

The end of the pension scheme liability management, wind-up and the PPF

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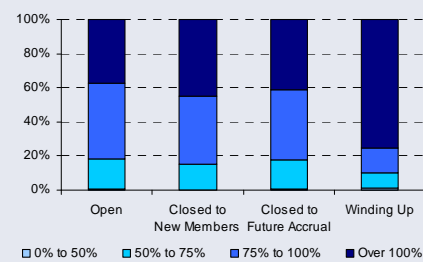
De-risking Strategies



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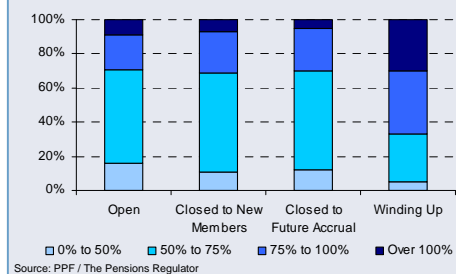
Funding levels of schemes in wind up

Distribution of schemes by s179 funding levels within scheme status groups as at 31 March 2010



Nearly 75% of schemes in wind up are funded above the s179 level

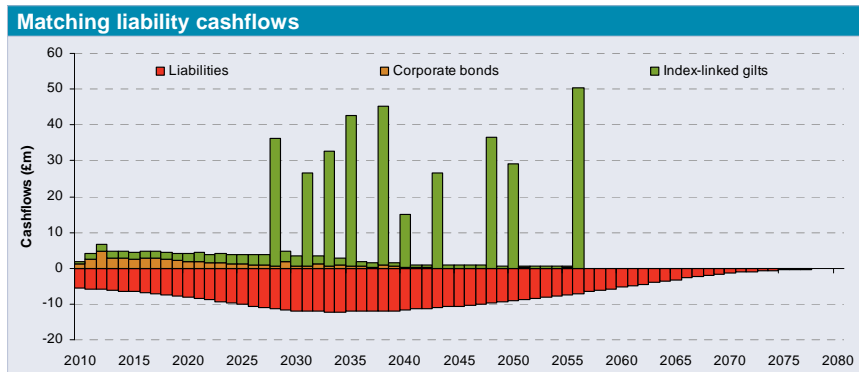
Distribution of estimated full buy-out funding levels by size of scheme membership as at 31 March 2010



Nearly a third of schemes in wind up are funded greater than 100% on a full buy-out basis

How can schemes ensure their funding level is at the very least maintained at current levels?

Matching a pension scheme liability using bonds



- Bonds can be used to match liabilities with the following constraints:
 - Bond cashflows are lumpy
 - Long dated bonds are scarce
 - Lower expected return

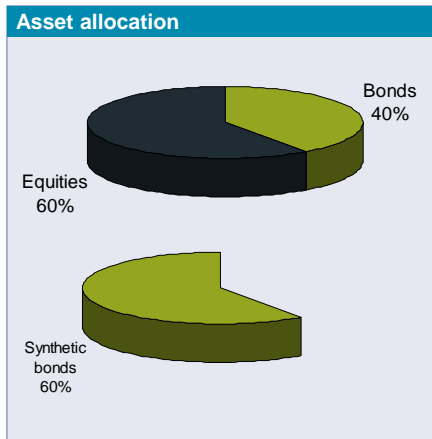
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Can swaps and other synthetic assets be used instead?

- For schemes that are fully funded on buy-out basis, it may be appropriate to lock into the funding levels using physical gilts
- For schemes which would reduce their investment risks without having the need to eliminate exposure to growth assets, may require synthetic assets such as swaps and equity futures

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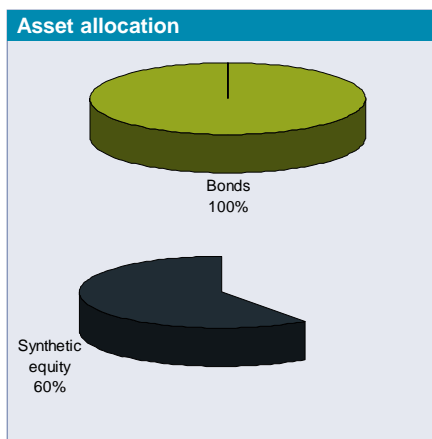
Synthetic assets: option 1 (swaps)



