



Real Return VII: The Euromoney Inflation Linked Products Conference (May 2010)

Longevity

Paul Kitson FIA

TOWERS WATSON 

Agenda

1. Measuring longevity
2. The UK longevity hedging market
3. What is a longevity hedge and who are the providers?
4. Who may be interested and why now?
5. Babcock case study
6. Key considerations
7. Future of the longevity hedging market place

Focus on the longevity market in the context of UK pension schemes

Glossary












- **Buy-out:** the purchase of individual annuities for members of the pension scheme where each annuity forms a single policy between the member and the insurance company. The relationship is then between the member and the insurance company and not the scheme (and on a full buy-out of all benefits the scheme is then typically wound-up)
- **Buy-in:** the purchase of a bulk annuity held by the trustee of the pension scheme as an investment of the scheme. The relationship between the member and the scheme does not change
- **Longevity hedge:** a transaction where the risk that members live longer than expected (or gain if they live less long) is passed to a counterparty. Investment risk is retained by the scheme

Measuring Longevity


- Can measure '**base table**' by observing deaths (amount or number) from past experience and comparing this to a standard table
- A number of standard tables to select from
- Development of 'Post Code' models helps for smaller populations
- But the '**future improvement**' assumption requires a view of what will happen in the future
- A number of 'standard' future improvement assumptions available, but which is right for your specific population?
- Influenced by sex, age, socio-economic, etc, bias of population
- Difficult to draw conclusions on future improvements from past data even for very large data sets
- 'Disease based' and 'multi-state' models being developed which may help, but unlikely to be magic bullet to solving problem

The UK Settlement Market – deals by size






INSURED BUY-INS

Cable & Wireless	c. £1,000 million	
P&O	c. £800 million	
Merchant Navy Officers	c. £500 million	
Cadbury	c. £500 million	
CDC Group	c. £370 million	
Friends Provident	c. £350 million	
BBA Aviation	c. £280 million	
Smiths	c. £250 million	
Smiths	c. £250 million	
The Weir Group Plc	c. £240 million	
The Pensions Trust	c. £225 million	
John Laing	c. £210 million	
Morgan Crucible	c. £160 million	
Dairy Crest (Phase II)	c. £160 million	









SYNTHETIC BUY-INS

RSA Insurance Group	c. £1,900 million	
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LONGEVITY SWAPS

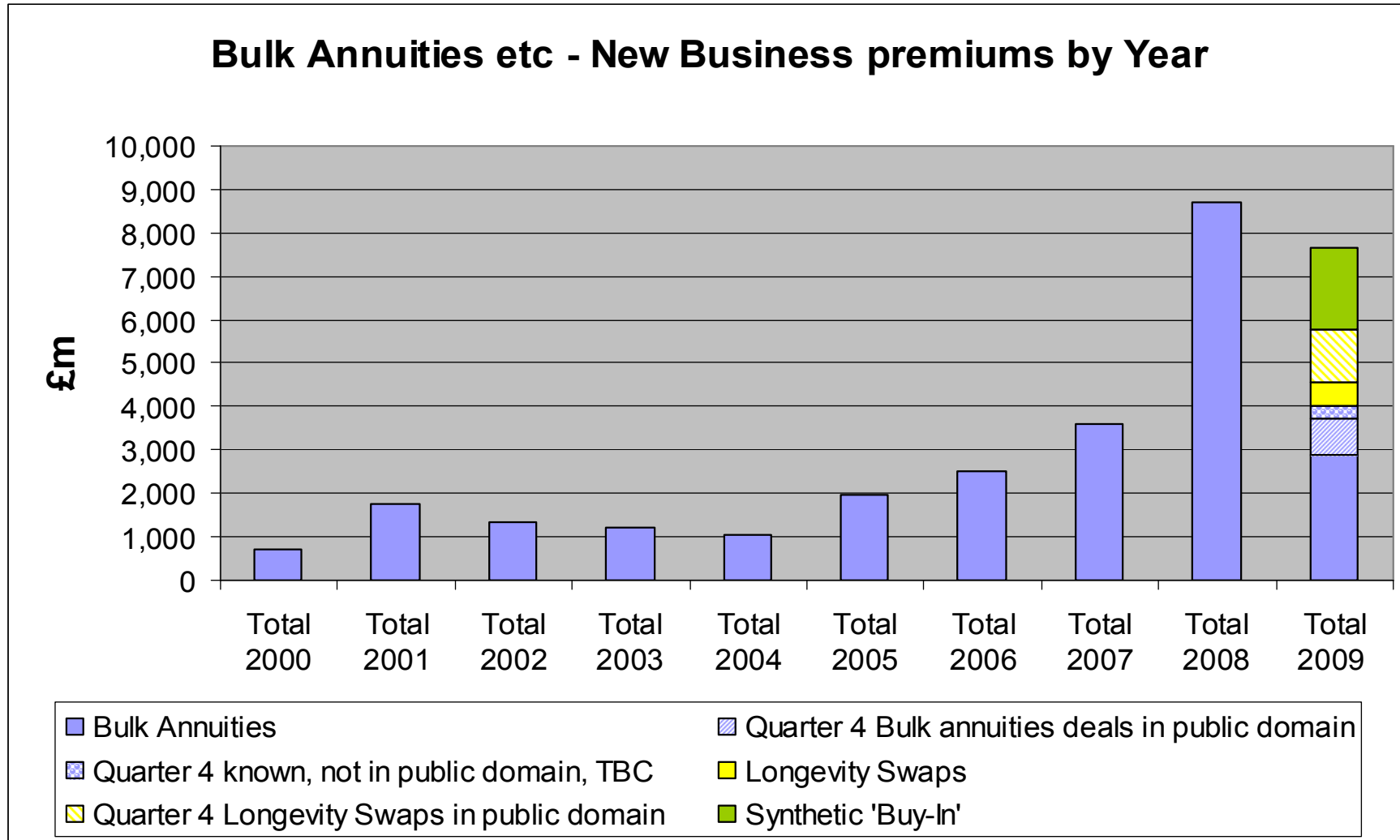
BMW	c. £3,000 million	
Berkshire County Council	c. £1,000 million	
Devonport Royal Dockyard	c. £330 million	
Babcock International Group Pension Scheme	c. £220 million	
Rosyth Royal Dockyard	c. £200 million	

