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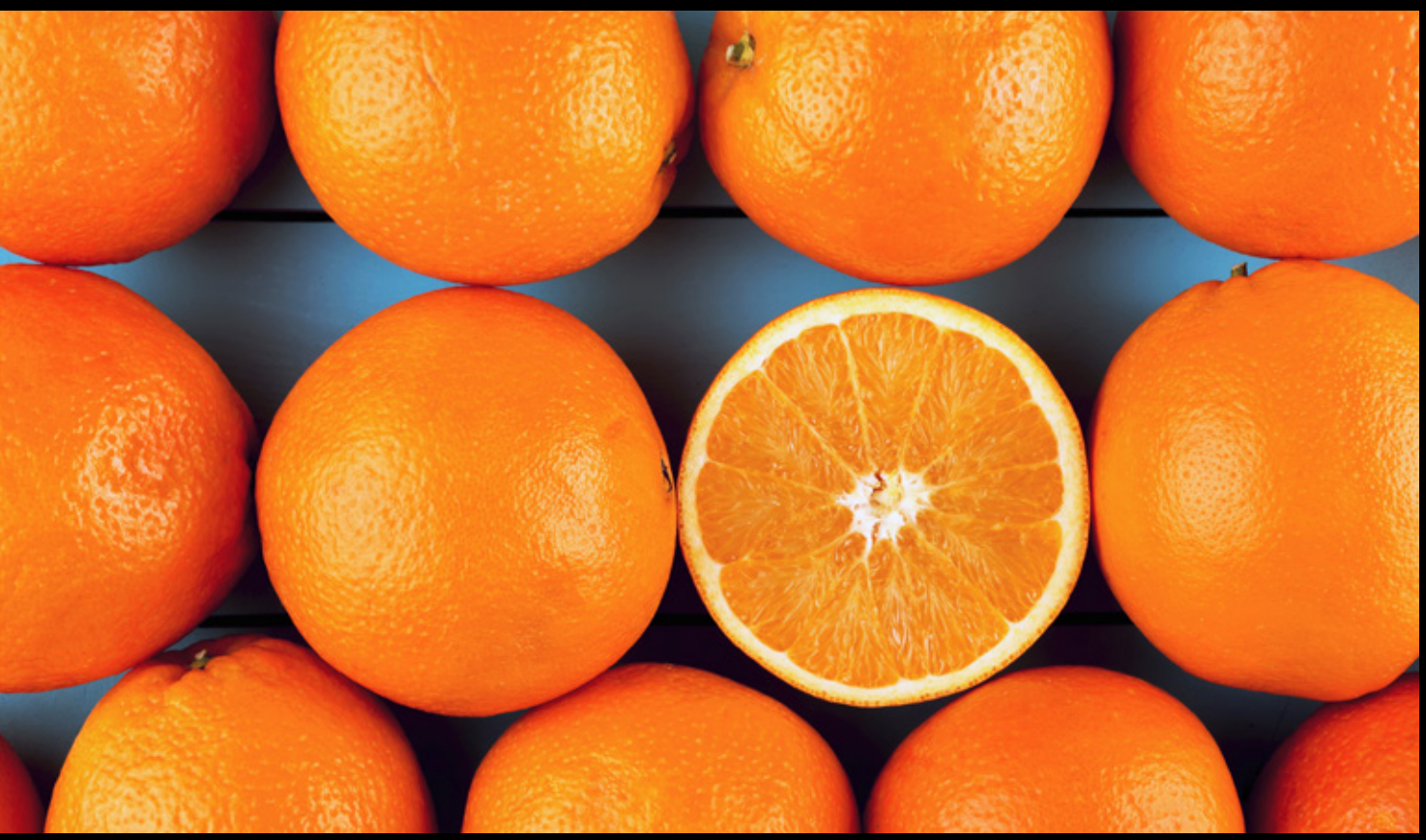
Unlocking surplus with confidence

A framework for surplus extraction in UK DB pension schemes



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Executive summary

Building on our earlier paper, Mind the Surplus, this paper shifts the conversation from **whether** surplus can be generated to **how** it should be responsibly extracted.

The Government has since published its June 2026 consultation on the proposed statutory conditions for surplus release, and the regulatory environment continues to evolve. Against that backdrop, approximately three-quarters of UK DB schemes are now in surplus on a low-dependency basis, and the strategic question for well-funded schemes is no longer whether surplus extraction is possible, but how to do it effectively.

