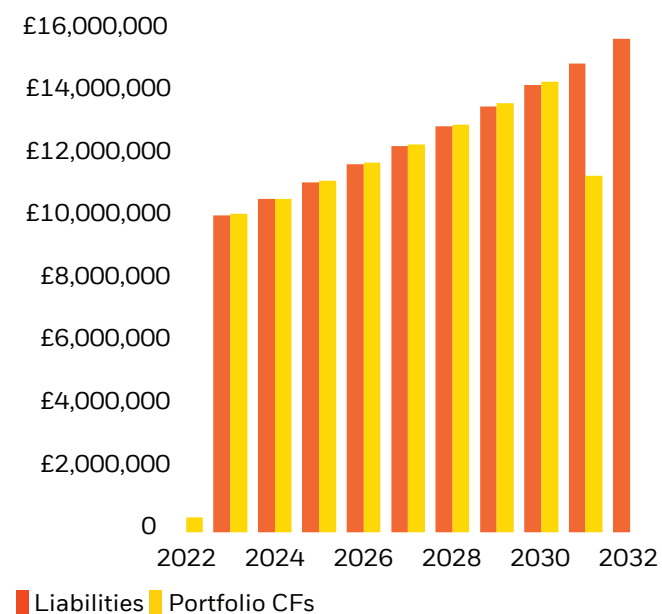
| Endgame solution | Description |
|---|---|
| Pension scheme buy-out | A pension scheme buy-out is a contract where a premium is paid by a scheme to an insurer, which takes responsibility for paying the benefits of the members of the pension scheme. In a buy-out contract the insurer takes legal responsibility for the scheme members liabilities and, as a consequence, the risk for meeting the scheme liabilities has been transferred. |
| Pension scheme buy-in | Another option is for pension scheme trustees to enter a buy-in contract, in similar vein to a buy-out, a premium is paid to by the scheme to an insurer. The insurer then takes responsibility for meeting scheme liabilities as they fall due, but, unlike a buy-out, the sponsors retains the legal obligation to meet members' monthly benefits. |
| Self-sufficiency/ low dependency | This option allows the pension scheme to be self-sustaining, utilising a low-risk investment strategy to meet the benefits of its members without any additional contributions from the scheme sponsor. |
| Longevity swaps | Longevity swaps are insurance contracts through which a pension enters into a contract with an insurer, which agrees to cover liabilities as they fall due for the life of each member. |
| Consolidators | Innovative options for schemes at full funding are also being explored. Pension Superfunds are schemes which offer to take on both the assets and liabilities of pension funds away from the sponsor. DB Master Trusts allow for the transfer of the management of the pension scheme to a single trustee. |
| Capital backed strategies | Other approaches such as capital backed strategies supplement existing sponsor covenants, often through third party capital, by providing capital to support a pension funds desired outcome are also gaining increased attention. |

Stay the course

Pension schemes in the *stay the course* category have the option for operating on a self-sufficiency/low dependency basis. These schemes are less focused on growth and deficit recovery, instead they display characteristics of low volatility, stable and predictable cash flows designed to meet the members benefits as they fall due. A number of these will have in-house expertise they will have the ability to access the full spectrum of investment opportunities across both public and private markets.

Schemes which do not have in-house expertise may have to rely on external specialists to provide access to investment strategies which can meet liabilities but also manage cash flows. The scheme may have to assess when, from where and how regularly income is available.

Asset cashflows vs. liability cashflows¹



Credible path to buy-out

Pension scheme buy-outs are often considered the 'gold standard' for schemes which are fully funded as this transfer both risk and the legal obligation to meet scheme liabilities. Although the liabilities of pension schemes have fallen and insurers are demonstrating the ability to transact more nimbly, there is still a limit on what is possible in the insurance market. The buy-out market currently has a capacity of between £45bn and 60bn per annum against the demand of transferring £200bn of liabilities over the next three years, although insurers believe that this capacity will increase.²

1 Source: As at BlackRock, 31 March 2023. For illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

2 Source: LCP, October 2022.

3 Source: Solvency II Directive, 1st January 2016.

Schemes on a credible path to buy-out within 5 years may be able to secure those liabilities successfully. But strong industry-wide demand means that entering into a buy-out arrangement may become increasingly competitive as time goes on.