- 60% of the scheme is exposed to equities
- 40% of the assets are invested in physical bonds
- 60% synthetic bond exposure generated via swaps
- Swaps are a form of contract for difference

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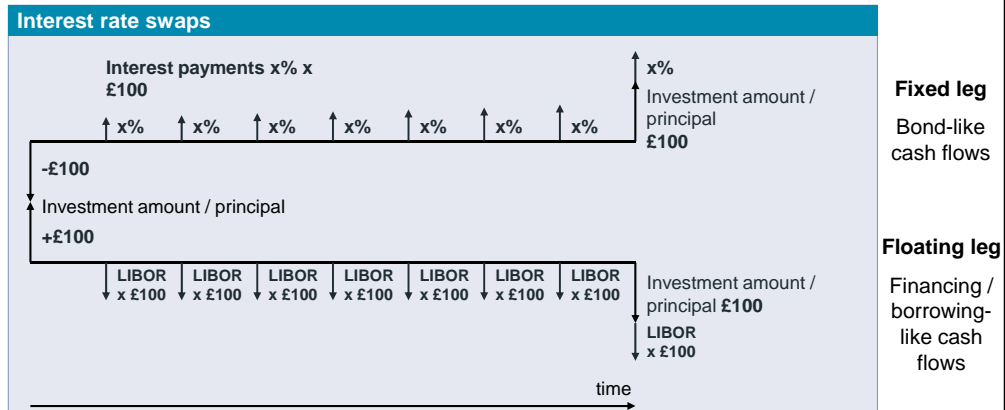
Synthetic assets: option 2 (equity futures)



- 100% of the assets are invested into bonds
- 60% equity exposure generated through Futures
- Futures are a form of contract for difference
- You get paid money if the index rises / you lose money if the index falls (just like owning physical stocks)

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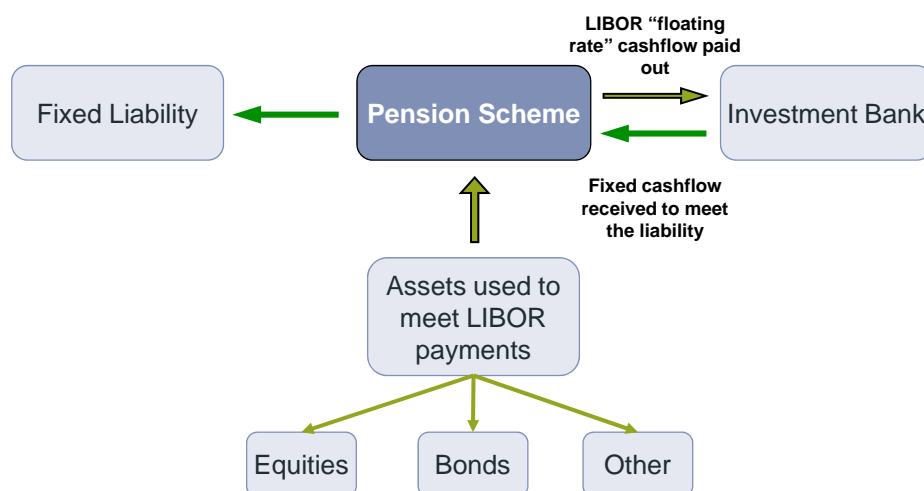
Option 1: Swaps



- An interest rate swap is economically equivalent to borrowing money at a variable rate and buying a fixed-rate bond

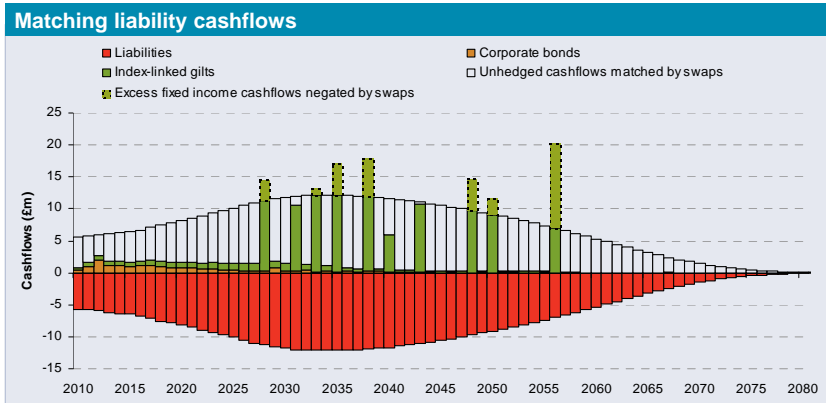
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Option 1 : How is a swap used in a pension scheme?



