



The Actuarial Profession

making financial sense of the future

LIFE Conference & Exhibition

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Can annuity writers hedge their interest rate and inflation risk?

21-23 November 2011

Agenda

- Introduction to hedging strategies
- Choice of hedging strategy
- Common issues
- Case studies
- Lessons learned

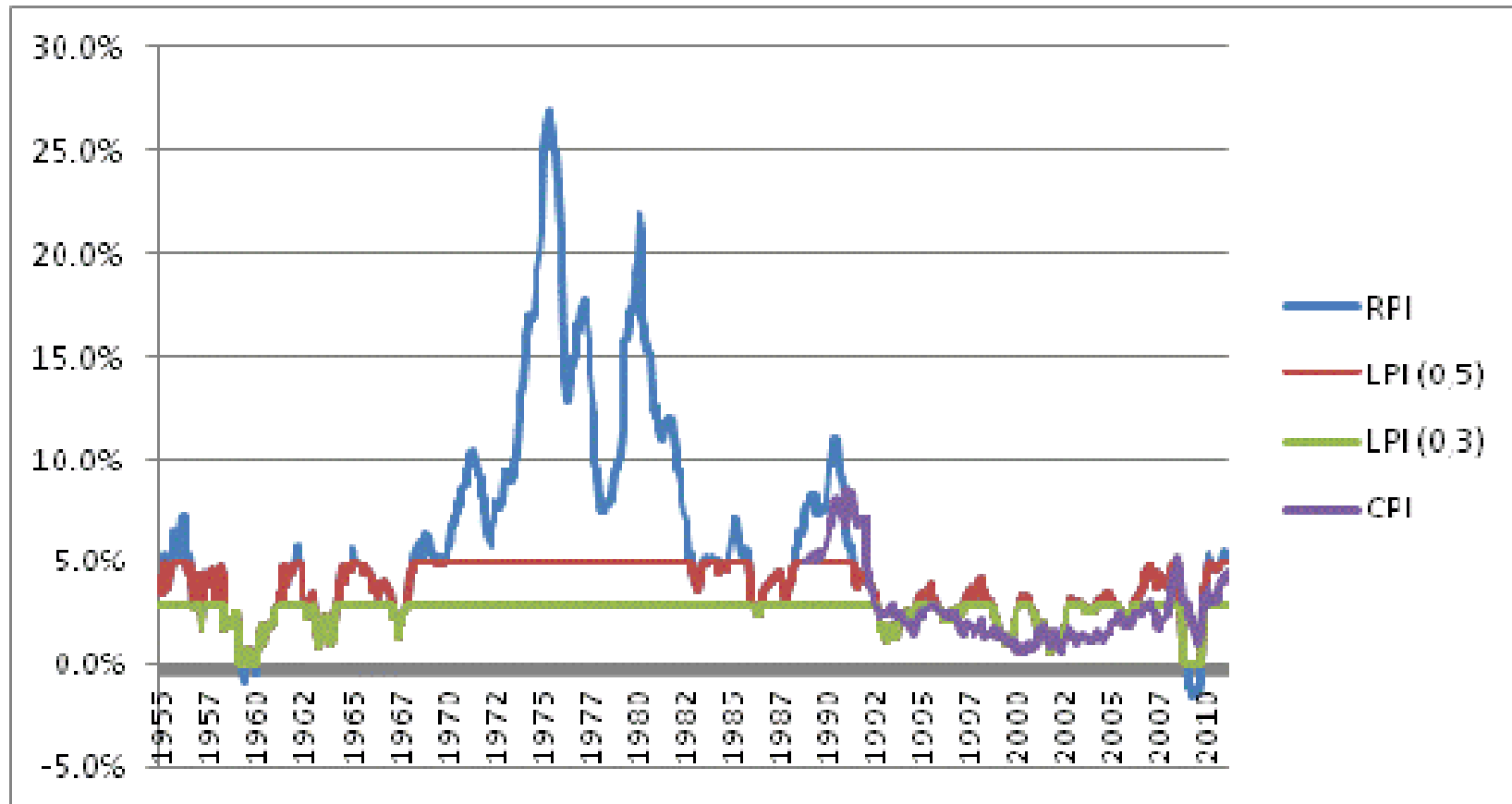
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Inflation & Interest Risk

- Interest rate risk- the risk of loss of value (or capital) due to changes in the risk free rate
- Inflation rate risk- the risk of loss of value (or capital) due to changes in an inflation rate metric (different metrics discussed later)
- Many companies consider interest rate and inflation risk to be unrewarded and so have low risk appetite for these risks.