The cost of entering a buy-out contract increases with the cost of reconstructing portfolios. This cost may be borne by the scheme or included in the cost paid to an insurer, which may have to exit strategies which are not compatible with their requirements.

Scheme trustees can not only reduce costs but may be able to increase their competitive advantage by assessing whether they can access strategies which allow them to maintain their funding levels, whilst creating buy-out ready portfolios that may be compatible with the requirements of insurers. Insurers fall under the Solvency II framework where the 'Matching Adjustment' feature allows insurers to discount the value of long-dated liabilities using a premium above the risk-free rate, when certain eligibility criteria are met. This higher discount rate allows for a reduction in the assets required to be held against liabilities.

Matching adjustment requirements³

Fixed rate

- Exposures with fixed/deterministic cashflows
- Floating rate assets hedged via an interest rate swap (no benefit for structures with capital calls and/or early redemption (even partial) options)

GBP

- GBP as "final" currency of exposure (to match the currency of the liabilities)
- For non-GBP assets, need to hedge via cross-currency swaps

Investment Grade

- Assets need to be Investment Grade (or equivalent credit risk) to fulfil eligibility criteria and minimise capital requirement

Duration

- Capital benefit is measured as NPV of illiquidity/spread premium over duration of assets (matching liabilities)
- The longer the duration of the assets, the greater the benefit (i.e. capital efficiency). Asset term of 10 plus years is standard, 15 years is ideal

Strategies which display these characteristics such as government bonds, corporate bonds, infrastructure and real estate debt can help schemes meet their objectives whilst being suitable for an insurer.

Pension scheme trustees might also wish to create a longer-term plan for their endgame. This might entail creating portfolios which operate on a self-sufficiency/low dependency basis whilst undertaking a buy-in, in respect of part of the liabilities.

Difficult path forward

Schemes in the difficult path ahead category will have the challenge of recovering the scheme deficit with reduced options for their endgame. This will require generating returns from the return seeking portion of their portfolio whilst managing risk in their liabilities.

Despite the improved funding levels these schemes may have a weaker governance budget and will also have to contend with a regulatory regime that is focused on the events of September 2022 through both The Pensions Regulator and the Financial Conduct Authority. This may increase costs to employers through the new Defined Benefit Fund Code. Expected to come into force in April 2024, the new code will provide guidance for DB pension schemes to comply both funding requirements. One outcome could be an increase in costs to employers through increased contributions or cash injections. These schemes will also need to achieve this in a macro-economic environment that may be characterised by more volatility in inflation and asset class returns.

These schemes will also have to contend with increased collateral requirements for any LDI strategies, which means the return seeking portion of their portfolios becomes ever more important.

Furthermore, it is important to understand the trade-off between liquidity and meeting collateral requirements, particularly as schemes near full funding.

We illustrate three hypothetical schemes at different phases of their journey and how they might balance these demands in their portfolios.

In each of the three scheme examples, there are two frameworks we use to assess the maximum amount of private markets a scheme can tolerate (see appendix for methodology):

- Scheme Solvency – whether the scheme continues to pay benefits and meets private market capital commitments
- LDI Collateral – given an extreme move in rates, can the scheme re-collateralise their LDI strategy

Scheme 1

This scheme has historically been under-hedged but has benefitted from the recent rise in bond yields. The scheme still has a deficit to recover over the next 5 plus years but is targeting self-sufficiency for its endgame. The scheme is immature, spending between 2-6% of assets per annum on benefit payments. The scheme's current investment strategy and funding circumstances are summarised as follows:

