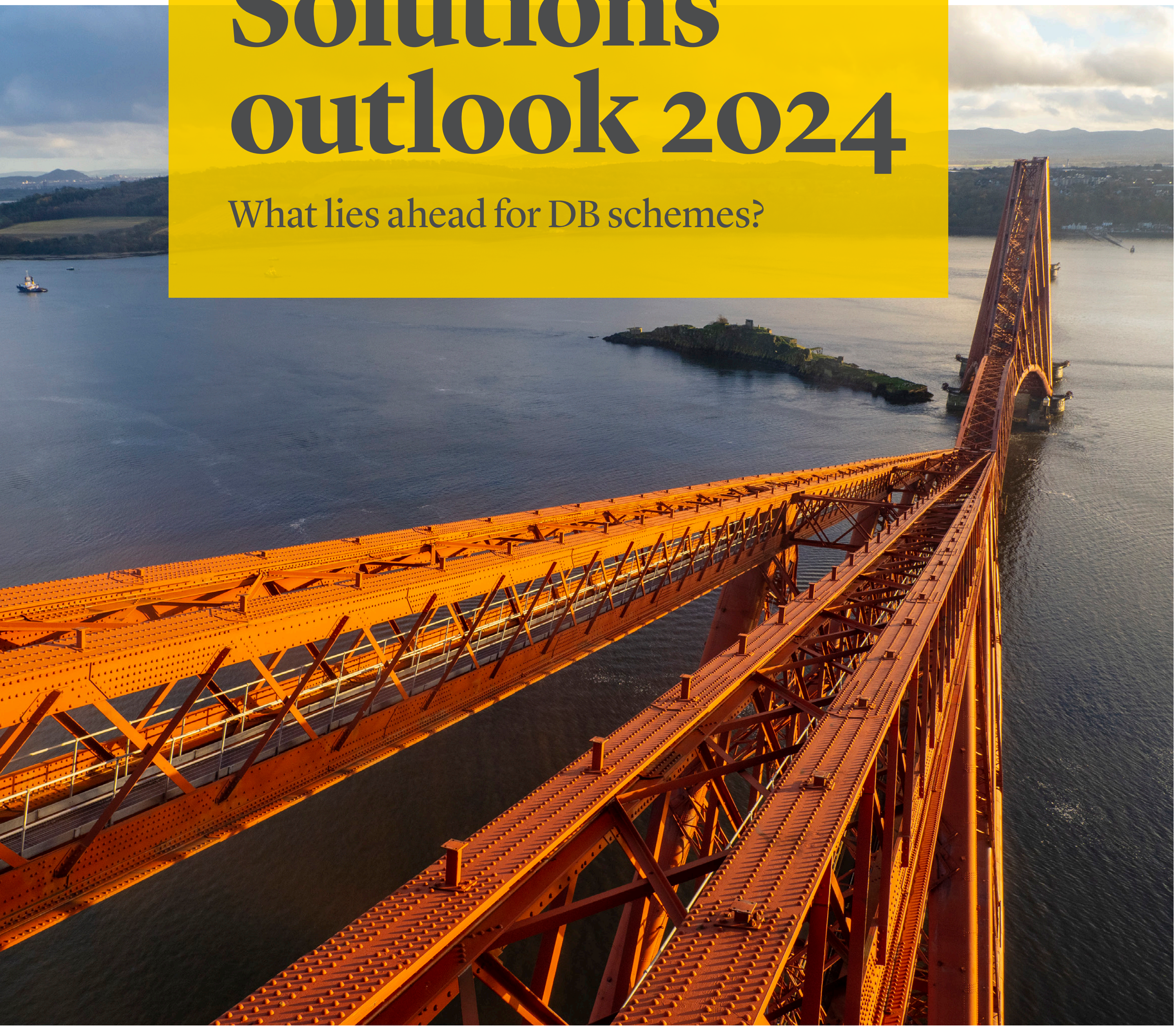
Solutions outlook 2024

What lies ahead for DB schemes?



In this outlook we set out key themes for the year ahead, including renewed focus on **credit allocations**, **hedging**, **falling longevity** and **equity derivative** strategy.

Assessing the state of play

We believe that the year ahead will continue to see significant focus from trustees on the core DB scheme purpose of paying pensions. However, as pension funds continue to mature (with average liability duration now around 13 years[1]) and with funding levels much higher, it's important to note that the question of 'how to pay pensions' does not have a single right answer.

In this overview we set out our themes for 2024, covering interest rates, credit and equity, while also picking out a handful of interesting areas to investigate in more detail. In our view, the accompanying market dynamic running through all these asset classes and feeding into investment strategy is the potential for 'peak rates'. Specifically, if we have indeed reached the peak bank rate for this cycle then what next? And what does that mean for pension fund allocations and strategy?

Continued bid for credit

Investment grade corporate bond allocations remain an important part of portfolios (currently around 25%[2]) but we see continued investment in this area given that this is lower than the expected insurer allocation of around 50% of the total interest rate exposure.

On the one hand, credit could have a rocky road ahead given the volatile macro environment and the effect on both the consumer and cost of debt from what central banks have termed 'restrictive' rates. At the same time, we believe credit may continue to benefit from positive technical supply and demand factors for at least a portion of 2024 and increasing market conviction in a 'soft landing'.

Our view is that building credit allocations in 2024 is likely to benefit from averaging in and a holistic approach to matching portfolios as schemes seek to 'bridge' the gap to their endgame. We discuss this more in *Future themes for well-funded schemes.*

The accompanying market **dynamic feeding** into **investment strategy** is the **potential** for **'peak rates'**

Meanwhile, we cover ESG and other implementation considerations in *Innovating in credit strategy* as well as how schemes can seek additional resilience via synthetic credit and ongoing credit collateralisation strategies.

Interest rates, inflation hedging and hedge ratios. Where next?

We estimate that DB scheme interest rate and inflation hedge ratios are currently around 85%,[3] which is, broadly speaking, a 5% increase over 2023 and leaves levels of hedging at all-time highs.

