Matching Adjustment Working Party

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07 November 2016

Matching Adjustment Working Party

- ✓ **Chair:** Ross Evans, Hymans Robertson
- ✓ **Deputy Chair:** Stephan Erasmus, Legal & General
- ✓ Michael Henderson, Barnett Waddingham
- ✓ Peter Maddern, Canada Life
- ✓ Keith Neil, Lloyds Banking Group
- ✓ Andrew Kenyon, Royal Bank of Scotland
- ✓ Ravi Dubey, Reliance Mutual Insurance Society

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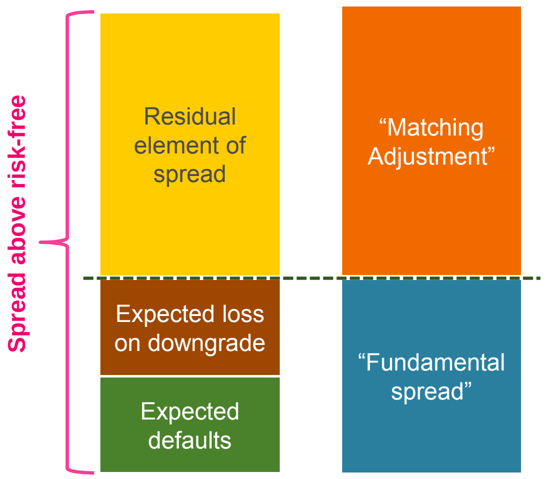
Matching Adjustment 101



- ✓ *Eligibility of assets*
- ✓ *Eligibility of liabilities*
- ✓ *Portfolio management*
- ✓ *Liquidity plan*

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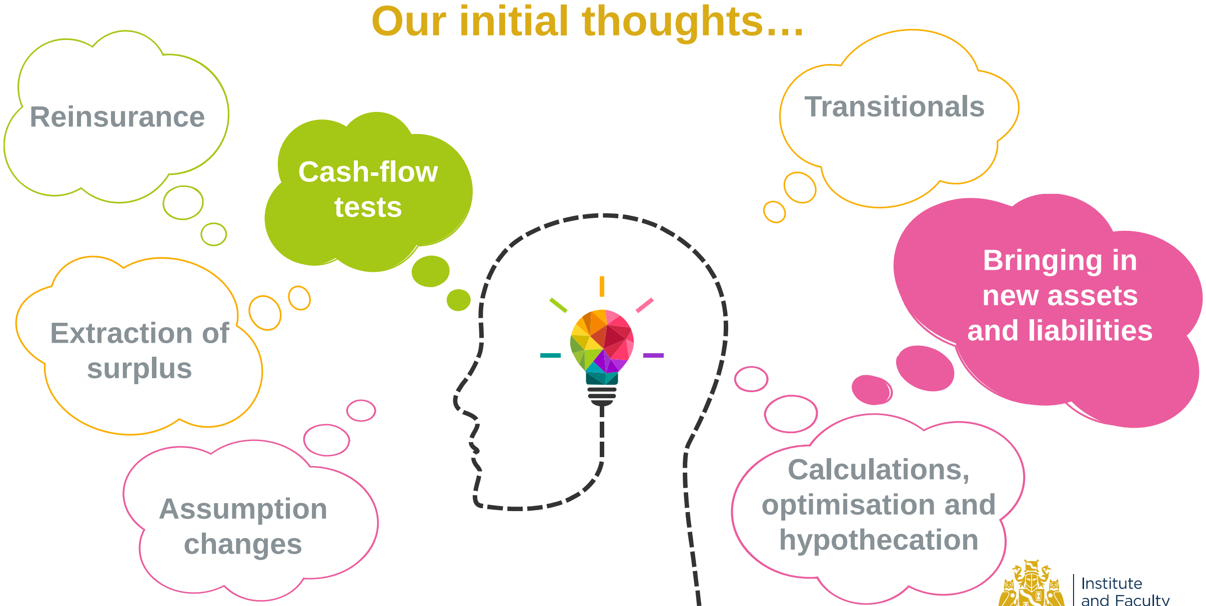
Our initial thoughts…



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Bringing in new assets and liabilities

