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To Hedge or Not to Hedge…

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Agenda

The principles of Liability Driven Investment

Why hedge now?

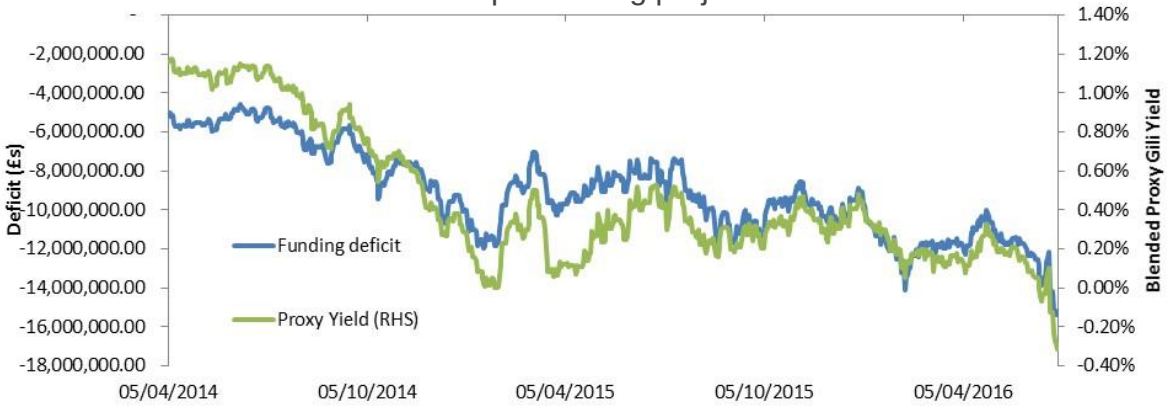
Impact on the Scheme Actuary

Hedging instruments

Why use LDI – what is the problem?

- Scheme funding volatility
- Contribution level/balance sheet volatility
- Efficient use of assets
- Longer term objective - volatility relative to buy-in and buy-out pricing

Sample funding projection



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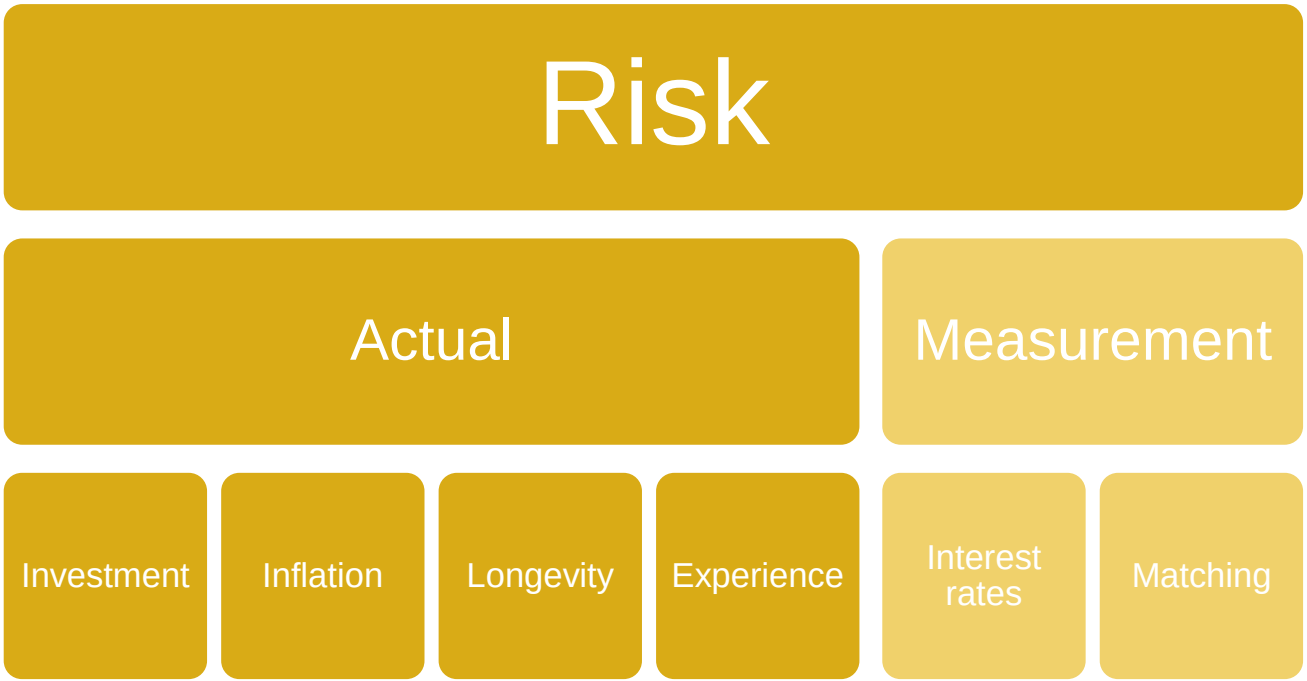
What causes funding level volatility?



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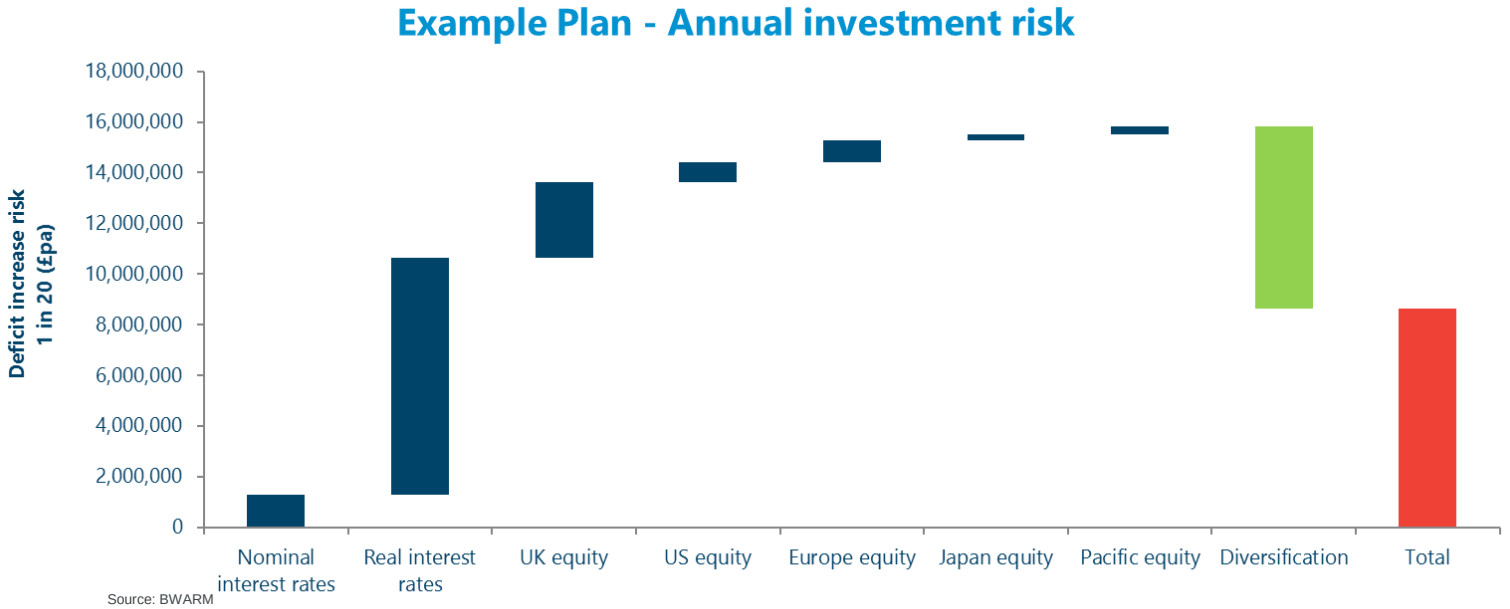
Funding risk for an average ‘unhedged’ scheme



Source: BWARM

- Majority of investment risk due to lack of interest rate and inflation protection
- These are “unrewarded risks” i.e. no additional return is expected to be gained from taking them

