



# Risky Risks

What risk scenarios matter most  
for UK DB Pension schemes

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Capital at risk

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## Executive summary

### Tail risk events

The UK pensions market has experienced multiple tail risk events over the last two decades. This can often leave pension schemes feeling underprepared or shocked. While risk models and metrics assist investors in determining asset allocation, they often fail to capture the forward-looking risk scenarios that may be the most relevant to consider.

### Risk map & scenarios

This report provides a risk map and focuses on five historical scenarios and five future risk scenarios that are relevant for UK DB schemes in 2024. We examine the impact on three sample schemes, ranging from a well-funded and 'de-risked' scheme to a growth-oriented but less well-funded scheme.

### Risk management often centers around diversification

However, this has non-obvious limits for trustees to consider. In high inflation or deflation, are the impact of liability caps and floors successfully accounted for and managed? And then there are the famous known unknowns, for example if there's a conflict between China and the USA do investors flee to the safety of US treasury bills (the long held assumption)? The unknown unknowns, in Rumsfeld's parlance, are as always beyond the reach of any research paper – but a greater focus on the known unknowns should at least begin to narrow the set of unexpected scenarios for pension schemes.

### Range of other risk management approaches

Trustees should be aware of these, ensure they have a partner that can articulate those risks, and be live to the fact that techniques that worked in the past may not work in the future. Our analysis emphasises the importance of consider individual scheme situations and tailoring risk management approaches accordingly.

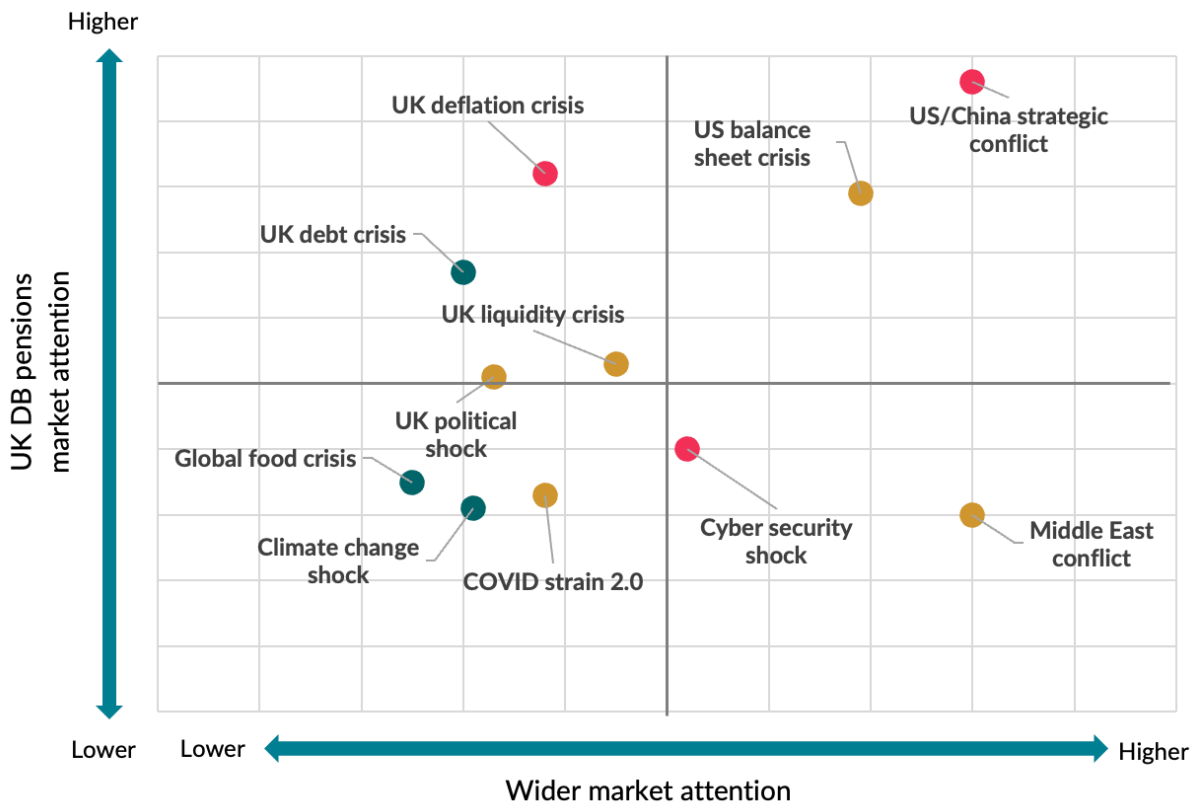
It is crucial to note that even well-funded, de-risked schemes can still face significant downside risks when considering specific scenarios.