The hard yards have been made but we believe there is likely to be more discussion around refining hedging strategy and considering residual risks that were historically small in relative terms. In particular, we expect more Limited Price Inflation (LPI) hedging, especially LPI(0,5), for those pension funds who have material amounts of LPI in their liabilities.

We also note that, all else equal, liabilities are likely to fall further (and hedge ratios increase) as the latest longevity tables are reflected in liability benchmarks. We dive deeper on the potential impact of this shift in *Assessing the impact of lower life expectancy.*

What about the potential for further hedge increases? At these higher hedge ratios, many pension funds will be factoring in the outlook for interest rates. Our interest rate strategists have a central expectation of 10-year yields for 2024 in both the US and UK dropping back into the 3.5-4.0% range. As such, both strategic and tactical aspects look aligned for continued hedging increases in our view.

Tailoring equity strategy

We believe that a core equity allocation remains relevant for many pension funds irrespective of their final goal. In a nutshell, equity allocations in our view can offer important diversification benefits,[4] as well as the potential for significant upside and increased liquidity.

We estimate that a growth allocation of between 7.5% and 15% could potentially be sensible for schemes, depending on whether the goal is a buyout in the near term (within three years) or a longer-term, low-dependency basis.

In *Options for equity and derivative strategy* we consider how pension funds can seek to harness the 'soft-landing' narrative currently being priced in by markets, by planning to mitigate downside risk without foregoing the potential for upside in the event of a significant move higher in equities.

We hope you find our latest thinking valuable as your pension scheme prepares for the year ahead.

Guy Whitby-Smith
Head of Solutions Portfolio Management

Robert Pace
Senior Solutions Strategy Manager

1. Source: LGIM analytics, as at 30 October 2023, based on average liability benchmark durations across LGIM clients
2. Source: PPF Purple book 2023 weighted average asset allocation
3. Source: LGIM analytics, as at 30 October 2023, based on average hedging across LGIM clients

4. It should be noted that diversification is no guarantee against a loss in a declining market.

Future themes for well-funded schemes

Three key trends are emerging from today's higher funding levels as schemes increasingly seek to 'bridge' the gap to their endgame.

Amid higher funding levels, trustee focus has moved towards long-term funding targets. These include buyout with an insurer, running on the scheme while generating a surplus, and other endgame solutions. With this backdrop in mind, we expect hot topics for 2024 to include the following areas:

1. A resurgence of CDI or 'integrated matching solutions'

Given potential regulatory reform following last year's Mansion House speech and Autumn Statement, trustees and sponsors may consider options to run-on their scheme and generate surplus, and delay a potential buyout while liabilities mature and reduce in size.

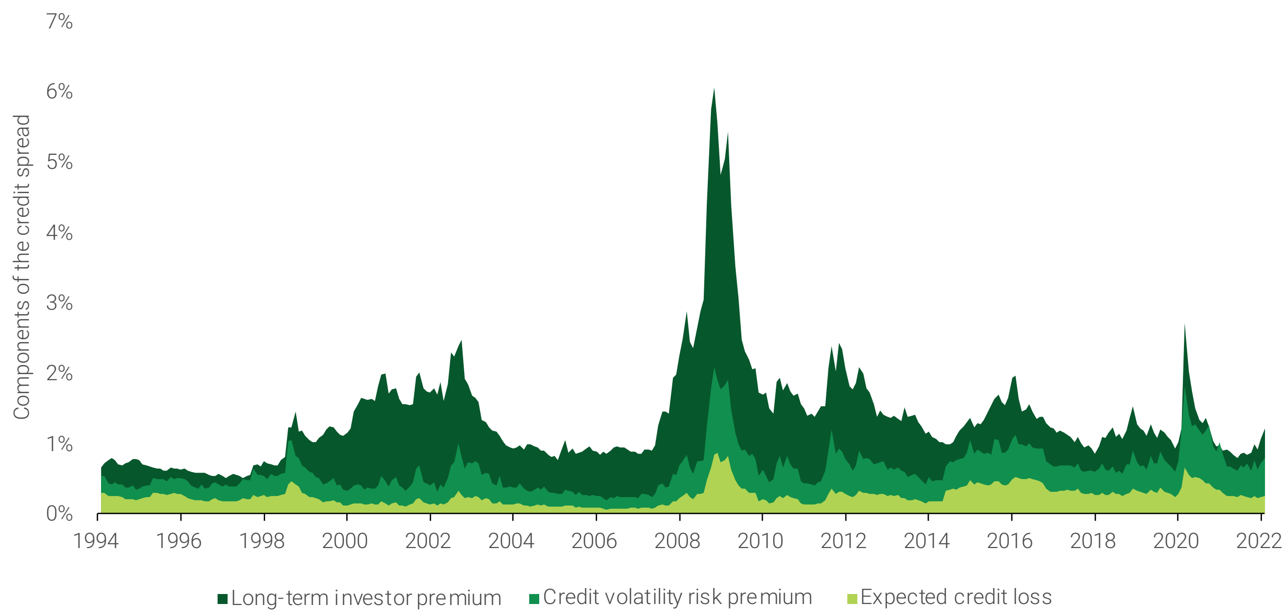
Cue a renewed interest in CDI, or cashflow-driven-investment-based investment strategies to pay pensions, manage risks and generate surplus, where a key investment choice will be to allocate to credit or other cashflow-generating assets.

Why? To capture the 'long-term investor premium' i.e. the observable effect that the spread earned on corporate bonds tends to be considerably wider than can be explained by (1) expected credit losses from downgrades and defaults and (2) uncertainty in those losses (which we call a credit volatility risk premium).

This premium can be viewed as compensation for price volatility arising from spread movements, and lower liquidity given corporate bonds are more expensive to trade than gilts. Both factors will be legitimate concerns for a short-term investor, but neither should matter much for investors with a longer time horizon.

Consequently, we expect schemes targeting run-on to consider investing in an integrated credit and LDI (liability-driven investment) cashflow-matching solution, to 'invest like an insurer', but with the benefit of 'being a pension fund' and investing in assets that insurers tend to not invest in, potentially including certain illiquid assets and a diversifying allocation to equities and alternatives.