Growth assets = 57.5%

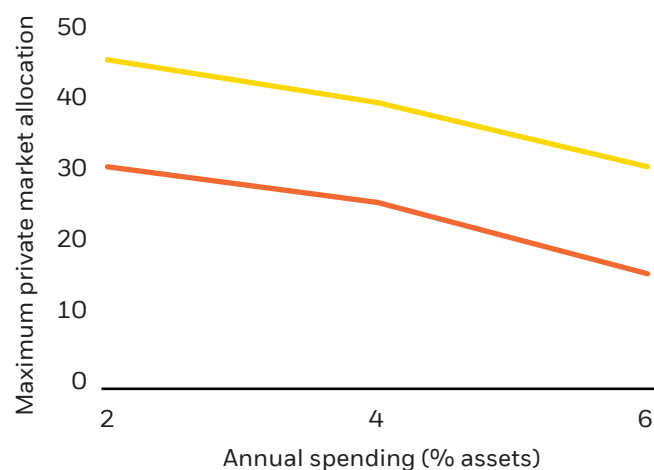
Matching assets = 42.5%

Funding level (Technical Provisions) = 80%

The hedge ratios available to the scheme are 34% of liabilities if using no leverage and 68% of liabilities if using two times leverage. We assume that the scheme would allocate to a diversified mixture of growth private assets, such as private equity, and income private assets, such as private credit.

Under a Scheme Solvency framework, we find the maximum level of private market allocation tends to be constrained by the benefit payment needs of the scheme. For Scheme 1 we find the below constraints to be relevant:

Scheme 1 - Scheme Solvency



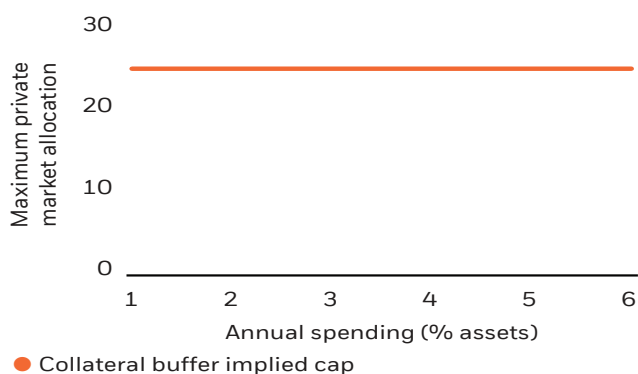
Source: As at BlackRock Investment Institute, June 2023.

The above chart shows the maximum allocation to private markets that could hypothetically be tolerated by Scheme 1 under the Scheme Solvency framework, for different levels of net spending by the scheme, shown here as a percentage of assets. From the chart above we find that introducing a leveraged strategy such as LDI, reduces the maximum level of private markets that can be comfortably held. This is shown by the yellow line moving towards the red line as the leverage increases.

Under an LDI Collateral framework, we determine the maximum allocation to private markets that can be supported under a 250bp rate shock (since undertaking this analysis, an additional operational buffer would be required on top of the market stress buffer. The operational buffer will vary by scheme, looking at factors such as a scheme's assets and operational set-up, asset allocation, etc.).¹

Here we assess whether there is a sufficient allocation to liquid public market assets to be called upon should there be a need to re-collateralise the LDI strategy. The cap implied by this framework is as follows:

Scheme 1 - LDI Collateral (based on 250bps shock)

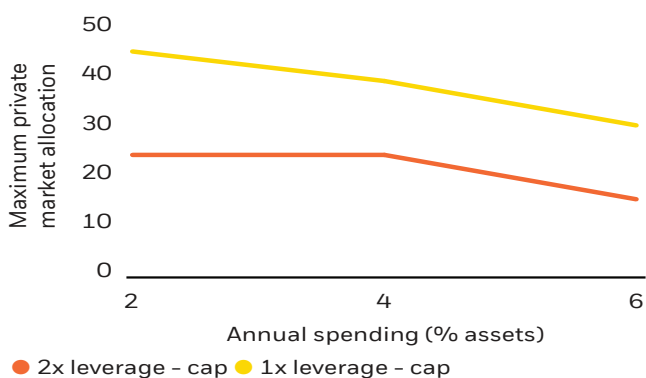


● Collateral buffer implied cap

Source: As at BlackRock Investment Institute, June 2023.