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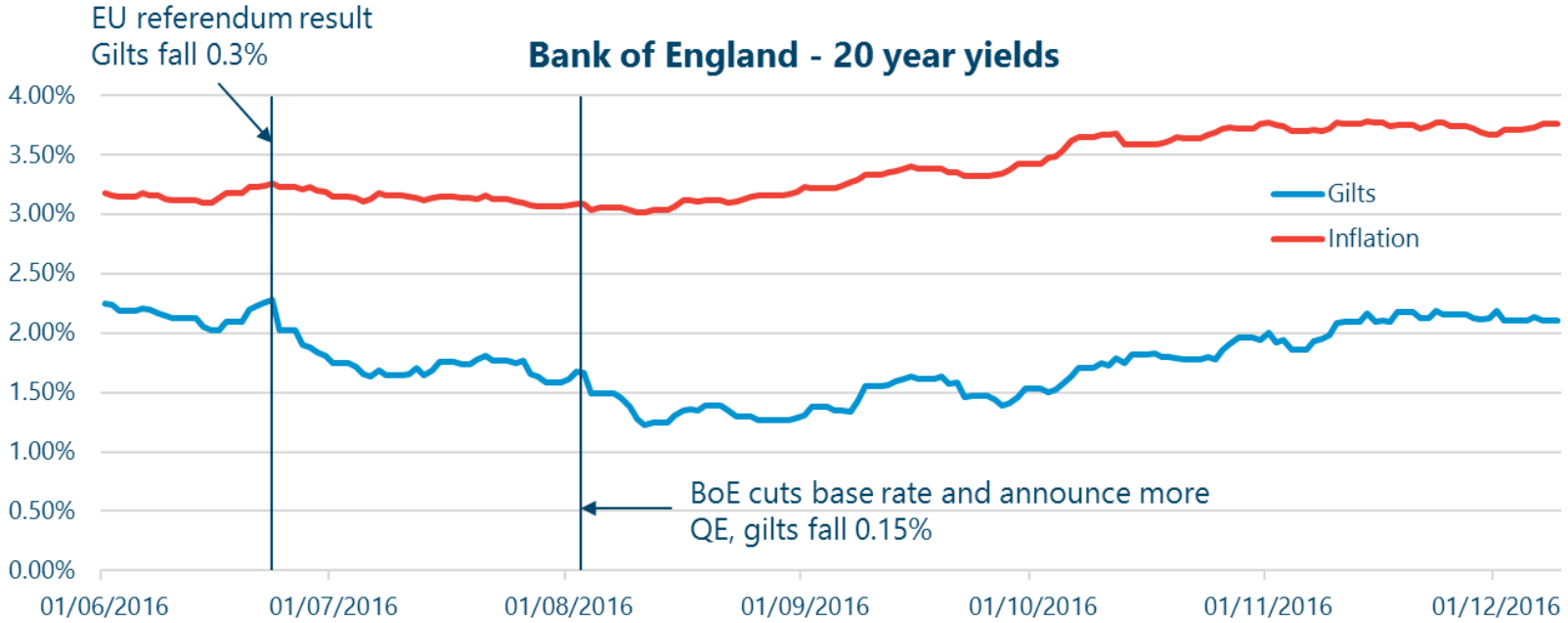
EU referendum example



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What is LDI?

- Better benchmark – **L**iability **D**riven **I**nvestment
- Better risk control
- Reduce funding level volatility
- Control future contribution requirements
- A philosophy not a product…..

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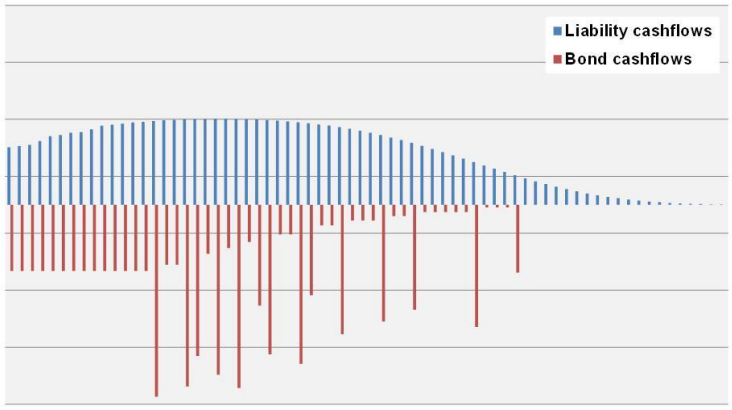
How can you do it?

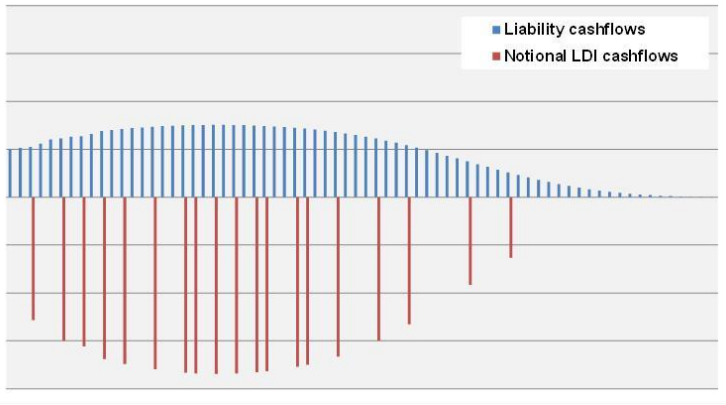


Use **physical bonds**:
Simple and intuitive – provides cashflows, but:

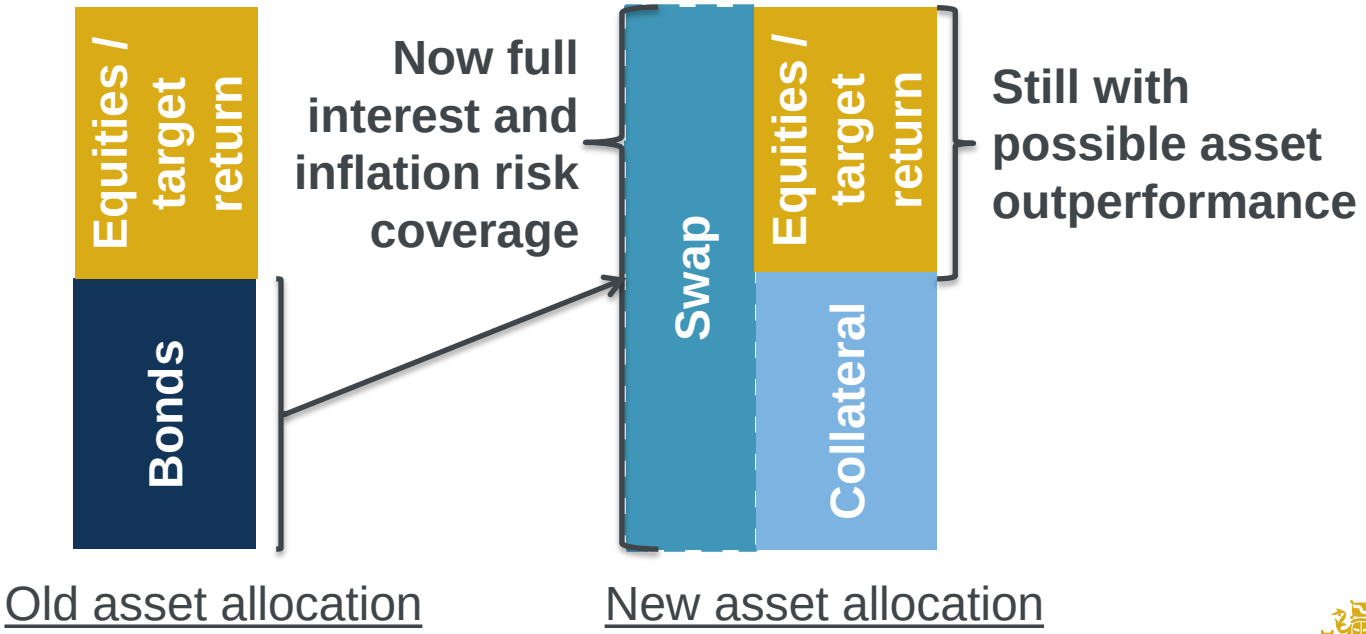
- Will remain approximate
- Ties up capital

Use **LDI funds**:
More complex to explain and doesn't generate cashflows as such, but:

- Can provide a closer hedge
- Allows the use of leverage



Leveraged funds



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UK LDI market statistics

Pooled approach accounts for 56% of mandates but 9% of liabilities hedged.

