

Briefing | 20 September 2021

# What basis should pension schemes be hedging over time?

The performance of a pension scheme's Liability Driven Investment (LDI) strategy has been a crucial factor in their success in recent years. By providing protection against falling yields, leaving growth assets to drive a reduction in deficit, LDI has become the foundation of defined benefit pension schemes' investment strategies.





## Introduction

Over the past few years, the performance of a pension scheme's Liability Driven Investment (LDI) strategy has been crucial in its success; providing protection against falling yields, leaving growth assets to drive a reduction in deficit. As such, LDI has become the foundation of defined benefit (DB) pension schemes' investment strategies.

LDI is designed to help pension schemes minimise their exposure to movements in both expected interest rates and inflation. While most schemes have an LDI portfolio in their investment strategy, it is important for schemes to be comfortable with precisely what their LDI portfolio is aiming to achieve over the long-term.

As we explore in this note, the design of your LDI portfolio can have a significant impact on how successful your liability hedge actually is. At a time when many DB pension schemes are shifting their focus as they look at the road to maturity, we believe LDI portfolios should be designed to be flexible to changes, while keeping complexity and governance requirements to a manageable level. LDI portfolios should be tailored to a scheme's specific objectives so that, as the scheme's funding position and maturity changes, the LDI portfolio can continue to achieve what it was designed to do.

What basis should pension schemes be hedging?

## Background

Long term nominal gilt yields have fallen by approximately 3% over the 10 years to 31 August 2021. For a typical pension scheme, this would have increased the value of the liabilities by over 70%, all else being equal.

Given the magnitude of these interest rate movements, even a small mismatch between an LDI portfolio in place and the liabilities being hedged will be magnified, resulting in a potential mismatch to the value placed on the liabilities.

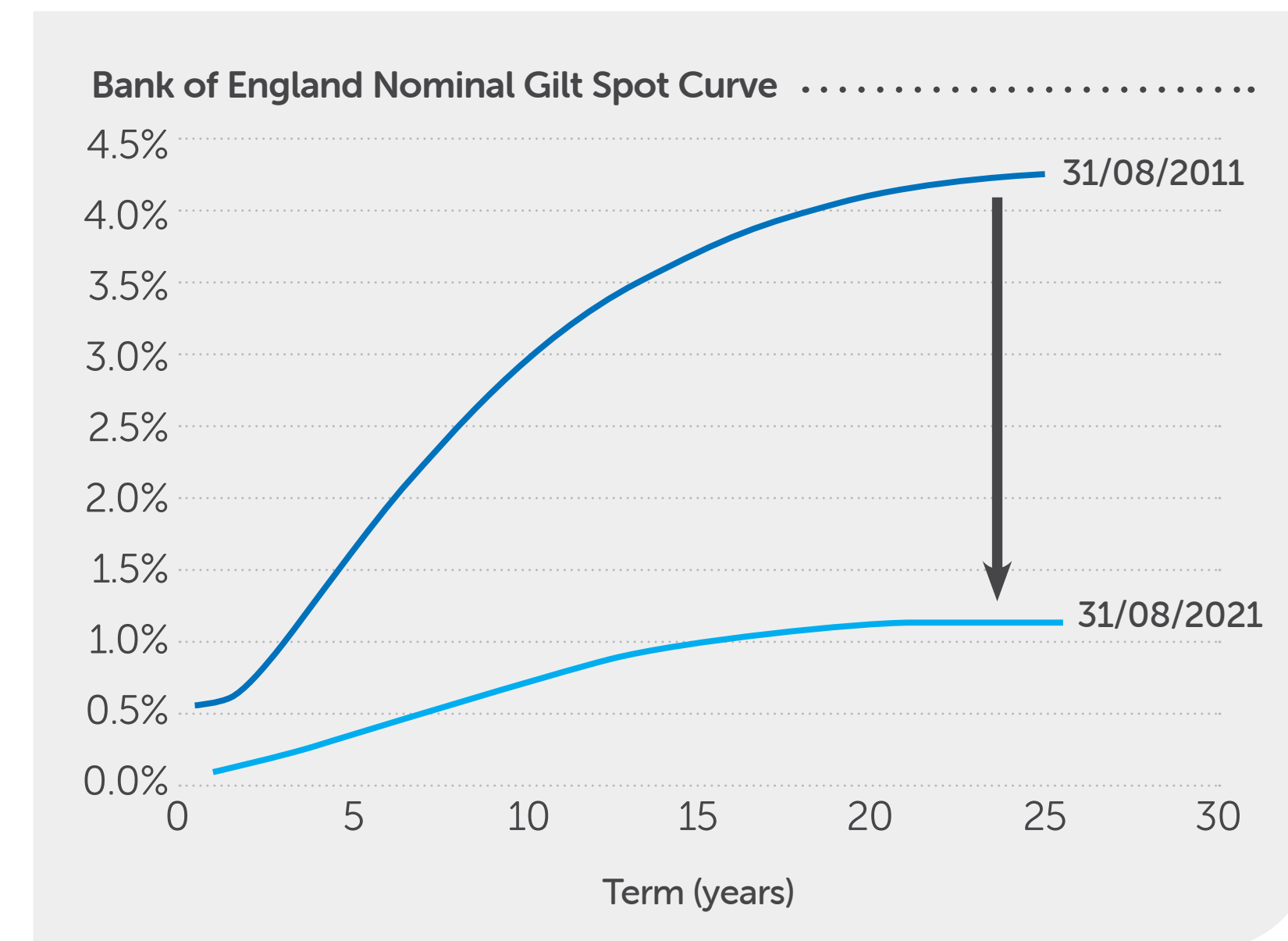
Furthermore, schemes which have designed their hedging by focussing on a short-term funding target will have found that they are not as close to full funding on a stronger, longer term basis, as they might have expected.