INSURED BUY-OUTS

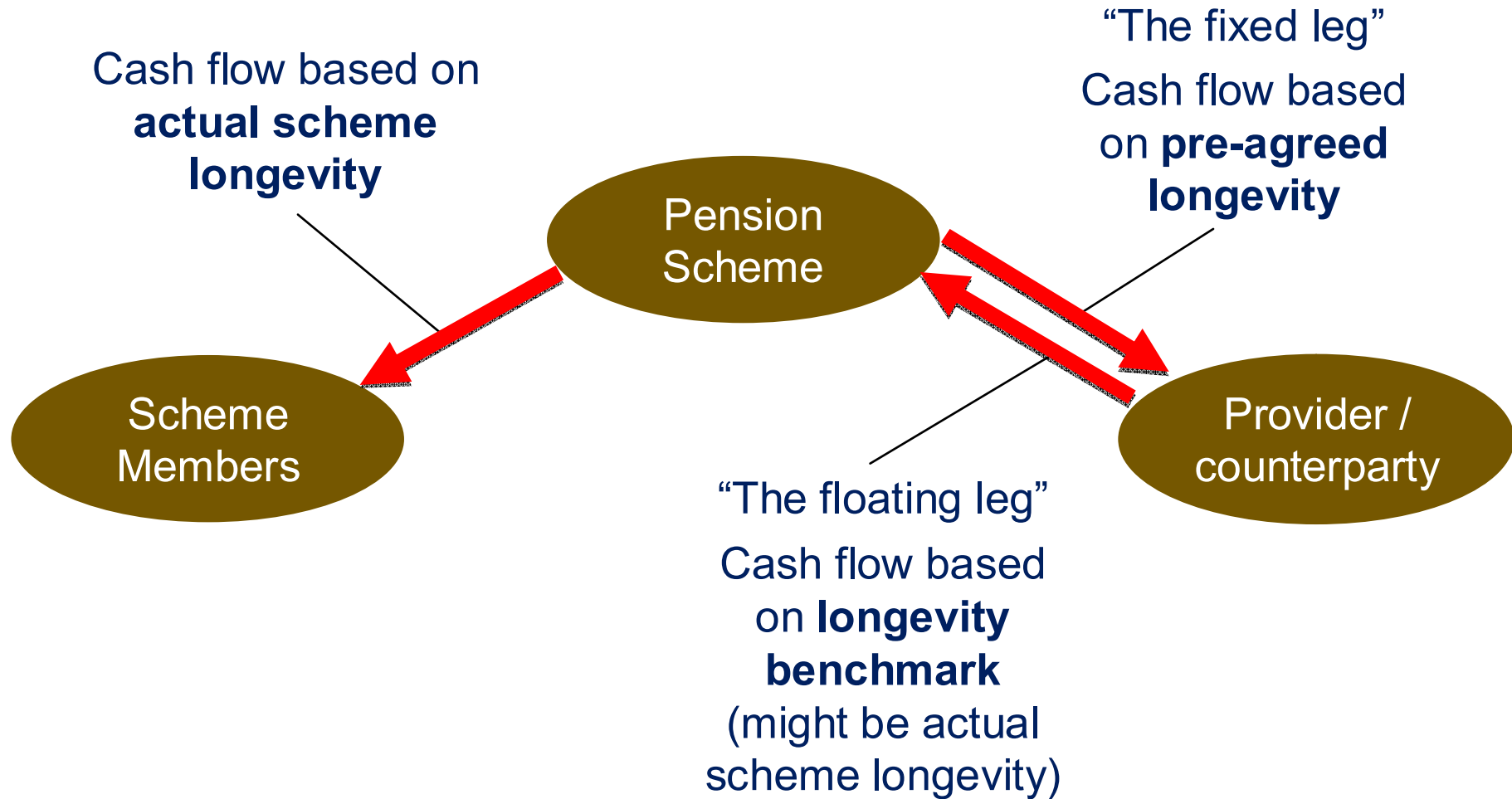
Thorn	c. £1,100 million	
Rank Group	c. £700 million	
Delta	c. £450 million	
Powell Duffryn	c. £400 million	
Leyland Daf	c. £230 million	
John Dickinson - DRG Scheme	c. £180 million	
M-Real	c. £180 million	
Electricity Association Services	c. £180 million	