"Legal & General, Insight and BlackRock represent 85% of the UK LDI market based on notional value"

£741 billion
Value of liabilities hedged as at end of 2015

1,287 UK mandates across managers
(686 in 2012)

76% of LDI managers expect rates to rise faster than the market is pricing

Source: KPMG LDI survey 2016

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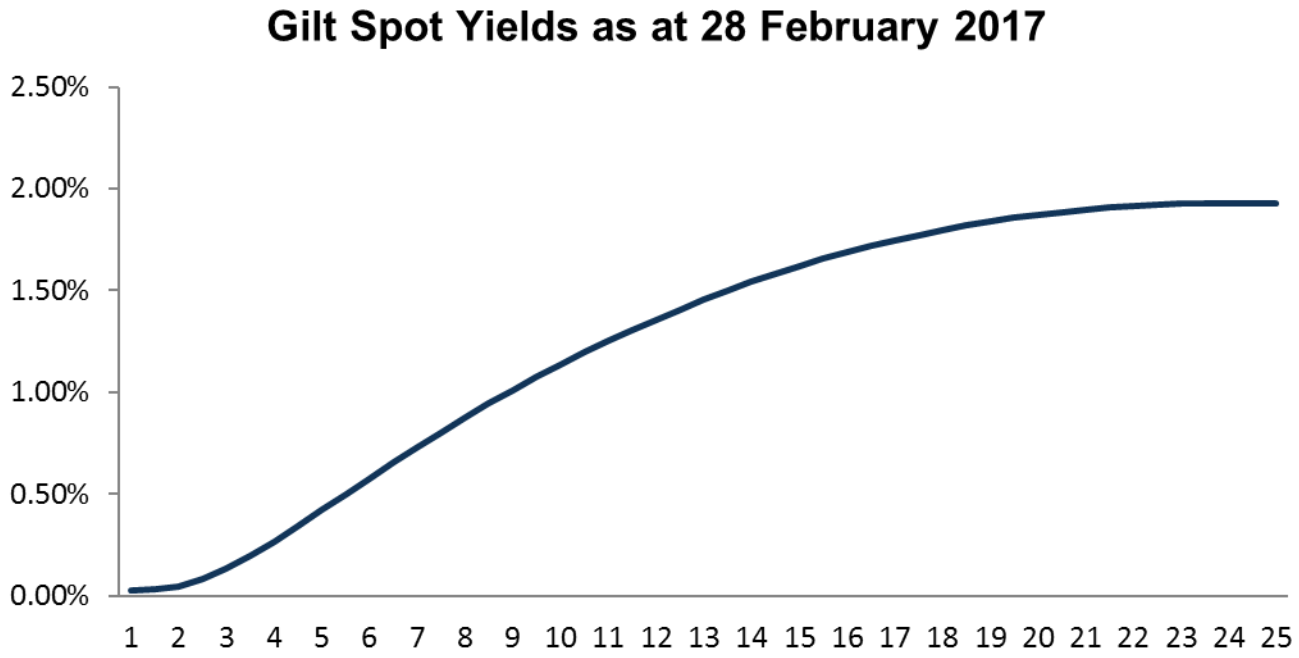
Why hedge now?

What does the gilt curve tell us?



Source: Bank of England

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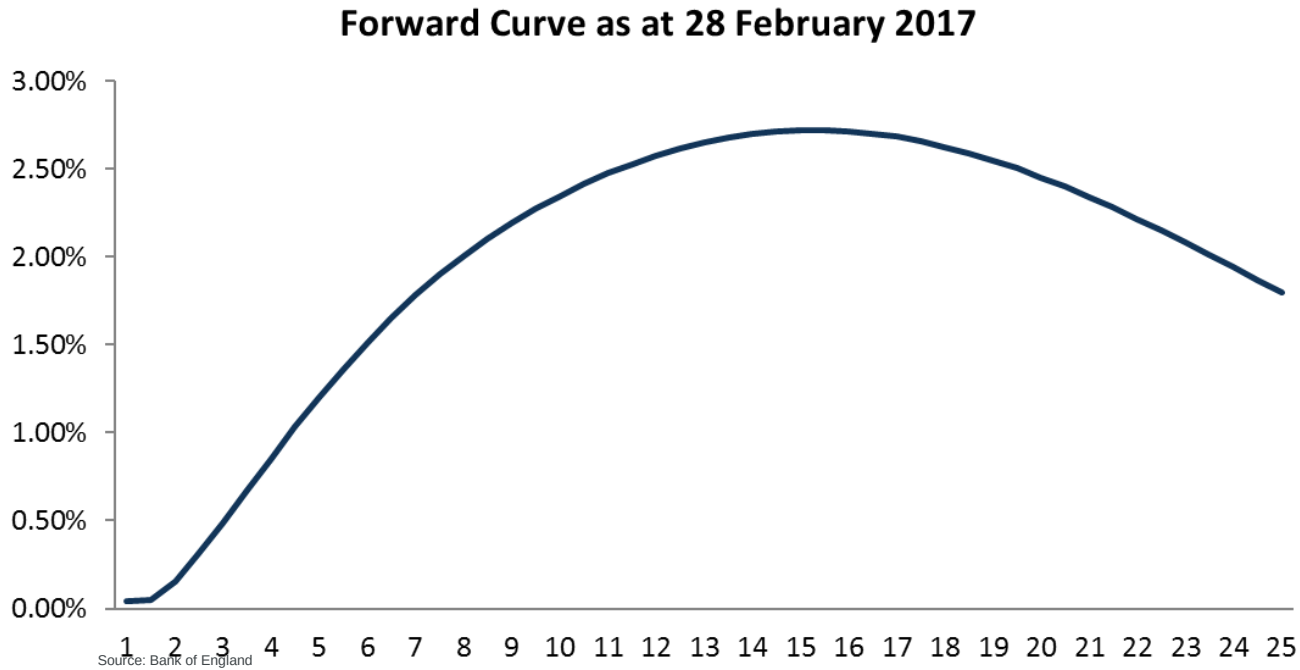
Splitting out the forward curve



Source: Bank of England

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What's happened in the recent past?

Source: Bank of England

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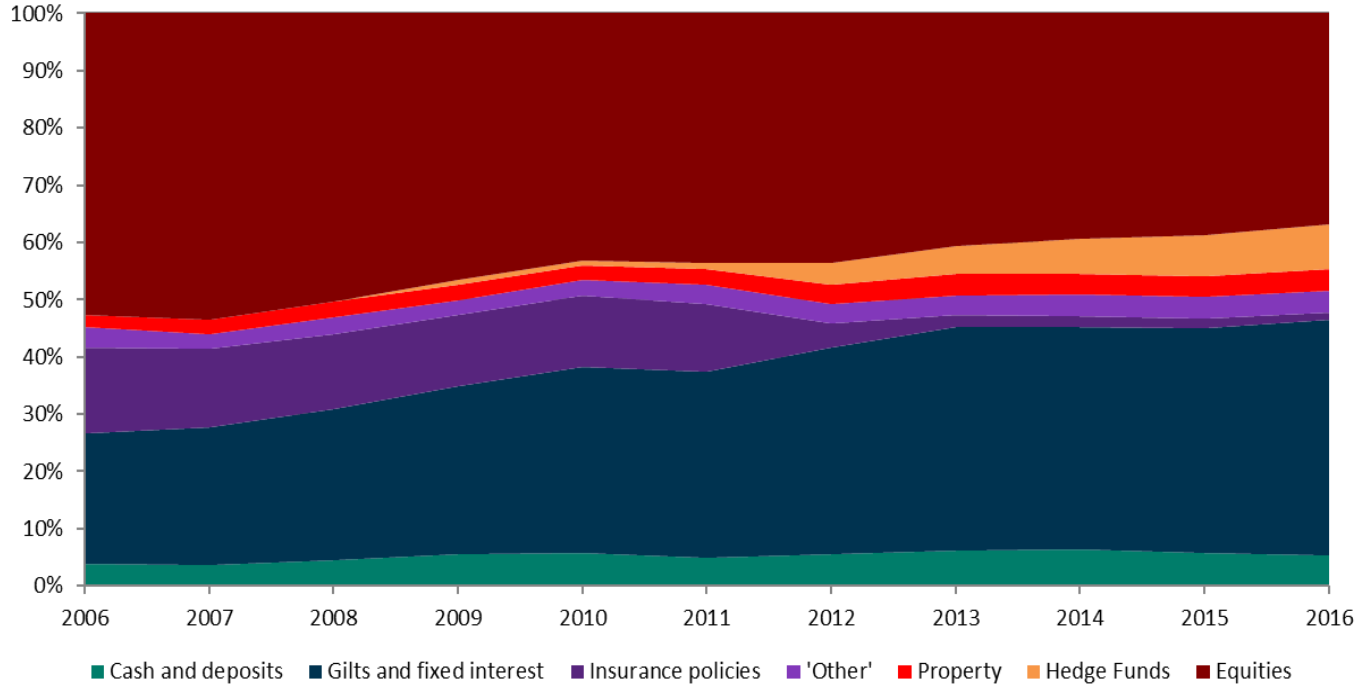
But pension funds keep buying……