In this paper, we set out a practical framework for trustees and sponsors to extract surplus. This is intended to support decision-making as the regulatory detail takes shape. We focus on three core questions:

- **What is the surplus for?** Whether enhancing member benefits, supporting DC schemes, or returning capital to the Sponsor, clearly defining the purpose of the surplus is critical. It shapes decision-making, risk appetite, and time horizon. **Without a clear objective, extraction risks becoming reactive rather than strategic.**
- **How to protect member benefits?** This can be achieved by setting probability-based funding thresholds, rigorously stress-testing assumptions, and establishing clear triggers for reviewing, initiating, and suspending surplus extraction. **Regardless of the surplus objective, member security must remain paramount.**
- **What are the implications for the Scheme's investment strategy?** Sustainable surplus extraction requires a careful balance between generating sufficient returns, maintaining robust risk management, and delivering cashflows efficiently. **The investment allocation should be purpose-built to support the surplus objective.**

Outcomes will be highly scheme-specific, shaped by funding level, liability profile, covenant strength and trustee risk appetite. We therefore illustrate the implications through three contrasting UK DB pension schemes.

What we found: Probability-based thinking, disciplined governance and a framework tailored to the Scheme's specific circumstances enable surplus to be extracted safely and deliberately.

The strategic question for well-funded schemes is no longer whether surplus extraction is possible, but how to do it effectively.

Inside **retirement**
with BlackRock

Developing a robust framework for surplus extraction

Setting the scene

To illustrate how different approaches to surplus extraction play out in practice, we use three example UK DB pension schemes. Each reflects a different real-world situation, varying across funding level, liability basis, maturity, return targets, and sponsor support.

We assume a policy environment in which proposed reforms to the UK DB regime aimed at facilitating surplus extraction have been implemented, allowing schemes and sponsors to access surplus with greater flexibility.

Table 1: key features

	Scheme A	Scheme B	Scheme C
Funding level	110% on a low dependency basis	100% on a low dependency basis	90-95% on a buyout basis
How liabilities are measured	Low Dependency = Gilts+0.25%	Low Dependency = Gilts+0.5%	Buyout = Gilts Flat
Liability duration	Low	Medium	High
Return target	Gilts+1.3% p.a.	Gilts+2.0% p.a.	Gilts+1.3% p.a.
Sponsor support	None	Sponsor guarantee	£20m p.a. contributions until fully funded on a buyout basis

What the Schemes represent

Scheme A
Ready to release surplus

A large, well-funded and mature scheme with an older membership. Its priority is near-term surplus release, primarily to support one-off benefit enhancements for members.

Scheme B
Building towards surplus extraction

A smaller scheme that is fully funded but has limited surplus. Its aim is to build a buffer before returning surplus to the sponsor. A sponsor guarantee provides additional security if funding deteriorates.

Scheme C
Focused on buyout, with optional surplus extraction

A mid-sized scheme still working towards full buyout funding, supported by ongoing sponsor contributions. Its priority is to reach buyout, with surplus extraction considered opportunistically along the way rather than as a primary objective.

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1. What is the surplus for?

Any framework should start with a simple but critical question: **what is the surplus for?**

Why does this matter? It shapes decision-making – from the level of funding confidence required before surplus can be released, to the pace of extraction and the amount of investment risk the scheme can take along the way.

For example,

- If returning capital to the sponsor, the sponsor may be willing to provide support in adverse scenarios. This is the case for Schemes B and C, which benefit from a guarantee and contributions respectively – **supporting greater risk-taking and lower triggers for extraction.**
- If enhancing member benefits, the shape and size of liabilities increase while the asset base reduces – **leading to lower risk-taking and higher triggers for extraction.**

These choices also have wider implications, including fairness between different generations of members, the impact on the sponsor's balance sheet, and how decisions are explained to members and regulators.

What we found: defining a clear purpose for surplus is critical. It determines how much risk can be taken, how quickly surplus can be extracted, and the level of protection required for member benefits.

Without this clarity, there is a risk of inconsistency – either taking more investment risk than justified or extracting surplus too quickly, both of which can undermine member security.

For trustees, this ensures member benefits remain appropriately protected. For sponsors, it provides a structured and credible pathway to extracting value from the scheme.