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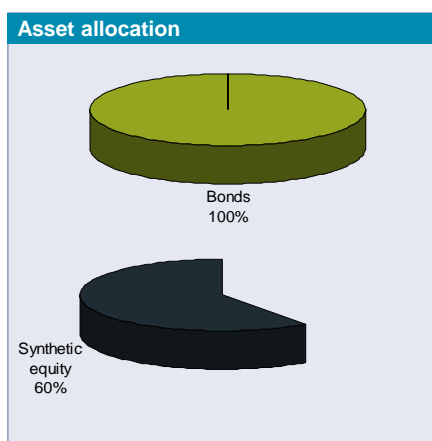
Option 1 : Matching a pension scheme's liability using bonds and swaps



- Swaps can be tailored to the scheme's liability profile
 - Swaps do not require upfront payment like bonds
 - Exposure to growth assets can be maintained

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Recap on synthetic assets: option 2 (equity futures)

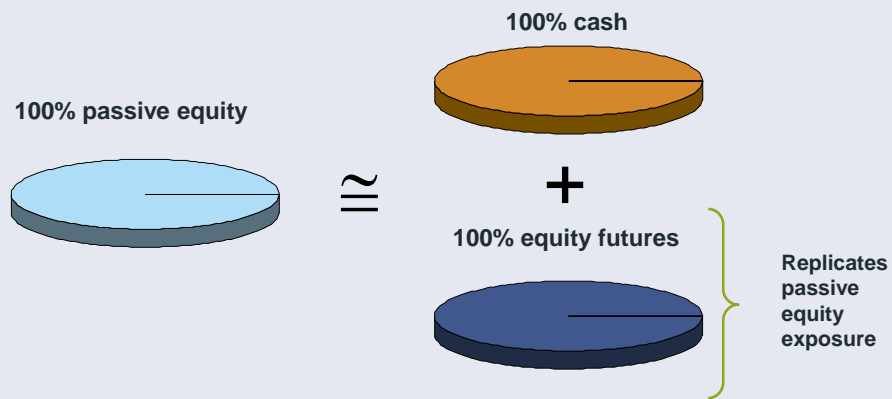


- 100% of the assets are invested into bonds
- 60% equity exposure generated through Futures
- Futures are a form of contract for difference
- You get paid money if the index rises / you lose money if the index falls (just like owning physical stocks)

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Option 2: Full exposure to passive equity can be replicated via a cash & futures overlay position:

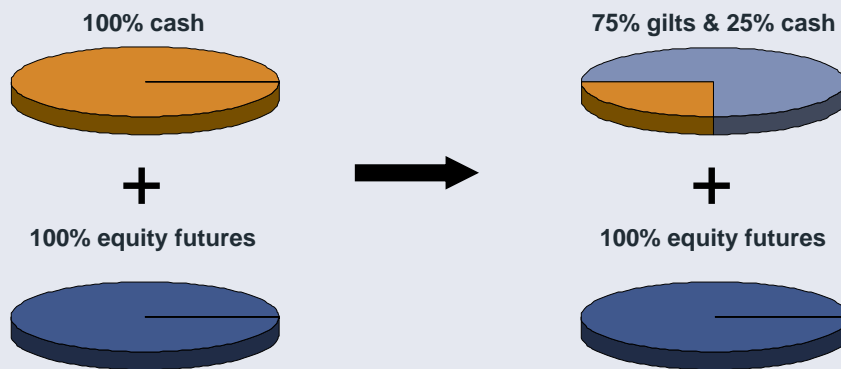
Physical passive equity can be replicated by holding "cash" & equity futures



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Option 2 : 75% cash exposure is replaced with gilts and provides duration