Source: TPR Purple Book 2016

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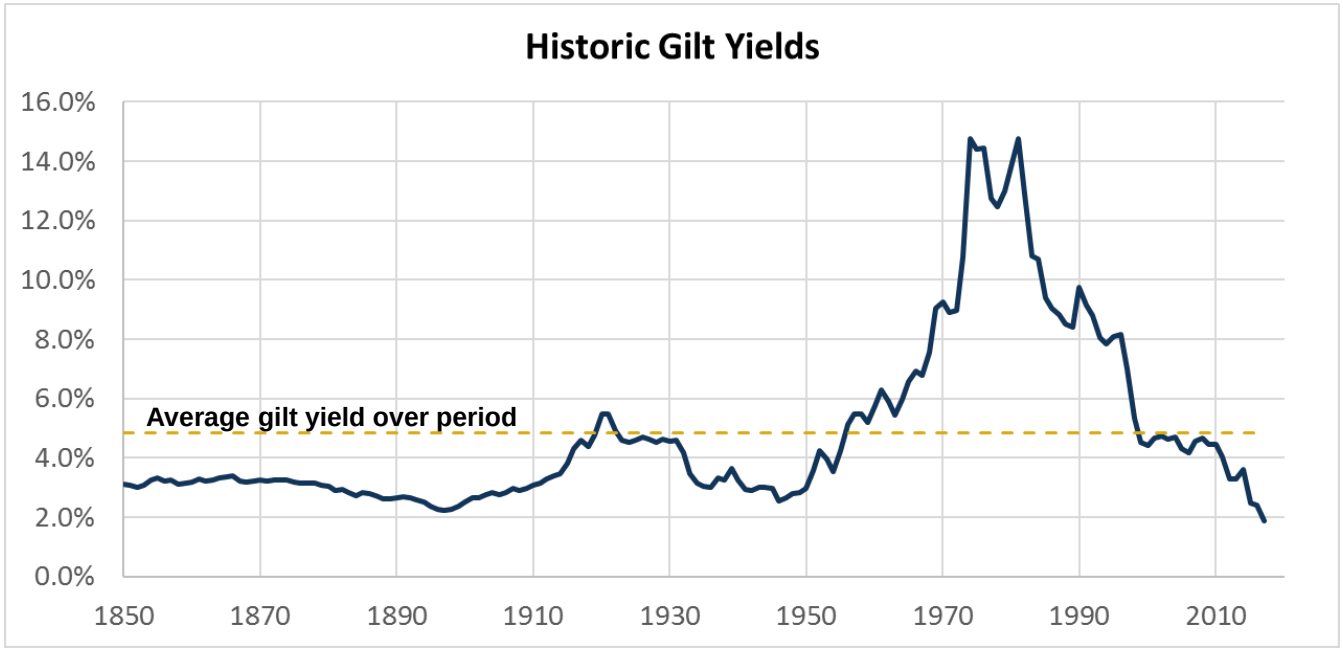
And over a longer period….



Source: Bank of England

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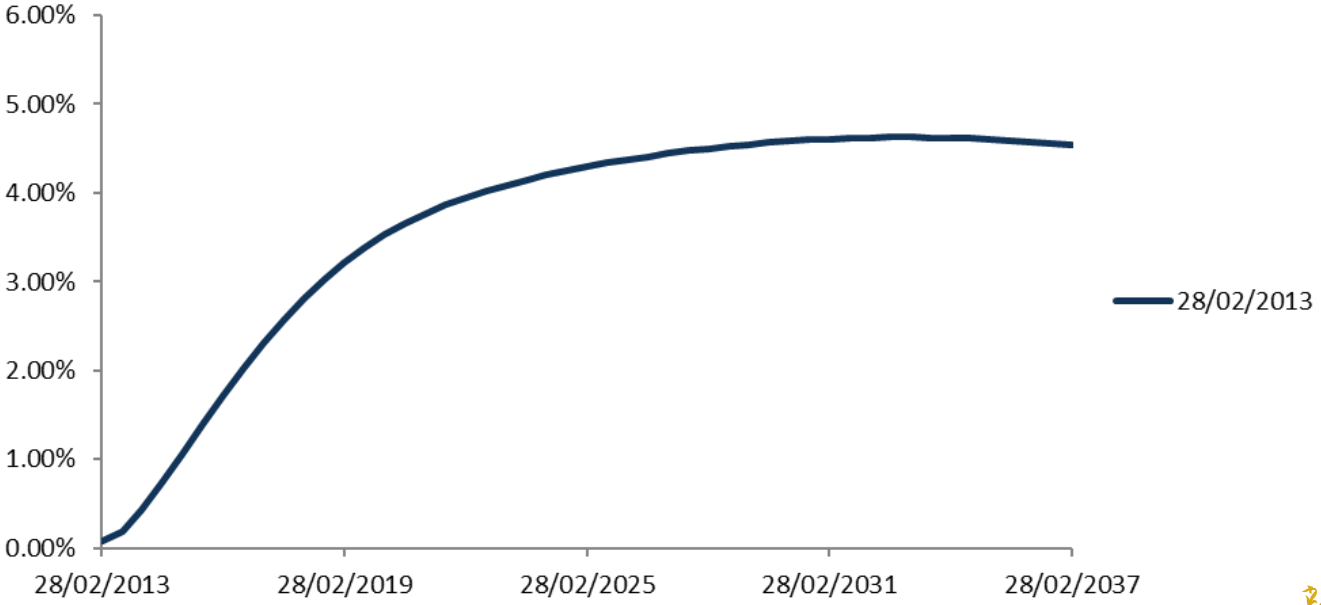
But yields are going to rise.....



Source: Bank of England

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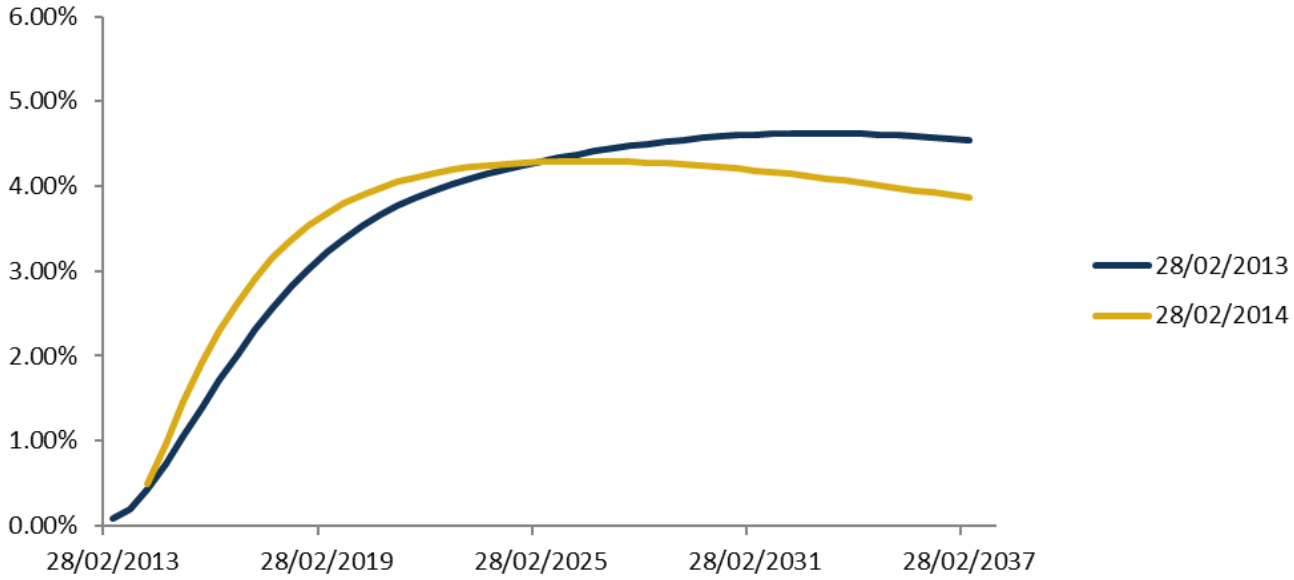
But yields are going to rise sooner…