The implication: a well-defined objective provides the foundation for setting clear thresholds and triggers – ensuring surplus is extracted in a controlled, disciplined and defensible way. In practice, this requires careful calibration of funding, investment and governance levers.

Applying this to our three schemes

Each scheme has a different surplus objective, leading to different investment strategies.

	Scheme A Ready to release surplus	Scheme B Building towards surplus extraction	Scheme C Focused on buyout, with optional surplus extraction
Surplus objective	Scheme A is aiming to provide one-off benefit enhancements for members. Given its strong funding position and relatively mature profile, the emphasis is on carefully releasing surplus that already exists.	Scheme B is seeking to return surplus to the sponsor. While it is fully funded on a low dependency basis, it does not yet have surplus available for release and must first create headroom.	Scheme C is pursuing a run-on strategy, with the option to buy out in the future when affordable. Surplus extraction is not a primary objective, but rather a potential by-product if funding exceeds the level required for buyout.
Impact on investment strategy	This leads to: • A modest return target • A lower risk budget • A high level of cashflow generation	This leads to: • A higher return target • A larger risk budget, underpinned by sponsor support • Investment performance plays a more central role	This leads to: • A return target linked to full funding on a buyout basis • Higher liquidity • Ongoing sponsor contributions play an important role
Impact for surplus extraction	**Pace of extraction:** surplus can be released, but should be phased to maintain a prudent funding buffer. **Required level of confidence:** a high level of funding confidence is required before releasing surplus, reflecting the limited reliance on sponsor support.	**Acceptable level of risk:** trustees and sponsors must agree how much short-term volatility is acceptable to build surplus, given the level of sponsor support available. **Trigger for extraction:** surplus should only be released once a clear buffer above full funding has been established.	**Measurement for extraction:** a clear, buyout-aligned funding threshold is required, above which surplus can be explored without jeopardising the endgame. **Whether to extract:** once this threshold is reached, trustees and sponsors must balance value extraction against securing the buyout outcome.

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2. How to protect member benefits?

Protecting member benefits is central to any surplus extraction framework. The direction of travel from The Pensions Regulator (TPR) is clear: surplus should only be extracted where there is a high level of confidence that member benefits will be met in full – both now and in the future.

This is not just a trustee concern. While surplus extraction can deliver value, sponsors typically retain downside risk if the scheme later becomes underfunded. As a result, both trustees and sponsors share a common interest in maintaining prudent funding buffers and adopting a disciplined approach to extraction.

Developing a trigger-based framework

Protecting member benefits requires more than a strong funding position – it requires a clear, disciplined framework for decision-making.

In practice, this requires clarity on three key points:

1. When extraction can be **considered**
2. When surplus can be **extracted**
3. When extraction should be **paused** if conditions deteriorate

We believe this is best achieved through **a pre-defined trigger framework,** aligned to:

- The scheme's long-term funding objective
- The strength of the sponsor covenant and available support
- The agreed purpose of the surplus
- Trustee risk appetite

Additional protections – such as contingent assets (e.g. guarantees or surety arrangements) – can further strengthen downside protection and provide flexibility where needed.

Why this matters – this approach ensures that decisions are:

- **Forward-looking and risk-based,** rather than driven by a single point-in-time funding level
- **Responsive to changing conditions,** with clear guardrails in place
- **Aligned with the scheme's overall strategy,** rather than targeting a fixed level of surplus

Importantly, the **size and timing of surplus extraction are not pre-set –** they emerge from the scheme's funding position, investment strategy, and risk appetite over time.

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Applying this to our three schemes

We now illustrate how these triggers operate in practice across our three example schemes:

1. Setting the triggers

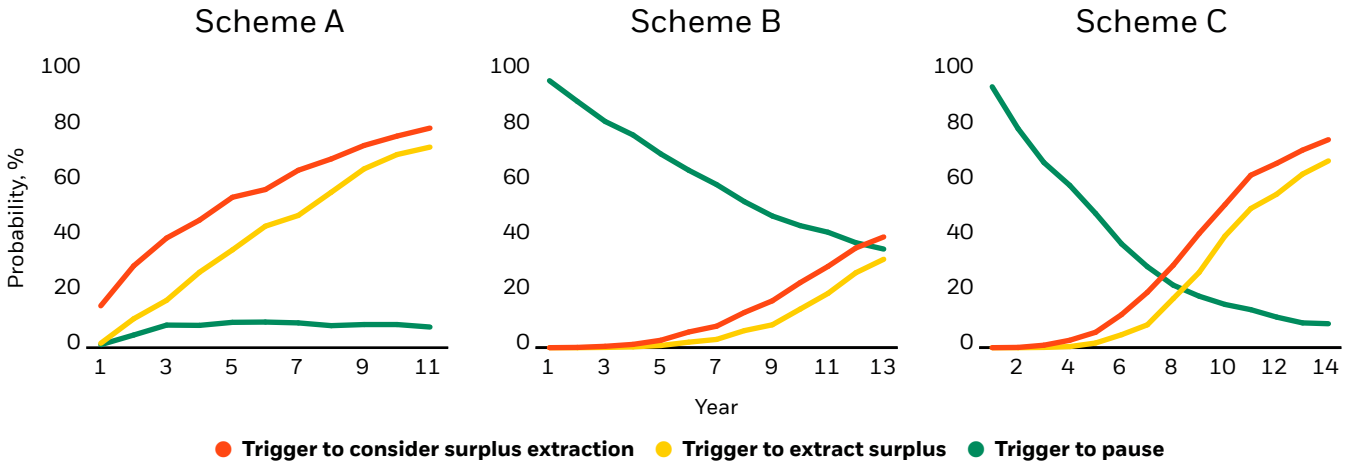
We have defined the following triggers for all three schemes:

- **Trigger to consider surplus extraction:** surplus is only considered once there is a high confidence (~98%) of being fully funded over the next 10 years.
- **Trigger to extract surplus:** surplus is extracted at a higher level of confidence (e.g. ~99% confidence), with the amount taken set so that the scheme remains well-funded after extraction (e.g. ~95% confidence).
- **Trigger to pause:** action is paused if funding confidence falls below a defined threshold (e.g. ~90% confidence), ensuring member benefits remain protected.

The long time horizon (10 years) and high confidence levels (95–99%) used in the framework are key assumptions that significantly influence the results. Together, they set a high bar for extraction – a shorter horizon or lower confidence thresholds would make extraction more frequent and larger in size.

This framework is deliberately designed to be flexible to suit each Scheme's circumstances, Trustee risk appetite and covenant support. The latest draft regulations propose a 3-year forward-looking probability test on a low dependency basis, though the exact calibration of the statutory tests will evolve as the consultation progresses. BlackRock is well placed to support you in navigating this evolving landscape – from assessing each Scheme's ability to meet the emerging statutory tests, to ensuring member benefits remain protected throughout.

Figure 1: the probability of hitting each trigger



These charts show how the probability of reaching each trigger evolves over time for each scheme. Rather than a single snapshot, they illustrate how the likelihood of considering surplus extraction, commencing extraction, or pausing extraction changes as funding develops.

For example, in year 5, Scheme A has a c.35% probability of extracting (shown in yellow), demonstrating that opportunities to realise surplus can emerge relatively early, even while maintaining a prudent level of protection.

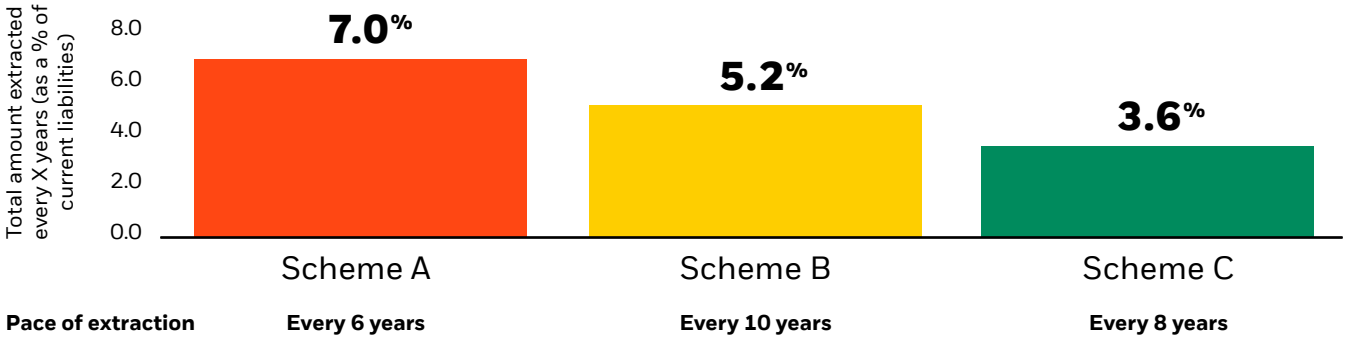
What we found: Scheme A reaches extraction triggers earlier, reflecting its stronger starting position. Scheme B takes longer, as surplus must first be built. While Scheme C shows a more back-ended profile, with triggers reached later but more rapidly with sponsor support.