Inflation risks



- Many inflation metrics

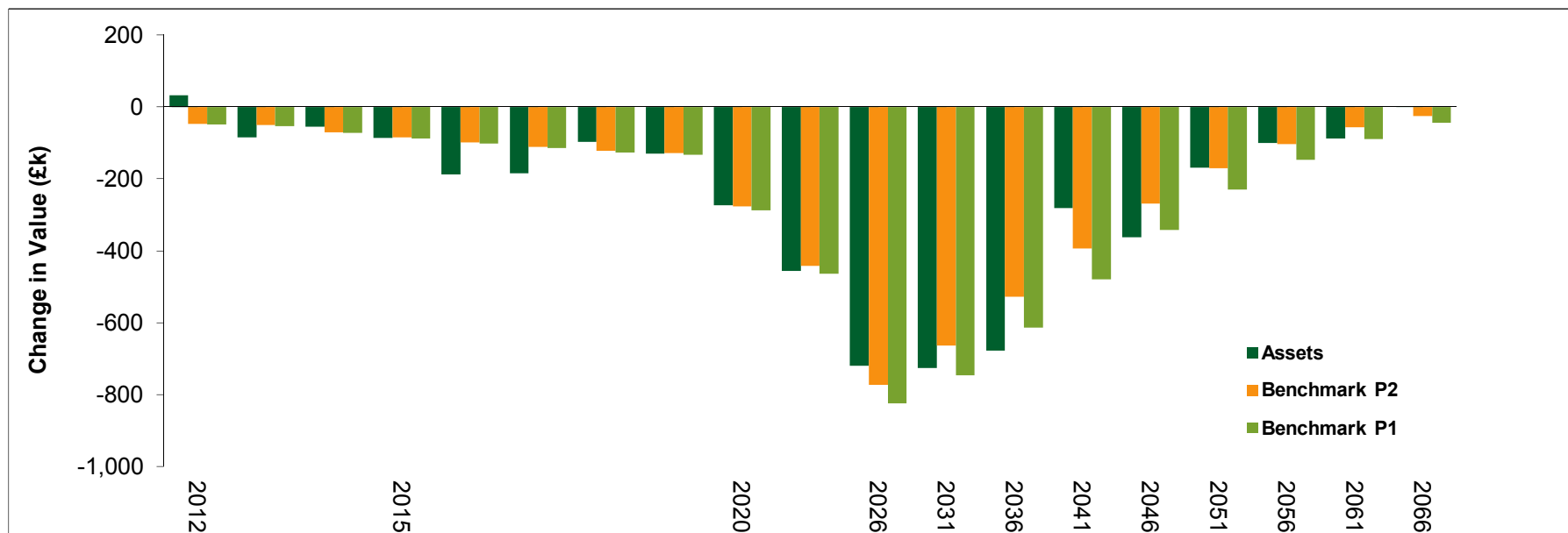
Introduction to hedging strategies

- 2 key hedging strategies usually utilised
 - Cashflow matching
 - Delta hedging
- Which cashflows should be matched?
 - Best estimate
 - Prudent
 - Best estimate plus capital
 - EV

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Delta hedging – pros and cons