By combining these caps suggested by the Scheme Solvency and LDI Collateral frameworks, we find the below to be an appropriate maximum private markets allocation for Scheme 1 using a 1x levered or 2x levered LDI strategy.

Scheme 1 - Overall maximum



● 2x leverage - cap ● 1x leverage - cap

Source: As at BlackRock Investment Institute, June 2023.

The above chart shows the overall maximum allocation to private markets that could hypothetically be tolerated by Scheme 1 under different leverage assumptions, for different levels of net spending by the scheme, shown here as a percentage of assets. In practice, the actual allocation may be lower and depend on other scheme-specific nuances such as the governance structure for decision making, whether the scheme has independent expertise on its Trustee board or whether day-to-day portfolio decisions have been delegated to a fiduciary manager.

¹ Source: The Pensions Regulation, 24 April 2023.

Scheme 2

This scheme has historically maintained a high hedge ratio, though it has not been fully hedged and has benefitted from the recent rise in bond yields. The scheme is targeting buy-out in the next 1-3 years and is mature, spending between 6-10% of assets per annum on benefit payments.

The scheme's current investment strategy and funding circumstances are summarised as follows:

Growth assets = 20%

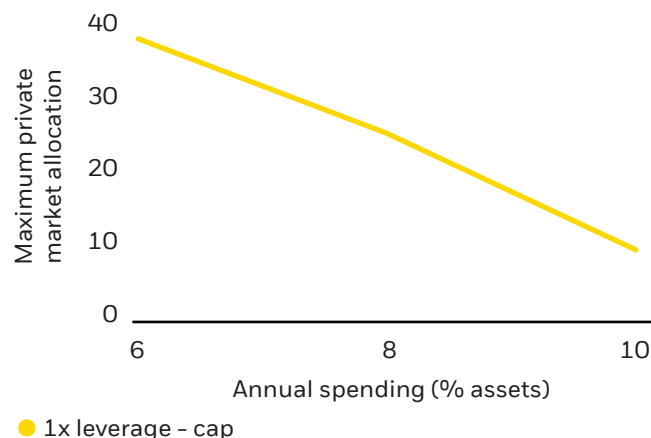
Matching assets = 80%

Funding level (Technical Provisions) = 110%

Given the scheme is very well funded, we find that the scheme could comfortably maintain a high hedge ratio (80-100% of liabilities) without using leverage. The scheme's private market allocation should avoid private equity or real estate in favour of insurer-friendly cashflow generative private market allocations. Examples would include infrastructure debt, real estate debt etc.

Given that the scheme does not require leverage, we focus on the 1x leveraged maximum allocations as determined by the Scheme Solvency framework as shown below.

Scheme 2 - Overall maximum



● 1x leverage - cap

Source: As at BlackRock Investment Institute, June 2023.

The above chart shows the maximum allocation to private markets that could hypothetically be tolerated by Scheme 2, for different levels of net spending by the scheme, shown here as a percentage of assets. Based on the above analysis we find a mature scheme could support between 10-40% in private market assets. We note that the above doesn't allow for any cashflow matching approaches that might be taken which could further raise the upper thresholds for these schemes. In reality, a scheme targeting buy-out would likely need to consider insurer-specific allocations to private markets as these can vary significantly across insurers. We further acknowledge the buy-out transactional difficulties associated with private market allocations and therefore would expect Scheme 2 to consider any Solvency II implications that affect insurer appetite for private markets.

Scheme 3

This scheme has historically been underhedged but has benefitted from the recent rise in yields and is now fully funded on a technical provisions basis. The scheme is targeting self-sufficiency over the next 5 years and so it would be more appropriate for any private market allocations to be more cashflow generative, similar to Scheme 2. The scheme's liability profile could be mature or immature.