Analysis of credit spreads indicates a substantial long-term investor premium



Source: LGIM calculations, Bloomberg, as at January 2022. The chart shows the decomposition of investment-grade US credit implied from equity markets using a structural Merton model. **The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested.**

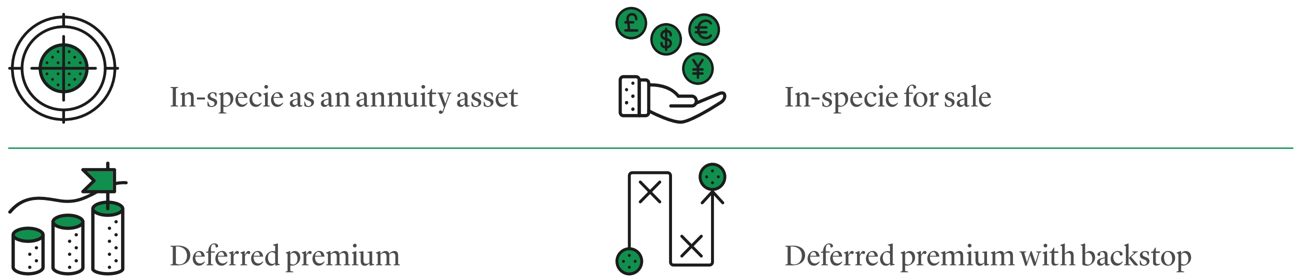
2. The search for solutions to illiquidity

For those schemes that have buyout in their near-term horizon, what to do with illiquid assets was a conundrum for many during 2023. Thankfully, the investment and insurance market has been innovating to help trustees find liquidity for these illiquid assets and we expect more schemes to appraise this in 2024.

How? With enough time, trustees can manage down their illiquid assets alongside LDI and credit portfolios, by awaiting redemptions or a return of capital, and managing overall portfolio liquidity carefully in the intervening period. If a faster resolution is required, trustees can consider secondary market sales of their illiquid holdings. We offer investment management solutions to run-off and restructure illiquid assets in this way to create liquid portfolios as part of a wider credit and LDI mandate.

However, if buyout affordability and readiness accelerate on the horizon, insurance solutions exist too. For instance, Legal & General offer a range of illiquid asset solutions as part of their buy-in and buyout proposition where Legal & General can finance assets (through a deferred premium) while the trustee completes its restructure or purchase assets (to hold or for a later sale) to provide certainty to complete a transaction.

Innovation – illiquid asset holdings to support clients to achieve buyout



Source: LGIM

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5. It should be noted that diversification is no guarantee against a loss in a declining market.

3. Focus on investing like an insurer

Finally, for those schemes that are well enough funded to buyout (or soon will be), then while they prepare for the buyout process (e.g. in terms of setting up governance structure, advisers, preparing data and defining key success criteria for selecting an insurer), a key consideration will be to maintain (or improve) their buyout funding level.

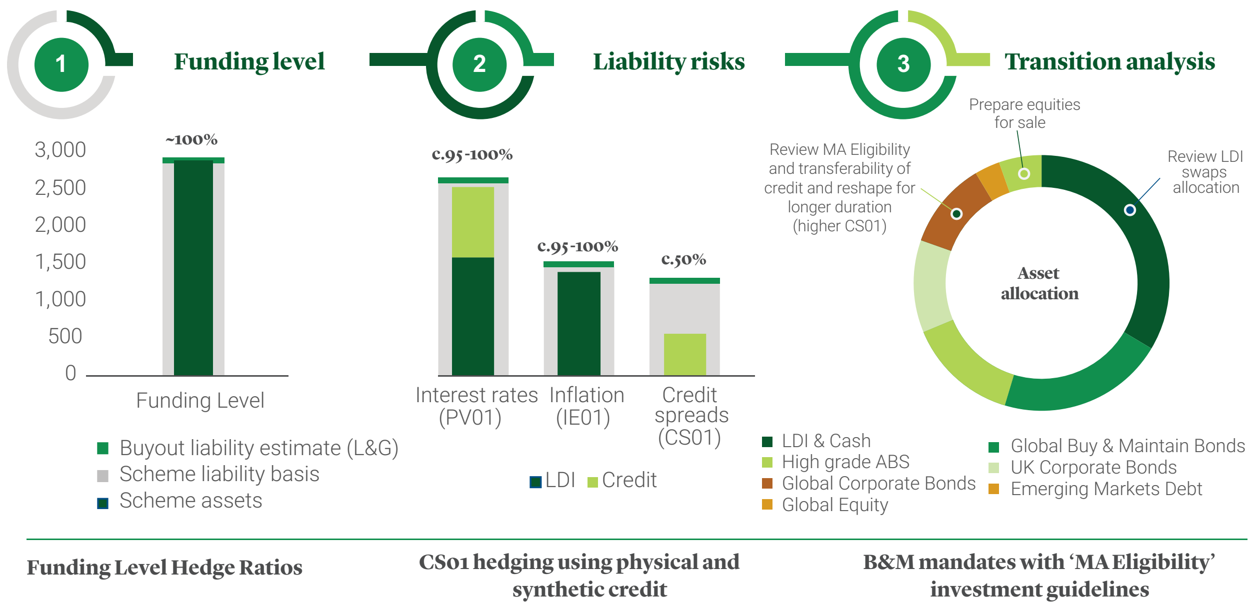
Critical to this is ensuring that the scheme's investment risk profile is aligned with the pricing sensitivity for changes in buyout pricing. This can be done by 'investing like an insurer', in an integrated credit and LDI investment strategy with appropriate 'hedge ratios' to interest rates (PV01), inflation (IE01) and credit spreads (CS01).

While hedging PV01 and IE01 in LDI is mainstream, clients are now looking to add CS01 hedge ratio monitoring to their credit and LDI mandates to seek to better align their risk profiles for an endgame of buyout.

We have been helping clients consider this approach further via a buyout-aware dashboard that considers funding level, liability risks and transferability for buyout and we expect more clients to examine this in 2024.