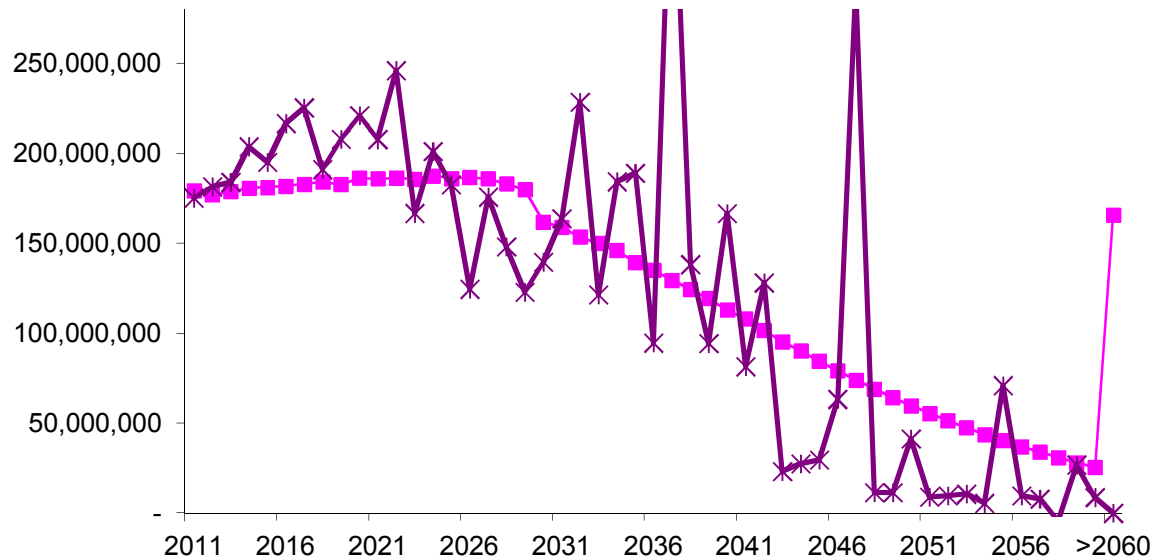
Pros

- Cost
- Generally well understood
- Works well for small movements

Cons

- Generally poor match for complex movements (i.e. large parallel shifts / twists / steepening / flattening)

Cashflow matching- pros and cons



Pros

- Very sophisticated hedge
- Matches complex movements well

Cons

- Expensive to maintain
- Requires significant rebalance upon assumption changes

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Common theoretical issues

- Convexity
- Flattening / steepening
- Choice of matching assets
- Discounting approach to liabilities
- Roll forward / pull to par
- Counterparty risk under Solvency II
- Impact on diversification/non-linearity capital