Source: Bank of England

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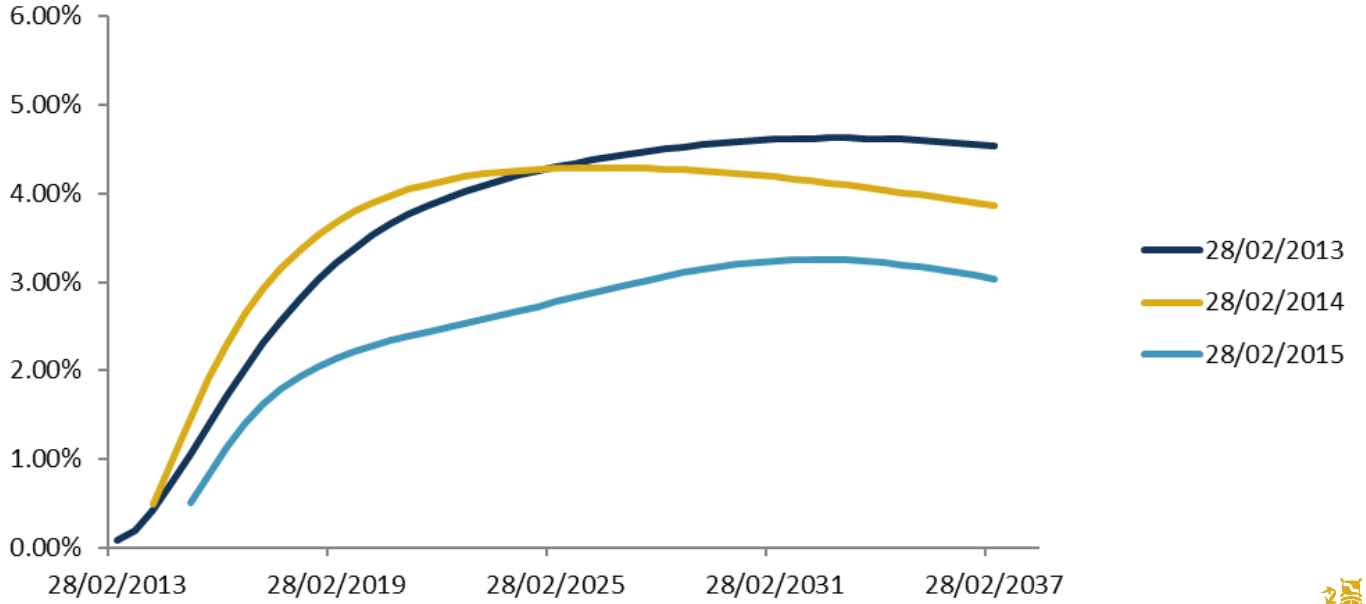
But yields are going to rise lower…



Source: Bank of England

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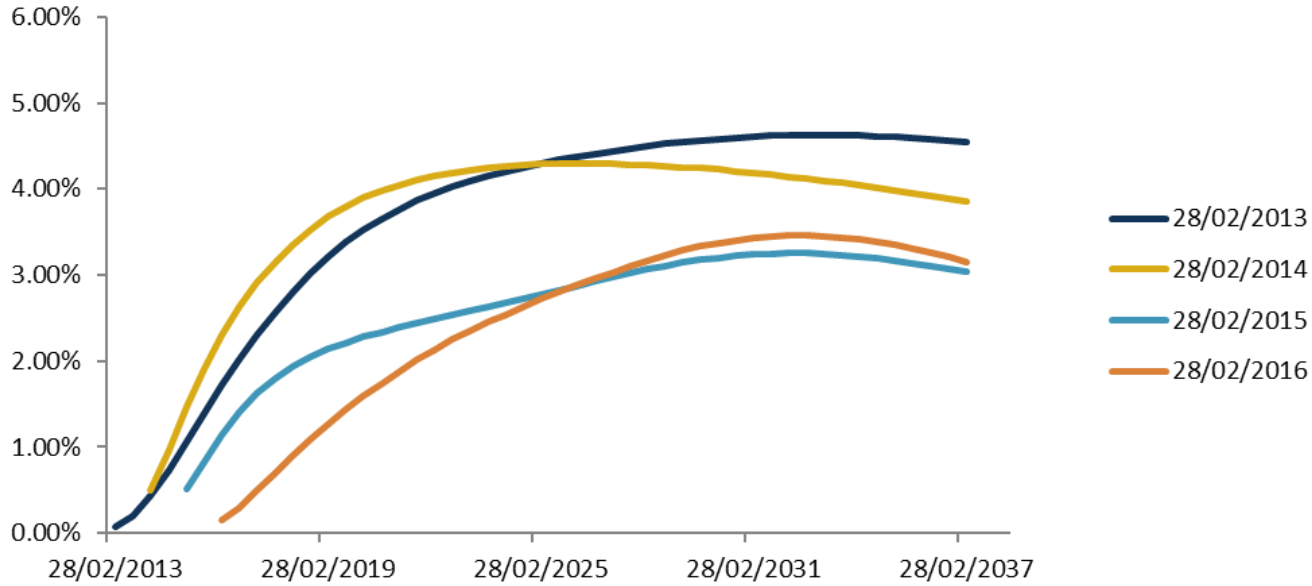
But yields are going to rise lower eventually…



Source: Bank of England

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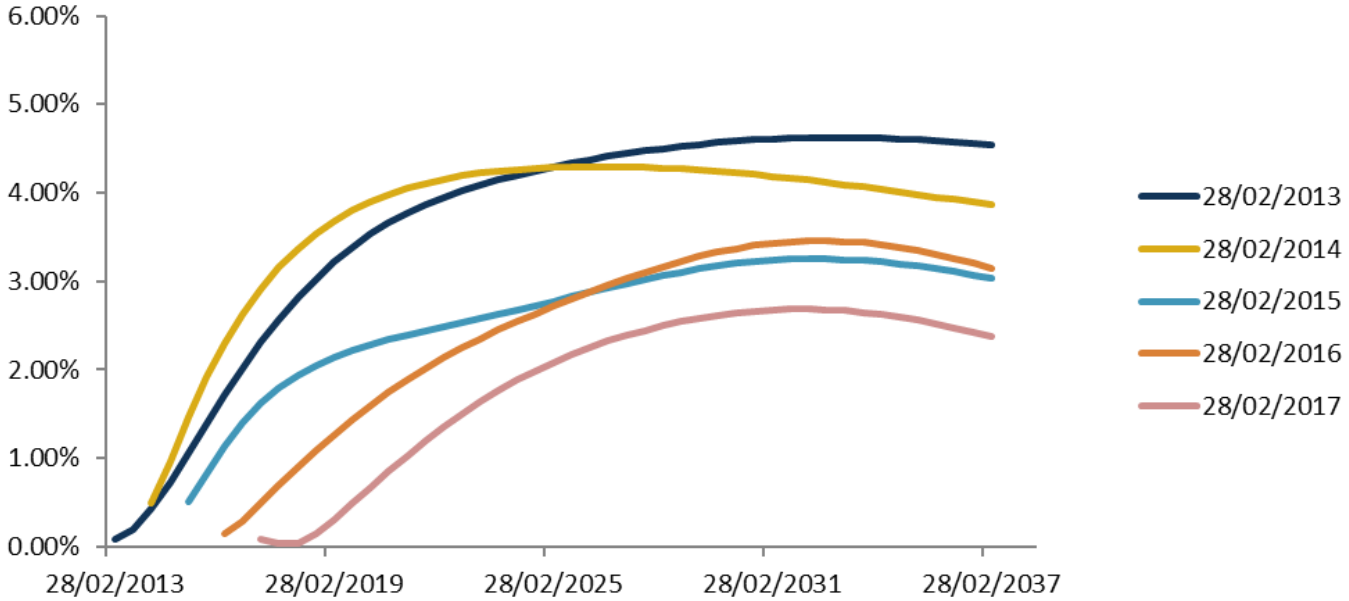
But yields are definitely going to rise eventually…



Source: Bank of England

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Why are gilt yields so low?

- Interest rate expectations
- Inflation expectations
- Supply vs demand?
- Low yields elsewhere
- Eurozone fears
- Lower long-term growth expectations
- Quantitative easing
- Fear?