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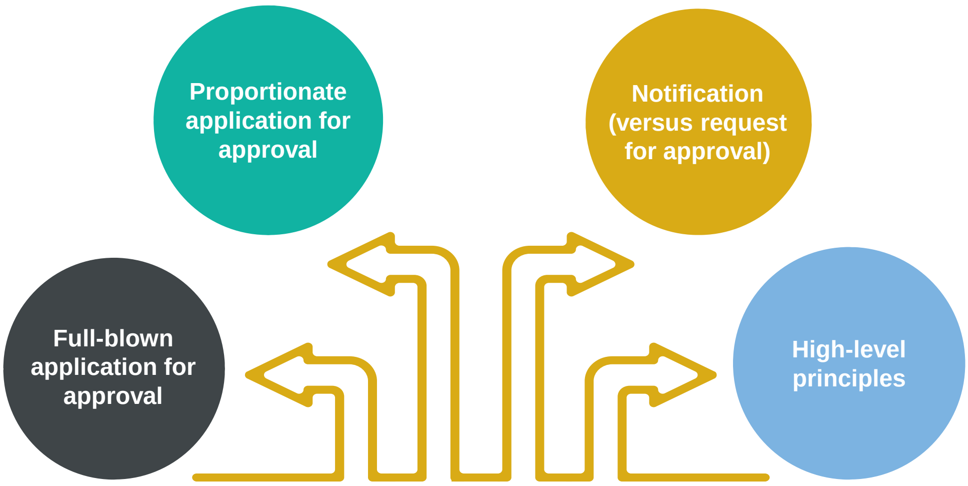
How firms are thinking about bringing in new assets and liabilities



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What do Solvency II and the PRA say?

"5.4 The PRA expects that any material change to MAP(s) after approval has been granted will require a new application for approval. In assessing whether or not a change is material such that a new approval is required, it will be necessary for firms to consider (among other things) whether any new asset and/or liability has the same features as those included in the scope of the firm's existing MAP for the purposes of Article 7(5) of the Implementing Technical Standards (ITS) regarding supervisory approval of the application of a MA.1 The PRA notes that the more bespoke the characteristics of any asset or liability, the more difficult it is likely to be to show that such asset or liability has the same features as existing assets and liabilities."

Consultation Paper | CP16/16
Solvency II: matching adjustment
April 2016

Underlining has been added by the IFoA Matching Adjustment working party

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Features, Features, Features

- How do you define a feature?
- How do "features" compare to all the asset and eligibility work firms have done for their MA applications?

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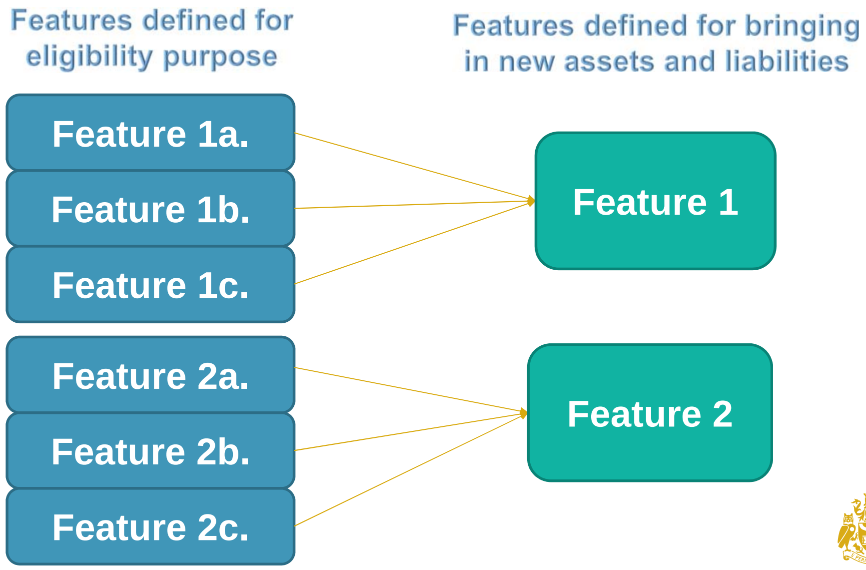
Defining what we mean by features