The implication: the timing and likelihood of surplus extraction are driven by funding strength, return requirements and the level of support available. Better-funded schemes, or those less reliant on future returns, can act earlier, while others must first build resilience before extracting value.

2. Reviewing the pace and size of extraction

If surplus is extracted once the scheme reaches a high level of funding confidence (e.g. 99%), extraction continues until that confidence reduces to a lower threshold (e.g. 95%). This chart shows the total amount of surplus extracted and how frequently extraction occurs under the trigger framework.

Figure 2: size and pace of extraction



Source: BlackRock, as at 31/12/2025. Currency: GBP.

What we found: schemes that reach and sustain the extraction trigger more quickly are able to extract more surplus and do so more frequently. Stronger starting positions, higher return targets and greater sponsor support all enable earlier and larger extraction.

The implication: the size and pace of surplus extraction are determined by the trigger design and the scheme's ability to build and sustain funding resilience. Higher confidence thresholds lead to more controlled and gradual extraction, while schemes with stronger funding positions or higher return targets can extract more surplus and do so earlier.

Importantly, this shows that surplus can be used safely – provided triggers are set at prudent levels and aligned with the scheme's risk appetite.

To illustrate: for a scheme with £200m of liabilities, an extraction rate of ~7% every 6 years would equate to approximately £14m per extraction event. For a £500m scheme, the same parameters would yield c.£35m. These figures are illustrative and will vary with scheme-specific funding, investment strategy, and market conditions.

Schemes that reach and sustain the extraction trigger more quickly are able to extract more surplus and do so more frequently.

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Table 2: chance of being <100% funded over the next 10 years

The table shows the probability of the scheme falling below full funding over the next 10 years, with and without surplus extraction. Full funding is measured on each scheme's chosen basis, and extraction continues until confidence reduces to a lower threshold (e.g. 95%).

	Scheme A	Scheme B	Scheme C
No extraction	2.5%	23.7%	3.7%
Extraction once 99% probability of being fully funded	2.9%	23.8%	3.7%

Source: BlackRock, as at 31/12/2025. Currency: GBP.

What we found: setting a high threshold for surplus extraction has a limited impact on the risk of falling below full funding. As a result, the key consideration is the starting level of resilience, and whether trustees and sponsors are comfortable with the level of downside risk before extraction.

Sponsor support also plays an important role in this assessment. Where strong support is in place, it can mitigate downside risk and provide greater confidence to use surplus.

The implication: well-designed trigger frameworks allow surplus to be used without materially increasing risk – provided the starting position is sufficiently strong and appropriate safeguards are in place.

In practice, this highlights the importance of calibrating the triggers and the investment strategy to the scheme's specific circumstances.

The impact is highly sensitive to the parameters in the framework – for example, if extracting at a 95% confidence level (rather than 99%), the probability of underfunding increases by c.1.5% for Scheme A, c.0.5% for Scheme B and c.0.2% for Scheme C. The right confidence level will depend on each scheme's circumstances and how much risk they are comfortable taking.

3. What are the implications for the Scheme's investment strategy?

With a clear surplus objective and a framework to protect member benefits, the final step is to ensure the investment strategy supports these outcomes.

Surplus extraction is not a standalone decision – it is the outcome of a well-aligned investment strategy. The return target, acceptable level of risk, and sizing and pace of surplus extraction all follow from the agreed objective and trigger framework.

Designing the investment strategy

In practice, this means focusing on four key principles:

1. Cashflow certainty
A robust level of income and liquidity is essential to meet benefit payments while supporting surplus extraction. Cashflow-generating assets and predictable income streams reduce reliance on forced asset sales and improve resilience through market stress. Our recent paper discusses how we design bespoke cashflow matching portfolios for our clients.

2. Hedging strategy
Maintaining a high level of interest rate and inflation hedging helps control funding volatility and protect progress towards extraction triggers. This requires a resilient collateral framework to ensure hedges can be maintained even in stressed conditions.