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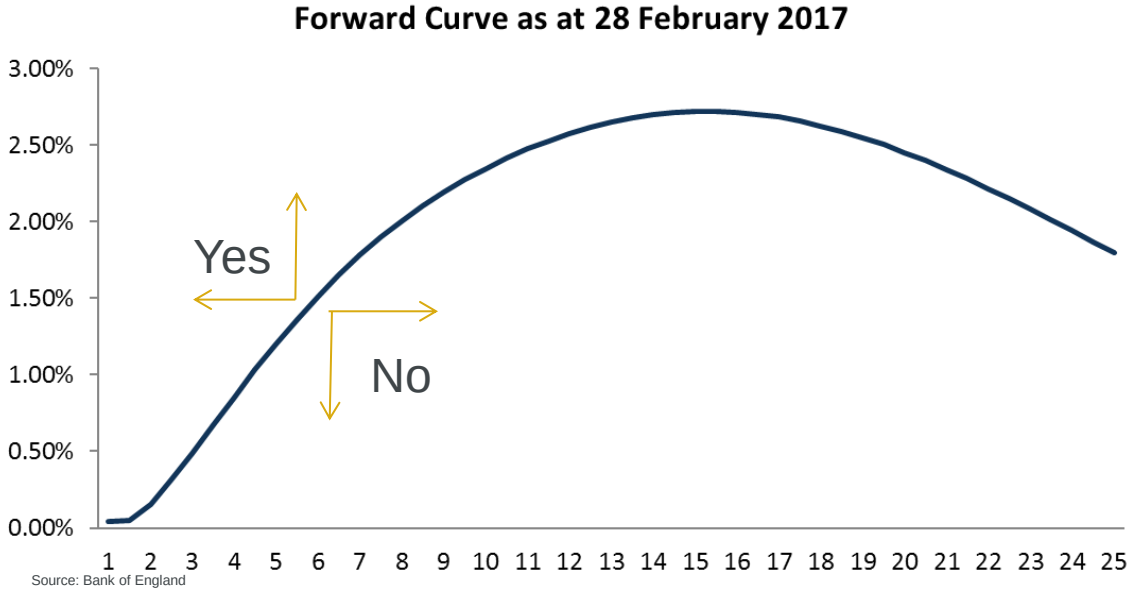
But won't schemes benefit from yield rises?



Source: Bank of England

Mismatching is not simply a bet on yields rising:

- Speed of increases
- Level of rates
- What non-matching assets return in the interim

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Impact on the scheme actuary

How does LDI affect the Scheme Actuary?

In terms of valuations:

- Consider hedging ratio when setting assumptions
  - Yield curve approach likely to be appropriate an as matching improves
  - Consider ERP assumption in context of hedging/leverage
- Gilts or swaps as the base yield (or a blended solution)?
- Inflation risk premia

Other issues:

- Transfer values
- Roll forwards
- Factors
- Liability management exercises

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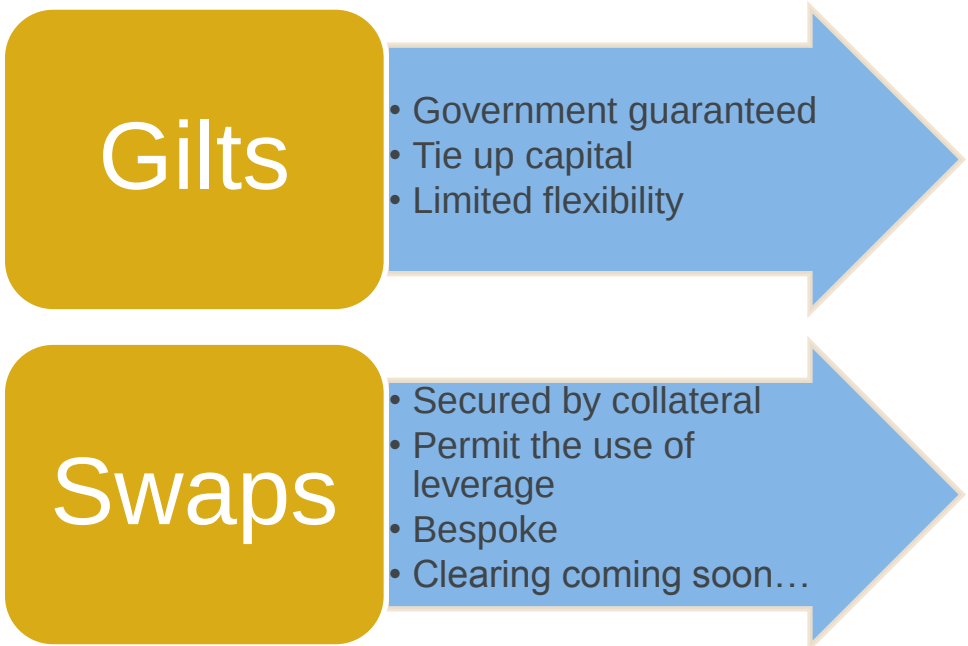
Which base yield to use? Why is there a difference?



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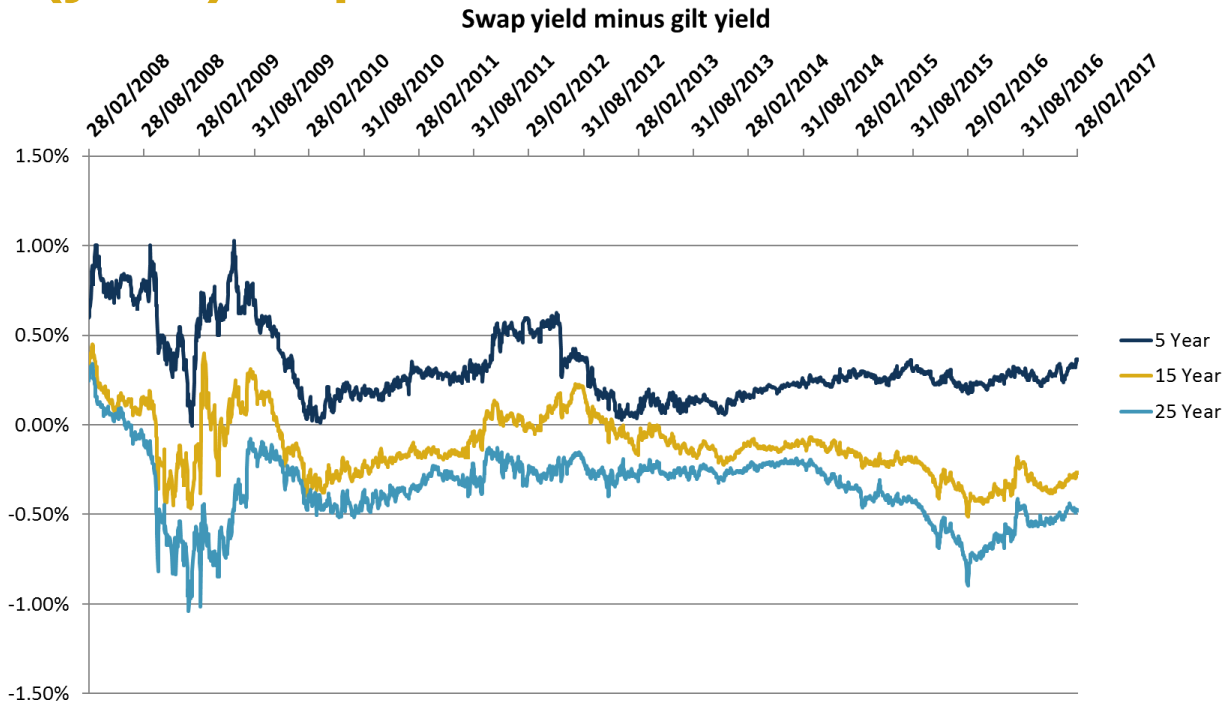
Mind the (yield) Gap!