L&G 'buyout-ready' dashboard[6]

Invest like an insurer' to potentially minimise buyout pricing volatility as you get buyout-ready



Source: L&G analysis for illustration only. Further analysis required. **The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested. Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

6. (1) Buyout funding level is estimated for the Scheme liability duration compared to the L&G Affordability Index, an index that gives a first order indication of L&G's typical level of pricing at a point in time and compared to the total value of all assets provided by the Scheme. (2) CS01 is the change in value of a liability or asset for a 1bps change in the credit spread of the relevant yield curve, calculated by LGIM. For buyout liabilities for this illustrative Scheme, this is assumed to be equal to 50% of the liability PV01 on a buyout liability basis. (3) Matching Adjustment calculated under licence from Legal & General and reflects assets that can be held by an insurance company to back a Solvency II matching adjustment eligible annuity portfolio.

Mathew Webb
Head of Endgame Solutions

Innovating in credit strategy

Pension schemes are looking for innovative credit solutions ranging from improving environmental impact to enhancing collateral efficiency.

2023 looks set to have been the world's hottest year on record, with extreme weather events becoming far more frequent. We believe investors have a crucial role to play in driving the transition to a low-carbon economy and mitigating climate-related risks.

One way investors can seek to exercise this power in 2024 is by applying LGIM's destination@risk framework. This framework enables investors to assess the climate-related risk and temperature alignment of individual companies and, by extension, make investment decisions that can both seek to reduce risk and improve the environmental impact of their portfolios.

Investors are also increasingly aware of the importance of biodiversity and in our view are turning to innovative solutions such as LGIM's Sustainable Development Goals (SGD) alignment methodology which integrates biodiversity considerations. Biodiversity and ecosystems feature prominently across many of the SDGs and associated targets.

We believe **investors** have a crucial **role to play** in **driving** the transition to a **low-carbon economy** and mitigating climate-related risks.

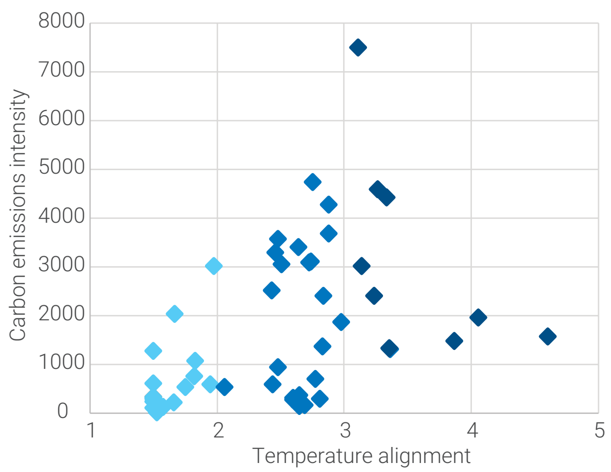
For example, SDG 14 – Life below water – and SDG 15 – Life on land – aim to protect and restore the natural environment and biodiversity. SDG 1 – Ending poverty in all its forms everywhere – is also closely linked as biodiversity provides resources and income, particularly for the rural poor. SDG 13 – Climate change – also has strong links given that biodiversity and ecosystems help mitigate climate change by storing and sequestering carbon.

Engagement is a powerful motivational tool that works together with innovative investor strategies. For example, our destination@risk framework assists us in identifying laggards that we can target for engagement and advocate for more ambitious and transparent climate action.

Climate laggards tend to have high carbon emissions intensity which is typically correlated with a higher expected increase in global temperatures, as shown in the example of global electricity issuers in the chart below.

Capital can be directed away from the laggards if, for example, we believe that engagement is not delivering our expected outcome and we think that issuer climate transition risk is relatively high in comparison to peers.

Temperature alignment versus carbon emissions – global credit universe: electricity issuers[7]



Source: ISS, Refintiv, HSBC, 30 November 2023 LGIM Destination@Risk

New ways to access credit

In addition to climate frameworks and engagement, we believe innovative investment strategies are both also required for a successful and meaningful ESG strategy. A buy and maintain portfolio is a common way for well-funded DB pension schemes to access credit. For those with limited collateral headroom, they can use:

- Corporate bond repurchase agreements (repo) for collateral management
- Committed corporate bond repo where an upfront fee enables access
- Gilt exposure collateralised by corporate bonds

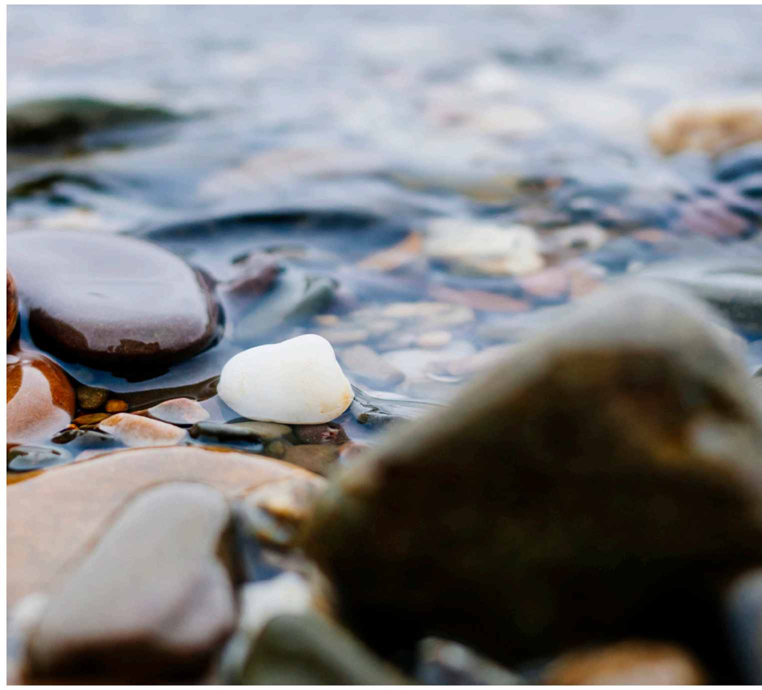
We believe these tools can work well as backstops, however, there are also synthetic routes for more permanent leveraged exposure to credit spreads:

1. Index credit default swaps (CDS): Quick and inexpensive to implement; integrated matching solutions can efficiently use a shared collateral pot with an LDI mandate, or be implemented via pooled strategies

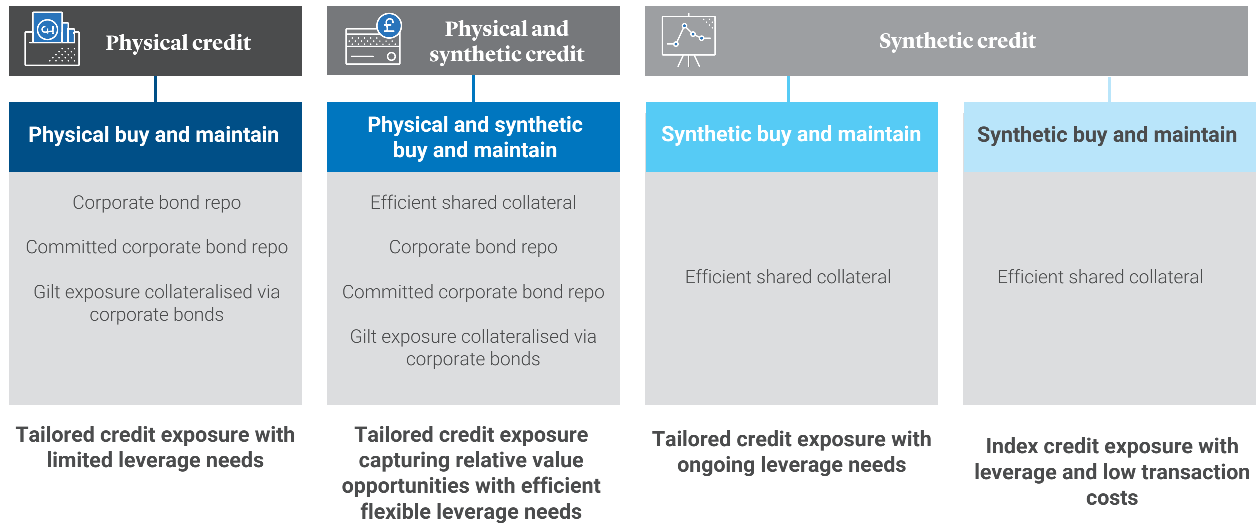
2. Bespoke synthetic buy and maintain credit: Can be implemented via single name CDS. Our experience demonstrates it has the potential benefits of a physical buy and maintain approach such as credit spread value protection, diversification (albeit a slightly smaller universe than physical bonds) and ESG integration, but with more capital efficiency. Can also offer extra credit spread compared to index CDS, due to single CDS' higher liquidity premium

3. A hybrid approach: For example, we believe a physical bond approach excluding financials, alongside single name CDS exposure to financials, can have several potential benefits:

- Helps with security and cost of collateral adequacy, as corporate bond repo pricing for financials may be less attractive
- Helps with buy-in readiness, as insurers often avoid financials exposure, so this can be unwound easily prior to buy-in
- Capture potential relative value opportunities of single name CDS versus cash bonds



Ways to access and integrate credit



Source: LGIM

The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested.

John Daly
Senior Solutions Strategy Manager

Anne-Marie Morris
Head of DB Solutions Strategy

7. LGIM temperature alignment (change in Celsius degrees above pre-industrial levels). Carbon emissions intensity (tonnes C02/$m revenues).

8. It should be noted that diversification is no guarantee against a loss in a declining market.

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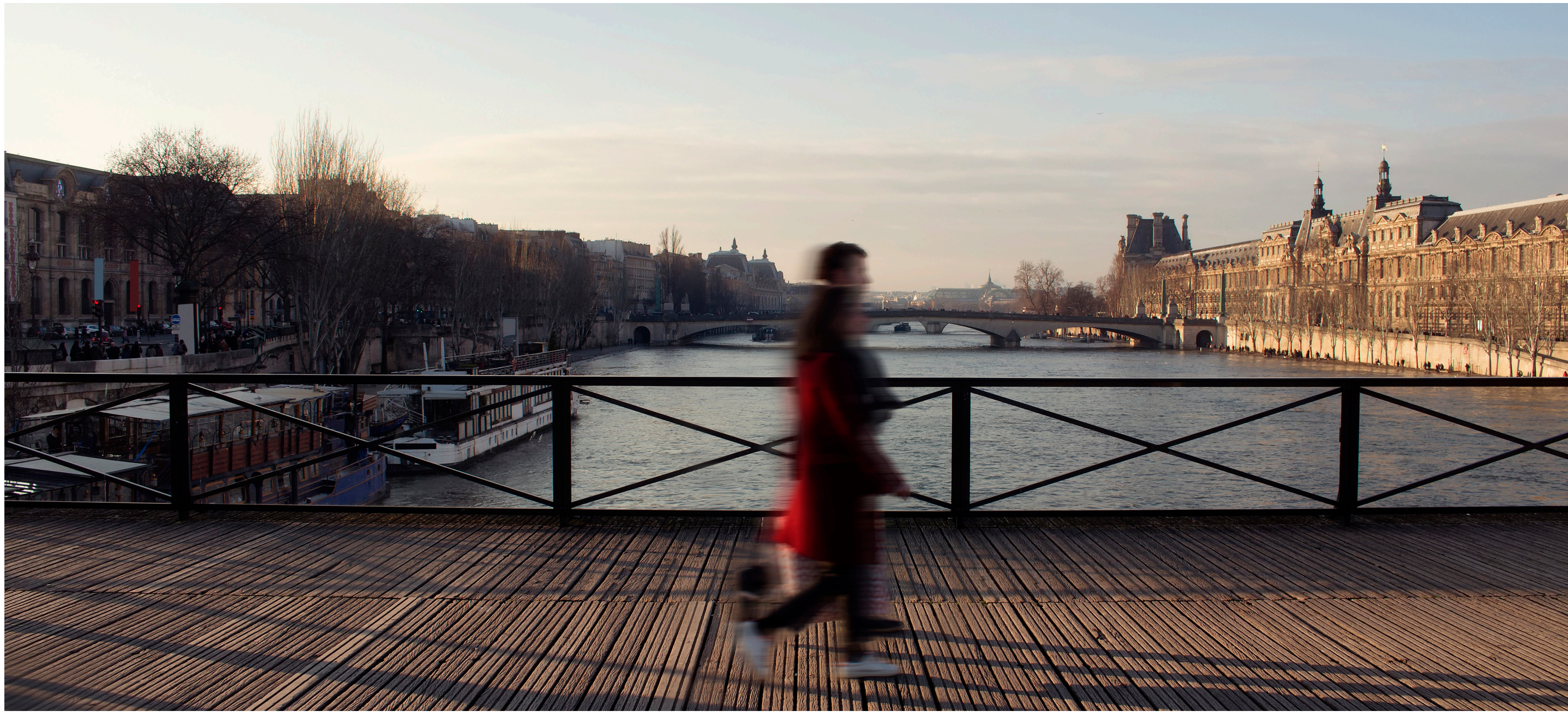