The approach to longevity risk should also be considered, whether retained, insured or hedged, depending on the scheme's long-term objective and pricing.

3. Illiquidity and private markets
Illiquid assets can play a valuable role, particularly where they provide diversified, income-generating returns. However, their use must be carefully calibrated. Key considerations include:

- The scheme's liquidity needs, benefit payments and potential surplus extraction
- The time horizon over which surplus is expected to emerge
- The ability to rely on existing legacy allocations, versus introducing new allocations

The objective is to ensure that illiquidity supports returns without constraining flexibility, so that the portfolio is not 'bent out of shape' when surplus becomes available.

4. Robust risk management and diversification
Managing volatility in the funding position is critical. As surplus extraction is linked to funding triggers, excessive volatility can delay or disrupt the ability to act.

A more holistic approach to risk management can help reduce this volatility. For example, linking the measurement of liabilities more closely to the characteristics of the asset portfolio through an asset-based discount rate – rather than relying on a fixed spread to gilts – can allow funding levels to better reflect the underlying economics of the assets. This can lead to more stable funding outcomes.

At the same time, maintaining a well-diversified portfolio is essential. This helps to reduce reliance on any single return driver, stabilise funding outcomes and support a more consistent path towards surplus extraction.

Surplus extraction is not a standalone decision – it is the outcome of a well-aligned investment strategy.

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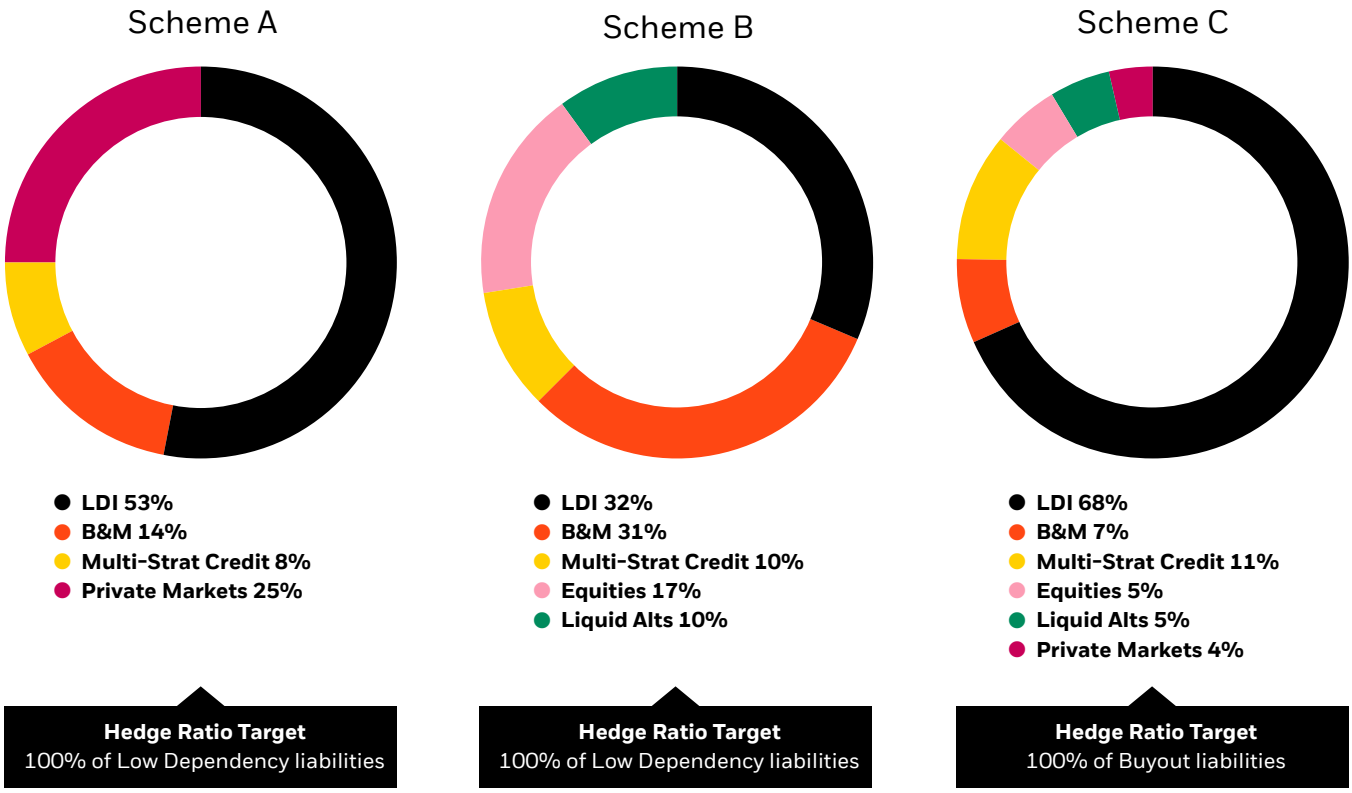
Applying this to our three schemes