Source: Bank of England

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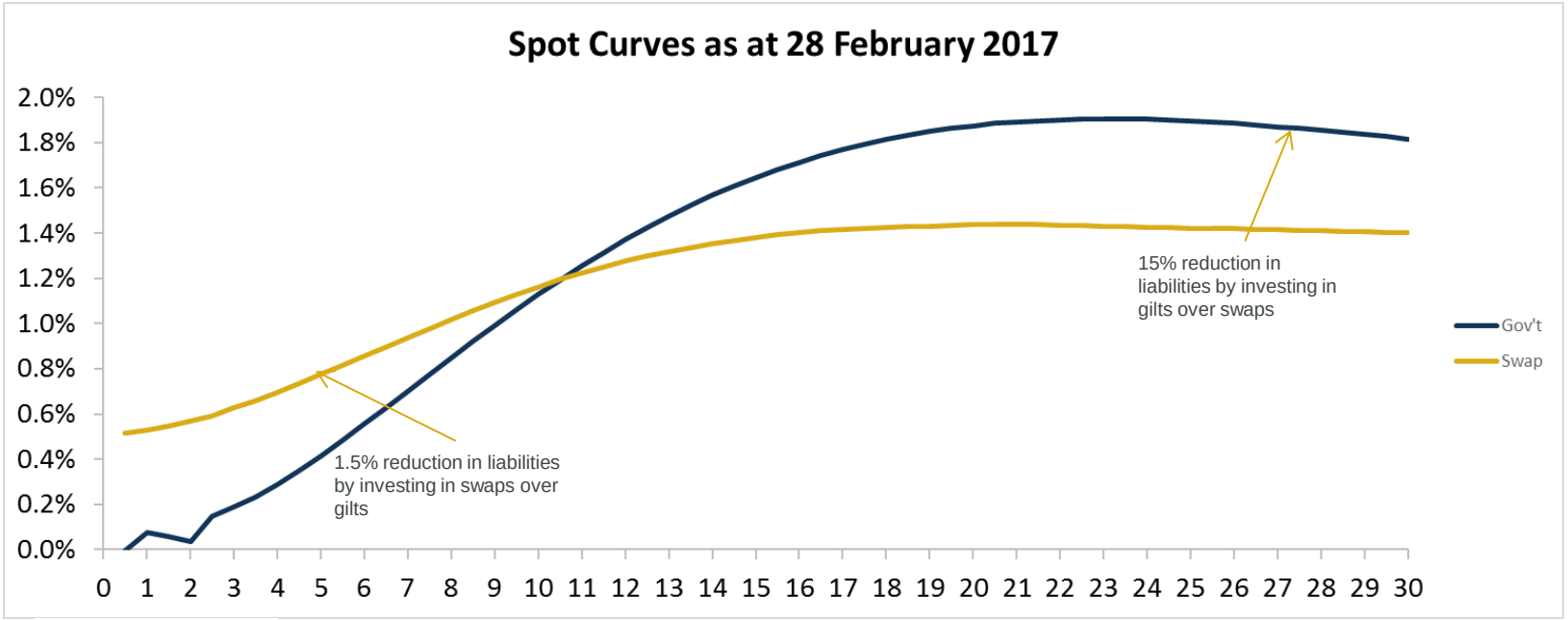
Does the difference matter?



Source: Merrill Lynch

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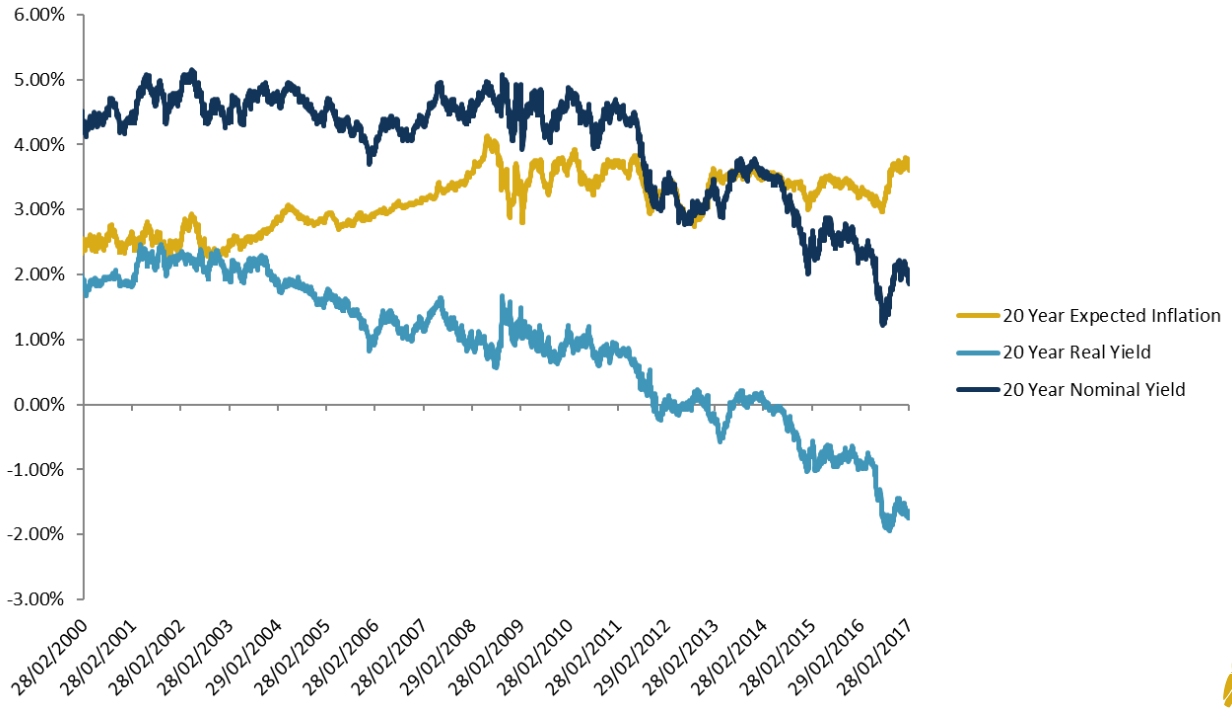
What about inflation?



Source: Bank of England

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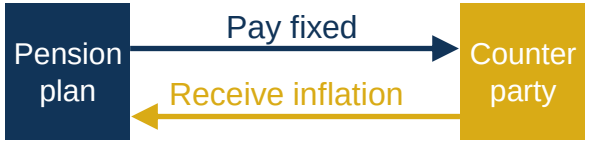
Hedging instruments

Types of swap

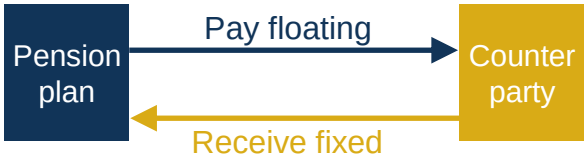
Inflation swap

Swap fixed cashflows for realised inflation cashflows



Interest rate swap

Swap floating cashflows for fixed cashflows



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Swaps – a simple example

- Pension plans usually want to gain more inflation exposure
- Assume that expected inflation for the next 5 years is 3%:

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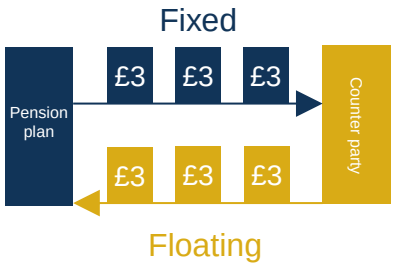
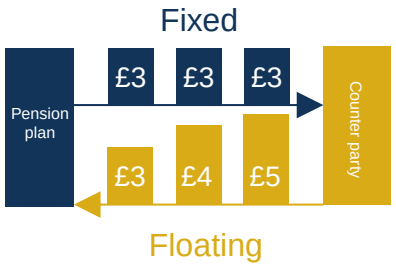
Swaps – a matching asset