Many schemes have taken steps to reduce their interest rate (and inflation) risk by gradually increasing their allocation to LDI.



As the headline level of unhedged interest rate (and inflation) exposure decreases, the residual risk introduced by the mismatch in design of the LDI portfolio versus the funding basis being considered, becomes all the more important.

Furthermore, with the introduction of The Pensions Regulator's new Funding Code and the requirement for schemes to set a long term funding target, we expect to see schemes shifting their focus towards hedging these risks for the longer term.



Source: Bank of England

## What impacts the value placed on the liabilities?

In order to refine the hedging in place so that it is consistent with what is important to the scheme, it is necessary to get into the detail of what is actually being hedged. Pension scheme benefits can be valued on a wide variety of different funding bases and assumptions. These assumptions are then used to feed through into the design of the LDI strategy. Such assumptions can vary based on many factors, such as:

- the demographics of the scheme;
- how mature the scheme is;
- the proportion of benefits which are linked to inflation, including whether that be CPI or RPI measure of inflation, and allowing for any caps and floors (e.g. increases subject to a 5% annual cap and/or a 0% annual floor) applied to benefit increases;
- the return being generated on the scheme's assets; and
- the strength of the sponsor covenant.

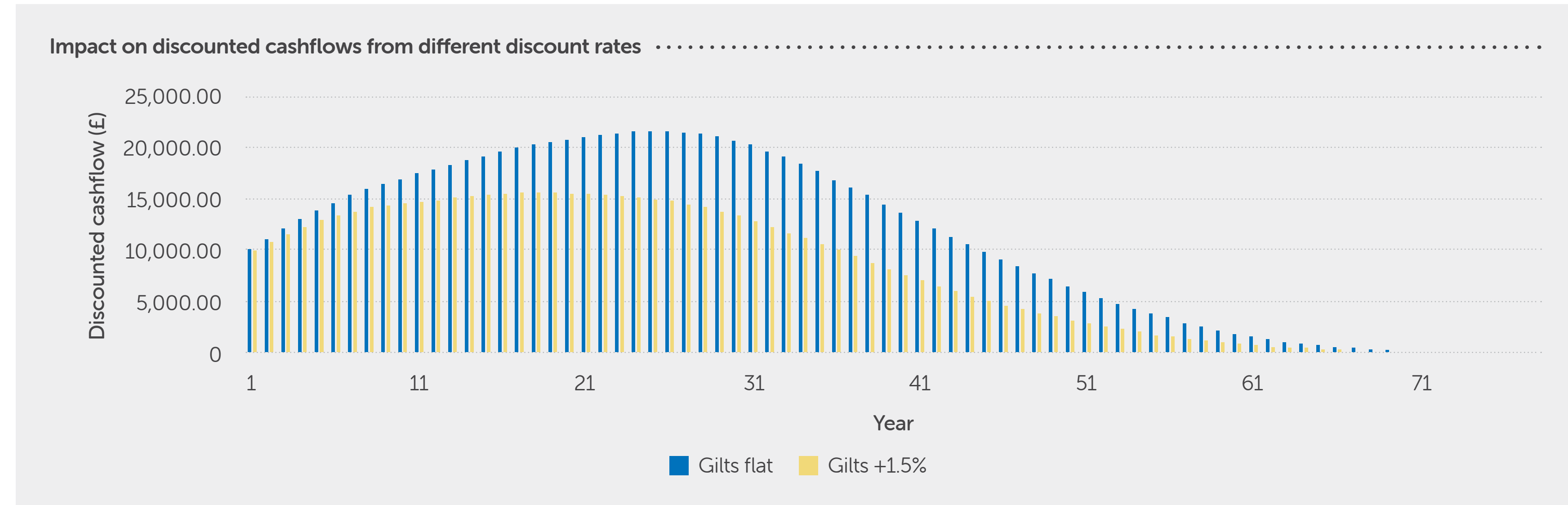
As these factors change over time, it's important to review the appropriateness of the hedging that is in place to ensure that it remains robust. Generally, we'd expect this to take place at least every three years, often as part of the scheme's triennial valuation process, but sooner if there is a significant change in market conditions (particularly inflation) or change to the scheme (e.g. a liability management exercise).