Figure 3: how each Scheme invests



Source: BlackRock, as at 31/12/2025. Currency: GBP.

Across all three schemes, several consistent themes emerge:

- A **high level of hedging** is maintained to control funding volatility
- **Diversification** plays a key role in supporting a stable path to surplus extraction
- **Differences in cashflow needs** and **surplus objectives** drive asset allocation decisions

At the same time, each scheme's strategy reflects its specific circumstances:

- **Scheme A** places greater emphasis on cashflow to support near-term surplus use
- **Scheme B** targets higher returns to build surplus, accepting greater short-term volatility
- **Scheme C** adopts a more balanced approach, aligned to progressing towards buyout with ongoing sponsor support

Surplus extraction is therefore not achieved by targeting a return in isolation. It requires a portfolio that is purpose-built to generate returns, manage downside risk, maintain funding stability and provide flexibility to act when opportunities arise.

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Conclusion

Surplus extraction is no longer a theoretical question for many UK DB schemes; **it is a strategic one.** The challenge is not whether it can be done, but how to do it in a way that is coherent, controlled and aligned with long-term objectives.

This paper highlights three essential components of a robust approach:

- **Clarity on purpose,** which determines the appropriate level of risk and pace of extraction
- **Strong member protection,** supported by forward-looking, probability-based funding triggers
- **An aligned investment strategy,** designed to deliver returns while maintaining funding resilience and liquidity

These elements are interdependent. Decisions made in isolation risk inconsistency; considered together, they form a framework that is both practical and repeatable.

There is no single 'right' answer. Different schemes will arrive at different strategies depending on their funding position, maturity and objectives. What matters is that the approach is deliberate, evidence-based and supported by robust governance.

BlackRock is here to partner with schemes to design and implement tailored surplus frameworks, combining probability based modelling, integrated asset liability analysis and robust risk management to support informed decision making. We help trustees and sponsors understand how surplus behaves under different market, economic and funding scenarios, clarifying the trade offs between downside protection, upside participation and end game optionality. By embedding disciplined risk controls, liquidity planning and governance structures alongside portfolio implementation, we ensure surplus strategies are resilient, transparent and aligned with long term objectives.

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CMA Methodology Interest Rates: Our model provides a way to chart the yield curve at multiple time horizons in the future. We base this on our estimates of: (1) the short rate and (2) model implied term premia. We base our estimates of short rates on market data in the near term and on macro-informed data in the long term. We assume investors' views about long run inflation and real growth, coupled with changing preferences as to savings and risk aversion, will ultimately determine their expectations for short rates (the 'long run short rate'). We use an affine term structure model – a type of model that assumes bond yields as a linear function of a small set of parameters (Piazzesi, 2010) – to compute model-implied term premia. In our implementation, we represent the yield curve using the first five principal components of yield, as laid out by Adrian et al. (2013). We then blend the model implied term premia from the affine term structure model with market implied term premia, with the relative weights dependent on the relevant time horizon.

Equities: Expectations of cash flows and discount rates can help explain the variability in equity returns as shown by Campbell (1990). We have used this insight to develop a discounted cash flow (DCF) model, with a few key innovative features. Most academic research focuses on the question of whether stock returns are predictable at all. We are concerned with making the best estimates that we can. We make two additional contributions. First, the baseline DCF model estimates earnings by leveraging analyst earnings estimates in the near term as discussed by Li et al (2013) to derive the implied cost of capital. The common assumption in implied cost of capital (ICC) studies is that earnings growth implied by analyst earnings estimates in the near term should trend towards GDP growth in the long term. This can introduce an unintended assumption of continued expansion of profit margins. We have introduced a modification to account for late economic cycle dynamics. We allow for corporate profit margins to revert to trend (the median over a rolling 10-year history) as margins typically peak late-cycle. The standard ICC approach typically tests for equity returns using linear regression tests. For our DCF model, we take the desired time horizon as an input (number of years) and we estimate the appropriate discount rate for the specific time horizon using our aggregate implied cost of capital. This way, we account for both key sources of variability in equity returns, namely changes in cash flows and changes in the discount rate.