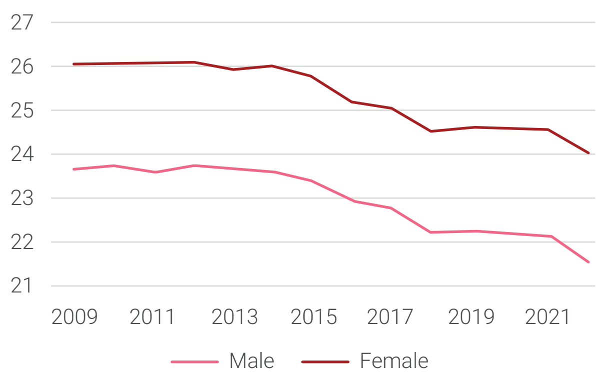
Assessing the impact of lower life expectancy

With many pension funds likely to adopt new longevity assumptions over the coming months, what are the implications for DB schemes and markets?

In 2023, the Continuous Mortality Investigation (CMI) confirmed its proposal for life expectancy assumptions to fall, reflecting a belief that higher death rates in 2022 could be indicative of future mortality. This highlights a continued trend of falling life expectancy. To find out the implications for both DB schemes and markets, we studied a three-year valuation cycle, comparing 2022 with 2019.

This isn't the first time we've written about declining longevity. Yet things are materially different now on two fronts. First, there has been the coronavirus pandemic and its potential influence on future mortality rates. Second, the market environment for gilts has shifted drastically.

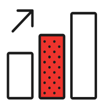
Cohort life expectancies (years) at age 65



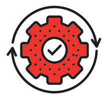
Source: IFoA website, as at 1 January 2023 from CMI 2022 and earlier versions

What's been happening to mortality?

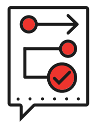
When we look at the latest CMI model used by actuaries to project mortality improvements, we can see that there are three components that feed into mortality rates:



The choice of base table (reflecting estimated current mortality)



The rate of short-term improvements



The assumed long-term rate of improvement

The model blends short-term improvements from smoothed historical mortality data with an assumed long-term improvement rate.[9]

In creating the 2022 estimates, the CMI put no weight on experience for 2020 and 2021 due to the coronavirus pandemic. But they placed a 25% weight on data for 2022 because, although mortality was higher than before the pandemic, it was less volatile and considered potentially indicative of future mortality. As you can see in the chart, the impact is a fall in life expectancies, continuing the trend seen over the past decade.[10]

9. For illustration, we've used the 'S3' series mortality base tables for both 2019 and 2022 and assumed the same 1.5% p.a. long-term rate of improvement – a common choice. The only difference came from the change in the short-term improvement assumption.
10. Consistent with our analysis, this chart assumes an illustrative long-term rate of 1.5% a year and S3 mortality tables throughout.

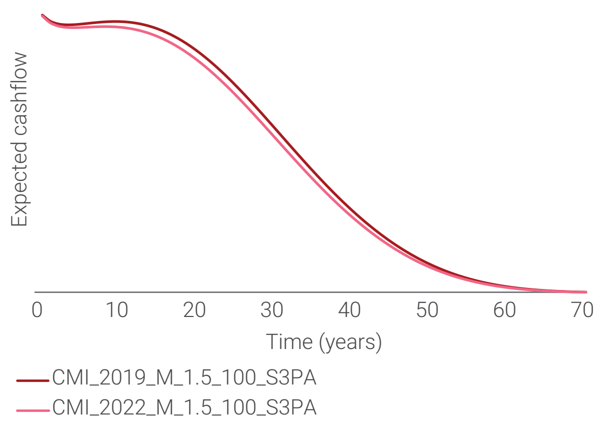
Implications for DB schemes

We crunched the numbers to work out the impact of the above changes in mortality on a typical DB cashflow profile. As highlighted in the chart, there's a modest reduction in expected cashflows.

The overall fall in the present value of liabilities is around[11] 3%, while liability hedge ratios increase with a far greater impact at longer maturities.

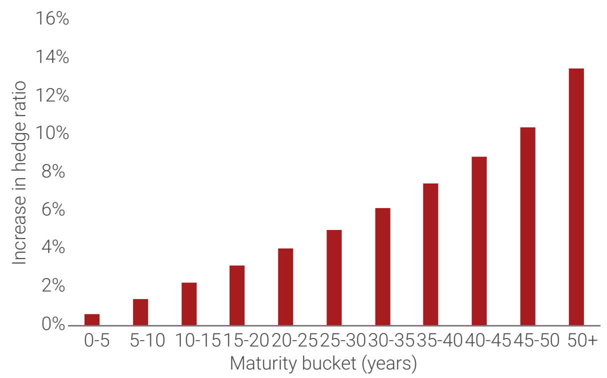
Longevity aside, DB pension funds have generally become better funded recently and more fully hedged. The changes in mortality tables act in the same direction, compounding these improvements.