# Risk map for UK pension schemes

There are a huge number of possible risk events to model. We provide a broad sample of future events, covering a range of the obvious, to less obvious events with more impact on UK DB pension portfolios.

Risk events impact different investors differently. Therefore, the adage 'it's already priced in' is unlikely to be true, particularly as those making such statements are often not investing like a pension fund.

Trustees should take into account that certain risk scenarios may have a lower impact on the portfolio, but could coincide with other issues (such as a simultaneous cyber security shock affecting member administration). It is important for trustees to assess how they would manage a 'dual shock' situation.

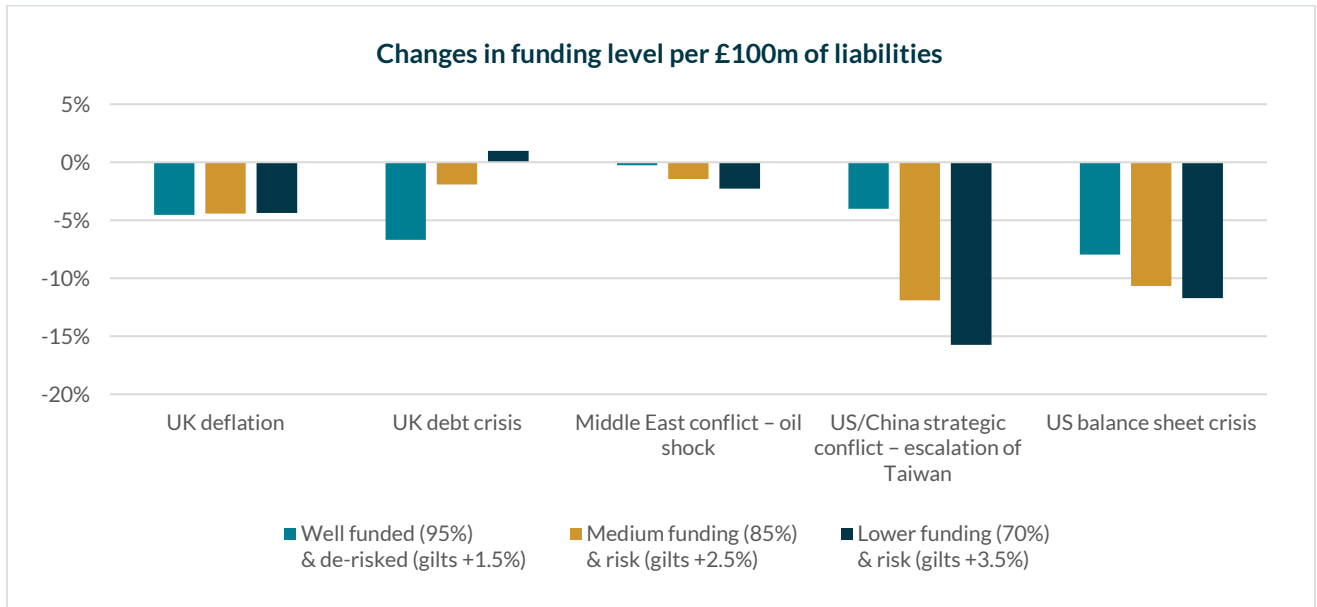


# Impact on schemes with different funding levels

We have chosen three example schemes and assessed how each risk scenario would impact their funding levels. Each example scheme has a different investment target return which reflects their respective funding level and asset allocation.

The chart highlights two important points:

1. De-risking does not eliminate all risks; and
2. The specific risks faced by your scheme will be very dependent on its funding level and asset allocation (in particular the approach to liability hedging, credit quality and equity exposure).