Credit: Our model for credit asset (excess) returns is anchored on two key elements: 1) our estimate of credit spread at a given horizon and 2) our estimated loss due to defaults and downgrades over the horizon. The first component is projected in a consistent manner with our view of real GDP growth and the link between credit spreads and equity volatility. Our approach helps explain the behaviour of credit spreads using a limited number of predictive variables. Yet, as validated by tests against more complex methods, it retains the ability to help explain a high proportion of the variance in credit spreads. The second component is estimated based on our outlook for spreads, the duration of the asset and an assumed transition matrix which captures migrations and defaults across multiple credit cycles. We currently base our transition matrix on Moody's long-run transition data. We aim to further develop our model by directly modelling transitions based on macroeconomic conditions in order to better capture cycle dynamics and the respective variation in losses due to credit events. In addition to making our estimates of credit spreads consistent with our macroeconomic views, our new credit (excess) return model allows greater flexibility of calibrating our expected returns to different credit rating compositions which may prevail over the entire time horizon.

Uncertainty and optimisation: Expected returns and asset price volatility are difficult to predict. We believe any technique that builds portfolios should incorporate this inherent uncertainty (Ceria et al. 2006). We consider both

long-and short-term drivers of return. In the long run, we expect a relatively small number of macroeconomic drivers – economic growth, rates, inflation, credit and currencies – to determine an asset's returns. In the short-run, other factors can overpower the structural drivers causing wider fluctuations from an asset's fair value. Valuations can be helpful in estimating short-term returns. We combine contributions from the long-and short-term return drivers to produce a final set of return expectations with a range of uncertainty around each. The next step is to use this set of return expectations in an optimisation engine that seeks out the best return without breaching an investors' risk limit. Mean variance optimisation would produce a portfolio that maximises expected return under one base scenario with a given level of risk. In contrast, we look to build a 'least-worst' portfolio – one that maximises returns for an investors' target risk levels across the worst outcomes, say for the bottom 50% of the distribution, from a set of stochastically generated scenarios (cf. Tütüncü et al. 2004 and Garlappi et al. 2006). This helps ensure the portfolio is not overly reliant on just the median return. This process seeks to produce a portfolio that is robust to small changes in the central return estimates (Scherer, 2006).

Stochastic engine: We use Monte Carlo simulation to create random distributions informed by historical return distributions and centred on our expected returns. The engine simulates thousands of return pathways for each asset, representing the range of possible outcomes over a five-to 20-year time horizon. We leverage BlackRock's risk models to help ensure that assets generate similar returns, to the extent that they have common drivers. The range of scenarios incorporate our work on incorporating uncertainty in return expectations. We use an extension of the Black-Litterman model (1990) – a well-known model for portfolio allocation that combines equilibrium returns and medium-term views in a single-period setting. Our model uses a Kalman filter (1960) – an algorithm that extracts insights about return paths by bringing together a number of uncertain inputs -to extend Black-Litterman into a multi-period setting. This allows us to capture the variation of expected returns over time under various scenarios – from economy-related to market sentiment driven. A large part of these variations is not predictable. Constructing portfolios that are robust to, or can exploit, these variations is a major challenge for investors. The ability to calibrate the engine with asset class views with uncertainty at arbitrary time horizons, and to evolve this uncertainty stochastically, drives the dispersion of return outcomes. Highlighting the uncertainty that investors face when building portfolios helps ensure ostensibly precise return expectations do not lead investors to concentrated portfolios. Simulated return paths support a broader range of applications, such as asset-liability modelling. We believe stochastically generated return scenarios enable investors to move with ease beyond mean-variance and optimise portfolios against their individual needs. Investors can place more emphasis on the tails of the distribution or focus on the path of returns rather than just the total return. They can incorporate flows in or out of the portfolio over the course of the investor's time horizon or place more emphasis on scenarios that are challenging for the investor's business beyond their portfolio. Investors with complex asset-liability matching requirements, such as insurers, typically rely on stochastic simulations of returns to assess and construct portfolios.

Risk Warnings

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