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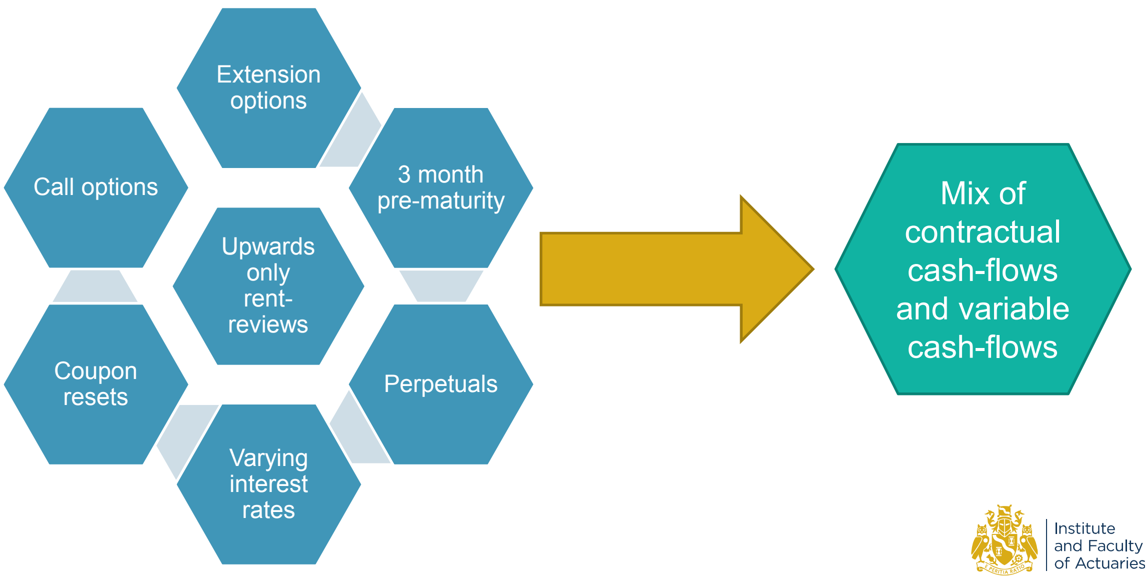
Asset example – variable cash-flows



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Asset has mix of contractually certain and uncertain cash-flows (e.g. call option)

Time	First Call CF	Final Call CF	CF for MA calculation
1	5	5	5
2	5	5	5
3	5	5	5
4	105	5	5
5		10	
6		**110**	100

Latest date taken for the 'certain' return of nominal

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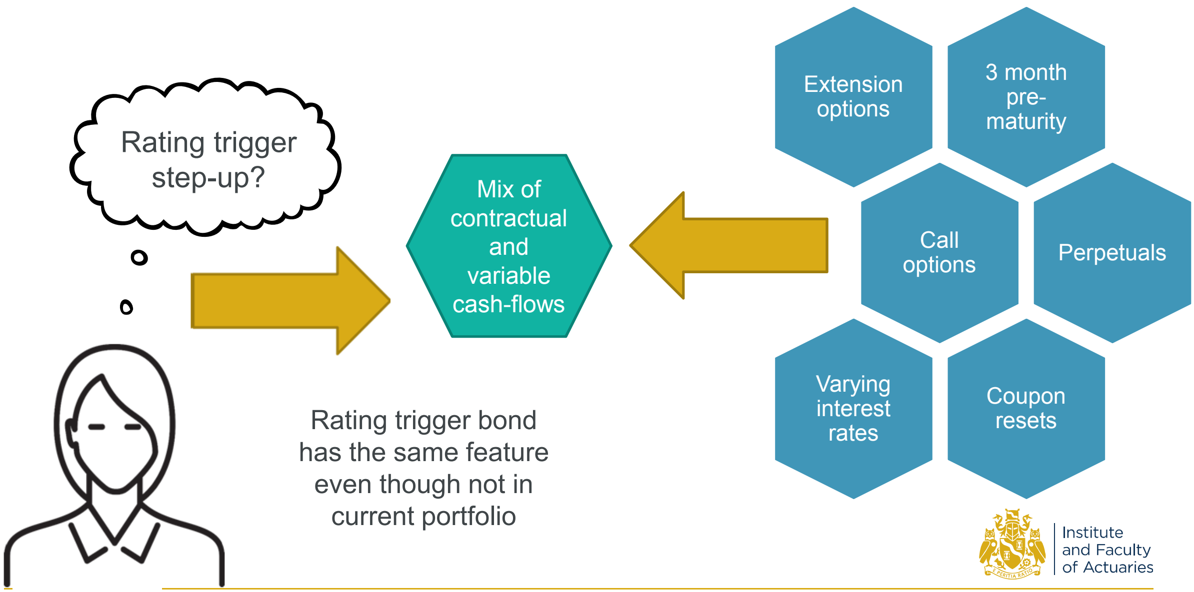
Source: IFoA Matching Adjustment working party – for illustration