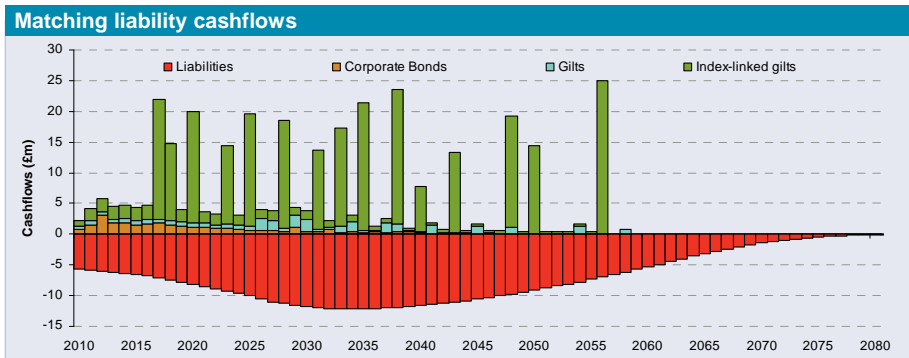
Physical passive equity can be replicated by holding "cash" & equity futures



- The end result is full equity exposure with the benefit of reduced duration mismatching against liabilities

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Option 2 : Matching a pension scheme's liability using bonds and Gilts



- Broad matching can be achieved using Gilts or Index linked Gilts
- Key benefits of Option 2 are :
 - Full exposure to equities is maintained through equity futures
 - Currently gilt yield are higher than swap yields

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De-risking strategies

Example:

Current asset allocation			
Allocation	Asset	Estimated expected return	Estimated duration in years
50%	Long-dated corporate bonds	4.9%	13.0
50%	Equities	6.5%	0
100%		5.7%	6.5

Adding gilts with synthetic equities			
Allocation	Asset	Estimated expected return	Estimated duration in years
50%	Long-dated corporate bonds	4.9%	13.0
50%	Gilts with synthetic equities	6.5%	12.5
100%		5.7%	12.8

Increase in duration by about 100% without a reduction in the overall expected return on assets

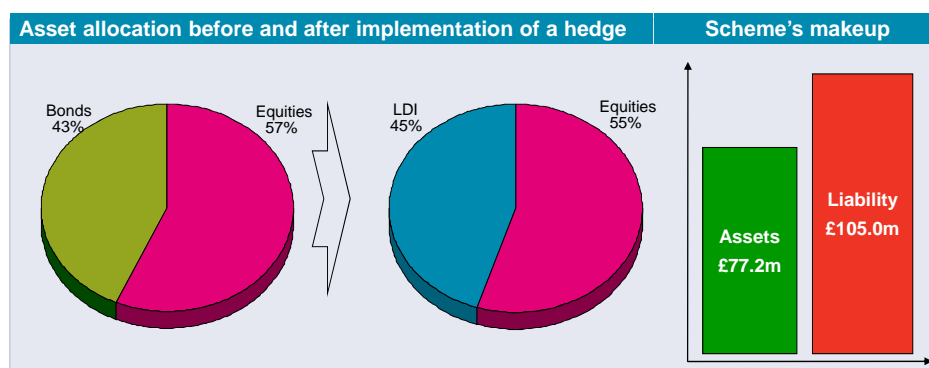
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Example of a scheme using triggers to de-risk

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De-risking strategies

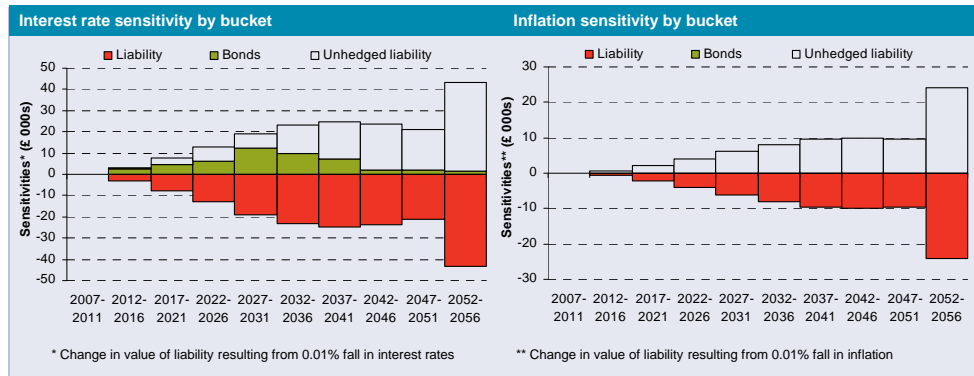
Example scheme



- The liabilities are based on a buyout basis
 - On this basis, the funding level is 73.5%
 - 65% of the liabilities are fixed and the rest are inflation linked
 - Estimated duration of liabilities is 23.2 years