Buy-ins/outs of varying size (£1m to £1bn), Longevity hedges larger (£200m to £3bn)

UK Deals Done by Year



What is a longevity hedge?



What is a longevity hedge?

There is a wide range of contract structures available, including:

Coverage	Pensioners only	vs	All members
	Members only	vs	Members and their dependants
Term	Whole of life	vs	Fixed term (e.g. 50 years)
Longevity benchmark	Actual scheme mortality (bespoke)	vs	General population mortality (standardised)
Structure	Insurance contract	vs	Capital market 'ISDA' contract (e.g. as for inflation swaps)
Payment method	Up front premium	vs	'Pay as you go' (cashless at outset)

The security of the contract will be a key feature of any deal and will depend on the structure chosen

UK Longevity hedge providers



- There are a number of longevity hedge providers in the evolving UK market including insurers, reinsurers and banks
- Different providers offer significantly different products
- A few providers are looking to hold the risk themselves (or at least warehouse it for a period), whilst most are passing on the risk to reinsurers and other investors.

Some of the providers in this market (not exhaustive)



Who might be interested?

- High pension liability to market cap ratio
- Already carried out de-risking of investment strategy
- Trustees / Company feel they can manage investment risk over longer term but wish to reduce other risks
- Buy-out / buy-in not immediately affordable
- Schemes who can manage the governance requirements of running a longevity swap
- Schemes with a strong reserving basis for longevity
- Those looking to create a synthetic buy-in within the scheme
 - To aim to achieve a lower price
 - To diversify counterparty risk

Why now?

- More pension schemes have de-risked in relation to financial risks
 - Reduced allocation to equities
 - Interest rate / inflation swaps put in place
- Asset values potentially remain depressed and annuities have become more expensive (compared to say autumn 2008), particularly with the uncertainty created by Solvency II
- Can be structured as cashless at outset so no need to sell depressed assets
- Existing assets retained - ability to keep current level of investment risk
 - Aim to achieve higher return to repair deficit
 - Could increase investment risk following reduction in longevity risk
- Pricing currently competitive (early mover advantage?)
 - May be able to transact with only small impact on funding level

What have Babcock done?



trusted to deliver™

- Trustees entered into 50 year swap arrangement with Credit Suisse
 - Trustees pay fixed leg based on expected pension payments based on Credit Suisse's expectation of mortality
 - Trustees receive floating leg based on actual pension payments based on actual mortality
- Hedged out
 - Mortality risk for c4,500 pensioners and their spouses and dependents
 - Higher than expected age difference
 - Higher than expected proportions married
- Effectively looking to achieve a synthetic buy-in over time
- Pension liabilities c£1.7bn v market capitalisation of c£1.1bn
- Pensions identified as a key risk to the business
- 15% increase in share price when first longevity hedge announced