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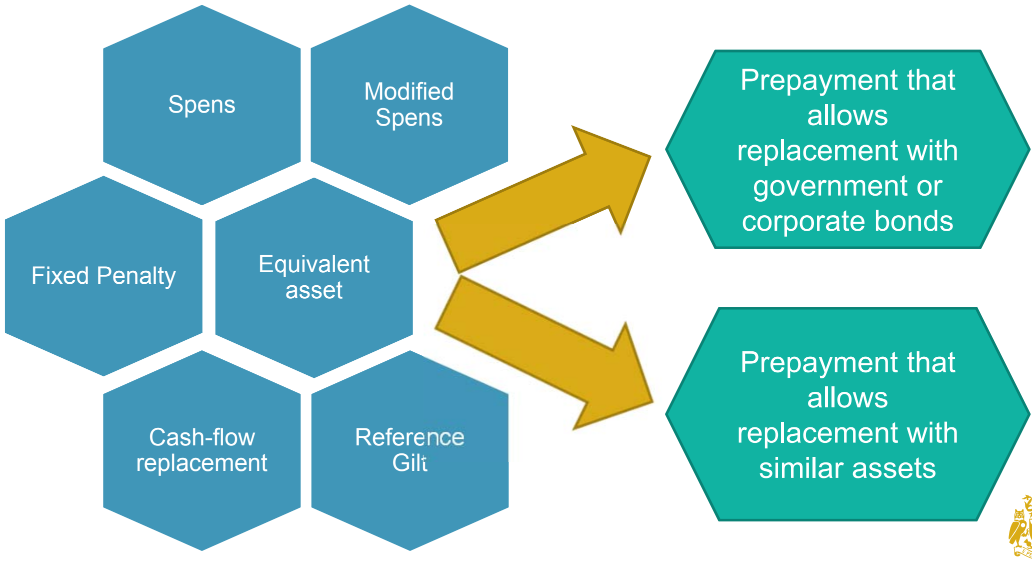
Asset example 2 – prepayment



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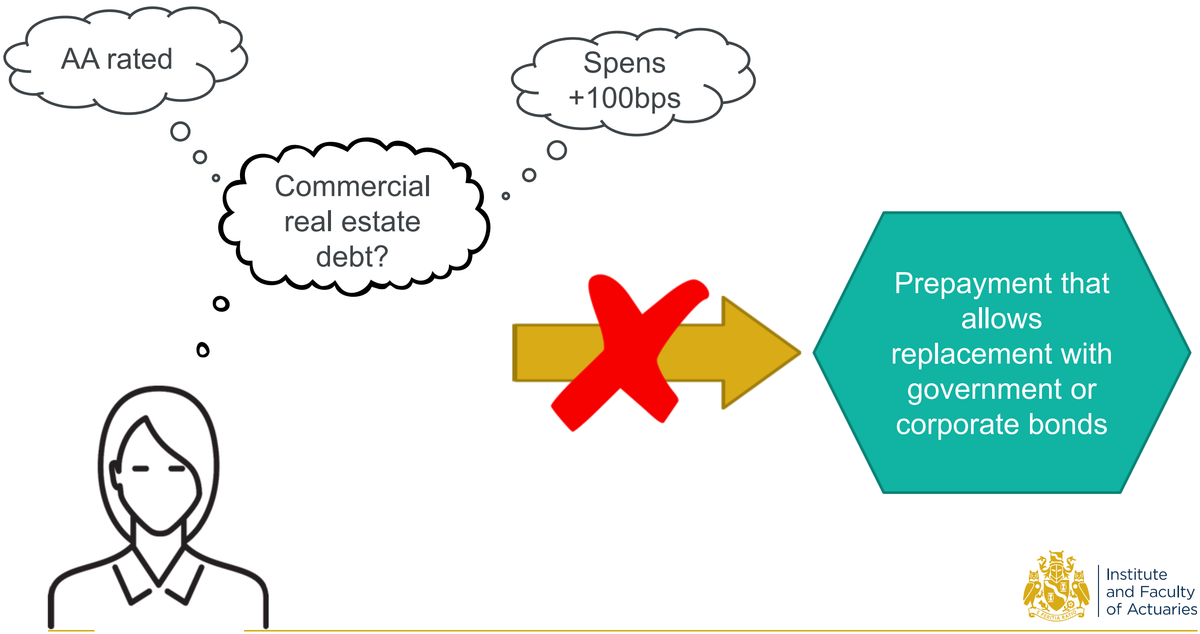