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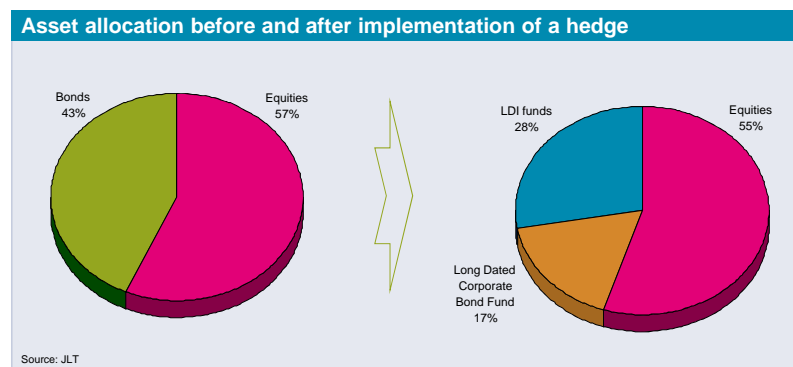
Scheme analysis



- The current portfolio has a duration of 6.4 years and provides a 27.5% nominal interest rate hedge of the total liabilities

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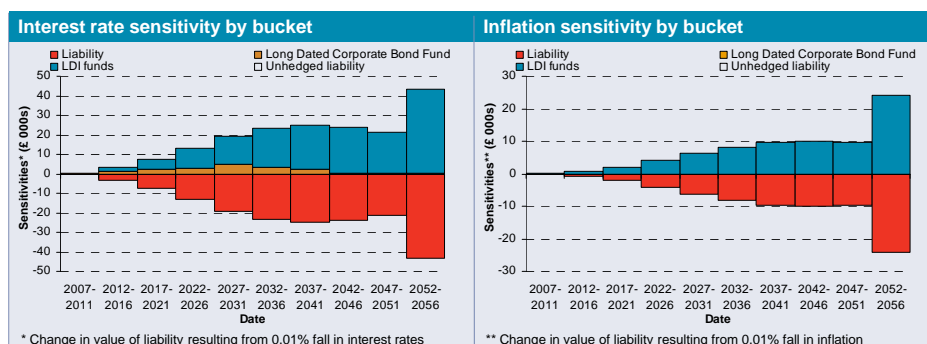
Investment solution



- The Scheme could invest 45% of its assets in leveraged cash based LDI funds (28%) and Long Dated Corporate Bond fund (17%) to fully hedge the nominal interest rate and inflation sensitivity of the total liabilities

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Investment solution



- This portfolio provides a 100% interest rate and inflation hedge of the total liabilities and a duration of 23.2
 - This is achieved by investing in Real and nominal LDI funds

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Impact on duration and yield

Current asset strategy					Asset strategy with LDI				
	%	£m	Duration	Expected Yield		%	£m	Duration	Expected Yield
Equities	57	44.0	0	6.5%	Equities	55	42.5	0	6.5%
Bonds	43	33.2	14.8	4.8%	Bonds	17	13.4	13.1	5.3%
Total	100	77.2	6.4	5.8%	LDI Funds	28	21.3	75.6	3.8%
					Total	100	77.2	23.2	5.5%

- A strategy with LDI and corporate bond funds shown above will provide a full hedge of the Scheme's liabilities
- A trigger implementation approach can be used to avoid the reduction in yield by investing in the LDI strategy over time as long-term interest rates increase

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Impact on duration and yield

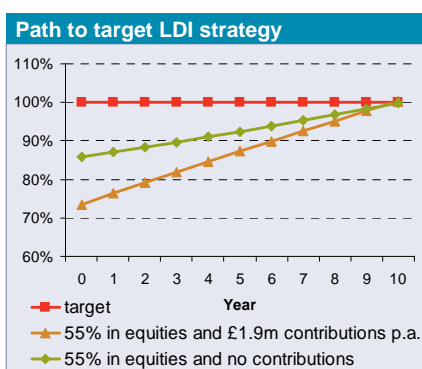
Step 1				
	%	£m	Duration	Expected Yield
Equities	55	42.5	0	6.5%
Bonds	33	25.5	13.5	5.3%
LDI Funds	12	9.3	75.6	3.8%
Total	100	77.2	13.5	5.8%