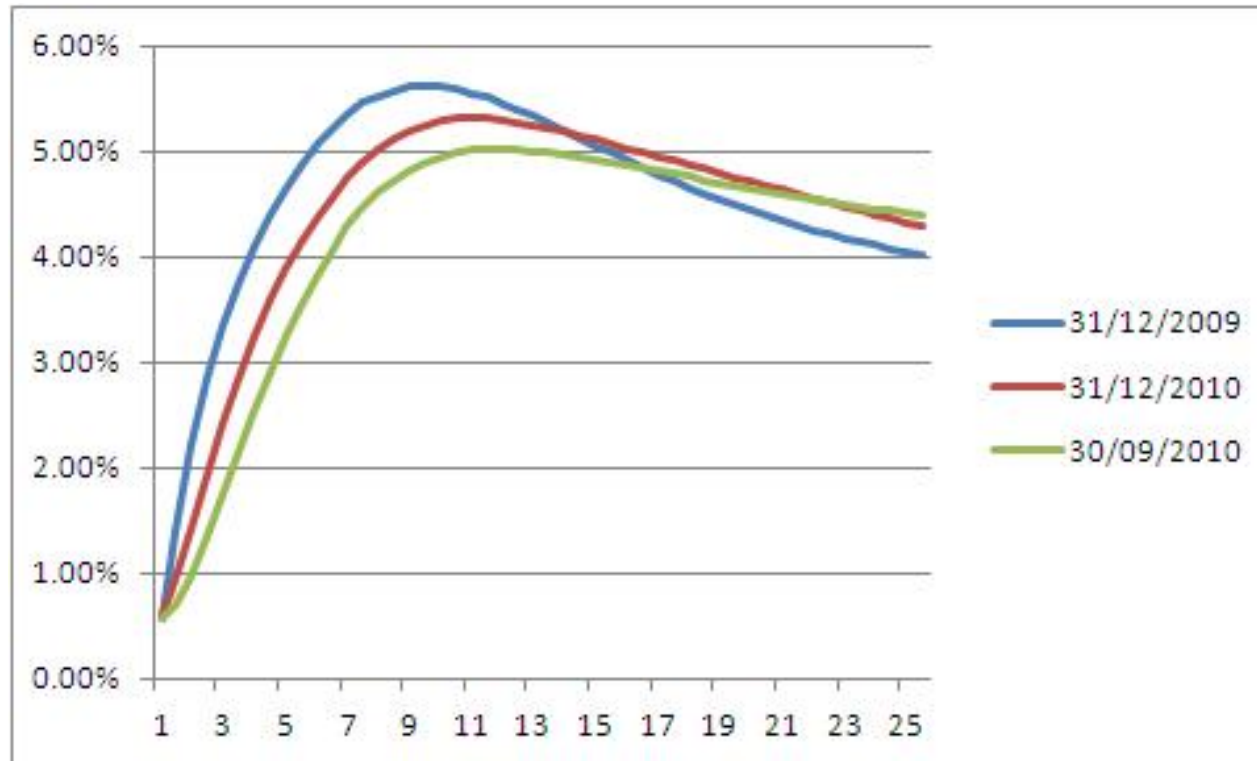
Common practical issues

- LPI- no liquid market
- Insuring on CPI linked liabilities
- Op risks:
 - Can't move fast enough to recalibrate
 - Talking the same language...
- Collateral requirements under delta hedging (or other) strategy
 - Cash only? (under EMIR)

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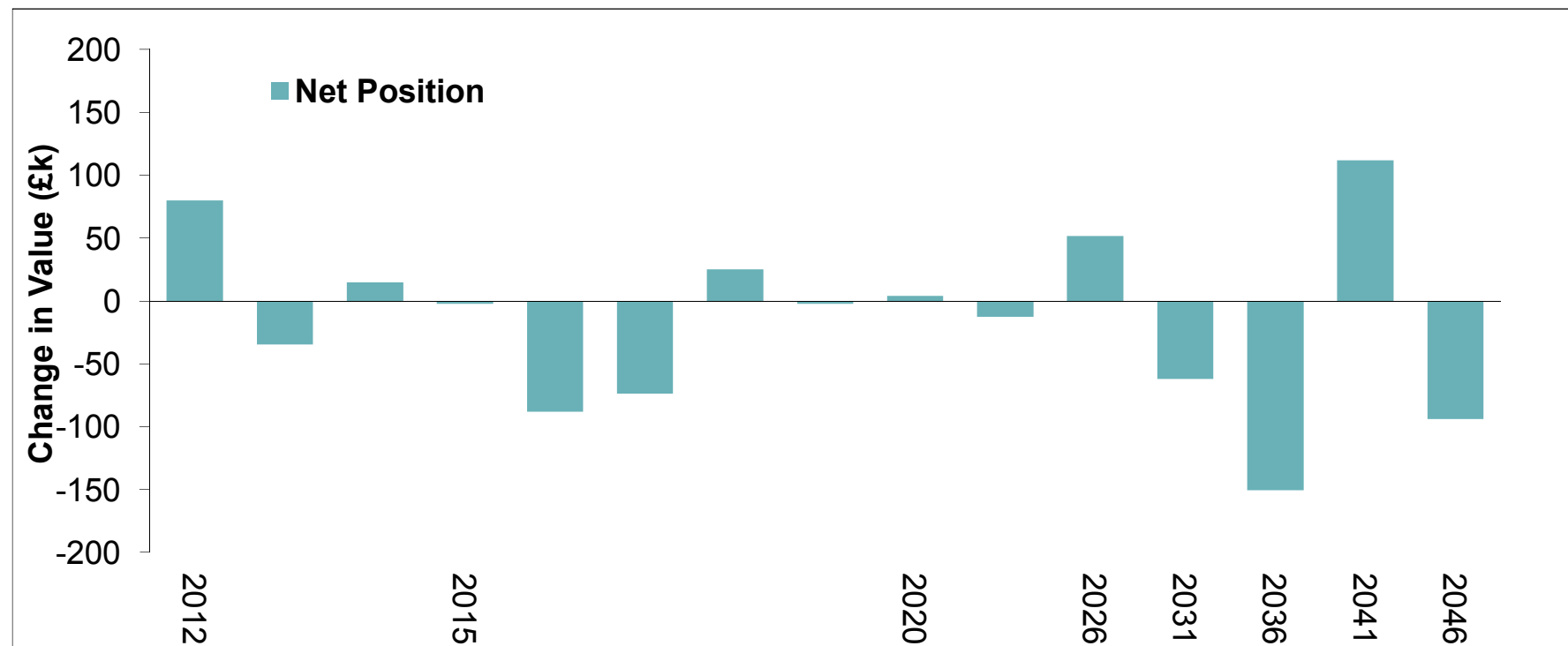
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Case study 1- Economic hedging (1)