*Impact on typical DB scheme cashflows

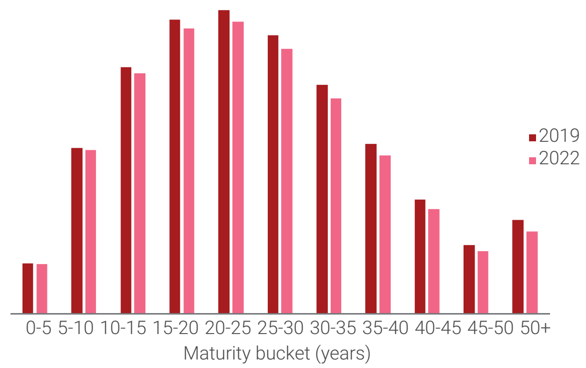


Source: CMI mortality rates, LGIM calculations.
Assumes 100% male, however the impact on females is broadly similar.

Percentage impact on hedge ratios by maturity bucket



Impact of liability PV01 ladder



Source: CMI mortality rates, LGIM calculations as at 1 January 2023 from CMI 2022 and CMI 2019

11. The answer depends on the valuation basis and market conditions. ***The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested**.

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Market impact

As the Bank of England seeks to reduce its gilt holdings, there have been question marks around who will buy all the gilts. The reduced life expectancy above reduces the overall demand for gilts by about £30 billion, exacerbating this issue, although it is likely to be 'drip fed' as changes in liability benchmarks take place, rather than be carried out in short order.

How material is £30bn in the context of the overall market? To put that into perspective, over the last three calendar years[12] (2021 to October 2023):

- Total index-linked gilt supply was around £70bn
- This was broadly evenly split between under 20-year maturities and over 20-year maturities
- Ultra-long index-linked gilt issuance (over 35 years) was around £13bn

The comparison is not like-for-like given that pension funds hold a mix of nominal and real bonds but it provides some sense of how this longevity-related 'supply' of bonds compares to historic issuance. Going forward we believe it could remain a reasonable guide as although overall issuance will likely be high, index-linked gilt issuance will likely be a low proportion.[13]

In terms of implications for markets, we believe the most obvious impact may be a modest gradual cheapening of 50-year real yields (and inflation) relative to 30-year real yields (and inflation). While there are several factors which can impact government bond dynamics, we believe this is probably the area most likely impacted by the longevity effect.[14]

John Southall
Head of Solutions Research

Robert Pace
Senior Solutions Strategy Manager

12. Source: DMO, LGIM calculations.
13. For example, given £250bn of gross supply, 10% in index-linked gilts equates to £25bn of annual supply.
14. For example, longevity could be argued to also increase net supply at 10 years or 20 years but this would be swamped by other factors which are more important for these areas on the gilt curve.

Options for equity and derivative strategy

How can schemes seek to mitigate downside risk in 2024, while still targeting potential equity market upside if the Federal Reserve achieves a 'soft landing' in the US economy?

In 2022 and 2023, equity returns were particularly choppy. As is typical, 2024 presents an uncertain environment where a plausible case could be made for multiple different trajectories for equities.

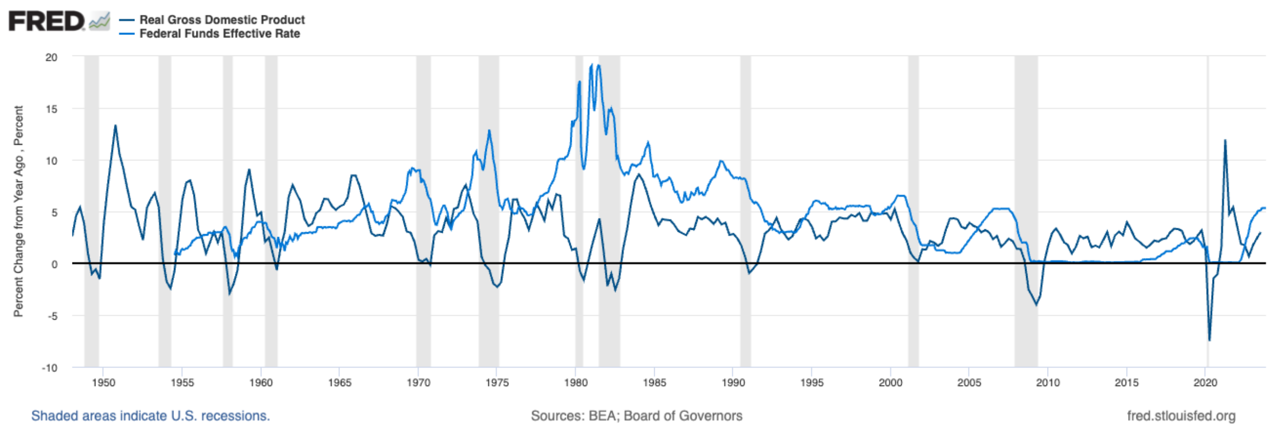
Whether the US Federal Reserve (Fed) has reached the end of its rate-hiking cycle and can engineer a soft landing in the US economy is particularly in focus. Let's consider the potential implications of this scenario for equity markets.

First, let's look at historic soft landings after Fed hiking cycles. The FRED chart shows recessions (grey bars) and the Fed Funds Effective Rate back to 1950. Soft landings have not been all that common, but we can see that the mid-60s, mid-80s and mid-90s were all candidates for where recession did not follow a peak in the Fed Funds rate.

After a choppy 2022 and 2023, what could 2024 have in store for US equities?

Source: Refinitiv, as at 23 November 2023. **Past performance is not a guide to the future. The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested. Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Fed Funds Rate, real GDP and recession history: Will the Fed achieve a 'soft landing'?



Source: FRED (St Louis Fed), as at 20 November 2023. **The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested.**

In these circumstances, we have recorded the S&P equity price return from the date of the peak Fed Funds rate for a period of 18 months. If the rate peaked most recently on 27 July 2023, that means 18 months from that point in the current cycle would take us to January 2025.