- This is a circa 60% duration match i.e. over 91% hedge for inflation-linked liabilities (hedging both interest rate and inflation risks) and no hedge for fixed liabilities

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Derisking using triggers

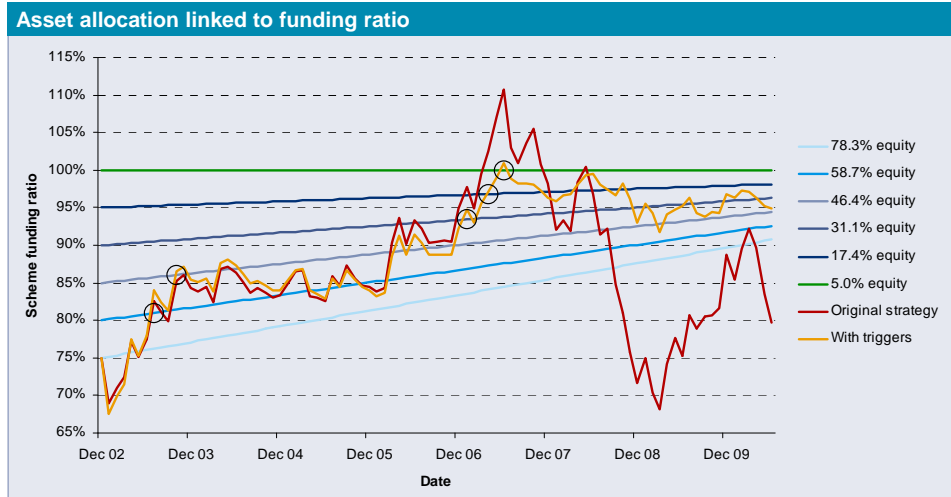
Path to target LDI strategy				
	Expected yield on LDI fund	Funding ratio on buyout basis	Allocation to LDI funds £m	Duration of total assets in years
Step 1 - starting position	3.8%	74%	9.3	13.5
Step 2	4.0%	78%	11.6	15.4
Step 3	4.3%	82%	13.9	17.3
Step 4 – target position	4.5%	87%	21.6	21.0



- Step 1 provides a near to full hedge of the inflation-linked liabilities
- Triggers are used to increase the hedge as the funding ratio improves

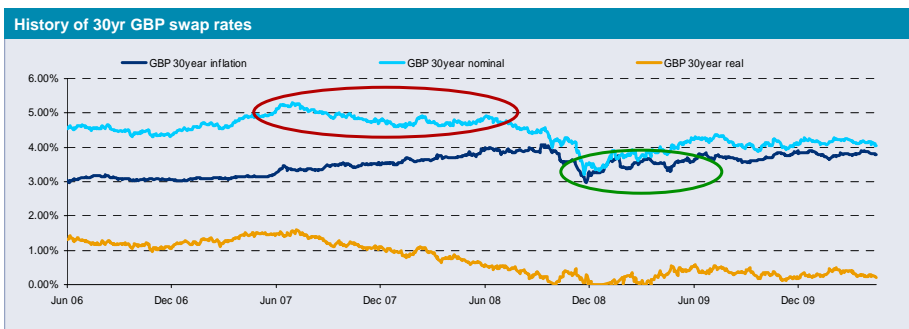
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Consider different funding ratios



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Hedging real interest rates



- Separation of inflation hedge from nominal interest rate hedge
- Hedge nominal interest rates when yields are high
- Hedge inflation when inflation expectations are low

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Other factors affecting investment strategy

- Ease of disposal of assets without incurring large transaction costs or transfer to PPF without the need to sell
 - Cash and Gilts could be easily transferred to the PPF assets
 - Swap based LDI funds may be difficult to transfer into PPF scheme unless a segregated LDI strategy was implemented with the ability to in-specie the swaps
 - Synthetic equity strategies may be easily un-wound or transferred into the PPF as the equity futures positions will not be rolled at the end of expiry (typically quarterly) and the underlying bonds (typically gilts) can be transferred into the PPF

De-risking strategies play an important part in schemes expecting to wind up

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Questions

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