Source: VLK, indicative

## Our key observations are:

- **Deflation is a significant risk**, regardless of how far your scheme has ‘de-risked’, as a (reasonably severe) deflation event in the UK presents a material funding level impact<sup>1</sup>. The mismatch between the liability-driven investment (LDI) strategy and these caps and floors presents a risk that needs to be managed (we will explore this further).
- **A UK debt crisis** has most impact on UK gilts and credit and is a **larger risk for well-funded ‘de-risked’ schemes** – high corporate credit holdings (which most schemes de-risk towards) presents a risk if not carefully managed. This scenario presents a modest benefit for less well funded schemes reflecting their lower liability hedges and relatively modest use of credit assets. However, less well funded schemes who employ higher leverage may experience a dual shock through liquidity constraints.
- **The Middle East and an oil shock** would require significant escalation (beyond our modelled scenario) to become a material risk. All schemes benefit from a modest funding level boost if no discretionary increases are made to pensions.
- **A significant US / China crisis** would impact all risk assets and lead to a flight to safety – unsurprisingly this is the scenario where schemes with higher return targets and more investment risk take the largest funding level ‘hit’ due to the expected impact on both equities and from lower levels of liability hedging.
- **A US balance sheet crisis is a key risk for most schemes**. In some ways this scenario is similar to a UK debt crisis, except all global markets are affected (a UK debt crisis is assumed to have limited contagion across the globe in our modelled scenario).

<sup>1</sup> In our analysis, we assume that around 50% of the liability hedge covers liabilities linked to LPI(0,5) (which is subject to RPI inflation capped at 5% and floored at 0%).

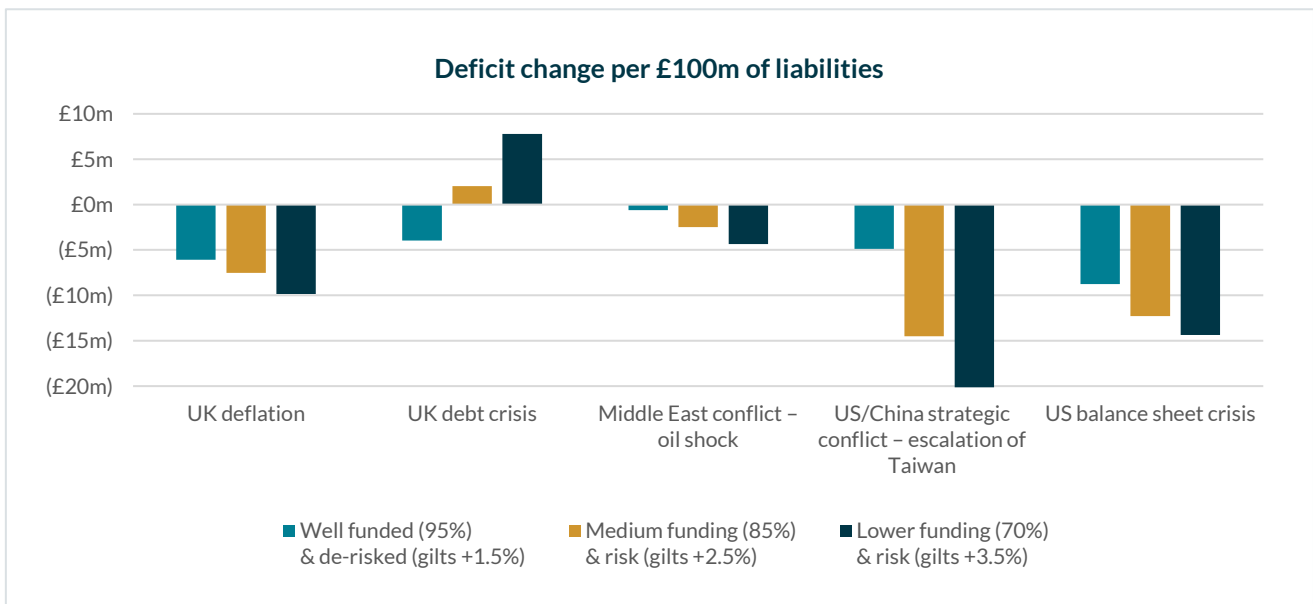
## What about deficits?

A dynamic brought to the forefront post LDI crisis was that changing interest rate environments could leave funding levels largely unchanged, but significantly increase or decrease the size of the (unhedged) deficit.

This could make pre-agreed deficit repair contributions much more – or much less valuable – in closing deficits.

In addition, covenants may be stretched or improved by changing deficit size (even if funding level is unchanged), particularly if the risk event is likely to be correlated with declining credit availability or trading conditions.

We show the impact on deficit (or surplus) of the risk scenarios below.