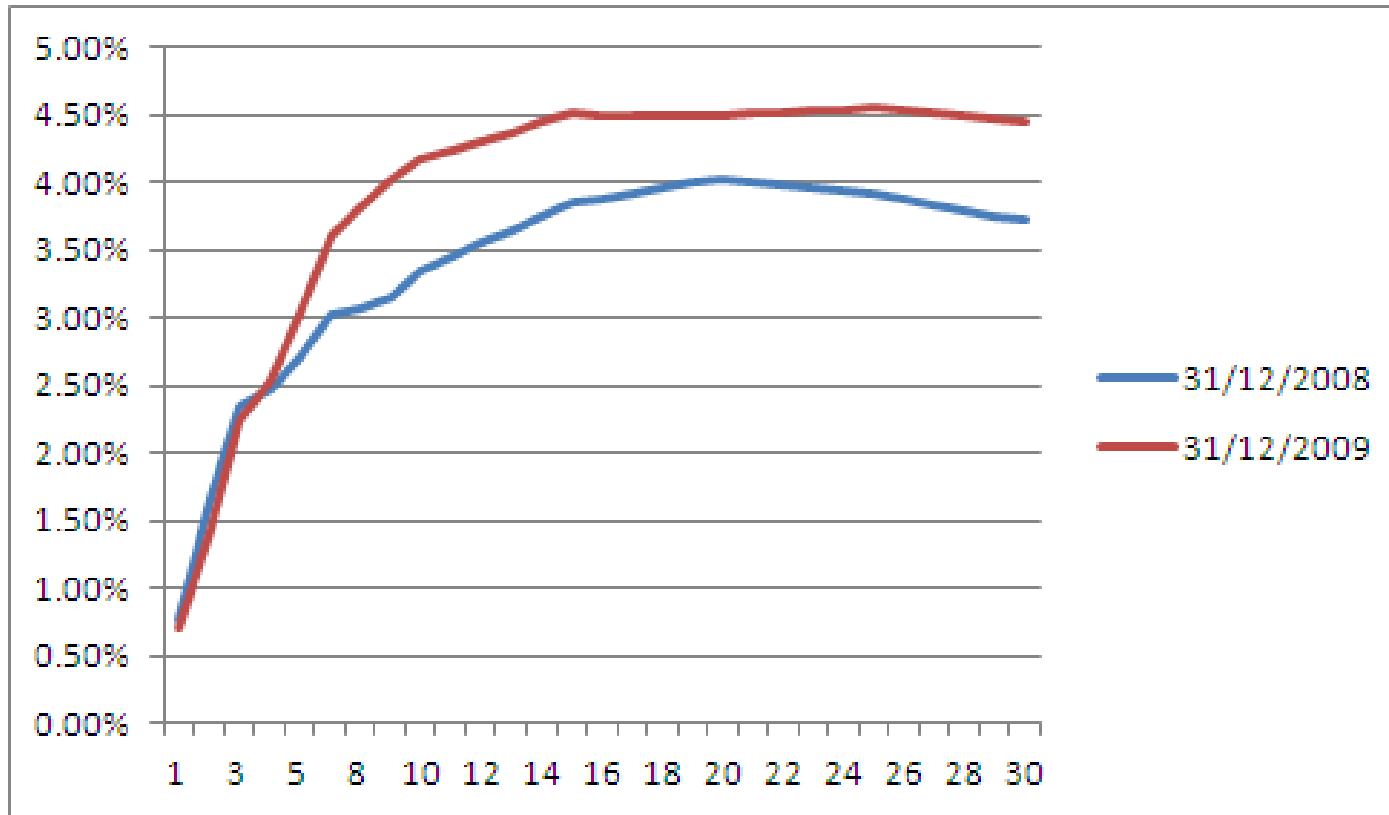
- Assuming notional mismatch, potential hit to solvency ratio of 1.3% to Sept; 0.5% to Dec.