What basis should pension schemes be hedging?



## Focus on the discount rate

One of the most important differences in assumptions between most bases is the choice of discount rate. A scheme's investment strategy will look to generate an expected return, both now and in the future, which will help determine this discount rate, as will the level of prudence assumed. Since the scheme's liabilities are valued by discounting future cashflow payments at this rate, the interest rate (and inflation) exposure of the scheme's liabilities will vary significantly depending on the assumption used. In addition, a lower (more prudent) interest rate assumption will result in a higher liability value.

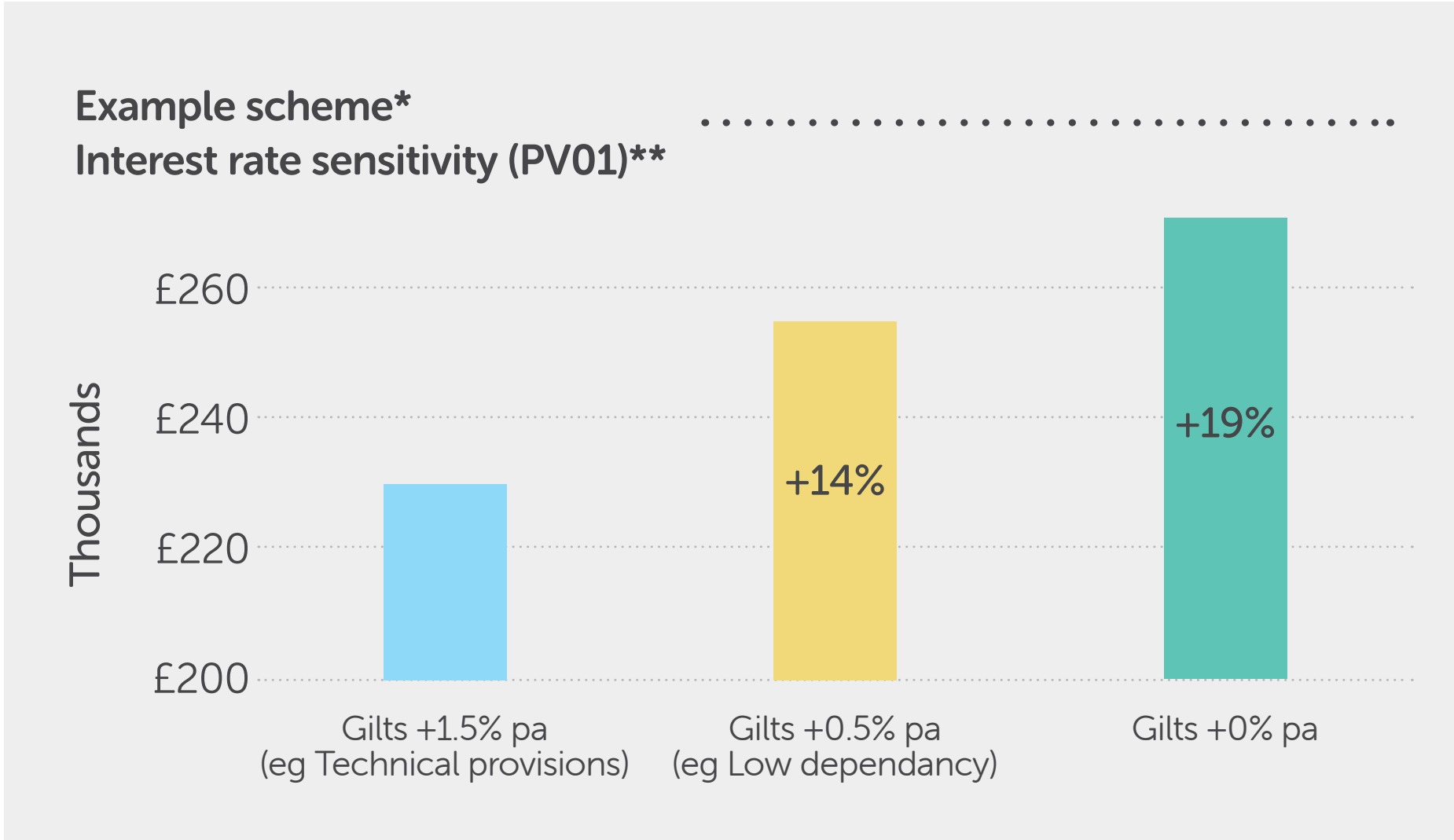


The same assumptions are needed in order to design the profile of the LDI strategy to match these expected cashflows. As the scheme matures and the discount rate and prudence assumptions change, the LDI strategy and the actual level of hedging that is achieved is often impacted.

What basis should pension schemes be hedging?

Be aware that hedging the liabilities on one basis is usually not equivalent to hedging the liabilities on any other basis. This is because, as can be seen above, the shape of the hedge and the duration of the hedge are both likely to be different.

For example, consider a scheme wanting to hedge £100m of liabilities. While the headline amount of hedging is the same (i.e. £100m) the interest rate sensitivity will be greater for the more prudent basis, as set out below:



\*This assumes the present value of cashflows is £100m

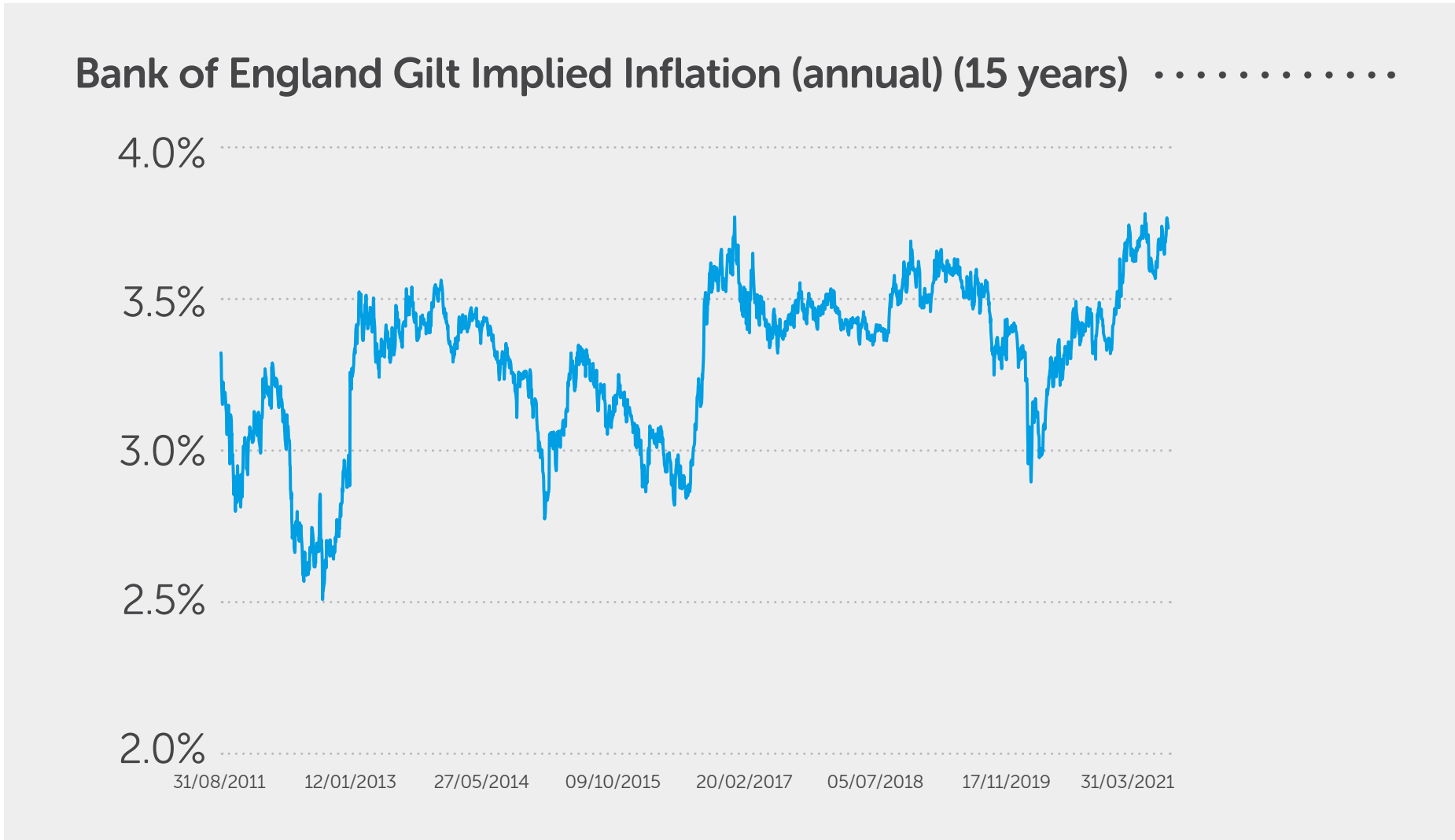
\*\*Defined in Glossary

What basis should pension schemes be hedging?



# The importance of inflation

Expected inflation is another key assumption which can have a significant impact on the performance of the hedging in place. Given the big increase in break-even inflation of late (see chart below), we have seen some schemes' inflation (or 'IE01') hedge ratios 'drift' away from target. This is entirely expected following a shift in expected inflation (as explained in the technical note). There have been a number of times over the last 10 years (as illustrated below) where inflation expectations have shot up (and down) relatively quickly, which would have had a material impact on the inflation linkage of many schemes' liabilities.



Source: Bank of England

What basis should pension schemes be hedging?

It is important that this is managed and refreshed on a regular basis, particularly after any material change in market conditions. Schemes therefore have two main options:

- 1 accept this mismatch and review/adjust around every 3 years (e.g. as part of the triennial valuation process); or
- 2 more frequently adjust and monitor inflation sensitivity and therefore hedge ratios. While this approach increases costs and governance, this can often be offset by the difference in performance of the LDI portfolio, especially when inflation is volatile.

Once again, when we consider this in the context of many schemes de-risking as they move towards their long-term target, the risk of any mismatch in hedging becomes more material in the overall risk of the scheme. Therefore we expect that schemes will increasingly be moving more towards a more refined approach as per the second option.



## Which basis to hedge?

The first step is to identify what funding basis you're most concerned with. For example, an underfunded scheme may be more interested in Technical Provisions, as this is the actuarial method used to determine the recovery plan in line with the sponsor's contributions to meet the scheme's long term objective.

A well-funded scheme may be more concerned with the low dependency, gilts flat or buy-out position. Generally, a hedge designed to stabilise the funding position on one basis may underhedge, or overhedge, the position on a different basis.

We've considered the pros and cons of using each of these when designing the LDI strategy on the next page:



Basis	Pros	Cons
<p><b>Technical Provisions</b></p> <p>This basis helps trustees understand how much money is required to fund the benefits over the future as they fall due on an ongoing basis. This basis involves a level of prudence to take into account the investment strategy and strength of the sponsor. Alongside this, if the scheme has a deficit, this basis is used to determine the contributions required from the sponsor in the recovery plan.</p>	<p>Often the priority basis for reaching full funding on in the short-medium term.</p> <p>May limit volatility in contribution requirements.</p>	<p>Likely to be a weaker basis than that being targeted over the longer term.</p> <p>Likely to change more over time as the scheme matures compared to the other bases. It will therefore need to be recalibrated to a greater extent. This can lead to additional cost and governance requirements.</p>
<p><b>Low dependency/long term funding</b></p> <p>Trustees will set this basis to consider how much money is required if the scheme were to run for the long term with no expectation of further reliance on the sponsor for contributions. This assumes a low-risk investment strategy.</p>	<p>Complements the longer term aims of the scheme.</p> <p>Likely to stay relatively stable over time.</p>	<p>Not always fully defined for schemes (although this is likely to change with regulation being introduced).</p> <p>Likely to still leave some underhedging compared to gilts flat and buy-out basis.</p>
<p><b>Gilts-flat</b></p> <p>This is an alternative basis around which LDI strategies are commonly designed. This basis assumes a discount rate based on the term structure of the gilt yield curve and the duration of the scheme's liabilities, with no additional margin. This essentially reflects a low risk investment strategy which solely invests in gilts.</p>	<p>A pragmatic, easy to understand basis likely to reflect the long term funding objective for many schemes.</p> <p>Relatively stable over time.</p>	<p>Mismatch with other bases being measured by the scheme.</p>
<p><b>Buy-out</b></p> <p>This basis helps trustees understand how much money is required to secure the scheme with an insurance company. The insurance company will adopt a low-risk investment strategy, as well as reserving additional margins for expenses and profit and therefore it is generally the most prudent and expensive basis.</p>	<p>Ultimately where many schemes want to reach in terms of funding.</p>	<p>Not possible to define e.g. as will depend on scheme specifics and different insurers have different bases and costs.</p>

What basis should pension schemes be hedging?

In practice, many schemes will be concerned with the position on multiple bases. It may therefore be appropriate to design the hedge on one basis and keep an eye on what the hedge ratios would be on other bases. It may even be appropriate to accept a slight overhedge, or underhedge, on the primary basis in order to ensure the position is not too far away from the ideal position on a secondary basis.

As we can see, there is not necessarily a 'right answer' to which basis should be used to design every pension scheme's LDI strategy. Trustees should consider the situation of the scheme to decide which basis is most suitable for them.

⋮ However, what we are seeing is that as trustees move to focus on their end game strategy, the Technical Provisions become less relevant and the shift turns towards the bases with a longer term focus. Considering the basis that represents your best view of the true long term funding target of the scheme alongside your LDI strategy is likely to help focus your approach and increase your chance of reaching that goal.

What basis should pension schemes be hedging?





## Other key considerations in hedging design

There are many other assumptions which will impact on the value of the liabilities and therefore will impact on the accuracy of the hedging. Some examples of the other factors that will need to be considered when designing the structure of the hedge are set out below:

### Mortality assumptions

The assumptions for how long members will live has a material impact on both the size and shape of the expected benefits. We'd expect more prudent bases to have stronger mortality assumptions which should be considered when setting the basis to hedge.

### Alternative assumptions

Discount rates are not the only assumption that will change over time. Although the impact on the funding position of changing these assumptions may not be as material as changing the discount rate, they may still have an impact on the shape of the scheme's liability cashflows. Examples of such assumptions are proportions married and commutation factors.

### Swaps versus gilts

Given the relative cheapness of gilts over swaps at most durations (i.e. they provide the same exposure to interest rates but at a higher yield) the majority of pension schemes now hedge predominantly using gilts. We'd expect the valuation basis of the liabilities to reflect the actual hedging in place.

### External assets

Increasingly schemes now have 'external' interest-rate-sensitive or inflation-sensitive assets alongside those within the LDI portfolio. The hedging contribution from these assets should be considered when designing the LDI strategy to achieve an accurate hedge.



## So what is the best basis to hedge?

The design of an LDI portfolio has a material impact on the hedging outcome and therefore on schemes' funding levels. For a well-matched hedge, it is increasingly important that schemes consider the detail behind the construction of their liability hedging strategy and LDI portfolio.

Many schemes will be concerned with the position on multiple funding bases. In the past, reducing the volatility of contributions required has meant that hedging relative to the scheme's Technical Provisions have often been the primary concern. However, as schemes' funding levels improve and attention turns more towards their end game strategies, we believe that hedging on a more prudent, longer term basis, will become more and more appropriate.



Please contact your Barnett Waddingham consultant if you would like to discuss any of the above topics in more detail. Alternatively get in touch via the following:

✉ [Danielle.Markham@barnett-waddingham.co.uk](mailto:Danielle.Markham@barnett-waddingham.co.uk)

☎ 0333 11 11 222

[www.barnett-waddingham.co.uk](http://www.barnett-waddingham.co.uk)

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