Some of the key considerations

- Headlines:
 - Security
 - Cost
 - Flexibility
- Some other important points:
 - Data
 - Cash flows
 - Collateral build up
 - Funding
 - Administration
 - Documentation
 - Termination of the contract
 - Inflation impact

Security – ISDA capital market structures

- When the hedge has value to either party, that party will be subject to the risk that the counterparty is unable to pay in the future
- Both insurance and ISDA contracts can manage counterparty risks using collateral
- Under an ISDA arrangement, collateral is posted with the party who is in the money
 - Typically this can allow for **daily** adjusted collateral for financial conditions, **quarterly** adjusted for death experience, and **annual** adjustment for changes in future improvements
 - Innovative methods are being discussed that allow for collateral to be valued on a mark to market approach as these develop
- Beyond the collateral, under an ISDA arrangement, security will be provided by the bank's capital (required to maintain their credit rating)

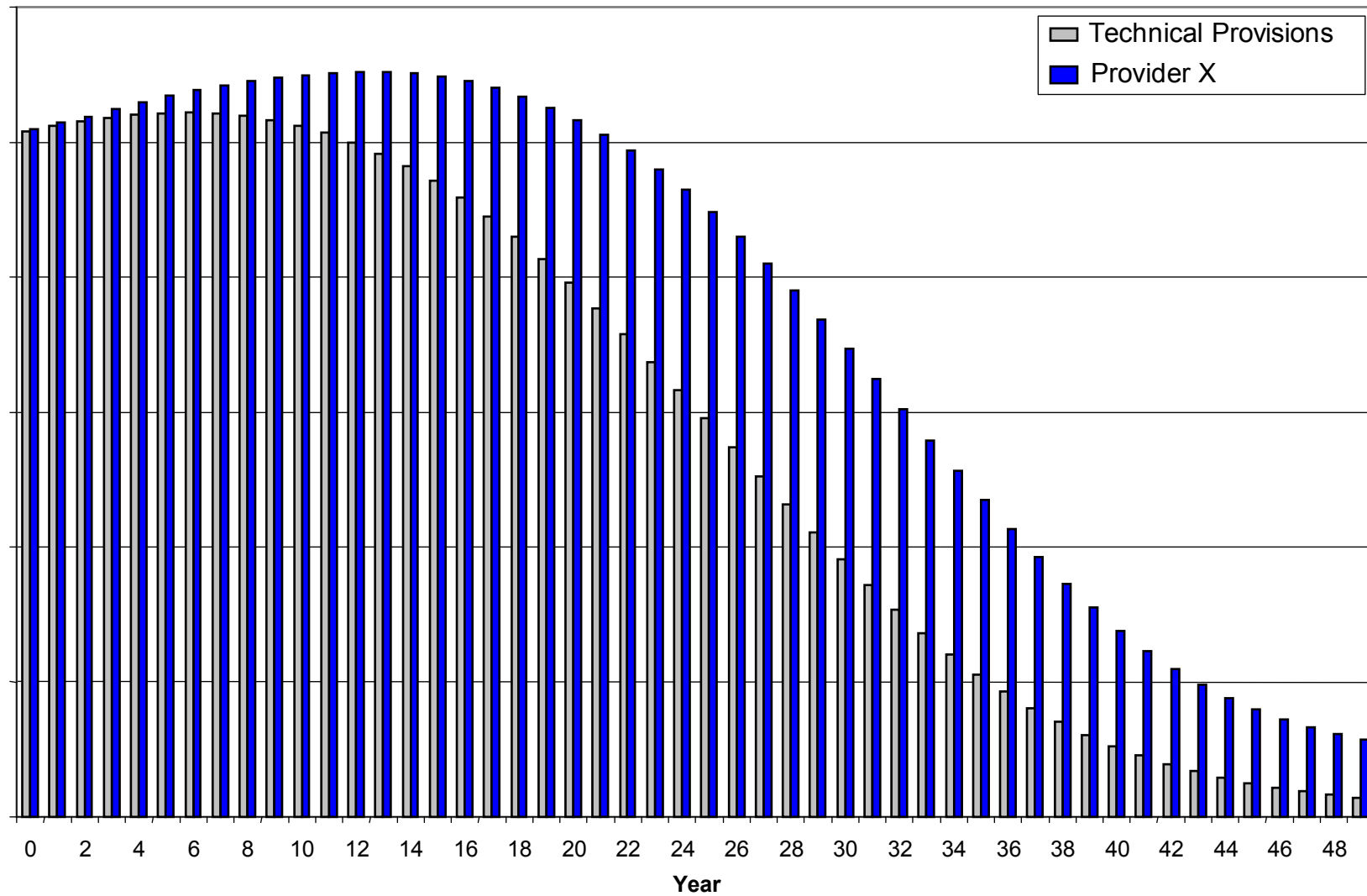
Security – Insurance policy structures

- The collateral arrangements under an insurance contract are more bespoke, but can involve
 - Posting collateral to the other party
 - Granting of changes
 - Posting collateral with a third party
- Under an insurance structure, security above collateralisation will come through
 - Reserving requirements
 - FSA oversight
 - Possible access to FSCS compensation