On that basis we note that, historically, if there has been no recession, the US equity market has been able to deliver very high returns (i.e. 20%+) over the 18 months after the peak in Fed Funds rate was reached.

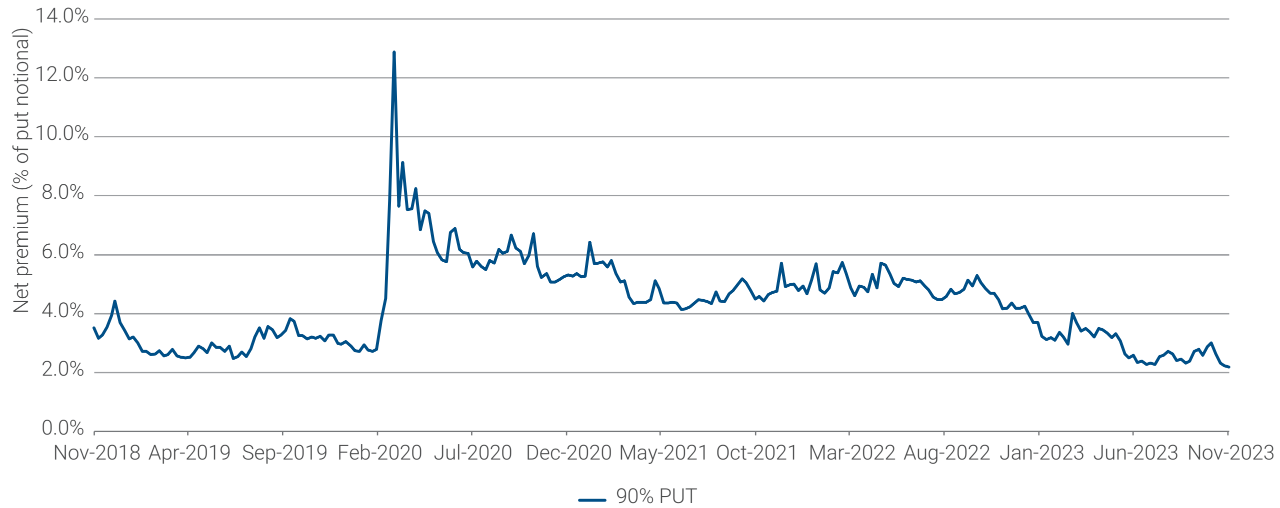
This is not a prediction for 2024 equity returns but it is an observation that there could still be sizeable upside available in 2024 if things fall into place. As well as the Fed playing its role, the upside case for equities could also rely on improvements in technology, productivity increases and the 'magnificent seven stocks'[15] playing a part given their heavy weighting in the index.

Historic equity returns at times of 'soft landing': equities could still have significant upside

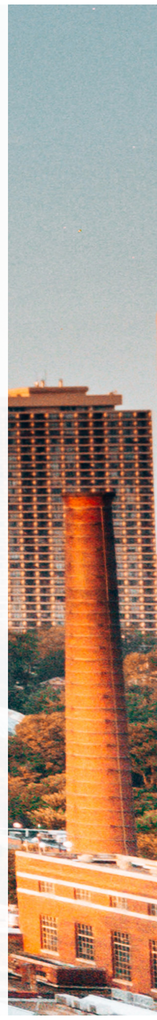
Years after peak bank rate	Rebase years to 27/07/2023	US Equity returns from peak bank rate when a soft landing (no recession) has occurred			
		01/11/1966	09/08/1984	01/02/1995	27/07/2023
0.2	25/10/2023	7%	2%	9%	-1%
0.5	23/01/2024	16%	9%	19%	
0.7	22/04/2024	17%	9%	23%	
1.0	21/07/2024	18%	16%	32%	
1.2	19/10/2024	15%	16%	39%	
1.5	17/01/2025	20%	28%	34%	

Source: LGIM analytics, Refinitiv, St Louis Fed. Equity return for current cycle is to 17 November 2023 (0.3 years) **Past performance is not a guide to the future. The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested. Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Cost of protection at historic lows: Historic pricing of a 90% put on S&P Total Return Index



Source: LGIM analytics, as at 22 November 2023. **Past performance is not a guide to the future. The value of any investment and any income taken from it is not guaranteed and can go down as well as up, and investors may get back less than the amount originally invested.**



Next, we can see that part of the soft-landing narrative is visible in equity option markets, where implied volatility is around the pre-covid lows at the time of writing.[16] Combined with the high interest rate environment, this means that equity protection pricing is at the lows of the last five years as the chart shows.

The cost of equity protection (put options) could potentially be reduced further by either selling away upside or considering a put spread, however, we do not believe that current pricing offers compelling value given the potential for equity growth and the low level of implied volatility.

Although it's important to be clear that while we do not have a central view that equity returns are likely to fall substantially in 2024, the headwinds are clearly there for all to see. In addition to changes in monetary policy, the following could potentially be troubling for equity markets:

Geopolitical risk – if geopolitics come to the fore again the potential negative impact from disrupted supply chains and energy shocks could be problematic

Political risk – in addition to the US election, Barclays note that 45% of the world population has an election in 2024

In summary, for an equity investor we observe that:

- The potential bullish case for equities is still on the table
- However, there are also notable downside risks
- Investors can seek to mitigate downside risk by paying a premium of around 2%

In our view, this approach offers pension schemes a potentially attractive way of preparing for more uncertainty in 2024, while taking advantage of the current low levels of option pricing and retaining notable upside exposure in the event that equity markets rise significantly.

A plausible case can be made for **multiple different trajectories** for **equities**.

Florent Herelle
Head of Derivative Overlays

Celia Shen
Solutions Strategy Associate

16. Source: LGIM analytics; 22 November 2023 versus 12 February 2020

Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

Contact us

For further information about LGIM, please visit lgim.com or contact your usual LGIM representative

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Key risks

The value of investments and the income from them can go down as well as up and you may not get back the amount invested. Past performance is not a guide to future performance.

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