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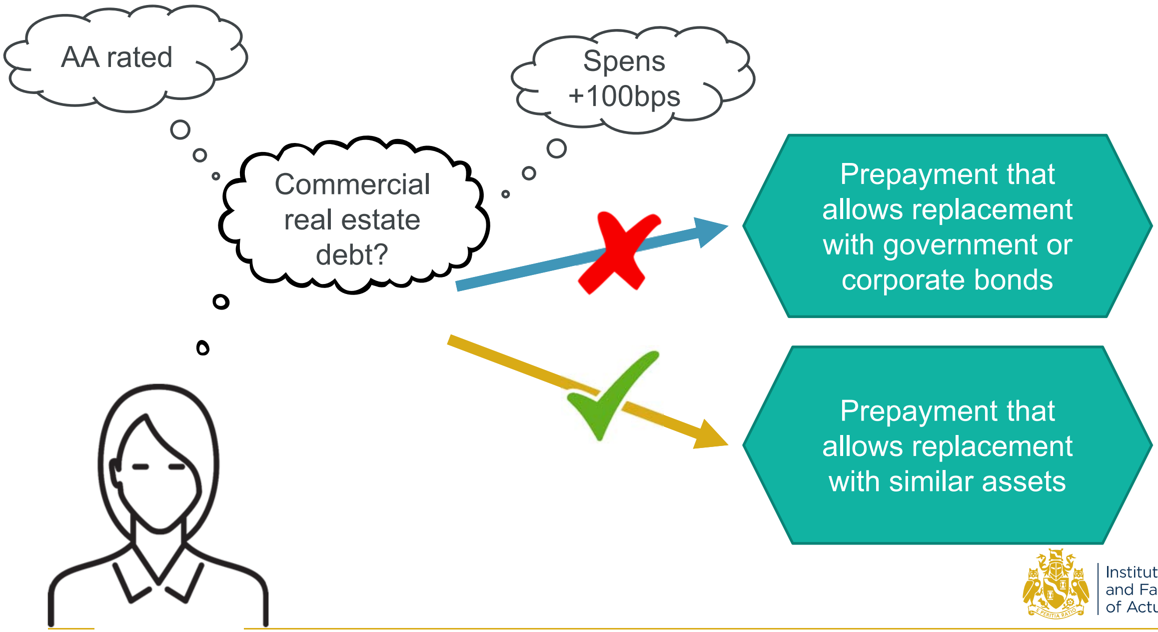

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What are the benefits of this approach?

- Still need to notify the PRA in many circumstances
- Internal governance process are key

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Cash-flow matching tests

- Background
- Key questions considered by working party
- Sensitivity testing
- Management of tests
- Alternative tests

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Background

Article 77b(1)(c) conditions

- "*…expected cash flows […] of assets replicate each of the expected cash flows of […liabilities…] in the same currency and any mismatch does not give rise to risks which are material in relation to the risks inherent* […*in the MA portfolio*]"

PRA MA tests

- PRA to have a "*…consistent approach…*" for assessing compliance against Article 77 cash-flow matching requirements
- **Test 1** - Discounted Accumulated Cash-flow Shortfall <3% of PV liabilities; test whether forced seller of assets.
- **Test 2** - 99.5th Percentile VaR < 1% of BEL; test level of interest rate, currency, inflation mismatching risk.
- **Test 3** - 99% < Notional Swap Ratio < 100%; test whether materially under-matched.
- Quarterly, unless writing new business – then carry out test 1 monthly.

2 month requirement

- PRA tests not "hard" requirement; e.g. does not imply breach, but equally does not mean portfolio is matched
- Firms to notify the PRA immediately where they breach thresholds, but then demonstrate how they continue to satisfy the eligibility criteria.
- If as a result of breach it is concluded that eligibility criteria are no longer satisfied, a firm will need to put in place a plan to remediate the position within 2 months.