Source: VLK, indicative

### The most interesting differences to note versus funding level:

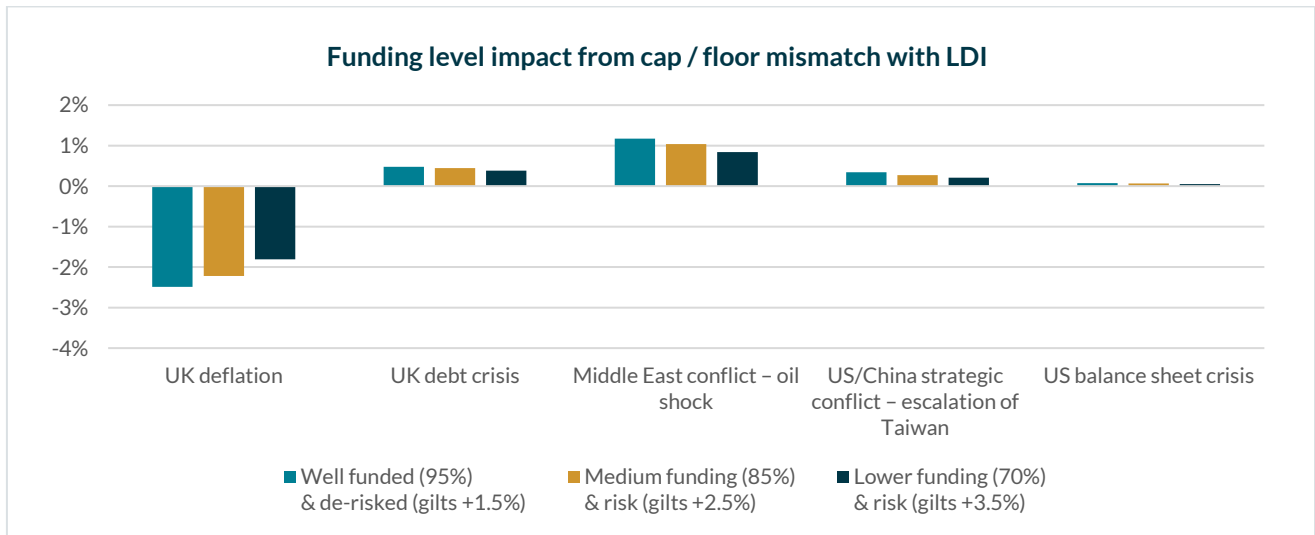
- A UK debt crisis (pushing up gilt rates) is materially helpful in reducing deficits for less well funded schemes.
- Similarly, a US Balance sheet crisis, whilst generally bad news for funding levels for all schemes, has a far **more muted impact on deficits**. This is likely good news in the event covenant is simultaneously challenged in this scenario.



# Caps and floors, deflation, LDI and discretionary increases

A relatively unusual feature of UK DB pension liabilities is that linkages to inflation don't follow a universal pattern, with each scheme having its own rules and unique combination of legacy benefit structures. Benefits such as inflation-linked LPI (0,5) where increases are capped at 5% and floored at 0%, are common, but the investment market (gilts and swaps) offers no (affordable) instruments that provide inflation protection reflecting these sensitivities. The result is that investors estimate how much inflation exposure they have once the caps and floors are statistically accounted for and then buy the 'approximately right' exposure using available instruments which are not capped or floored.

The challenge with this approach is that if inflation is significantly above or below these caps (more than the maths said it should be) then a schemes assets rise or fall more than the liabilities (with their caps or floors) creating a mismatch and a risk. We show the isolated impact of these caps and floors in the chart below:



Source: VLK, indicative

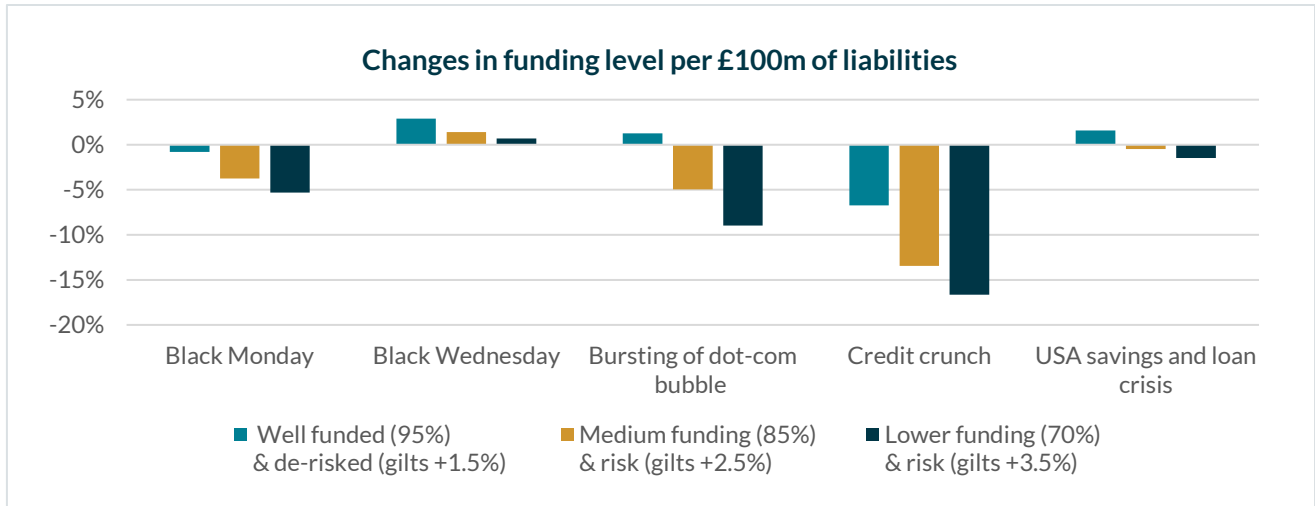
## Our key observations are:

- In theory, **inflationary situations are beneficial for funding levels**, but in practice, that may not be the case. Trustees, with their duty to members, may seek to offer discretionary increases above caps to members in higher inflation scenarios. Whether these are granted, and who pays for them remains a key question, but they could quickly remove any funding level 'gain' from the hedge mismatch. To better cover discretionary increases (and it's worth noting not common practice), trustees of well-funded schemes could consider hedging to a level 'above' (essentially ignoring) their caps. Practically speaking, it is also worth noting that inflation increases are awarded year or year, and whilst high inflation (absent discretionary increases) may be positive due the effect of caps over the very long term, in the short term this could lead to funding level falls and cashflow strain as the actual cash payments to be made increase sharply.
- **Deflationary environments are nearly always bad news** for funding levels, particularly as trustees may find reducing pensions with deflation conceptually difficult even if they are permitted to (with floors making this impossible for the majority of pensions in payment) – it easier to grant something more than promised, rather than take from something that has been. Given the UK is suffering from quickly reducing inflation, this could easily “overshoot” to deflation.
- The **inflation exposure of a scheme's liabilities isn't static** and varies with inflation environment. To limit inflation impacts (albeit not remove them) trustees should monitor and update the inflation properties of the hedge reflecting the environment. Typically the underlying LDI managers (no matter how good) cannot do this without their involvement. The chart illustrates the value if no management of the hedge construction itself is done, which for many schemes will be the default approach (with hedges only updated at regular points lining up with their triennial valuation dates, which may not coincide with different market environments).

The analysis assumes about 50% of the liabilities are sensitive to simplified inflationary LPI(0,5) increases. For schemes with the majority of its liabilities subject to capped and floored liabilities the impact on funding level will (approximately) double, and conversely, those with fixed benefits this issue is largely irrelevant.

## How do these events compare to history

The saying goes that whilst markets don't repeat themselves, they do often rhythm. Looking back at historic market events over the last 50 years may offer guidance as we look to the future, in particular when it comes to risk management. Of course, most pension schemes looked very different 50 years ago. Back in 1987, the year of Black Monday (and LDI decades away from being part of the Trustee toolkit).