The hedge ratios available to the scheme are 50% of liabilities if using no leverage and 100% of liabilities if using 2x leverage.

The scheme's current investment strategy and funding circumstances are summarised as follows:

Growth assets = 50%

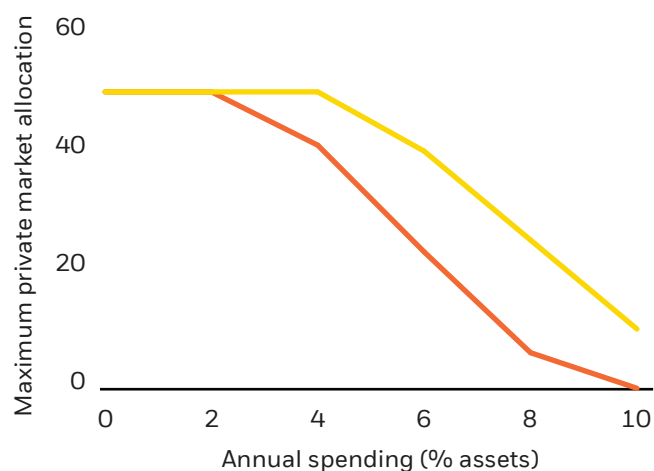
Matching assets = 50%

Funding level (Technical Provisions) = 10%

As with Scheme 1, we assess the maximum private markets allocation under a Scheme Solvency framework and an LDI Collateral framework.

Under a Scheme Solvency framework, we find the maximum level of private market allocation tends to be constrained by the benefit payment needs of the scheme. For Scheme 3 we find the below constraints to be relevant:

Scheme 3 - Scheme Solvency



- 2x leverage - private debt proxy
- 1x leverage - private debt proxy

Source: As at BlackRock Investment Institute, June 2023.

The above chart shows the maximum allocation to private markets that could hypothetically be tolerated by Scheme 3 under the Scheme Solvency framework, for different levels of net spending by the scheme, shown here as a percentage of assets. From the chart above we find that introducing a leveraged strategy such as LDI, reduces the maximum level of private markets that can be comfortably held. This is shown by the yellow line moving towards the red line as the leverage increases. The maximum also reduces as the annual net spending as a percentage of assets increases. Under an LDI Collateral framework, we determine the maximum allocation to private markets that can be supported under a 250bp rate shock. Here we

assess whether there is a sufficient allocation to liquid public market assets to be called upon should there be a need to re-collateralise the LDI strategy. The maximum allocation implied by this framework is as follows:

Scheme 3 - LDI Collateral (based on 250bps shock)

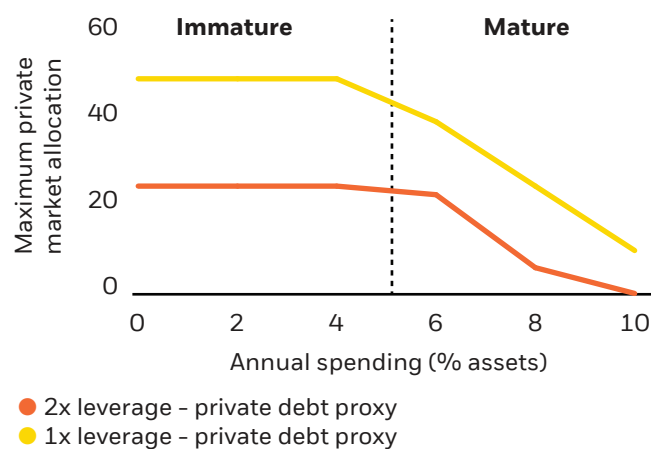


- Collateral buffer implied cap

Source: As at BlackRock Investment Institute, June 2023.

By combining the maximum allocations implied by the Scheme Solvency and LDI Collateral frameworks, we find the below to be an appropriate maximum private markets allocation for Scheme 3 using a 1x levered or 2x levered LDI strategy.