Sources: Solvency II Directive Article 77(b), PRA letter 9 March 2015, IFoA Matching Adjustment working party

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Key questions

- How sensitive are the tests to various scenarios or asset strategies?
- How to manage sensitivity to tests?
- Alternative tests to show you are matched?

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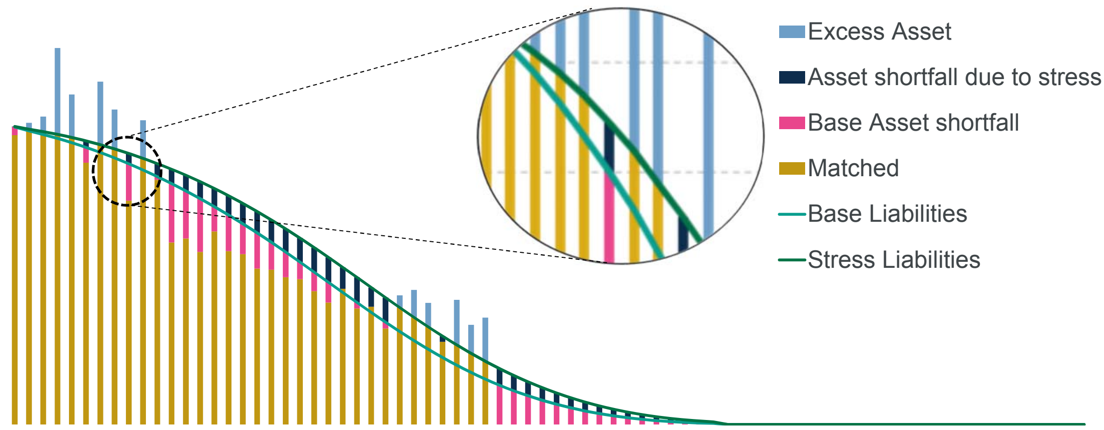
Sensitivity testing – Approach



Source: IFoA Matching Adjustment working party – for illustration

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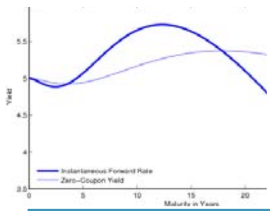
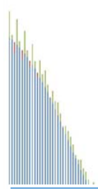
Sensitivity testing – Overview





Test 1

- Discounted accumulated cash-flow shortfall < **3% of PV liabilities**
- Test whether forced seller of assets

Test 2

- 99.5th percentile VaR < **1% of BEL**
- Test level of interest rate, currency, inflation mismatching risk

Test 3

- **99%** < notional swap ratio < **100%**
- Test whether materially under-matched

Source: IFoA Matching Adjustment working party – for illustration

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Sensitivity testing (Test 1 and 3) – Results

Absolute change in test result	Base Test 1	Base Test 3	Stress Test 1	Stress Test 3
Longevity scenarios			Longevity	Longevity
Base table (standard formula stress)	No change	No change	+8.17%	+8.48%
+ Longevity insurance [1]	+2.26%	+1.50%	+4.23%	+4.24%
Downgrade scenarios [2]			Downgrade	Downgrade
3 notches downgrade [3]	No change	No change	+4.36%	+2.72%
+ Gilts proportion \ asset reinsurance[4]	↑ Increase[5]	↑ Increase[5]	+3.36%	+2.16%

- 1) 50% longevity swap with 3% fee
- 2) Mix: Gilts 31%; AAA 10%; AA 13%; A 16%; BBB 18%
- 3) rating bracket downgrade: loss 3.38% / 5.92% (pre/post-capping as % of market value)
- 4) 20% fewer downgrades: loss 2.70% pre/ 4.73% post capping
- 5) Forego some spread, which would worsen test results