Source: VLK, indicative

### The key points to note are:

- A **Black Monday** scenario results in a fairly muted funding level impact across all three sample schemes. There is a larger drawdown for less well funded schemes which reflects their higher return targets and greater level of investment risk taken. However, the impact for well-funded schemes is negligible, as their higher liability hedging offset any movements in interest rates and inflation.
- The aftermath of a 1992 **Black Wednesday event**, would have resulted in the Bank of England having to raise interest rates in response to devaluation of the Pound Sterling. Whilst you would expect a greater benefit for less well funded schemes (reflective of their lower interest rate hedges which benefit when interest rates rise), this impact is fully offset by their lower inflation hedge. Well-funded 'de-risked' schemes have the greater funding level gain, due to their high inflation hedge and lower investment risk reflective of their lower investment target return.
- A bursting of the **Dot-com bubble** (a timely scenario given the weight of technology and AI stocks in today's equity markets) had a mixed impact across the sample schemes. Schemes that were 'de-risked' had a modest funding level as rising interest rates lowered the total value of their liabilities. For lower funded schemes, the funding level gain from rising interest rates was fully offset from the investment risk taken within the rest of the portfolio.
- A **Credit Crunch** had the biggest detraction in funding levels across all three sample schemes. The results are akin to that of the forward-looking US/China strategic conflict. Under this scenario all risk assets are impacted. As expected, the least well-funded scheme has the biggest drawdown which reflects their higher return target and the higher level of investment risk taken.
- **The US Saving and loans crisis** is a classic example of something headline worthy, but in reality had minimal impact for UK DB pension schemes. The overall impact for all sample schemes is fairly subdued, with ending funding levels within a +/-2% bandwidth across all schemes. The lower funding schemes have a fall in funding level reflective of their higher level of investment risk.

The analysis of the historic events prove interesting and the impact on funding levels for all schemes are not too dissimilar to our forward-looking risk scenarios. For schemes wanting to better prepare for the future and have a holistic oversight of their largest risks, carrying out scenario analysis may prove beneficial.

# How to manage tail risks?

Investment risk management can largely be analysed across four main lenses:



## Diversification

- The mainstay of most portfolio risk management centres around diversification of assets.
- One area highlighted by the analysis in this paper is that as schemes seek to de-risk, they will typically herd towards bond heavy portfolios.
- In theory, these portfolios are far safer than those more widely diversified by asset class, however in events where risk most acutely manifests in the bond markets this may not reflect safety. In addition, in significant stress conditions (e.g. the Global Financial Crisis of 2008/09) all assets become correlated and there are no safe havens to be found.



## Dynamically adjusting the portfolio

There are two main approaches to incorporating risk, market pricing, and other factors into portfolios:

- **Mechanical approaches (e.g. CPPI):** These approaches have been largely discredited due to their tendency to capture 'normal market conditions', which may not adequately account for risk scenarios.
- **Discretionary-led portfolio dynamism:** This approach combines market data and human experience to assess current risks and market conditions, allowing for dynamic adjustments to the portfolio.

However, research on active manager and hedge fund performance suggests that accurately timing the market consistently without negatively impacting returns is challenging, especially when it comes to short-term and binary events.



## Safe haven / 'tail risk' assets

- The classic examples are gold and US treasury bills, which investors typically turn to during market stress.
- However, these assets have low expected returns and limited real-world application, making it questionable why they would generate meaningful returns.
- Additionally, historical analysis shows that not all tail risk assets perform well during market downturns, raising doubts about their future performance. Relying on market timing to avoid the negative impact of these assets is challenging and costly, and even if timing is accurate, the assets may not meet expectations.



## Explicit downside risk management

- Examples include put options on equities where investors effectively 'floor' their losses in downturns.
- These do not suffer from the correlation issues that diversification does, however there is typically a cost associated with protection.
- If investors do not wish to time their inclusion into portfolios, then some return give up should be accepted (clever structuring can help here).



## Summary

The summary of the above is there is no magic bullet to manage risk.

Our analysis emphasises the importance of consider individual scheme situations and tailoring risk management approaches accordingly. While certain major market risks may not be significant for some schemes, less obvious events can present significant risks. The specific risks and the portfolio that effectively manages them will vary based on factors such as funding level and risk tolerance.

At Van Lanschot Kempen, we focus on managing risk using the following approaches:

1. Diversification
2. Discretionary-led portfolio dynamism
3. Explicit downside risk management strategies

We balance these approaches and are realistic about their individual effectiveness.

Trustees should be mindful of the limitations of diversification and explore a range of risk management strategies. It is crucial to have a partner who can effectively communicate risks and adapt techniques as market conditions evolve. Scenario analysis, which draws insights from historical and forward-looking market events, can provide valuable guidance for future risk management.

It is important to note that this paper primarily focuses on the funding level risks associated with market events and does not fully consider additional risks routinely monitored and managed by fiduciary managers on behalf of trustees.

Implementing a bespoke portfolio can help address these specific risks and align risk management strategies appropriately.