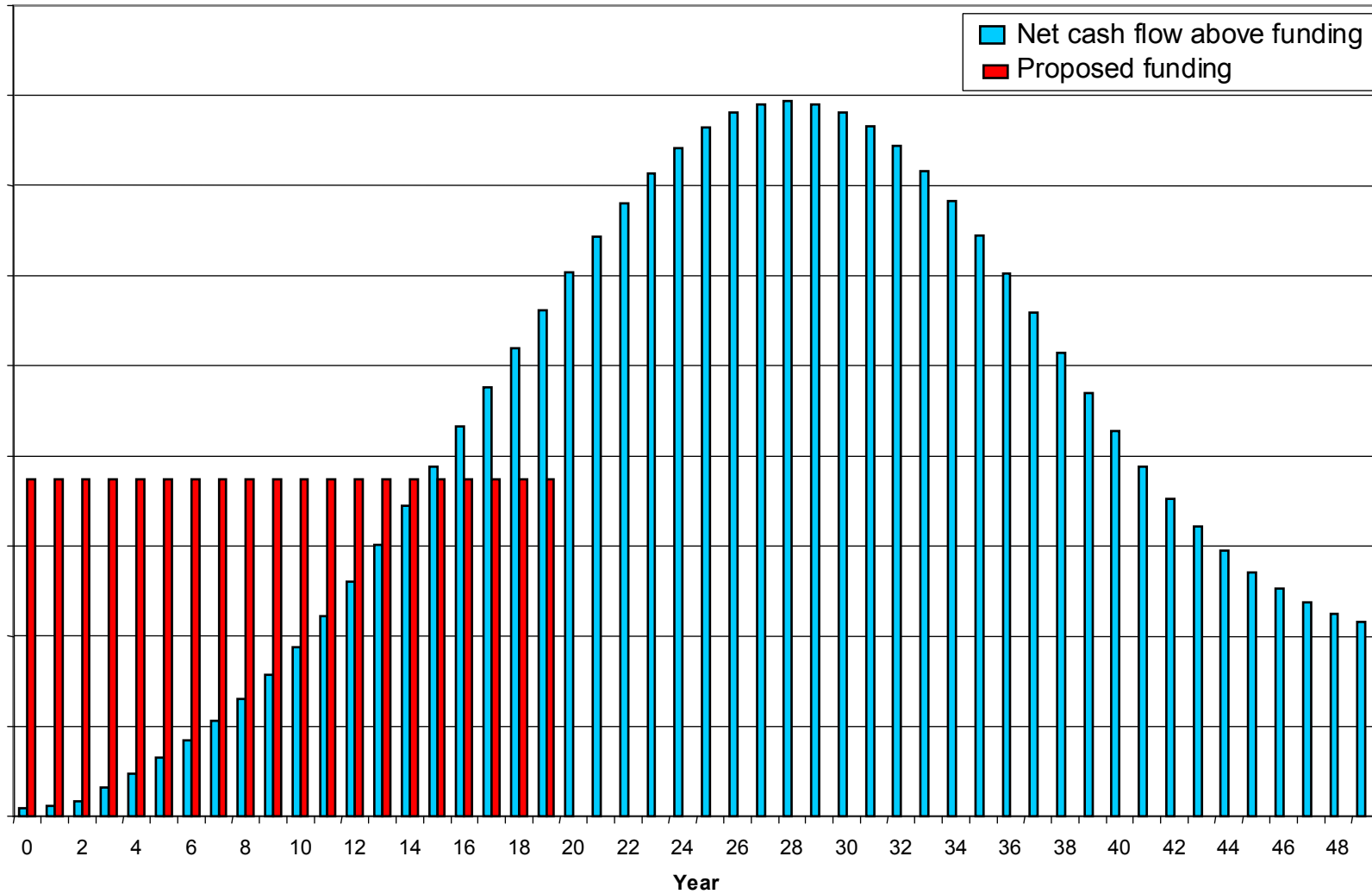
Flexibility

- Negotiation with the provider may be required to ensure the required level of flexibility
 - To allow full buyout / buy-in with the same or another provider during the contract
 - Will this be available when called upon?
 - Depends on how longevity hedge and buyout / buy-in market develops
 - Option to add future retirees to the policy
 - Ability to transfer policy to new employer / split between employers if necessary
 - Ability to surrender policy under prescribed circumstances

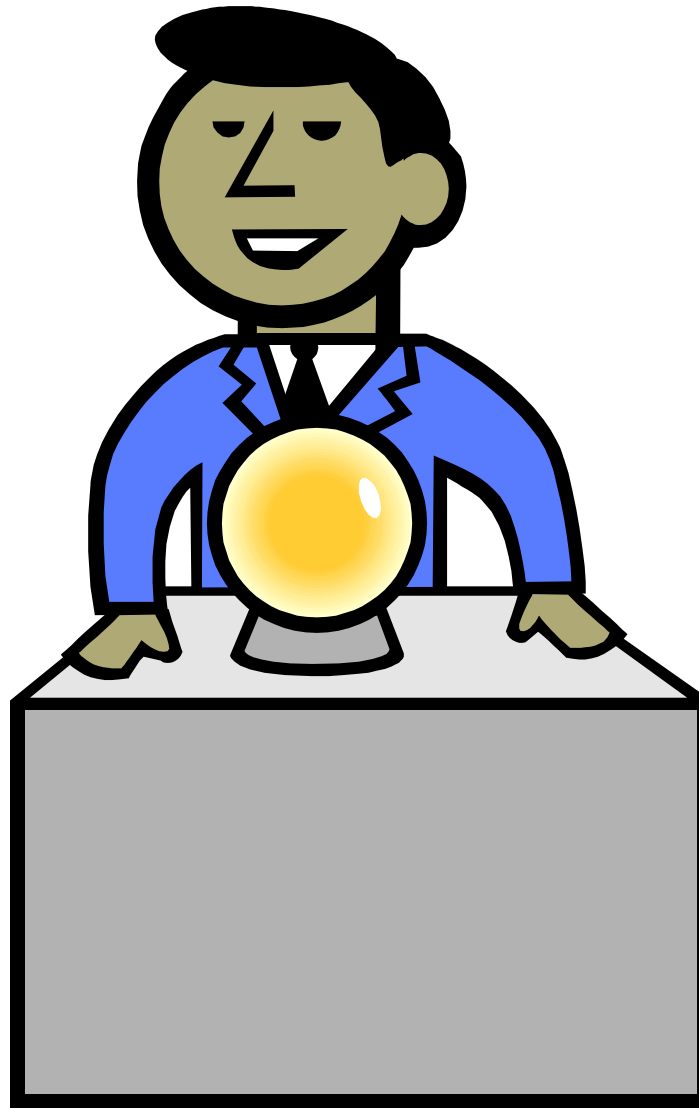
Fixed leg vs. cashflows projected on the technical provisions basis



Proposed funding vs. expected net cashflows on technical provisions basis



Future of the Longevity Hedging market place



Summary

- Difficult to measure/model longevity makes it a difficult risk to hedge, but equally therefore a risk pension schemes are keen to remove
- Longevity hedge 'proof of concept' now complete
- 7 longevity hedges completed in the UK covering £6.7bn of liabilities
- More transactions likely to follow this year
- Provider offerings are diverse in structure and coverage
- Transactions mostly large and based on pension scheme mortality
- Population based / Index based longevity hedging not yet traded
- Other Euro markets where longevity hedging for pension schemes could emerge
 - Holland?
 - Switzerland?
 - Germany?

Contact details

- Paul Kitson FIA
 - Senior Consultant
 - 21 Tothill Street, Westminster, London, SW1H 9LL
 - +44 20 7227 2162
 - +44 780 817 6377
 - paul.kitson@towerwatson.com

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