Source: IFoA Matching Adjustment working party – for illustration

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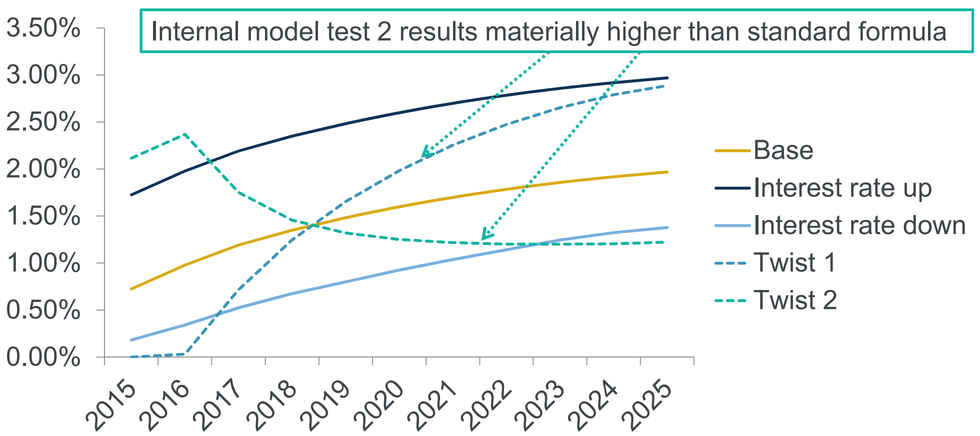
Sensitivity testing (Test 2) – Results



- +2% increase in Test 2 under longevity stress
- +0.5% under downgrade stress

Source: IFoA Matching Adjustment working party – for illustration

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Management of tests

- Mitigate adverse test results through:
  - management information (e.g. RAG status)
  - setting appropriate credit quality limits
  - defining trading strategy and management actions
  - reinsurance and hedging strategy
- Revisit cash-flow testing dependencies:
  - when and under what circumstances to highlight “breaches” to PRA
  - reflecting required trading strategy when calculating or validating internal model SCR
  - MA calculation methodology (e.g. capping applied to non-investment grade)
- Develop alternative tests / early warning indicators

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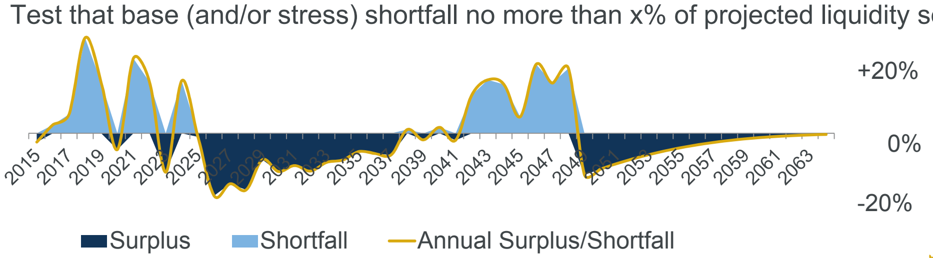
Alternative tests

- Early warning indicator tests showing level of compliance with PRA tests under range of scenarios:
  - This can then be referred to when scenarios materialise in practice
- Test that informs liquidity plan:
  - Incorporates all sources of liquidity (e.g. Gilts, cash, facility from group or treasury)
  - Test that base (and/or stress) shortfall no more than x% of projected liquidity sources



Source: IFoA Matching Adjustment working party – for illustration

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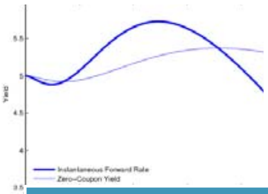
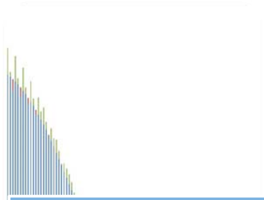
Concluding remarks on cash-flow tests

Test 1
- Sensitive to early year shortfalls and risk-free rate
- Does not take into account all sources of liquidity
- Does not take into account nature of cash-flows (e.g. RPI vs fixed)



Test 2
- More difficult to meet for internal model firms
- Relies on estimations (e.g. monthly calculations)
- Inflation VaR expressed as % of total portfolio (e.g. rather than as % of linked portfolio)



Test 3
- Incentivises slightly longer liability vs asset duration
- Test on whether enough assets, effectively defining assets used for other tests

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Source: IFoA Matching Adjustment working party – for illustration

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What next?

"What should the working party focus on next?"

1. Influencing the public debate on the features principles discussed today
2. Optimisation of the MA asset hypothecation
3. Dealing with breaches
   – definition, reporting requirements, time to rectify
4. Potential changes to operation of MAPs post Brexit
5. Treatment of reinsurance
   – summary of possible approaches
6. Surplus extraction from the MAP
7. Something else!

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