Inflation = expectations



No net impact on either party

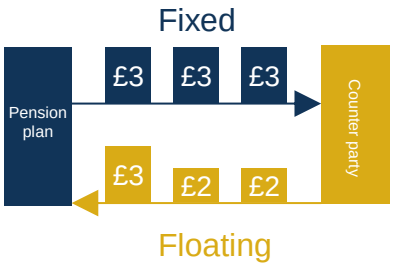
Inflation higher than expectations



- Pension plan gains on swap
- Liabilities will have grown

The gain on the swap is offset by a rise in liabilities

Inflation lower than expectations



- Pension plan makes loss
- Liabilities will have fallen

The loss on the swap is offset by a fall in liabilities

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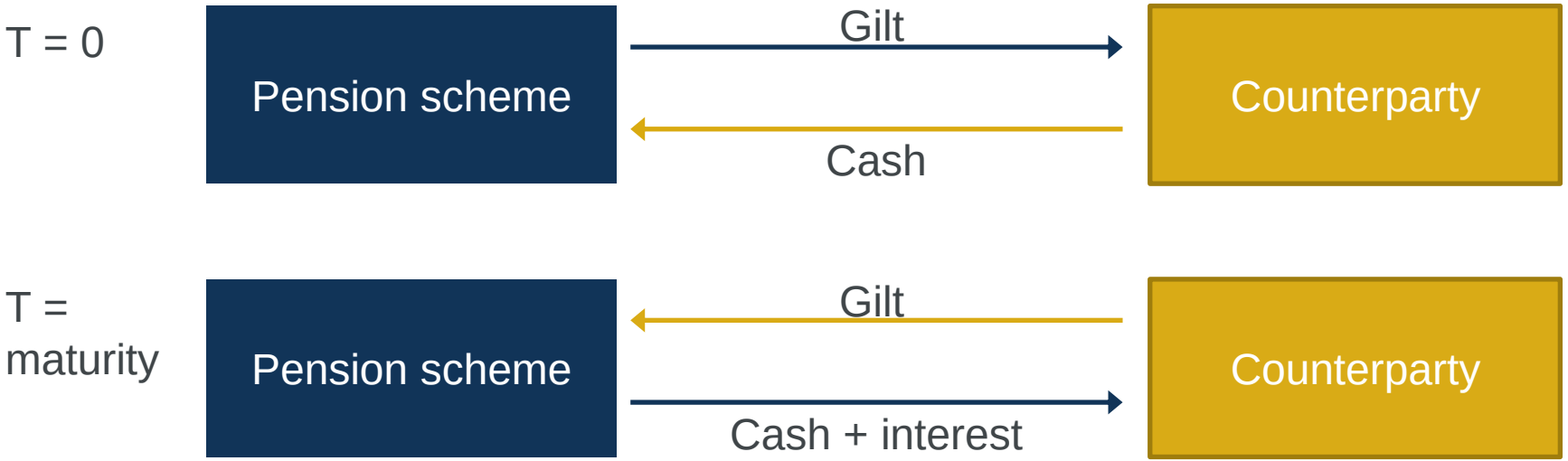
Gilt Repos



Exposure gained to movements in gilt yields

But contract frees up cash, which can be used to buy more gilts (leveraging the exposure)

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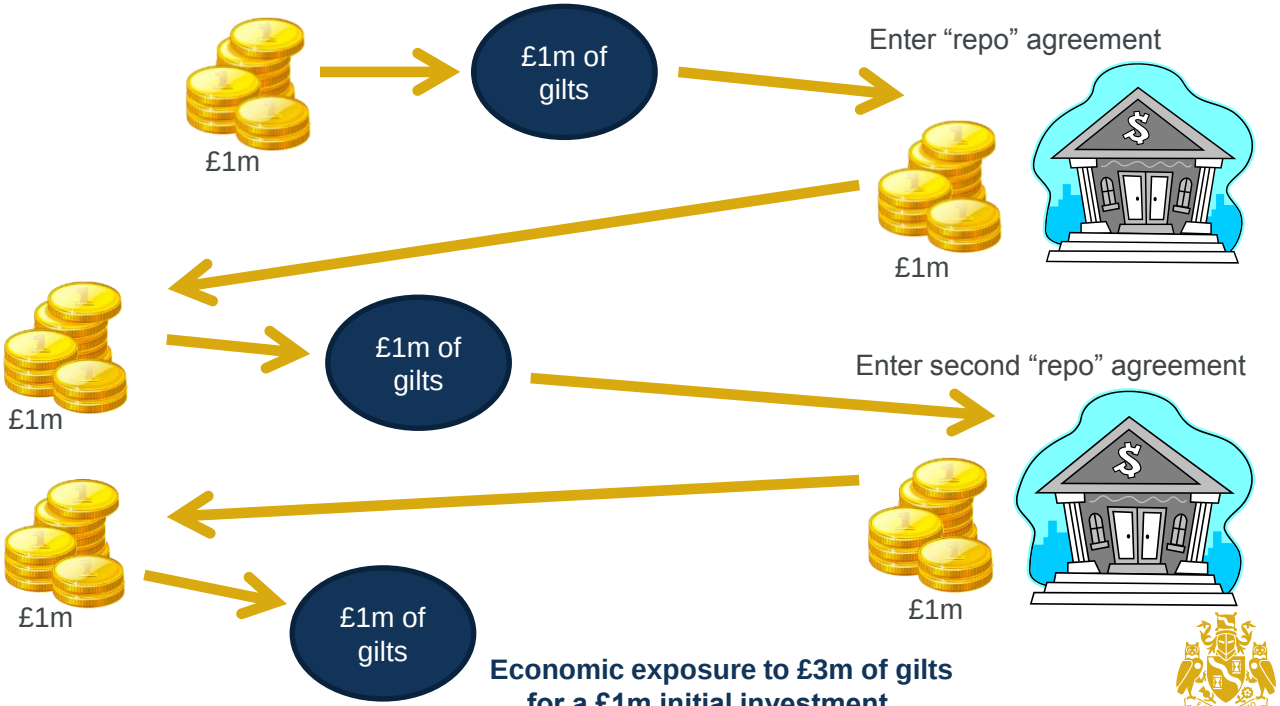
How to leverage gilts with repos



Economic exposure to £3m of gilts for a £1m initial investment…

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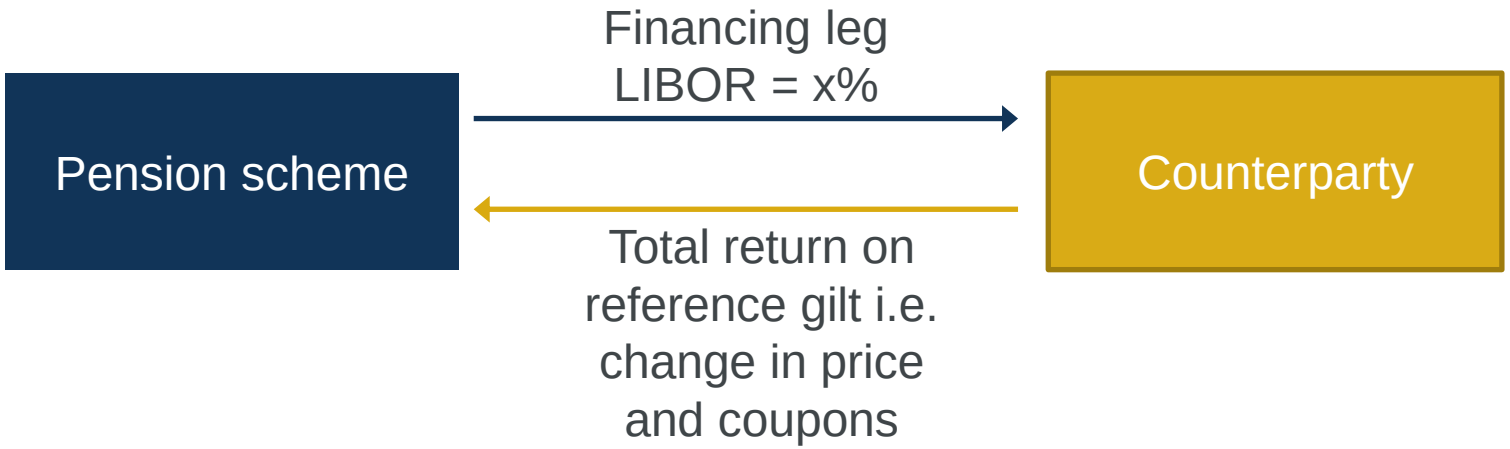
Gilt Total Return Swaps



Leveraged Gilts vs. Swaps

+ Currently long dated gilt yields are above swap yields

– Less flexibility, so more approximate match
– Counterparty risk similar to swaps, but contracts for significantly shorter term
– Have to roll regularly
  – Roll risk and financing risk

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Key advantages of using LDI

Advantage
Offers long term liability management solution
Allows Trustees to increase interest rate and inflation protection without having to transfer a significant proportion of the growth assets
Offers more accurate protection than physical gilts/bonds
Relatively easy to move in and out of
Enables the Trustees to make more efficient use of their assets

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Key risks of LDI

Risk	Mitigation
Counterparty defaults following large daily movement in pension plan's favour	Managers generally use several different counterparties for swap contracts to limit single counterparty risk
Active cash underperforms	Cash funds used are generally managed very conservatively reducing the risk of underperformance
Regret risk if hedging increased but interest rates rise further	Look to hedge at rate at which the Trustees/Employer are happy to do so
Greater implementation and governance costs	Utilise pooled funds

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Questions

Comments

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