Scheme 3 options



- 2x leverage - private debt proxy
- 1x leverage - private debt proxy

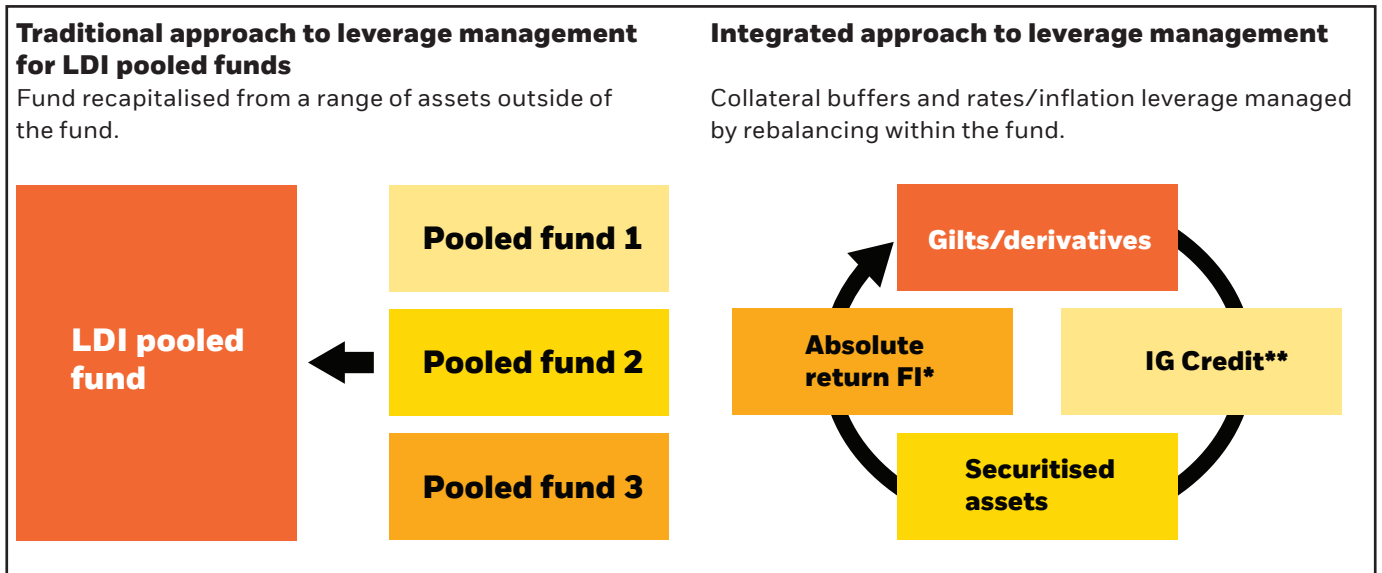
Source: As at BlackRock Investment Institute, June 2023.

For a mature scheme the trade-off between leverage and private markets is more restrictive, however we note these schemes would likely choose to operate a lower level of leverage and potentially de-risk the portfolio, thereby allowing for a private market allocation that is more cashflow generative. Furthermore, we would expect a mature scheme utilising a cashflow matching approach to be able to tolerate a higher allocation to income generating private markets. However, we have not assessed the impact of such an approach here. For an immature scheme, sizeable allocations to cashflow generative private markets could be maintained.

Assessing investment strategies and solutions which help schemes manage these trade-offs will become an imperative.

Governance

Schemes which displayed more robust governance fared better during the gilt crisis. Utilising investment strategies which ease the governance burden by delegating responsibility to a team of full-time professionals can also be pivotal in enabling schemes to meet the needs of their members.



Integrated strategies can provide faster access to additional collateral from assets held within the fund. They can provide flexibility to access liquidity by selling across a range of funds and they can reduce the governance burden on schemes as deciding which, how and when to access collateral is delegated to a full-time professional entity.

Scheme trustees should ensure they continue to increase their governance budget through increasing

the knowledge of their trustee body.

Finally, scheme trustees may wish to remain abreast of industry developments as innovations such as consolidators and capital backed strategies continue to evolve.