Case study 1- Economic hedging (2)



- Graph illustrates the makeup of the net losses

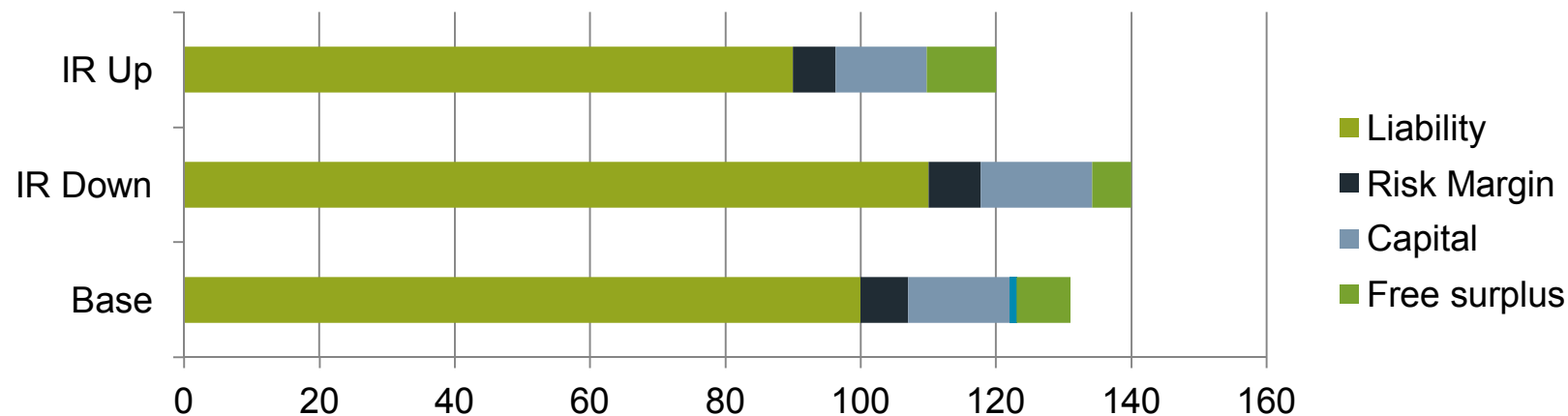
Case study 2- Solvency protection



- Assuming notional mismatch, potential economic loss of 1.9% of reserves.

Corollary- Solvency II hedging

- So, Solvency II changes all this doesn't it?
 - Can now just hedge to best estimate liabilities?
- But this doesn't protect you from balance sheet volatility
- SCR and risk margin are still interest rate sensitive
- So face either high SCR or volatility of free surplus



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Lessons learned (1)

- Ensure talking same language
 - Consider random scenarios to test matching
- Improve documentation of hedging construction and process
- Make a decision on what you're trying to protect and protect it!

Lessons learned (2)

- Role for life insurance actuaries to develop further knowledge in this important area
- Desire / requirement for daily hedging monitoring tool
- Link ALM and analysis of solvency processes
- Consider methods of increasing certainty of cashflows to make life easier

Questions