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# Appendix

## Definition of risk scenarios

RISK SCENARIO	DEFINITION
UK deflation	A UK deflation scenario results in a general decrease in the price of goods and services. Whilst inflation is still currently above the Bank of England's inflation target of 2%, the Office for Budget Responsibility ('OBR') forecasts that the UK could hit a period of deflation in 2024 and 2025. With low economic growth unlikely to fuel any further inflation, the UK may experience a short but sharp deflationary shock.
UK debt crisis	A UK debt crisis refers to a situation in which the UK faces significant challenges in managing its debt obligations. As at 30 September 2023, UK government debt stood at c.£2.6trillion. The UK's debt to GDP ratio is the highest it has been since 1960's. Whilst UK's debt to GDP ratio is only c.18% above the European Union average, the UK has 25% of government debt linked to inflation. This is more than double that of the next country in the EU. In the current macro-economic environment of elevated inflation, this could put a further strain on the UK.
Oil shock – escalation of Middle East conflict	A sharp increase in oil prices would put significant upward pressure on inflation. In a severe escalation, the price of oil could rise sharply in a short period of time and could cause a stagflationary shock in global markets. This could unfold if Arab-producing, OPEC countries decide to drastically cut or stop oil supply, a scenario reminiscent of the 1973 Arab oil embargo. The World Bank estimates under a large disruption scenario, the price of Brent oil could spike as high as \$157 per barrel.
US/China strategic conflict – escalation of Taiwan	The strategic conflict between the US and China has been deepening recently, with both countries embroiled in a trade war. Any escalation around the reunification of Taiwan would only further exacerbate these issues. The current likelihood of an invasion remains small, however with China increasing their military activity, there is a considerable risk of further escalation.
US balance sheet crisis	The US experienced the fastest and largest rate hiking cycle in US history, with the Federal Reserve hiking 11 times taking rates from 0.5% to 5.5%. This has had a devastating impact on US regional banks who have seen large declines in the mark-to-market value of their low-yielding, long-dated investment securities. US regional banks may experience further issues with a significant amount of commercial real estate debt due for refinancing before the end of 2025.

## Financial market shocks

	UK DEFLATION	UK DEBT CRISIS	OIL SHOCK – ESCALATION OF MIDDLE EAST CONFLICT	US/CHINA STRATEGIC CONFLICT – ESCALATION OF TAIWAN	US BALANCE SHEET CRISIS
UK equities shock	-2.0%	-15.0%	-5.0%	-35.0%	-20.0%
Overseas equities shock	-2.0%	-5.0%	-5.0%	-40.0%	-25.0%
UK interest rates shock	-2.0%	2.0%	-0.2%	-0.5%	-1.0%
Overseas interest rates shock	0.0%	0.5%	-0.2%	-0.5%	-1.0%
Inflation shock	-2.0%	0.5%	0.8%	0.5%	-1.0%
UK credit shock	0.50%	2.00%	0.25%	0.50%	2.00%
Overseas credit shock	0.20%	0.25%	0.25%	0.50%	2.00%
Inflation – cap/floor shock	-1.5%	0.4%	0.6%	0.4%	-1.0%

Source: VLK, indicative

## Disclaimer

Modelling is hypothetical and illustrative, based on a number of assumptions regarding financial markets and relationships between them. A model is necessarily a simplified representation of the real world, with simplifying assumptions made in order to be usable.

The usefulness of the models in this analysis or others should therefore be considered in the context of the limitations of any model, particularly with respect to key aspects including but not limited to: i) the amount of weight that should be given to recent levels of market volatility compared to long term historic averages, ii) should future volatility levels be determined by the markets, through observation of derivative prices, iii) past performance should not be a guide, and iv) should the expectation of default risk and recovery rates for debt instruments be based on past data.

Output from any model will vary based on the approach taken around these key assumptions and others. Any modelling assumptions may prove to be incorrect and actual results will differ from the results of the model. The results between different models will also differ, potentially substantially, from that shown in our analysis. As such, recommendations, decisions and advice based on modelling by their nature contain associated (model) risks. We do not make any claims to accuracy and we acknowledge that there are a wide range of alternative underlying assumptions that may be just as valid as those we use. Any modelling assumptions (and the resulting analyses and forecasts) may require modification as additional information becomes available and as economic and market developments warrant. Nothing contained herein may be relied upon as a guarantee, promise, assurance or a representation as to the future.

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