*FI – Fixed Income

** IG – Investment Grade

Conclusion

To meet the changing need of UK DB schemes after the storm, requires a re-think of scheme governance, asset allocation and portfolio reconstruction. The positions of schemes, the regulatory landscape and the macro-economic regime present a very different set of challenges for trustees. To address this situation, it requires partnership and innovation from all participants of the pensions and investment industry. Ultimately this is what will lead to better outcomes for these pension scheme members.

To achieve better outcomes for pension scheme members the following is required:

1 Data to provide an understanding of the individual positions of pension schemes following the gilt crisis of September 2022

- 2** A re-assessment of schemes strategy in the new macro-economic environment which is characterised by higher interest rates, higher inflation and greater volatility
- 3** A review of scheme investment strategy including the trade-off between higher collateral requirements and liquidity
- 4** Consideration of measures to strengthen scheme governance to enable trustees to navigate this new environment
- 5** Innovation to increase the range of options available to pension schemes to achieve their desired endgame

Appendix –

Illiquids analysis methodology

In this paper we detail two frameworks we have used for determining a maximum threshold for private market allocations for UK DB pension schemes: Scheme Solvency and LDI Collateral framework.

Each framework implies a different threshold and we combine these by taking the minimum private market allocation permitted for varying levels of spending requirements, which we use as a proxy for scheme maturity.

Scheme Solvency

Under this framework we determine the maximum private market allocation that a scheme can tolerate, whilst

continuing to pay benefits and meet any private market capital commitments. The methodology for this framework builds on the methodology detailed in the BlackRock Investment Institutes March 2019 paper entitled “The core role of private markets in modern portfolios”.

For each combination of the input parameters in the table below, we run 200 Monte Carlo simulations of portfolio performance from June 2007 to December 2012, each time selecting a random combination of private market funds to allocate to. We chose this historical period as it contains the Global Financial Crisis which was a period of constrained liquidity.

| Input | Range tested |
|--|---|
| Target allocation to private markets | 0% to 100% of the total portfolio in June 2007 |
| Annual liquidity/spending requirement from total portfolio | 0% to 12% of June 2007 total portfolio value |
| Leveraged liquid asset proxies used | Global equity (MSCI ACWI) and 1.7x levered Global Equity (MSCI ACWI). 1.7x levered Global Equity was chosen to represent the same volatility of a 2x levered 20-year Gilt |
| Number of private market fund commitments per year | 4 to 20 funds per year |
| Age of private markets portfolio | 1 to 20 years, although the output is conservatively based on age with the greatest liquidity requirements during the global financial crisis |
| Quarterly Net Asset Values (NAV) and cash flows for private market funds | All fund types and geographies from Preqin |

The maximum allocation under the Solvency Framework represents allocations that do not result in a greater than 5% chance of a liquidity event. Liquidity event here is defined as having a liquid allocation that falls below 2 years of spending needs. We ran the analysis on the entire Preqin private market fund universe of about 3,500 funds.

LDI Collateral

Under this framework, we model the impact of a 250bp move in rates on the collateral position of each scheme’s LDI portfolio. We then determine whether there is sufficient liquidity in the scheme’s portfolio to re-collateralise their LDI strategy.

Risk warnings

Capital at risk. The value of investments and the income from them can fall as well as rise and are not guaranteed. Investors may not get back the amount originally invested.

Past performance is not a reliable indicator of current or future results and should not be the sole factor of consideration when selecting a product or strategy.

Changes in the rates of exchange between currencies may cause the value of investments to diminish or increase. Fluctuation may be particularly marked in the case of a higher volatility fund and the value of an investment may fall suddenly and substantially. Levels and basis of taxation may change from time to time.

Risk. The fund invests in fixed interest securities such as corporate or government bonds which pay a fixed or variable rate of interest (also known as the 'coupon') and behave similarly to a loan. These securities are therefore exposed to changes in interest rates which will affect the value of any securities held.

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